Planning for the Future:
Status of Enrollment

April 2017

Visualizing Success

Discussion Points

- **Introductions**

- **Enrollment and Demographics Discussion** (Part One)
  - Key Things
  - Maps: Planning Areas and Attendance Areas
  - Sophisticated Forecast Model (SFM)
  - Model Components
  - Issues and Assumptions
  - Past Enrollment
  - Baseline Data

- **Development Discussion** (Part Two)
  - What is going on with development

- **Enrollment Projections Discussion** (Part Three)
  - Projection Accuracy
  - District
  - Elementary
  - Secondary

- **Next Steps** (Part Four)

RSP

VISUALIZING SUCCESS

- Founded in 2003

- Professional educational planning firm

- Expertise in multiple disciplines

- Over 20 years of planning experience

- Over 80 years of education experience

- Over 20 years of GIS experience

- Clients in Arkansas, Iowa, Illinois, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and Oklahoma

- Projection accuracy of 97% or greater

Planning

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RSP & Associates - Clients

KANSAS
Andover	Maize
Baldwin City	Manhattan-Ogden
Bonner Springs	Newton
Derby	Ottawa
De Soto	Pittsburg
Eudora	Piper-Kansas City
Garden City	Riley County
Gardner-Edgerton	Shawnee Heights
Hays	Shawnee Mission
Hutchinson	Spring Hill
Kansas City	Turner- Kansas City
Lawrence	Wichita
Liberal	

MISSOURI
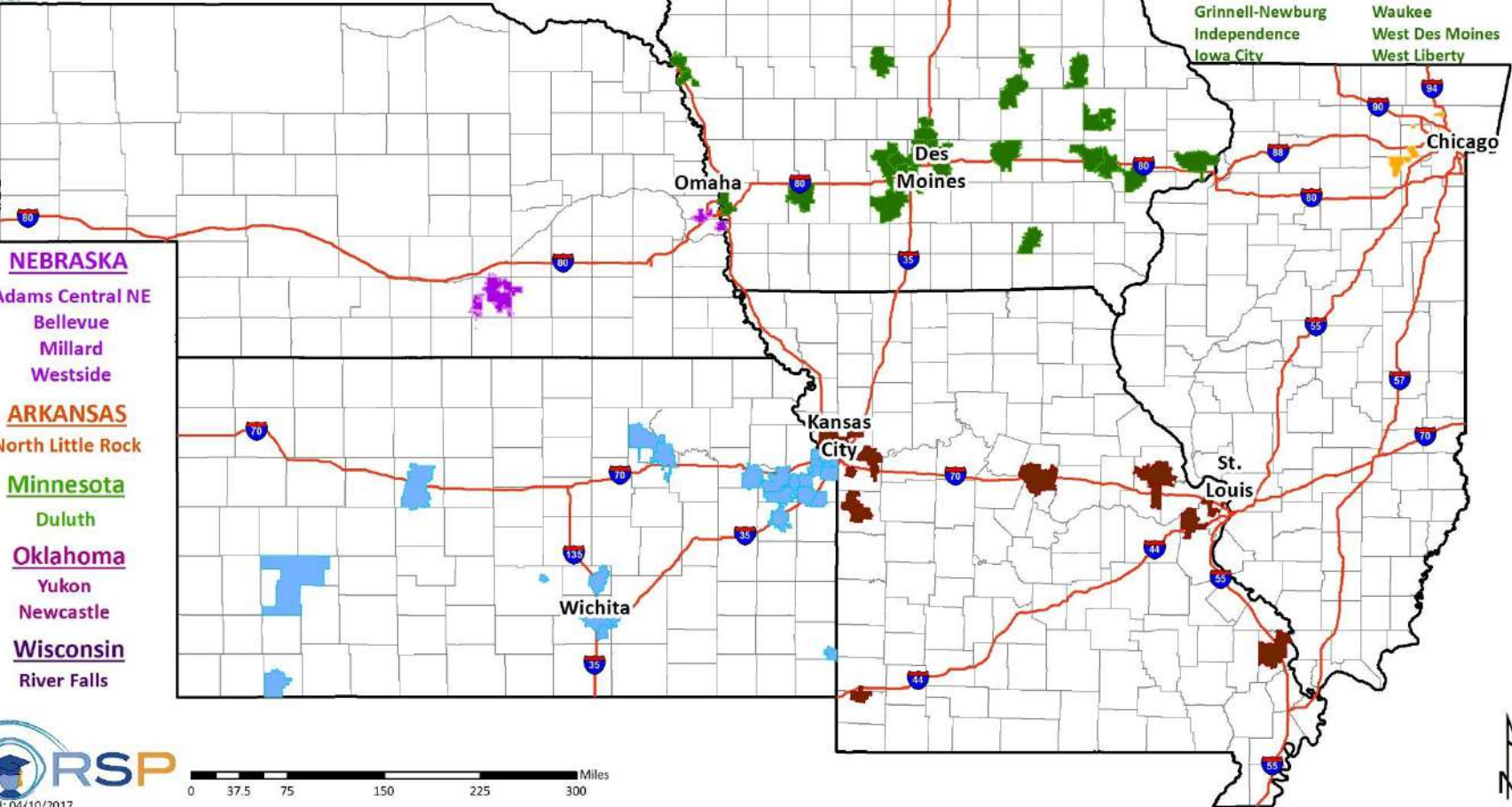|	
Columbia	North Kansas City
Diamond R-IV	Pattonville R-III
Fort Osage R-I	Platte County R-III
Grain Valley	Raymore-Peculiar R-II
Harrisonville R-IX	Raytown C-2
Jackson	Rockwood
Jennings	Troy R-III
Kearney R-I	University City
Ladue	Wright City R-II

ILLINOIS
Glenview 34
Indian Prairie 204
Keeneyville 20
Naperville 203
Norridge 80
Oswego 308
Rockford 205
Yorkville 115

NORTH DAKOTA
Alexander	McKenzie County
Bismarck	Minot
Central Cass	New Public Schools #8
Fargo	Northern Cass
Glenburn	Richardton Taylor
Grand Forks	Rugby
Jamestown	West Fargo
Mandan	Wilton

IOWA
ADM	Johnston Winterset
Ames	Linn-Mar
Ankeny	Newton
Atlantic	North Polk
Ballard	North Scott
Bettendorf	Norwalk
Boundurant-Farrar	Okoboji
Cedar Falls	Ottumwa
Cedar Rapids	Rock Valley
Clear Creek-Amana	Saydel
Council Bluffs	Sergeant Bluff-Luton
Dallas Center Grimes	Sioux City
Fort Dodge	Southeast Polk
Gladbrook-Reinbeck	Urbandale
Grinnell-Newburg	Waukee
Independence	West Des Moines
Iowa City	West Liberty

NEBRASKA
Adams Central NE
Bellevue
Millard
Westside

ARKANSAS
North Little Rock

Minnesota
Duluth

Oklahoma
Yukon
Newcastle

Wisconsin
River Falls

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Updated: 04/10/2017

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Part One:
Enrollment & Demographics Discussion

Making it Happen

Newcastle Public Schools

- Administration

County, City & Others

- Grady County

- McClain County

- City of Newcastle

- Oklahoma DOT

- Census Bureau/ ESRI

Thank you!

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Three Key Things About the District

Enrollment:

- Projected to increase by >300 students (13.6%)(Annual between 1.8% and 3.4%)
- By 2021/22 PK-12 enrollment closing in on than 2,500
- By 2020/21 PK-5 enrollment >1,200 students

Capacity:

- By 2021 middle school enrollment will exceed the capacity of the school
- The district will need to conduct a capacity study to determine how space matches up with the educational programming need of students

Development:

- Significant available land for residential development
- Timing of land owners making a decision to develop will be a key to how fast and where students reside

District Map

- District Boundary **(Blue Line)**
- Major Streets
- Major water features & cultural features

- City Limits
- Blanchard **(Green)**
- Cole **(Orange)**
- Goldsby **(Light Yellow)**
- Moore **(Purple)**

- Newcastle **(Blue)**
- Norman **(Light Green)**
- Oklahoma City **(Yellow)**
- Tuttle **(Brown)**
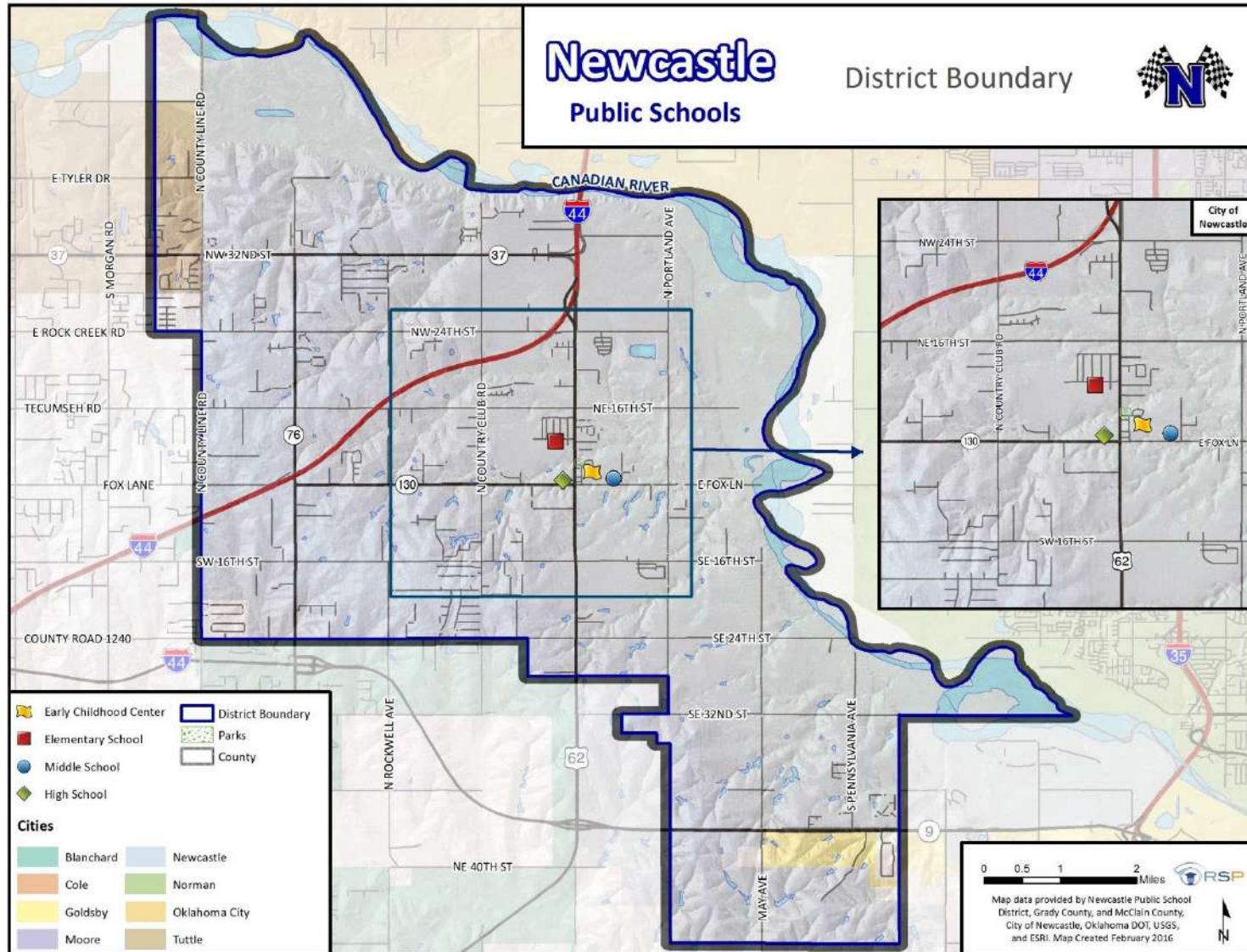
Planning Areas

- By Land Use (Residential, Commercial, Industrial)
- By Residential Density (Single-Family, Mobile Home, Duplex, Apartment)
- By Natural Features (Rivers and Creeks)
- By Manmade Features (Railroad and Streets)
- By Attendance Area
- There nearly **150** planning areas RSP monitors

Newcastle Public Schools — Planning Areas
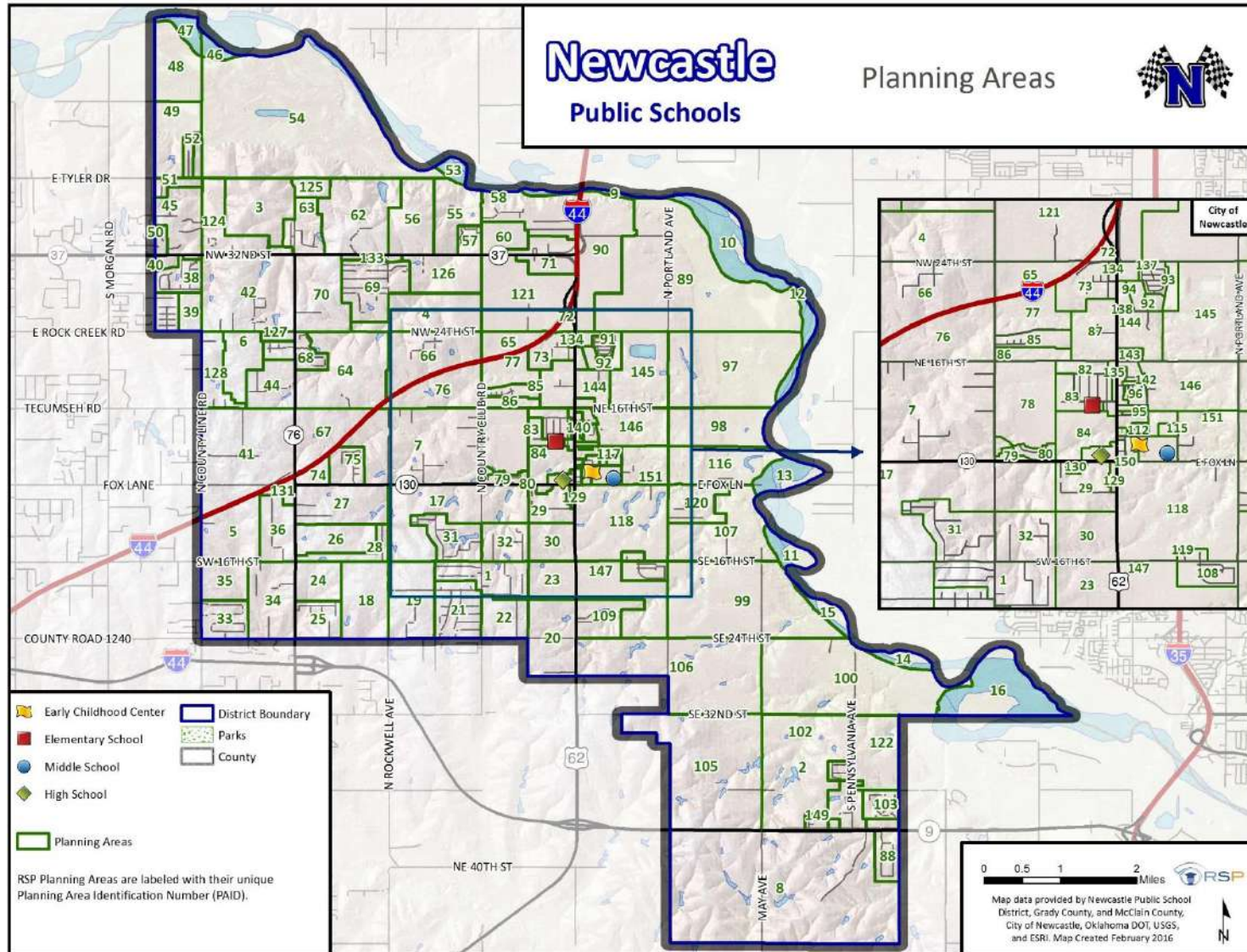
Detailed Planning Areas Map

- Zoomed in view of Planning Areas
- Displays the power of GIS data & Information
- See where students are located in relation to streets, subdivisions, and parcels.

- Illustrates how the planning areas are tied to development types at the parcel level
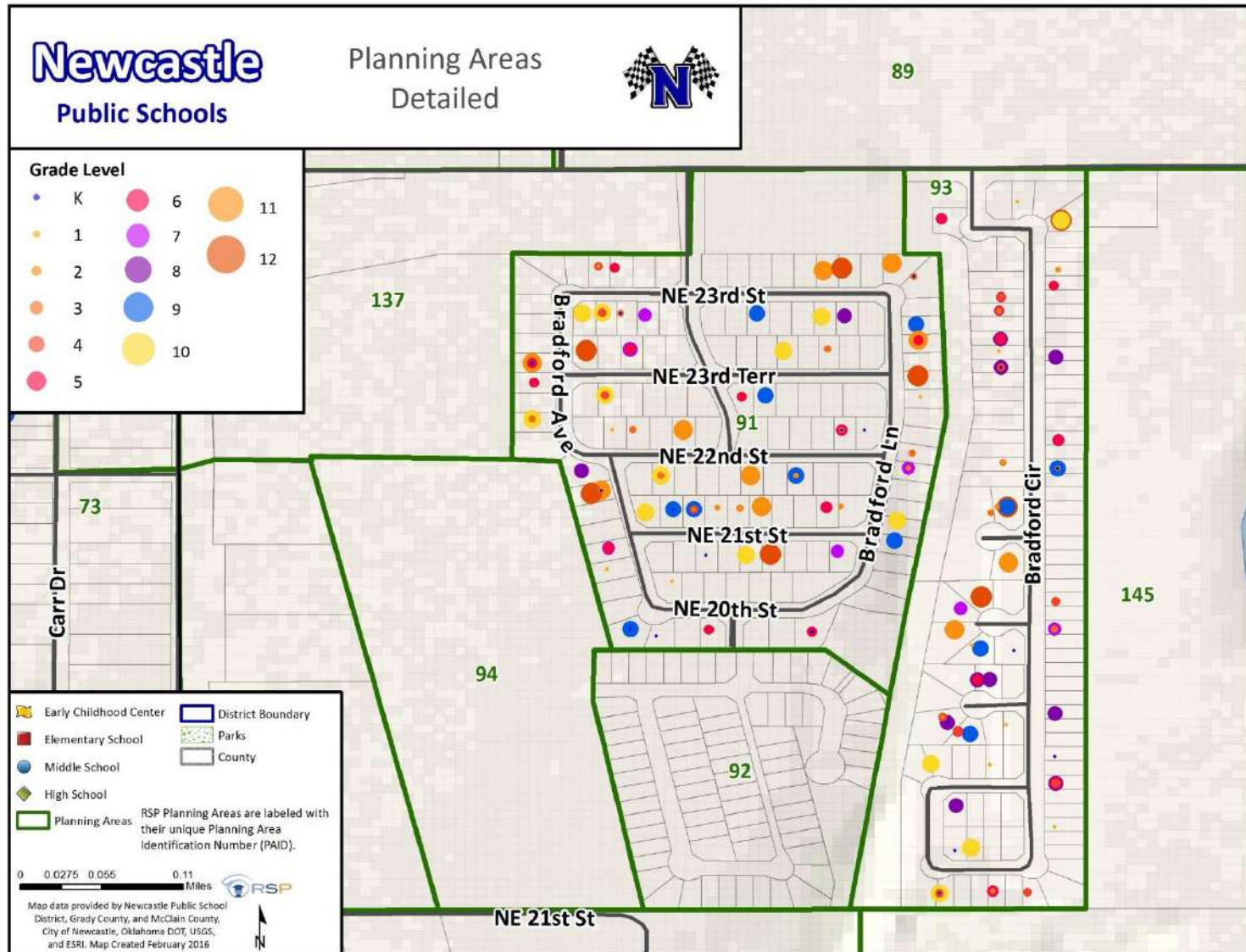
Sophisticated Forecast Model

This is the central focus of everything RSP does. The model is based on what is happening in a school district. The best data is statistically analyzed to provide an accurate enrollment forecast. The District will be able to use RSP's reports and maps to better understand demographic trends, school utilization, and the timing of construction projects.

Built-Out

$$S_{c,t,x} = S_{c-1,t-1,x} * GC$$

Let:

S	=	The number of students, either an actual count or a projected count
x	=	A subscript denoting an attendance area in the School District
c	=	Grade level
t	=	Time (Years)
GC	=	Growth component either modeling enrollment increase or decrease based on historical information, expressed as a real number

Developing

$$S_{c,t,x} = S_{c-1,t-1,x} + (BP_{t,x} * R_{c,x})$$

Where:

$$BP_{t,x} = \left(\frac{(CP_x)(BT_x)(A_x)}{\sum_x (CP_x)(BT_x)(A_x)} \right) * CT$$

Let:

S	=	The number of students, either an actual count or a projected count
x	=	A subscript denoting an attendance area in the School District
c	=	Grade level
t	=	Time (Years)
BP	=	Building permit forecast as given by the Building Permit Allocation Model (BPAM) model
$R_{c,x}$	=	Student enrollment ratio of cohort c in planning area x
CP	=	Capacity of a planning area as expressed by available housing units
BT	=	Building history trend of a planning area
A	=	An index which models the likelihood of development
CT	=	Building permit control total forecast

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Model Components

- **Cohort Growth**

- **External Growth**

- **Kindergarten Change**

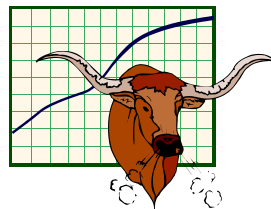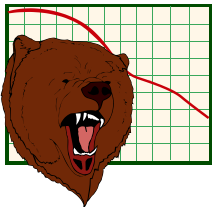- **Economic Scenarios**
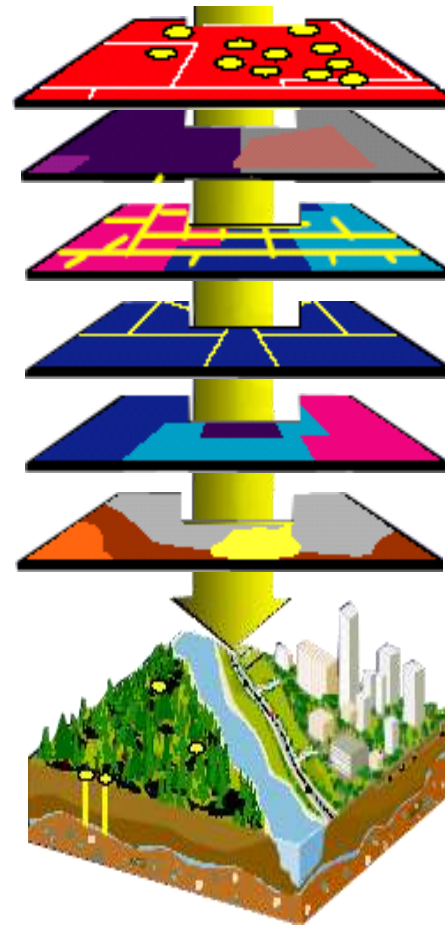
Students & People

Development

Streets

Attendance Areas

City

County

Assumptions For Future

- The future of the economy is a bit uncertain until transition completed

- Mortgage interest rates likely will remain below 6%

- The rate of foreclosures will be stable

- Recirculation of existing homes will be healthy

- Final Platted developments will be nearly built-out so new areas will need to emerge over the next few years

- Unemployment rates should remain below 6%

- Nonresidential developments continue to be built to meet employment demand and need

- Fuel prices will remain between $2.00 and $4.00 for the foreseeable future

- Private, Parochial, and Open school enrollment choice remains stable

If more of these variables track toward being positive for the district – likely will exceed Likely RSP projection – the converse can also occur – Likely RSP projection is what the district should use for planning purposes.

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Census Population Ages 0-4 in 2021

- Depicted by Census Block Group
- Density weighted by land area of each Block Group
- Red areas have greatest density, light pink have the least
- This data helps benchmark the projection model choices for future student enrollment
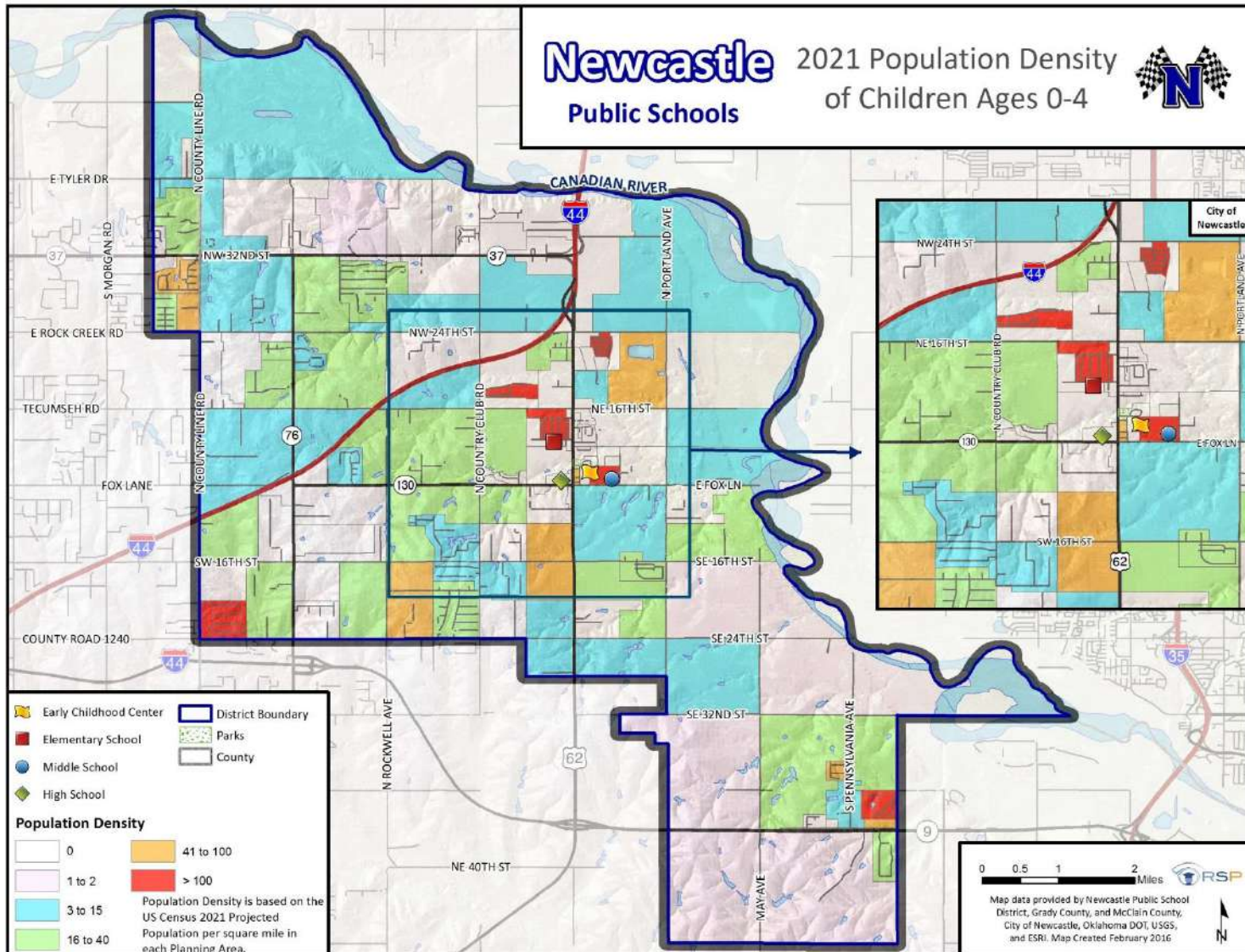
Census Population Women 15-59 in 2021

- Depicted by Census Block Group with 2021 estimates
- Density weighted by land area of each Census Block Group

- Red areas have greatest density, light pink have the- least
- This data helps benchmark the projection model choices for future student enrollment
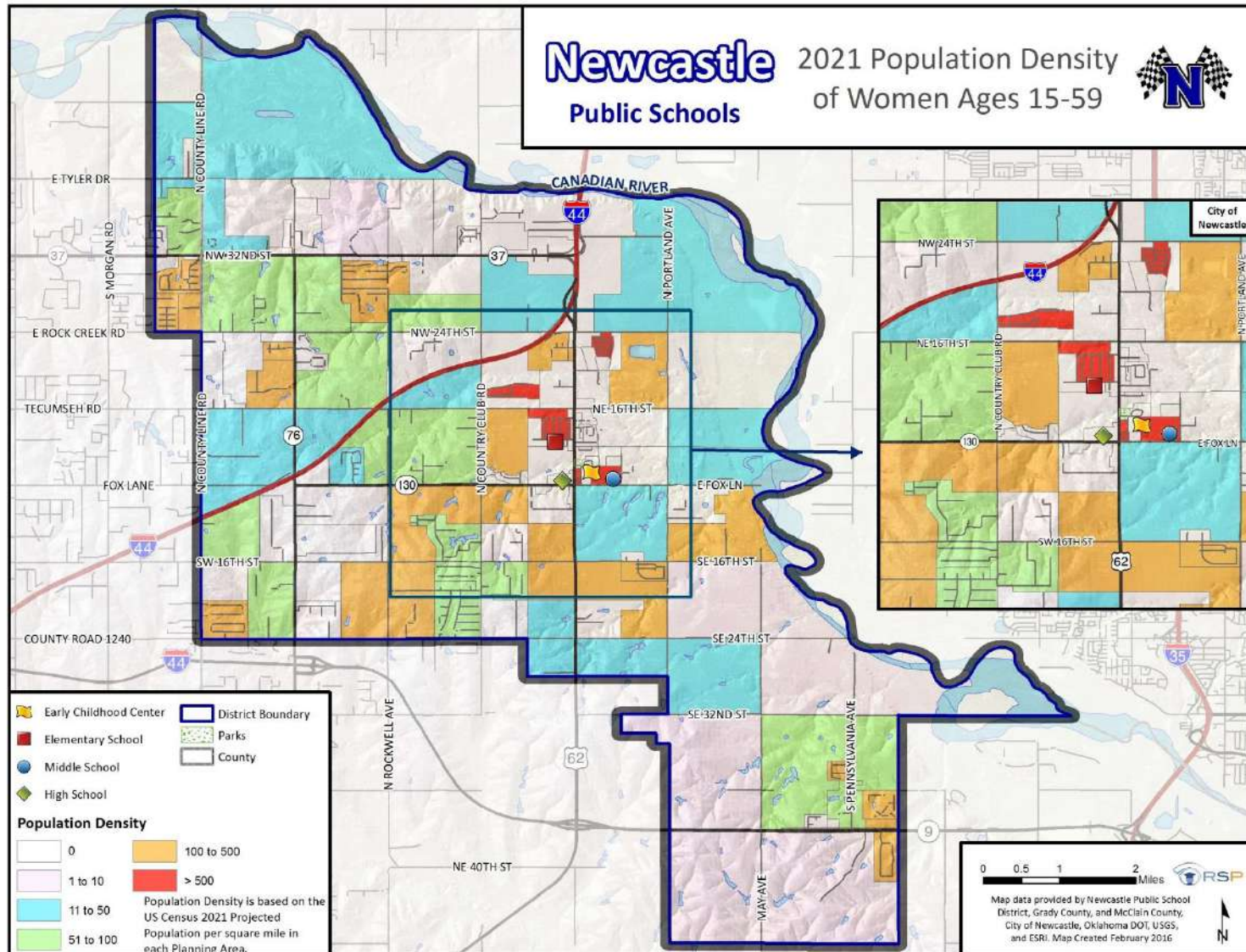
Past School Enrollment

Enrollment By Grade

Year	PreK	K	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	Total
2010/11	109	146	127	127	114	128	117	114	122	125	140	115	102	94	1,680
2011/12	91	115	144	118	137	123	128	122	124	124	134	136	118	99	1,713
2012/13	152	141	152	134	135	157	137	140	126	132	139	145	147	114	1,951
2013/14	139	173	147	143	140	141	149	136	140	126	129	131	134	120	1,948
2014/15	164	168	177	162	152	156	152	154	150	148	137	137	129	137	2,123
2015/16	168	168	156	172	160	147	154	151	149	144	143	131	125	116	2,084
2016/17	168	167	157	152	183	151	158	156	153	165	146	148	139	124	2,167

Source: New Castle Public Schools Student Data from 2010/11 to 2016/17

Pig in the Snake Effect – *Larger elementary school grades result in larger future middle school grades*

- Largest class in 2016/17 – 3rd grade (183)
- Smallest class in 2016/17 – 12th grade (124)
- Graduating senior class likely smaller than the next year incoming Kindergarten class

Enrollment provided by the district – student data is last school day count
Does not include: Home School, Private School, or Parochial School

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Past School Enrollment Change

Change By Grade from the Previous Year

From	To	K	K 1st	1st 2nd	2nd 3rd	3rd 4th	4th 5th	5th 6th	6th 7th	7th 8th	8th 9th	9th 10th	10th 11th	11th 12th	Annual Change
2010/11	2011/12	-31	-2	-9	10	9	0	5	10	2	9	-4	3	-3	33
2011/12	2012/13	26	37	-10	17	20	14	12	4	8	15	11	11	-4	238
2012/13	2013/14	32	6	-9	6	6	-8	-1	0	0	-3	-8	-11	-27	-3
2013/14	2014/15	-5	4	15	9	16	11	5	14	8	11	8	-2	3	175
2014/15	2015/16	0	-12	-5	-2	-5	-2	-1	-5	-6	-5	-6	-12	-13	-39
2015/16	2016/17	-1	-11	-4	11	-9	11	2	2	16	2	5	8	-1	83
3-Yr Avg		-2.0	-6.3	2.0	6.0	0.7	6.7	2.0	3.7	6.0	2.7	2.3	-2.0	-3.7	73.0
3-Yr Wavg		-1.3	-8.8	-1.2	6.3	-3.5	6.7	1.5	1.7	7.3	1.2	1.8	-0.3	-4.3	57.7

Source: New Castle Public Schools Student Data from 2010/11 to 2016/17

Pig in the Snake Effect – *Change varies by grade*

- Largest average class increase – 4th to 5th grade (+6.7)
- Largest average class decrease – Kindergarten to 1st grade (-6.3)
- Propensity to have cohort increase in ES and MS, but decrease at the HS
- There are years where there are significant spikes that do not follow any trend

Enrollment provided by the district – student data is last school day count
Does not include: Home School, Private School, or Parochial School
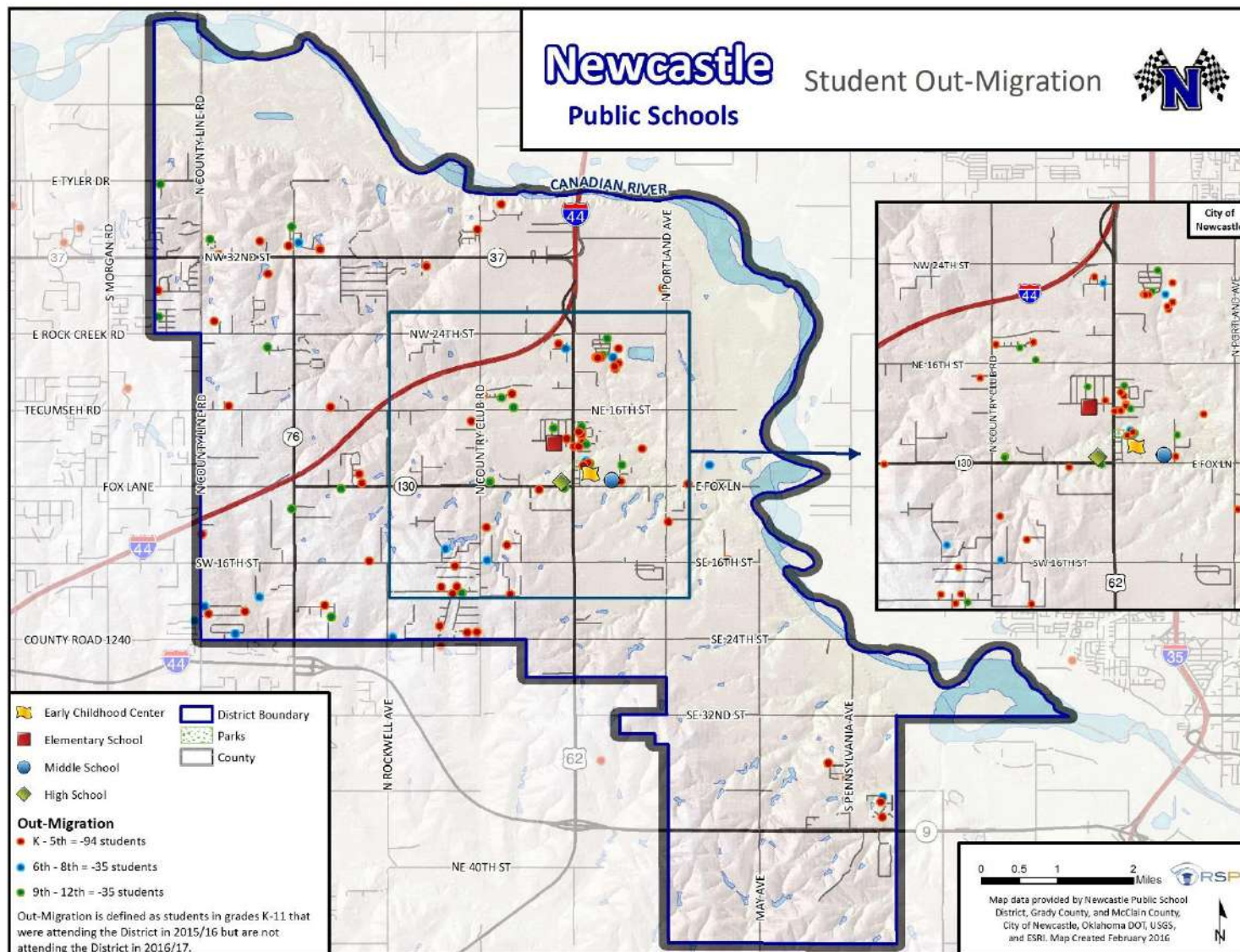
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Student In-Migration

- 2016/17 students who are in 1st through 12th grade that were not attending the District in 2015/16 as Kindergarten through 11th grade

- Who is new to the District that was not attending in previous years?

- **198** New students in **2016/17**
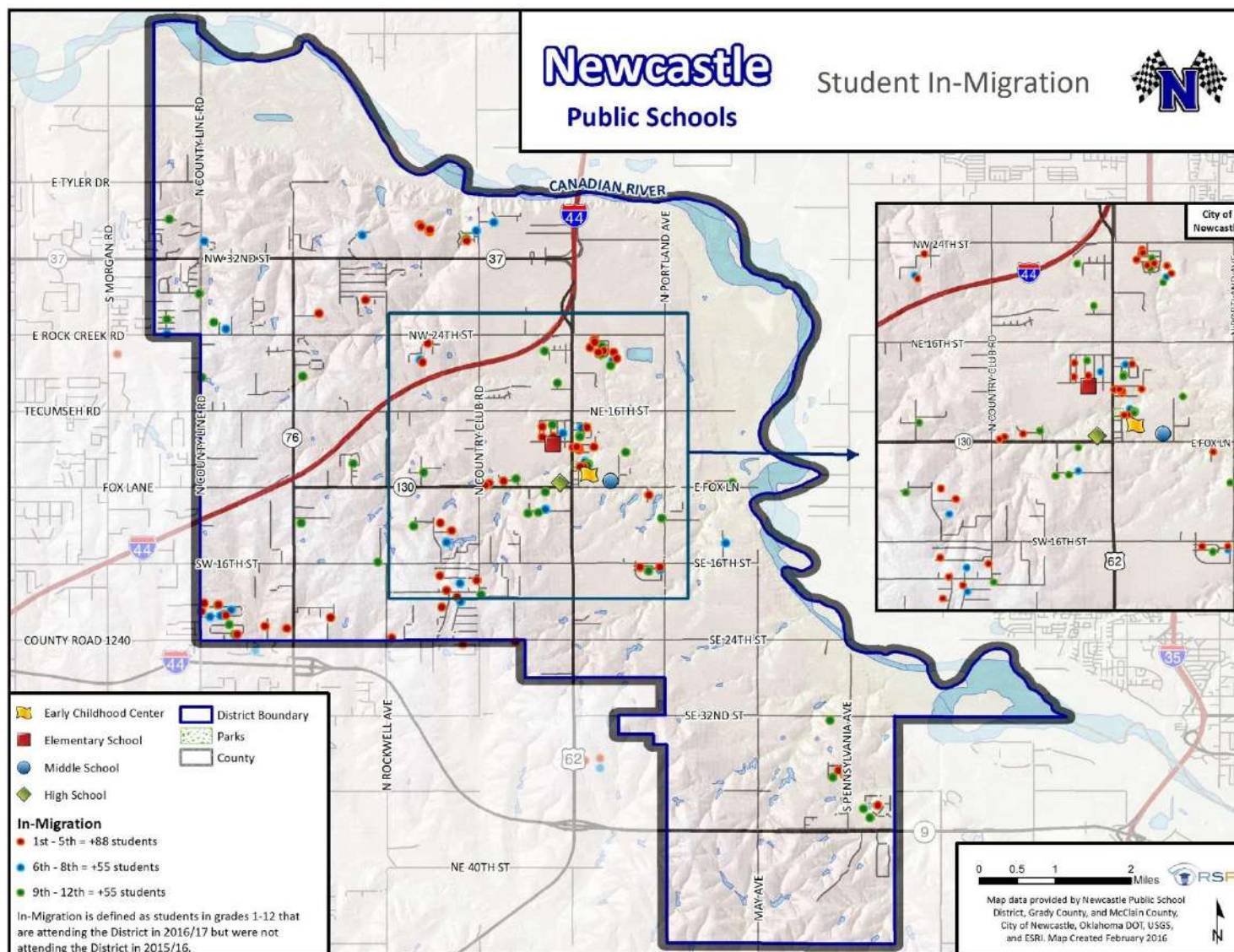
Student Out-Migration

- Students attending the District in 2015/16 who were in Kindergarten through 11th grade that did not attend in 2016/17 as 1st through 12th graders

- Who was in the District that is not attending now?

- **164** Students left the district in **2016/17**, Total migration increase of **34** Students

Newcastle Public Schools — Student Out-Migration

Legend

- Early Childhood Center
- Elementary School
- Middle School
- High School
- District Boundary
- Parks
- County

Out-Migration
- K – 5th = -94 students
- 6th – 8th = -35 students
- 9th – 12th = -35 students

Out-Migration is defined as students in grades K-11 that were attending the District in 2015/16 but are not attending the District in 2016/17.

Map data provided by Newcastle Public School District, Grady County, and McClain County, City of Newcastle, Oklahoma DOT, USGS, and ESRI. Map Created February 2016
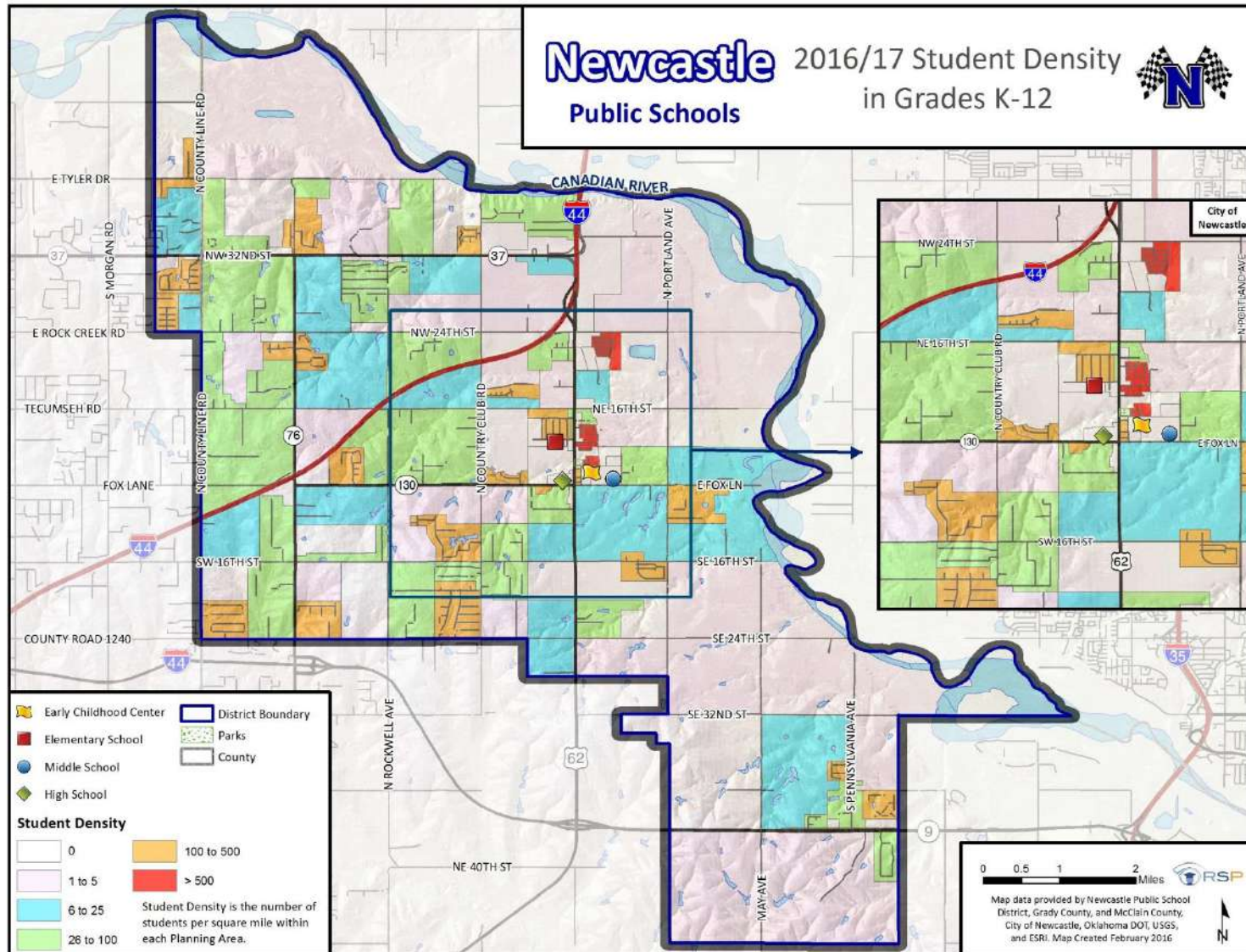
Student Count Change

- Depicts student movement at each Planning Area from 2012/13 to 2016/17
- Orange areas experienced an increase since 2012/13
- Green areas experienced a decrease since 2012/13
- White areas had no net change of students between 2012/13 to 2016/17
- New developments have a greater propensity to have more students in future years.

Newcastle Public Schools — Student Count Change from 2012/13 to 2016/17 in Grades K-12
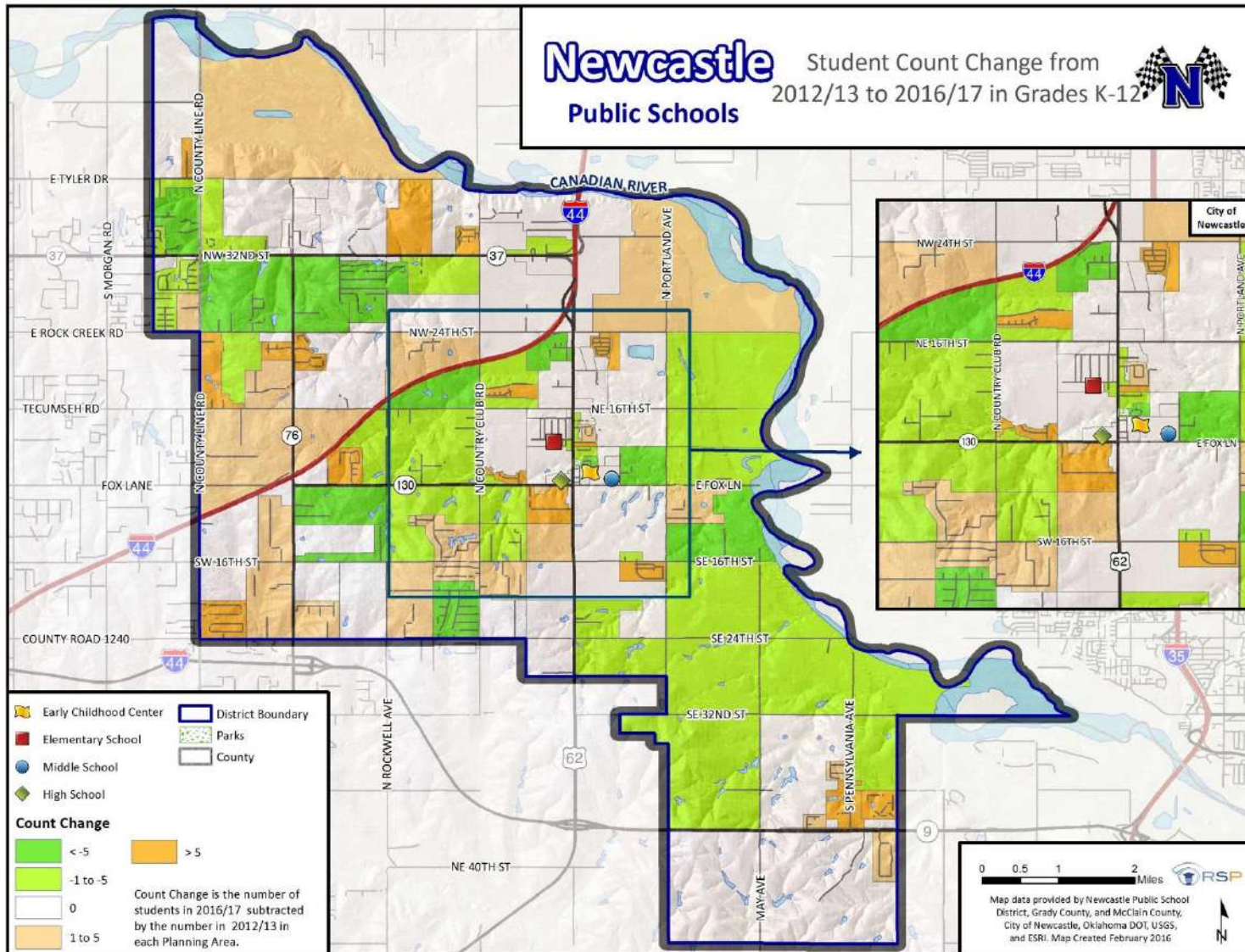
Student Density 2016/17

- The number of students residing in each Planning Area, represented per square mile
- Normalizes by the size of the planning area
- Pink is least dense, red is most dense

- Map illustrates dynamic change
- Newer residential inventory likely to have the greatest student density

Student Density Change

- Depicts student movement at each Planning Area from 2012/13 to 2016/17
- Enrollment change is weighted by land area of each Planning Area to show density
- Orange areas experienced an increase since 2012/13

- Green areas experienced a decrease since 2012/13
- White areas had no net change of students between 2012/13 and 2016/17
- Shows change in students relative to land area
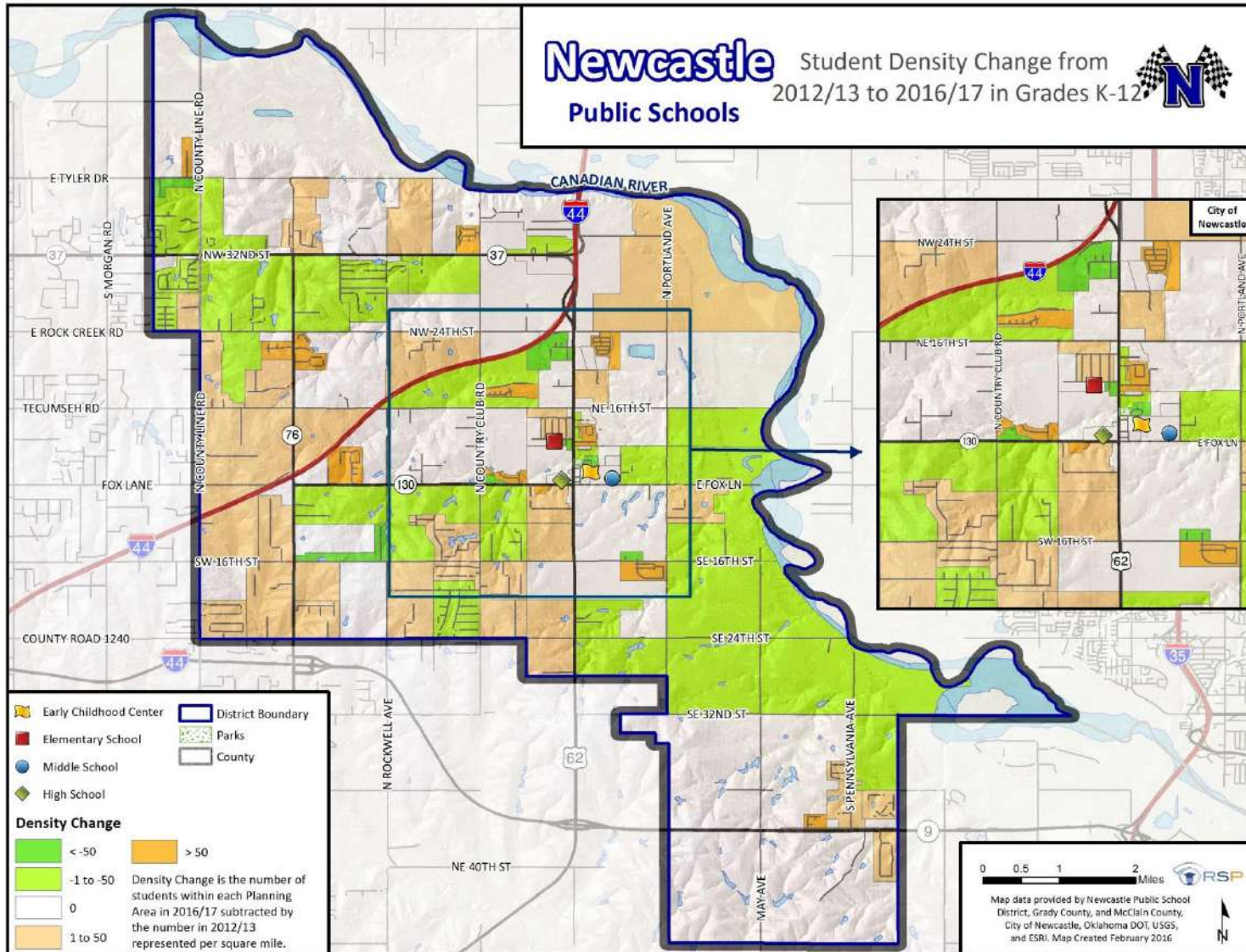
Student "Heat" Density

- Red areas depict highest, gray as lowest student density
- Overlapping points (2 or more students) are handled using a weighting of coincident points

- This type of analysis can help with understanding student population and geographic proximity to schools
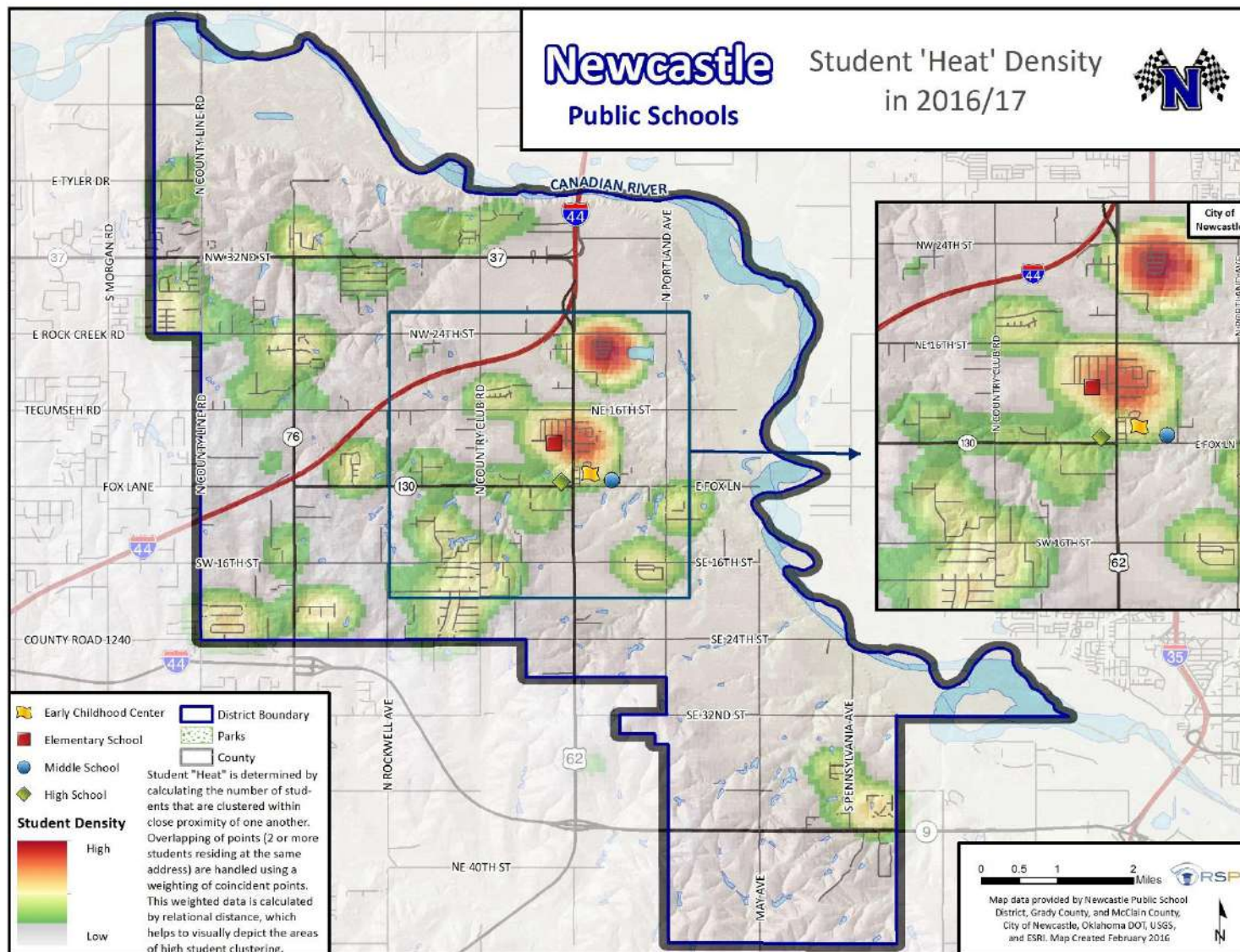
Part Two:

Development

Discussion

What has or is Changing

- **Housing market changes** (New plats – millennials as first time buyers?)

- **Economic conditions** (Development occurring – Not predictable)

- **Infrastructure enhancements** (Sewer, water, road infrastructure timing)

- **Future residential growth patterns** (Tied to land owners decisions)

- **Demographic trends** (Median age younger than US Average)

- **Enrollment trends** (Slow and steady)

- **Capacity of facilities** (Mostly adequate but further study required)

Baseline Demographic Data

Known Information

- Current Enrollment is closing in on 2,200 students.

- New Residential Permits greater averaging more than 100 units per year.

- 2016 Average Household Size is 2.72 .

- 2016 Population within Newcastle Public Schools is 9,720 in 2010 under 7,962.

- 2016 Census Female Population over 51%.

- 2016 Census Household Annual Population Rate increase of about 3.24%.

Source: ESRI Business Analyst Online from Census Data

Other things to Consider

- Building Permits – new residential development is anticipated to be very vibrant.

- Average Household Size should increase with young families relocating to Newcastle.

- Younger aged households have a greater propensity for school aged children.

- Economic outlook is anticipated to be very good.

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Census Population and Housing

Variable	Newcastle City, OK	McClain County, OK	Newcastle School District
Unemployment Rate	2.40%	2.80%	2.40%
Average Household Size	2.69	2.65	2.72
Median Age	40.1	39.5	40.3
Total Population	9,290	39,160	9,720
Median Household Income	$70,266	$56,265	$71,201
Total Housing Units	3,586	15,828	3,709
Owner Occupied Housing Units	2,839	11,523	2,940
Renter Occupied Housing Units	617	3,172	637
Vacant Housing Units	131	1,133	132

Source: ESRI Business Analyst Online, 2017

- **The above table was created from the ESRI Business Analyst Online that complies US Census data.**
- **The city and school district of Newcastle are very similar due to the overlapping geographies.**
- **Median Household Income for the city and school district of Newcastle are far greater than McClain County and the US Average.**
- **The unemployment rate also for all three geographies are below the US average.**

City Information

## Median Household Income
*Data Collected from ESRI BAO

29%

Higher than the National Average

Work Outflow
People traveling outside of the city for work
*Data Collected from the Census Bureau

3,300

With a majority coming from the medical and health fields
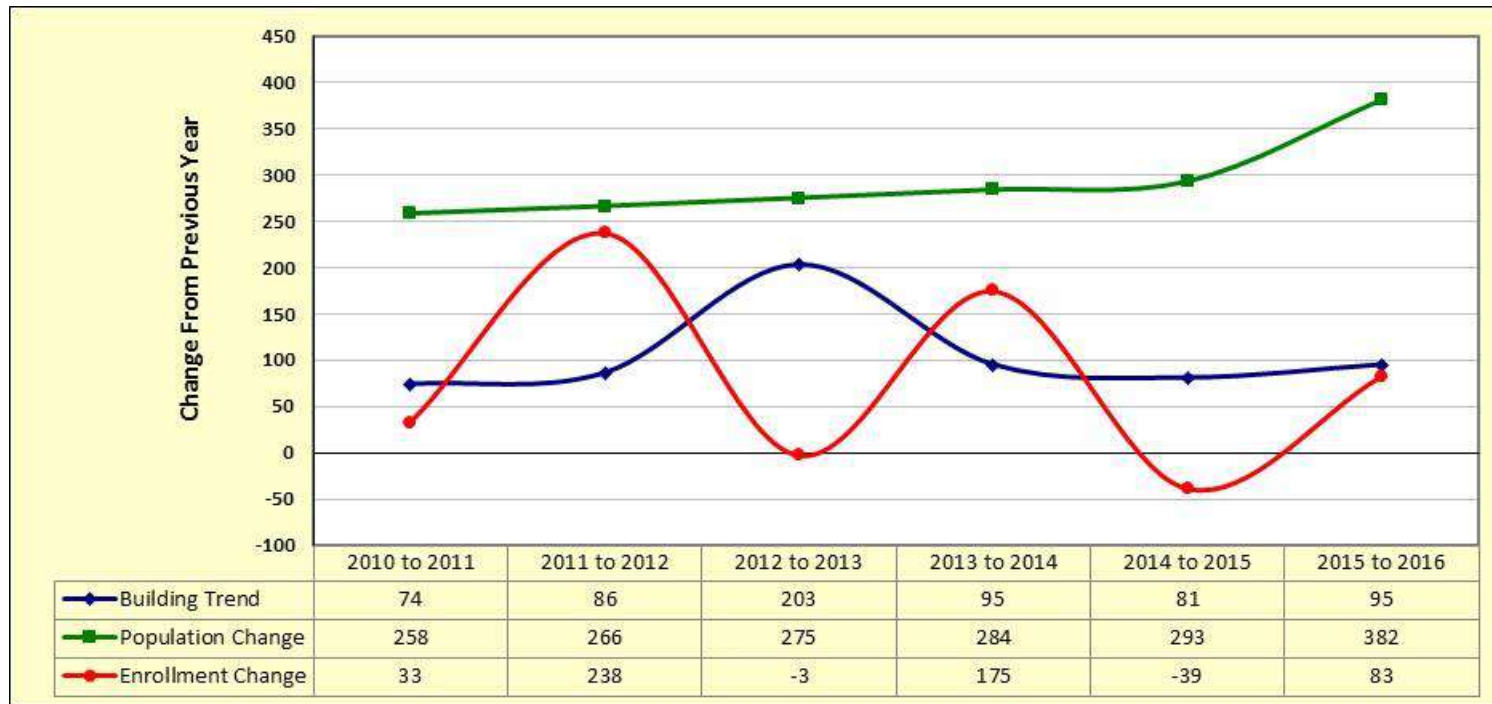
Multi-Lingual
Increase in Spanish Speaking Population
*Data Collected from the Census Bureau ACS 5-Year Estimate

¡Hola!   Hello!

52%

Increase in Spanish Speaking Population

Kamusta!

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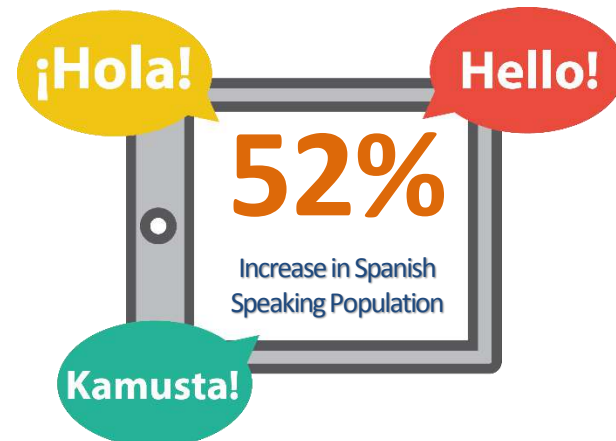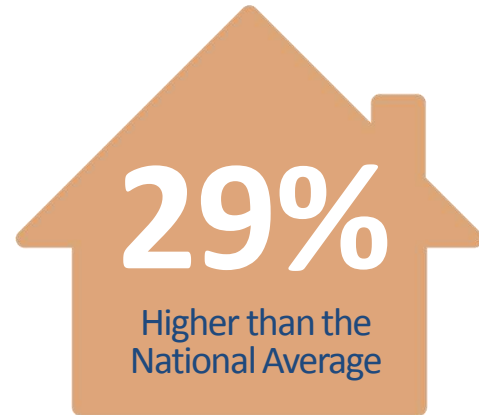
Population, Development, and Enrollment

Source: Grady and McClain County, Census Data, New Castle Public Schools, and RSP SFM & Demographic Models

|	2010 to 2011	2011 to 2012	2012 to 2013	2013 to 2014	2014 to 2015	2015 to 2016
Building Trend	74	86	203	95	81	95
Population Change	258	266	275	284	293	382
Enrollment Change	33	238	-3	175	-39	83

Graphic Explanation

- Census data indicates the area has an increasing population
- Student Enrollment growth varies each year not necessarily follow Census population estimate change (Likely tied to Open Enrollment)
- Building activity not available at parcel level – City of New Castle provided building permit data from 2012 to 2016 (Prior are estimates)

What Does This Mean

- The new households moving into the district similar to less than past yield rates for children to attend school
- With development forecasted over the next five years enrollment trends likely similar to current outcome
- Older areas of the community are in the subdivision life cycle to potentially have same yields as in the past (housing impact)

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Existing Land Use

- Identifies possible areas that could develop
- Is development changing – will it impact enrollment and use of facilities?

- Will residential development continue to build out into the rural/agricultural areas of the District?
- Yellow and Orange areas represent residential
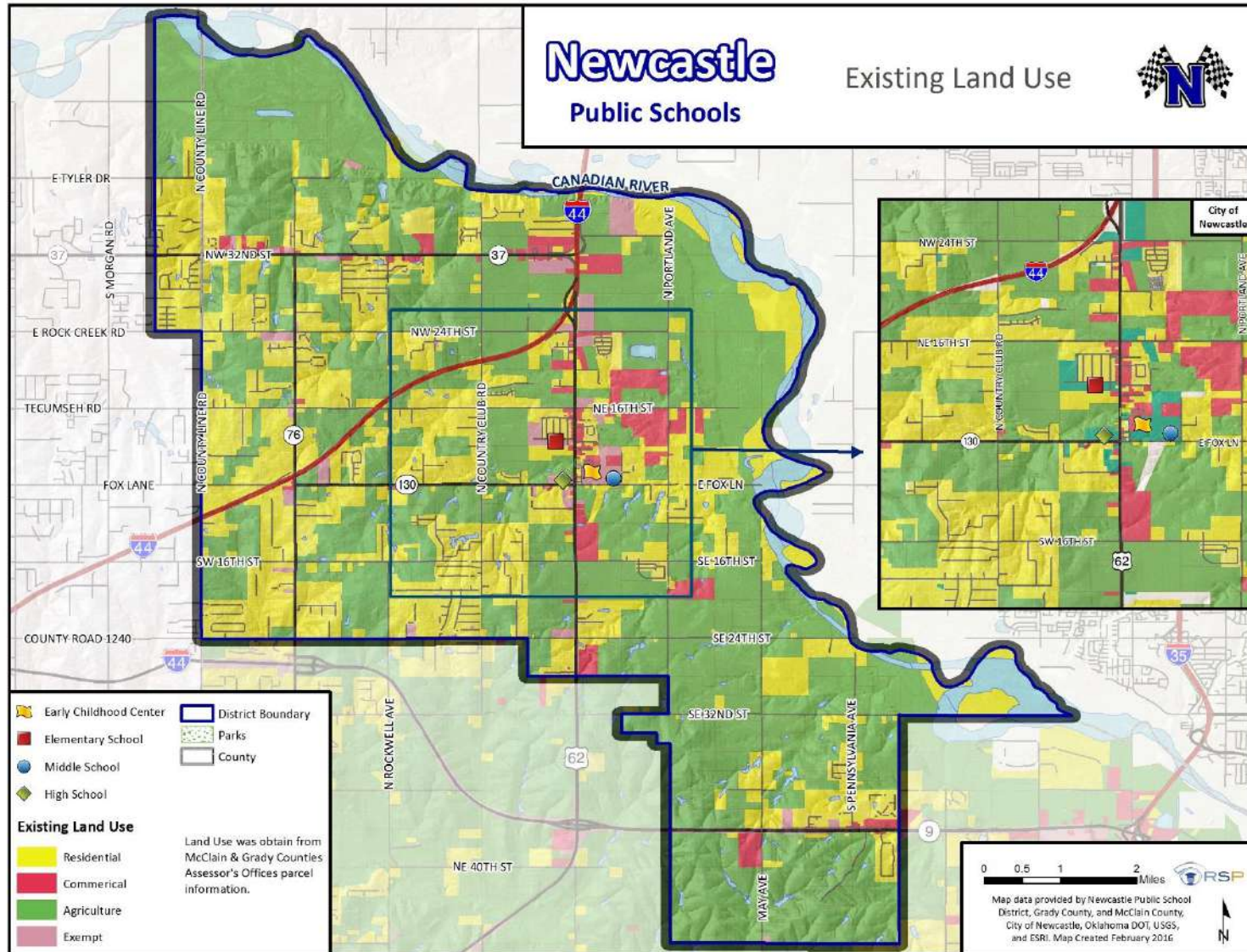
Current & Potential Growth Areas

- Where will the growth be?
- Identifies where development activity is happening (green)
- Identifies possible areas that could develop (yellow and purple)

- The market and property owner desire to build guides the timing of development
- Other properties not shown might develop while some shown might not develop
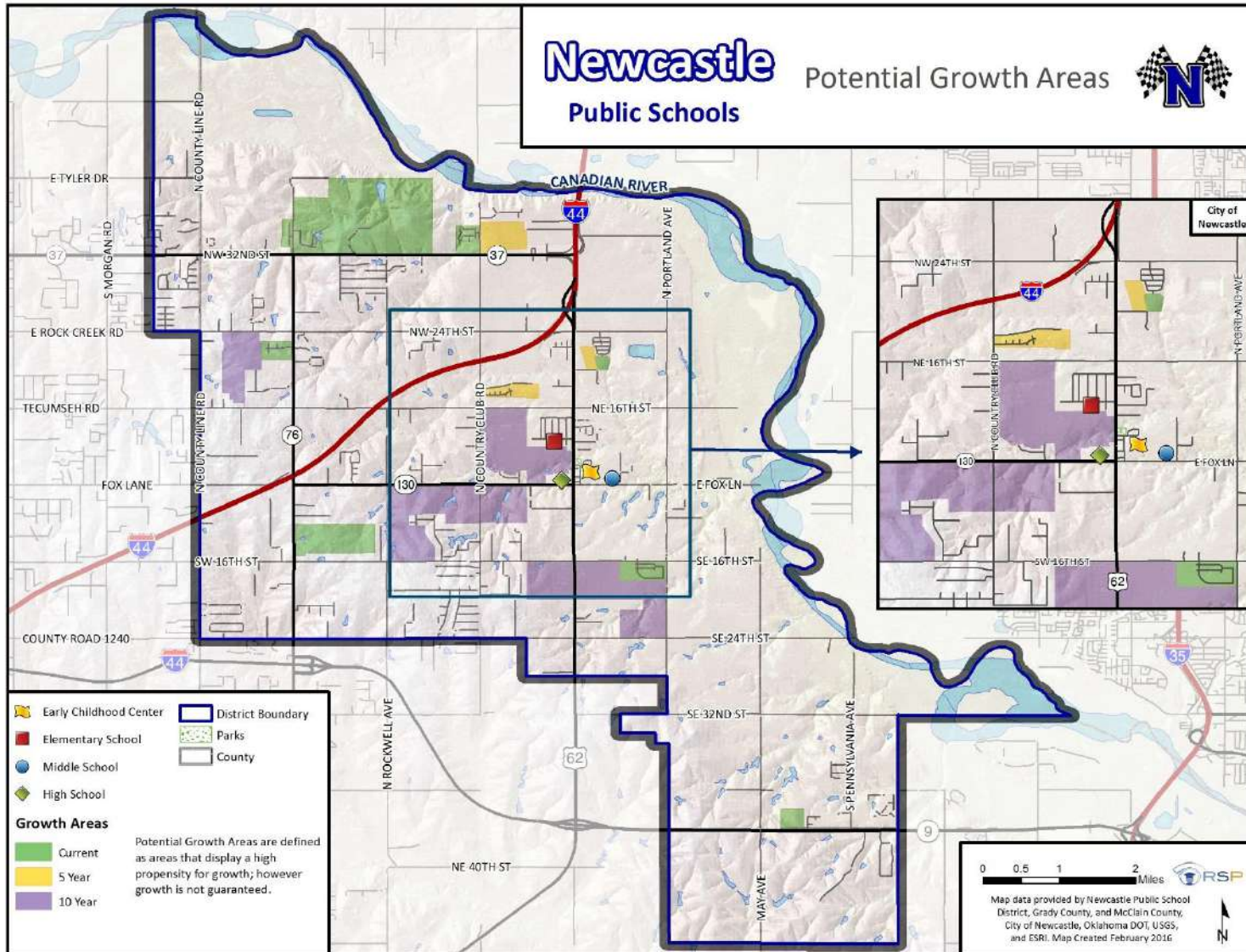
Development Conclusions

- Development in the district does not follow the typical growth patterns – appear to be random and in many cases large estate lots

- Ownership of land and the desire to not yet develop are a challenge to fully know when and where new development could happen over the next five years

- There are abundant residential development opportunities available within the District boundary as infrastructure improvements allow

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Part Three:

Enrollment
Projections
Discussion

Past, Current, & Future Enrollment
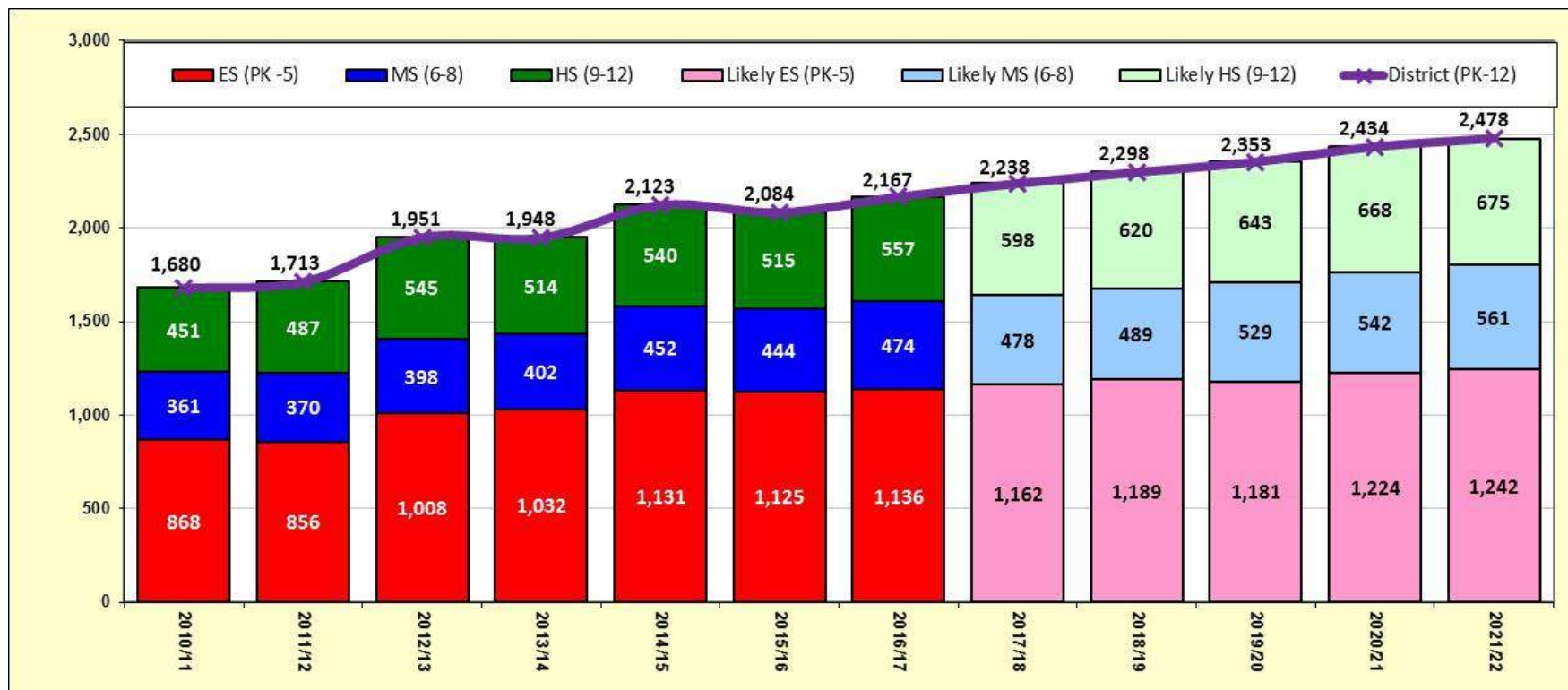
Source: New Castle Public Schools and RSP SFM & Demographic Models

- The above enrollment totals are Kdg to 12th grade (ES +9.3%, MS: +18.4%, HS: +6.8%, District : +14.4%)
- The above numbers are not the Certified Enrollment Count
- Does not include Home School, Private School, or Parochial School

34 Enrollment provided by the district – student data is last school day count
Does not include: Home School, Private School, or Parochial School

Elementary Enrollment Projections

School	Past Enrollment			Future Enrollment By Student Residence				
	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Early Childhood Center *Capacity 835* Grades PK-1	509	492	492	502	502	499	520	518
New Castle Elementary *Capacity 1,300* Grades 2-5	622	633	644	660	687	682	704	724
New Castle Middle School *Capacity 550* Grade 6-8	452	444	474	478	489	529	542	**561**
New Castle High School *Capacity 1,025* Grades 9-12	556	524	557	598	620	643	668	675
ELEMENTARY TOTAL *Capacity 2,135* Grades PreK-5	1,131	1,125	1,136	1,162	1,189	1,181	1,224	1,242
MIDDLE TOTAL *Capacity 550* Grades 6-8	452	444	474	478	489	529	542	**561**
HIGH TOTAL *Capacity 1,025* Grades 9-12	556	524	557	598	620	643	668	675
DISTRICT K-12 TOTALS *Capacity 3,710* Grades PreK-12	2,139	2,093	2,167	2,238	2,298	2,353	2,434	2,478
ES Change		-6	11	26	27	-8	43	18
MS Change		-8	30	4	11	40	13	19
HS Change		-32	33	41	22	23	25	7
District Change		-46	74	71	60	55	81	44
ES % Change		-0.5%	1.0%	2.3%	2.3%	-0.7%	3.6%	1.5%
MS % Change		-1.8%	6.8%	0.8%	2.3%	8.2%	2.5%	3.5%
HS % Change		-5.8%	6.3%	7.4%	3.7%	3.7%	3.9%	1.0%
District % Change		-2.2%	3.5%	3.3%	2.7%	2.4%	3.4%	1.8%

Source: RSP & Associates, LLC - March 2017

Note 1: Student Projections are based on the residence of the student

⬭ Exceed Building Capacity

Note 2: PreKindergarten students (Early Childhood) are in the enrollment projections - approximately 160 to 180 students

Note 3: Capacity of each facility provided by the district

Note 4: Reside includes Out of District students

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Part Four:

Next Steps

Key Considerations

The following items will assist in ensuring the district is able to advance its educational goals:

- Study the impact of future educational programming that will be integrated into the schools and its relation to capacity

- Election years with party changes are not yet know as to the impact it may have good and/or bad on how the local economy reacts: the key to being positioned for whatever that change might be is to monitor development, demographic and enrollment trends

- Type of residential development and how affordable it is will determine likely location and number of students – with significant portions of land owned by a few stakeholders, ownership transactions will need to be monitored.

- Annually review enrollment projections

- Open Enrollment is about 15% of the total K-12 enrollment (Kdg is about 19%) – if that policy changes from current policy, projections will need to be updated

- Continue to make decisions and communicate that information to the community so they can understand how New Castle is a learning community committed to ensuring educational equity and excellence so the students of all races and backgrounds achieve high levels and graduate prepared for success in college, careers and life in a divers and rapidly changing world.

Next Steps

- District administration and the Board of Education further study the enrollment, demographic, and development information presented

- Administration continue to examine utilization opportunities to improve the student education experiences

- Continue to make decisions and communicate that information to the community so they can understand how educational opportunities will support World Class Education

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