



2017-2037

# Student Enrollment Projections

PRELIMINARY REPORT FOR THE MADISON METROPOLITAN SCHOOL DISTRICT

July 18, 2016

Vandewalle & Associates, Madison





**Preliminary Report**

*for the*

**Madison Metropolitan School District**

*regarding*

**Student Enrollment Projections  
2017-2037**

**July 18, 2016**

VANDEWALLE & ASSOCIATES, INC.  
Madison, Wisconsin

## Acknowledgements:

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## Executive Summary:

### Study Purpose

As part of its long-range facility planning efforts, MMSD requires a refined approach for predicting enrollment arising from new development and changes in enrollment within existing developed areas. As urban development approaches the outer edges of the District's boundary, and as redevelopment becomes an increasingly important source of new housing, these issues are critical.

### Study Approach

The study period examined MMSD enrollment through the 2036-2037 school year in five-year segments. The projection model applied current MMSD student enrollment rates to 26 specific residential building forms, ranging from single-family homes to downtown redevelopment mixed-use buildings. Using these "residential typologies", future development was mapped on more than 300 redevelopment locations and more than 2,000 greenfield locations on the periphery of the District.

Development locations, typologies, and timing were confirmed by planning department staff in Madison and Fitchburg. The model also factored in the continued decline in students per household at a rate of about 1% for every five-year period, consistent with official projections. Three Scenarios were examined, varying by the pace of development. Scenario 3, based on an extrapolation of population growth in MMSD, between 2010 and 2015, was identified as most likely.

### Key Findings

#### 1. District Territory is Approaching Build-Out by 2040

Under the selected scenario, by the year 2040, all the developable lands in MMSD's territory (including the transferring areas from the Middleton-Cross Plains and Verona Area School Districts) are likely to be fully developed. After that point in time, all future changes in land use will occur solely through redevelopment. The economics of redevelopment require greater densities, resulting in a larger proportion of apartments – which have lower student generation rates. As a result, MMSD enrollment is likely to decline after greenfield build-out. If current household size trends hold constant, the resulting rate of enrollment decline will be about 1% for every five years following build-out in about 2040.

#### 2. Future Development has Very Low Student Generation Rates

About 80% of new dwelling units constructed within MMSD during the study period will be in large-scale multi-family and mixed-use buildings. Student generation rates within such buildings are currently very low – about 0.03 MMSD students per dwelling unit. When combined with fewer MMSD students originating from existing development, future development yields only 1,670 additional MMSD students, despite a growth in general population of 61,917 persons.

#### 3. Future Development Results in a Modest Increase in Total MMSD Enrollment

The combination of redevelopment throughout the District and greenfield development concentrated in the Kennedy, Elvehjem, Olson, and Stephens attendance areas, will likely offset shrinking enrollment from existing homes and lead to a gradual increase in overall enrollment through the study period – from about 27,100 in 2015 to about 28,800 in 2037.

#### 4. Enrollment change is not equally distributed throughout MMSD between 2017 and 2037

The Memorial High School attendance area will gain about 1,120 students by 2037, and LaFollette's attendance area will gain about 461 students. The West attendance area will increase by about 37 students, while the East attendance area will decline by about 22 students. The following table provides enrollment projections within each attendance area by five-year periods.

<b>Projected MMSD Enrollment by High School Attendance Area</b>					
<b>High School Attendance Areas:</b>	<b>2015-16</b>	<b>2017-2022</b>	<b>2023-2027</b>	<b>2028-2032</b>	<b>2033-2037</b>
East Attendance Area	6,065	6,121	6,095	6,078	6,043
LaFollette Attendance Area	5,438	5,637	5,705	5,744	5,899
Memorial Attendance Area	6,947	7,153	7,396	7,677	8,067
West Attendance Area	7,357	7,381	7,423	7,384	7,394
Other Schools	1,305	1,328	1,343	1,355	1,379
<b>Total MMSD Enrollment</b>	<b>27,112</b>	<b>27,620</b>	<b>27,962</b>	<b>28,238</b>	<b>28,782</b>

#### 5. Enrollment Trends for Race and Ethnicity will Result in Moderate Change

Trends in the race and ethnicity of MMSD’s students have moderated over the last five years. Projections for this study extrapolated these trends. As a result, the share of enrollment for Hispanic or Latino students is projected to increase from 20.5% in 2015-2016 to about 29.8% in 2036-3037. The multi-racial student share is projected to increase from 9.1% to 12.4%. The share for all other groups is projected to decline, with the African-American student share declining from 17.8% to 12.5%, and the white student share declining from 43.2% to 37.9%.

#### 6. Enrollment for English Language Learners will Decrease and Free/Reduced Lunch will Remain Stable

Trends in the English Language Learners and Free/Reduced Lunch students have also moderated over the last five years. Projections for this study extrapolated these trends. As a result, the share of enrollment for English Language Learner students is projected to decrease from about 23% in 2015-2016 to about 19% in 2036-2037. The share of Free/Reduced Lunch students is projected to remain steady at about 48%.

#### Key Variables

Many factors could affect these projections. These have the greatest potential effect:

- About 22,000 owner-occupied homes within MMSD are currently occupied by a head of household age 55 or greater. Most of these homes will be up for sale at least once during the study period through 2037. If these homes become popular with young fecund Millennial households, the projections in this Study could be low. This possibility is greatest in the Schenk, Allis, Kennedy, Glendale, and Crestwood attendance areas. The Randall, Shorewood, Van Hise, and Marquette attendance areas could also see enrollment gains due to this factor.
- If existing Millennial residents in new urban apartments in central neighborhoods desire to remain in their neighborhoods as parents, the residential market is likely to respond with significant reinvestment in older Isthmian homes, flats, and new townhouse units. This could result in enrollment gains, particularly for the Lapham and Franklin attendance areas.
- New schools in adjacent districts, or within MMSD, will alter these projections. MMSD has documented the effects of proximity and new facilities. These factors cut both ways.

The projection methodology employed by these projections is designed to be updated, so as to provide indication of these, and other key variables, as early as possible.

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# I. Introduction

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## A. Purpose of the Study – More Accurate Long-Range Enrollment Projections

The Madison Metropolitan School District (MMSD) recognizes that long-range enrollment projections provide a critical foundation for long-range planning. The results of this study will be incorporated into MMSD's forthcoming Long Range Facility Plan (LRFP).

MMSD has a long history of success in projecting enrollment resulting from *existing* residential development. Based on existing and short-term enrollment patterns with a focus on cohort-survival analysis, as modified by trends in the general population and live birth data, this historic approach has produced generally accurate results.

The “Wild Card” in these historic projections has been the more unpredictable influence of areas of *new* residential development. Such development has been located in subdivisions located near the perimeter of MMSD's attendance area in acreage parcels converting from farmland to projects with a suburban character. These “greenfield” subdivisions have historically been dominated by single-family detached homes, with a sprinkling of duplexes, townhouses, and small- and mid-scale multi-family development.

Over the last ten years, however, such greenfield residential development has greatly diversified in format and density -- adding small-lot single-family, alley-loaded single-family, large-scale multi-family (with under-building parking), and a variety of neighborhood scale mixed-use development providing between one to three stories of residential development located over commercial and office land uses.

A second important development trend has been the strong emergence of mixed-use redevelopment. Between 1995 and 2005, such redevelopment was generally located near the Capitol Square and focused on high-end condominium development. As the development market has recovered from the Great Recession, residential redevelopment has greatly diversified in both format and location. Additional residential redevelopment locations are being added to municipal and neighborhood plans to the extent that redevelopment now represents a dominant form of new development in many parts of MMSD's attendance area.

It has become apparent to MMSD leadership that a refined approach to predicting student enrollment is possible. The purpose of this study is to provide increased accuracy for long-range enrollment projections. To accomplish this, a new methodology is required that combines the historic strengths of MMSD's cohort survival approach, with an approach that reflects the diversifying nature of housing types and their unique enrollment signatures, combined with an approach that is more predictive for the location and format of new greenfield and redevelopment. Beyond predictive advantages, this new methodology is designed to be easy to update – so as to remain a useful tool well into the future.

## B. Fundamental Question

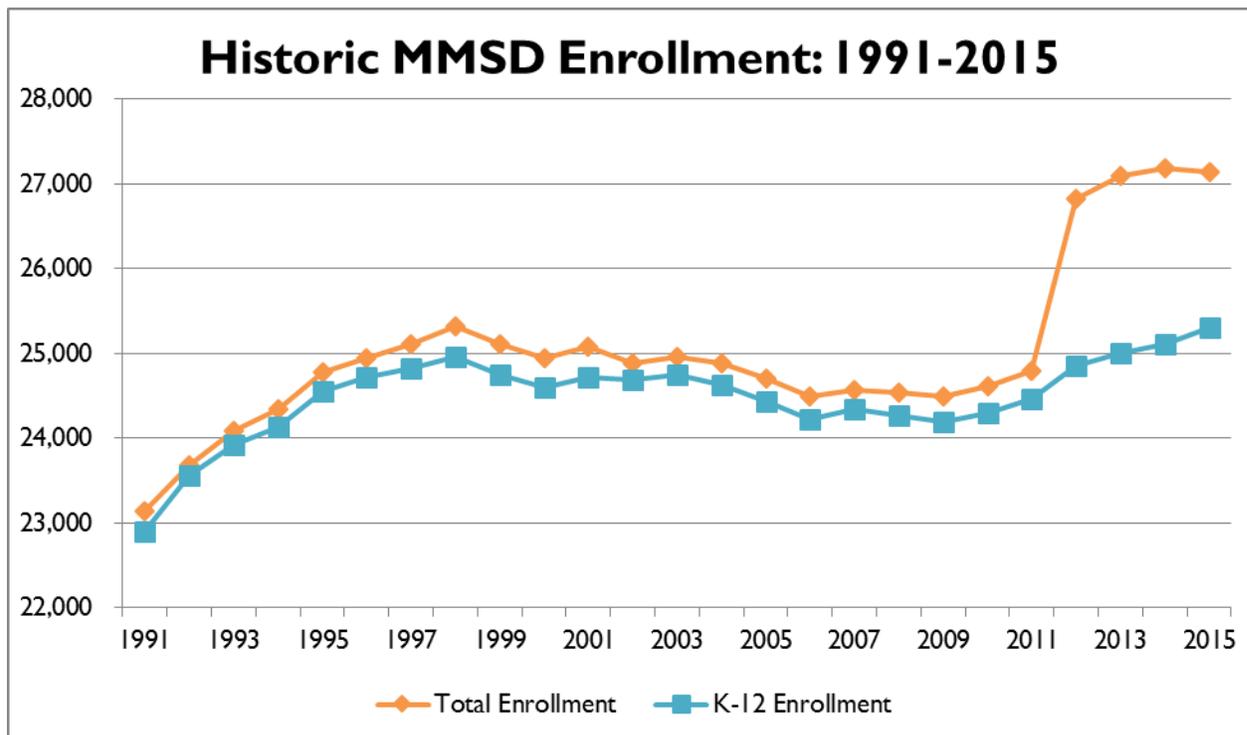
Enrollment in MMSD schools exhibits a long-standing conundrum:

*Why has MMSD enrollment remained so stable from 1991 through 2015 – in the face of steady population gain within the District’s boundaries?*

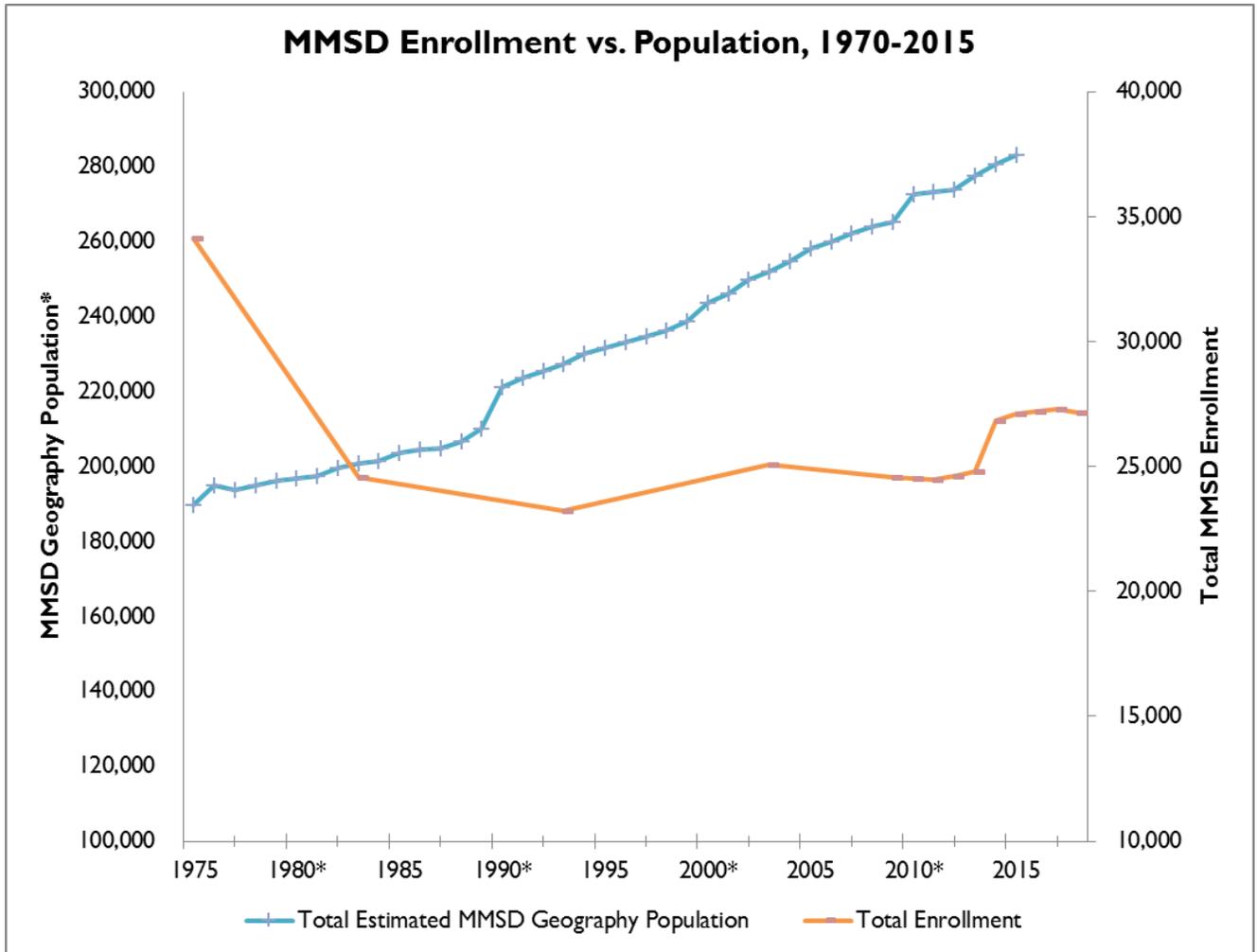
As the following table and graph show, K-12 enrollment has centered on about 24,675 students for 20 years, despite an increase in the population of the District’s territory of about 50,000 residents. In fact, K-12 enrollment variation has never exceeded more than 1,500 students from year to year. Note the “bump” in total enrollment resulting from 4K classes in 2011-2012.

<b>Historic MMSD K-12 Enrollment 1991 through 2015</b>						
School Year: ⇒	1991 -1992	1995 -1996	2000 -2001	2005 -2006	2010 -2011	2015 -2016
Elementary Schools	11,696	12,201	10,915	10,879	11,960	12,304
Middle Schools	4,776	5,470	5,765	5,146	5,059	5,342
High Schools	6,435	7,054	8,044	8,193	7,452	7,585
<b>Total MMSD Students</b>	<b>22,907</b>	<b>24,725</b>	<b>24,724</b>	<b>24,218</b>	<b>24,471</b>	<b>25,231</b>
MMSD Area Population	≈186,500	≈194,500	≈202,000	≈214,000	226,308	≈241,500

Source: MMSD Enrollment Records 1991-2016, U.S. Census Bureau, and Vandewalle & Associates



Source: MMSD Enrollment Records 1991-2016



Source: MMSD Enrollment Records 1991 – 2016

\*Historic estimates for actual MMSD geography are unavailable prior to 2010. District population estimated from combined annual DOA population estimates and official decennial Census counts (where applicable) for the City of Madison, Village of Maple Bluff, Village of Shorewood Hills, Town of Blooming Grove, Town of Burke, Town/City of Fitchburg, and Town of Madison.

This report will help address that fundamental question, and others facing the District:

- Is total enrollment likely to remain stable?
- Where and when will new development likely occur?
- What is the likely impact of redevelopment?
- If MMSD’s borders remain fixed, when will new development fill all vacant land?
- How will the composition of MMSD’s enrollment change?
- What schools are likely to undergo significant changes in enrollment, and when?

### C. Organization of this Report

This report is organized to present key findings in a series of clear statements, followed by the most important supporting data and trends. A summary of study conclusions is presented in the last chapter. The bulk of contributing data, analysis, and maps are presented in the separate appendix to this report or are housed in digital form.

### D. Future Applications of this Methodology

An important objective of the project team has been to undertake a methodology that is transparent so as to draw a clear connection between data and conclusions; and to facilitate keeping the data base, Geographic Information Systems (GIS) mapping, and analysis current.

To fulfill this objective and avoid a “black box” experience, no packaged analysis software was employed. Analysis and production were limited to Arc GIS for mapping and calculating Student Generation Rates and Projections, MS Excel for data compilation and trend analysis, and MS Word for the report itself. The “Potential Areas and Agents of Change” graphic was produced in Adobe Illustrator. MMSD has in-house capabilities with each of these. Use of these commonplace products also enables a quick learning curve and ensures the ability to maintain the methodology into the future.

Municipal planning department staff and data bases have provided a rich source of the essential data related to adopted comprehensive and neighborhood plans, recently approved and proposed development projects, and detailed building permit information.

MMSD’s current and historic enrollment database has been invaluable. The availability of detailed enrollment records covering more than a decade, in a geo-coded digital format, has been fundamental to this analysis.

Finally, this analysis has also tapped into a significant range of U.S. Census data related to household characteristics (which is now available for MMSD’s 2010 geography), official population projections provided by the Wisconsin Department of Administration, and enrollment data provided from the Wisconsin Department of Public Instruction and MMSD.

### E. Resulting Implications for MMSD

MMSD will be able to continue to apply the methodology used in this study well into the future, given its reliance on readily available data sources and commonplace analytical tools. The same combination of data sources, in-house staff, municipal planning department insights, and supplementary expertise for emerging household and population characteristics and broad metropolitan trends, will be sufficient to maintain this valuable analytical tool.

## II. Factors Affecting Development-Related Enrollment

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**Key Finding:** MMSD is located at the center of a dynamic metropolitan area.

The following five factors support the areas and agents of change identified in this study. Specifically, these factors are at the root of the forces affecting the pace of development and population growth, the location of residential development, and the rate at which new housing generates school age children. These factors are fundamental to predicting future enrollment for MMSD and its almost 50 schools.

### Potential Areas and Agents of Change Map

This discussion is focused on the following map of Potential Areas and Agents of Change. MMSD's border is depicted with a solid black line on this map.

#### A. Stable and Evolving Regional Economy – shown in Purple

The economy of Dane County, including Madison, is nimble and evolves to keep pace with local, statewide, and regional needs, and to a growing degree is interconnected with national and international economies. As a result, according to the U.S. Bureau of Labor Statistics, over the last decade the Madison metro area has accounted for 41% of Wisconsin's net employment growth. This success has continued remarkably stable population growth. MMSD is positioned at the center of a vital and diversifying regional economy.

The region's economic backbone has historically focused on government, education, medical care, research, finance/insurance, food processing, and skilled light manufacturing. Madison remains unusual in the continued dominance of strong employment located in the central city. Significant employment in technology development has recently become a critical growth factor. The map on the facing page highlights future employment development areas affecting MMSD in *purple*.

- In addition to the West and East Washington Avenue axis between Park Street and the Yahara River, the Park Street / USH 14 corridor centered on the Beltline, in the southern part of the District is likely to see significant tech employment growth.
- The new UW Research Park II will begin to development on the south side of Mineral Point Road west of CTH M just within the District's border, and Epic is likely to continue to expand just beyond the southwest corner of the District.
- A large potential east side growth node is located along I-94, east of I-39, between CTH TT on the north and Milwaukee Street on the south – just within MMSD's eastern border. The development of this area as a major employment node is dependent upon the placement of a potential new interchange where Reiner Road and Sprecher Road cross under I-94. Although employment has been long planned in this location, only recently has the Wisconsin Department of Transportation (WisDOT) been receptive to interchange development.

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# MMSD & Potential Areas/Agents of Change 2017 - 2037

**MMSD BOUNDARY**

**Central City Densification & Potential High Capacity Transit/Circulator**

**Oscar Mayer Redevelopment & Corridor Repositioning**

**Major Growth Area +40,000 Population**

**Future Employment**

**Potential New Interchange**

**Stoughton Road Reconstruction - Crossings, but freeway barrier**

**Major Tech Employment Growth Area**

**MMSD BOUNDARY**

**UW Research Park II**

**Major Growth Area**

**Proposed BRT**

**City of Madison**

**Employment Growth Area**

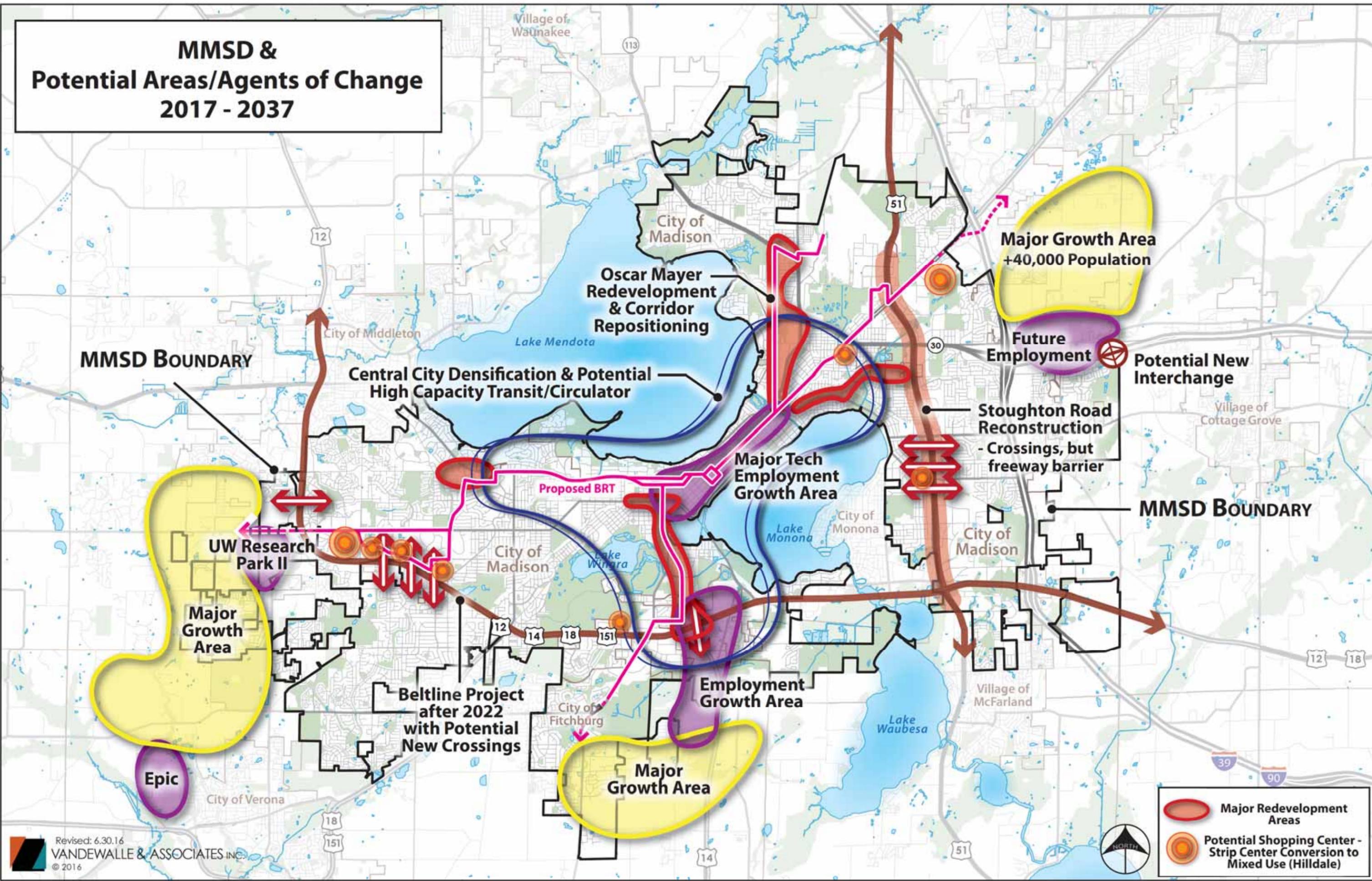
**Beltline Project after 2022 with Potential New Crossings**

**Major Growth Area**

**Epic**

**City of Verona**

-  Major Redevelopment Areas
-  Potential Shopping Center - Strip Center Conversion to Mixed Use (Hilldale)



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## B. Isthmian Madison is Unique and Vibrant – shown in charcoal and red

Our lakes are at the heart of what makes central Dane County unique. They create a truly unique setting for government, commerce, and neighborhoods. The historically strong activity axis along State Street expanded around the Capitol Square in the 1990s. The reinvigorated city vibe is now extending out from downtown along Madison's three central isthmi – northeast along East Washington Avenue to the Yahara River; south along Park Street to Wingra Creek; and west along University Avenue. Redevelopment is appearing in each corridor. Isthmian Madison, the location of MMSD's oldest schools, is thriving.

- The City of Madison's new Long-Range Transportation Plan: *Madison in Motion*, calls for the development of a Bus Rapid Transit (BRT) system in key corridors. This will result in more frequent bus service, reduced travel times, and improved rider amenities. This system prioritizes key corridors that emanate from the Capitol Square. In order of predicted ridership levels, these include the West Route along University Avenue, the Northeast Route along East Washington Avenue, the South Route along Park Street, and the North Route along Sherman Avenue. Later, a central city circulator, called for in the *Isthmus 2020* plan, may service the central city. Each of these transit routes will likely spur continued redevelopment nearby – in the form of larger and taller buildings with upper story residential apartments – a source of future MMSD students.
- Near Sherman Avenue, the Oscar Mayer site may be ready for redevelopment during the study period. A mixture of transportation, employment, and residential use is likely to develop on and around the site. The large size of this area will likely spur redevelopment up and down the Sherman Avenue corridor, resulting in enrollment for MMSD schools in the East High attendance area.
- Additional redevelopment will likely continue in the Williamson Street / Atwood Corridor to the east. Redevelopment initiatives are also likely along Regent Street, south of the UW campus, where development is mostly one-story.
- Finally, at the periphery of the central city, redevelopment nodes at Union Corners and near Hilldale are likely to result in the significant densification of these areas.

## C. Madison has Strong Neighborhoods – shown in clear with the neighborhood street pattern

Most Madison's neighborhoods provide a high quality of life, convenient access to goods and services, and remain attractive options for families.

- Active neighborhood associations are a civic force throughout much of the community. They play a vital role in engaging and empowering residents and grooming local political leadership. Currently, over 120 active neighborhood associations in the city provide a wide variety of services and roles. MMSD's elementary school attendance areas each contain several. The potential for effective school / neighborhood partnerships is high.
- Madison's Abundant Open spaces bolster neighborhood success. These areas are *shown in blue, green, and olive* on the preceding map. Few areas within MMSD are more than one mile from significant natural areas. In addition to providing a wide variety of recreational amenities, these features support strong property values.

#### D. Madison and Fitchburg have Room to Expand – shown in yellow

Unlike most central cities in Wisconsin and the northern states, Madison has room to grow. This fact is critical for the future enrollment in MMSD.

- Madison adopted boundary agreements in the 1990s with the Cities of Sun Prairie, Middleton, Verona, Fitchburg, the Village of McFarland, and the Town of Middleton. These created annexation limits for Madison located well-beyond the city limits at that time (and MMSD). As a result, the City is expanding beyond the boundaries of MMSD to the east, northwest, and southwest.
- The large residential growth area on the west side of the central urban area – between Mineral Point Road and Midtown Road – is mainly located within the inter-district transfer area with the Middleton-Cross Plains School District (M-CPSD). When specific trigger events occur (such as annexation to the City of Madison or land sales) parcels within most of this area will become part of MMSD’s territory. The growth of this area will be bolstered by the planned UW Research Park II. The area located north of Mineral Point Road will remain in the M-CPSD.
- Two similar peripheral growth areas are likely to occur just beyond the southern and eastern edges of MMSD. However, currently, there are no inter-district transfer agreements affecting these areas.
  - The southern residential growth area is largely located in the northern reaches of the Oregon School District. Only the far western edge of this area is located in MMSD, along Nobel Drive. As many as 10,000 residents could ultimately live in this area, called the “Northeast Neighborhood” by the City of Fitchburg. Growth in this area is spurred by the new interchange of Lacy Road with US 14. Many parents living in this area will have to travel south to reach the schools – located well within the Village of Oregon limits, and then travel back north (past their homes) to go to work.
  - The eastern residential growth area is largely located in the western reaches of the Sun Prairie School District. Also called the “Northeast Neighborhood”, according to the City of Madison’s Northeast Neighborhood Plan, as many as 40,000 residents could ultimately live in this area. Many parents living in this area will have to travel east to reach the schools – and then travel back west (past their homes) to go to work. The growth of this area will be spurred by the potential development of an interchange of Reiner and Sprecher Roads with I-94.
- In the last ten years, the City of Madison has secured its ability to further expand by entering into binding intergovernmental agreements that will result in the dissolution of the Town of Madison (in 2022), the Town of Blooming Grove (in 2027), and the Town of Burke (in 2036). Madison and several of its neighboring cities and villages will absorb former town areas, and thus expand their municipal boundaries. MMSD will benefit from the improved predictability of municipal services and development resulting from this local cooperation. Incorporation of these largely rural areas into Madison will likely spur development through the extension of public water and sewer lines and urban street and bike networks.

## E. Developers are Embracing Density and Redevelopment – shown in orange

Sustained municipal and regional planning efforts to promote density and redevelopment are now being realized throughout Dane County, and particularly within MMSD. Since the recovery from the Great Recession, a growing number of developers are providing high-quality neighborhood design and redevelopment projects that are coming close to doubling the number of dwelling units per acre common in the 1980s – potentially offsetting the effect of continued declining household size on enrollment totals.

In this Study's investigation of building permit data from the City of Madison, about 68% of the over 8,000 building permits approved since 2010 are located in redevelopment areas, rather than in greenfield sites located at the periphery of the urban area.

In addition to the redevelopment opportunities discussed above, the preceding map also depicts locations where aging shopping centers may be ripe for redevelopment during the study period. These are shown with *orange bull's-eyes*.

- Many of these sites are located the Odana Road corridor including the West Towne Mall and Westgate Shopping Centers. When constructed between 1960 and 1975, most of the development in this corridor was at the periphery of the urban area. Now located in the center of the greater west side, and nearing the end of their useful life, the many buildings in this area could be replaced by denser mixed-use development. Although likely student generation rates will be low, the size of this area (about a square mile) could lead to impacts on MMSD.
- Other scattered post-war shopping areas could also see redevelopment, including the East Towne area, the Todd Drive area, and the Stoughton Road corridor.
- This kind of redevelopment could be spurred by major highway projects along the Beltline and Stoughton Road (US 51), which are shown in *brown* on the preceding map. WisDOT is currently studying both corridors for major improvements, including potential additional lanes. Both studies have identified numerous locations for additional roadway bridges – which would provide new links between neighborhoods, and between residential and commercial areas. In addition to spurring mixed-use redevelopment, these new bridges will provide more convenient connections for MMSD school buses, employees, and parents. These crossing points are shown in *crimson*.

The patterns of development activity created by the interaction of the forces described above are illustrated on the following map depicting areas of likely land use change and stability.

### Areas of Likely Land Use Change and Stability Map

These background factors are combining to reshape the residential geography of MMSD. These factors combine with community and neighborhood plans, and city zoning maps, to produce a pattern of likely areas of land use change and stability that guide the geographic investigations in this Study. These areas are depicted *for precise lots and parcels* on the following map.

- MMSD’s elementary school attendance area boundaries are shown in *dashed red*. In combination, they map MMSD’s current territory. Note the irregular lines around the perimeter of the District. These are the result of years of varying state laws regulating whether or not school district boundaries change with annexations of land into the central city of large urban district, and – irregular annexation areas decided by individual property owners. On the far west side of the District, the perimeter boundary is especially irregular where inter-district boundary transfers are pending.
- Areas to be transferred into MMSD per inter-district agreements are shown in *blue*. Located south of Mineral Point Road and west of the Beltline, these areas have yet to experience an event that triggers transfer into MMSD. Annexation, or sale of land, is the most frequent trigger event identified by the various agreements. Almost all of these areas are adjacent to the Olson Elementary School attendance area. Smaller areas are adjacent to attendance areas for Stephens and Chávez Elementary Schools.
- Areas not in MMSD are shown in *gray*. These include all areas beyond the future boundaries of MMSD, after the transfer areas identified in inter-district agreements come within MMSD boundaries.

The remainder of the map depicts areas currently within MMSD boundaries:

- Areas of Likely Residential Greenfield (new) Development are shown in *yellow*. These areas are in various states of planning and development – from conceptually planned in the Comprehensive Plans of Madison or Fitchburg – all the way through the development process to vacant homes.
- Areas of Likely Residential Development are shown in *orange*. These are areas that of existing development that are likely to redevelop during the time of this Study – 2017 through 2037. Most of these projects will be “mixed use” redevelopment, with residential units on upper floors over commercial or office. Some of the projects will be entirely residential. Redevelopment projects typically have to attain higher density than current development to be profitable. This is achieved by constructing larger and taller buildings than previously on the site.
- Areas of Likely Residential Stability are shown in *clear* with the underlying streets. These areas are generally fully developed, with few vacant parcels. They contain most of MMSD’s current students. They will continue to be the most important source for MMSD students throughout the Study period.
- Areas of Non-Residential Development are shown in *light purple*. These are areas of both existing and likely future development and open space land uses that are likely to produce no current or future MMSD students.

The mapping of *new* residential development and redevelopment at the heart of this study will focus on the *yellow and orange* areas, respectively. The investigation of enrollment from *existing* residential development will focus on the *clear* areas within MMSD.

# Areas of Likely Land Use Change and Stability

 MMSD Elementary Attendance Boundaries

 Areas to be transferred into MMSD per inter-district agreements

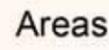
## MMSD Areas of Change and Stability

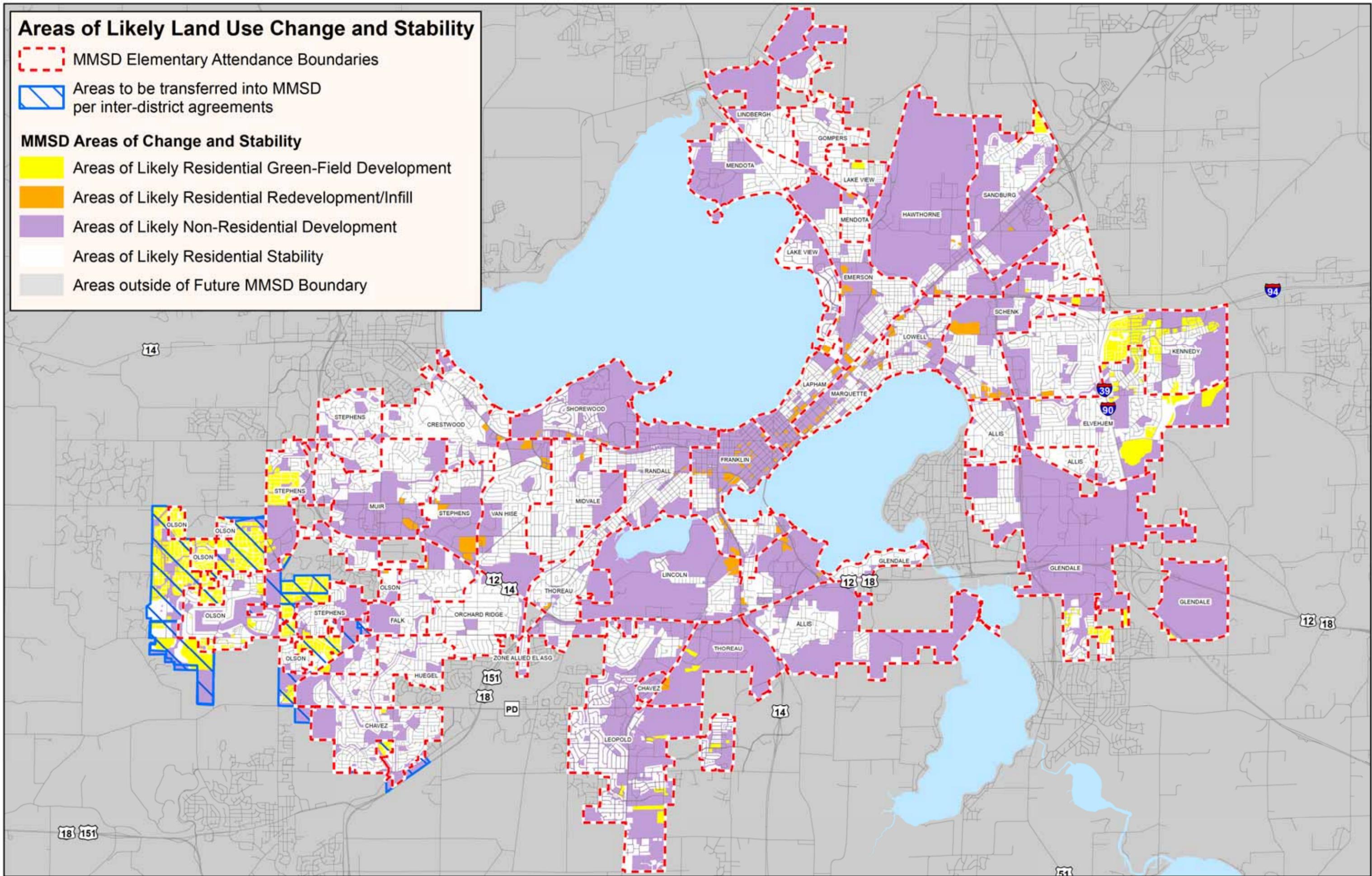
 Areas of Likely Residential Green-Field Development

 Areas of Likely Residential Redevelopment/Infill

 Areas of Likely Non-Residential Development

 Areas of Likely Residential Stability

 Areas outside of Future MMSD Boundary



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### III. Ten Key Challenges, Trends, and Assumptions for Projections

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#### Key Finding: Despite Challenges, Trends Inform Logical Assumptions.

MMSD has an outstanding track record of projecting enrollment based on a sophisticated cohort survival methodology, typically within an accuracy of one-half of one percent. However, longer-range projections have struggled with accounting for enrollment resulting from new development and redevelopment. This section provides an overview of the challenges presented by this task, the key trends that provide insights into future enrollment locations, numbers, and characteristics. The first set of challenges relate to factors affected by MMSD and other school district decisions.

#### I. Available Population and Household Data has Significant Limitations

##### Census Geography

The most important population data limitation encountered by this Study is that U.S. decennial census information for MMSD's specific geography is only available for the latest census, in 2010. The decennial USC provides actual counts of population, dwelling units, households, and economic conditions. Counts are provided for smaller geographic units including municipalities, census tracts, census block groups, and census blocks (for some data sets). However, these generally accurate counts are only available every ten years. Access to individual census returns – which would enable precise associations between population, housing, and economic characteristics -- is not available. This is a high-quality data source, but becomes obsolete with passing years.

A further challenge is that census data prior to 2010 is not available for school district geographies. Further, school district boundaries and attendance area boundaries are generally not reflected in the boundaries of census tracts or block groups, or in the many locations where district or attendance area boundaries split blocks. Although the 2010 USC does provide a specific geography for MMSD, it is only for the district as a whole, and not for attendance areas.

##### ACS Sampling

A second important data limitation relates to the U.S. Census American Community Survey (ACS), provided annually by the U.S. Census Bureau. The ACS is a running sample-based methodology, using sample data from either 1-year, 3-year, or 5-year spreads. Although annual updates are available for MMSD geography, because the ACS provides only sample-based estimates, and because it blends sample years, its effectiveness in enrollment projections is limited.

In contrast, the decennial census uses counts for (at least theoretically) a complete measurement of population and households, and their characteristics. Years of working with ACS data for Dane County, Madison, and many other Wisconsin communities has uncovered large variations between data from the decennial census data and the ACS for population, household, and income statistics. This is a significant limitation, and this Study minimizes a reliance on information from the ACS.

### Resulting Study Approach

Therefore, this Study relies on the 2010 Census to provide the primary baseline of comparison between MMSD geography and readily available historical census data for MMSD area municipalities – particularly for 2010.

Specifically, this Study employs a “Statistical Geography” comprised of the “MMSD Municipalities”. This grouping – unique to this Study -- is comprised of municipalities with populations (as opposed to area) mostly located within MMSD’s territory. These include the cities of Madison and Fitchburg, the villages of Shorewood Hills and Maple Bluff, and the towns of Madison, Blooming Grove, and Burke. Notably, all of the Town of Madison is located in MMSD, while most of Blooming Grove and Burke will be coming within the City of Madison’s limits during the projections period.

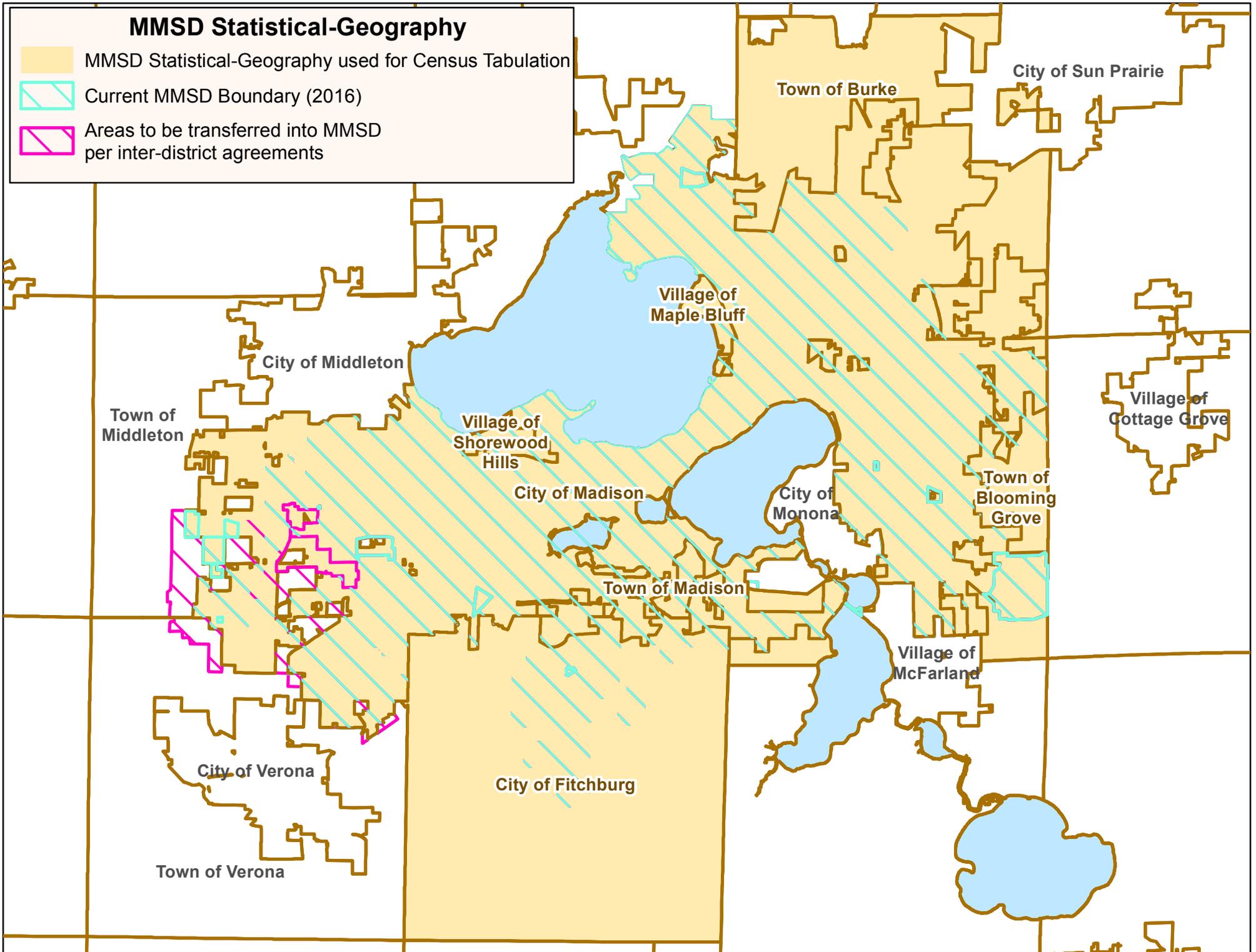
A map showing the precise boundaries of this “MMSD Statistical Geography”, shown in *beige*, is presented on the following page. The current MMSD boundary is shown in *light blue*. The inter-district transfer areas are shown in *red*.

A close up map of this Inter-District Transfer Area is provided following the Statistical Geography Map.

This Study employs population estimates provided annually for states, counties, and municipalities. Although not as accurate as the decennial census, they provide an up to date estimate for a single year. The 2015 U.S. Census Bureau estimate of population for this Study’s MMSD Statistical Geography, when compared to the 2010 U.S. Census, forms the baseline of population growth trends for Scenario 3 of this Study.

# MMSD Statistical-Geography

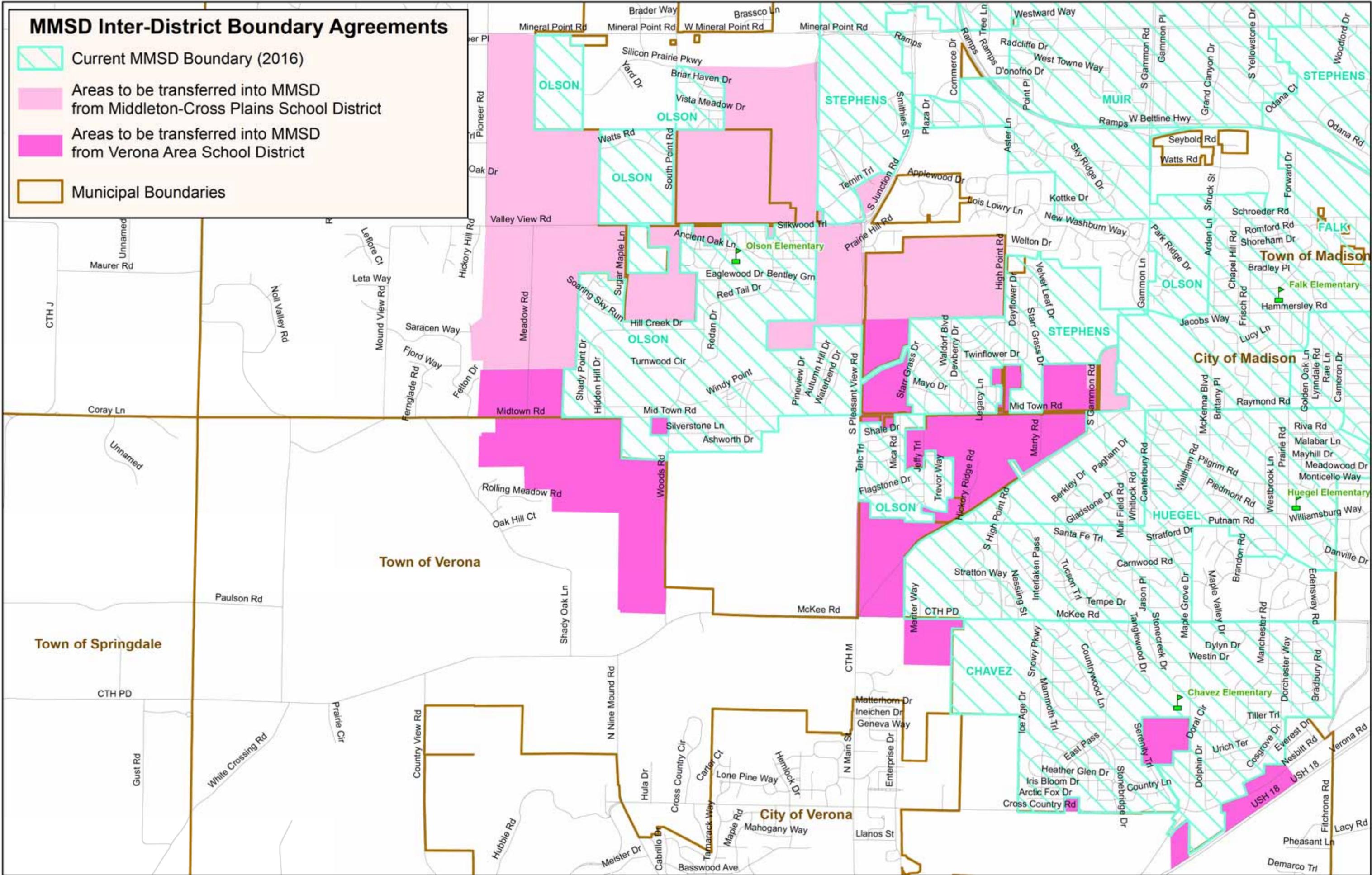
-  MMSD Statistical-Geography used for Census Tabulation
-  Current MMSD Boundary (2016)
-  Areas to be transferred into MMSD per inter-district agreements



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# MMSD Inter-District Boundary Agreements

-  Current MMSD Boundary (2016)
-  Areas to be transferred into MMSD from Middleton-Cross Plains School District
-  Areas to be transferred into MMSD from Verona Area School District
-  Municipal Boundaries



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### Official Population Projections

Data limitations related to MMSD geography extend to other data sources. The Wisconsin Department of Administration, WisDOA is the official source of population and household projects for the state. WisDOA provides projection updates every few years, which must total to a control number provided by the U.S. Census Bureau. Population estimates and projections are provided for counties and municipalities only. They are not provided for school districts or attendance areas, or for other geographies such as neighborhoods, subdivisions, or annexation areas. The most recent WisDOA population projections extend to 2040, and form the basis for Scenario 2 of this Study.

Given current extremely strong housing market conditions, this Study employs the opinions of planning and development experts to establish population projections for Scenario 1. Planning and development consultants from Vandewalle & Associates met in development projection workshops with City Planners for Madison and Fitchburg to discuss the location, timing, and types of development expected during the projection period from 2017 through 2037. A high degree of consensus was evident in these meetings.

Significant limitations also exist for official projections for general population growth. Since the mid-1980s, WisDOA population projections for Dane County as a whole, and for its constituent cities, villages, and towns, have consistently been lower than those actually counted by the decennial census. Projections are comprised of two components -- net natural increase (births minus deaths) and net migration. WisDOA projections have been quite accurate for net natural increase (births minus deaths), where sophisticated cohort survival methodologies are successfully employed. This Study employs WisDOA projections for net natural increase used in Scenario 2 and Scenario 3.

Historically, where actual population change varies significantly from WisDOA projections, differences tend to occur with net migration. This can occur in areas where economic conditions vary significantly from national and state levels. For example, economically stable Dane County was projected to add about 50,000 persons between 1990 and 2000, and again between 2000 and 2010. Instead, Dane County grew by about 60,000 persons each decade.

There is currently strong evidence that official projections for Dane County's population growth between 2010 and 2040 are again too low. Whereas WisDOA is projecting an average *annual* increase of 4,255 Dane County residents between 2010 and 2020, according to the US Census Bureau actual County population has been increasing by an average of about 6,467 residents annually between January 1 of 2010 and July 1 of 2015-- with the City of Madison and the MMSD Statistical Geography capturing about 40% of that new population growth. With 5-year growth exceeding projections by about 52%, the general unpredictability of population trends for small geographic areas is highlighted. This Study uses actual population growth (per U.S. Census Bureau annual estimates) within MMSD's Statistical Geography to provide the baseline population projection trend for Scenario 3.

Finally, conventional data sources struggle with accurately counting and projecting homeless and undocumented immigrant families and children. There is considerable evidence for differences in the degree of undercounting varying by source, year, and location. MMSD has significant populations of homeless and undocumented children.

### MMSD Data is High Quality and Robust

Whereas limitations exist with most outside data sources, MMSD's student enrollment data is robust and readily accessible, enrollment projections are also complicated by the limitation of other population data sources. These limitations affect the ability to confidently project important population and household characteristics – particularly when considered in light of the mobility of households in the United States. On average, the typical American household moves every five years. Moves are much more frequent for households with young children or households with low incomes. Because of these factors, MMSD enrollment data provides the richest source of data, the most accurate data source, and to a high degree the most current source of student location information and population and household characteristics of the student body. This Study relies heavily on MMSD enrollment data to establish the current baseline of student characteristics, and to establish recent trends for projecting student characteristics.

Enrollment records indicate that racial diversity is increasing in MMSD. Hispanic and Latino students comprise an increasing percentage of enrollment, continuing a long-term trend that has slowed since 2010. Students identifying as multi-racial also make up an increasing share of enrollment. African-American and Asian enrollment shares, which experienced significant increases between 1990 and 2010, have remained relatively constant since 2010. White and American Indian enrollment percentages have declined since 1990, but the rate of change has slowed since 2010.

Changes in racial makeup are reflected in an increasing percentage in English Language Learners (ELL), with Spanish increasingly predominant and adding to Hmong and the eclectic mix of languages and cultures resulting from the presence of the UW and recent immigration. However, the long-term increasing percentage of ELL students has leveled off since 2010.

Also echoing state and national trends, and especially in Wisconsin, the percent of households with low incomes and fixed incomes is growing. Home values and rents are generally accelerating faster than incomes, particularly in Madison and Dane County. These factors result in increasing levels of poverty for MMSD's students and parents, and to a growing shortage of affordable housing throughout the District. Many households and students in MMSD have not seen an improvement in employment or income since the Great Recession. These factors have historically resulted in a growing share of MMSD students qualifying for free or reduced lunch. This trend has also slowed in the last five years.

An important emerging trend in Dane County is the growing lack of affordable housing. Under current market conditions, developers are focusing on higher profit luxury apartments and new homes, and the supply of affordable housing will likely not keep pace with the need. It cannot be determined whether the growing short supply of affordable housing is related to the slowed growth in free or reduced lunch percentages. Income recovery since 2010 is likely a contributing factor for some households.

### Key Trends:

- Opinions vary for population growth trends in Dane County, Madison, and MMSD's Statistical Geography. Dane County growth trends between 1990 and 2010 averaged about 6,000 additional persons per year. Official population projections from WisDOA predict a slowing of growth to an average of about 4,000 additional persons per year through 2040. In contrast, between January 1, 2010 and July 1, 2015, actual population growth in Dane County has been about 6,500 persons per year.
- Enrollment records point to a continued growth of Hispanic and Latino, and multi-racial, shares of MMSD enrollment. The pace of growth is moderating in the last five years.
- Enrollment records indicate a general stabilizing of African-American, Asian, and Pacific Islander shares of MMSD enrollment over the past five years.
- Enrollment records also show a gradual decline of American Indian and white enrollment shares.

### Key Assumptions:

1. The projections in this Study are based on an assumption that recent trends for student composition related to race/ethnicity, English Language Learners, and free or reduced lunch will continue through the projection period of 2017 through 2037.
2. The projections in this Study further assume the potential for considerable variation in population within MMSD, and resulting variation in the total enrollment:
  - The enrollment projections for Scenario 1 are based on pace of development predictions provided by experts in local planning and development from the City of Madison, City of Fitchburg, and Vandewalle & Associates.
  - The enrollment projections for Scenario 2 are based on official population projections provided by WisDOA for MMSD's Statistical Geography.
  - The enrollment projections for Scenario 3 are based on the actual rate of population growth within MMSD's Statistical Geography between January 1, 2010 and July 1, 2015.
  - This Study assumes that household size will decline per WisDOA's projections.

## **2. MMSD has a Dynamic and Diversifying Residential Market.**

### Challenge:

Residential development within MMSD's territory is among the most dynamic in the Midwest. Projections must account for a wide range of factors and trends. Specifically, enrollment projections are complicated by the recent appearance of new development forms and formats within MMSD's territory.

In Madison, residential development continues to diversify. A number of residential formats are now developing that were not present in the market area more than ten years ago, including luxury downtown and neighborhood apartments. There is little enrollment data for these formats, and no published long-term insights into how the early resident profiles will evolve in general, or in specific locations. School enrollment projection studies typically rely on assumptions about enrollment coming from only three broad categories of residential development: single-family, duplex, and multi-family. This approach is insufficient for Madison's rapidly evolving housing mix.

The single-family residential construction market is currently in uncharted territory. Interviews with local real estate experts indicate the presence of a unique mix of market circumstances present in central Dane County in mid-2016. These include:

- A continuation of very low mortgage interest rates are continuing to drive strong single-family home construction – a strong source of students;
- These low interest rates, in combination with a strong professional job market in Dane County, are enabling an unusually high rate of new home construction for first-time home buyers – who typically have younger children and growing families;
- Many home construction companies are working at full capacity, despite adding crews since the Great Recession. For many builders the pace of construction is limited by a shortage of labor rather than a weak market. This leads to pent-up demand that is likely to buffer the emergence of construction extremes and extend solid local market conditions for residential development;
- Subdivision developers remain reluctant to construct new projects in large, multi-year phases, and continue to implement development in phases intended to sell-out in one or two years – reinforcing a generally consistent rate of construction;
- In this strong market, lot pricing tends to reflect the value buyers place on location to a greater extent than prices in periods of low demand – with school attendance areas and proximity to place(s) of employment being the most important decision factors about neighborhoods that are considered by buyers;
- Lot pricing in central Dane County currently demonstrates a preference of first: west side of the metropolitan area over east side; and then: suburban school districts over subdivisions in MMSD;
- The demand for new single-family homes remains very strong everywhere in central Dane County, including new areas within the City of Madison and within MMSD; and,
- With the exception of several high-end neighborhoods largely located in rural subdivisions, the average size and amenities of new single-family homes has remained generally consistent for about a decade – with an average of close to 4 bedrooms.

Together, these trends point to continued rapid single-family development within MMSD, with many new homes likely to have younger school age children immediately move in, and many homes likely to produce new students within 0-5 years of initial occupancy.

The multi-family residential construction market also remains strong. Interviews with local real estate experts indicates the very likely continuation of multi-family vacancy rates that are among the lowest in the nation (+/- 2%), with many of the factors listed above contributing to this situation. Although the large-scale multi-family projects in the Downtown area and along East Washington Avenue garner the most attention, the majority of multi-family projects have been developed in greenfield locations throughout central Dane County. Key factors include:

- A general shift away from two- and three-bedroom multi-family units to one-bedroom and efficiency units – with lower student generation rates;
- The inclusion of a significant multi-family component in almost all new greenfield development subdivisions; and,
- The growing size of multi-family buildings within new subdivisions – resulting in a greater number of multi-family dwelling units per building and per subdivision;

- A common policy of suburban cities and villages to control the percentage of multi-family and attached single-family dwelling units (duplexes and townhouses) compared to single-family dwelling units – with a minimum 60% share for single-family and a maximum share of 25% for multi-family dwelling units representing commonly-used percentages. Other neighboring communities employ a simple cap on multi-family building permits.

The result continues a post-recession trend that multi-family dwelling units comprise a growing percentage of total residential construction throughout Dane County. This trend is strongest throughout the City of Madison, and in suburban downtowns. In both instances density is encouraged and multi-family limits are not typically imposed by municipal policies.

Redevelopment is an increasingly important factor in enrollment. Redevelopment comprises an increasing percentage of new residential dwelling units – both in the upper floors of mixed-use buildings and in residential-only projects. This trend is very likely to continue through the next twenty years, as the amount of land available for greenfield development within MMSD’s territory continues to decrease. Several key factors contribute to this trend:

- The City of Madison and the City of Fitchburg actively plan for redevelopment. Significant general areas of redevelopment are identified in Comprehensive Plans, and in plans for existing neighborhoods adopted over the last 15 years;
- Redevelopment is often eligible for Tax Increment Finance (TIF) assistance, particularly when proposed redevelopment is consistent with adopted plans. TIF often addresses demolition and site preparation expenses, helping to lower up-front costs;
- Permitted building size are typically larger and have higher densities
- Although redevelopment construction is complicated by surrounding development, the expensive utility and road network is in-place;
- Although often controversial, redevelopment projects that are found to be consistent with adopted plans tend to be approved, with adjustments required to address site-specific concerns;

As a result of a longer review process followed by months of demolition and site preparation, redevelopment projects typically have a significantly longer lead-time between initial proposal and occupancy than do greenfield projects – often stretching to several years in comparison to several months. This time lag between initial proposal and occupancy provides opportunities for school districts to prepare for new students.

During the next twenty years, the residential decisions of thousands of empty nester Baby Boomers, and Millennials entering prime childbearing years, will strongly influence the pattern of enrollment within MMSD.

Madison has many Baby Boom empty nesters occupying a significant supply of family-friendly housing. These residents range in age from 55 to about 70. Over the course of the next 20 years, many will be moving out of their 3-, 4-, and 5-bedroom homes. However, the timing of these moves is unpredictable because they usually relate to personal circumstances rather than mass behavior. Madison is often cited as one of the best communities for seniors in the nation, and evidence strongly indicates that remaining in a personal residence is preferred as a healthy choice.

The analysis for this study indicates that many homes owned by Baby Boomers are located in the attendance areas of MMSD schools with strong student achievement scores. Randall, Shorewood Hills, Van Hise, Marquette, Crestwood, Stephens, Muir, Spring Harbor, Lowell, and Thoreau Elementary Schools attendance areas are particularly notable for the intersection of strong schools with neighborhoods full of empty nester Baby Boomers. Homes in the Lindbergh, Gompers, Lakeview, Kennedy, Elvehjem, Leopold, Orchard Ridge, Falk, and Spring Harbor Elementary Schools attendance areas are also flush with Boomers. As a result, all of these attendance areas are likely to experience a high turnover of residents through the next 20 years, which could lead to growing enrollment for these schools.

Madison has a rapidly growing population of Millennial generation residents who are currently occupying multi-family housing with efficiency, one-bedroom, and two-bedroom units. Although visibly present in new downtown apartments, Millennials have a strong presence in multi-family dwellings throughout central Dane County. Most of these households currently do not yet have school-age children.

There is much speculation about these residents – who comprise the largest generation in American history. Just as for seniors, Madison makes all the lists as a great place for young adults and young families. Their residential choices will be of utmost importance to future MMSD enrollment. For example, many growing family households could relocate to houses vacated by aging Baby Boomers. Another possibility, cited by several experts, is Millennial households relocating to older single-family and two-flat housing in revitalizing central neighborhoods – close to their current apartments. This choice could significantly grow enrollment in the Lapham, Franklin, and Midvale Elementary School attendance areas.

The following map, displaying the pattern of Baby Boomer home ownership, may signal locations where more affluent Millennials may find abundance of owner-occupied homes coming on the market through the period of this study.



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### Key Trends:

- At the time of this Study, residential trends for both single-family and multiple-family development are in historically strong conditions, and appear to have longevity. Building permit information from the City of Madison indicates that 85% of all new residential dwelling units between 2010 through May of 2016 are in multi-family projects, while 15% are for single-family homes.
- Redevelopment yielding residential units is also historically strong, with trends spreading from central Madison throughout Dane County;
- There are some market weaknesses, particularly related to harsh lending requirements for multi-family condominium development. This limits opportunities for homeowners to relocate out of single-family homes and rollover their equity.

### Key Assumptions:

1. The projections in this Study are based on an assumption that current development rates and formats will continue. This assumption is not likely to continue throughout the projection period to 2037. However, Madison and Dane County have experienced remarkably consistent population growth since 1985. This assumption provides a standardized baseline that can be readily understood, and modified in future enrollment projection studies to account for current and emerging conditions.
2. Projections further assume stable economic conditions throughout the projection period. Again, this assumption is not likely to be fully accurate through 2037. However, historically, Madison and Dane County have proven to be among the most stable metropolitan economies in the nation. Again, this assumption provides a standardized baseline that can be readily understood, and modified in future enrollment projection studies to account for current and emerging conditions.

## **3. Land Use Data is Not Collected for MMSD and is frequently Out-of-Date.**

### Challenge:

Enrollment projections are complicated by the fact that land use data is not collected for MMSD's specific geography. As a result, existing sources of land use data must be manually compiled and reconciled to reflect the differences between municipal and district geography. Beyond this limitation, District enrollment data is typically current and detailed – rectified with the official enrollment records collected on the third Friday in September. This contrasts with land use data, which is frequently out-of-date and too general to be of use in making "accurate" student generation projections.

Documentation about the amount of existing development is usually not current. Specifically, there is no exact source of data about the number of dwelling units in existing development that is geo-coded. This is a reflection of the constant state of development in the community, more than about a lack of record keeping.

Information about the form of development is too generalized. The best records for current land use – City of Madison Department of Planning, Development, and Economic Development; the Madison Metropolitan Planning Organization (MPO); the Dane County Planning Department; and the Capital Area Regional Planning Commission (CARPC) group residential development into very broad land use categories. Typical categories include "single-family", "attached single-family and two-

family”, and “multi-family”. These fail to differentiate between significant differences in density or between substantial differences in building location, size or height. These building features result in significant differences in student generation rates, but are not reflected in available existing land use data.

Similarly, available records for existing land use do not clearly distinguish between future development sites that are located on raw land, on vacant sites with immediate access to infrastructure, or on sites that require redevelopment of existing buildings. This data is essential to predict the relative sequencing of development, and must be identified and analyzed through manual efforts at the time of enrollment projection studies.

As a result of the limitations described above, school enrollment projections for future development have historically assumed student generation rates, rather than basing rates on measurements specific to the school district or local development practices. This approach compounds the shortcomings of using generalized land use data, discussed above.

Key Trends:

- Student generation rates vary significantly between locations within a metropolitan area and between different forms of development. However, they can be measured by using geo-coded enrollment data. This requires a large amount of time and cost.
- MMSD has supported the required effort in this Study.

Key Assumption:

- I. Future enrollment rates will generally reflect current rates for recent comparable development types within the District.

#### **4. Intergovernmental Agreements will Change Boundaries.**

Challenge:

Enrollment projections are complicated by municipal intergovernmental agreements that will significantly change the boundaries of the City of Madison. This severely compromises the application of extrapolated trends specifically related to the population growth of the City of Madison. However, these agreements must be taken into account where they affect land planned for residential development. The following map depicts these agreements.

The City of Madison has established boundary agreements with the Cities of Sun Prairie, Verona, and Middleton; with the Village of McFarland; and with the Town of Middleton. These agreements established a mapped annexation limit line that both parties respect, and therefore avoid competing for development. These agreements affect enrollment by firmly establishing the municipality with long-term control over development, and resulting forms of development and enrollment levels and patterns. Agreement lines affect the west and southeast edges of MMSD’s territory. These areas are shown in *purple* on the following map.

Beyond the *limits* on annexation discussed above, over the last ten years, the City of Madison has entered into binding agreements that will cause the *dissolution* of three towns, and the resulting transferring of town areas into the surrounding cities and villages:

- In 2022, the Town of Madison will be divided into areas transferring into the City of Madison and the City of Fitchburg. Most of these areas are already developed. All are within MMSD's territory. These areas are shown in *light blue*.
- In 2027, the Town of Blooming Grove will be divided into areas transferring into the City of Madison. About two-thirds of these areas are currently undeveloped. Some are within MMSD's territory. These areas are shown in *blue*.
- In 2036, the Town of Burke will be divided into areas transferring into the Cities of Madison and Sun Prairie, and the Village of DeForest. Most of these areas are currently undeveloped. Few are within MMSD's territory. These areas are shown in *cobalt*.

These agreements affect enrollment by firmly establishing the municipality with long-term control over development, and thus the resulting form of development and its influence on enrollment levels and patterns. Also, access to city services will like spur redevelopment activity in areas with low-value development that can be assembled by redevelopers.

These agreements are depicted on the following map, entitled Madison Metropolitan School District and Municipal Boundary Agreements.

Key Trends:

- The City of Madison's long-range expansion is ensured by pending town dissolutions.
- Most the town areas affected by these agreements within MMSD are already developed, with the exception of small areas located south of Cottage Grove Road / CTH BB.

Key Assumption:

- I. The projections in this Study assume that these intergovernmental agreements will be implemented, resulting in greenfield, infill, and redevelopment opportunities.

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# Madison Metropolitan School District and Municipal Boundary Agreements

## Current District and Attendance Area Boundaries

-  Current MMSD Boundary (2016)
-  Areas to be transferred into MMSD per inter-district agreements

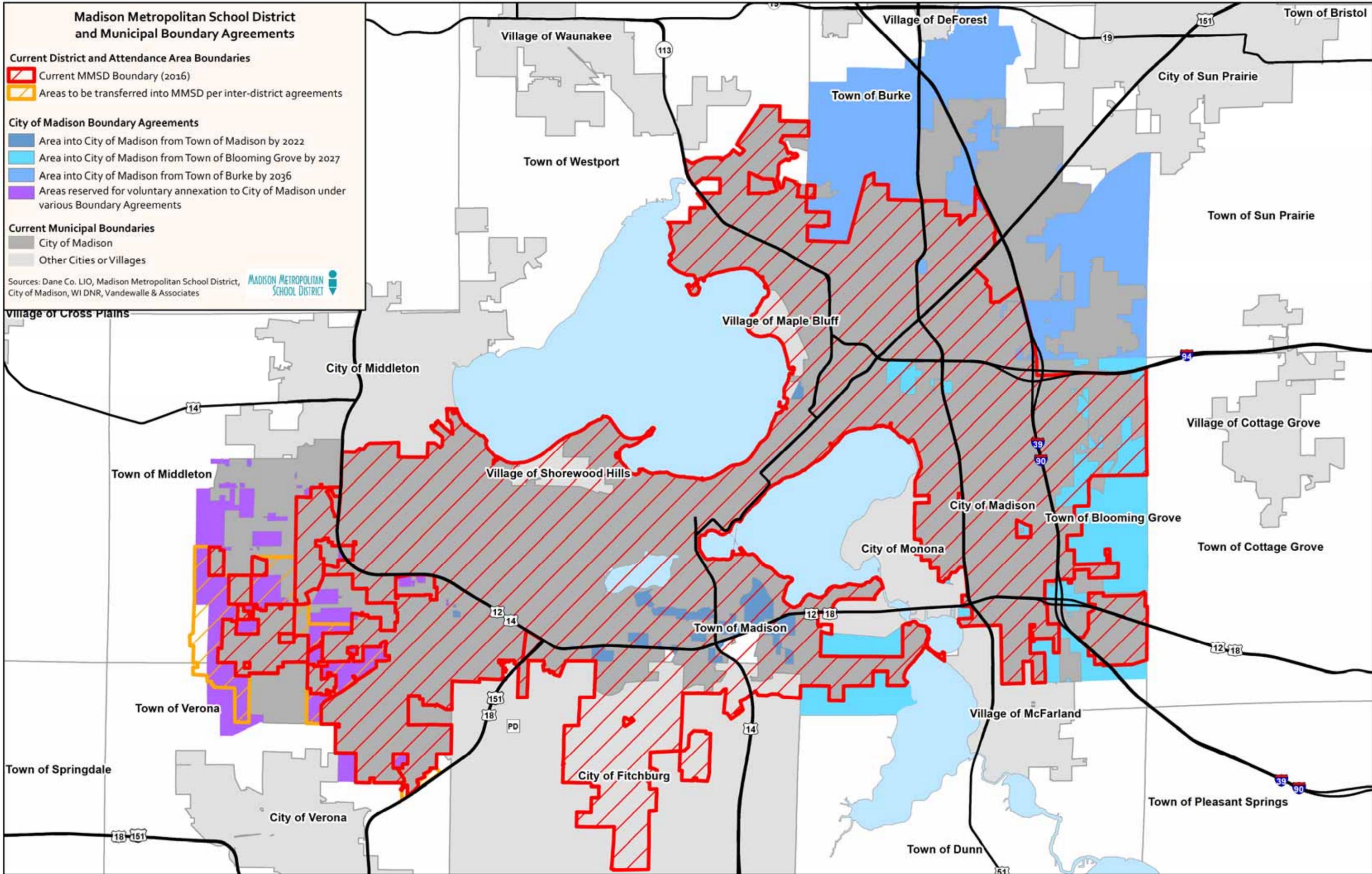
## City of Madison Boundary Agreements

-  Area into City of Madison from Town of Madison by 2022
-  Area into City of Madison from Town of Blooming Grove by 2027
-  Area into City of Madison from Town of Burke by 2036
-  Areas reserved for voluntary annexation to City of Madison under various Boundary Agreements

## Current Municipal Boundaries

-  City of Madison
-  Other Cities or Villages

Sources: Dane Co. LIO, Madison Metropolitan School District, City of Madison, WI DNR, Vandewalle & Associates



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## 5. Community Plans are designed to Guide Municipalities, Not to Facilitate Projections.

### Challenge:

In Dane County, community plans tend to be followed. However, these plans are designed to guide municipal growth and development, and not to make school enrollment projections easier.

MMSD's territory extends into twelve municipalities. Each of these cities, villages, and towns, uses a different combination of land use categories in its comprehensive plans – all with different residential densities and building forms – which result in widely-varying school enrollment generation rates for similarly labeled land use categories.

Plans tend to over-generalize the range of future residential densities. Comprehensive and neighborhood plans rarely provide enough land use categories to account for significant differences in residential density, particularly for a single “multi-family development” class – which can vary from a three-unit townhouse format to a twelve-story apartment building, with a resulting density range of between 6 and 206 dwelling units per acre.

Comprehensive plans, which have a ten-year lifespan mandated by state statutes, are expensive and time-consuming to undertake. Hence, in a dynamic community such as central Dane County, adopted comprehensive plans often become out-of-date well before the state-required decennial revision. Although subsequent small area plans can focus on rapidly changing areas, without more frequent plan updates to the comprehensive plan, actual community intentions and practices can evolve without being depicted in official planning documents. This makes land use, and therefore enrollment projections difficult. The City of Madison Comprehensive Plan Future Land Use Map was updated in 2012. The City of Fitchburg Comprehensive Plan Future Land Use Map was updated in 2015.

Fortunately, plans adopted by both cities tend to be implemented. Development on greenfields within the cities of Madison and Fitchburg tends to closely reflect adopted plans. Although variations occur, they are typically about modifying the pattern of roads and blocks, rather than major changes in land use or residential densities. Through neighborhood and small area planning processes, both cities frequently work closely with landowners and development interests and neighbors, to design detailed plans that meet the objectives of both the developer, and the general public.

Similarly, redevelopment projects are frequently “teed-up” by municipalities through detailed redevelopment plans and related detailed plans for associated Tax Increment Finance Districts. Potential redevelopment sites are often identified well in advance of specific development proposals.

Even more lead time is available for large transportation projects that can alter development and trip-routing patterns. Working under the procedures required by the National Environmental Policy Act (NEPA) and its state counterpart (WEPA), the Southwest Regional Office of the Wisconsin Department of Transportation's (WisDOT) has a strong track record of close coordination with municipal and regional transportation, public works, and planning staff on long-range highway planning projects. Adopted plans tend to become reality, although transportation improvement funding may be subject to lean years that delay construction. In central Dane County, WISDOT is currently working on a wide range of highway planning project, including for the Beltline, Stoughton Road, I-39/90, US 51 from the Beltline to Stoughton, and evaluation of the potential for a new interchange on I-94 between I-39/90 and CTH N. Both the Beltline Study and the Stoughton Road

Study are evaluating the potential to create additional crossing points – thus improving local road connections between neighborhoods now isolated by the freeway corridor. These may significantly reduce travel time between homes and schools, including for school bus routes.

Key Trends:

- Adopted plans for land use and transportation tend to be implemented.
- Detailed neighborhood and redevelopment plans provide more current and precise information about recommended land use and density patterns.
- Plans provide little insight into the precise timing of development or redevelopment.

Key Assumptions:

1. Adopted neighborhood, redevelopment and comprehensive plans will be implemented.
2. Long-range transportation plans will be implemented, including Madison’s BRT system and WisDOT plans for the Beltline and Stoughton Road.
3. The timing of development will be the key variable in the three Scenarios postulated and evaluated by this Study. Timing in Scenario 1 will be based on the knowledge of development experts. Timing in Scenario 2 will be based on official WisDOA population projections. Timing in Scenario 3 will be based on the extrapolation of recent trends.

## **6. MMSD “Leavers” and “Enterers” are a Significant Enrollment Factor.**

Challenge:

District leavers include students living in the MMSD territory who choose to attend non-MMSD schools. These include students choosing open enrollment at other public schools, and students attending private and non-MMSD charter schools.

Overall net open enrollment patterns show more students living in the MMSD area choosing open enrollment in other districts, than students living in other districts choosing open enrollment in MMSD. In the fall of 2015, the net loss of 999 students was a result of 316 entering students and 1,315 leaving students. This is about 4% of MMSD’s total enrollment.

Many factors are involved in open enrollment decisions, including the availability of space in other districts. The Monona Grove School District (MGSD) is the most popular destination of students leaving MMSD through open enrollment. Several MGSD schools are at capacity, and MGSD staff has indicated that they maintain full capacity by adjusting the number of open enrollment attendees. Other important considerations, cited by studies and MMSD staff, include the proximity of other schools, the condition and range of school facilities, and resulting travel distances and routes.

This study estimates that about 2,000 resident students are enrolled in private schools in the region – which represents about 9% of MMSD’s total enrollment. This estimate is based on the difference between the 2014 American Community Survey 5-Year Estimates within the MMSD area for the total number of children of K-12 age enrolled in schools of any kind, the estimated number of resident students electing open enrollment outside of MMSD, and actual MMSD enrollment.

### Key Trends:

- MMSD net “Leavers” comprise about 3,000 school age children residing within MMSD territory.
- Reduced capacity in many schools in adjacent districts, reflecting strong suburban population growth, is becoming a more frequent limiting factor on MMSD leavers being accepted through open enrollment in other school districts.
- Rapidly evolving options, particularly for charter schools and distance learning, make projecting future enrollment changes through net leavers very difficult.

### Key Assumption:

- I. MMSD net “leavers” will be consistent with their current levels – about 3,000.

## **7. Programming Changes Affect Total Enrollment Numbers.**

### Challenge:

Major programmatic changes, such as the addition of the 4K program in 2011-2012, have the potential to significantly alter MMSD enrollment.

MMSD programming, particularly related to pre-kindergarten instruction and community schools, continue to evolve. The most significant recent change has been the addition of a strong 4K program. This “additional grade” has contributed much of MMSD’s enrollment growth in recent years, most notably as the main cause of the “Total Enrollment Bump of 2011”, when total MMSD enrollment grew by about 2,000 students between the 2010-2011 and the 2011-2012 school years”. However, 4K was *not* implemented at all elementary schools in that year, and additional schools have been added since. For the upcoming 2016-2017 school year a few elementary schools do not offer 4K – and it remains a *voluntary* program, and therefore subject to greater potential fluctuation. Other programming variations relate to alternative school offerings, which are continually evolving, and expanding the community school concept to more locations.

### Key Trends:

- The addition of the 4K program added approximately 2,000 students to MMSD’s total enrollment.
- MMSD is planning to expand the community school concept to more locations; however, details are not available at the time of this Study.

### Key Assumption:

- I. The projections in this Study are based on current programmatic offerings.

## 8. Evolving MMSD Boundaries Make Trends Difficult to Discern.

### Challenge:

Enrollment projections are complicated by the fact that MMSD's boundaries have changed significantly in the past, and will continue to do so. Enrollment projections must account for school district boundary agreements, particularly where they affect land planned for residential development. Boundaries have evolved through three methods.

First, until the 1990s, MMSD's boundary was enlarged as a matter of course to reflect *annexation* of territory into the City of Madison. Enrollment coming from these growth areas offset the historic decline in persons per household that peaked in the mid-1960s at the end of the Baby Boom. This type of "automatic" boundary expansion ceased by 1995.

Second, as a result of no longer being able to employ the first method, beginning in the 1990s MMSD undertook significant statutory boundary swaps (Wis Stats 117) with the Sun Prairie School District (SPSD) and Oregon School District (OSD). These swaps generally traded new students in areas planned for new residential development for tax base in areas planned for nonresidential development. Specifically, in the case of Sun Prairie, they provided MMSD areas of new residential development (e.g. the Grandview neighborhood on the far east side) while providing SPSP with areas of new non-residential development (e.g. the East Springs Drive commercial area). In the case of Oregon, they provided MMSD areas of new residential development (e.g. the Swan Creek neighborhood east of Syene Road) while providing the OSD with areas of new non-residential development (e.g. the Hatchery Hill commercial area).

Third, MMSD's boundary is currently static, except on the west side of the District, where agreements with the M-CPSD and the Verona Area School District (VASD) adopted in 1999 require the transfer of certain parcels into MMSD when certain trigger events occur. A change of parcel ownership is a common trigger event, as is annexation of a parcel into the City of Madison. Typically, trigger events require transfer of a parcel into MMSD prior to development. These transferring parcels are generally located adjacent to the Memorial High School attendance area – west of CTH M, south of Mineral Point Road, and north of Midtown Road. District boundaries will likely continue to change in the future through this method. However, the trigger events have uncertain timing. This enlarged MMSD area is referred to as the "Future MMSD Area" in this report.

### Key Trends:

- MMSD and the adjacent M-CPSD and VASD have been adhering to their boundary agreements.
- MMSD has not pursued a boundary attachment per Wis Stats 117 for many years.

### Key Assumptions:

1. MMSD will continue to expand into the Future MMSD Area as a result of inter-district boundary transfers per existing agreements with M-CPSD and VASD.
2. Other MMSD boundary changes will not occur within the Study period of 2017-2037.

## 9. Attendance Area Policies Complicate Projections.

### Challenge:

Enrollment projections are complicated by the fact that, like most school districts, MMSD's attendance area maps have a few quirks. With the exception of territorial additions in the areas governed by agreements with neighboring school districts on the west side, MMSD has had relatively stable attendance areas since the opening of Olson Elementary in 2008. However, a few geographic complexities for projections persist. These include:

- Several leap-frog attendance area, such as Stephens Elementary School;
- Several school pairings, such as Lapham/Marquette, Franklin/Randall, and Midvale/Lincoln; and,
- Lottery and charter schools including James C. Wright Middle School, Badger Rock Middle School, Spring Harbor Middle School, and Nuestro Mundo Charter Elementary School – all of which tend to fill to capacity – with students originating throughout MMSD's area.

### Key Trends:

- Attendance area policies and practices have been relatively stable.
- DLI program decisions have an impact on enrollment. To ensure a viable program with a presence of both native languages, DLI schools can draw students from an area larger than the school's attendance area. The evolving language needs of the district and geographies within the district will also guide the location of new or expanded DLI offerings. Today's projections make no assumptions about new or expanded DLI locations.

### Key Assumption:

- I. The projections in this Study are based on current attendance area policies.

## 10. School Openings and Closings Alter Enrollment by Shifting Attendance Areas.

### Challenge:

Enrollment projections are complicated by the opening and closing of schools, thus changing attendance area boundaries.

### Key Trends:

- No school facilities are currently under consideration by MMSD for opening or closing.
- MMSD is planning to enlarge some schools to address anticipated enrollment gains.

### Key Assumption:

- I. The projections in this Study are based on current schools and attendance areas.

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## IV. Projection Methodology

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### Key Finding: Useful Methodologies can be Readily Updated.

To project future enrollment for MMSD as a whole, and its individual schools, the methodology used in this Study combines projected trends for population, urban infrastructure, land use, development density and building format, and the location and timing of development, for each of the four *lustrums* (five-year periods) through the 20-year projection period.

#### A. Three Development Scenarios are evaluated in this Study

Three projection scenarios were developed in order to provide a range of alternative projections based on varying the pace of development:

- **Scenario 1 – Development Expert Opinion**, the high growth scenario -- is based on the timing and location of development identified by land use and development experts at the Cities of Madison and Fitchburg, and Vandewalle & Associates. This approach results in the total household growth within MMSD territory between 2017 and 2037 of 58,418 persons in 32,884 new households – with variable growth in each lustrum.

A combined 150 years of experience observing, planning for, and reviewing area development, in conjunction with local developers, is the basis of this scenario. Thus, this scenario has a pace of development that is a reflection of timing of development *information* by local experts, and is *not* based on population projections.

- **Scenario 2 – Official Projections**, is based on the assumption that MMSD’s territory adds population in a manner consistent with the official population projections provided by WISDOA in 2013. This approach results in a declining rate of population growth persons each lustrum during the 20-year projection period between 2017 and 2037. This results in a projected total growth within MMSD territory between 2017 and 2037 of 29,417 persons in 18,494 households – with lower growth in each lustrum.

A decrease in the amount of net in-migration is the driving factor behind this scenario, which results in a *slowing* of population growth through the study period.

- **Scenario 3 – Extrapolated 5-Year Trends**, is based on the assumption that MMSD’s territory adds population in a manner consistent with the actual total population growth between 2010 and 2015. This results in a projected total household growth within MMSD territory between 2017 and 2037 of 61,917 persons in 35,598 households. This is more than *double* the growth of Scenario 2 – Official Projections. In other words, a continuation of recent population growth trends results in more than twice the population gain projected by WisDOA.

An observed increase in net in-migration is the critical factor behind this scenario, which results in an *acceleration* of population growth through the study period.

The selection of these Scenarios reflects the very strong tendency of actual development in central Dane County to implement adopted municipal plans provided at the neighborhood planning or redevelopment planning level. This level of planning covers approximately 95% of the remaining greenfield areas within the future boundaries of MMSD.

## B. General Description of Projection Methodology

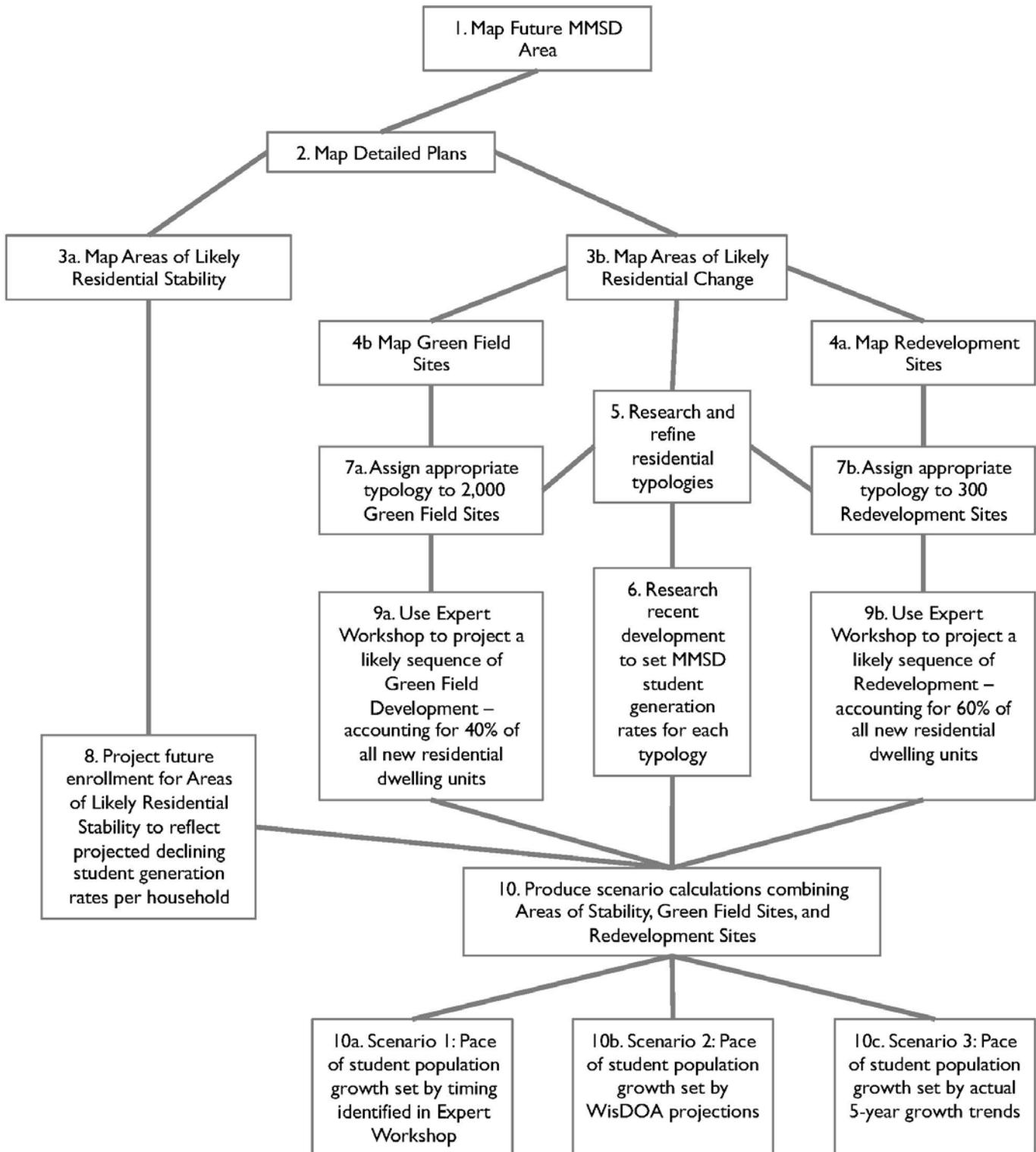
The following methodology is employed to produce enrollment projections:

1. A “Future MMSD Area” is precisely mapped to reflect both current MMSD boundaries and inter-district agreement transfer areas located on the far west side of Madison.
2. The Future MMSD Area is researched and mapped for in GIS to depict existing parcels, current land use, zoning, and planned land use (in comprehensive plans and detailed neighborhood plans), as adopted by each of the area’s 12 cities, villages, and towns.
3. The Future MMSD Area is analyzed by planning and development experts to distinguish “Areas of Likely Residential Stability” from “Areas of Likely Residential Change.” These areas are mapped.
4. Areas of Likely Residential Change are divided into “Redevelopment Sites” which are already in some form of development, and “Greenfield Sites” – usually farm fields or former farm fields.
5. Recent development projects within the Future MMSD Area are analyzed for building form and density; and then classified by planning and development experts into 26 distinct Development Typologies covering the full range of building formats and density present in central Dane County.
6. Unique student generation rates are established for each development typology based on current (2015-2016) MMSD enrollment records for recent development.
7. Greenfield Sites – comprised of approximately 2,000 “pseudo-parcels” – are individually classified into one of 26 development typologies suited for greenfield development. Redevelopment Sites – comprised of approximately 300 pseudo-parcels – are individually assigned one of the development typologies suited for redevelopment.
8. Future enrollment is projected for Areas of Likely Residential Stability. Enrollment for each attendance area is projected for each lustrum, based on current enrollment ratios – as reduced to reflect the on-going decline in average household size projected by WisDOA for the MMSD area.
9. Development scenarios are sequenced – using the map of all predicted Redevelopment and Greenfield development sites compiled for the Future MMSD Area in Steps 1-4. In a series of workshops, planning and development experts predict the likely timing of development by lustrum for each site. The same relative sequence of development is used independently for greenfield sites, and redevelopment sites, in all Scenarios. Scenarios largely differ by the amount of development in each lustrum. As a result, in different Scenarios, development of the same site can be predicted to occur in a different lustrum. See Section D. for detailed sequencing methodology.
10. The projected number of students is calculated by applying the generation rates from Step 6.
  - a) Scenario 1: The amount of development in each lustrum is based on the consensus opinions of land use and development experts as to what development typologies occur where and when.
  - b) Scenario 2: The amount of development in each lustrum is adjusted to produce population levels consistent with WisDOA projections for population and household size.
  - c) Scenario 3: The amount of development in each lustrum is adjusted to produce population levels consistent with actual 2010-2015 population trends for the MMSD area.The projected number of students from new residential development is then added to the projected number of students from existing residential development calculated in Step 8.

## C. Projection Methodology Flow Chart

The approach described above is depicted on the following flowchart.

# Projection Methodology



## D. Detailed Scenario Sequencing Methodology

Projected enrollment for Scenarios 2 and 3 were each conducted by calculating a total estimated population for MMSD for each lustrum through 2037. This was then converted to an estimated number of occupied households based on the DOA's weighted projected number of persons per household for the municipalities' in this study's MMSD Statistical-Geography. Finally this result was back-converted to a target number of housing-units (which may be occupied or unoccupied) per lustrum based on the 2010 Census housing vacancy rate for MMSD of 5.8%.

Simultaneously, the database of anticipated residential development sites was compiled (Methodology Steps 3-4, 7) and each site was assigned a likely residential typology. Then a projected number of housing units was either tabulated or calculated for each site.

In instances where an exact housing unit count was known, this was used. For instance platted parcels intended for single-family homes were given a projected housing unit count of 1, while many near-term or under-construction multi-family projects have already published exact anticipated unit counts which were collected and used.

For all remaining sites, the projected housing units count was calculated by multiplying the acreage of the site by the estimated density of dwelling units per acre for that site's typology, as seen in the typology table on page 53.

From these, counts of anticipated students were calculated for each site (in breakdowns of total students, elementary students, middle school students, and high school students) by multiplying the projected housing unit count by the student generation rates for the site's corresponding typology based on recent comparable development (see the table on Page 55).

An estimate of the timing of each site to develop by lustrum was provided by municipal staff and the other experts consulted, as well as knowledge of specific imminent developments, for Scenario 1.

For Scenarios 2 and 3 the likelihood of each site to develop was then ranked in sequence – separately for redevelopment and greenfield sites. And then the sites were then assigned a lustrum, starting with the first lustrum, for each Scenario until the target number of housing units for each five-year interval had been hit. Thus a site that is projected to develop within the first lustrum in Scenario 3 may not be projected to develop until the second lustrum in Scenario 2, due to the slower growth and respective lower household targets projected for Scenario 2.

About 59% of the housing units in each lustrum were assigned to redevelopment sites, and about 41% of the housing units were assigned to greenfield sites since this was the overall ratio of anticipated housing units within Future MMSD.

For both the redevelopment and greenfield sites, the sequencing was based first on known approved projects, which were all assigned to the first lustrum in all 3 Scenarios.

From that point on the methodology for sequencing diverged between the redevelopment and greenfield sites for Scenarios 2 and 3.

For the redevelopment sites, educated estimates were made based initially on the assigned lustrum from Scenario 1. Where the differences in housing unit projections for each Scenario required the sequencing to be shifted, expert opinions were consulted further to obtain a refined idea of the timing of development.

For the greenfield sites, an extensive GIS-based analysis was conducted to help further refine the timing of likely development on a site-by-site basis.

For each greenfield site an analysis was run as to whether the land in question met a number of geographic criterion. These criteria, listed in hierarchical order below, were also ranked by their relative estimated importance in determining the timing of development.

1. Housing Unit Built but Unoccupied
2. Approved Building Permit or Specific Implementation Plan
3. Improved Lot (supporting street and utility networks installed)
4. Platted
5. Zoned for Residential Development
6. Annexed by a City or Village
7. In Urban Service Area
8. Adjacent to Utility Network
9. Planned for Development in Detailed Neighborhood Plan
10. Planned for Development in Comprehensive Plan
11. Planned for Development in Build-out Plan

See Section H. on page 56 for more.

## E. Detailed Data

The following pages present the data used to establish the projection Scenarios.

### I. Population Growth

Dane County is adding people faster than the steady growth trend of the 1985 to 2010 25-year period. Specifically, between 2010 and 2015 Dane County grew from a total population of 488,075 as counted in the January 1, 2010 U.S. Census, to a total population of 523,643 as estimated by the U.S. Census Bureau as of July 1, 2015. This is an increase in total population of 35,568 persons – which exceeds the 25-year average of about 30,000 persons every 5 years.

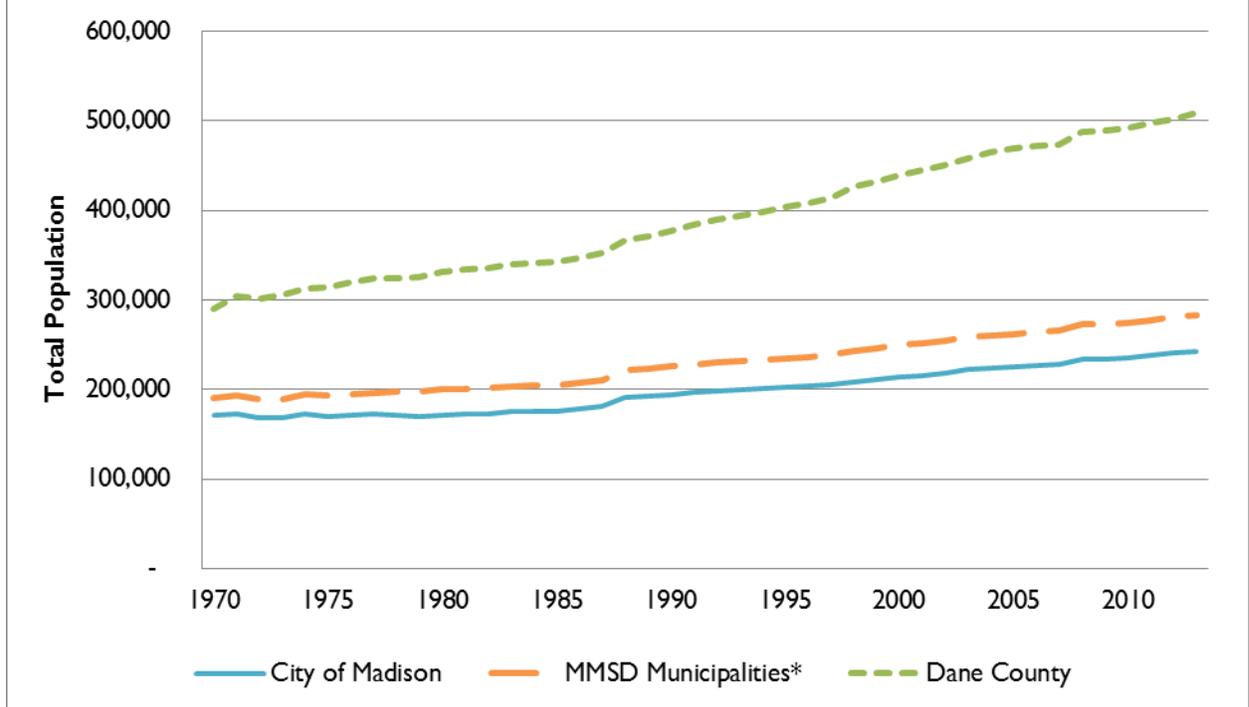
Within the MMSD territory during the same 2010-2015 lustrum, total population has increased from 226,308 as counted in the 2010 U.S. Census to a total population of about 242,522 as estimated by the U.S. Census Bureau in 2015. This is an increase in total population of 16,214 persons – which exceeds the 25-year average of about 15,000 persons every 5 years.

Throughout the last 30 years, almost all population gain (and associated development) within MMSD's territory has occurred within the City of Madison or the City of Fitchburg.

In order to explore a range of possibilities, the projections in this study are based on three scenarios that all project continued population growth within MMSD and central Dane County, but reflect differences in the rate of growth resulting from varying expert opinions about how current trends may change.

A graph depicting Dane County's historic and projected population growth, and the projected population of the Future MMSD Area, through the 2037 projection year.

## Population of MMSD Municipalities: 1970-2015



Source: U.S. Census Bureau (2015) and Vandewalle & Associates (2016)

### Total Population Change in the MMSD Area: 1970 - 2015

Area	1970	1980	1990	2000	2010	2015
Dane County	290,272	323,545	367,085	426,526	488,075	523,643
Avg. Pop. Change		+ 3,327 / yr	+ 4,354 / yr	+ 5,944 / yr	+ 6,158 / yr	+ 7,114 / yr
MMSD Statistical Geography*	189,789	196,871	220,967	243,408	272,725	283,206
Avg. Pop. Change / Year		+ 708 / yr	+ 2,410 / yr	2,244 / yr	2,932 / yr	+ 2,096 / yr
City of Madison	171,809	170,616	190,766	208,054	233,209	248,951
Avg. Pop. Change / Year		- 1,19 / yr	+2,015 / yr	+ 1,729 / yr	+ 2,516 / yr	+ 3,148 / yr

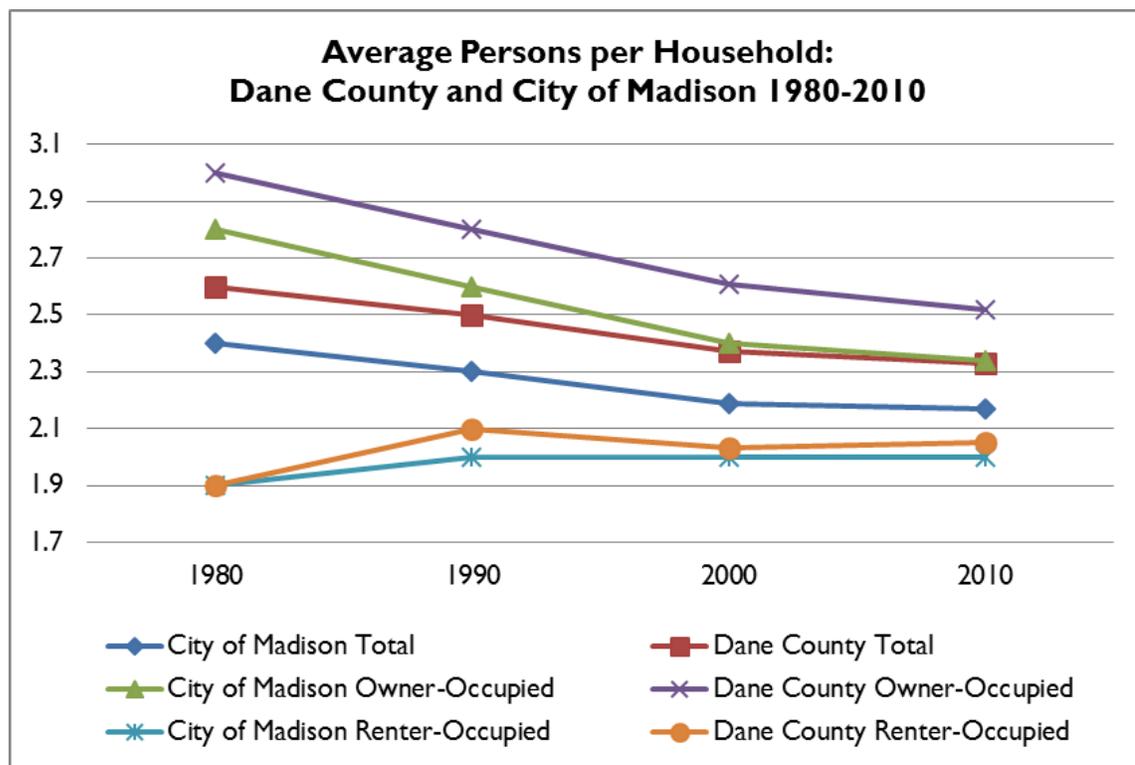
Source: U.S. Census Bureau (2015) & Vandewalle & Associates (2016)

## 2. Declining Average Household Size Continues per WisDOA Projections

Like most of the nation, MMSD has seen average household size shrink throughout its long history. The only significant variation to more than 150 years of steady decline in persons per household was the increase associated with the Baby Boomers, born between 1946 and 1964. The table and chart, below, depict this historic decline since 1980.

Average Household Size 1980 - 2010				
Location and Tenure:	1970	1980	2000	2010
Madison: Owner-Occupied	2.8	2.6	2.4	2.3
Dane County: Owner-Occupied	3.0	2.8	2.6	2.5
Madison: Renter-Occupied	1.9	2.0	2.0	2.1
Dane County Renter-Occupied	1.9	2.1	2.0	2.1
Madison: Total Households	2.4	2.3	2.2	2.17
Dane County: Total Households	2.6	2.5	2.4	2.3

Source: U.S. Census Bureau and Capital Area Regional Planning Commission



Source: U.S. Census Bureau and Capital Area Regional Planning Commission

The Wisconsin Department of Administration has made projections about household size for many years, with a high degree of accuracy. Projections are currently available to 2040, and continue to indicate that average household size will decline by about 1% in every five-year period used in this report – particularly between 2020 and 2040.

The projections in this report are based on the assumption that WisDOA’s projections for persons per household decline are accurate throughout the 20-year projection period, and that the rate of enrolled MMSD students per household will decline at the same percentage. This approach will result in the same number of dwelling units producing a slightly lower enrollment every year. This can lead to long-term enrollment reductions in attendance areas with a fixed number of dwelling units.

Specifically, projections provided by WisDOA in 2013 projects a decline of average household size for Madison as shown in the table, below.

Projected Average Household Size for the City of Madison				

Source: Wisconsin Department of Administration (2013)

The study team has interpolated these projections to match up with the projection period of 2017 to 2037 as follows, for the Future MMSD Area:

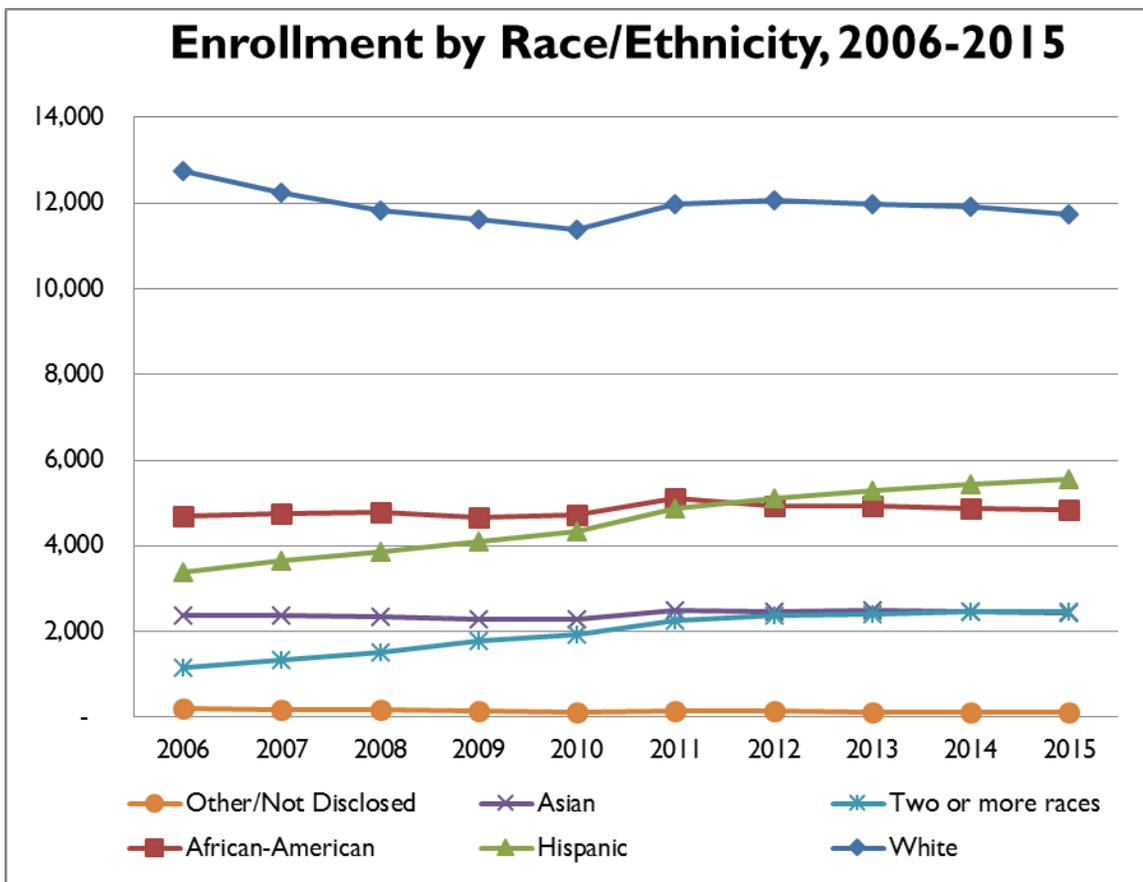
Projected Average Household Size for the Future MMSD Area						
Year or Lustrum ⇒	2010	2015	2017-2022	2022-2027	2027-2032	2032-2037
City of Madison	2.17	2.14	2.12	2.10	2.08	2.06

Source: Vandewalle & Associates (2016), from Department of Administration (2013)

### 3. Five-Year Trend for Increasing Racial Diversity Continues

The racial composition of enrolled students within MMSD has changed significantly over the last 20 years. However, in the last five years, the rate of racial composition change has been slowing for all groups. Over the last five years, students identifying as Hispanic or Latino have comprised a larger share of total enrollment – adding about a 0.46% share every year. Students identifying with two or more races have been adding about a 0.15% share every year. The proportion of students identifying as Asian have been very slightly declining, with average annual decline of 0.07%. Students identifying as Black or African-American have been slightly declining, by a 0.24% share every year. Students identifying as white have also been slightly declining, by a 0.27% share annually. Finally, students identifying as “other” or “not disclosed” have been declining by a .03% share every year.

These trends are depicted on the following graph.



Source: MMSD Enrollment Data 2006-2015.

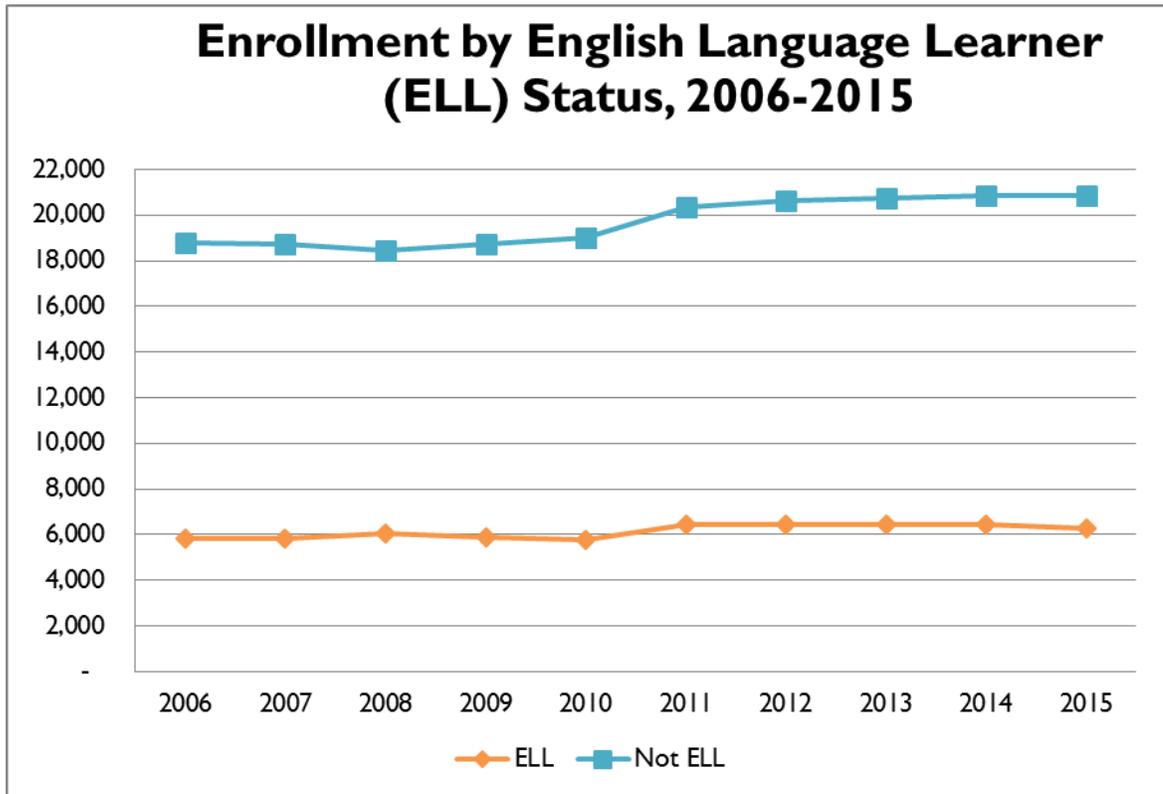
The projections for racial composition in this Study are based on the assumption that these five-year trends continue throughout the study period, and further assume that these same rates of change occur in each attendance area.

<b>Projected Share of Total MMSD Enrollment by Race/Ethnicity</b>							
Race as Self-Identified:	2015-2016	Annual Change in % 2010 - 2015	2017-2022	2022-2023	2027-2028	2032-2033	2037-2038
Black or African American	17.8%	-0.24%	17.3%	16.1%	14.9%	13.7%	12.5%
American Indian	0.3%	-0.01%	0.3%	0.2%	0.2%	0.1%	0.1%
Asian	8.9%	-0.07%	8.8%	8.4%	8.1%	7.7%	7.4%
Hispanic or Latino	20.5%	0.46%	21.4%	23.7%	26.0%	28.3%	30.6%
Pacific Islander	0.1%	0.00%	0.1%	0.1%	0.1%	0.1%	0.1%
Two or more races	9.1%	0.15%	9.4%	10.2%	10.9%	11.7%	12.4%
Other/Not Disclosed	0.1%	-0.02%	0.1%	0.0%	-0.1%	-0.2%	-0.3%
White	43.2%	-0.27%	42.7%	41.3%	40.0%	38.6%	37.3%
All Communities of Color	56.8%	0.43%	57.3%	58.7%	60.0%	61.4%	62.7%
<b>MMSD Total</b>	100%	--	--	--	--	--	--

Source: Vandewalle & Associates (2016), based on MMSD Enrollment Data 2010-2016.

#### 4. Five-Year Trend for Stable English Language Learners Continue

The percentage of enrolled students within MMSD that are noted as English Language Learners has stabilized over the past five years, after many years of steady increase. In the 2015-2016 school year 23.1% of MMSD's students meet the qualifying criteria. Over the last five years, this percentage has been very slightly decreasing – by about 0.19% per year. This trend is depicted on the chart below.



Source: Vandewalle & Associates (2016), based on MMSD Enrollment Data 2010-2016.

The projections in this report are based on the assumption that these trends continue, and further assume that these same rates of change occur in each attendance area, per the following table.

#### Projected Share of Total MMSD Enrollment for English Language Learners

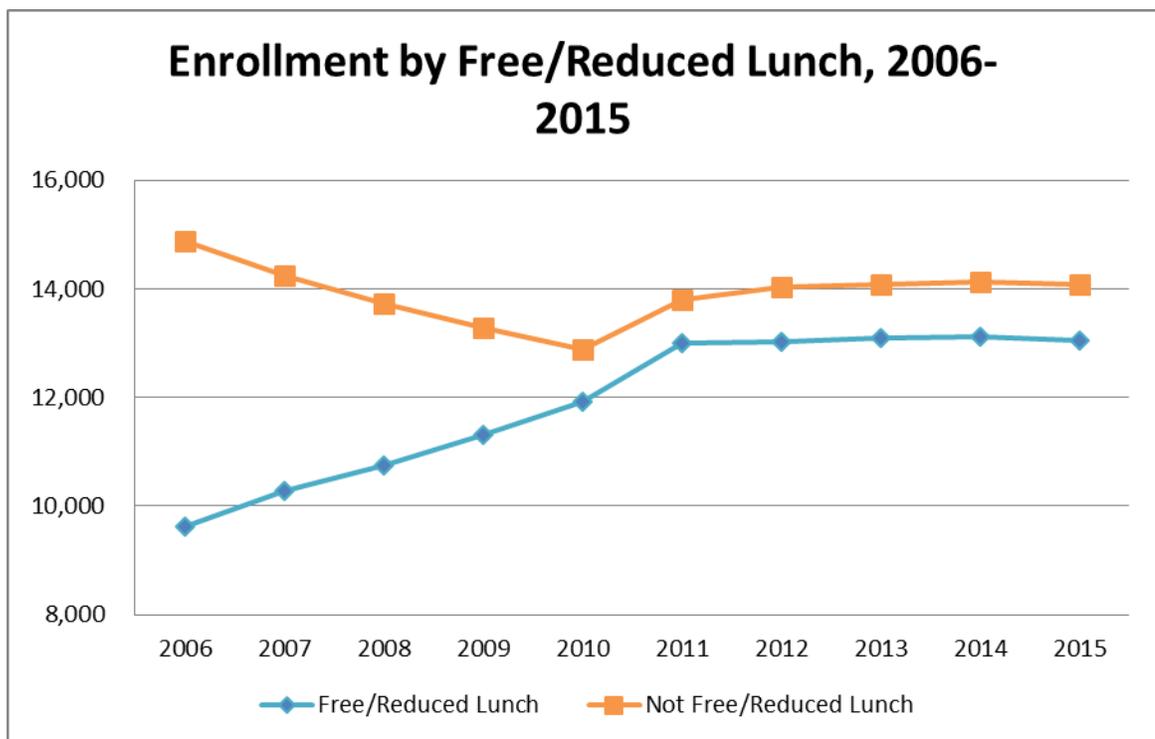
	2015-2016	Annual Change in % Share	2017-2022	2022-2027	2027-2032	2032-2037
<b>MMSD</b>	23.1%	-0.19%	22.7%	21.8%	20.8%	19.9%

Source: Vandewalle & Associates (2016), based on MMSD Enrollment Data 2010-2016.

## 5. Five-Year Trend for Stable Free or Reduced Lunch Levels Continue

The percentage of enrolled students within MMSD that qualify for free or reduced lunch has increased significantly over the last 25 years. In the 2015-2016 school year 48.1% of MMSD's students meet the qualifying criteria. This percentage has been very stable over the last five years -- decreasing by about 0.06% per year. The slowing of this trend likely reflects improved national economic conditions, and likely also reflects the growing shortage of affordable housing in central Dane County.

Although the growing shortage of affordable housing in central Dane County may be a significant factor affecting these populations, the projections in this report are based on the assumption that these trends continue, and further assume that these same rates of change occur in each attendance area. These trends are depicted in the chart, below.



Source: Vandewalle & Associates (2016), based on MMSD Enrollment Data 2010-2016

The projections in this report are based on the assumption that these trends continue, and further assume that these same rates of change occur in each attendance area, per the following table.

Projected Share of Total MMSD Enrollment for Free/Reduced Lunch						
	2015-2016	Annual Change in % Share	2017-2022	2022-2027	2027-2032	2032-2037
<b>MMSD</b>	48.1%	-0.06%	48.0%	47.7%	47.4%	47.1%

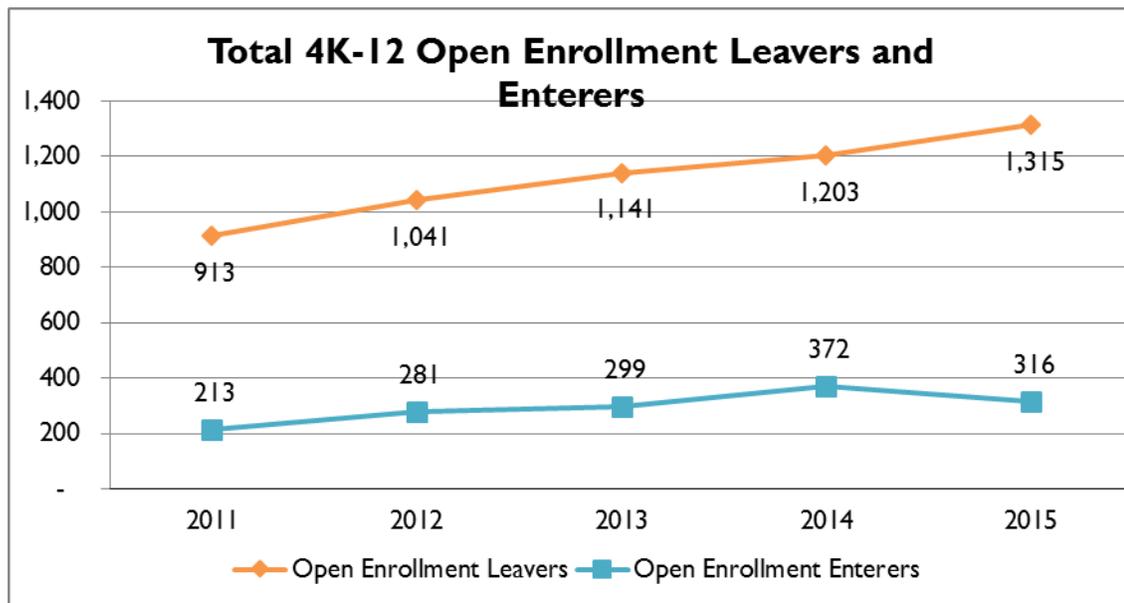
Source: Vandewalle & Associates (2016), based on MMSD Enrollment Data 2010-2016.

## 6. Net Leavers are Stable

The last five years have seen an increase in net leavers for MMSD. Data for MMSD enters and leavers is presented in the table, and chart, below.

MMSD Historic Leavers and Enterers through Open Enrollment					
<b>Leavers</b>	913	1,041	1,141	1,203	1,315

Source: Vandewalle & Associates (2016), based on MMSD Enrollment Data 2010-2016.



The number of net leavers from MMSD is increasing. However, these numbers are susceptible to enrollment capacity at neighboring school districts. As schools in neighboring districts experience increased internal enrollment, they tend to reduce the number of students they accept from other districts. Therefore, the projections for this Study assume that net leavers will be constant with current totals.

Projected Net Leavers from MMSD through Open Enrollment						
	2015-2016	2017-2022	2022-2023	2027-2028	2032-2033	2037-2038
<b>MMSD</b>	999	999	999	999	999	999

Source: Vandewalle & Associates (2016), based on MMSD Enrollment Data 2010-2016.

## F. Development Typology Used in this Study

The residential development typology employed in Steps Six through Ten of the projection methodology presented above is summarized in the following table.

The typology is designed to capture the unique student generation rates from 26 forms of development containing residential dwellings. These range from single-family homes served by private well and septic systems – located in the few remaining rural lands in the District, to “Constellation”-style seven- to twelve-story buildings with commercial and/or office uses on the ground and second floors.

The table on the facing page organizes these typologies by typical location within the metropolitan area. These are displayed on the table rows with the shaded bands.

A unique identification map code is provided in the first column for each typology. Maps presented later in this report will display these letter codes.

The second column provides a brief description of the dwelling unit type. Abbreviations are found at the bottom of the table.

The third column lists the typical zoning districts that host each typology, from the City of Madison’s new zoning code. Where zoning is present on vacant lots, the zoning code can provide a clue to the building typology before a building is erected.

The fourth column describes the general building form of the typology. UGP indicates the building is provided with Under Ground Parking, and /C indicates that residential units are found on upper stories, over Commercial uses.

The final column lists the density of development that is typically achieved, in dwelling units per acre. A dwelling unit provides accommodations for a single household. A single-family home is a dwelling unit, as is an efficiency apartment. By using development typologies, this Study can assign a unique MMSD student generation rate to each typology – based on current MMSD enrollment records. The typical density provides an estimate of the number of dwelling units likely to be built on a given parcel, based on that parcel’s area. The densities provided in this table, are unique to central Dane County, as provided by experts in the planning department of Madison and Fitchburg, and at Vandewalle & Associates.

## MMSD Projections: Residential and Mixed-Use Typologies

Map Code	Residential Type	Zoning Districts (City of Madison)	Typical Building	Typical Achieved (Gross) Density
<b>Rural Residential Only Development Typologies (typically on private well and septic systems)</b>				
<b>A</b>	Rural Single-Family	TR-R	Single-Family	1 du / 5 ac
<b>Suburban Residential Only Development Typologies (typically with medium sized lots and building setbacks)</b>				
<b>B</b>	Medium Lot S.F.	SR-C1	Single-Family	3 du / ac
<b>C</b>	Small Lot S.F.	SR-C2	Single-Family	4 du / ac
<b>D</b>	Duplex	SR-C3	Duplex	6 du / ac
<b>E</b>	Two-Flat	PUD (rare)	2-Flat	8 du / ac
<b>F</b>	3-4 Unit M.F.	SR-V1	4 Unit	8 du / ac
<b>G</b>	5-8 Unit M.F.	SR-V2	8- Unit / Townhouse	12 du / ac
<b>H</b>	9-16 Unit M.F.	SR-V2	12 Unit / 16 Unit	16 du / ac
<b>I</b>	Large 3-Story M.F.	SR-V2	3-Story UGP	20 du / ac
<b>J</b>	Large 4-Story M.F.	SR-V2	4-Story UGP	30 du / ac
<b>K</b>	Large 5-8 Story M.F.	SR-V2	5+ Story UGP	50 du / ac
<b>Urban Residential Only Development Typologies (typically with small sized lots and building setbacks)</b>				
<b>L</b>	Medium Lot S.F.	TR-C1	Single-Family	4 du / ac
<b>M</b>	Small Lot S.F.	TR-C2	Single-Family	5 du / ac
<b>N</b>	Duplex	TR-C3	Duplex	7 du / ac
<b>O</b>	Two-Flat / 3-Flat	TR-C4 / DR-1	Two-Flat	8 du / ac
<b>P</b>	3-4 Unit M.F.	TR-V1 / TR-V2	4 Unit	10 du / ac
<b>Q</b>	5-8 Unit M.F.	TR-U1 / TR-U2	8 Unit / Townhouse	15 du / ac
<b>R</b>	9-16 Unit M.F.	TR-P	12 Unit / 16 Unit	20 du / ac
<b>S</b>	Large 3-Story M.F.	TR-P	3-Story UGP	25 du / ac
<b>T</b>	Large 4-Story M.F.	TR-P	4-Story UGP	40 du / ac
<b>U</b>	Large 5-8 Story M.F.	PUD	5+ Story UGP	60 du / ac
<b>V</b>	Large 9+ Story M.F.	PUD	9+ Story UGP	100 du / ac
<b>Mixed Use Development Typologies (typically Residential over Commercial and/or Office)</b>				
<b>W</b>	Neighborhood M.U.	TSS, CC-T, NMX	2/3 floors Res / C	25 du / ac
<b>X</b>	Urban M.U.	DC, UMX, MXC	4-5 floors Res / C	40 du / ac
<b>Y</b>	Central M.U.	PUD	7+ floors Res / C	75 du / ac
<b>Z</b>	Core M.U.	PUD	7+ floors Res / 2+ C	100 du / ac

**S.F.:** Single Family; **M.F.:** Multi Family; **M.U.:** Mixed Use; **UGP:** Under ground Parking; **du:** dwelling unit; **ac:** acre

Source: Vandewalle & Associates, City of Madison, and City of Fitchburg (2016)

## G. Student Generation Rates Used in this Study

The student generation rates calculated in Step Six of the projection methodology presented above are summarized in the following table. These rates were measured for recent greenfield development and redevelopment. Note that the following rates are for the District as a whole. Rates were differentiated for the far east, far south, and far west side growth areas for Typologies B through I. However, only localized ratios were used for Typologies B and C on the east and west sides. For all other Typologies, not as prevalent in all areas, MMSD averages were employed to draw from a larger sample size.

As can be seen in the table on the following page, to further increase sample size weighted ratios were aggregated for some similar typologies. These include aggregated ratios for Typologies K and U and combined ratios for Typologies I, J, S, and T. Further, for many corresponding, rural, suburban and urban Typologies combined ratios were used. These pairings include A and B, C, L, and M, D and N, F and P, G and Q, R and H.

Many of the rates provided in the table are very low. Specifically, in 2010 MMSD residences generated students at a rate of 0.23 students per occupied household. The rates measured in developing neighborhoods in the Districts periphery range from a high of 0.353 students per household for small lot single-family homes down to practically no students generated by large multi-family buildings. These low rates are at the heart of the very modest growth projected for MMSD enrollment by this Study.

It is unknown if and how these rates will evolve. Future MMSD enrollment data should be compared to the table, and where different, should be adjusted to provide updated projections.

One potential cause of these low rates could be that many new multifamily buildings are predominantly occupied by a combination of Millennial young professionals and Empty Nester Baby Boomers. Both groups have very few school age children in the home.

## MMSD Enrolled Student Generation Rates in Recent Developments (for 2015-2016)

Typology Map Code	Residential Type	Elementary School Students	Middle School Students	High School Students	Total MMSD Students
<b>Rural Residential Only Development Typologies (typically on private well and septic systems)</b>					
<b>A</b>	Rural Single-Family				
<b>Suburban Residential Only Development Typologies (typically with medium sized lots and building setbacks)</b>					
<b>B</b>	Medium Lot S.F.	0.135	0.072	0.134	0.341
<b>C</b>	Small Lot S.F.	0.203	0.074	0.076	0.353
<b>D</b>	Duplex	0.048	0.016	0.028	0.092
<b>E</b>	Two-Flat	<i>New two-flat locations are not planned.</i>			
<b>F</b>	3-4 Unit M.F.	0.050	0.013	0.013	0.076
<b>G</b>	5-8 Unit M.F.	0.019	0.023	0.009	0.051
<b>H</b>	9-16 Unit M.F.	0.015	0.005	0.005	0.025
<b>I</b>	Large 3-Story M.F.	0.033	0.008	0.010	0.051
<b>J</b>	Large 4-Story M.F.	0.033	0.008	0.010	0.051
<b>K</b>	Large 5-8 Story M.F.	0.010	0.005	0.007	0.022
<b>Urban Residential Only Development Typologies (typically with small sized lots and building setbacks)</b>					
<b>L</b>	Medium Lot S.F.	0.203	0.074	0.076	0.353
<b>M</b>	Small Lot S.F.	0.203	0.074	0.076	0.353
<b>N</b>	Duplex	0.048	0.016	0.028	0.092
<b>O</b>	Two-Flat / 3-Flat	<i>New two-flat locations are not planned.</i>			
<b>P</b>	3-4 Unit M.F.	0.050	0.013	0.013	0.076
<b>Q</b>	5-8 Unit M.F.	0.019	0.023	0.009	0.051
<b>R</b>	9-16 Unit M.F.	0.015	0.005	0.005	0.025
<b>S</b>	Large 3-Story M.F.	0.033	0.008	0.010	0.051
<b>T</b>	Large 4-Story M.F.	0.033	0.008	0.010	0.051
<b>U</b>	Large 5-8 Story M.F.	0.011	0.005	0.007	0.022
<b>V</b>	Large 9+ Story M.F.	0.002	0.001	0.001	0.004
<b>Mixed Use Development Typologies (typically Residential over Commercial and/or Office)</b>					
<b>W</b>	Neighborhood M.U.	0.016	0.008	0.004	0.028
<b>X</b>	Urban M.U.	0.001	0.003	0.004	0.008
<b>Y</b>	Central M.U.	0.001	0.006	0.007	0.014
<b>Z</b>	Core M.U.	0.004	0.004	0.001	0.009

**S.F.: Single Family; M.F.: Multi Family; M.U.: Mixed Use; UGP: Under ground Parking; du: dwelling unit; ac: acre**

Source: Vandewalle & Associates (2016)

## H. Map of Anticipated Residential Development

The following map depicts the pattern of residential and mixed-use development typologies that results from an intensive study of City of Madison and City of Fitchburg planning materials. Specific source materials were selected for all vacant (greenfield) areas within the future MMSD area, and for sites identified as likely to redevelopment between 2016 and 2037 by a team of planning and development experts.

The following source materials were used, in the order of priority presented below:

- A windshield survey of projects recently completed or under construction
- Marketing materials for approved, but not yet built, residential and mixed use projects
- Specific and Precise Implementation Plans depicting the exact nature of approved development for parcels with Planned Development zoning
- Zoning on platted individual lots
- General Development Plans depicting the general nature of approved development for parcels with Planned Development zoning
- Zoning on un-platted parcels where individual lots were not yet platted
- Approved Detailed Neighborhood Development Plans – typically employing proposed land use descriptions similar to the “Residential Type” or “Typical Building Type” columns shown in the preceding MMSD Projections: Residential and Mixed-Use Typologies table.
- General land use categories employed on the Future Land Use Map in each municipality’s Comprehensive Plan

This map clearly depicts the three concentrations of new greenfield development located at the far west and far east sides of Madison, and central Fitchburg, as shown on the Regional Development Factors Map in Section III.F. Although single-family development typologies (B and C) are depicted on the largest amount of area, significant areas of dense multi-family and mixed use development are found in much greater proportion than in most older Madison neighborhoods built-out between 1960 and 1990. In fact, projected multi-family dwelling units comprise 85% of all mapped units, while single-family and duplex dwelling units comprise only 15%.

Redevelopment parcels are scattered throughout the built-up urban areas – with clusters occurring within the central isthmus neighborhoods focused along the main arterial road; and in the redevelopment nodes and aging shopping centers. Again, see the Regional Development Factors Map.

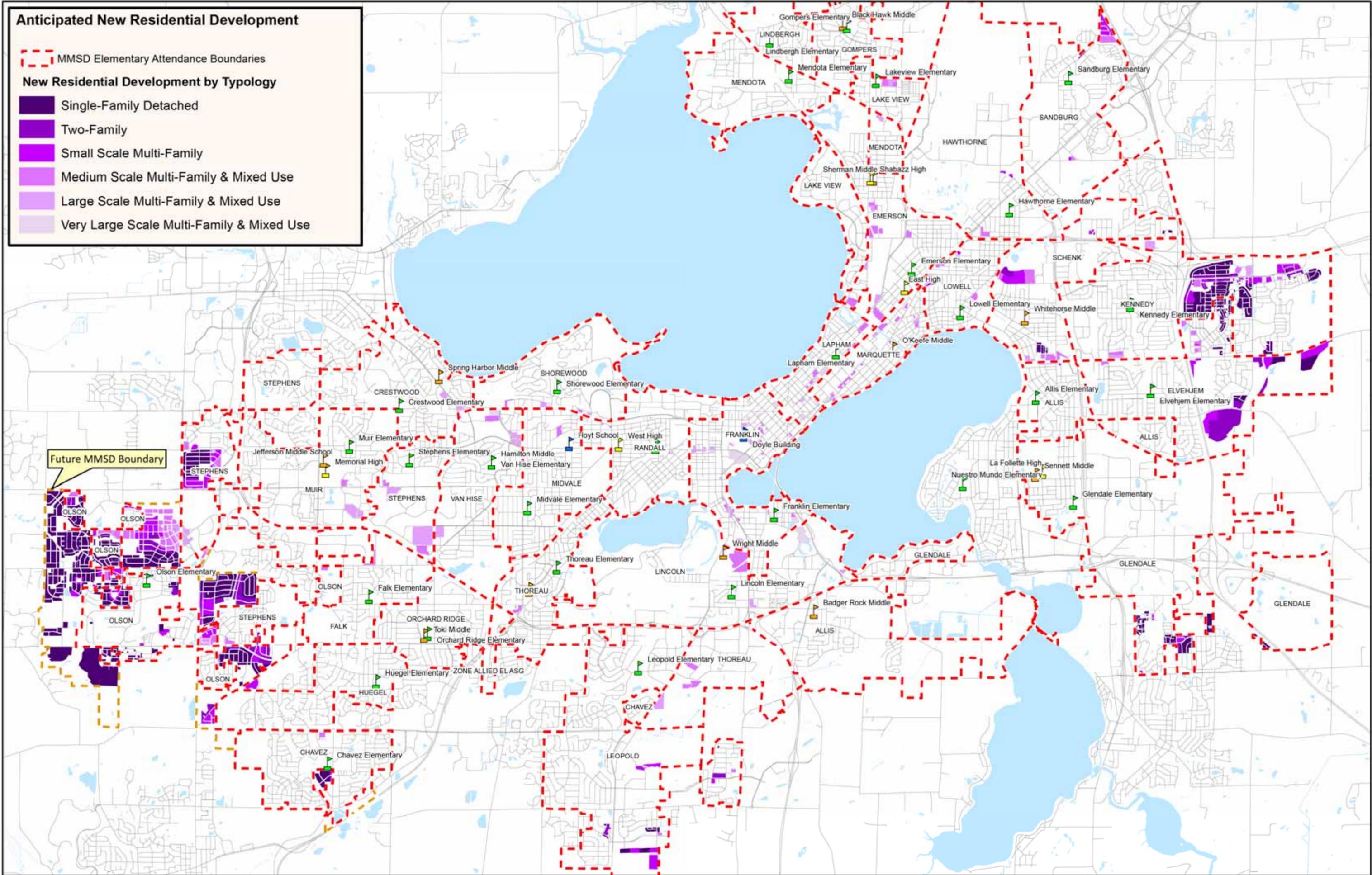
In total, more than 2,000 greenfield platted lots and unplatted pseudo parcels are depicted – each with its own development typology. More than 300 redevelopment sites are also identified – each with its own development typology. These typologies are considered to be a generally fixed development pattern, and are consistent across all three Development Scenarios. The Development Scenarios differ in the timing of these greenfield and redevelopment projects.

**Anticipated New Residential Development**

 MMSD Elementary Attendance Boundaries

**New Residential Development by Typology**

-  Single-Family Detached
-  Two-Family
-  Small Scale Multi-Family
-  Medium Scale Multi-Family & Mixed Use
-  Large Scale Multi-Family & Mixed Use
-  Very Large Scale Multi-Family & Mixed Use



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The second map provides a zoom-in sample of detailed typology mapping for the far west side.

- Each letter corresponds to the typology for an area with the same typology throughout that area. This could be an individual lot, or an entire block.
- Hence, Bs and Cs are well-scattered because single-family homes tend to fill entire blocks. In contrast, Fs, Ws, and Xs represent large multi-family buildings that typically are not clustered, but have lots larger than needed for single-family development.
- The darkest colored areas represent single-family development.
- The lightest colored areas represent very high density multi-family buildings of nine or more floors.
- This site specific mapping is available in GIS for the entire MMSD future area and reflects a very useful data base that should be updated as more details are known about new development projects.

The third map is a screen capture of the GIS layers partially used to construct the future development maps.

A description of the layers shown on this screen capture follows.

- The map has the same extent as the zoomed-in “Anticipated New Residential Development by 2037” map so comparison can be made between the source material and final mapped typologies.
- Areas outside the anticipated future MMSD boundary were not assigned typologies, even if in City of Madison Neighborhood Development Plans, such as in the Northwest corner of the map.
- The most general source drawn from was the City of Madison’s Planned Land Use Map from the 2012 Comprehensive Plan.
- More detailed Neighborhood Development Plans created by the City of Madison were examined next. Planned possible right-of-way is mapped in these plans, and more specific land use densities and categories are identified.
- City of Madison Zoning can indicate when a greenfield area is nearing residential development.
- Platted parcels indicate even more imminent residential development, including likely density. These sometimes contradict, and when doing so supersede, mapped right-of-way and land use from the Neighborhood Development Plans. An instance of such a conflict can be seen in the Northwest quadrant of the map, just south of Mineral Point Road, in the area Zoned TR-C3.
- In some cases residential parcel plats were approved but not yet recorded by the Dane County Land Information Office.
  - In one instance a CAD file was obtained from the developer and incorporated into the mapping database, such as the parcels highlighted in red.
  - If a CAD file was unavailable, a pdf of the parcel plats was obtained, digitized, traced, and incorporated into the mapping database. A partially transparent image of one such plan can be seen on the north side of Valley View Road in the Southwest quadrant of the map.
- Other sources such as approved development plans, input from municipal planning staff or other experts, or plans from adjacent municipalities were consulted to determine the likely future residential typology.

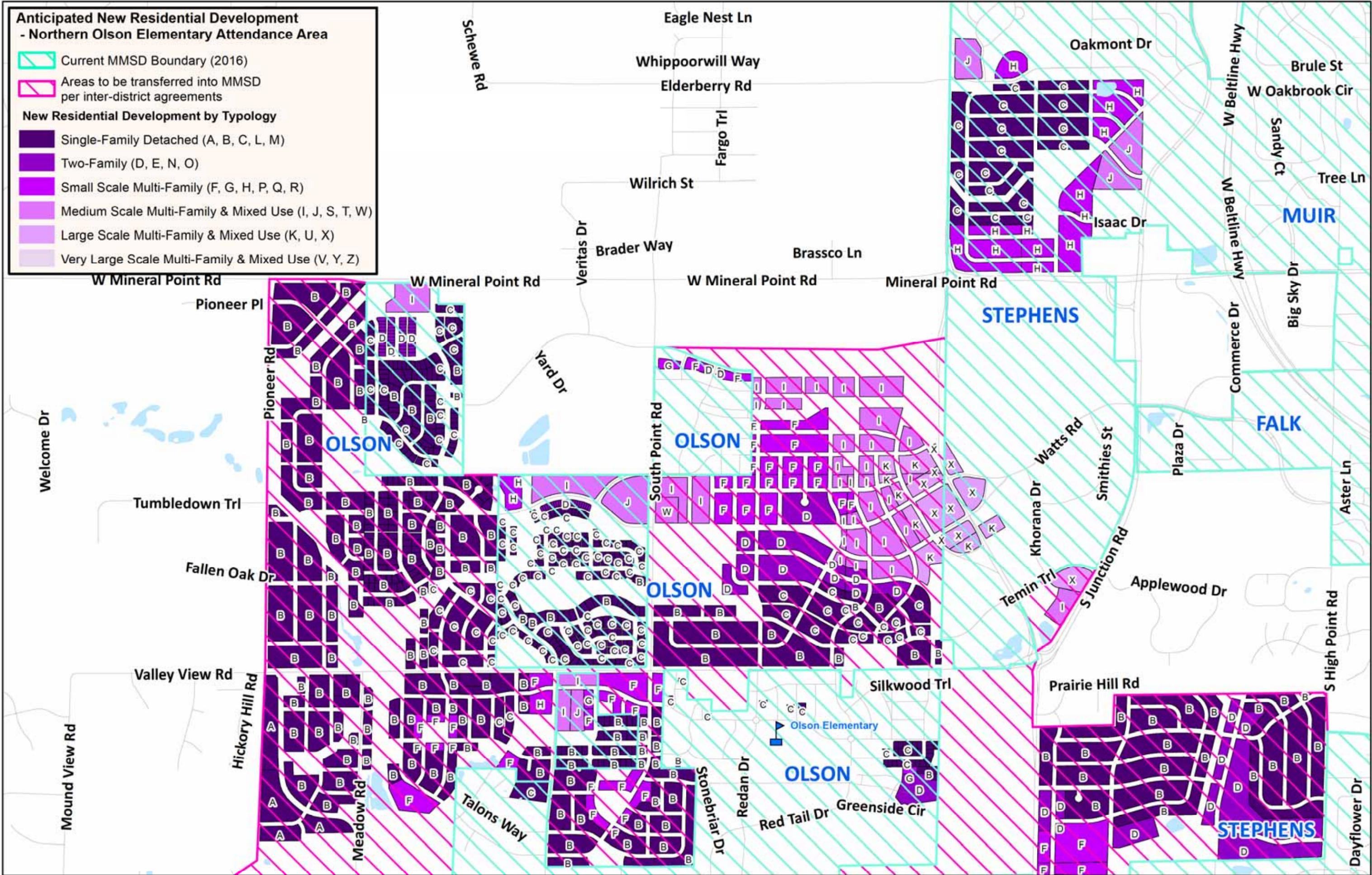
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**Anticipated New Residential Development  
- Northern Olson Elementary Attendance Area**

-  Current MMSD Boundary (2016)
-  Areas to be transferred into MMSD per inter-district agreements

**New Residential Development by Typology**

-  Single-Family Detached (A, B, C, L, M)
-  Two-Family (D, E, N, O)
-  Small Scale Multi-Family (F, G, H, P, Q, R)
-  Medium Scale Multi-Family & Mixed Use (I, J, S, T, W)
-  Large Scale Multi-Family & Mixed Use (K, U, X)
-  Very Large Scale Multi-Family & Mixed Use (V, Y, Z)



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## V. Big Picture Overview of Enrollment 2017-2037

### A. General Enrollment Stability has been the Historic Trend

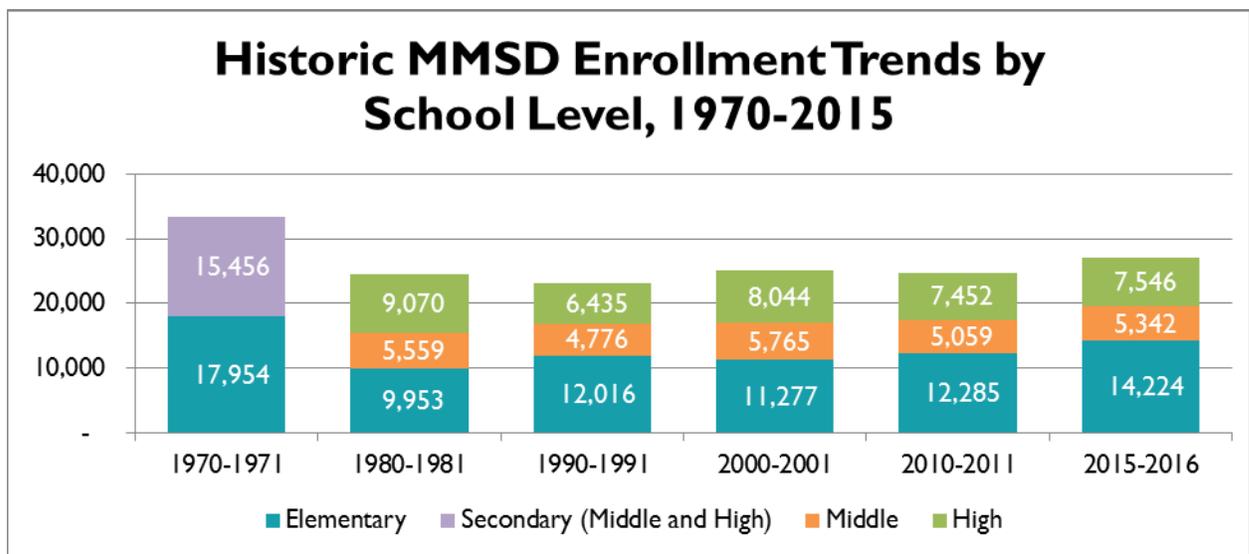
MMSD has had remarkably steady K-12 enrollment for the past 25 years. Throughout this period enrollment has centered on 24,500 students, with an annual variation of no greater than 1,500 students above or below this average. This steady trend has been a coincidence of the counterbalancing trends of total population gain offset by declining household size and the concurrent decline in the number of school age children per capita. Enrollment trends at area private schools, net inter-district transfers, and home schooling also contribute in varying degrees to this enrollment plateau.

As such, in no way does MMSD's steady enrollment reflect the result of planning or development coordination between the District and its constituent municipalities. It is a *coincidence* of a wide range of demographic trends, economic conditions, and changes in municipal and school district boundaries.

This resulting stable enrollment has occurred when the overall population of the District's Statistical Geography has grown from 220,967 in 1990 to 283,206 in 2015. Essentially, despite the addition of more than 60,000 residents over the period of the last 25 years, there have been minimal changes on enrollment.

This phenomenon is likely to continue, as projected student population growth for the MMSD area is only marginally faster under Scenarios 1 and 3.

The following graph provides an overview of historic enrollment trends in MMSD.



## B. Future MMSD Enrollment is Likely to be Astonishingly Steady

The three development Scenarios evaluated in this Study result in a range of overall MMSD enrollment projections, as presented below.

Scenario 1: Development Expert Opinion, and Scenario 3: Extrapolated 5-Year Trends, result in similar projections, though varying in the pace of development during the 20-year projection period. Both result in a slight increase in K-12 enrollment for MMSD as a whole, with significant enrollment increases in the Olson and Kennedy Elementary attendance areas, and moderate gains in the Stephens, Elvehjem, and Glendale Elementary attendance areas. These enrollment gains directly reflect large areas of projected greenfield development in these areas.

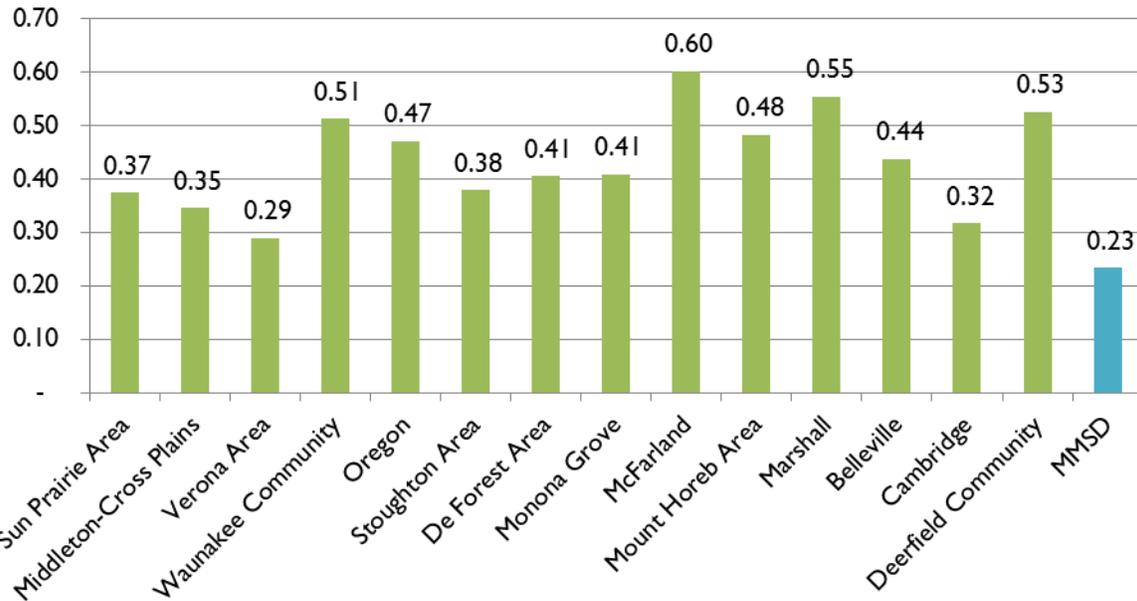
In total, Scenario 1 results in about 33,000 additional households and about 1,585 additional MMSD students by the end of the Study period in 2037. Scenario 3 results in about 35,000 additional households and about 1,670 additional MMSD students by 2037. In both instances, the strong rate of general population growth is offset by the continued decline of enrollment from existing households, and the low student generation rates of new development predominated by multi-family dwelling units.

In contrast, Scenario 2: Official Projections, with declining net in-migration, significantly reduces 30-year population trends, and barely keeps pace with the decline in average household size, although enrollment in the peripheral elementary attendance areas listed above grows somewhat due to continued, though reduced, development activity. Specifically, Scenario 2 projects the addition of about 18,500 new households and only 380 net new students through the end of the study period in 2037.

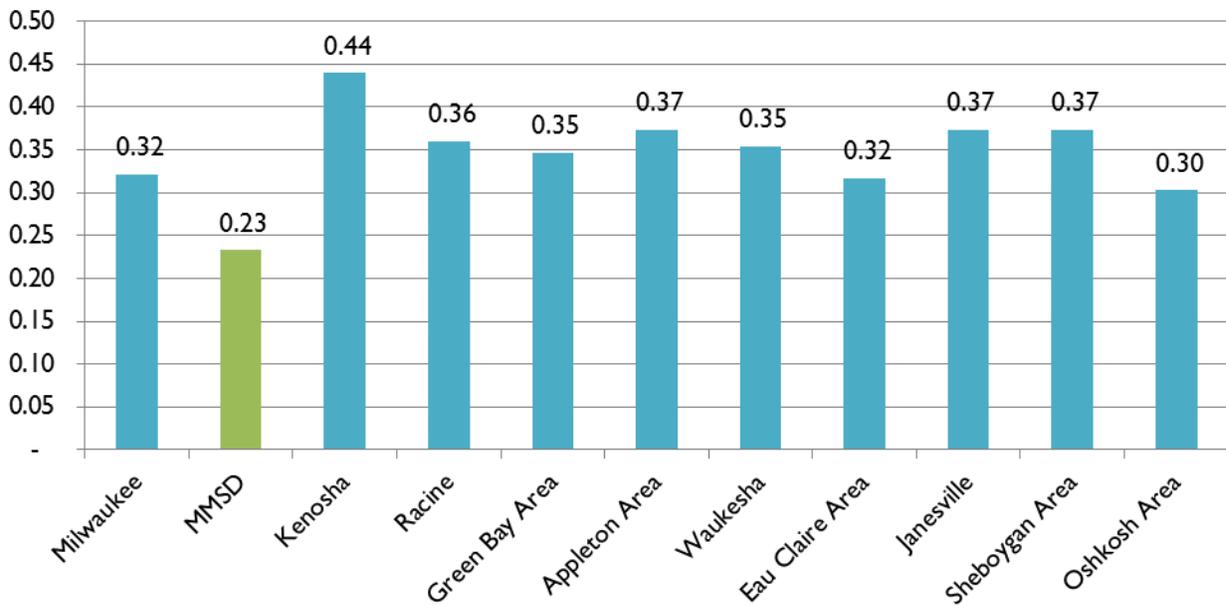
Note that these projected rates of net student production per new household are very low – at 0.05 students per household in Scenarios 1 and 3, and at 0.02 students per household in Scenario 2. These rates contrast with 2010 data for MMSD which noted an overall student generation rate of 0.23 students per household for the District as a whole. Claims of Madison becoming more like San Francisco and Manhattan, in terms of low student generation rates, appear to be manifesting themselves in these projections. Or, are the current very low student generation rates a result of the Great Recession delaying the start of Millennial families, and merely a short-term trend? Time will tell.

The following charts display the students per housing unit for Dane County school districts, and for the ten largest urban school districts in the state. Note that the student generation rate for MMSD at 0.23 students per household is the lowest among all districts examined. Through the projection period MMSD's student generation rate is likely to decline further. This is a result of having 80% of new dwelling units being multi-family, with high percentages of efficiency and one-bedroom units. The current student generation rate of such units now present on the far east and far west sides of the District is approximately 0.05 students per household.

## Students per Housing Unit, 2010 (Dane County School Districts)



## Students per Housing Unit, 2010 (WI Urban School Districts)



Sources: Wisconsin Dept. of Public Instruction 2010-2011 Certified Enrollment Records; 2010 U.S. Census; 2006-2010 American Community Survey 5-Year Estimates.

### C. MMSD's Future Area May be Approaching Greenfield Build-Out before 2040.

Scenario 1: Development Expert Opinions and Scenario 3: Extrapolated 5-Year Trends both nearly exhaust the supply of developable residential greenfield land within the MMSD Future Area by the year 2037. The remaining land left for residential greenfield development in Scenarios 1 and 3 after 2037 could supply another 400 to 500 dwelling units, but it is comprised primarily of land owned by governmental entities that may never come available.

If the trends in Scenario 1 or 3 continue, *and* such land is available, between 3 and 8 years of residential greenfield development capacity remain in the MMSD Future Area. After these areas are development, overall MMSD enrollment is likely to decline.

In contrast, Scenario 2: Official Projections, only develops about one-half of the remaining land planned for residential development within the MMSD Future Area. In the trends in Scenario 2 continue, between 50 and 60 years of residential greenfield development capacity remain in the MMSD Future Area.

### D. The Importance of Redevelopment in Enrollment

The development projections for Scenarios 1 and 3 emphasize the potential role of redevelopment in maintaining MMSD's overall enrollment. Development experts identified over 300 potential redevelopment sites – mostly in Isthmian Madison. Although resulting multi-family development typically has low generation rates, the sheer quantity of dwelling units contribute a substantial share of future MMSD enrollment.

Specifically, the residential typology mapping conducted for this Study projects that of about 38,000 additional dwelling units in MMSD, 4,000 will be single-family homes, 1,600 will be duplexes, and about 31,400 will be multi-family dwellings, mostly in large buildings on redevelopment sites.

It should be noted that current development financing qualifications have brought large-scale condominium development to a halt nationwide. If this changes, low-rise condominiums could generate students, and could provide a landing spot for empty-nesters – making their single-family homes available to younger families and their students.

### E. Significant Variations in the Amount of Development Occur in Attendance Areas

The limited locations of the greenfield and redevelopment sites direct most new development to a handful of attendance areas. On the west side, most greenfield sites are in the currently unassigned inter-district transfer areas. About 90 percent of available greenfield sites are closest to Olson Elementary School, with 9 percent of the area closest to the far west side Stephens Elementary School attendance area. A few sites are close to Chávez Elementary School. Redevelopment sites are well-scattered, with the Randall Elementary School attendance area having the most. On the east side, about 45 percent of the greenfield sites are in the Elvehjem Elementary School attendance area, with another 40 percent in the Kennedy Elementary School attendance area. Redevelopment sites are well-scattered, with Lapham Elementary School having the most sites. Several small greenfield and redevelopment sites are located in Fitchburg, in the Leopold Elementary School attendance area.

## VI. Comparison of Development Scenarios

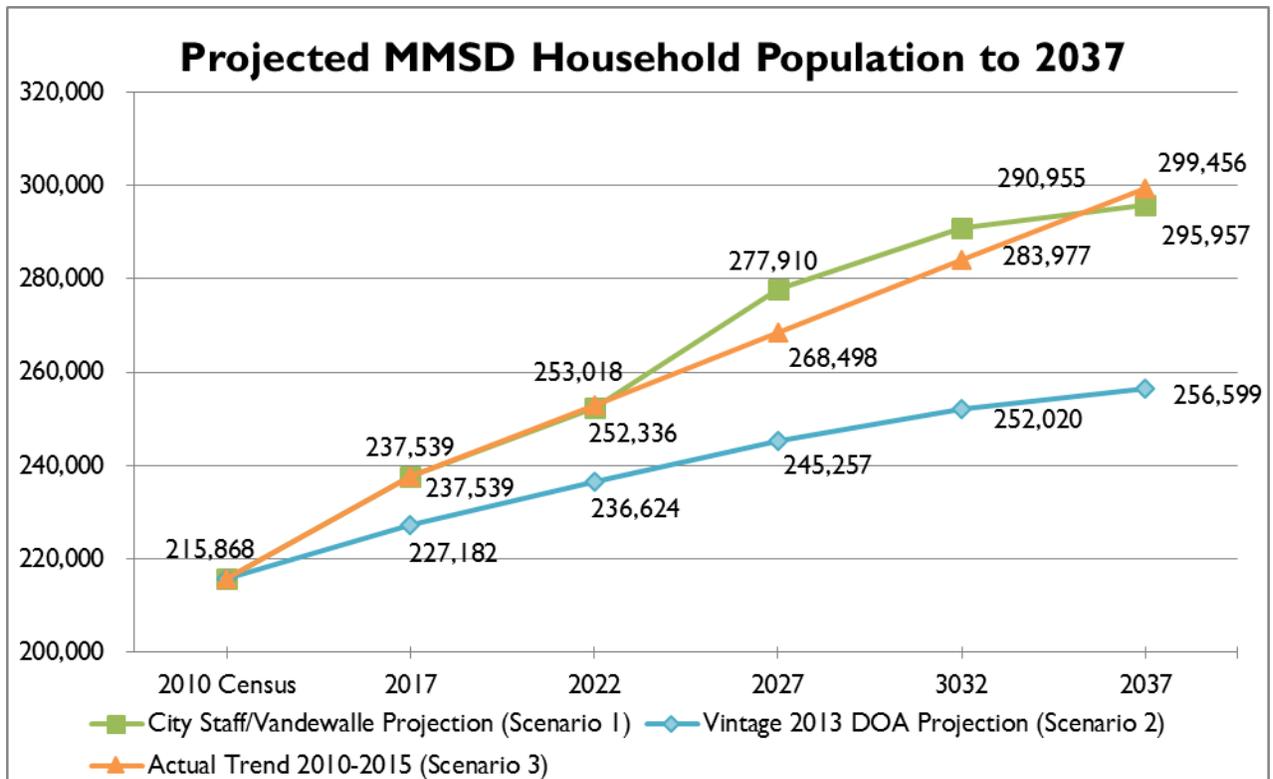
### A. Scenario Overview for all of MMSD

This study examined three scenarios that affect the pace of development. Scenario 1 is based on development knowledge held by planning department staff at the City of Madison and City of Fitchburg and by planning and development consultants at Vandewalle & Associates. Scenario 2 is based on official population projections provided by WisDOA in 2013. Scenario 3 is based on an extrapolation of actual population trends within MMSD for the period between 2010 and 2015. The following table and graph depict these scenarios in 5 year periods through the study period.

#### I. Household Projections

### MMSD Household Projections to 2037

Year	2010 Census	2017	2022	2027	2032	2037
City Staff/Vandewalle Projection (Scenario 1)	215,868	237,539	252,336	277,910	290,955	295,957
Vintage 2013 DOA Projection (Scenario 2)	215,868	227,182	236,624	245,257	252,020	256,599
Actual Trend 2010-2015 (Scenario 3)	215,868	237,539	253,018	268,498	283,977	299,456



## 2. Net Change in Households, Household Populations, and Enrollment

The following tables and graph provide summary data for total net enrollment change and breakdown for high school attendance areas through the projection period.

<b>Summary Comparison for All Development Scenarios</b>					
<b>Scenario 1 (Vandewalle/City Staff Projections)</b>					
Households Added	8,298	13,442	7,569	3,574	
New MMSD Enrollment	515	502	390	178	
<b>Scenario 2 (DOA Projections)</b>					
Household Population Added	9,442	8,633	6,763	4,579	
<b>Total Projected MMSD Enrollment</b>	<b>27,427</b>	<b>27,519</b>	<b>27,514</b>	<b>27,492</b>	
<b>Scenario 3 (2010 2015 Growth Rate Extended)</b>					
Households Added	8,624	8,585	8,710	8,679	<b>34,598</b>
Household Population Added	15,479	15,479	15,479	15,479	<b>61,917</b>
New MMSD Enrollment	509	340	278	543	<b>1,670</b>
<b>Total Projected MMSD Enrollment</b>	<b>27,621</b>	<b>27,961</b>	<b>28,239</b>	<b>28,782</b>	

The following three tables and three maps depict the pattern and timing of development for the three scenarios.

**Projected Total Enrollment by School with New Development and Declining Persons per Household (Scenario One)**

School/Program	2015-16 Certified MMSD Enrollment	Enrollment Change within Existing Development, 2017-2022 <sup>1</sup>	Enrollment Change from New Development, 2017-2022 <sup>2</sup>	2022 Total Projected Enrollment	Enrollment Change within Existing Development, 2022-2027 <sup>1</sup>	Enrollment Change from New Development, 2022-2027 <sup>2</sup>	2027 Total Projected Enrollment	Enrollment Change within Existing Development, 2027-2032 <sup>1</sup>	Enrollment Change from New Development, 2027-2032 <sup>2</sup>	2032 Total Projected Enrollment	Enrollment Change within Existing Development, 2032-2037 <sup>1</sup>	Enrollment Change from New Development, 2032-2037 <sup>2</sup>	2037 Total Projected Enrollment	Enrollment Change within Existing Development, Beyond 2037 <sup>1</sup>	Enrollment Change from New Development, 2032-2037 <sup>2</sup>	Beyond 2037 Total Projected Enrollment
Emerson Elementary	412	-2	9	419	-5	5	420	-4	9	425	-4	1	422	-3	0	419
Gompers Elementary	277	-1	0	276	-3	1	273	-3	0	271	-2	0	268	-2	0	266
Hawthorne Elementary	378	-2	0	377	-4	0	373	-3	2	371	-3	0	367	-3	0	364
Lake View Elementary	262	-1	3	264	-3	0	261	-2	0	258	-2	0	256	-2	0	254
Lapham Elementary	269	-1	13	280	-3	12	289	-3	3	290	-3	0	287	-2	0	285
Lindbergh Elementary	217	-1	0	216	-2	0	214	-2	0	212	-2	0	210	-2	0	208
Lowell Elementary	409	-2	3	410	-5	5	411	-4	2	408	-4	0	405	-3	0	401
Marquette Elementary	213	-1	12	224	-2	5	227	-2	3	228	-2	0	226	-2	0	224
Mendota Elementary	327	-2	0	325	-4	0	322	-3	0	319	-3	0	316	-3	0	313
Sandburg Elementary	466	-2	10	473	-5	6	474	-4	0	470	-4	1	466	-4	0	462
Black Hawk Middle	365	-2	1	364	-4	1	361	-3	0	357	-3	0	354	-3	0	351
O'Keeffe Middle	471	-2	13	482	-5	10	487	-5	5	487	-4	0	482	-4	0	479
Sherman Middle	415	-2	5	418	-5	5	418	-4	4	418	-4	1	415	-3	0	412
East High	1584	-8	16	1593	-18	14	1589	-15	7	1581	-15	1	1568	-13	0	1555
<b>East Attendance Area Totals</b>	<b>6065</b>	<b>-29</b>	<b>85</b>	<b>6121</b>	<b>-68</b>	<b>64</b>	<b>6117</b>	<b>-57</b>	<b>34</b>	<b>6094</b>	<b>-56</b>	<b>4</b>	<b>6042</b>	<b>-48</b>	<b>0</b>	<b>5993</b>
Allis Elementary	510	-2	0	508	-6	0	502	-5	0	497	-5	0	493	-4	0	489
Elvehjem Elementary	504	-2	43	544	-6	30	568	-5	7	569	-5	23	587	-5	0	582
Glendale Elementary	492	-2	1	491	-5	20	505	-5	8	509	-5	11	515	-4	0	511
Kennedy Elementary	531	-3	63	592	-7	29	614	-6	7	615	-6	52	661	-5	0	656
Nuestro Mundo Elementary <sup>3</sup>	314	-2	2	314	-3	3	314	-3	3	314	-3	3	314	-3	3	314
Schenk Elementary	429	-2	18	445	-5	6	446	-4	13	455	-4	0	451	-4	6	453
Badger Rock Middle <sup>4</sup>	73	0	0	73	-1	1	73	-1	1	73	-1	1	73	-1	1	73
Sennett Middle	647	-3	16	660	-7	25	678	-6	7	679	-6	12	684	-5	0	679
Whitehorse Middle	434	-2	31	463	-5	15	472	-4	13	481	-4	21	498	-4	1	494
La Follette High	1504	-7	56	1553	-17	46	1581	-15	20	1586	-15	45	1617	-13	1	1605
<b>La Follette Attendance Area Totals</b>	<b>5438</b>	<b>-26</b>	<b>230</b>	<b>5642</b>	<b>-62</b>	<b>174</b>	<b>5753</b>	<b>-54</b>	<b>79</b>	<b>5778</b>	<b>-53</b>	<b>167</b>	<b>5892</b>	<b>-47</b>	<b>11</b>	<b>5856</b>
Chavez Elementary	678	-3	3	677	-7	15	685	-6	0	678	-6	0	672	-5	0	667
Crestwood Elementary	392	-2	0	390	-4	0	386	-4	0	382	-4	0	379	-3	0	376
Falk Elementary	351	-2	4	353	-4	9	358	-3	1	356	-3	0	352	-3	0	350
Huegel Elementary	463	-2	0	461	-5	0	456	-4	0	451	-4	0	447	-4	0	444
Muir Elementary	450	-2	0	448	-5	1	444	-4	0	440	-4	0	436	-3	0	433
Olson Elementary	432	-2	105	535	-6	152	680	-6	202	876	-8	45	913	-7	24	930
Orchard Ridge Elementary	366	-2	0	364	-4	0	360	-3	0	357	-3	0	354	-3	0	351
Stephens Elementary	555	-3	15	567	-6	23	584	-5	22	601	-6	53	648	-5	108	751
Jefferson Middle	522	-3	6	526	-6	19	539	-5	9	542	-5	29	566	-5	21	582
Spring Harbor Middle <sup>4</sup>	250	-1	1	250	-3	3	250	-2	2	250	-2	2	250	-2	2	250
Toki Middle	585	-3	39	621	-7	58	672	-6	87	753	-7	13	759	-6	4	757
Memorial High	1903	-9	67	1961	-22	109	2049	-19	155	2185	-20	71	2235	-18	32	2249
<b>Memorial Attendance Area Totals</b>	<b>6947</b>	<b>-33</b>	<b>240</b>	<b>7153</b>	<b>-79</b>	<b>389</b>	<b>7463</b>	<b>-70</b>	<b>478</b>	<b>7871</b>	<b>-72</b>	<b>213</b>	<b>8011</b>	<b>-64</b>	<b>190</b>	<b>8138</b>
Franklin Elementary	399	-2	8	405	-4	15	415	-4	5	417	-4	2	415	-3	0	412
Leopold Elementary	667	-3	11	675	-7	0	667	-6	3	664	-6	5	663	-5	18	675
Lincoln Elementary	400	-2	0	398	-4	35	429	-4	0	425	-4	7	428	-3	0	425
Midvale Elementary	508	-2	0	506	-6	0	500	-5	5	501	-5	0	496	-4	0	492
Randall Elementary	394	-2	1	393	-4	0	389	-4	0	385	-4	0	382	-3	0	379
Shorewood Elementary	457	-2	4	459	-5	0	454	-4	0	450	-4	0	445	-4	0	442
Thoreau Elementary	454	-2	6	458	-5	10	463	-4	0	459	-4	0	455	-4	0	451
Van Hise Elementary	395	-2	0	394	-4	16	405	-4	0	401	-4	0	398	-3	0	394
Cherokee Middle	447	-2	6	451	-5	14	460	-4	1	457	-4	4	456	-4	6	458
Hamilton Middle	869	-4	7	872	-10	17	880	-8	7	879	-8	6	876	-7	0	869
Wright Middle <sup>4</sup>	256	-1	1	256	-3	3	256	-2	2	256	-2	2	256	-2	2	256
West High	2111	-10	16	2117	-23	33	2126	-20	9	2115	-19	10	2106	-17	3	2092
<b>West Attendance Area Totals</b>	<b>7357</b>	<b>-35</b>	<b>61</b>	<b>7383</b>	<b>-81</b>	<b>143</b>	<b>7445</b>	<b>-70</b>	<b>33</b>	<b>7408</b>	<b>-68</b>	<b>37</b>	<b>7376</b>	<b>-59</b>	<b>29</b>	<b>7346</b>
4K PK Off Site	853	-4	19	868	-10	24	883	-8	20	894	-8	13	899	-7	7	899
Innovative & Alt Middle	8	0	0	8	0	0	8	0	0	8	0	0	8	0	0	8
Innovative & Alt High	310	-1	7	316	-3	9	321	-3	7	325	-3	5	327	-3	3	327
Metro School Middle and High	18	0	0	18	0	1	19	0	0	19	0	0	19	0	0	19
Shabazz High	116	-1	3	118	-1	3	120	-1	3	122	-1	2	122	-1	1	122
<b>Other School Totals*</b>	<b>1305</b>	<b>-6</b>	<b>30</b>	<b>1328</b>	<b>-15</b>	<b>37</b>	<b>1351</b>	<b>-13</b>	<b>30</b>	<b>1368</b>	<b>-13</b>	<b>20</b>	<b>1376</b>	<b>-11</b>	<b>11</b>	<b>1376</b>
<b>MMSD Grand Totals</b>	<b>27112</b>	<b>-131</b>	<b>646</b>	<b>27627</b>	<b>-305</b>	<b>807</b>	<b>28129</b>	<b>-264</b>	<b>654</b>	<b>28519</b>	<b>-263</b>	<b>441</b>	<b>28697</b>	<b>-229</b>	<b>241</b>	<b>28709</b>
<b>Net change per lustrum</b>			<b>515</b>	<b>1.9%</b>		<b>502</b>	<b>1.8%</b>		<b>390</b>	<b>1.4%</b>		<b>178</b>	<b>0.6%</b>		<b>12</b>	<b>0.0%</b>

1. Percent change in number of persons per City of Madison household per five-year lustrum, or portion thereof, interpolated from "Household Projections for Wisconsin Municipalities: 2010 - 2040," Wisconsin Department of Administration, vintage 2013.

2. Estimates derived by Vandewalle & Associates, with input from City of Madison and City of Fitchburg staff, from estimates of new development by typology and anticipated density, and enrollment generation ratios per household, based on existing housing stock within District geography.

3. Estimates for enrollment growth for schools and alternative programs without a defined geographic attendance area are assumed to grow at the overall pace for all new development in the four high school attendance areas.

4. Charter/magnet schools that draw students from across the entire District are assumed to fill to capacity, with future changes in enrollment due to new development or redevelopment offsetting anticipated declines from demographic change (resulting in no net change in enrollment during the 20-year study period).

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# Scenario 1 (Expert Opinion Projection)

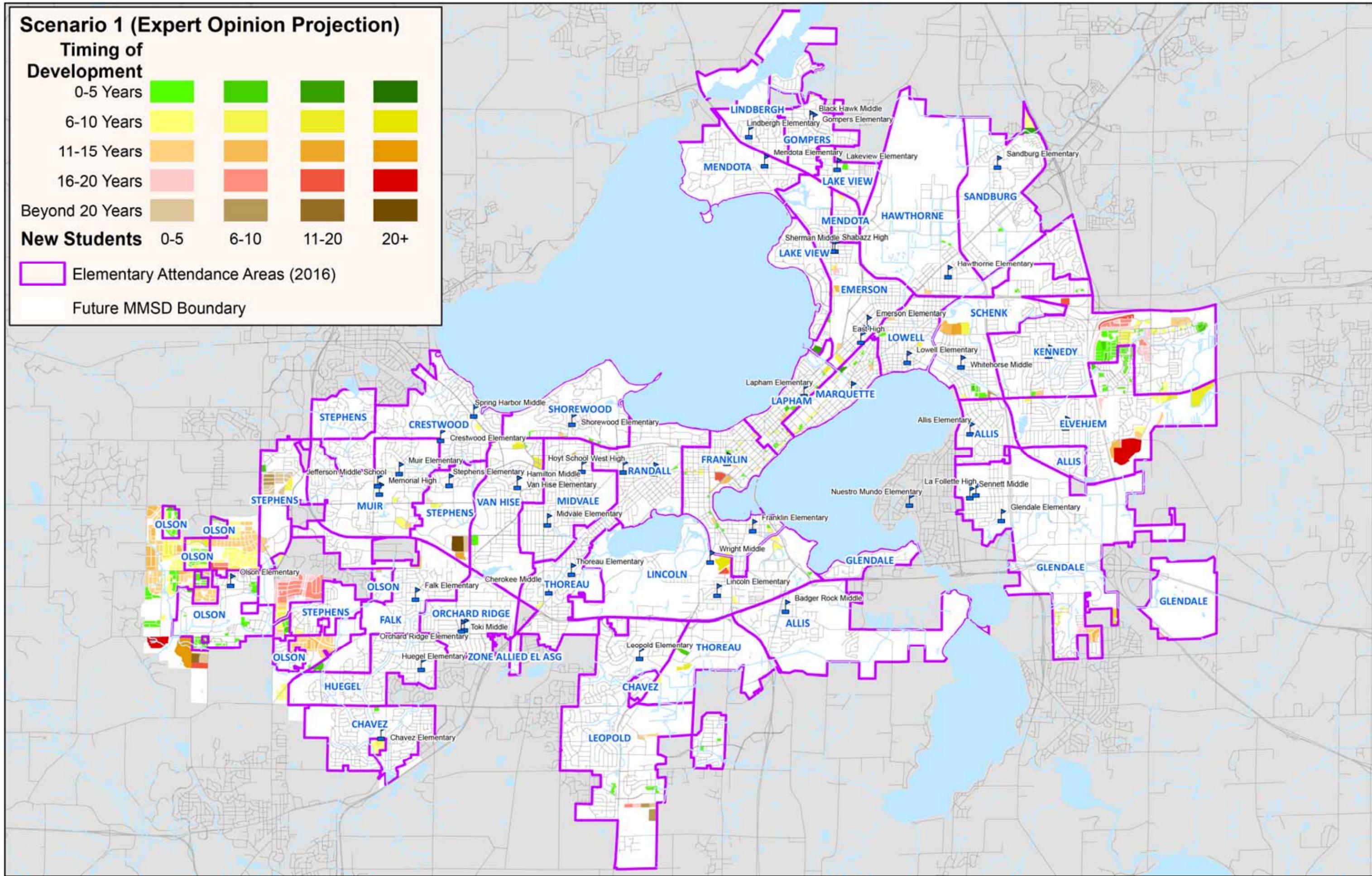
## Timing of Development



**New Students** 0-5 6-10 11-20 20+

Elementary Attendance Areas (2016)

Future MMSD Boundary



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**Projected Enrollment by School at DOA Projected Rate of Growth (Scenario Two)**

School/Program	2015-16 Certified MMSD Enrollment	Enrollment Change within Existing Development, 2017-2022 <sup>1</sup>	Enrollment Change from New Development, 2017-2022 <sup>2</sup>	2022 Total Projected Enrollment	Enrollment Change within Existing Development, 2022-2027 <sup>1</sup>	Enrollment Change from New Development, 2022-2027 <sup>2</sup>	2027 Total Projected Enrollment	Enrollment Change within Existing Development, 2027-2032 <sup>1</sup>	Enrollment Change from New Development, 2027-2032 <sup>2</sup>	2032 Total Projected Enrollment	Enrollment Change within Existing Development, 2032-2037 <sup>1</sup>	Enrollment Change from New Development, 2032-2037 <sup>2</sup>	2037 Total Projected Enrollment	Enrollment Change within Existing Development, Beyond 2037 <sup>1</sup>	Enrollment Change from New Development, 2032-2037 <sup>2</sup>	Beyond 2037 Total Projected Enrollment
		-0.48%			-1.10%			-0.94%			-0.92%			-0.80%		
Emerson Elementary	412	-2	0	410	-5	11	416	-4	0	413	-4	0	409	-3	13	419
Gompers Elementary	277	-1	0	276	-3	1	273	-3	0	271	-2	0	268	-2	0	266
Hawthorne Elementary	378	-2	0	377	-4	0	373	-3	0	369	-3	0	366	-3	2	364
Lake View Elementary	262	-1	2	263	-3	0	261	-2	0	258	-2	0	256	-2	0	254
Lapham Elementary	269	-1	11	278	-3	5	280	-3	1	278	-3	7	283	-2	4	285
Lindbergh Elementary	217	-1	0	216	-2	0	214	-2	0	212	-2	0	210	-2	0	208
Lowell Elementary	409	-2	1	408	-5	6	410	-4	1	406	-4	0	403	-3	2	401
Marquette Elementary	213	-1	8	220	-2	4	222	-2	4	224	-2	0	222	-2	4	224
Mendota Elementary	327	-2	0	325	-4	0	322	-3	1	319	-3	0	317	-3	0	314
Sandburg Elementary	466	-2	0	464	-5	9	468	-4	6	470	-4	0	465	-4	1	463
Black Hawk Middle	365	-2	1	364	-4	1	361	-3	0	357	-3	0	354	-3	0	351
O'Keeffe Middle	471	-2	9	478	-5	7	479	-4	4	479	-4	2	476	-4	6	479
Sherman Middle	415	-2	0	413	-5	6	414	-4	2	412	-4	1	409	-3	6	412
East High	1584	-8	7	1583	-17	12	1578	-15	5	1568	-14	3	1557	-12	11	1556
<b>East Attendance Area Totals</b>	<b>6065</b>	<b>29</b>	<b>40</b>	<b>6076</b>	<b>67</b>	<b>62</b>	<b>6071</b>	<b>57</b>	<b>23</b>	<b>6037</b>	<b>56</b>	<b>13</b>	<b>5994</b>	<b>48</b>	<b>49</b>	<b>5996</b>
Allis Elementary	510	-2	0	508	-6	0	502	-5	0	497	-5	0	493	-4	0	489
Elvehjem Elementary	504	-2	43	544	-6	0	538	-5	2	536	-5	27	558	-4	30	583
Glendale Elementary	492	-2	0	490	-5	8	492	-5	13	500	-5	0	496	-4	19	511
Kennedy Elementary	531	-3	41	569	-6	40	603	-6	11	609	-6	0	603	-5	59	657
Nuestro Mundo Elementary <sup>4</sup>	314	-2	2	314	-3	3	314	-3	3	314	-3	3	314	-3	3	314
Schenk Elementary	429	-2	18	445	-5	18	440	-4	0	436	-4	0	432	-3	23	451
Badger Rock Middle <sup>1</sup>	73	0	0	73	-1	0	72	-1	0	72	-1	0	71	-1	0	70
Sennett Middle	647	-3	16	660	-7	4	656	-6	6	656	-6	15	666	-5	19	679
Whitehorse Middle	434	-2	22	454	-5	16	465	-4	5	465	-4	0	461	-4	38	495
La Follette High	1504	-7	43	1540	-17	27	1550	-15	14	1550	-14	16	1551	-12	68	1607
<b>La Follette Attendance Area Tot</b>	<b>5438</b>	<b>26</b>	<b>185</b>	<b>5597</b>	<b>62</b>	<b>98</b>	<b>5633</b>	<b>53</b>	<b>55</b>	<b>5635</b>	<b>52</b>	<b>61</b>	<b>5644</b>	<b>45</b>	<b>257</b>	<b>5856</b>
Chavez Elementary	678	-3	0	675	-7	3	670	-6	0	664	-6	15	672	-5	0	667
Crestwood Elementary	392	-2	0	390	-4	0	386	-4	0	382	-4	0	379	-3	0	376
Falk Elementary	351	-2	0	349	-4	4	349	-3	0	346	-3	0	343	-3	10	350
Huegel Elementary	463	-2	0	461	-5	0	456	-4	0	451	-4	0	447	-4	0	444
Muir Elementary	450	-2	0	448	-5	0	443	-4	1	440	-4	0	436	-3	0	433
Olson Elementary	432	-2	75	505	-6	86	585	-5	39	619	-6	56	670	-5	261	926
Orchard Ridge Elementary	366	-2	0	364	-4	0	360	-3	0	357	-3	0	354	-3	0	351
Stephens Elementary	555	-3	11	564	-6	5	563	-5	11	568	-5	6	569	-5	141	705
Jefferson Middle	522	-3	1	521	-6	2	517	-5	3	515	-5	0	511	-4	37	544
Spring Harbor Middle <sup>4</sup>	250	-1	1	250	-3	3	250	-2	2	250	-2	2	250	-2	2	250
Toki Middle	585	-3	26	608	-7	18	620	-6	3	617	-6	0	611	-5	1	607
Memorial High	1903	-9	49	1942	-21	53	1974	-19	23	1979	-18	42	2002	-16	268	2254
<b>Memorial Attendance Area Tot</b>	<b>6947</b>	<b>33</b>	<b>164</b>	<b>7077</b>	<b>78</b>	<b>173</b>	<b>7172</b>	<b>67</b>	<b>83</b>	<b>7188</b>	<b>66</b>	<b>122</b>	<b>7244</b>	<b>58</b>	<b>720</b>	<b>7905</b>
Franklin Elementary	399	-2	2	399	-4	7	401	-4	2	400	-4	4	401	-3	15	412
Leopold Elementary	667	-3	11	675	-7	0	667	-6	0	661	-6	0	655	-5	16	666
Lincoln Elementary	400	-2	0	398	-4	0	394	-4	30	420	-4	0	416	-3	13	426
Midvale Elementary	508	-2	0	506	-6	0	500	-5	0	495	-5	0	491	-4	5	492
Randall Elementary	394	-2	0	392	-4	1	389	-4	0	385	-4	0	382	-3	0	379
Shorewood Elementary	457	-2	4	459	-5	0	454	-4	0	450	-4	0	445	-4	0	442
Thoreau Elementary	454	-2	0	452	-5	6	453	-4	7	456	-4	3	455	-4	0	451
Van Hise Elementary	395	-2	0	393	-4	6	395	-4	10	401	-4	0	398	-3	0	395
Cherokee Middle	447	-2	4	449	-5	1	446	-4	10	452	-4	2	449	-4	13	458
Hamilton Middle	869	-4	3	868	-10	8	867	-8	4	863	-8	6	861	-7	16	870
Wright Middle <sup>4</sup>	256	-1	1	256	-3	3	256	-2	2	256	-2	2	256	-2	2	256
West High	2111	-10	10	2111	-23	12	2099	-20	15	2094	-19	7	2082	-17	28	2093
<b>West Attendance Area Totals</b>	<b>7357</b>	<b>35</b>	<b>37</b>	<b>7358</b>	<b>81</b>	<b>44</b>	<b>7321</b>	<b>69</b>	<b>81</b>	<b>7333</b>	<b>68</b>	<b>24</b>	<b>7290</b>	<b>58</b>	<b>108</b>	<b>7340</b>
4K PK Off Site	853	-4	13	862	-10	12	865	-8	8	864	-8	7	863	-7	36	892
Innovative & Alt Middle	8	0	0	8	0	0	8	0	0	8	0	0	8	0	0	8
Innovative & Alt High	310	-1	5	313	-3	4	314	-3	3	314	-3	3	314	-3	13	324
Metro School Middle and High	18	0	0	18	0	0	18	0	0	18	0	0	18	0	1	19
Shabazz High	116	-1	2	117	-1	2	118	-1	1	118	-1	1	117	-1	5	121
<b>Other School Totals</b>	<b>1305</b>	<b>-6</b>	<b>20</b>	<b>1319</b>	<b>15</b>	<b>18</b>	<b>1323</b>	<b>12</b>	<b>12</b>	<b>1322</b>	<b>12</b>	<b>11</b>	<b>1320</b>	<b>11</b>	<b>54</b>	<b>1364</b>
<b>MMSD Grand Totals</b>	<b>27112</b>	<b>-131</b>	<b>446</b>	<b>27427</b>	<b>-303</b>	<b>395</b>	<b>27519</b>	<b>-258</b>	<b>253</b>	<b>27514</b>	<b>-253</b>	<b>232</b>	<b>27492</b>	<b>-219</b>	<b>1188</b>	<b>28461</b>
<b>Net change per lustrum</b>			<b>315</b>		<b>1.2%</b>	<b>92</b>		<b>0.3%</b>	<b>-5</b>		<b>0.0%</b>	<b>-22</b>		<b>-0.1%</b>	<b>969</b>	<b>3.5%</b>

1. Percent change in number of persons per City of Madison household per five-year lustrum, or portion thereof, interpolated from "Household Projections for Wisconsin Municipalities: 2010 - 2040," Wisconsin Department of Administration, vintage 2013.  
 2. Derived by "metering" Vandewalle & Associates and municipal staff estimates of new development by typology and anticipated density, assuming the number of dwelling units added to the District per year through 2037 and beyond continues at the WisDOA projected rates by interpolated lustrum 2017-2037.  
 3. Estimates for enrollment growth for schools and alternative programs without a defined geographic attendance area are assumed to grow at the overall pace for all new development in the four high school attendance areas.  
 4. Charter/magnet schools that draw students from across the entire District are assumed to fill to capacity, with future changes in enrollment due to new development or redevelopment offsetting anticipated declines from demographic change (resulting in no net change in enrollment during the 20-year study period).

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# Scenario 2 (Official Population Projection)

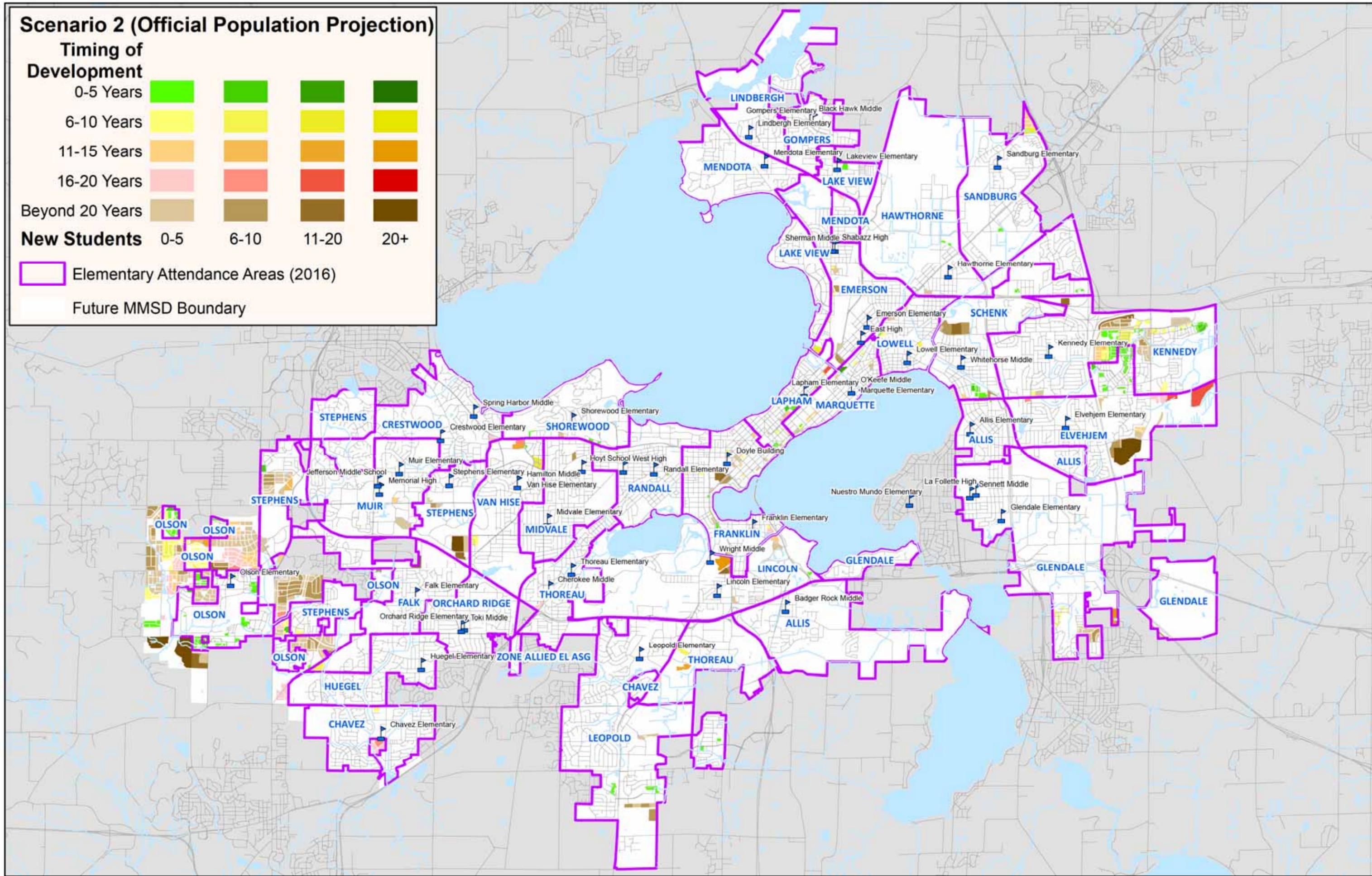
## Timing of Development



**New Students**    0-5    6-10    11-20    20+

Elementary Attendance Areas (2016)

Future MMSD Boundary



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**Projected Enrollment by School at Extended 2010-2015 Rate of Household Growth (Scenario Three)**

School/Program	2015-16 Certified MMSD Enrollment	Enrollment Change within Existing Development, 2017-2022 <sup>1</sup>	Enrollment Change from New Development, 2017-2022 <sup>2</sup>	2022 Total Projected Enrollment	Enrollment Change within Existing Development, 2022-2027 <sup>1</sup>	Enrollment Change from New Development, 2022-2027 <sup>2</sup>	2027 Total Projected Enrollment	Enrollment Change within Existing Development, 2032-2037 <sup>1</sup>	Enrollment Change from New Development, 2032-2037 <sup>2</sup>	2032 Total Projected Enrollment	Enrollment Change within Existing Development, 2032-2037 <sup>1</sup>	Enrollment Change from New Development, 2032-2037 <sup>2</sup>	2037 Total Projected Enrollment	Enrollment Change within Existing Development, Beyond 2037 <sup>1</sup>	Enrollment Change from New Development, 2032-2037 <sup>2</sup>	Beyond 2037 Total Projected Enrollment
		-0.48%			-1.10%			-0.94%			-0.92%			-0.80%		
Emerson Elementary	412	-2	9	419	-5	5	420	-4	6	421	-4	5	422	-3	0	419
Gompers Elementary	277	-1	0	276	-3	1	273	-3	0	271	-2	0	268	-2	0	266
Hawthorne Elementary	378	-2	0	377	-4	0	373	-3	0	369	-3	2	367	-3	0	364
Lake View Elementary	262	-1	3	264	-3	0	261	-2	0	258	-2	0	256	-2	0	254
Lapham Elementary	269	-1	13	280	-3	3	280	-3	12	290	-3	0	287	-2	0	285
Lindbergh Elementary	217	-1	0	216	-2	0	214	-2	0	212	-2	0	210	-2	0	208
Lowell Elementary	409	-2	3	410	-5	5	411	-4	0	407	-4	2	405	-3	0	401
Marquette Elementary	213	-1	12	224	-2	4	225	-2	3	226	-2	2	226	-2	0	224
Mendota Elementary	327	-2	0	325	-4	0	322	-3	1	319	-3	0	317	-3	0	314
Sandburg Elementary	466	-2	10	473	-5	6	474	-4	0	470	-4	1	466	-4	0	462
Black Hawk Middle	365	-2	1	364	-4	1	361	-3	0	357	-3	0	354	-3	0	351
O'Keeffe Middle	471	-2	13	482	-5	6	482	-5	6	484	-4	3	482	-4	0	479
Sherman Middle	415	-2	5	418	-5	4	417	-4	3	416	-4	3	415	-3	0	412
East High	1584	-8	16	1593	-18	8	1583	-15	10	1578	-15	4	1568	-13	0	1555
<b>East Attendance Area Totals</b>	<b>6065</b>	<b>-29</b>	<b>85</b>	<b>6121</b>	<b>-68</b>	<b>42</b>	<b>6095</b>	<b>-57</b>	<b>40</b>	<b>6078</b>	<b>-56</b>	<b>21</b>	<b>6043</b>	<b>-48</b>	<b>0</b>	<b>5994</b>
Allis Elementary	510	-2	0	508	-6	0	502	-5	0	497	-5	0	493	-4	0	489
Elvehjem Elementary	504	-2	43	544	-6	14	552	-5	21	568	-5	24	587	-5	0	583
Glendale Elementary	492	-2	1	491	-5	20	505	-5	8	509	-5	11	515	-4	0	511
Kennedy Elementary	531	-3	60	589	-6	32	614	-6	4	612	-6	55	661	-5	0	656
Nuestro Mundo Elementary <sup>4</sup>	314	-2	2	314	-3	3	314	-3	3	314	-3	3	314	-3	3	314
Schenk Elementary	429	-2	18	445	-5	0	440	-4	6	442	-4	17	454	-4	0	451
Badger Rock Middle <sup>4</sup>	73	0	0	73	-1	1	73	-1	1	73	-1	1	73	-1	1	73
Sennett Middle	647	-3	16	660	-7	13	666	-6	18	678	-6	12	684	-5	0	679
Whitehorse Middle	434	-2	30	462	-5	12	469	-4	7	472	-4	31	499	-4	0	495
La Follette High	1504	-7	55	1552	-17	34	1569	-15	25	1579	-15	54	1618	-13	0	1606
<b>La Follette Attendance Area Totals</b>	<b>5438</b>	<b>-26</b>	<b>225</b>	<b>5637</b>	<b>-62</b>	<b>129</b>	<b>5705</b>	<b>-53</b>	<b>93</b>	<b>5744</b>	<b>-53</b>	<b>208</b>	<b>5899</b>	<b>-47</b>	<b>3</b>	<b>5855</b>
Chavez Elementary	678	-3	3	677	-7	15	685	-6	0	678	-6	0	672	-5	0	667
Crestwood Elementary	392	-2	0	390	-4	0	386	-4	0	382	-4	0	379	-3	0	376
Falk Elementary	351	-2	4	353	-4	9	358	-3	0	355	-3	1	352	-3	0	350
Huegel Elementary	463	-2	0	461	-5	0	456	-4	0	451	-4	0	447	-4	0	444
Muir Elementary	450	-2	0	448	-5	0	443	-4	1	440	-4	0	436	-3	0	433
Olson Elementary	432	-2	105	535	-6	126	655	-6	140	789	-7	133	914	-7	14	921
Orchard Ridge Elementary	366	-2	0	364	-4	0	360	-3	0	357	-3	0	354	-3	0	351
Stephens Elementary	555	-3	15	567	-6	19	580	-5	10	584	-5	101	680	-5	30	704
Jefferson Middle	522	-3	6	526	-6	12	532	-5	9	536	-5	44	575	-5	11	582
Spring Harbor Middle <sup>4</sup>	250	-1	1	250	-3	3	250	-2	2	250	-2	2	250	-2	2	250
Toki Middle	585	-3	39	621	-7	49	663	-6	66	724	-7	42	759	-6	4	757
Memorial High	1903	-9	67	1961	-22	89	2028	-19	121	2131	-20	136	2247	-18	20	2250
<b>Memorial Attendance Area Totals</b>	<b>6947</b>	<b>-33</b>	<b>240</b>	<b>7153</b>	<b>-79</b>	<b>322</b>	<b>7396</b>	<b>-69</b>	<b>351</b>	<b>7677</b>	<b>-71</b>	<b>460</b>	<b>8067</b>	<b>-64</b>	<b>81</b>	<b>8083</b>
Franklin Elementary	399	-2	7	404	-4	10	409	-4	7	412	-4	7	415	-3	0	412
Leopold Elementary	667	-3	11	675	-7	0	667	-6	3	664	-6	13	671	-5	0	666
Lincoln Elementary	400	-2	0	398	-4	34	428	-4	1	425	-4	7	428	-3	0	425
Midvale Elementary	508	-2	0	506	-6	0	500	-5	0	495	-5	5	496	-4	0	492
Randall Elementary	394	-2	1	393	-4	0	389	-4	0	385	-4	0	382	-3	0	379
Shorewood Elementary	457	-2	4	459	-5	0	454	-4	0	450	-4	0	445	-4	0	442
Thoreau Elementary	454	-2	6	458	-5	10	463	-4	0	459	-4	0	455	-4	0	451
Van Hise Elementary	395	-2	0	394	-4	16	405	-4	0	401	-4	0	398	-3	0	394
Cherokee Middle	447	-2	6	451	-5	13	459	-4	2	457	-4	10	462	-4	0	458
Hamilton Middle	869	-4	7	872	-10	11	873	-8	7	872	-8	13	876	-7	0	869
Wright Middle <sup>4</sup>	256	-1	1	256	-3	3	256	-2	2	256	-2	2	256	-2	2	256
West High	2111	-10	16	2117	-23	25	2119	-20	9	2108	-19	21	2109	-17	0	2092
<b>West Attendance Area Totals</b>	<b>7357</b>	<b>-35</b>	<b>60</b>	<b>7381</b>	<b>-81</b>	<b>123</b>	<b>7423</b>	<b>-70</b>	<b>31</b>	<b>7384</b>	<b>-68</b>	<b>78</b>	<b>7394</b>	<b>-59</b>	<b>2</b>	<b>7337</b>
4K PK Off Site	853	-4	19	868	-10	19	878	-8	16	886	-8	24	902	-7	3	897
Innovative & Alt Middle	8	0	0	8	0	0	8	0	0	8	0	0	8	0	0	8
Innovative & Alt High	310	-1	7	315	-3	7	319	-3	6	322	-3	9	328	-3	1	326
Metro School Middle and High	18	0	0	18	0	0	19	0	0	19	0	1	19	0	0	19
Shabazz High	116	-1	3	118	-1	3	119	-1	2	120	-1	3	123	-1	0	122
<b>Other School Totals<sup>4</sup></b>	<b>1305</b>	<b>-6</b>	<b>29</b>	<b>1328</b>	<b>-15</b>	<b>30</b>	<b>1343</b>	<b>-13</b>	<b>25</b>	<b>1355</b>	<b>-12</b>	<b>37</b>	<b>1379</b>	<b>-11</b>	<b>4</b>	<b>1373</b>
<b>MMSD Grand Totals</b>	<b>27112</b>	<b>-131</b>	<b>639</b>	<b>27621</b>	<b>-305</b>	<b>645</b>	<b>27961</b>	<b>-262</b>	<b>540</b>	<b>28239</b>	<b>-260</b>	<b>803</b>	<b>28782</b>	<b>-230</b>	<b>90</b>	<b>28642</b>
<b>Net change per lustrum</b>			<b>509</b>	<b>1.9%</b>		<b>340</b>	<b>1.2%</b>		<b>278</b>	<b>1.0%</b>		<b>543</b>	<b>1.9%</b>	<b>-139</b>	<b>-0.5%</b>	

1. Percent change in number of persons per City of Madison household per five-year lustrum, or portion thereof, interpolated from "Household Projections for Wisconsin Municipalities: 2010 - 2040," Wisconsin Department of Administration, vintage 2013.

2. Derived by "metering" Vandewalle & Associates and municipal staff estimates of new development by typology and anticipated density, assuming the number of dwelling units added to the District per year through 2037 and beyond continues at the observed annual rate for the period 2010-2015.

3. Estimates for enrollment growth for schools and alternative programs without a defined geographic attendance area are assumed to grow at the overall pace for all new development in the four high school attendance areas.

4. Charter/magnet schools that draw students from across the entire District are assumed to fill to capacity, with future changes in enrollment due to new development or redevelopment offsetting anticipated declines from demographic change (resulting in no net change in enrollment during the 20-year study period).



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# Scenario 3 (Extrapolated 2010-15 Trend)

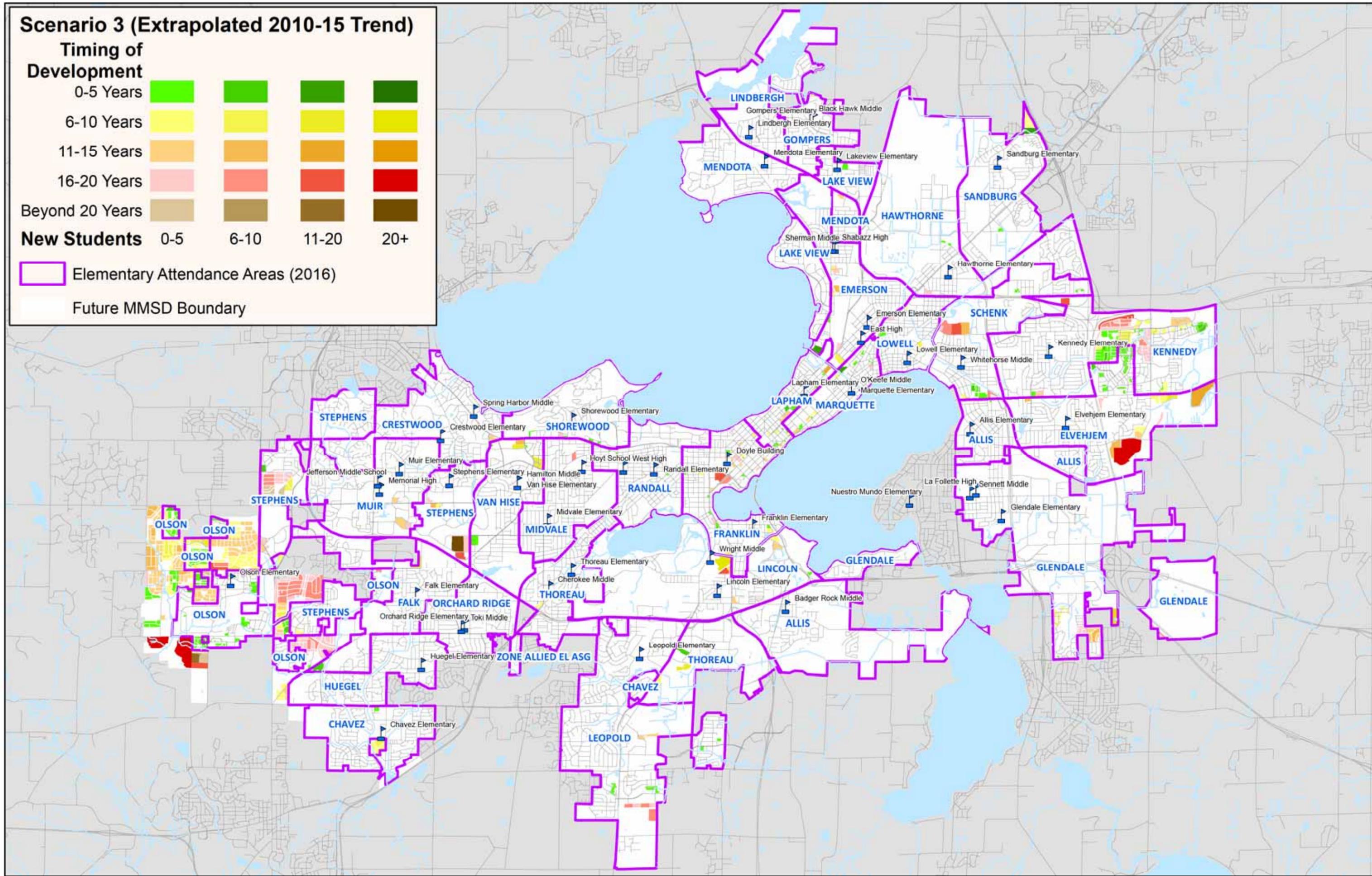
## Timing of Development



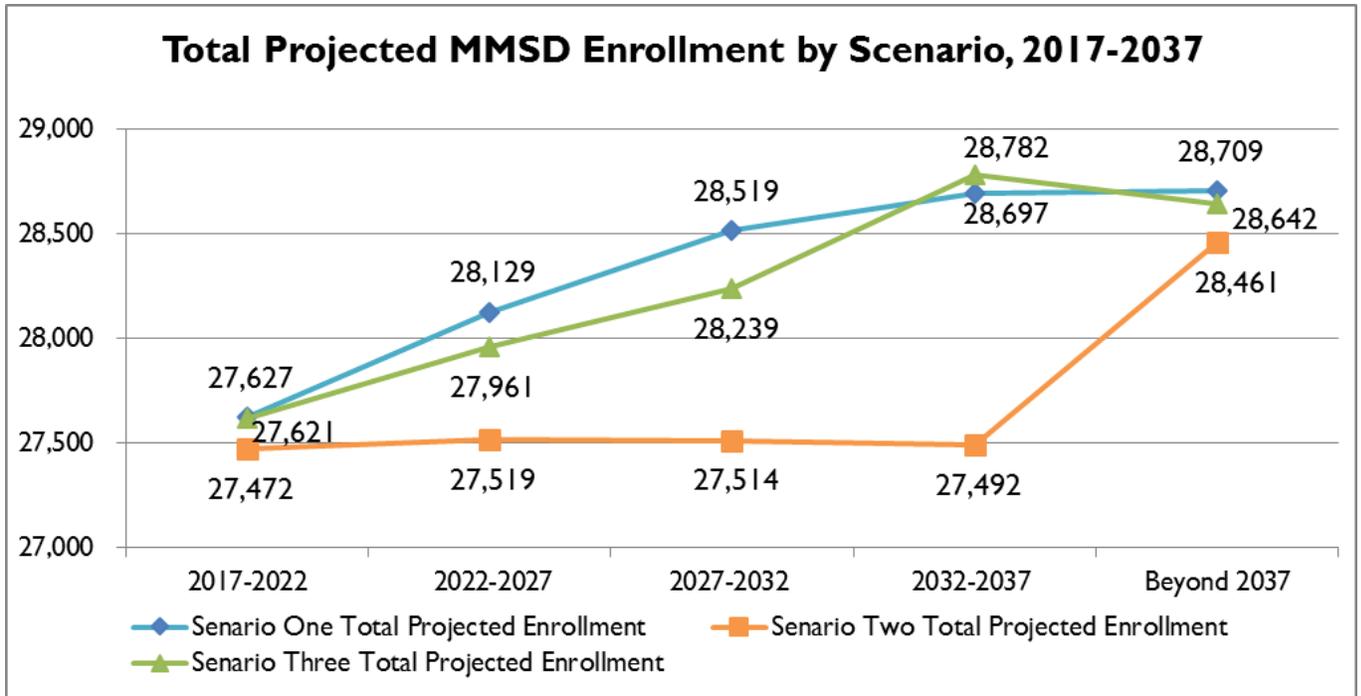
**New Students** 0-5 6-10 11-20 20+

Elementary Attendance Areas (2016)

Future MMSD Boundary

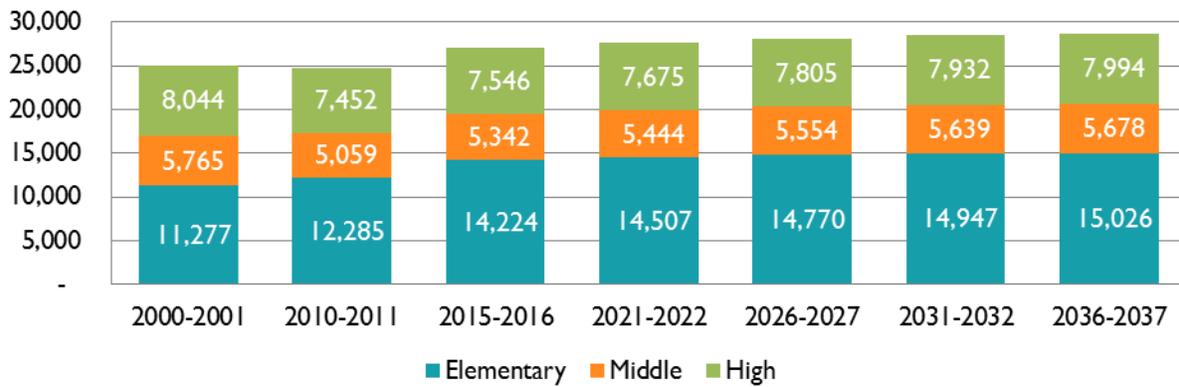


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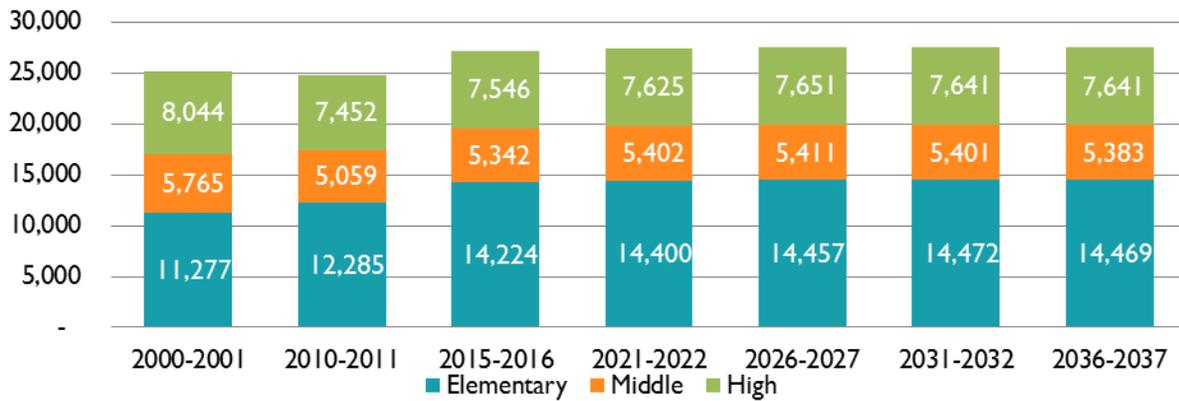


Projected Enrollment by High School Attendance Area						
	Scenario	2017-2022	2022-2027	2027-2032	2032-2037	Beyond 2037
East Attendance Area	1	6,121	6,117	6,094	6,042	5,993
	2	6,076	6,071	6,037	5,994	5,996
	3	6,121	6,095	6,078	6,043	5,994
LaFollette Attendance Area	1	5,642	5,753	5,778	5,892	5,856
	2	5,597	5,633	5,635	5,644	5,856
	3	5,637	5,705	5,744	5,899	5,855
Memorial Attendance Area	1	7,153	7,463	7,871	8,011	8,138
	2	7,077	7,172	7,188	7,244	7,905
	3	7,153	7,396	7,677	8,067	8,083
West Attendance Area	1	7,383	7,445	7,408	7,376	7,346
	2	7,358	7,321	7,333	7,290	7,340
	3	7,381	7,423	7,384	7,394	7,337
Other Schools	1	1,328	1,351	1,368	1,376	1,376
	2	1,319	1,323	1,322	1,320	1,364
	3	1,328	1,343	1,355	1,379	1,373
<b>Total Enrollment</b>	<b>1</b>	<b>27,627</b>	<b>28,129</b>	<b>28,519</b>	<b>28,697</b>	<b>28,709</b>
	<b>2</b>	<b>27,427</b>	<b>27,519</b>	<b>27,514</b>	<b>27,492</b>	<b>28,461</b>
	<b>3</b>	<b>27,620</b>	<b>27,962</b>	<b>28,238</b>	<b>28,782</b>	<b>28,642</b>

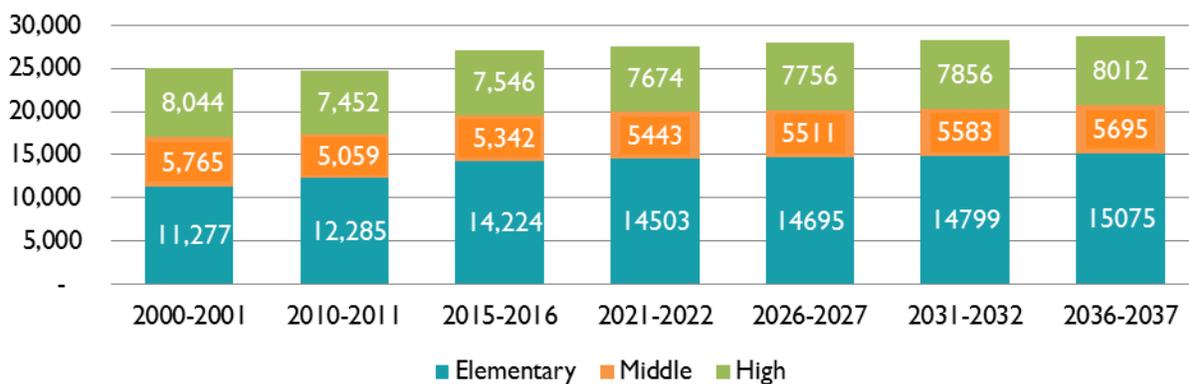
### Projected Enrollment Trend by School Level, 2000-2037 (Scenario One)



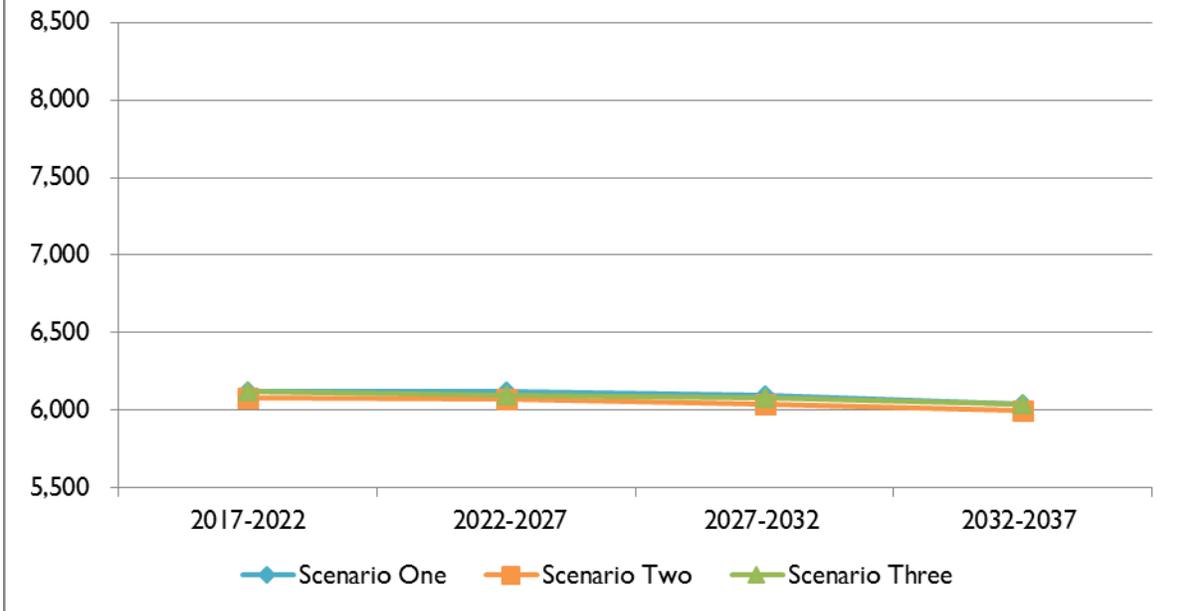
### Projected Enrollment Trend by School Level, 2000-2037 (Scenario Two)



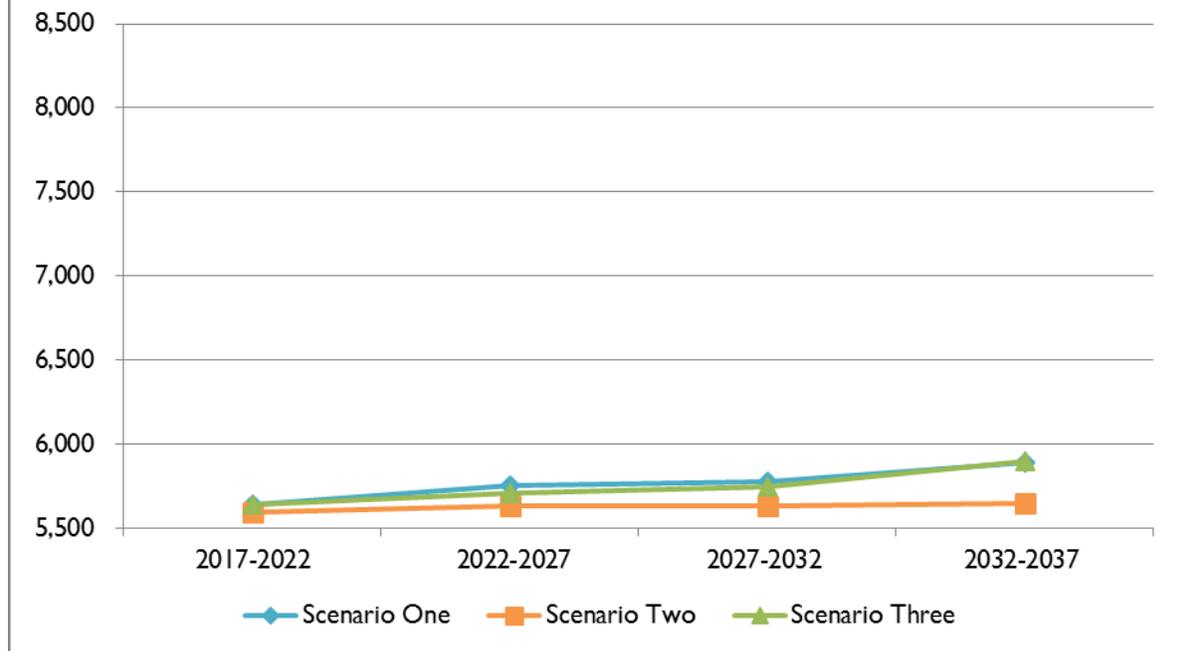
### Projected Enrollment Trend by School Level, 2000-2037 (Scenario Three)



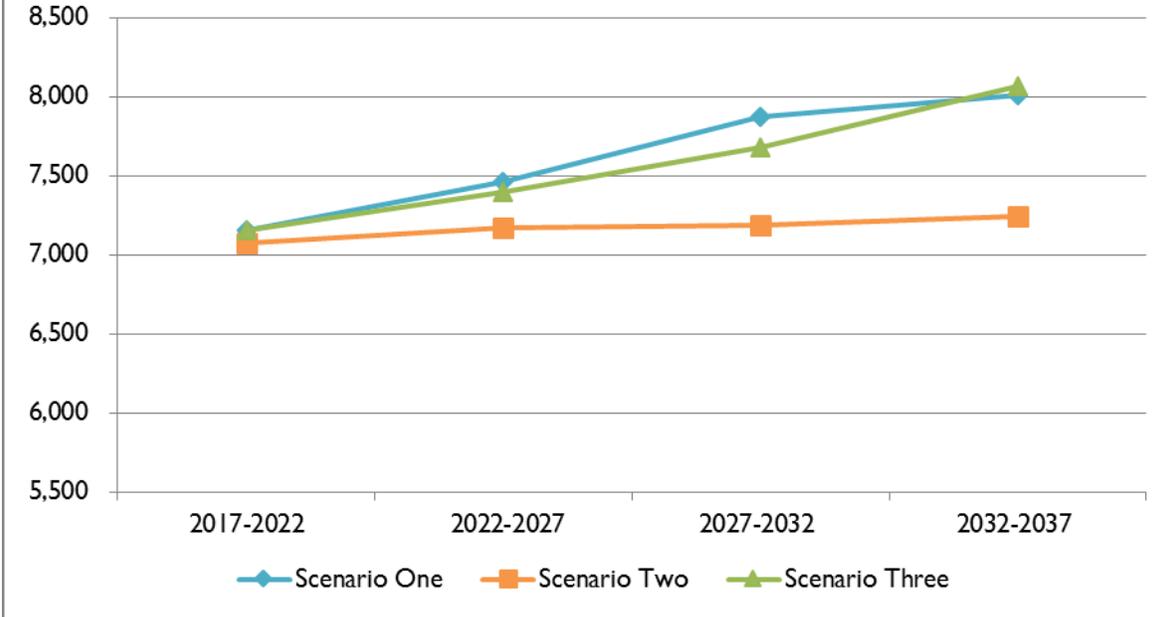
## Total Projected Enrollment, East Attendance Area Schools



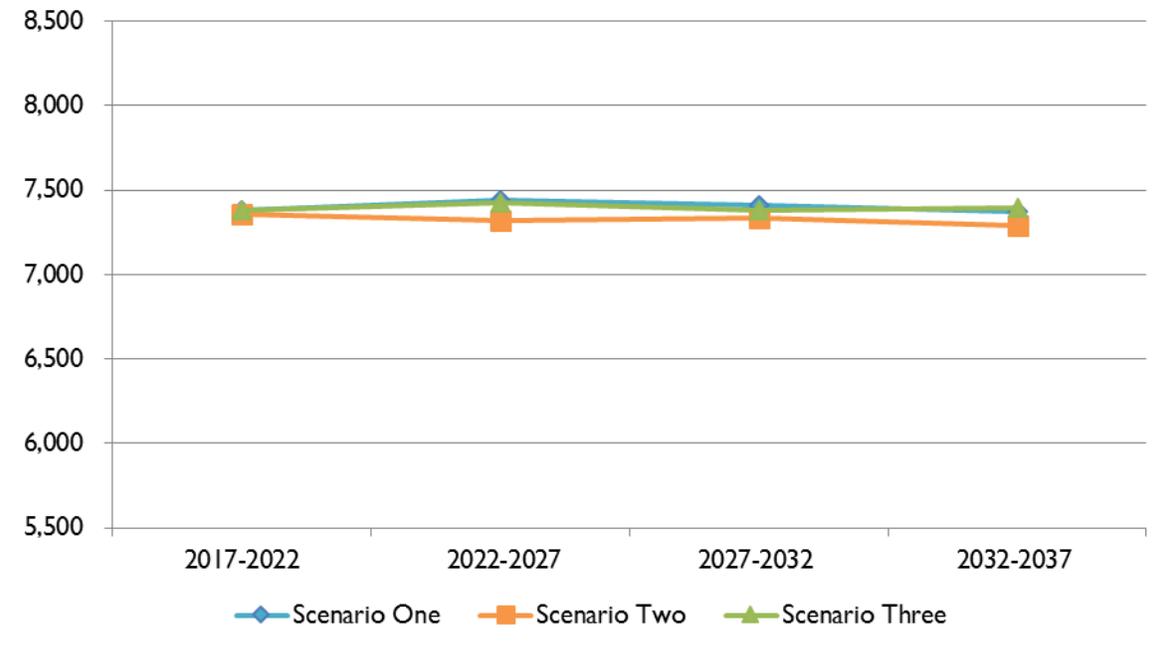
## Total Projected Enrollment, LaFollette Attendance Area Schools



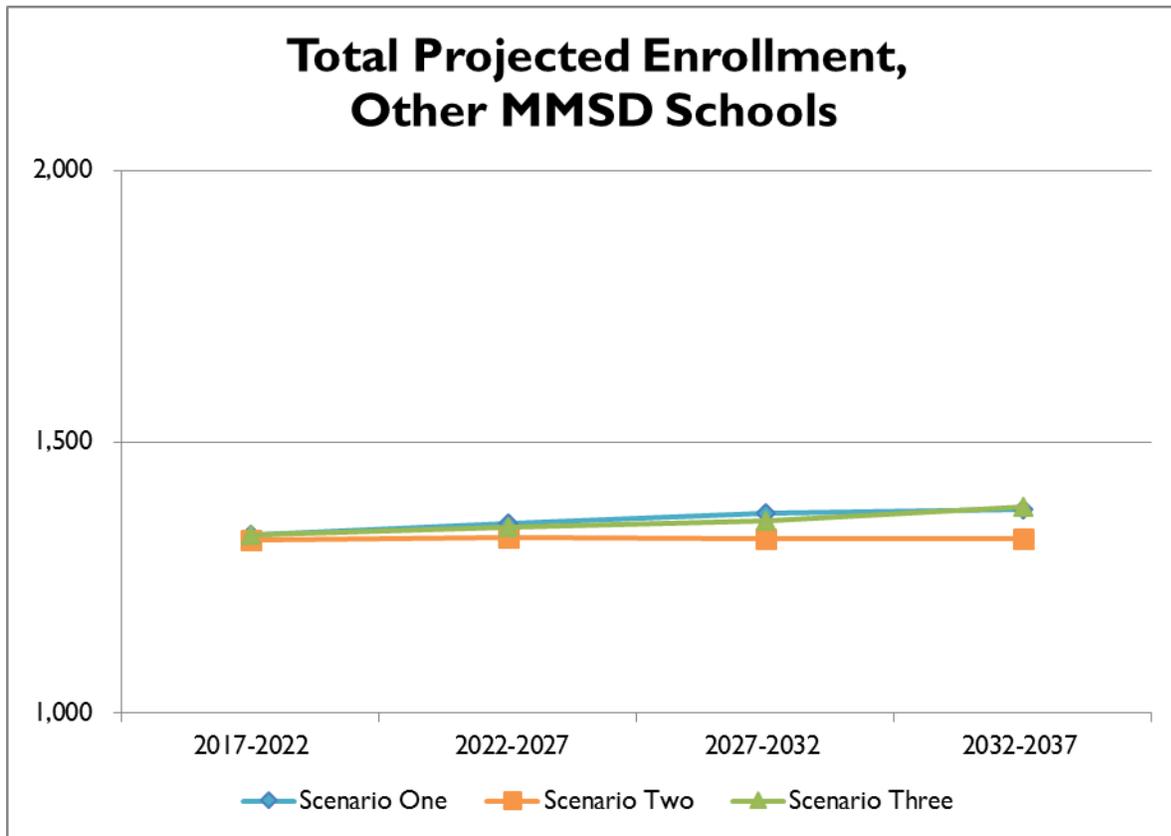
## Total Projected Enrollment, Memorial Attendance Area Schools



## Total Projected Enrollment, West Attendance Area Schools



## Total Projected Enrollment, Other MMSD Schools

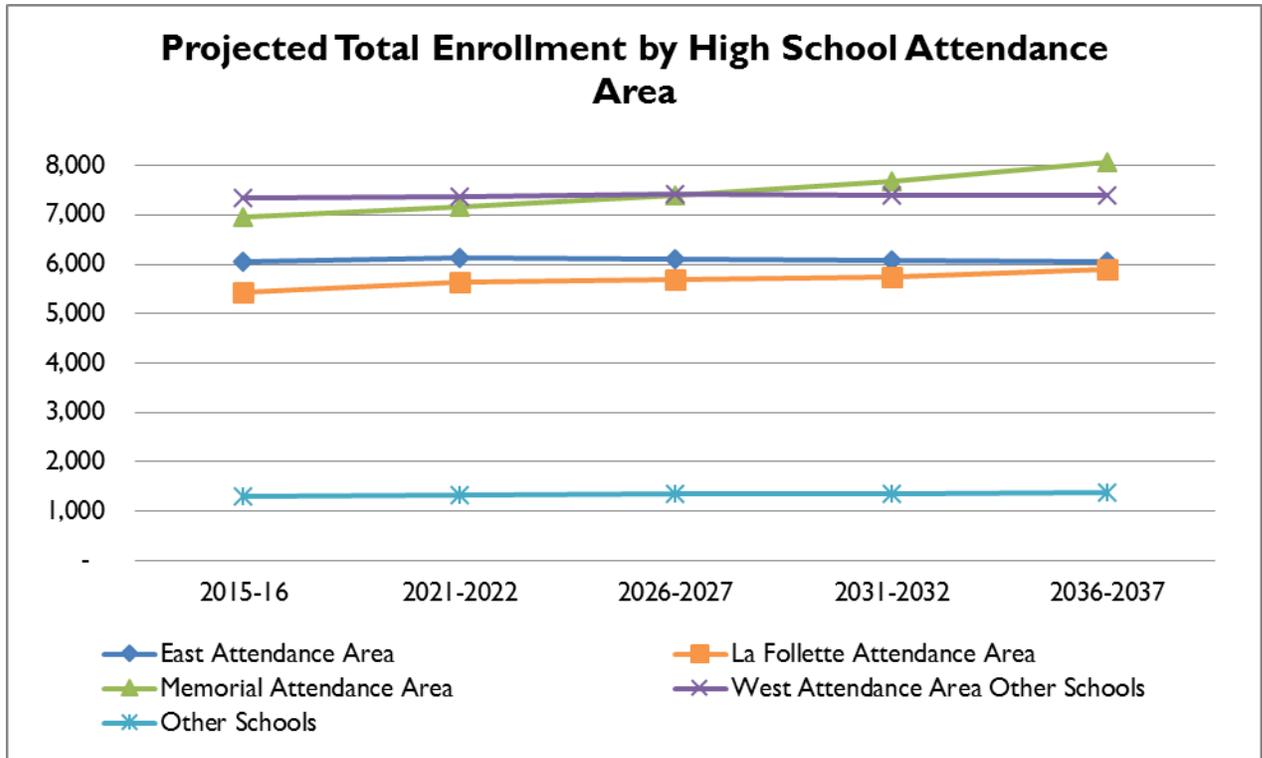


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## VII. Scenario Three Analysis

### A. Overview of High School Attendance Area Total Enrollment

Scenario 3 has been selected as the most likely development scenario. Scenario 3 is virtually identical to Scenario 1 in the first two lustrums and is based on actual population growth trends for 2010 – 2015. Scenario 3 also has the advantage of demonstrating the effects of greenfield buildout in about 2040.

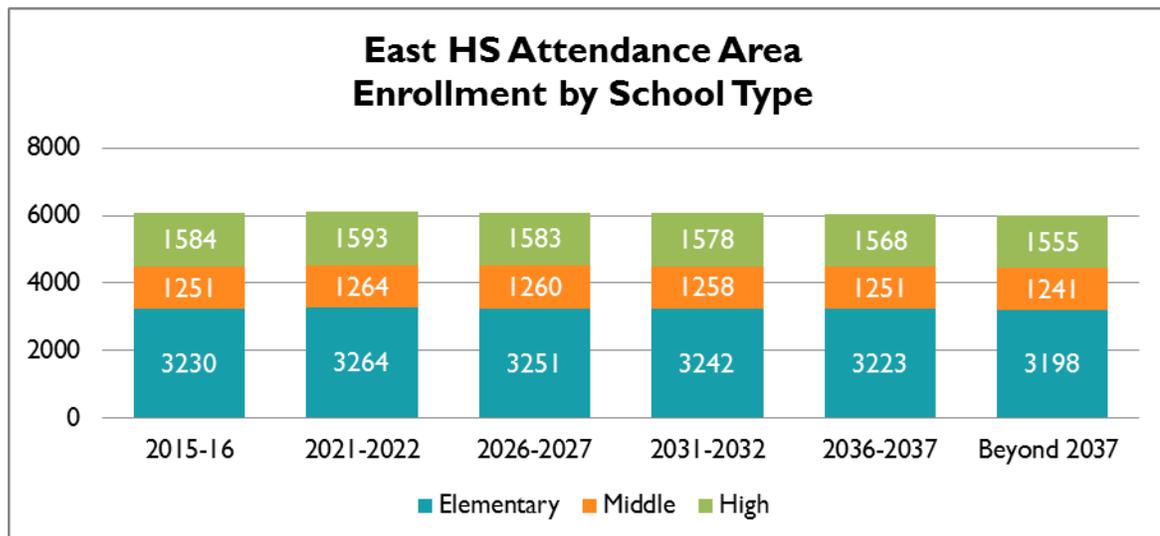


Projected Total Enrollment by High School Attendance Area (Scenario Three)						
School	2015-16	2021-2022	2026-2027	2031-2032	2036-2037	Beyond 2037
East Attendance Area	6065	6121	6095	6078	6043	5994
LaFollette Attendance Area	5438	5637	5705	5744	5899	5855
Memorial Attendance Area	6947	7153	7396	7677	8067	8083
West Attendance Area	7357	7381	7423	7384	7394	7337
Other Schools	1305	1328	1343	1355	1379	1373

## B. Detailed Enrollment Breakdown by High School Attendance Area

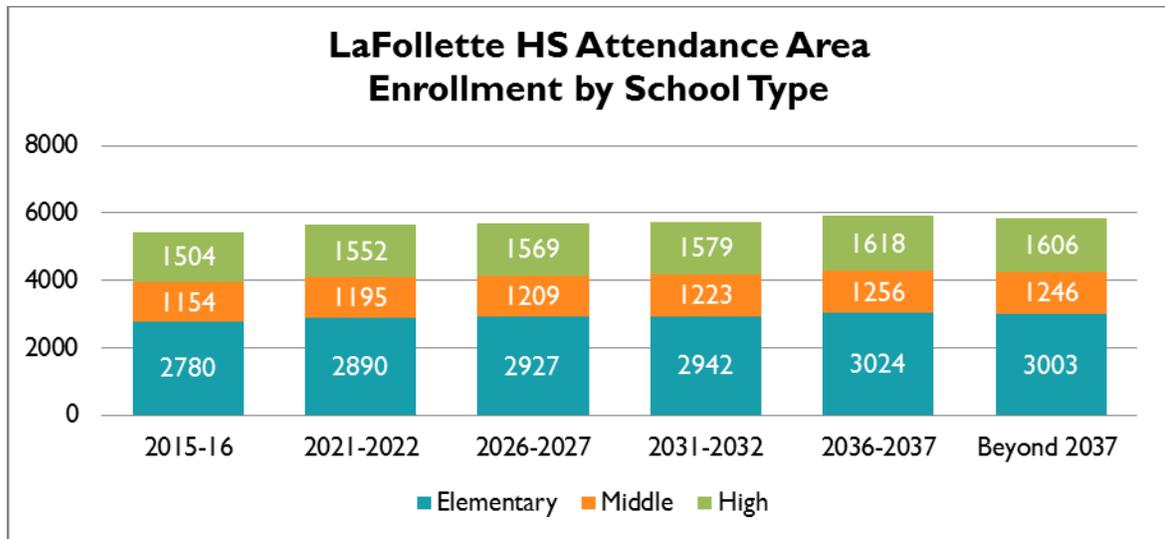
The following detailed data represents a summary of extensive projection spreadsheets.

<b>East Attendance Area Enrollment Projections by School</b>						
<b>School</b>	<b>2015-2016</b>	<b>2021-2022</b>	<b>2026-2027</b>	<b>2031-2032</b>	<b>2036-2037</b>	<b>Beyond 2037</b>
Emerson Elementary	412	419	420	421	422	419
Gompers Elementary	277	276	273	271	268	266
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O'Keeffe Middle	471	482	482	484	482	479
Sherman Middle	415	418	417	416	415	412
East High	1584	1593	1583	1578	1568	1555
<b>Totals</b>	<b>6065</b>	<b>6121</b>	<b>6095</b>	<b>6078</b>	<b>6043</b>	<b>5994</b>



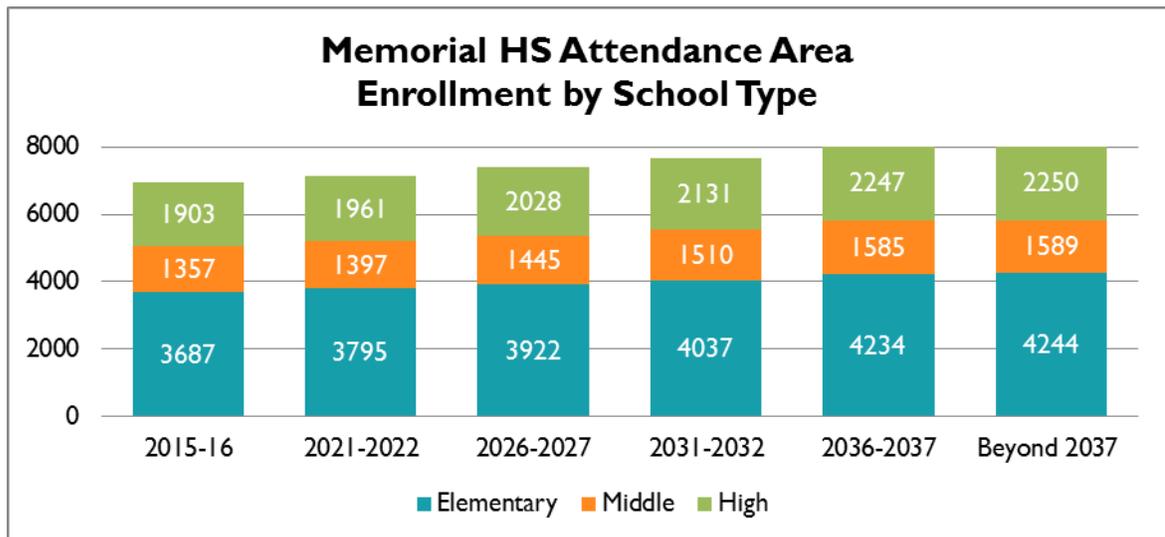
## LaFollette Attendance Area Enrollment Projections by Schools

School	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037	Beyond 2037
Allis Elementary	510	508	502	497	493	489
Elvehjem Elementary	504	544	552	568	587	583
Glendale Elementary	492	491	505	509	515	511
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<b>Totals</b>	<b>5438</b>	<b>5637</b>	<b>5705</b>	<b>5744</b>	<b>5899</b>	<b>5855</b>



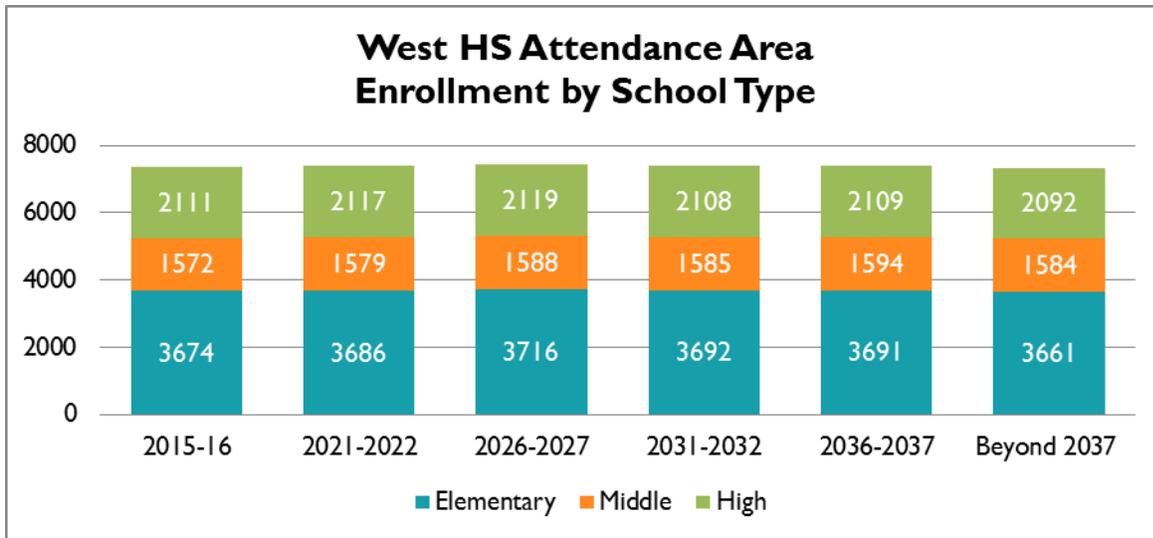
## Memorial Attendance Area Enrollment Projections by School

School	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037	Beyond 2037
Chavez Elementary	678	677	685	678	672	667
Crestwood Elementary	392	390	386	382	379	376
Falk Elementary	351	353	358	355	352	350
Huegel Elementary	463	461	456	451	447	444
Muir Elementary	450	448	443	440	436	433
Olson Elementary	432	535	655	789	914	921
Orchard Ridge Elementary	366	364	360	357	354	351
Stephens Elementary	555	567	580	584	680	704
Jefferson Middle	522	526	532	536	575	582
Spring Harbor Middle	250	250	250	250	250	250
Toki Middle	585	621	663	724	759	757
Memorial High	1903	1961	2028	2131	2247	2250
<b>Totals</b>	<b>6947</b>	<b>7153</b>	<b>7396</b>	<b>7677</b>	<b>8067</b>	<b>8083</b>



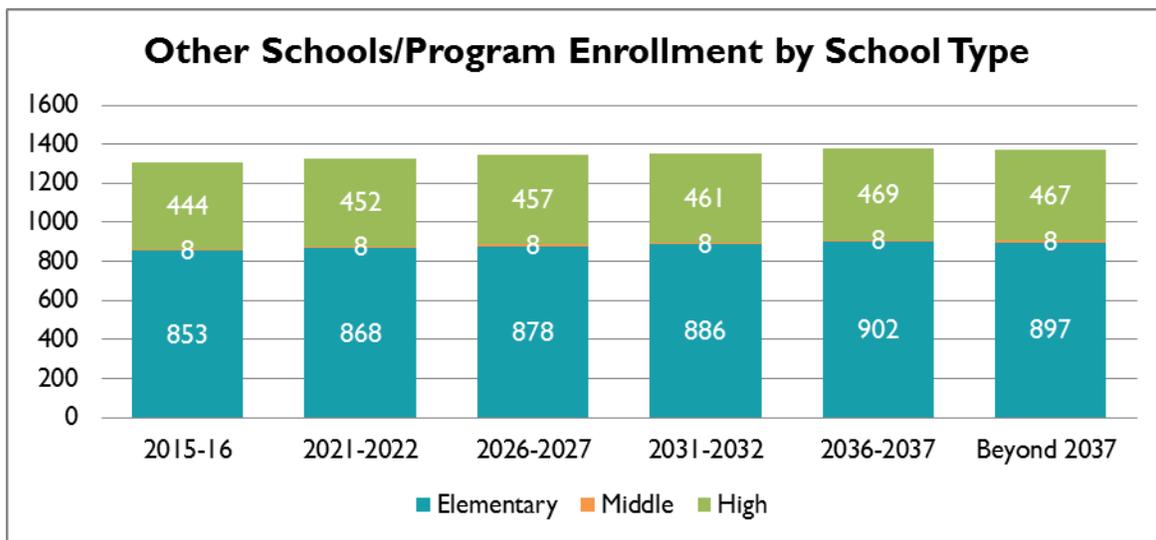
## West Attendance Area Enrollment Projections by Schools

School	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037	Beyond 2037
Franklin Elementary	399	404	409	412	415	412
Leopold Elementary	667	675	667	664	671	666
Lincoln Elementary	400	398	428	425	428	425
Midvale Elementary	508	506	500	495	496	492
Randall Elementary	394	393	389	385	382	379
Shorewood Elementary	457	459	454	450	445	442
Thoreau Elementary	454	458	463	459	455	451
Van Hise Elementary	395	394	405	401	398	394
Cherokee Middle	447	451	459	457	462	458
Hamilton Middle	869	872	873	872	876	869
Wright Middle	256	256	256	256	256	256
West High	2111	2117	2119	2108	2109	2092
<b>Totals</b>	<b>7357</b>	<b>7381</b>	<b>7423</b>	<b>7384</b>	<b>7394</b>	<b>7337</b>



## Other MMSD Enrollment Projections by Schools/Programs

School	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037	Beyond 2037
4K PK Off Site	853	868	878	886	902	897
Innovative & Alt Middle	8	8	8	8	8	8
Innovative & Alt High	310	315	319	322	328	326
Metro School Middle and High	18	18	19	19	19	19
Shabazz High	116	118	119	120	123	122
<b>Totals</b>	<b>1305</b>	<b>1328</b>	<b>1343</b>	<b>1355</b>	<b>1379</b>	<b>1373</b>



### C. Race and Ethnicity for MMSD and for Each High School Attendance Area

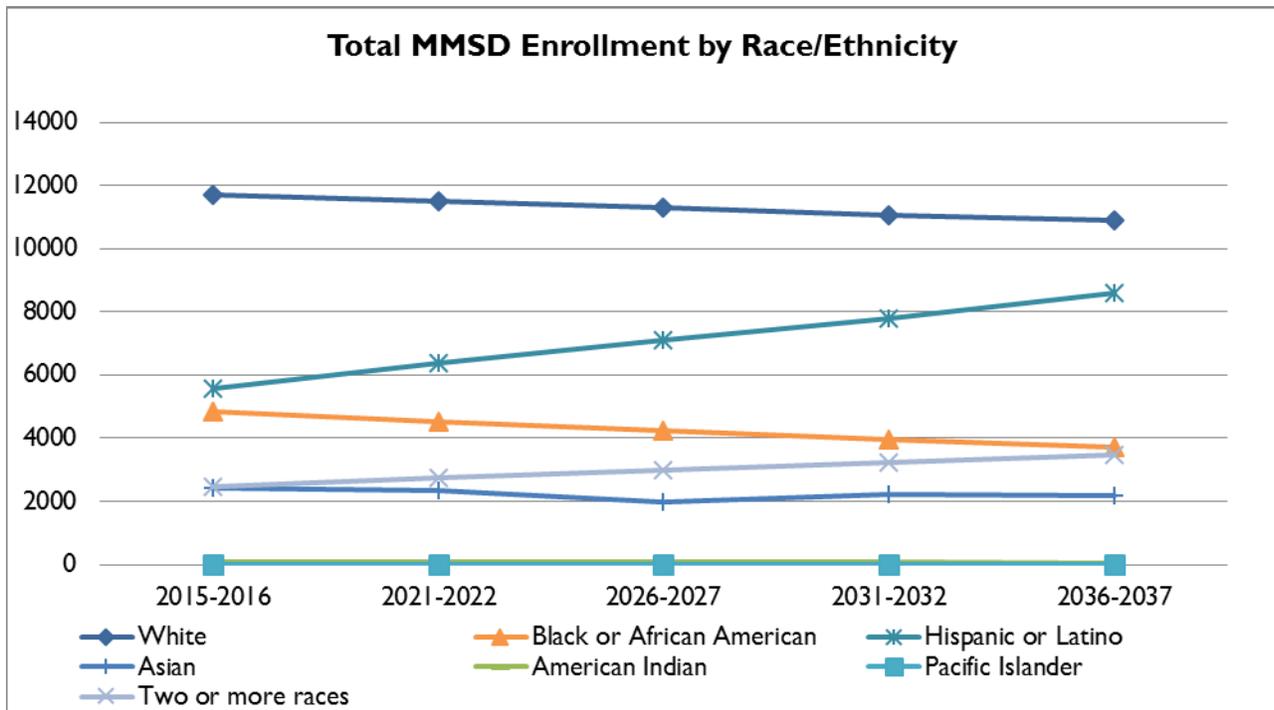
Each of the following pages presents projections for race and ethnicity between 2015 and 2037, for MMSD as a whole, and for each high school attendance area. For the District and each high school, the percent share of students of colors is projected to slightly increase through the projection period. Maps depicting the changes in race and ethnicity for students residing in each elementary school attendance area follow the tables and graphs.

The following tables and graphs illustrate projected trends among the major racial categories tracked by MMSD. Note that future trends are assumed to follow the 2010-2015 observed rates of change for each racial category at the District-wide level.

**Note:** Percentages for individual subgroups may not add to 100% of total projected enrollment due to rounding, presence of enrollment data for which student race is unknown, and flattening of percentage trends for small populations to avoid student projections totals of less than zero, manual data corrections for charter/magnet schools, and manual corrections for small sample sizes (e.g. students identifying as American Indian or Pacific Islander). Total margin of error is estimated at +/-0.5%.

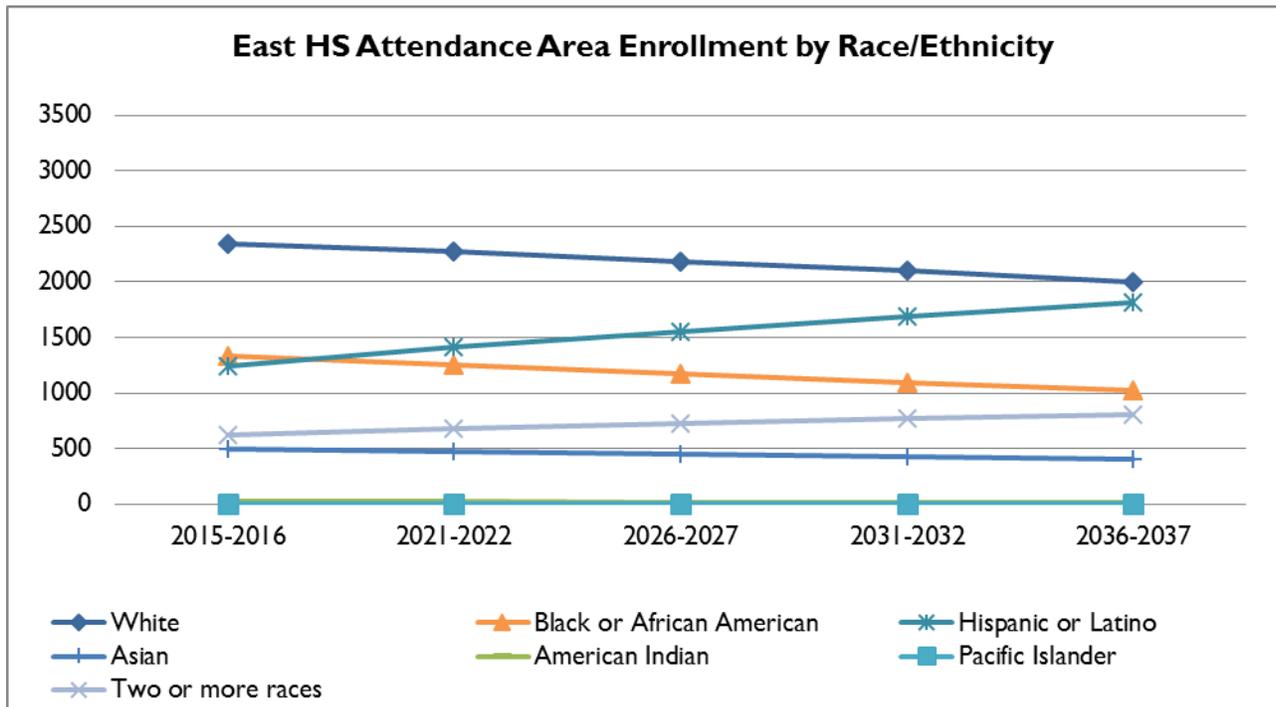
## All MMSD Schools/Programs Enrollment Projections by Race/Ethnicity

	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
White	11721	11524	11311	11069	10918
	43%	42%	40%	39%	38%
Black or African American	4835	4531	4251	3963	3695
	18%	16%	15%	14%	13%
Hispanic or Latino	5558	6393	7097	7791	8583
	20%	23%	25%	28%	30%
Asian	2421	2350	1960	2221	2176
	9%	9%	7%	8%	8%
American Indian	89	79	70	61	52
	0.3%	0.3%	0.3%	0.2%	0.2%
Pacific Islander	16	16	16	16	17
	0.1%	0.1%	0.1%	0.1%	0.1%
Two or more races	2466	2757	2991	3223	3489
	9%	10%	11%	11%	12%
All Communities of Color	15385	16126	16716	17275	18012
	57%	58%	60%	61%	62%
<b>Total</b>	<b>27106</b>	<b>27650</b>	<b>27697</b>	<b>28345</b>	<b>28930</b>



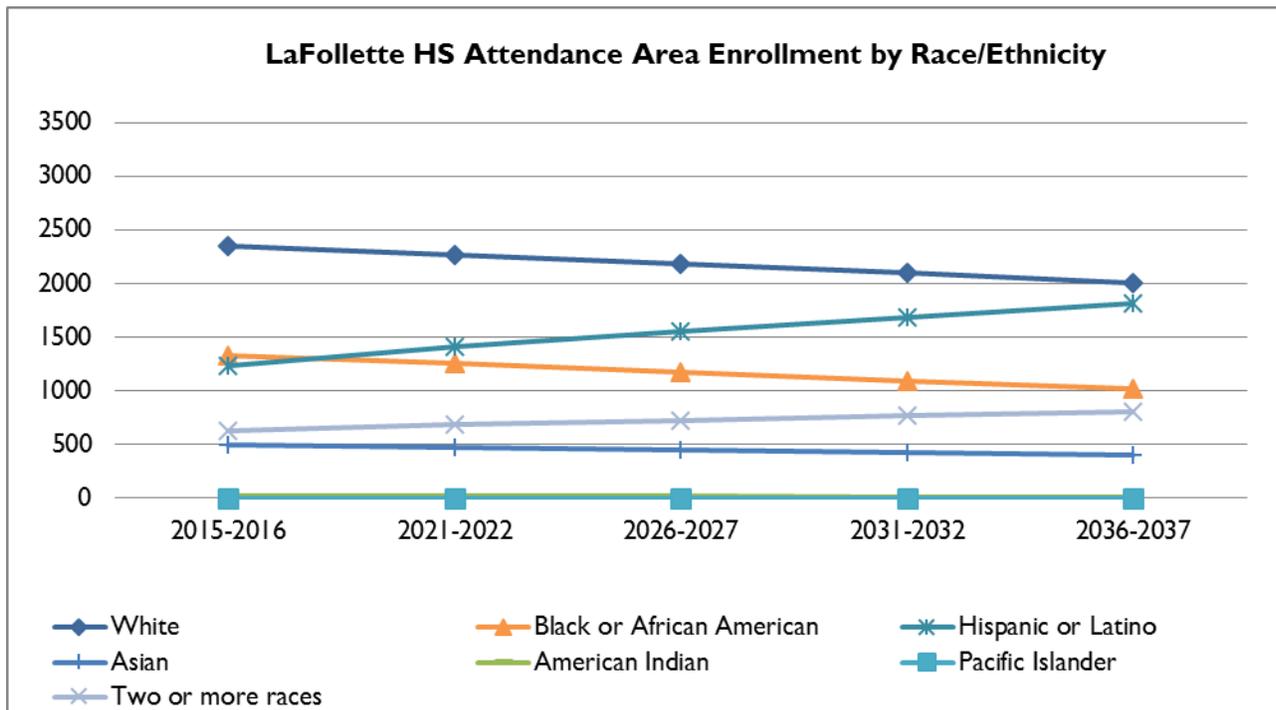
## East Attendance Area Enrollment Projections by Race/Ethnicity

	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
White	2344	2272	2181	2097	2003
	39%	37%	36%	34%	33%
Black or African American	1330	1253	1174	1097	1019
	22%	20%	19%	18%	17%
Hispanic or Latino	1236	1416	1550	1684	1813
	20%	23%	25%	28%	30%
Asian	499	477	454	432	409
	8%	8%	7%	7%	7%
American Indian	24	21	19	17	14
	0%	0%	0%	0%	0%
Pacific Islander	5	5	5	5	5
	0%	0%	0%	0%	0%
Two or more races	625	685	726	769	809
	10%	11%	12%	13%	13%
All Communities of Color	3720	3857	3928	4004	4068
	61%	63%	64%	66%	67%
<b>Total</b>	<b>6064</b>	<b>6129</b>	<b>6110</b>	<b>6100</b>	<b>6072</b>



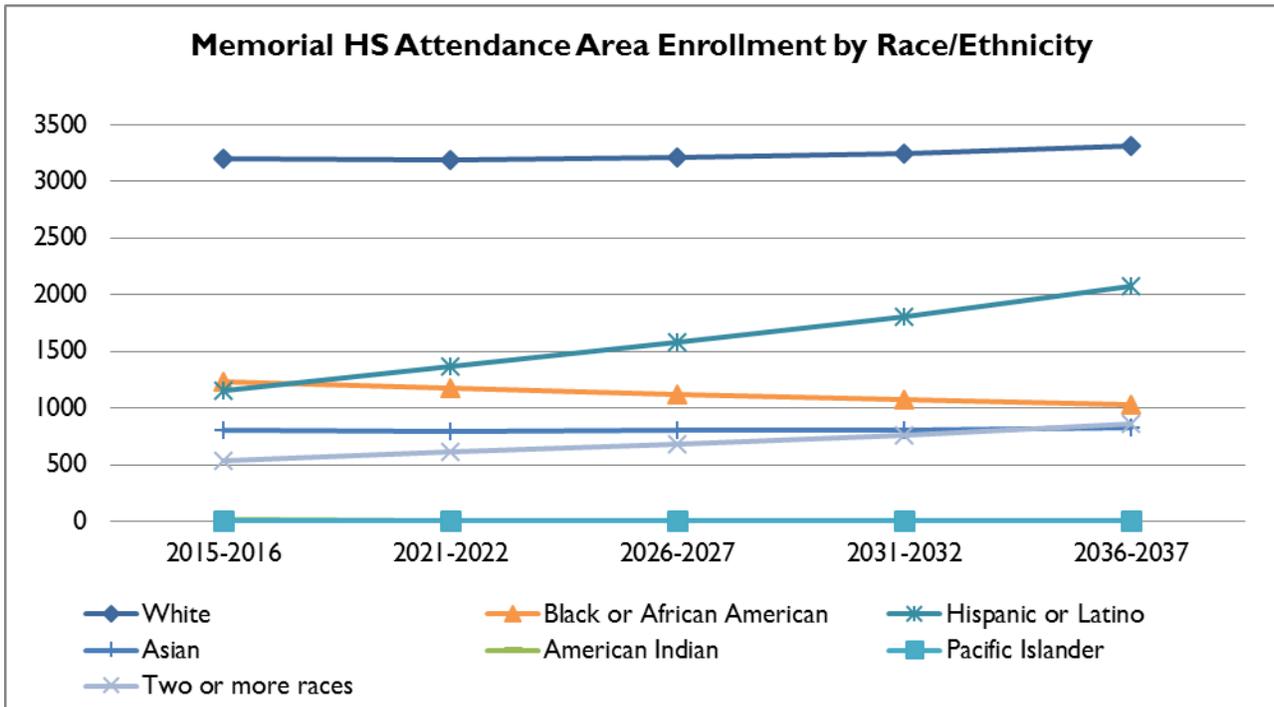
## LaFollette Attendance Area Enrollment Projections by Race/Ethnicity

	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
White	2132	2140	2094	2034	2023
	39%	38%	37%	35%	34%
Black or African American	1034	987	931	871	826
	19%	18%	16%	15%	14%
Hispanic or Latino	1376	1563	1708	1851	2023
	25%	28%	30%	32%	34%
Asian	262	249	233	217	204
	5%	4%	4%	4%	3%
American Indian	27	25	23	21	19
	0.5%	0.4%	0.4%	0.4%	0.3%
Pacific Islander	3	3	3	3	4
	0.1%	0.1%	0.1%	0.1%	0.1%
Two or more races	603	677	727	774	840
	11%	12%	13%	13%	14%
All Communities of Color	3305	3504	3626	3738	3916
	61%	62%	64%	65%	68%
<b>Total</b>	<b>5437</b>	<b>5644</b>	<b>5720</b>	<b>5771</b>	<b>5938</b>



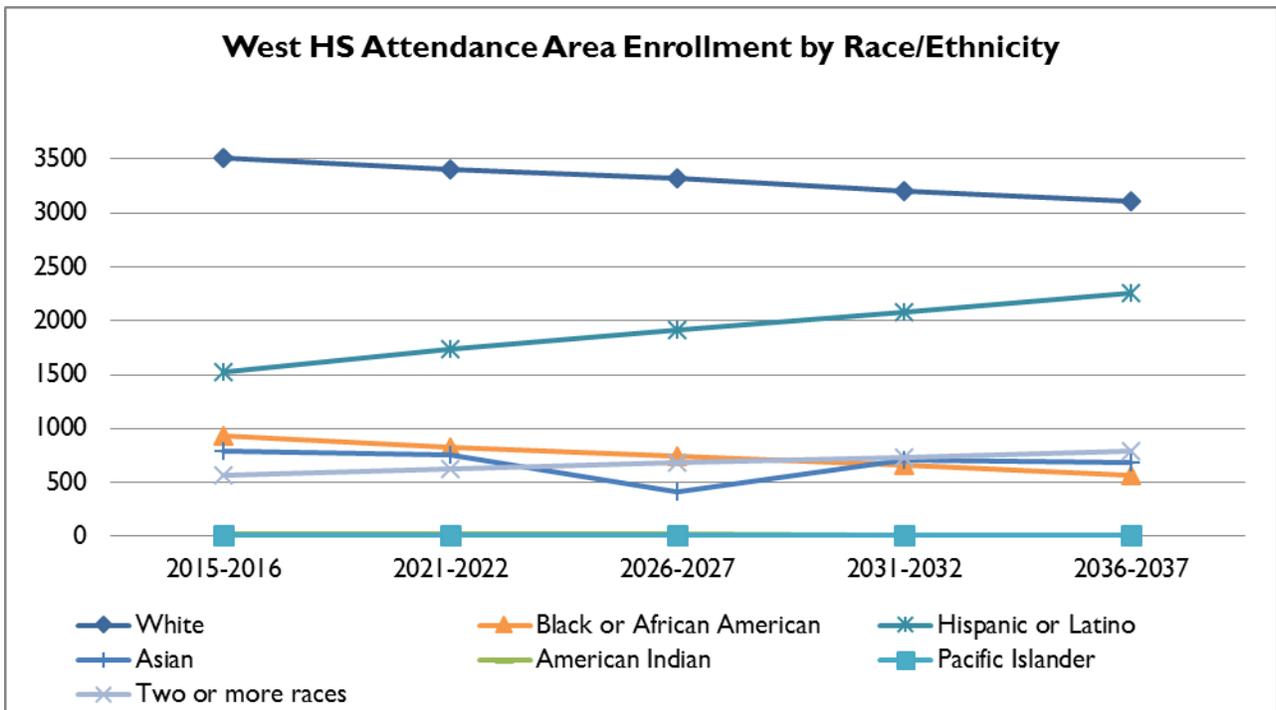
## Memorial Attendance Area Enrollment Projections by Race/Ethnicity

	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
White	3206	3194	3213	3247	3309
	46%	45%	43%	42%	41%
Black or African American	1237	1172	1124	1076	1029
	18%	16%	15%	14%	13%
Hispanic or Latino	1149	1372	1581	1805	2081
	17%	19%	21%	24%	26%
Asian	802	797	799	803	822
	12%	11%	11%	10%	10%
American Indian	12	9	7	5	3
	0.2%	0.1%	0.1%	0.1%	0.0%
Pacific Islander	1	1	1	1	1
	0.0%	0.0%	0.0%	0.0%	0.0%
Two or more races	535	612	685	765	858
	8%	9%	9%	10%	11%
All Communities of Color	3736	3965	4197	4455	4794
	54%	55%	57%	58%	62%
<b>Total</b>	<b>6942</b>	<b>7159</b>	<b>7411</b>	<b>7702</b>	<b>8103</b>



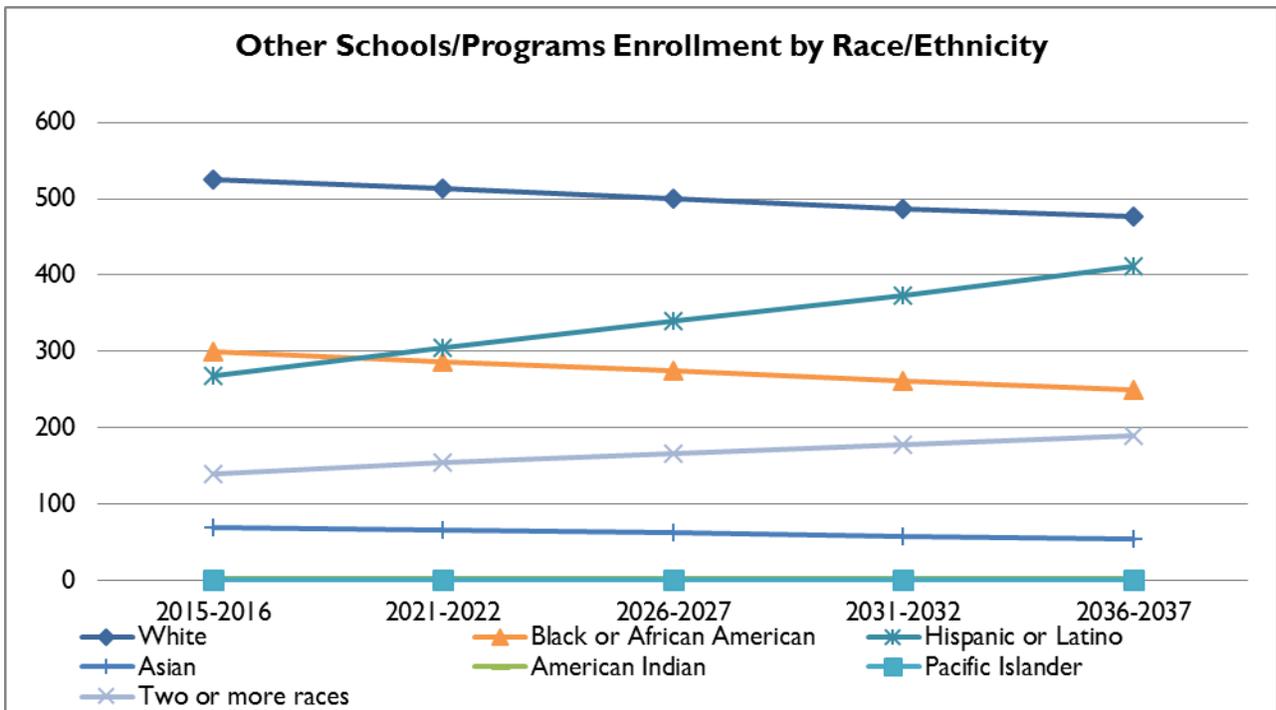
## West Attendance Area Enrollment Projections by Race/Ethnicity

	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
White	3514	3405	3322	3205	3106
	48%	46%	45%	43%	42%
Black or African American	933	832	749	657	572
	13%	11%	10%	9%	8%
Hispanic or Latino	1528	1737	1919	2079	2254
	21%	24%	26%	28%	30%
Asian	788	761	411	712	686
	11%	10%	6%	10%	9%
American Indian	24	21	19	16	13
	0.3%	0.3%	0.2%	0.2%	0.2%
Pacific Islander	7	7	7	7	7
	0.1%	0.1%	0.1%	0.1%	0.1%
Two or more races	563	629	687	738	793
	8%	9%	9%	10%	11%
All Communities of Color	3843	3987	4121	4208	4326
	52%	54%	56%	57%	59%
<b>Total</b>	<b>7357</b>	<b>7392</b>	<b>7113</b>	<b>7413</b>	<b>7432</b>



## Other MMSD Schools/Programs Enrollment Projections by Race/Ethnicity

	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
White	525	513	500	486	476
	40%	39%	37%	36%	35%
Black or African American	301	287	274	261	249
	23%	22%	20%	19%	18%
Hispanic or Latino	268	305	339	373	412
	21%	23%	25%	28%	30%
Asian	70	66	62	58	55
	5%	5%	5%	4%	4%
American Indian	2	2	2	2	2
	0.2%	0.2%	0.2%	0.2%	0.2%
Pacific Islander	0	0	0	0	0
	0.0%	0.0%	0.0%	0.0%	0.0%
Two or more races	140	154	166	177	190
	11%	12%	12%	13%	14%
All Communities of Color	781	814	843	871	908
	60%	61%	64%	66%	68%
<b>Total</b>	<b>1306</b>	<b>1327</b>	<b>1344</b>	<b>1358</b>	<b>1384</b>





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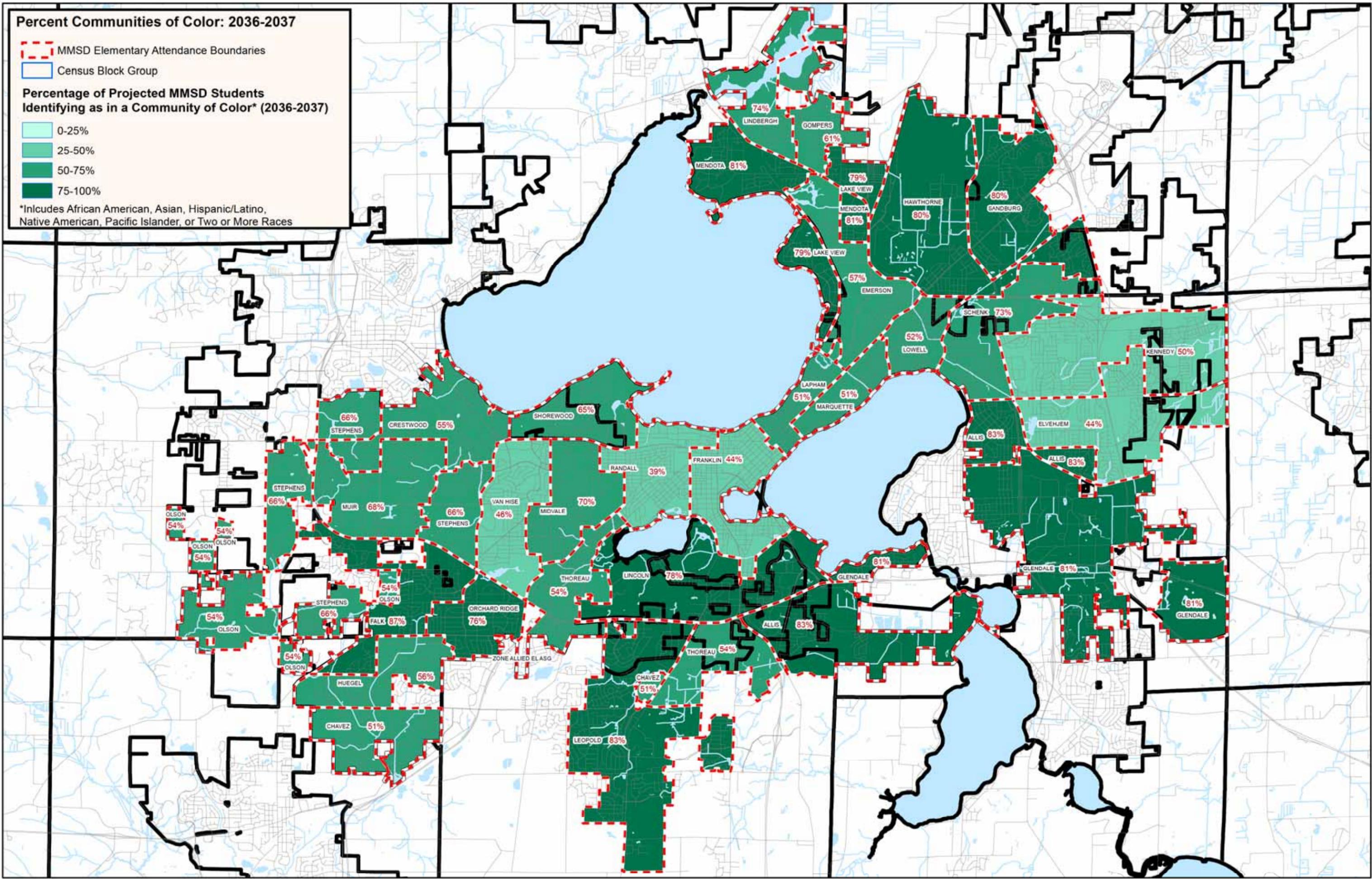
**Percent Communities of Color: 2036-2037**

 MMSD Elementary Attendance Boundaries  
 Census Block Group

**Percentage of Projected MMSD Students Identifying as in a Community of Color\* (2036-2037)**

 0-25%  
 25-50%  
 50-75%  
 75-100%

\*Includes African American, Asian, Hispanic/Latino, Native American, Pacific Islander, or Two or More Races



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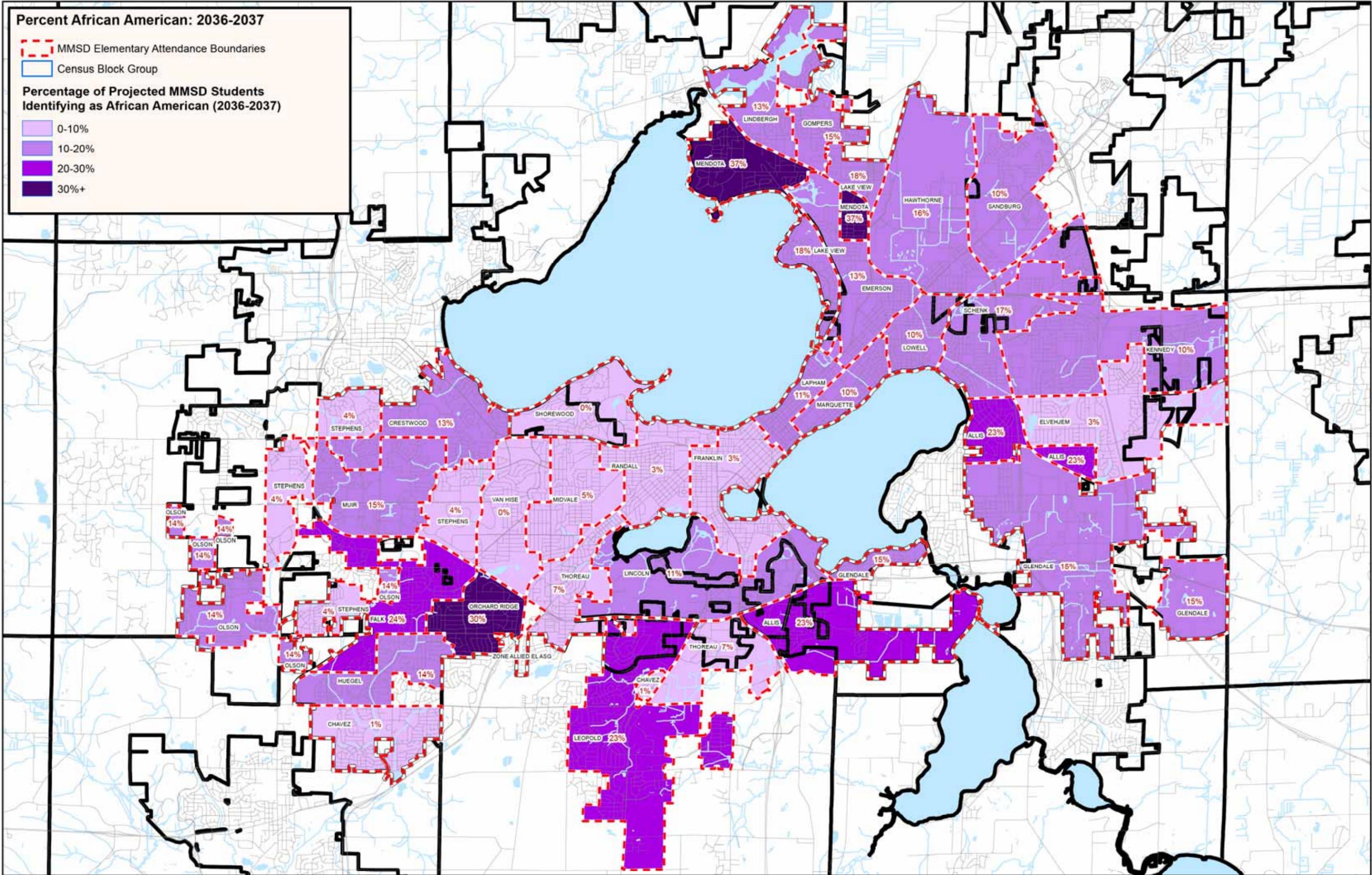
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**Percent African American: 2036-2037**

MMSD Elementary Attendance Boundaries  
 Census Block Group

**Percentage of Projected MMSD Students Identifying as African American (2036-2037)**

- 0-10%
- 10-20%
- 20-30%
- 30%+



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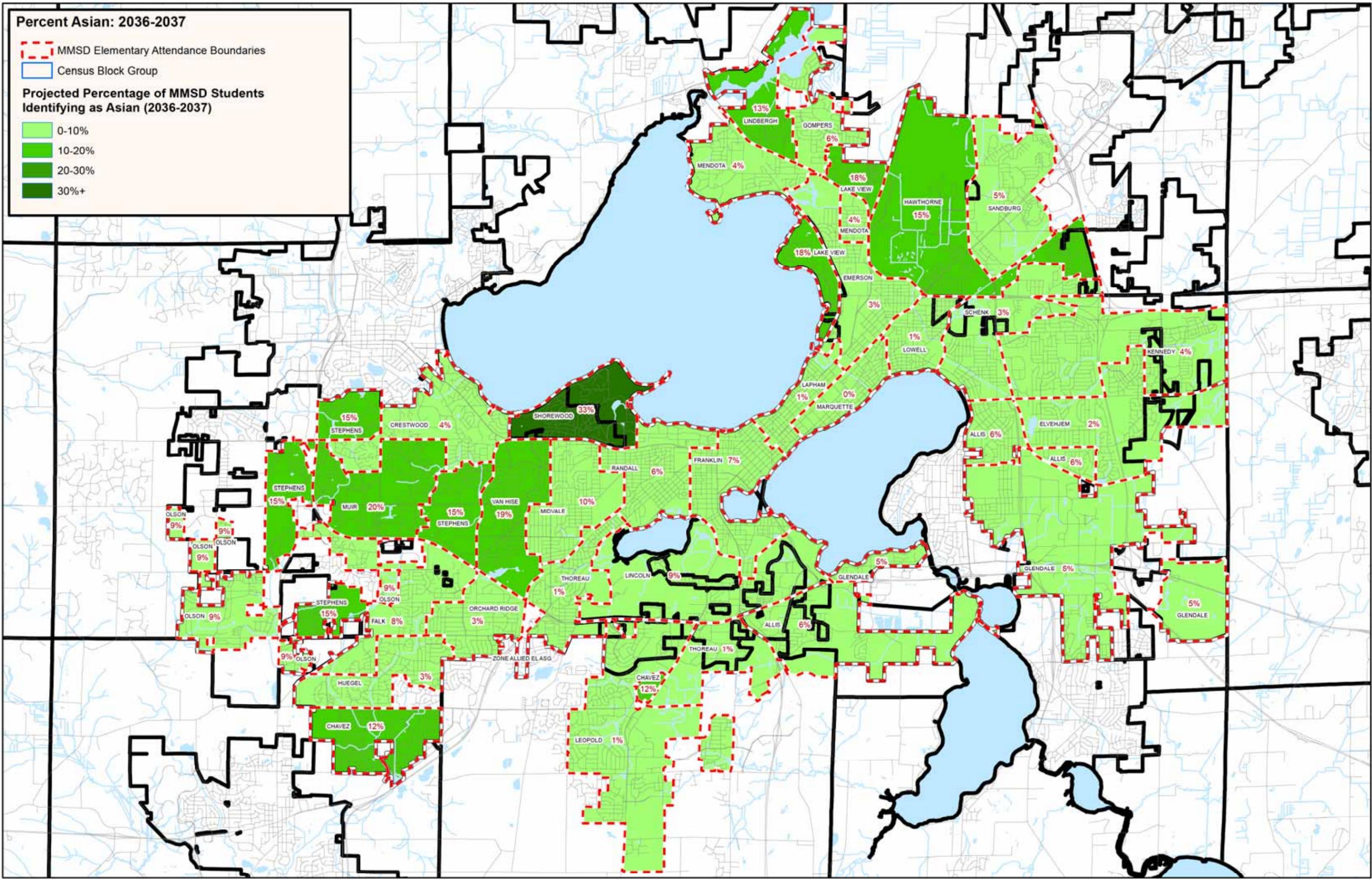
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**Percent Asian: 2036-2037**

MMSD Elementary Attendance Boundaries  
 Census Block Group

**Projected Percentage of MMSD Students Identifying as Asian (2036-2037)**

- 0-10%
- 10-20%
- 20-30%
- 30%+



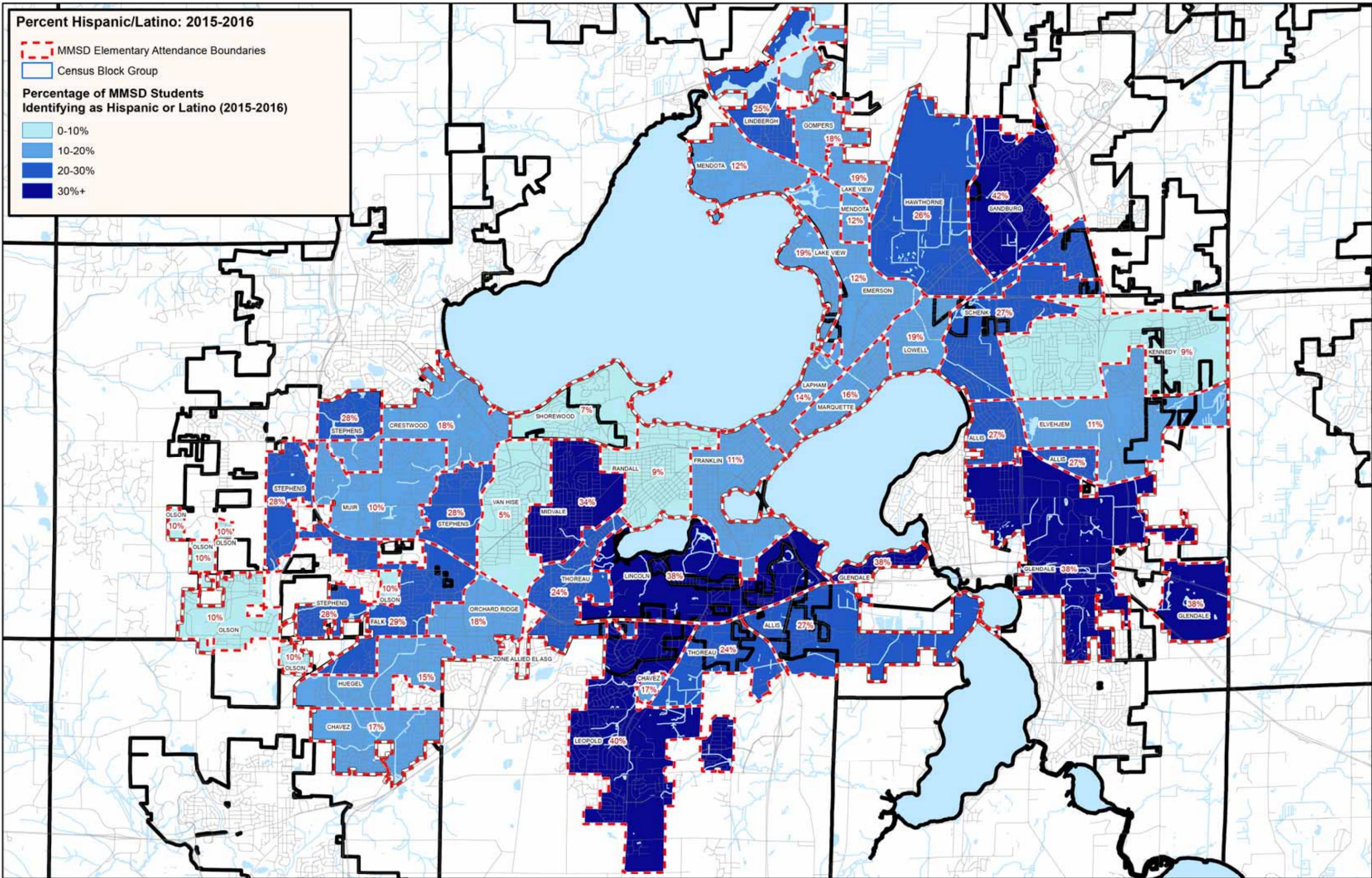
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**Percent Hispanic/Latino: 2015-2016**

MMSD Elementary Attendance Boundaries  
 Census Block Group

**Percentage of MMSD Students Identifying as Hispanic or Latino (2015-2016)**

- 0-10%
- 10-20%
- 20-30%
- 30%+



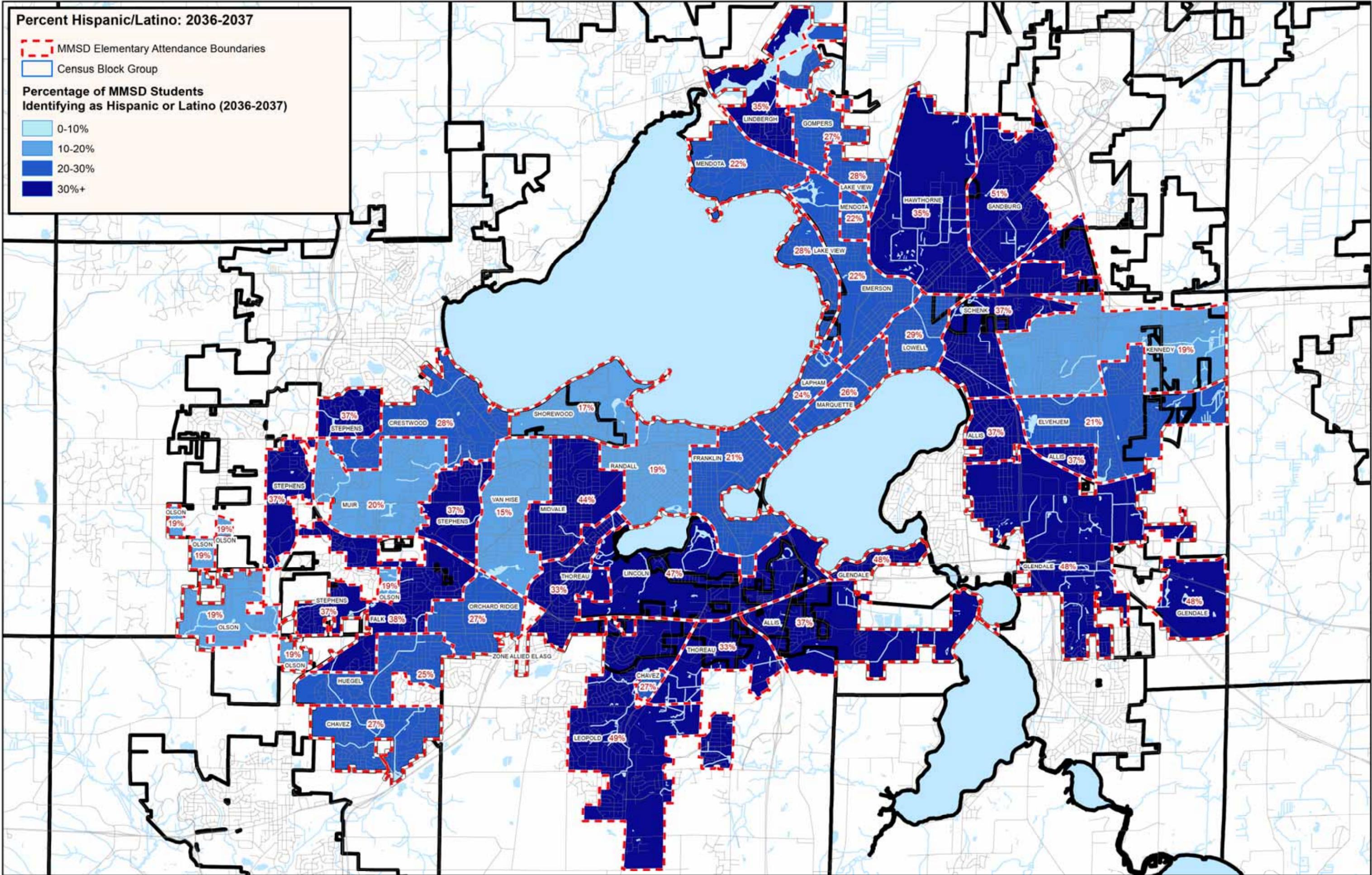
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**Percent Hispanic/Latino: 2036-2037**

 MMSD Elementary Attendance Boundaries  
 Census Block Group

**Percentage of MMSD Students Identifying as Hispanic or Latino (2036-2037)**

 0-10%  
 10-20%  
 20-30%  
 30%+



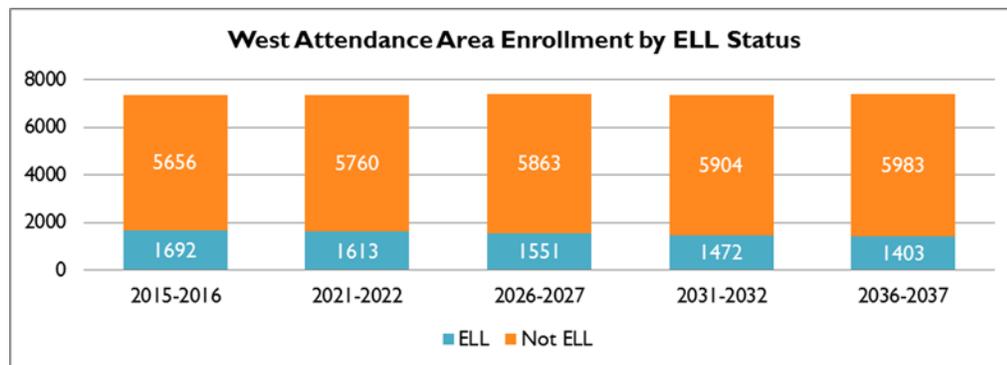
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#### D. ELL Enrollment for MMSD and for Each High School Attendance Area

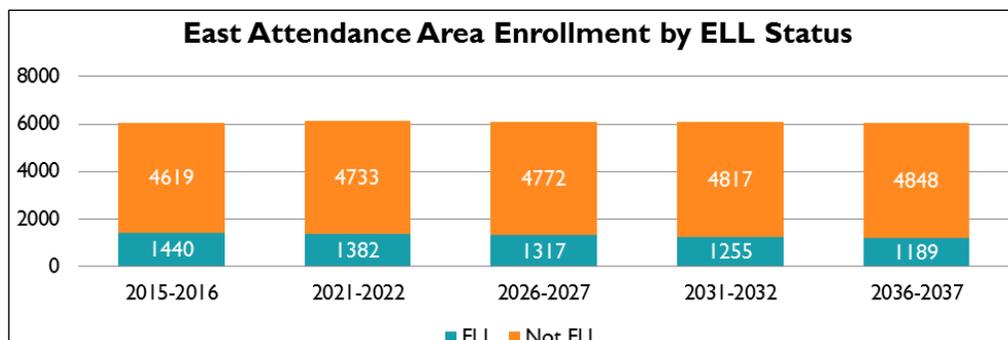
Each of the following pages presents projections for English Language Learners (ELL) between 2015 and 2037, for MMSD as a whole, and for each high school attendance area. For the District and each high school, the percent share of ELL students is projected to slightly decrease through the projection period. Maps depicting the changes in ELL students residing in each elementary school attendance area follow the tables and graphs. The following tables and graphs illustrate projected trends for ELL students. Note that future trends are assumed to follow the 2010-2015 observed rates of change for District-wide levels.

**Note:** Percentages for individual subgroups may not add to 100% of projected total enrollment due to rounding and presence of enrollment data for which student ELL status is unknown. Total margin of error is estimated at +/-0.5%.

All MMSD Schools Enrollment Projections by ELL Students					
	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
	23%	22%	21%	20%	19%
	77%	78%	79%	80%	81%
<b>Total</b>	<b>27084</b>	<b>27592</b>	<b>27933</b>	<b>28210</b>	<b>28753</b>

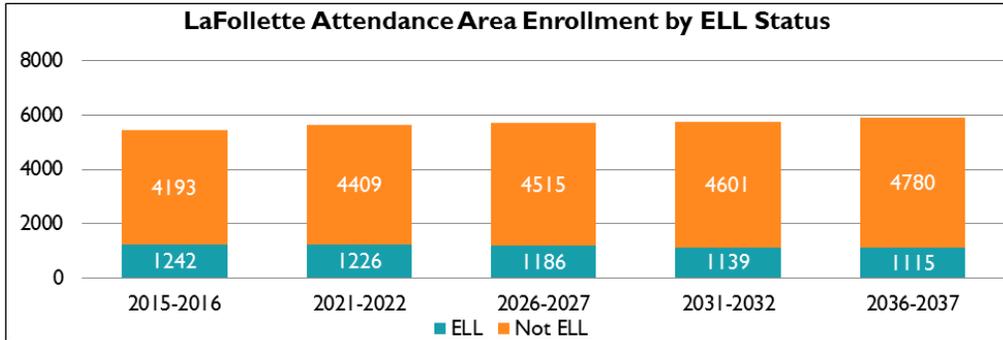


East Attendance Area Enrollment Projections by ELL Students					
	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
ELL	1440	1382	1317	1255	1189
	24%	23%	22%	21%	20%
Not ELL	4619	4733	4772	4817	4848
	76%	77%	78%	79%	80%
<b>Total</b>	<b>6059</b>	<b>6115</b>	<b>6089</b>	<b>6072</b>	<b>6037</b>



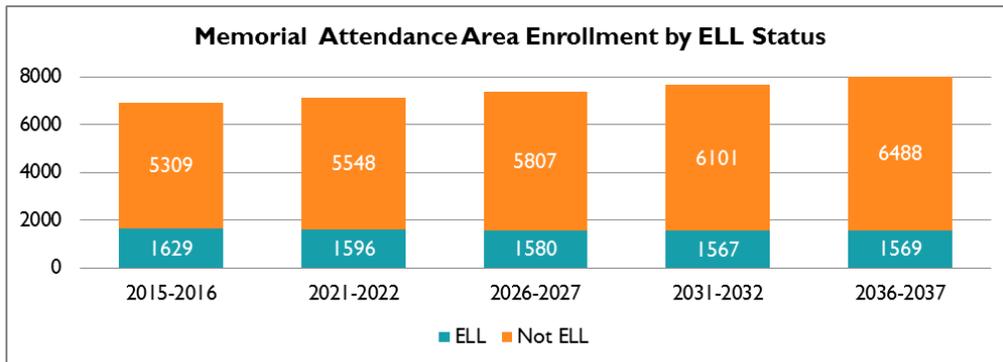
## LaFollette Attendance Area Enrollment Projections by ELL Students

	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
	23%	22%	21%	20%	19%
	77%	78%	79%	80%	81%
<b>Total</b>	<b>5435</b>	<b>5634</b>	<b>5701</b>	<b>5741</b>	<b>5895</b>



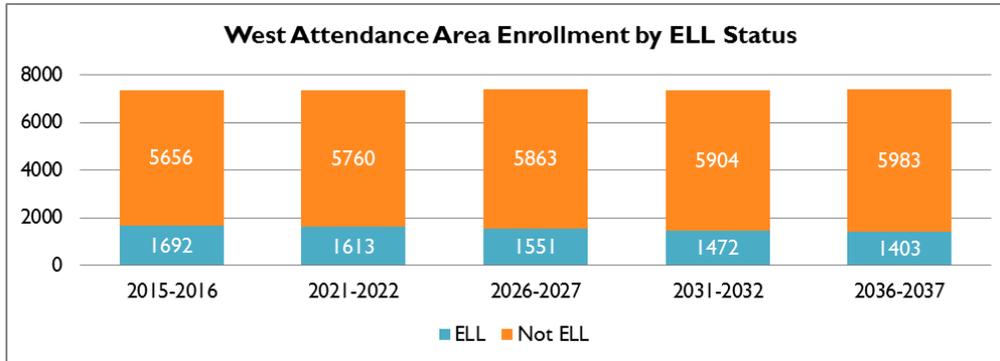
## Memorial Attendance Area Enrollment Projections by ELL Students

	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
ELL	1629	1596	1580	1567	1569
	23%	22%	21%	20%	19%
Not ELL	5309	5548	5807	6101	6488
	76%	78%	79%	79%	80%
<b>Total</b>	<b>6938</b>	<b>7144</b>	<b>7387</b>	<b>7668</b>	<b>8057</b>



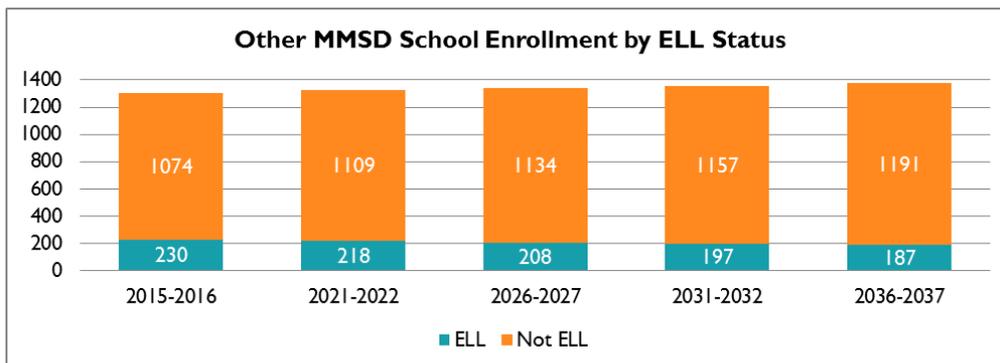
## West Attendance Area Enrollment Projections by ELL Students

	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
	23%	22%	21%	20%	19%
	77%	78%	79%	80%	81%
<b>Total</b>	<b>7348</b>	<b>7372</b>	<b>7414</b>	<b>7375</b>	<b>7385</b>



## Other MMSD Schools Enrollment Projections by ELL Students

	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
ELL	230	218	208	197	187
	18%	16%	15%	15%	14%
Not ELL	1074	1109	1134	1157	1191
	82%	83%	84%	85%	86%
<b>Total</b>	<b>1304</b>	<b>1327</b>	<b>1342</b>	<b>1354</b>	<b>1378</b>



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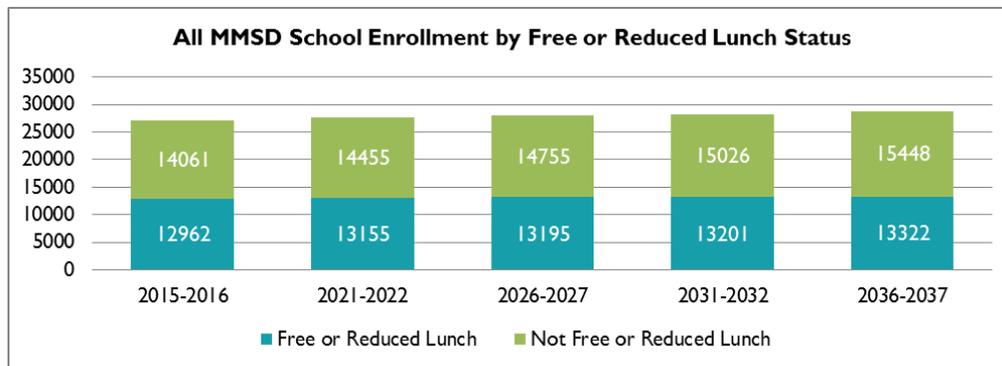
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### E. Free/Reduced Lunch Enrollment for MMSD and for Each High School Attendance Area

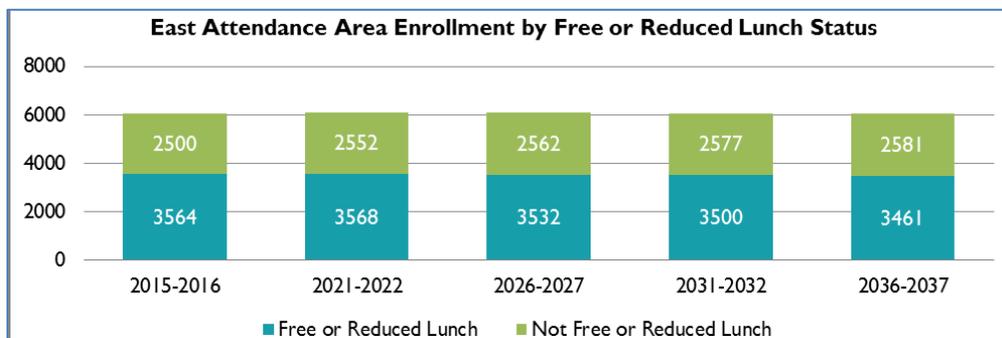
Each of the following pages presents projections for free/reduced lunch (FRL) student enrollment between 2015 and 2037, for MMSD as a whole, and for each high school attendance area. For the District and each high school, the percent share of FRL students is projected to remain stable through the projection period. Maps depicting the changes in FRL students residing in each elementary school attendance area follow the tables and graphs. The following tables and graphs illustrate projected trends for FRL students. Note that future trends are assumed to follow the 2010-2015 observed rates of change for District-wide levels.

**Note:** Percentages for individual subgroups may not add to 100% of projected total enrollment due to rounding and presence of enrollment data for which student free or reduced lunch status is unknown. Total margin of error is estimated at +/-0.5%.

All MMSD Schools Enrollment by Free/Reduced Lunch Students					
	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
	48%	48%	47%	46.7%	46%
	52%	52%	53%	53.2%	54%
<b>Total</b>	<b>27023</b>	<b>27609</b>	<b>27950</b>	<b>28227</b>	<b>28770</b>

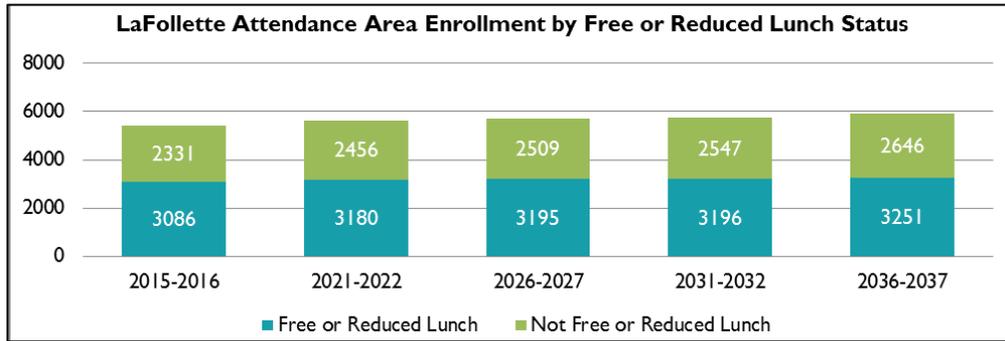


East Attendance Area Enrollment by Free/Reduced Lunch Students					
	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
Free or Reduced Lunch	3564	3568	3532	3500	3461
	59%	58%	58%	58%	57%
Not Free or Reduced Lunch	2500	2552	2562	2577	2581
	41%	42%	42%	42%	43%
<b>Total</b>	<b>6064</b>	<b>6120</b>	<b>6094</b>	<b>6077</b>	<b>6042</b>



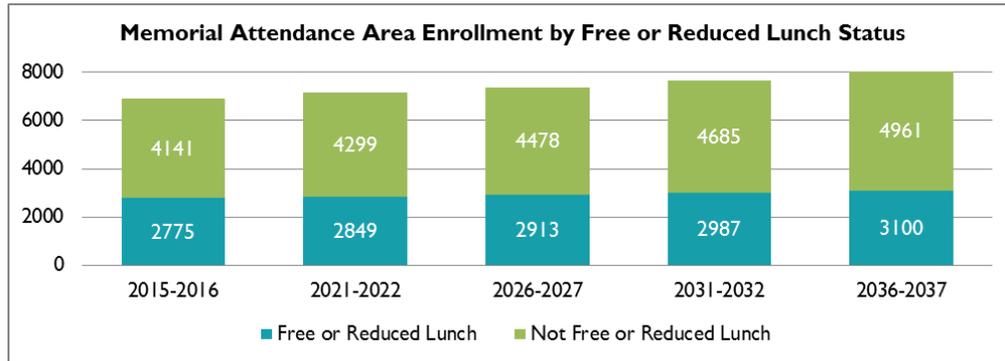
## LaFollette Attendance Area Enrollment by Free/Reduced Lunch Students

	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
	57%	56%	56%	56%	55%
	43%	44%	44%	44%	45%
<b>Total</b>	<b>5417</b>	<b>5636</b>	<b>5703</b>	<b>5743</b>	<b>5898</b>



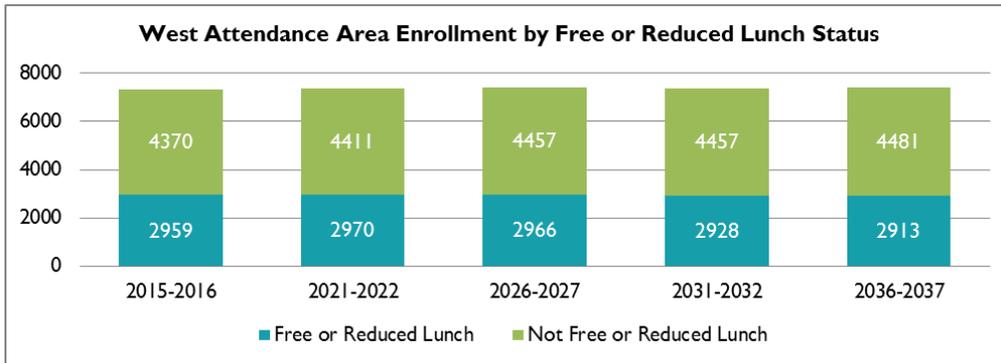
## Memorial Attendance Area Enrollment by Free/Reduced Lunch Students

	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
Free or Reduced Lunch	2775	2849	2913	2987	3100
	40%	40%	39%	39%	38%
Not Free or Reduced Lunch	4141	4299	4478	4685	4961
	60%	60%	61%	61%	62%
<b>Total</b>	<b>6916</b>	<b>7148</b>	<b>7391</b>	<b>7672</b>	<b>8061</b>



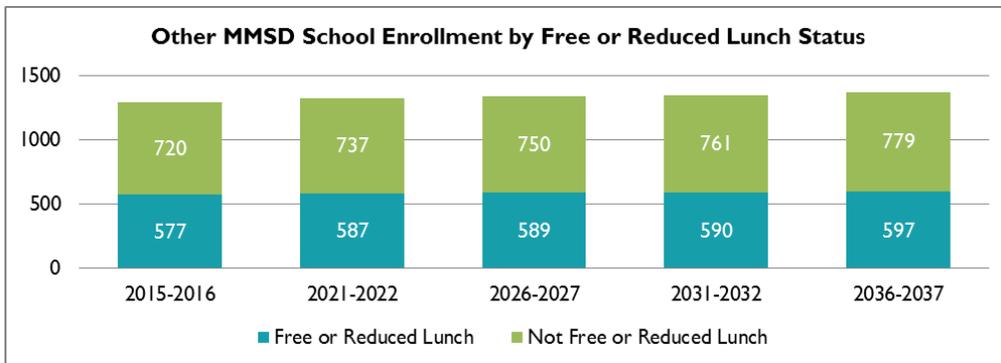
## West Attendance Area Enrollment by Free/Reduced Lunch Students

	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
	40%	40%	40%	40%	39%
	59%	60%	60%	60%	61%
<b>Total</b>	<b>7330</b>	<b>7381</b>	<b>7423</b>	<b>7384</b>	<b>7394</b>



## Other MMSD Schools Enrollment by Free/Reduced Lunch Students

	2015-2016	2021-2022	2026-2027	2031-2032	2036-2037
Free or Reduced Lunch	577	587	589	590	597
	44%	44%	44%	44%	43%
Not Free or Reduced Lunch	720	737	750	761	779
	55%	56%	56%	56%	56%
<b>Total</b>	<b>1296</b>	<b>1324</b>	<b>1339</b>	<b>1351</b>	<b>1375</b>



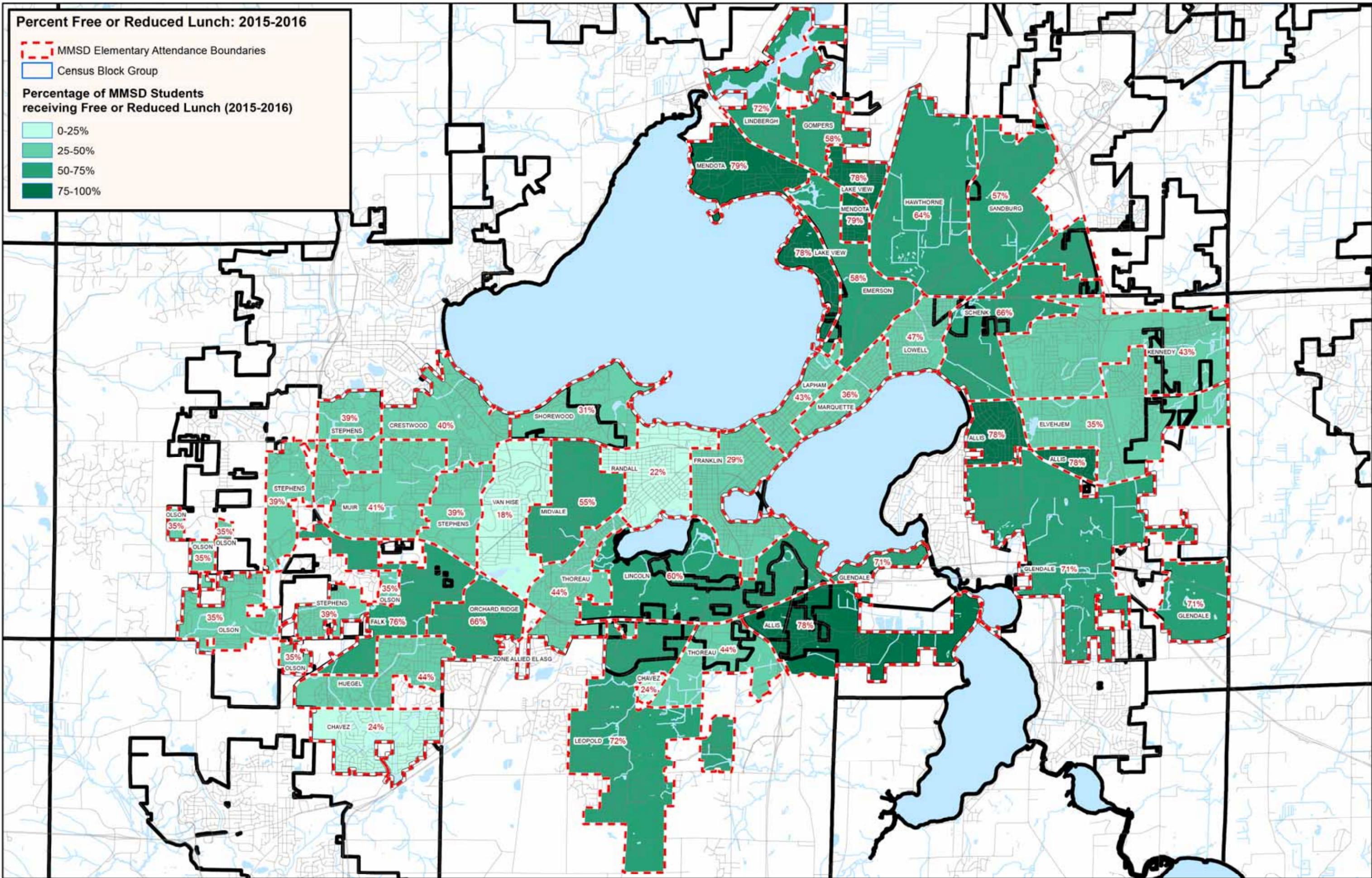
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**Percent Free or Reduced Lunch: 2015-2016**

MMSD Elementary Attendance Boundaries  
 Census Block Group

**Percentage of MMSD Students receiving Free or Reduced Lunch (2015-2016)**

0-25%
25-50%
50-75%
75-100%



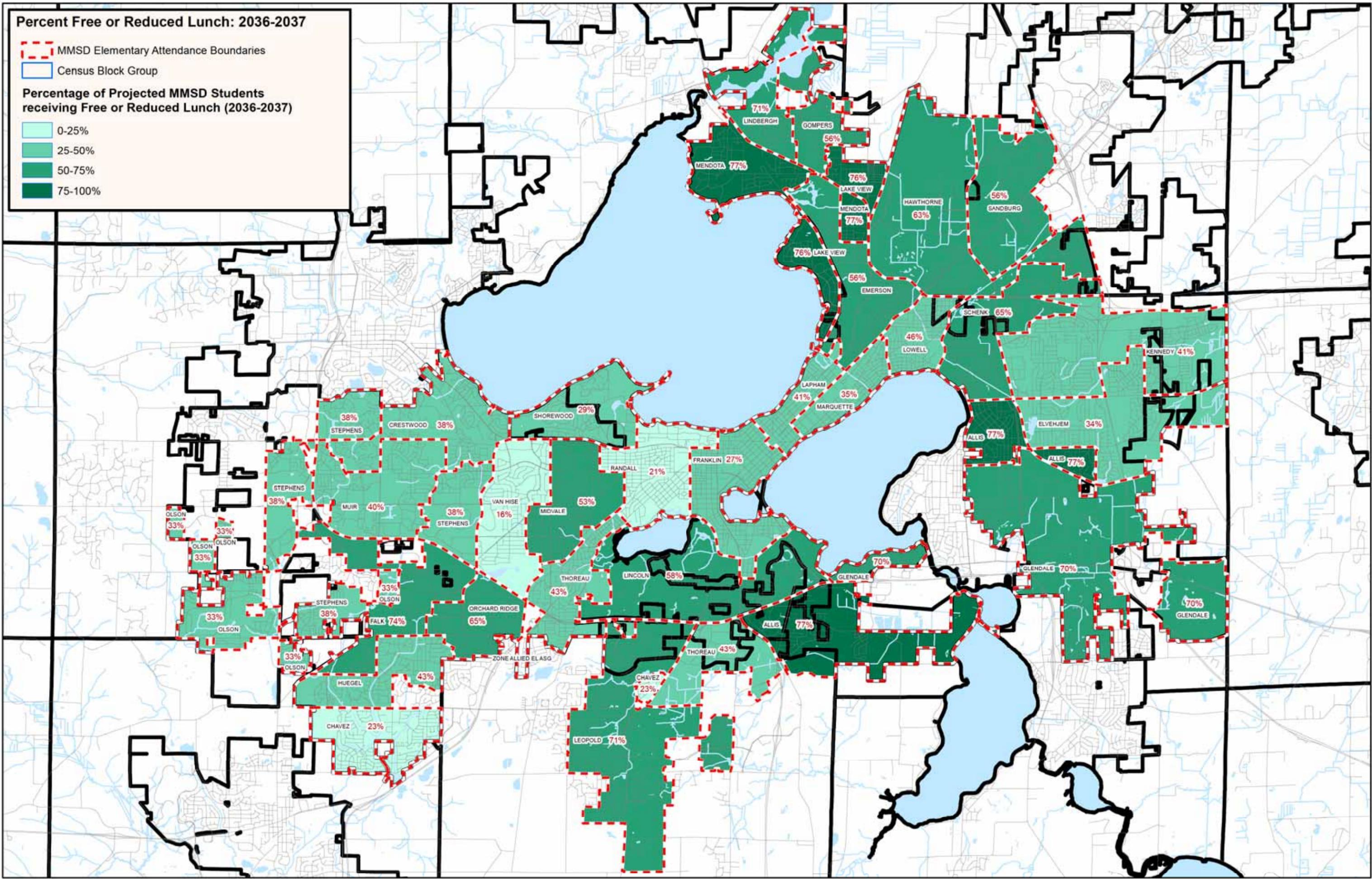
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**Percent Free or Reduced Lunch: 2036-2037**

 MMSD Elementary Attendance Boundaries  
 Census Block Group

**Percentage of Projected MMSD Students receiving Free or Reduced Lunch (2036-2037)**

 0-25%  
 25-50%  
 50-75%  
 75-100%



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## F. Elementary School Case Studies

Each of the following pages presents total enrollment projections for four elementary schools in five-year lustrums. Following the four case study tables, we have presented a map depicting the timing of new development and the number of new elementary MMSD students resulting from such development for each of the four case study schools.

### 1. Lapham Elementary

The table below indicates that Lapham Elementary School will experience a modest level of redevelopment that will more than offset the minimal decline of students from existing development. This study projects the continuation of large-scale apartment development along East Washington Avenue and Mifflin Street. No greenfield development is possible because the area is fully built-out. An unknown influence will be the potential for young Millennial singles and couples to remain in existing apartments or relocate to new family housing within the neighborhood. This trend is not yet occurring, and is therefore not reflected in the enrollment projections.

Lapham Elementary	2015 16 Enrollment	Enrollment Change within Existing Development	Enrollment Change from New Development	Total Projected Enrollment
	269			
2017-2022 Projected Enrollment Change		-1	13	280
2022-2027 Projected Enrollment Change		-3	3	280
2027-2032 Projected Enrollment Change		-3	12	290
2032-2037 Projected Enrollment Change		-3	0	287
Beyond 2037 Projected Enrollment Change		-2	0	285

### 2. Elvehjem Elementary

The table below indicates that Elvehjem Elementary School will experience steady greenfield development that results in enrollment gains throughout the study period. This study projects such development to occur within the Grandview Commons Neighborhood in the short term with longer term development occurring south of Cottage Grove and ultimately on the south side of Buckeye Road. No infill or redevelopment is projected. The enrollment gains projected may create crowding challenges. Note that MMSD owns a vacant site along Sprecher Road.

Elvehjem Elementary	2015 16 Enrollment	Enrollment Change within Existing Development	Enrollment Change from New Development	Total Projected Enrollment
	504			
2017-2022 Projected Enrollment Change		-2	43	544
2022-2027 Projected Enrollment Change		-6	14	552
2027-2032 Projected Enrollment Change		-5	21	568
2032-2037 Projected Enrollment Change		-5	24	587
Beyond 2037 Projected Enrollment Change		-5	0	583

### 3. Olson Elementary

The table below indicates that Olson Elementary School will experience substantial greenfield development that results in strong enrollment gains throughout the study period. Large sites of dense development are projected on the south side of Midtown Road, west of Woods Road, and are shown in red on the case study map. This study projects such development to occur in newly developing neighborhoods that are currently located outside of MMSD’s territory, but will be transferring into the District per agreements with the Middleton/Cross Plains School District. These transferring areas are currently not assigned to a specific attendance area since they are not in the District.

Olson Elementary	2015-16 Enrollment	Enrollment Change within Existing Development	Enrollment Change from New Development	Total Projected Enrollment
	432			
2017-2022 Projected Enrollment Change		-2	105	535
2022-2027 Projected Enrollment Change		-6	126	655
2027-2032 Projected Enrollment Change		-6	140	789
2032-2037 Projected Enrollment Change		-7	133	914
Beyond 2037 Projected Enrollment Change		-7	14	921

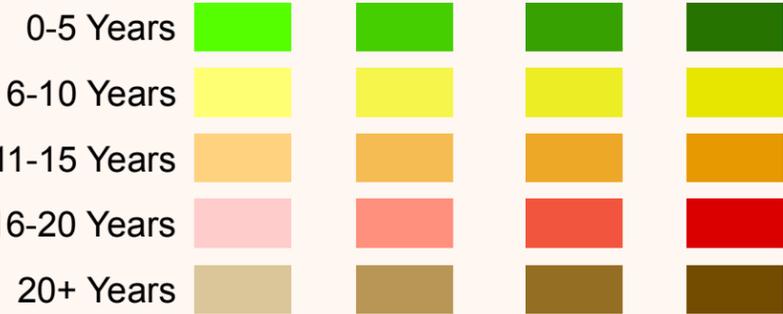
### 4. Leopold Elementary

The table below indicates that Leopold Elementary School will experience a modest level of infill development that will offset the minimal decline of students from existing development. This study projects scattered site development throughout the projection period, with small sites located south of Post Road, the redevelopment of apartments on Breckenridge Court, and greenfield development south of Nobel Drive.

Leopold Elementary	2015-16 Enrollment	Enrollment Change within Existing Development	Enrollment Change from New Development	Total Projected Enrollment
	667			
2017-2022 Projected Enrollment Change		-3	11	675
2022-2027 Projected Enrollment Change		-7	0	667
2027-2032 Projected Enrollment Change		-6	3	664
2032-2037 Projected Enrollment Change		-6	13	671
Beyond 2037 Projected Enrollment Change		-5	0	666

# Scenario 3 (Extrapolated 2010-15 Trend) Lapham Area - New Elementary Students

## Timing of Development \*

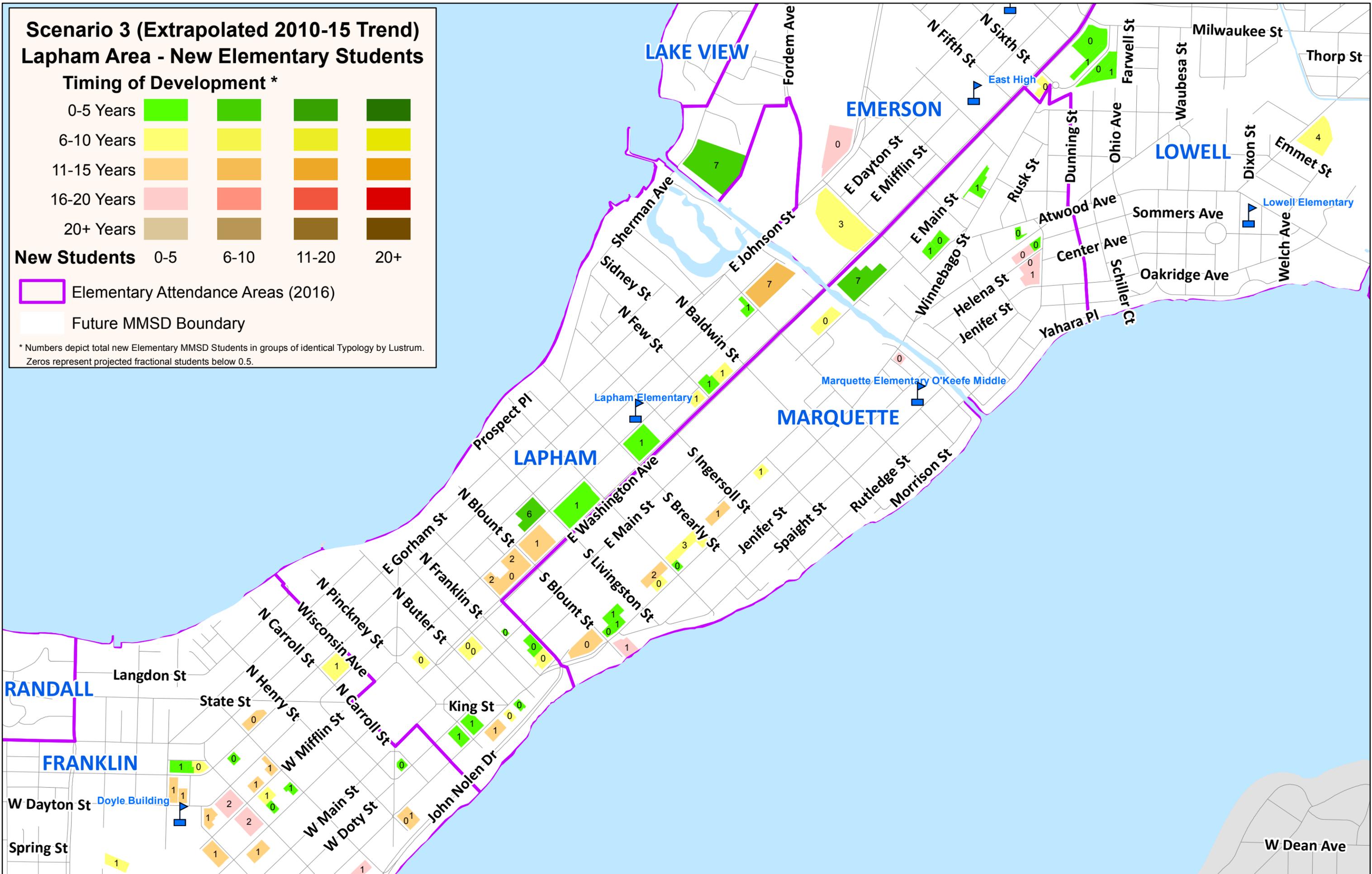


**New Students**    0-5    6-10    11-20    20+

Elementary Attendance Areas (2016)

Future MMSD Boundary

\* Numbers depict total new Elementary MMSD Students in groups of identical Typology by Lustrum. Zeros represent projected fractional students below 0.5.



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# Scenario 3 (Extrapolated 2010-15 Trend) Elvehjem Area - New Elementary Students

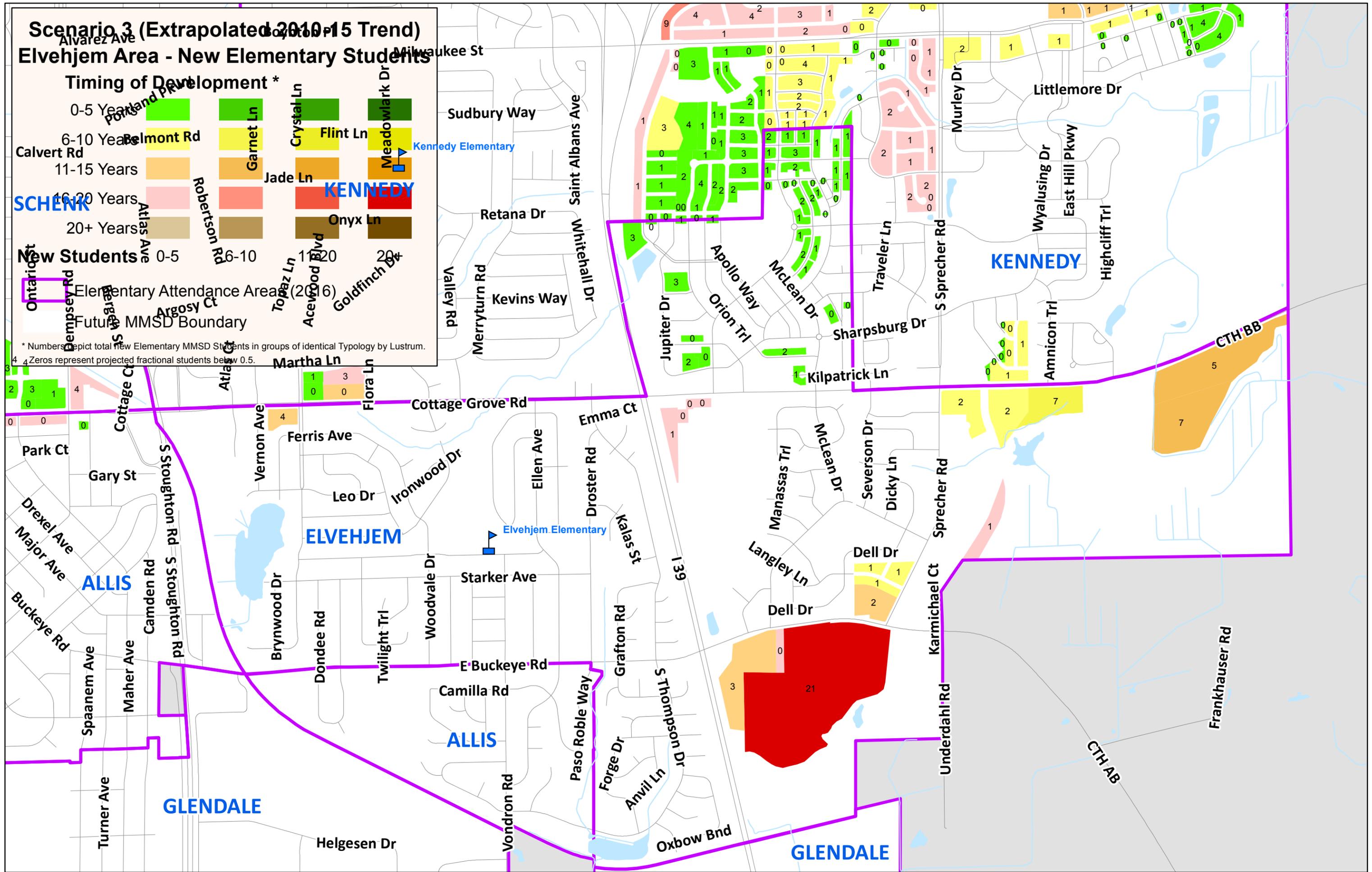
## Timing of Development \*



**New Students** 0-5 6-10 11-15 16-20 20+

Elementary Attendance Area (2016)  
Future MMSD Boundary

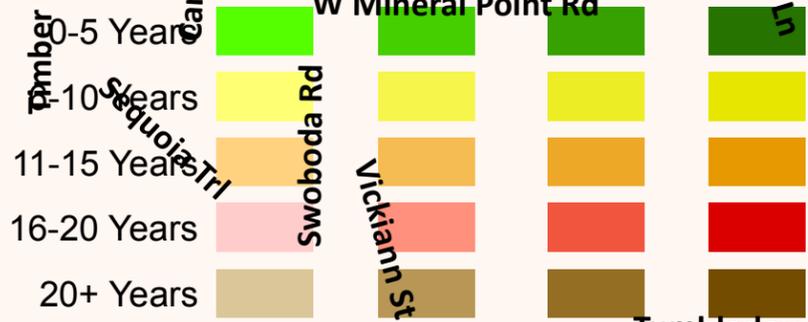
\* Numbers depict total New Elementary MMSD Students in groups of identical Typology by Lustrum.  
Zeros represent projected fractional students below 0.5.



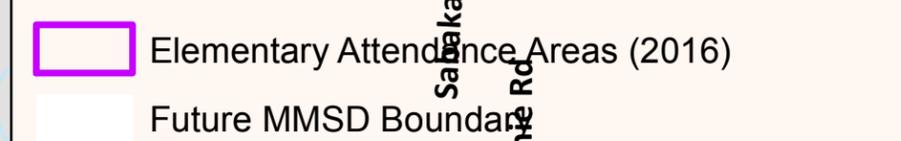
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# Scenario 3 (Extrapolated 2010-15 Trend) Olson Area - New Elementary Students

## Timing of Development \*



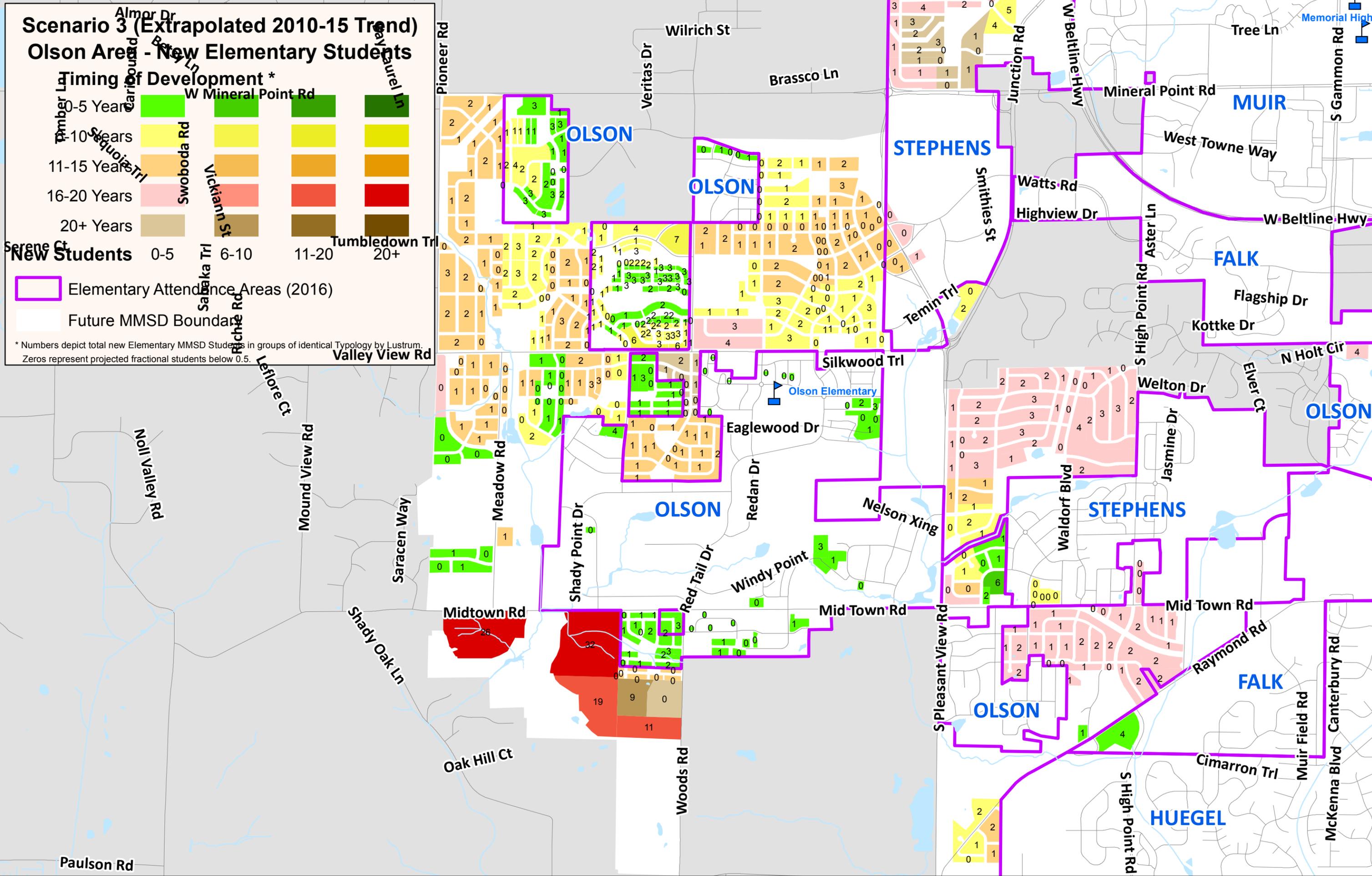
## New Students



Elementary Attendance Areas (2016)

Future MMSD Boundary

\* Numbers depict total new Elementary MMSD Students in groups of identical Typology by Lustrum. Zeros represent projected fractional students below 0.5.



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## VIII. Important Moving Parts

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The projections in this Study are subject to many outside forces. At present, the study team is confident that projections of future land use and development locations and typology are as accurate as possible. The presence of detailed neighborhood development plans, and Madison and Fitchburg's tradition of implementing those plans is the foundation of this confidence. Redevelopment is more susceptible to market shifts, but as discussed, Madison and central Dane County are among the most stable and steadily-performing metropolitan markets in the nation.

The timing of development is also susceptible to broad factors. Again, the region's steady past may be well-indicative of its future. However, the current condominium conundrum is a good example of the strong influence of certain market factors, particularly as they relate to lending practices.

Other key influences include the following.

### A. Household Characteristics

This Study employs the projection of simple recent trends related to household characteristics regarding race/ethnicity, English language learners, and recipients of free or reduced lunch. The nature of the Madison region's economy, and the retention of major employment in the central city, provides stabilizing forces on these characteristics that are not present in most of Madison's peer communities (in terms of state capital, major university, and population size). The lakes and lakefront neighborhoods play a similar role. As a result, many locations in Madison are experiencing gentrification – as did the Marquette neighborhood during the 1980s and 1990s. All of these factors make housing more expensive. In total, recent enrollment statistics point to a short-term equilibrium for household characteristics that may continue. The projections in this Study are consistent with these trends, and extend them through the projection period of 2017 through 2037.

### B. Enrollment Leavers

This is a complicated issue, with many factors beyond the District's control.

#### I. Other Public Schools

Evidence exists that public school districts meter the number of entering students from MMSD's territory to reach enrollment goals. Most of these districts are experiencing significant suburban development that is leading to projects to enlarge or construct schools.

MMSD is also planning significant expansions and upgrades at a number of schools. A number of developers and planners interviewed for this project mentioned the distance of Madison schools from their projects, including the crossing of major barriers, such as the Beltline or Interstate freeway network.

As a result of all these moving pieces, it is very difficult to make projections for this factor. To simplify the use of these projections tools, this Study projects net leavers to stabilize. This is not likely to be case. Because these projections are for stable levels, actual trends will be easier to explore as they evolve.

## 2. Charter and Private Schools

Historically private schools have been a relatively steady influence on MMSD attendance. This study projects that to continue.

Up to the present, charter schools have not played an important role. This study projects that to continue as well – again, primarily to ease the future use and flexibility of these projections as a tool.

The potential for a “university school” to affect MMSD enrollment is a factor, in part due to the long projection period used by this study. If located in central Madison, or the near west side, an academically-oriented curriculum would likely be an attraction.

Similarly, an “academy” that specializes in an established curriculum could also be a factor. These are present in other major cities in the Upper Midwest, and may be attractive to current MMSD parents and students looking for a different experience.

## C. Existing Housing Stock

Madison’s existing housing stock remains a very important factor in these projections. A range of community or generational trends could play a key role.

### 1. Isthmian Neighborhoods

Trends point to a new wave of gentrification in the central areas of Madison, in part spurred on by upscale multi-family development, and the community’s continued investment in recreation and entertainment amenities. Very recent trends in the Lapham and Franklin Elementary School attendance areas may signal resurgence in family living in these areas – if household dollars can compete with Empty Nester Baby Boomers and Millennials living as singles and couples.

These projections do not reflect this trend, as it is currently stymied by lending practices that make condominium development virtually impossible. However, these limitations could change, and a new wave of young parents could appear. This should be monitored through the projection period.

### 2. Baby Boomer Neighborhoods

The map of older home owners identifies concentrations of thousands of owner-occupied homes that are very likely to come up for sale during the projection period. These tend to be located in the “sweet spot” for commuting both to the isthmian employment centers and cultural amenities, and to peripheral jobs and shopping. These neighborhoods are more affordable than comparably-sized homes or equipped homes -- both closer in and farther out; and as such have always been attractive to families – when they come up for sale. This likely trend will mainly affect homes in the West and Memorial High School attendance areas, but such neighborhoods are also present in the East and LaFollette High School areas.

## D. New Schools

A common complaint from developers in the periphery of MMSD's territory involves the long trips needed to reach the school from the outlying parts of its attendance area. Trips from central Fitchburg to middle schools north of the Beltline, and from far west and southwest Madison and all of Fitchburg to Memorial and West High Schools are frequently mentioned, as are trips from the Owl Creek neighborhood in southeast Madison and Grandview neighborhood in far east Madison to all their schools.

It is unknown how many MMSD "leavers" would remain enrolled in the District, or how many residents of other school districts would enroll in MMSD schools, but proximity is clearly a factor, as is a commute that does not cross major freeways at limited crossing points.

Conversely, the location of schools in other districts is clearly a draw. Monona Grove and Verona have schools virtually on the border of MMSD. These locations are popular with MMSD leavers.

At this time, the Sun Prairie School District does not have a nearby school, but is facing the strong need to be in continuous building mode. Servicing Madison's planned Northeast Neighborhood will be a challenge, with approximately 40,000 new residents locating between Reiner Road, I-94, and US 151.

## IX. Conclusions

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This Study leads to several important conclusions.

### A. Madison is Unique

MMSD is located in a unique setting. Madison lacks a true peer community to compare notes with. Assumptions about central city school districts or university towns are partly in evidence, but not fully. Madison's unique advantages and challenges make projections difficult. However, the stable economic environment and strong neighborhoods bolster long-term trends that are likely to continue – or at least change slowly.

This Study has been designed to provide MMSD with a strong analysis tool to help keep projections current, viable, and meaningful.

### B. Factors Contributing to Declining Enrollment

The overall high level of education attainment and professional employment of many MMSD parents continues to lead to delayed child-raising and smaller families. This is the strongest of all historical trends.