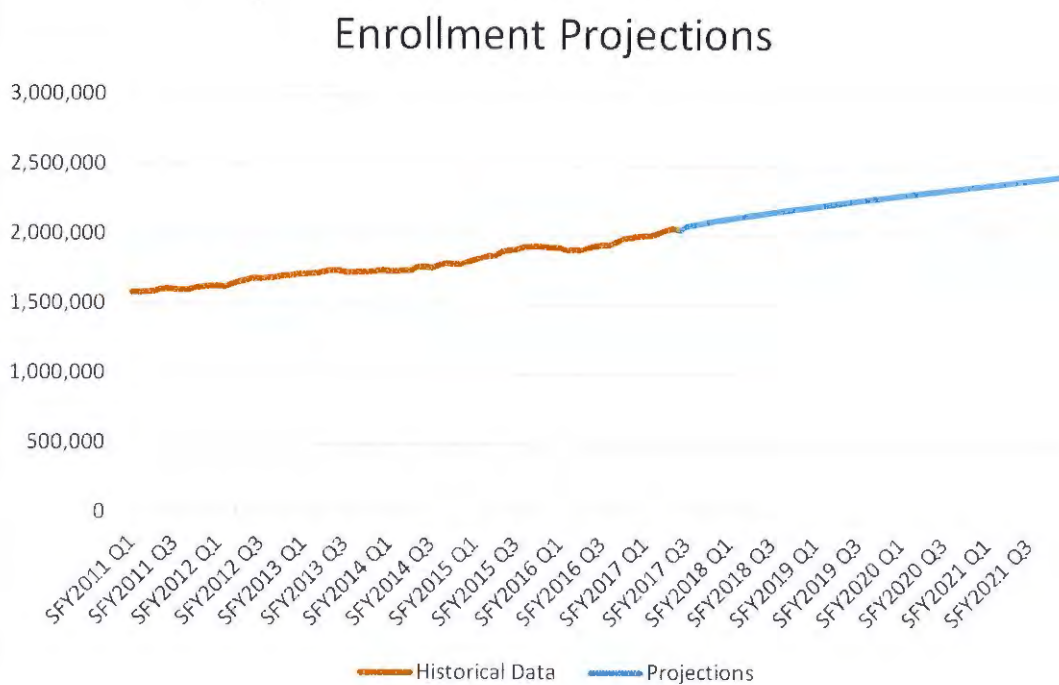


Total Medicaid & Health Choice Enrollment

Over the next 4 years, overall enrollment is projected to grow. Based on historical growth it will grow 5.1% in SFY18 before leveling off to around 3% a year by SFY 2021.

Two key points must be noted in the chart. First, this chart attempts projections four years out. As the projection goes further out, the confidence level of the charts decrease.

Secondly, the growth reflected in this chart is an aggregation of all Program Aid Categories (PACs), but this growth is not evenly distributed among PACs. The largest source of enrollment growth, Family Planning, is among the least expensive PACs on a per-member basis. This means that the budget is predicted to grow less aggressively. For example, a predicted 5.1% increase in enrollment from SFY 2017 to SFY 2018 corresponds with only 3.7% projected growth in expenses. To provide additional context for anticipated growth, the individual PACs are addressed in the subsequent pages with reference to the current average monthly per-member cost.



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enroll	1,934,472	2,059,192	2,165,330	2,249,989	2,326,712	2,399,369

12/30/2016

Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

Aged

The Aged PAC is composed of Individuals over age 65 and below the NC established income threshold.

Following a historical decrease leading into SFY 2011, enrollment in the Aged PAC has steadily increased since SFY 2012. In recent years, enrollment in this PAC has shown steady growth of approximately 1% a year. This growth is projected to continue through the next 4 years due to an aging population. Some of the projected growth will come from other PACs, such as "Disabled" and some of the growth will be new to the Medicaid program.

SFY2017 Budgeted Monthly Average Member Spending (Combined Capitated and Claims Cost) **\$1,334**

Enrollment Projections



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	122,641	125,586	126,775	127,937	129,098	130,260

**"Monthly Average Member Spending" includes claims and premiums paid through NC Tracks, and does not include certain categories of expense, including Medicare premiums and non-emergency medical transportation.*

12/30/2016

Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

Blind

The Blind PAC is composed of individuals considered legally blind based on Social Security standards and below the NC established income threshold.

Enrollment in Blind has shown a continuous but leveling decrease since SFY1996. Due to policy changes in SFY2016, this decrease temporarily accelerated, however this acceleration is not predicted to continue, and the enrollment for the blind PAC is instead predicted to return to the growth patterns similar to SFY14, a nearly flat line with a slight increase to account for population increase.

SFY2017 Budgeted Monthly Average Member Spending (Combined Capitated and Claims Cost) \$1,214

Enrollment Projections



(The Chart for Blind enrollment projections has been expanded to SFY1996 in order for the projections to be visible in the historical context)

	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	1,717	1,690	1,726	1,752	1,770	1,781

12/30/2016

Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

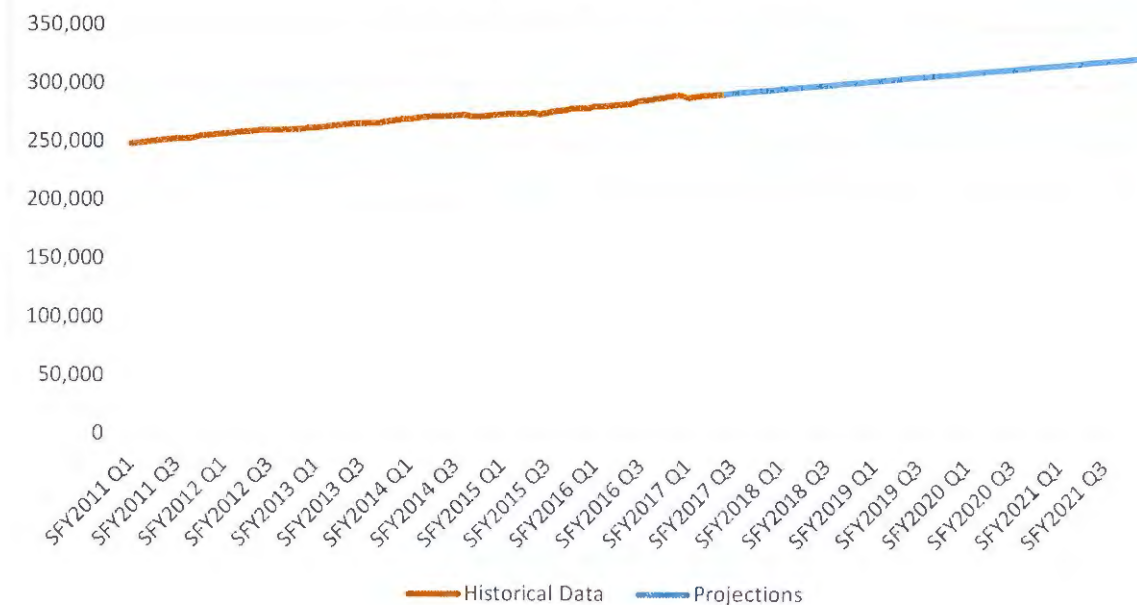
Disabled

The Disabled PAC is composed of individuals considered disabled based on Social Security standards and below the NC established income threshold.

Growth in the Disabled PAC has been relatively predictable, holding at a little over 2% a year for over 10 years. This growth rate is projected to continue. This PAC contains both the second highest cost-per-enrollee figures and the largest enrolled population, and as such represents the single largest source of expense for DMA (currently, Disabled costs account for 45% of the total PAC assigned expenses in SFY 2017).

SFY2017 Budgeted Monthly Average Member Spending (Combined Capitated and Claims Cost) \$1,590

Enrollment Projections



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	286,474	293,440	300,528	307,569	314,610	321,651

12/30/2016

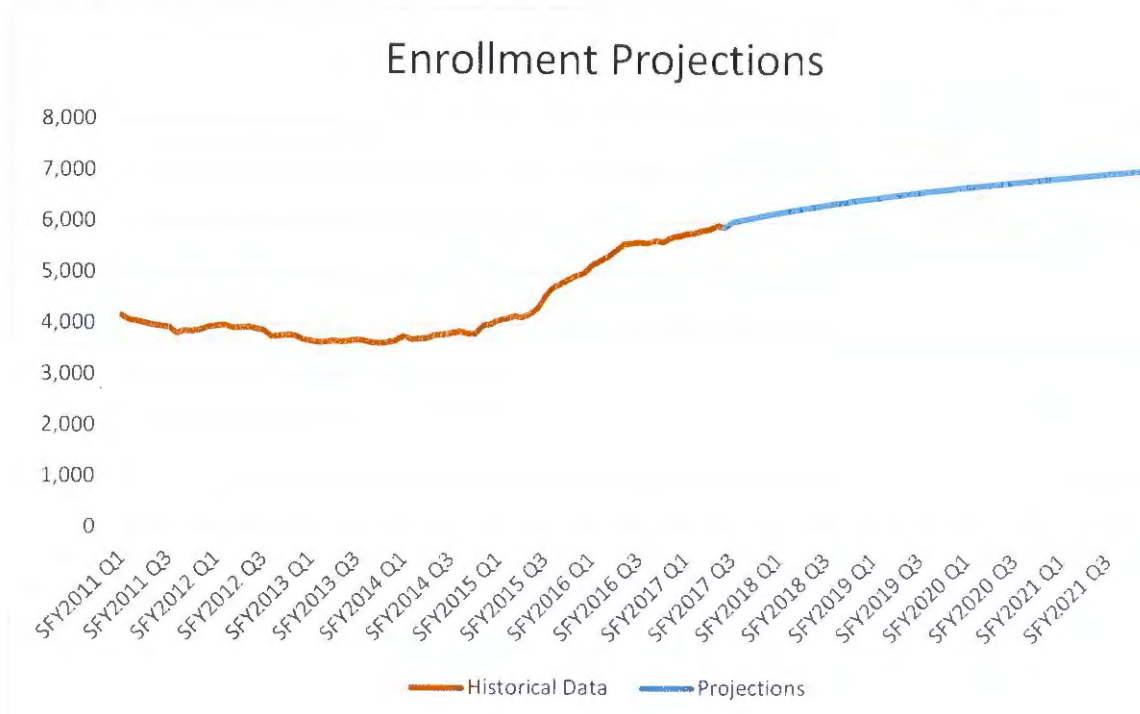
Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

Other Child

The Other Child PAC is composed of individuals currently or formerly in foster care from birth to age 25.

While the Other Child PAC experienced rapid growth in SFY 2014-2015. This growth leveled off in SFY2016, providing a reasonable growth average of approximately 5% which is expected to continue over the next 5 years.

SFY2017 Budgeted Monthly Average Member Spending (Combined Capitated and Claims Cost) \$1,011



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	5,538	5,988	6,352	6,607	6,812	6,989

12/30/2016

Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

Family Planning

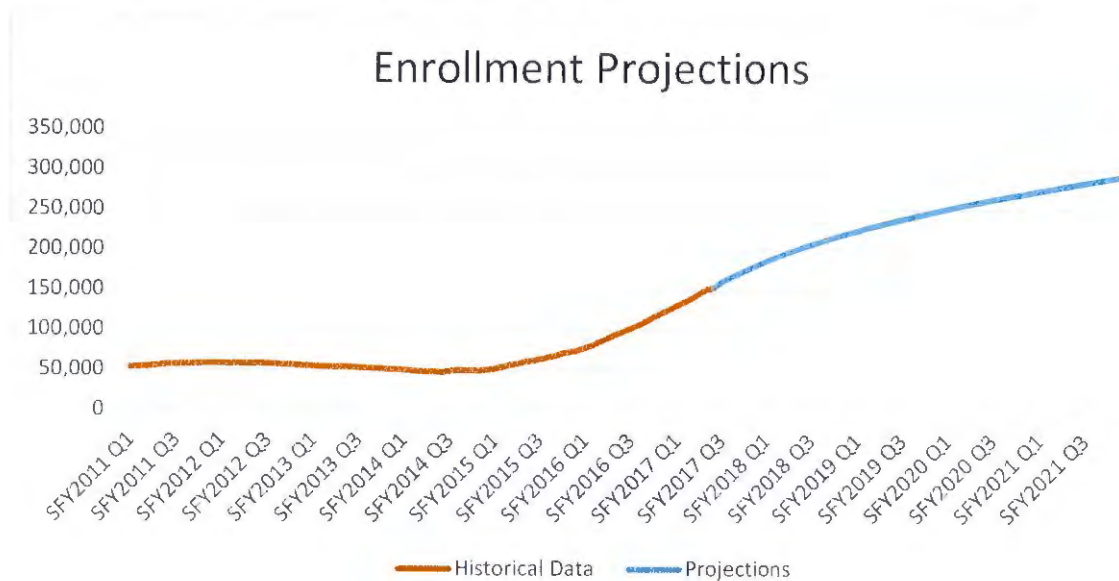
The Family Planning PAC is composed of individuals below the NC established income threshold, but not meeting eligibility standards for full Medicaid coverage. These beneficiaries are eligible for family planning exams and services, screenings and treatment for sexually transmitted infections, screenings for HIV, and sterilizations.

Due to NCFast enhancements Medicaid applicants are assigned a benefit package that fits their needs in a much more efficient manner. This has resulted in a initial rapid growth for the Family Planning PAC. This growth is expected to slow down, but not stop, in the coming years. Though the enrollment numbers are large, this growth is not predicted to have quite as significant of an impact on the budget, due to the low average cost of individual enrollees in the Family Planning group (the lowest of any PAC that is not also qualified for Medicare).

(Combined Capitated and Claims Cost)

SFY2017 Budgeted Monthly Average Member Spending

\$13.96



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	101,265	157,731	205,334	237,940	262,755	283,531

12/30/2016

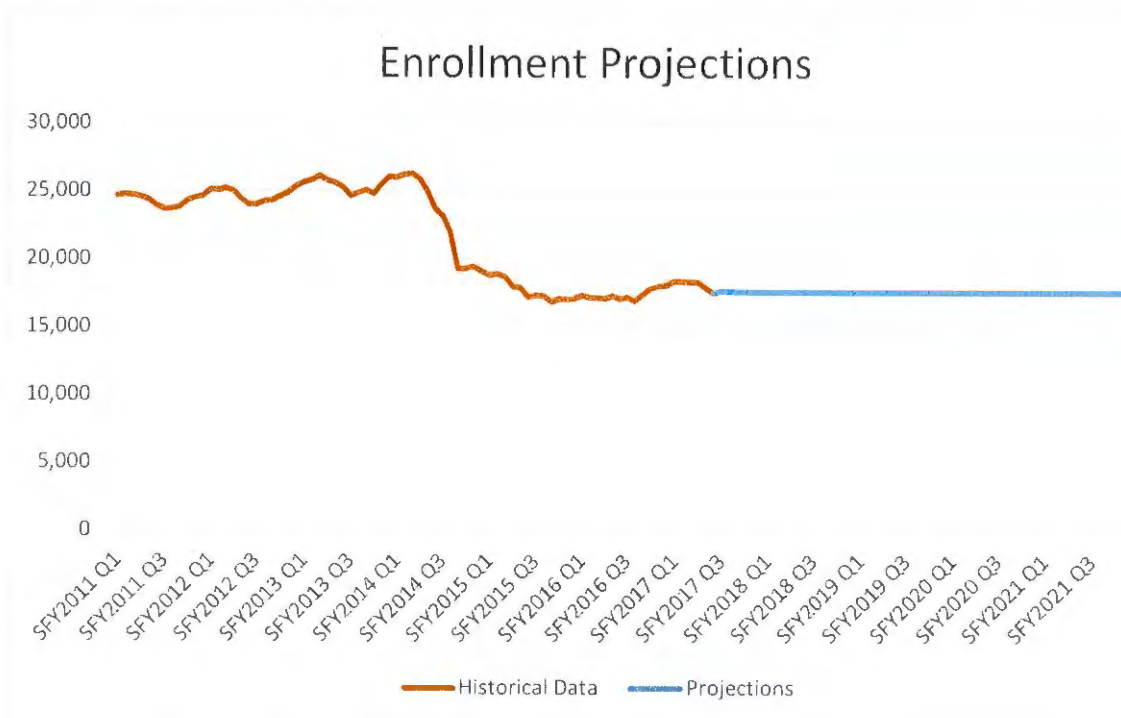
Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

Pregnant Women

The Pregnant Women (MPW) PAC consists of women who are pregnant and below the NC established income threshold to help pay for conditions that affect pregnancy.

Following a rapid drop in SFY 2014 due to transfers to the "AFDC over 20" Pac (the difference in PAC sizes make the increase much less noticeable on that graph), the MPW PAC has settled at a fairly steady enrollment average of around 17,000. A brief increase leading into SFY 2017 has already begun to drop. With the increase in Family Planning we expect the lowered pregnancies to continue, and enrollment in this PAC is predicted to return to around its previous base (with a slight increase to account for other unexpected bumps).

SFY2017 Budgeted Monthly Average Member Spending (Combined Capitated and Claims Cost) \$721



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	17,437	17,928	17,649	17,649	17,649	17,649

12/30/2016

Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

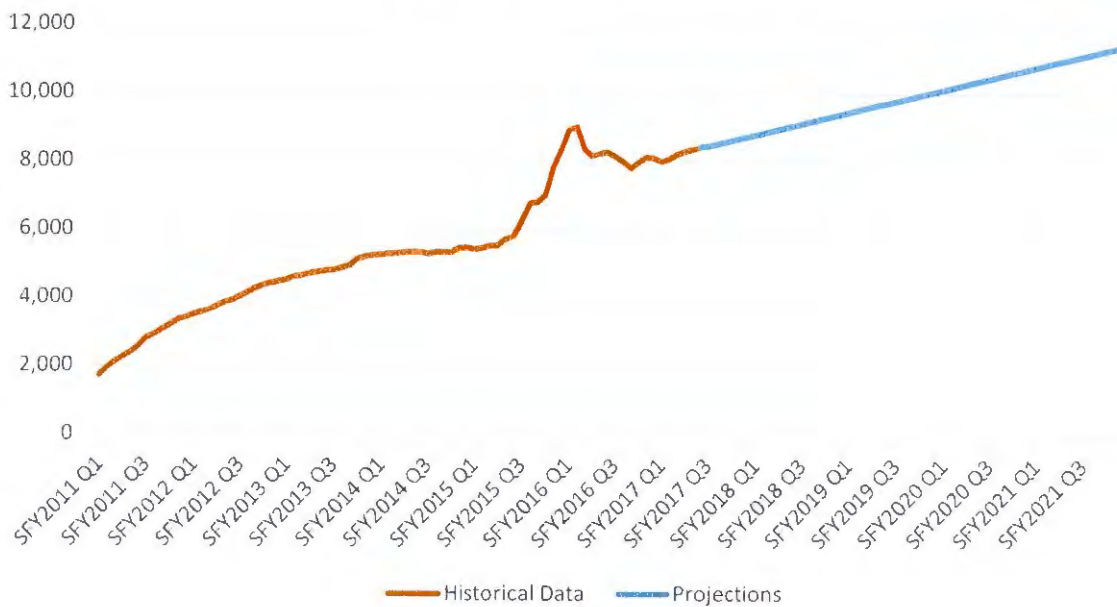
Qualified Medicare Beneficiaries (MQB-Q)

The Qualified Medicare Beneficiaries (MQB-Q) PAC is composed of individuals entitled to Medicare Parts A & B and below the NC established income threshold. Medicaid helps individuals in this PAC pay for Medicare premiums, deductibles, and co-insurance charges for Medicare covered services.

MQB-Q enrollment has maintained a largely steady growth since SFY 2003 (the jump in 2016 was due to the SSI MAD/MQB NCFASST System error). Such growth is expected to continue at a rate of approximately 8% a year in SFY 2018, with a slight leveling off as the growth rate decreases to 6% by SFY 2021.

SFY2017 Budgeted Monthly Average Member Spending (Combined Capitated and Claims Cost) \$231

Enrollment Projections



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	8,279	8,429	9,107	9,767	10,427	11,087

12/30/2016

Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

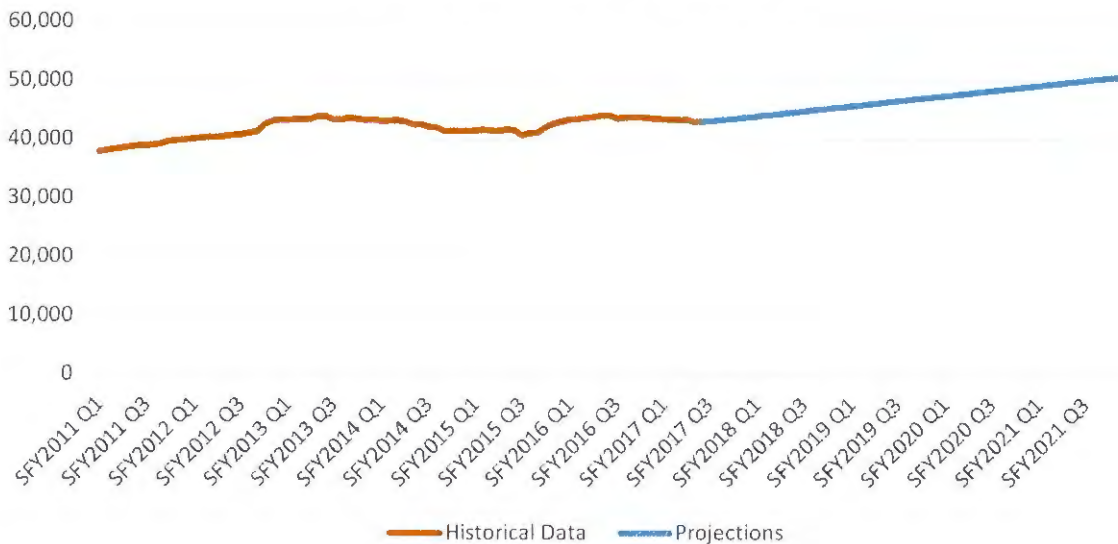
Specified Low Income Medicare Beneficiaries (MQB-B)

The Specified Low Income Medicare Beneficiaries (MQB-B) PAC is composed of individuals entitled to free Medicare Part A and below the NC established income threshold. Individuals in this PAC receive assistance with Medicare Part B premiums.

The MQB-B PAC has experienced steady growth since 1993. This growth is expected to continue at a rate of approximately 4% a year in SFY 2018, with a very slight leveling off as the growth rate decreases to 3.5% by SFY 2021.

SFY2017 Budgeted Monthly Average Member Spending (Combined Capitated and Claims Cost) \$208

Enrollment Projections



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	43,767	43,415	44,797	46,535	48,272	50,009

12/30/2016

Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

Breast and Cervical Cancer

The Breast and Cervical Cancer Medicaid (BCC) PAC is composed of women ages 18 through 64, screened and enrolled in the NC Breast & Cervical Cancer Control Program, and below the NC established income threshold.

While there have been historical ups and down the long term trend in the BCC enrollment has been nearly unchanged, because of the high fluctuations and nearly flat growth, and flat trend line is the projected to be the most accurate estimate possible over the long term.

SFY2017 Budgeted Monthly Average Member Spending (Combined Capitated and Claims Cost) \$3,248

Enrollment Projections



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	340	388	395	395	395	395

12/30/2016

Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

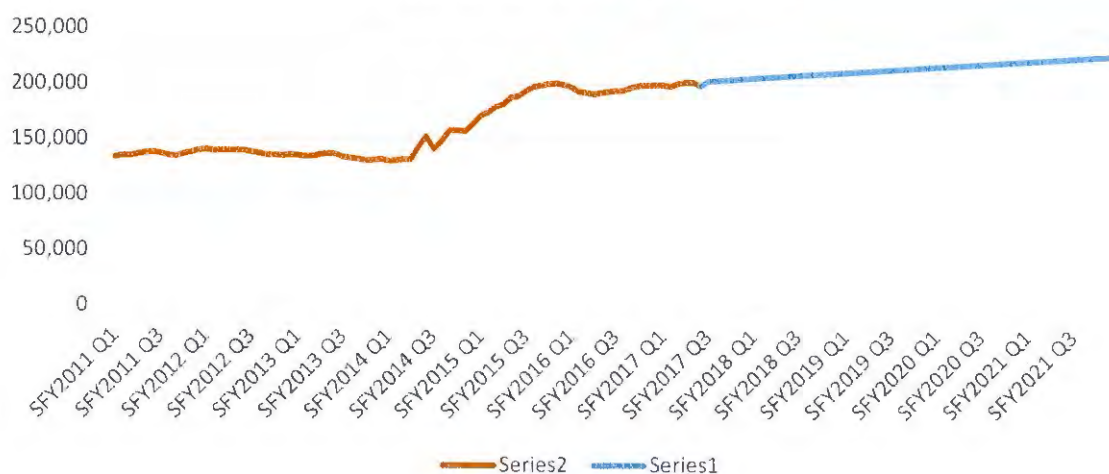
Temporary Assistance for Needy Families (TANF) Over 20

The Temporary Assistance for Needy Families (TANF) Over 20 PAC is composed of individuals over the age of 20 and eligible for TANF.

Enrollment in the TANF>20 PAC is historically more volatile than for other PACs, and accounting for such volatility is difficult in making future projections. However, recent years have had more stable enrollment figures and the forecast assumes continued stability. Currently, an increase of around 2% a year is predicted but due to population growth and a inclusion of Medicaid to parents who lose their children to foster care (included in the 1115 waiver).

SFY2017 Budgeted Monthly Average Member Spending (Combined Capitated and Claims Cost) \$ 521

Enrollment Projections



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	195,666	202,420	208,375	213,514	218,587	223,646

12/30/2016

Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

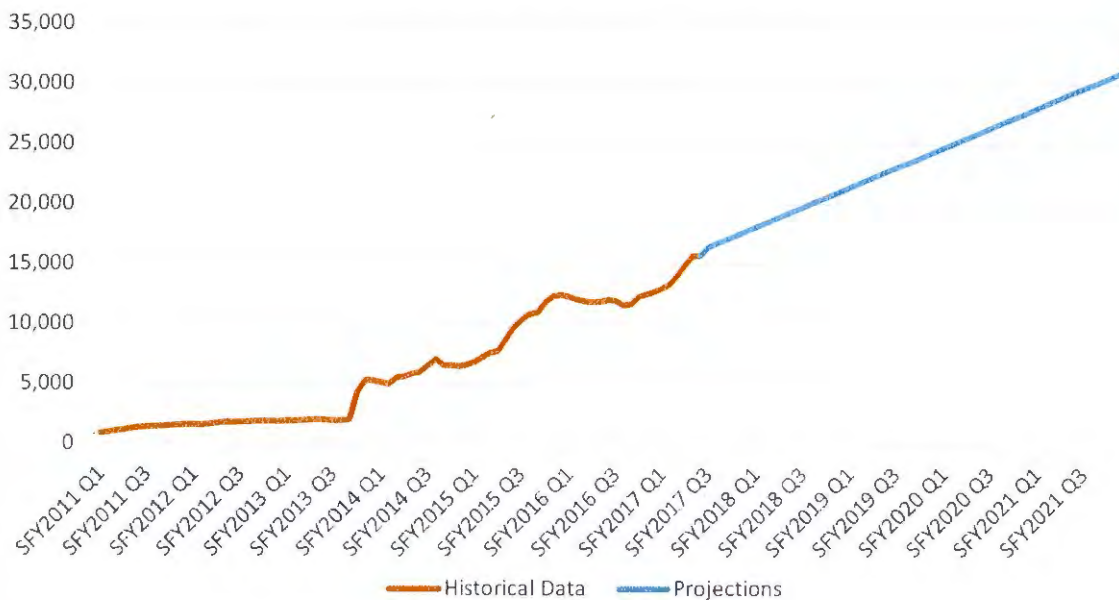
Legal Aliens

The Legal Aliens PAC is composed of individuals living in the US with proper documentation as qualified non-citizens, with income below the NC established income requirements; and who have completed a five-year waiting period.

Since SFY 2014, enrollment in the Legal Aliens PAC has grown steadily. This growth is expected to continue at a rate of approximately 20% annually in SFY 2018, with that rate decreasing to 12% by SFY 2021.

SFY2017 Budgeted Monthly Average Member Spending (Combined Capitated and Claims Cost) \$293

Enrollment Projections



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	12,089	15,823	19,647	22,938	26,230	29,521

12/30/2016

Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

Refugees

The Refugees PAC is composed of individuals with proper immigration status, documentation and are below the NC established income threshold. These beneficiaries are covered fully by federal funding during the first eight months the refugee resides in the US.

The Refugees PAC experiences a naturally high level of volatility, and as such, projections must be made with a note of caution. Currently, enrollment in this PAC is predicted to grow approximately 2.7% a year in SFY 2018, with a very slight leveling off to 2.5% by SFY 2021.

SFY2017 Budgeted Monthly Average Member Spending (Combined Capitated and Claims Cost) \$222

Enrollment Projections



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	775	943	997	1,023	1,049	1,075

12/30/2016

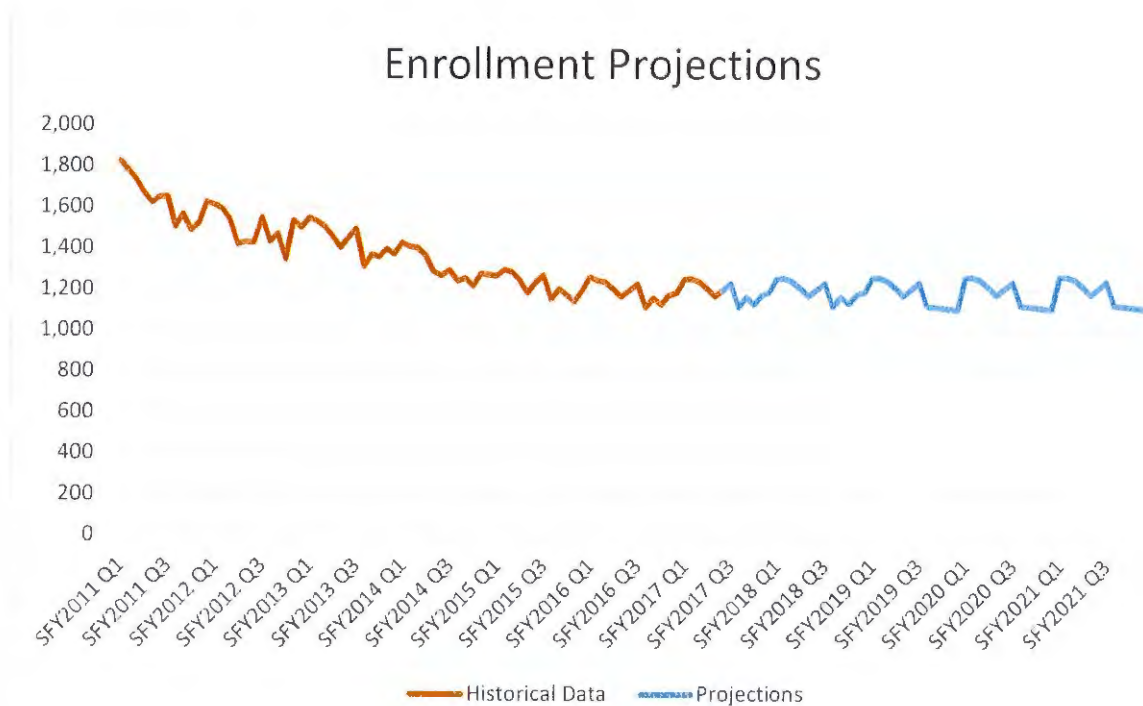
Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

Non-Qualified Aliens

The non-qualified aliens PAC is composed of individuals living in the US without proper documentation who meet the NC residency requirement (living in NC with the intent to remain); to help pay for emergency Medicaid services.

Non-qualified aliens has shown a yearly seesaw pattern with an overall downward slope. This slope has leveled off, while large scale fluctuations are unpredictable for this pack, current projections has put a slight increase (.2%) to account for population growth.

SFY2017 Budgeted Monthly Average Member Spending (Combined Capitated and Claims Cost) \$5,134



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	1,193	1,195	1,197	1,180	1,182	1,185

12/30/2016

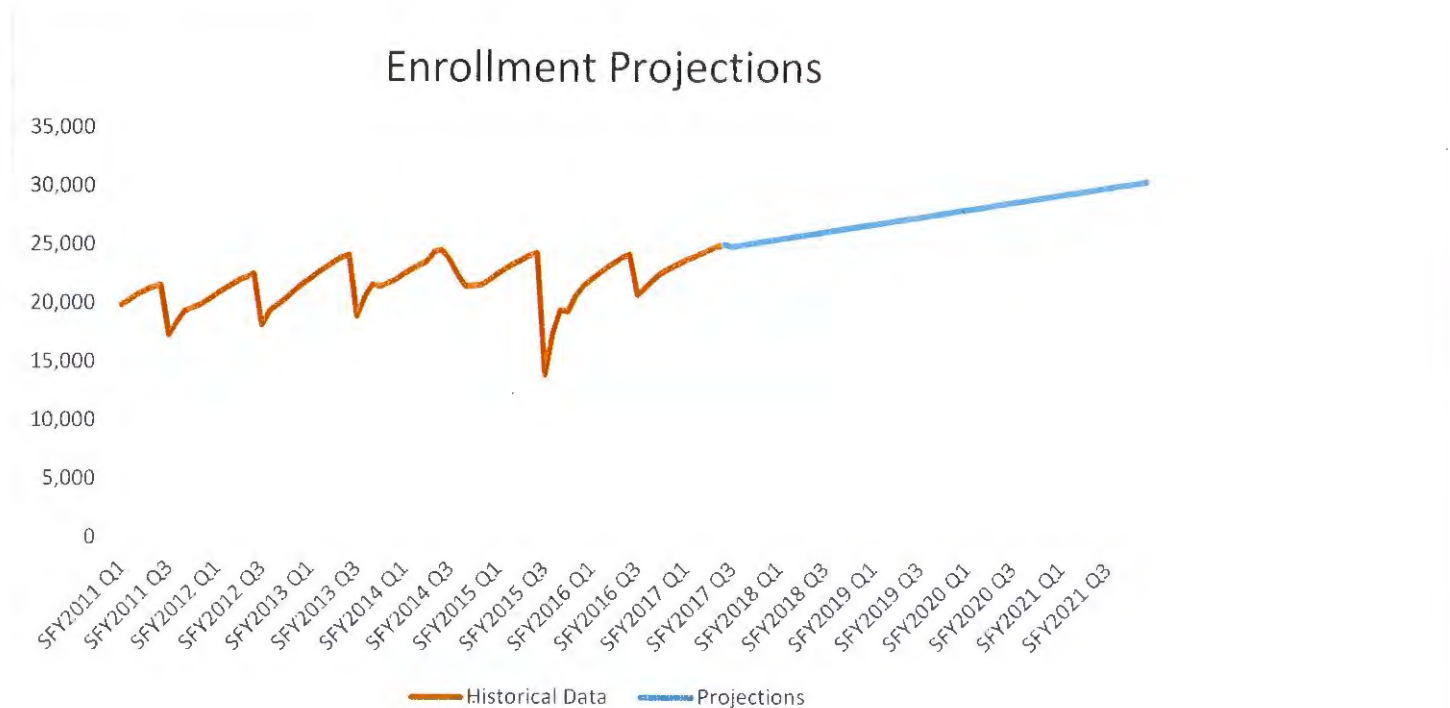
Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

Qualified Individuals (MQB-E)

The Qualified Individuals (MQB-E) PAC is composed of individuals entitled to free Medicare Part A and below the NC established income threshold. Medicaid helps these beneficiaries pay for Medicare Part B premiums.

Historically, the MQB-E program has required enrollees to re-enroll at the start of each calendar year, leading to a very predictable drop each January, rapid growth over the course of the year, and a drop the next January. The use of an automated enrollment system is expected to mitigate this drop in January of 2017 and each year moving forward, and the enrollment predictions reflect this. This PAC is predicted to grow at around 5% a year, continuing through the next 4 years.

SFY2017 Budgeted Monthly Average Member Spending (Combined Capitated and Claims Cost) \$221



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	22,792	24,871	26,195	27,465	28,735	30,005

12/30/2016

Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

Health Choice and MCHIP

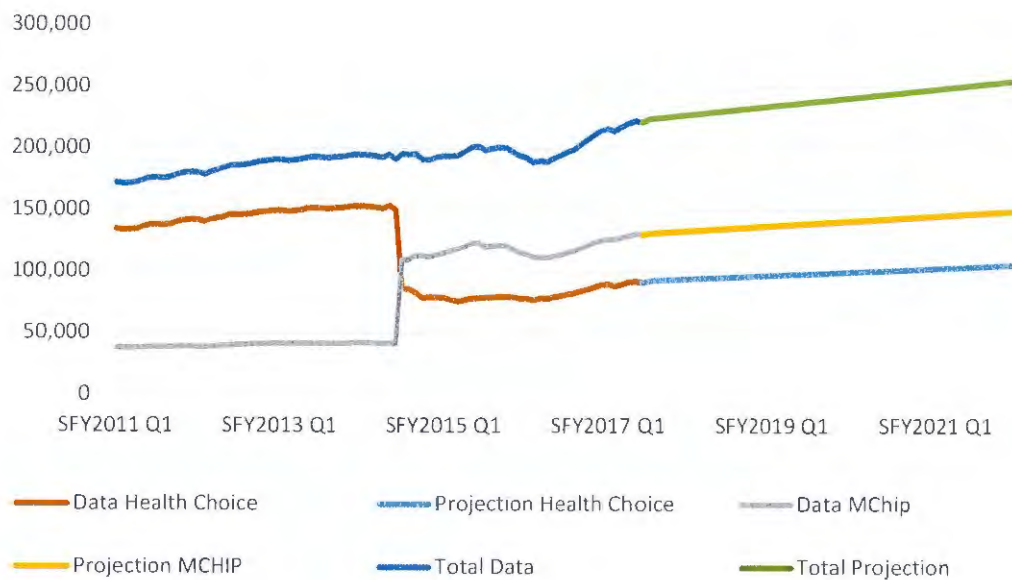
The NC Health Choice (Children's Health Insurance Program (CHIP)) PAC is composed of children from ages 6 through 18 and below the NC established income threshold. Beneficiaries in this PAC are subject to service exclusions, including long-term care, early and periodic screening, diagnostic and treatment services, non-emergency medical transportation and full dental benefits. The MCHIP (Medicaid-Children's Health Insurance Program) is composed of children from birth through age 18 and below the NC established income threshold.

In SFY 2015, a large number of Health Choice enrollees were transferred to the MCHIP PAC. Though this resulted in a dramatic shift in enrollment for both PACs, the combined total remained steady, and as such represents a better metric for projecting historical enrollment trends than reporting the PACs individually. The transfer between these programs appears to have completed, and it is currently projected both PACs will remain at the current ratio of beneficiaries relative to each other, with moderate growth in the combined total of the two PACs.

(Combined Capitated and Claims Cost)

MCHIP SFY2017 Budgeted Monthly Average Member Spending*	\$194
NCHC SFY2017 Budgeted Monthly Average Member Spending*	\$179

Enrollment Projections



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	198,325	222,241	230,911	237,829	244,748	251,666

12/30/2016

Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

Temporary Assistance for Needy Families (TANF) Under 21 and Medicaid for Infants and Children

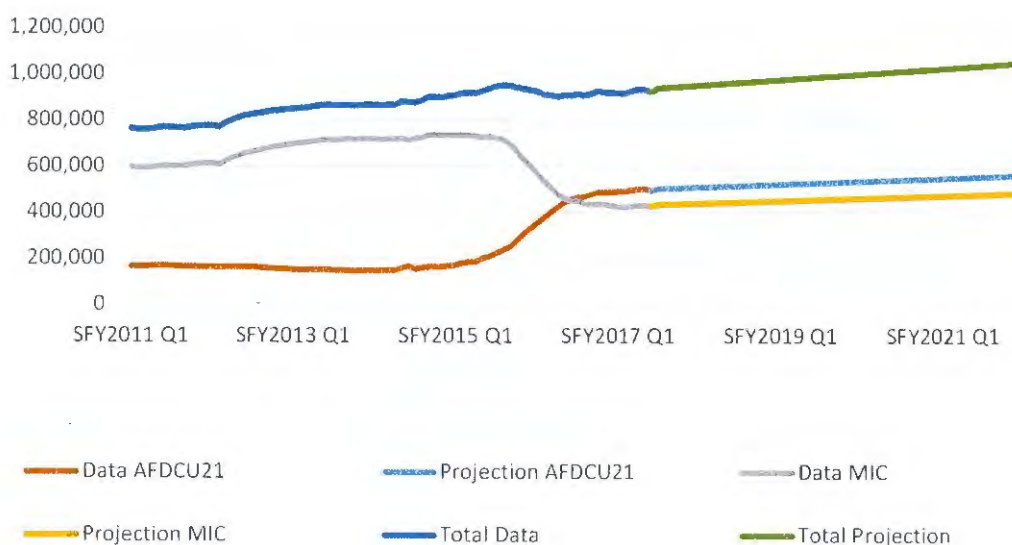
The TANF Under 21 PAC is composed of individuals under age 21 and eligible for TANF. The Infants and Children PAC (MIC) is composed of individuals from birth through age 18 and below the NC established income threshold.

The TANF<21 and MIC PACs are best understood together, as they represent a similar population of enrollees. Starting in SFY 2015, a large number of MIC beneficiaries transferred to TANF<21. Though this resulted in a dramatic shift in enrollment for both PACs, the combined total has remained steady, and as such represents a better metric for projecting historical enrollment trends than reporting the PACs individually. The transfer between these PACs appears to have leveled off, and it is currently projected that both PACs will remain at their current ratio of beneficiaries relative to each other while the combined total continues a trend of approximately 2% annual growth.

(Combined Capitated and Claims Cost)

TANF<21 SFY2017 Budgeted Monthly Average Member Spending*	\$217
MIC SFY2017 Budgeted Monthly Average Member Spending*	\$252

Enrollment Projections



	SFY2016	SFY2017	SFY2018	SFY2019	SFY2020	SFY2021
Average Monthly Enrollment	916,168	937,405	965,345	989,870	1,014,395	1,038,920

12/30/2016

Data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

Below is a summary of the need for program or service changes to Medicaid and NC Health Choice in order to remain within the adopted budget:

Program Changes to Remain Within Budget

Based on current enrollment, utilization, and spending trends, the Department anticipates that the Medicaid and NC Health Choice programs will finish SFY 2017 within the adopted budget, and therefore, does not recommend any programmatic or service changes at this time.

Below is a summary of the cost to maintain the current level of service in SFY 2018 based on the forecasted enrollment figures and enrollment mix:

Cost to Maintain Current Services

Comparison of Current Certified Budget (BD701) and SFY2018 Forecast (All dollars in Millions)

	SFY2017	SFY2018
Yearly Comparison	Budget	Forecast
Requirements	\$14,267	\$14,390
Receipts	\$10,666	\$10,659
Appropriations	\$3,601	\$3,732

Summary

DMA has forecasted an appropriations need of \$3.73 billion for the first year of the upcoming 2018-2019 biennium. This represents an increase of approximately \$123 million from our current certified budget of \$3.6 billion. In practice this will be divided between a rebase of \$35 million and an automatic expansion of DMA's Worksheet I base budget by \$88 million. The expansion of the base budget is primarily due to the expiration of non-recurring savings from the Enhanced Federal Medicaid Assistance Percentage bonus and a transfer from the Locally Managed Entities.

Itemization of Selected Changes from Certified Budget (State Dollars)

The following items are impacts from modeling changes and new data that are driving the requested increase in DMA's budget. There are countless offsetting factors that DMA considers when forecasting its financial performance. The items selected below represent the most significant factors that can easily be traced to discrete policy changes. The net value of these changes is an approximately \$165 million increase, leaving \$42 million in savings unattributed due to interactions between effects.

1) Enrollment Mix and Level | +\$102 million

By holding enrollment constant at November 2016 levels the budget model can identify the appropriations requested due to population change. Approximately \$102 million can be attributed to changes in DMA's population size and composition.

2) Medicare Premium Increases | +\$55 million

Medicare premiums for Part A, B, and D will increase starting in calendar year 2017, with some programs expecting continued premium growth through the biennium. For SFY18, the average Part-B premium will be \$127.90 compared to \$121.80 in Medicaid's current budget. The average Part-D premium will be \$115.30 compared to budgeted \$97.03. The Part-A premium is also increasing to \$413 from a budgeted \$411.

3) Supplemental Payments (Fund 1337) | +\$28 million

Upper Payment Limit payments made through the supplemental payment program have decreased between SFY2015 and SFY2017. This will result in decreased appropriations savings as UPL transactions are funded with assessments that generate a surplus.

4) Prescription Drug Prices | +\$26 million

Prescription price growth, particularly for branded drugs, has continued at a steady pace since late 2009. DMA expects continued branded price growth over the course of the biennium.

5) Reimbursement Changes for Nursing Facilities | +\$17 million

Effective October 2016 DMA made multiple changes to the reimbursement methodology for nursing facilities. The net effect of these changes is an effective 4.18% increase in the unit cost of nursing facility stays.

6) Increased Federal Match | -\$63 million

The standard match rate for the Title XIX grant in North Carolina will increase from 66.88% to 67.61% effective October 2017.

Appendix A: Data Source

Enrollment data was sourced from the Monthly Medicaid Enrollment report and was adjusted using supplementary reporting from NC FAST in order to ensure accurate reporting of historical data.

Expenditure data was sourced from the DMA Budget Program Expenditure Report and combined with enrollment information to compile the Monthly Average Member Spending by PAC metrics. For the purpose of reporting the historical monthly spending calculations, this data only includes claims and premiums paid through NC Tracks and does not include certain expenditures, including Medicare premium payments, non-emergency medical transportation expenses, and non-claims expenditures.

Appendix B: Methodology

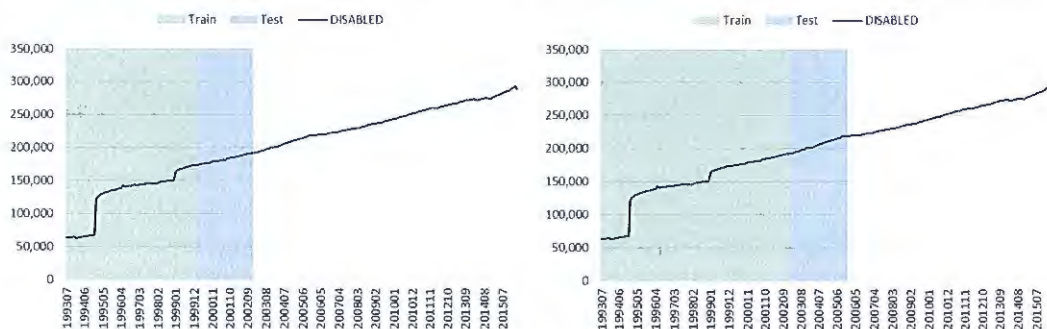
The forecast uses ARIMA (Autoregressive Integrated Moving Average) models. ARIMA models are a flexible tool for forecasting time series data because they account for a wide range of possible scenarios. For instance, ARIMA models can be appropriate for characterizing all of the following dynamics:

- A. Enrollment is growing steadily
- B. Enrollment is not growing
- C. Enrollment grew rapidly but appears to be stabilizing
- D. Enrollment has grown at different rates over time

The primary challenge in implementing an ARIMA framework is that because the individual models are so diverse, selecting the best model requires careful attention.

Each PAC was considered separately with two exceptions. TANF<21 + MIC and MCHIP + NCHC were combined due to historical transfers between the PACs that complicate the projection of the groups individually. The combined projections offer greater accuracy when compared to the individual projections. 28 models were tested for each PAC in order to identify the best one. In addition, certain PACs experienced dramatic expansions or contractions, typically due to changes in eligibility criteria. In those cases, a term was added to treat the years before and after the shift separately. The inclusion of this term was tested for its performance impact. The most accurate model for each PAC was then used to produce a corresponding forecast

DMA's framework defines "accuracy" as out-of-sample fit. Out-of-sample fitness is a realistic performance test that simulates the conditions under which real forecasts would have been made. That is, the models must make forecasts for periods they haven't "looked at" yet.



Above, left: Step 1 in a hypothetical example of the validation algorithm
Above, right: Step 36 in the same example

In the example above, each of the 28 candidate models is "trained" on the data shaded in green. That "training" data is used to come up with a forecast for the following 36 months. This forecast is then compared to the actual outcome (called the "testing" data). The models are trained *only* on the green region and do not have any information about the blue region. The model selection algorithm will save the performance of each candidate model on this test, then repeat, adding more data to the training period and asking for forecasts on a different test window. This strategy is called "rolling cross validation" and allows for maximum amount of out-of-sample training on a limited dataset.

The output of the model is then reviewed against expectations for growth and adjustments are made to reflect changes in eligibility criteria.