MARA Model

INVENTION WITH INTENTION

TIMING

HB 330 MARA Charge

(a) identifying structural revenue challenges with economic, demographic, and geographical variability considerations;

(b) exploring revenue sufficiency and probable long-term expenditures by state and local government...

(c) creating data sets and models for future analysis by the legislature; and

(d) proposing potential solutions and possible legislation for consideration by the 2023 legislature

Progress to Date

Speakers on various topics

- How technology will impact the future economy
- Population and demographic trends supported by data
- Potential changes to the energy economy supported by data
- Change in education, health, land use, property tax, and other topics
- Cost of living trends including housing and childcare
- Data on various topics were presented

Model planning has been underway, but not brought to the committee till now

2040 MARA MODEL

IS

- Tool to provide insights to the future
- Pinch points
- Values in context
  - Example how big of a problem shortfalls in gas tax be in comparison to shortfall in capacity at the state prison

IS NOT

- Not a precise calculation of revenues or costs in the future
- Not tell the legislature what it should do
- Not a budget

Outlook versus MARA Model

OUTLOOK

3-5 years out

Relatively detailed

Focused on state general fund

Focused on present law, but also introduces expenditure pressures

Primarily internal LFD work, with relatively little outside input

2040 MARA MODEL

18 years out

Less detail but covers all state, local & schools

Considers more global trends

Considers items beyond present law in order to capture demands anticipated with the new economy and other trends

Looped through various committees and stakeholders for input

Outlook 2025/2027 is more detailed

The recent Pew memo offers state lawmakers six fiscal principles to follow when constructing a long-term budget:

Analyzing major revenue sources and spending categories.

Looking ahead at least three years.

Estimating baseline revenue and spending, using “present law” and “current services” approaches to anticipate the amount of funding needed to maintain consistent service levels for programs in future years.

Accounting for the effects of potential policy changes.

Distinguishing between one-time and ongoing revenue and expenditures to estimate structural balance.

Identifying the key factors driving the state’s structural position.

2040 MARA Model

M I D I L

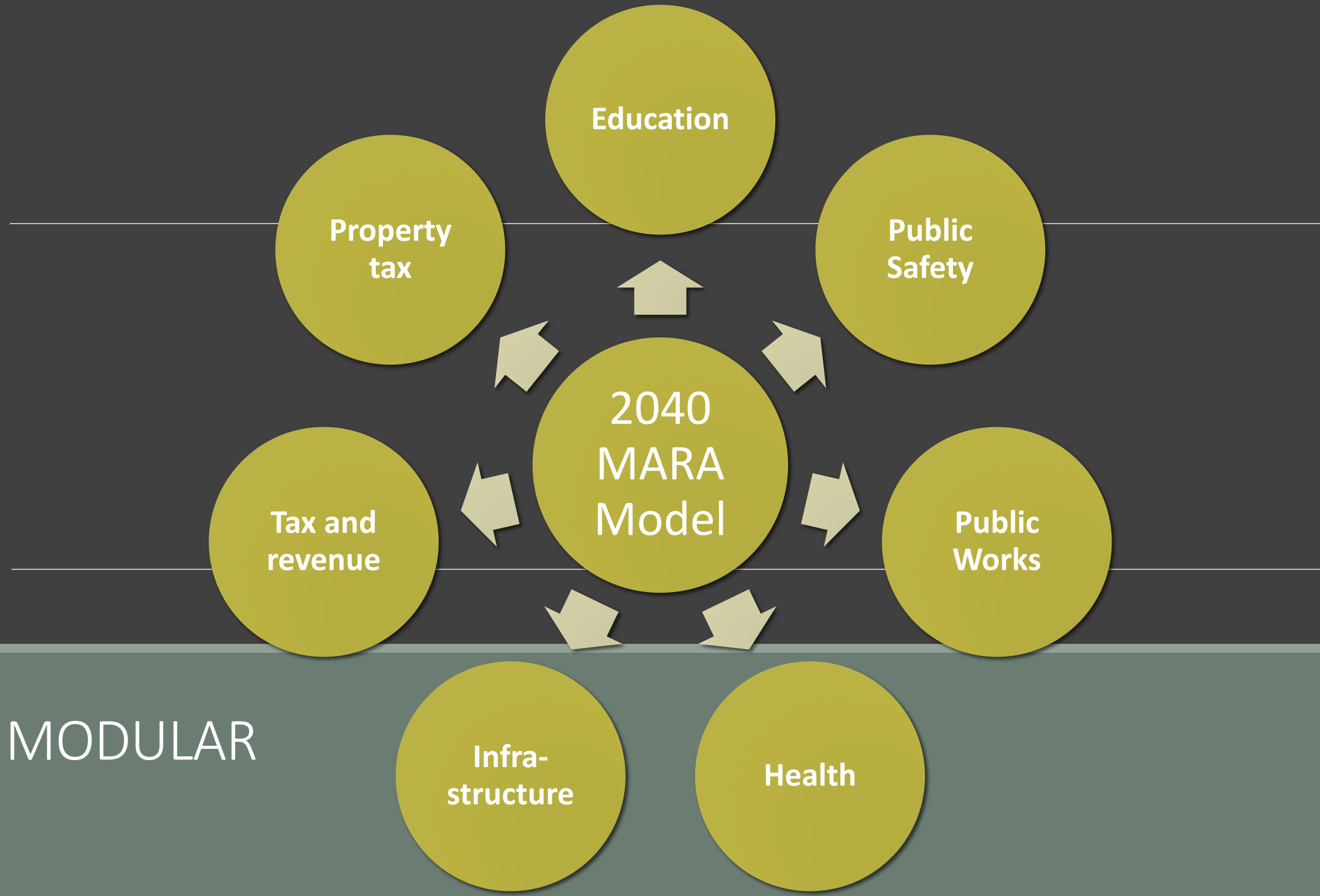
M - Modular – include modules of significant revenue and cost drivers of state and local policy and financial areas

I - Inclusive – open communication with legislative committees, local governments, stakeholders, and experts

D - Data-driven forecasting – data from State Accounting Budget & Human Resource System (SABHRS) for state and local, IHS Markit, Regional Economic Models Inc. (REMI) population, K-12 education, Department of Revenue, others

I - Insightful - Uses and considers advances in technology, modern consumer preferences, population

L - Long-term outlook – looking forward from present to 2040


Education
Property tax
Public Safety
2040 MARA Model
Tax and revenue
Public Works
Infra-structure
Health

MODULAR

INCLUSIVE – Vetting all aspects

Stakeholders

Legislative Committees

Agencies

Budget Office

Local Governments, including schools

Experts in complex modeling and experts in analysis – Pew

Public

DATA DRIVEN – primary data sets

Accounting data - state SABHRS, local reports to DOA and school reports to OPI

IHS Markit economic forecasting data that includes labor, population, inflation, and many others

Department of Revenue and Justice tax, including detailed property tax data

REMI population forecasts by county

IHS Markit, NW Power Planning, Princeton Net Zero America for scenarios of the energy economy

System Actuarial reports for pension assumptions

Census definitions for state, local, and school accounting data

Other federal and state data sets

INSIGHTFUL

The input from all the speakers over the past year

Input from all stakeholders, legislators, agencies, experts

Develop trended costs and revenues

As time allows – model more details and scenarios

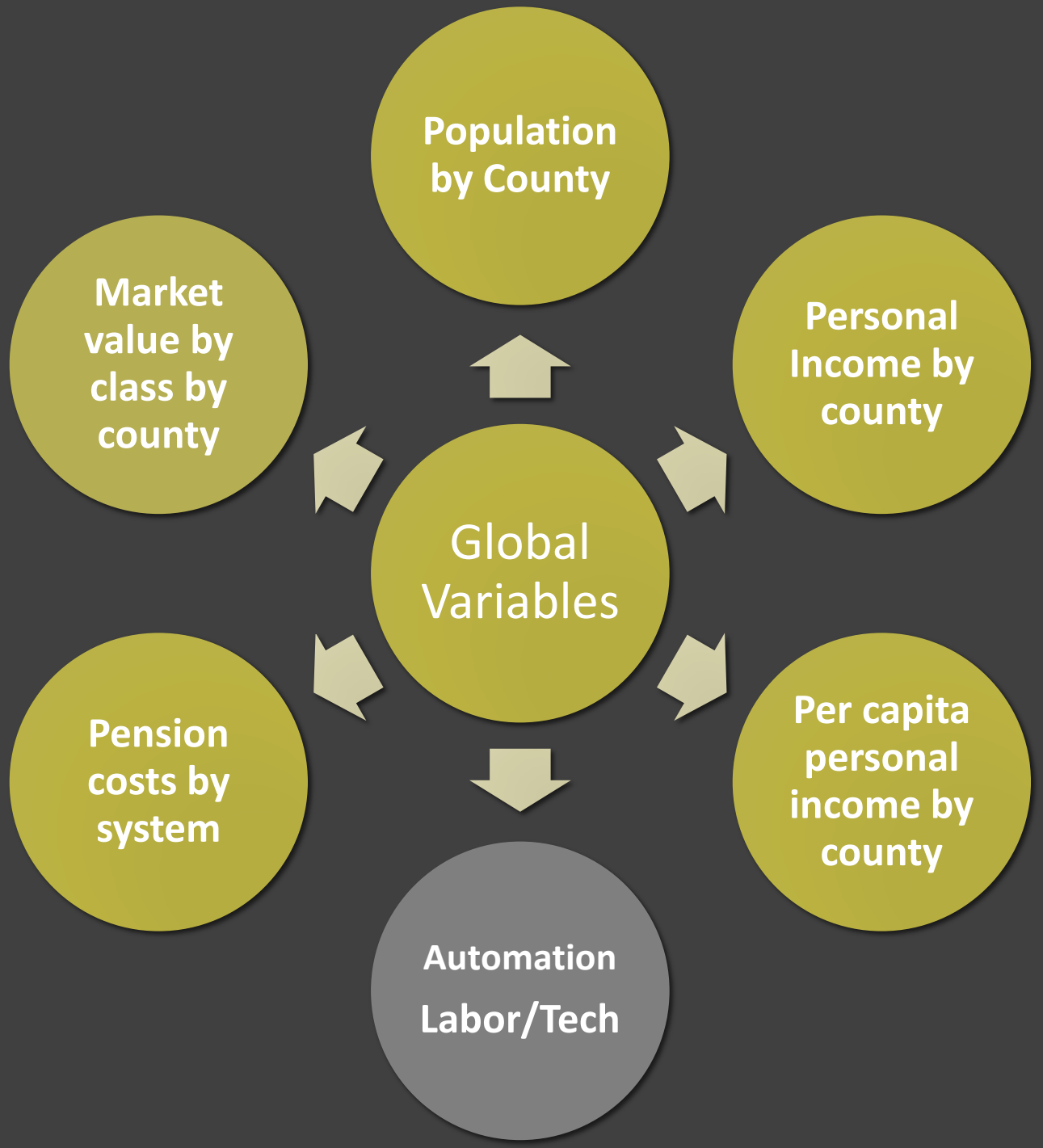
Scenarios impacting global variables

Energy economy	Population growth	Pension Funding
• IHS Markit • NW Power and Conservation Council Power Plan • Princeton Net Zero America alternate energy options	• IHS Markit • Alternate IHS Markit • REMI	• Current law • Shorter amortization at higher rate, from system actuarial analysis

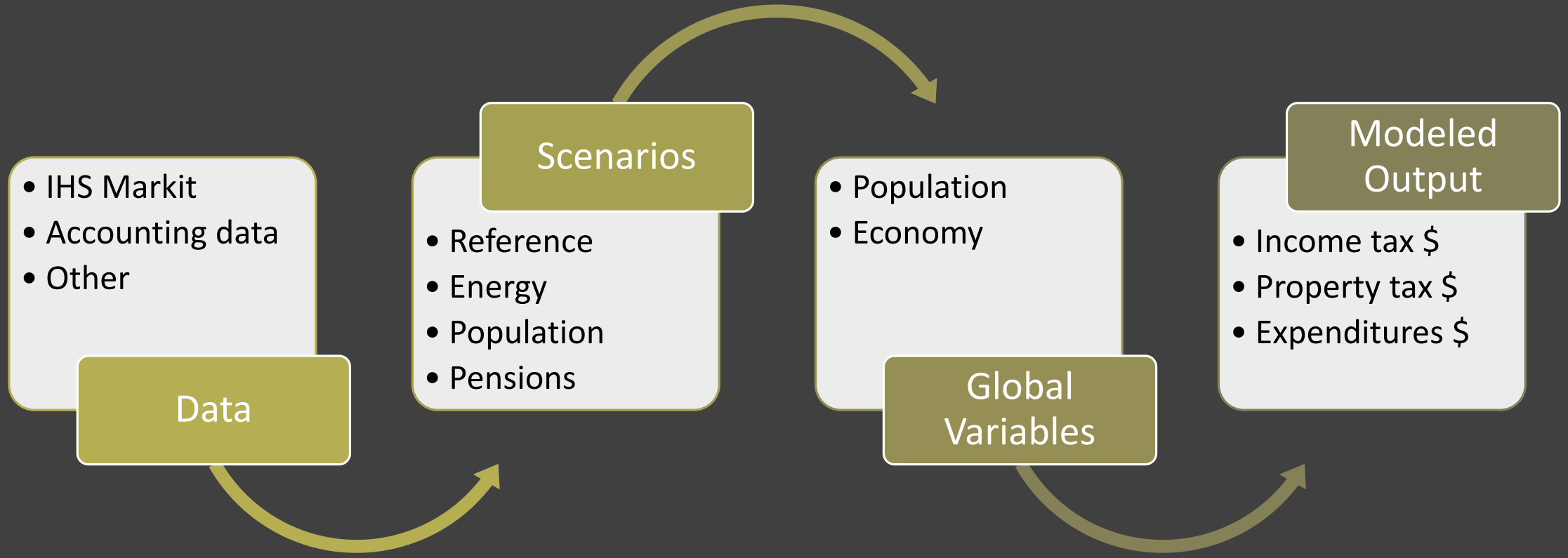
Global Variables that are used to model the future

Green are dynamic and changes with various scenarios, these are examples, there will be additional variables

Gray, automation, is not dynamic and it is uncertain if we will find a way to incorporate this element



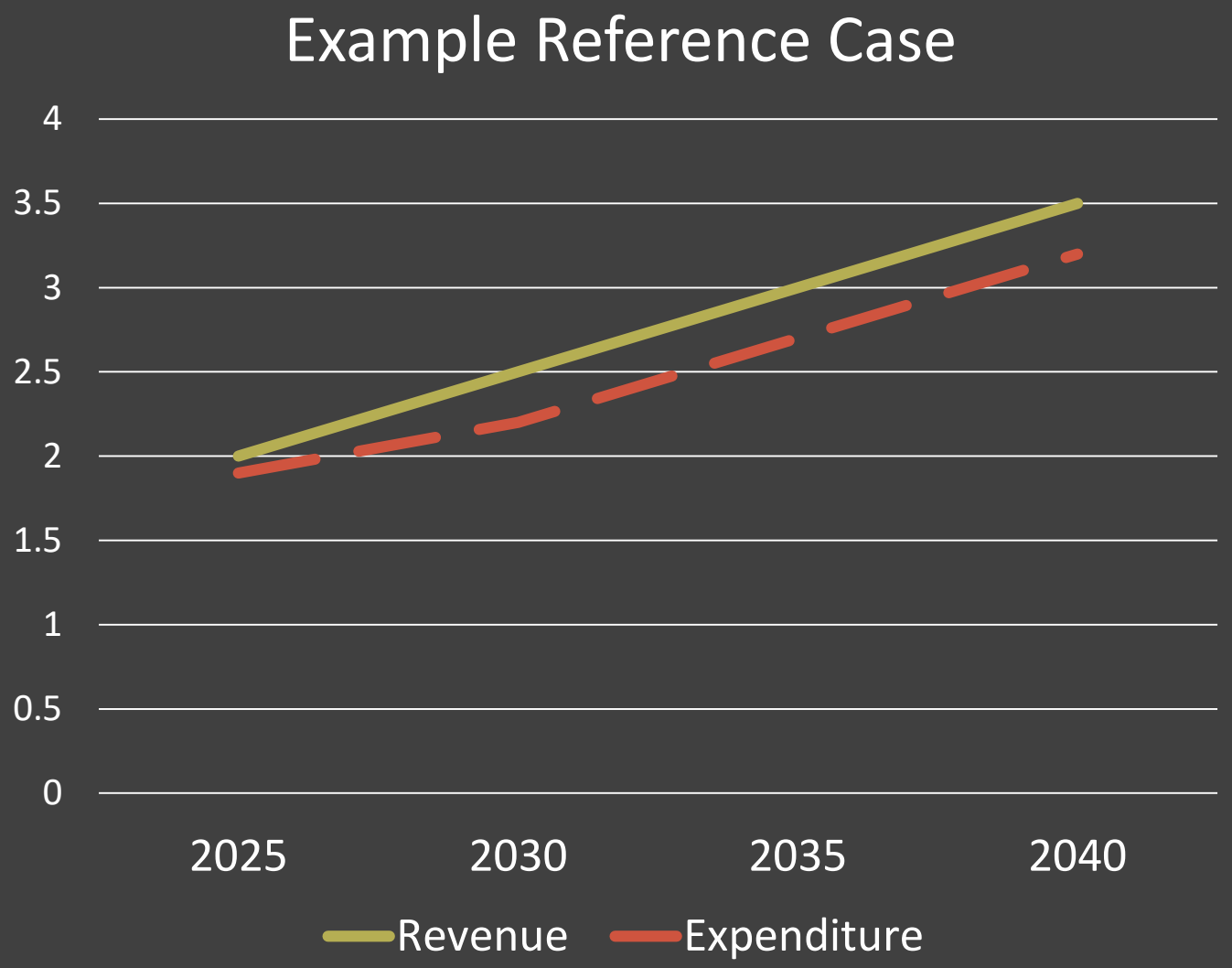
Model Process



LONG-TERM to 2040 Reference Case Revenue and Expenditure

The future is unknown

Reference case and multiple scenarios



NICK VANBROWN
LEAD ANALYST - DATA

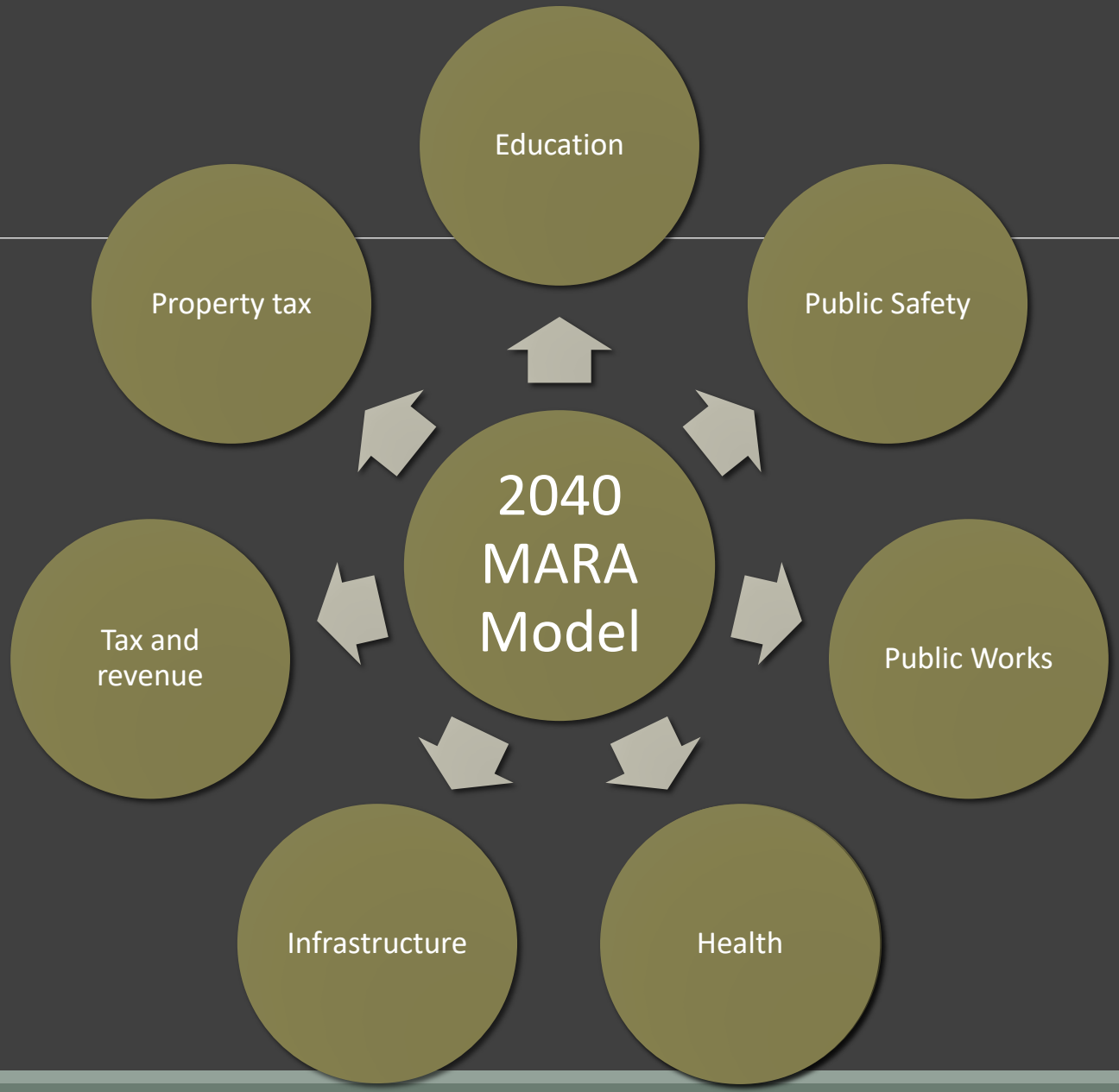
More about the model and how it will work

Forecast Modules

Modeling

Attach to Financial Data

Modules


Education
Property tax
Public Safety
2040 MARA Model
Tax and revenue
Public Works
Infrastructure
Health

HEALTH EXAMPLE

Medicaid

Example: Health

Medicaid Cost in a given Year

Number of Participants in that year

Cost Per Participant in that Year

Example: Health

Number of Participants in that year

- Medicaid Population Groups
  - Adult
  - Child
  - Disabled
  - Over 65
  - Adult Expansion
- Percentage of Population
  - % Adult
  - % Child
  - % Disabled
  - % Over 65
  - % Adult Expansion

Example: Health

Number of Participants in that year

- Percentage of Population
  - % Adult
  - % Child
  - % Disabled
  - % Over 65
  - % Adult Expansion
- Forecasted Population
  - Adult
  - Child
  - Disabled
  - Over 65
  - Adult Expansion

Example: Health

Number of Participants in that year

Example: Health

Medicaid Cost in a given Year

Number of Participants in that year

Cost Per Participant in that Year

Example: Health

Cost Per Participant in that Year

Medicaid Cost

- $ Per Adult
- $ Per Child
- $ Per Disabled
- $ Per Over 65
- $ Per Adult Expansion

CMS.gov
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Home › Research, Statistics, Data & Systems › National Health Expenditure Data › Projected

National Health Expenditure Data

- Historical
- Projected
- Age and Gender
- State (Residence)
- State (Provider)
- NIPA Reconciliation
- MEPS Reconciliation
- NHEA Related Studies
- NHE Fact Sheet

Projected

The Office of the Actuary in the Centers for Medicare & Medicaid Services annually produces projections of health care spending for categories within the National Health Expenditure Accounts, which track health spending by source of funds (for example, private health insurance, Medicare, Medicaid), by type of service (hospital, physician, prescription drugs, etc.), and by sponsor (businesses, households, governments). The latest projections begin after the latest historical year (2018) and go through 2028. These projections do not take into account the impacts of COVID-19 because of the timing of the report and the highly uncertain nature of the pandemic.

Downloads

- NHE Projections 2019-2028 - Tables (ZIP)
- NHE Historical and Projections 1960-2028 (ZIP)
- NHE Projections 2019-2028 - Forecast Summary (PDF)
- Accuracy analysis of the short-term (10-year) national health expenditure projections (PDF)
- Projections Methodology (PDF)
- NHE Projections 2018-2027 - Tables (ZIP)
- National Health Expenditure Projections 2019–28 (PDF)

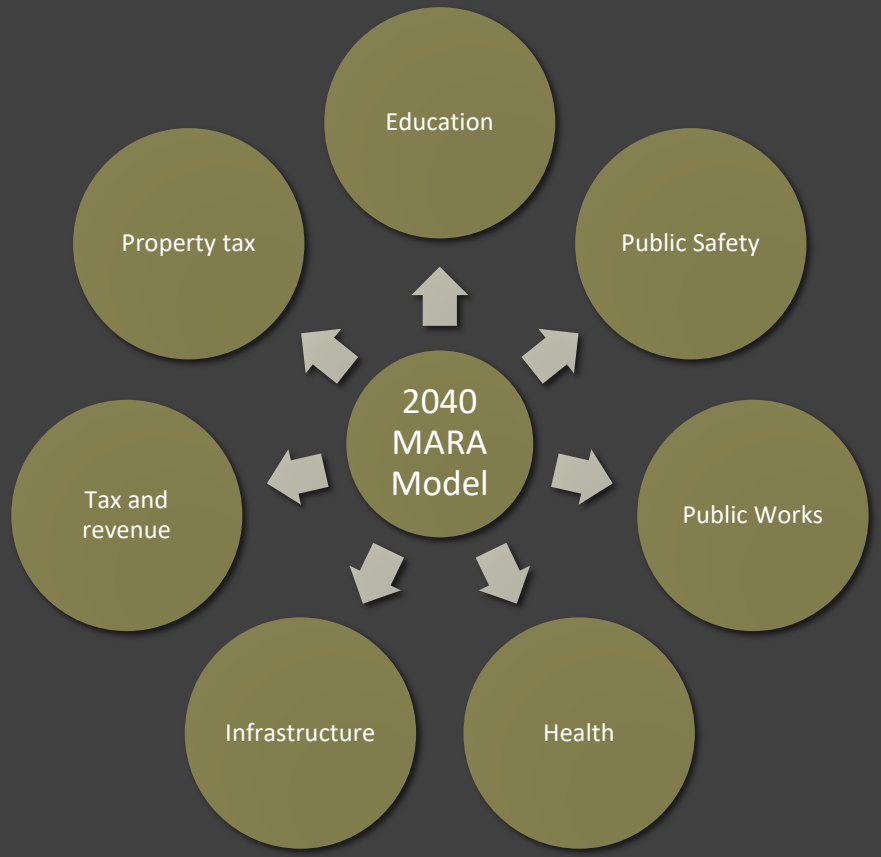
Example: Health

Medicaid Cost in a given Year

Number of Participants in that year

Cost Per Participant in that Year

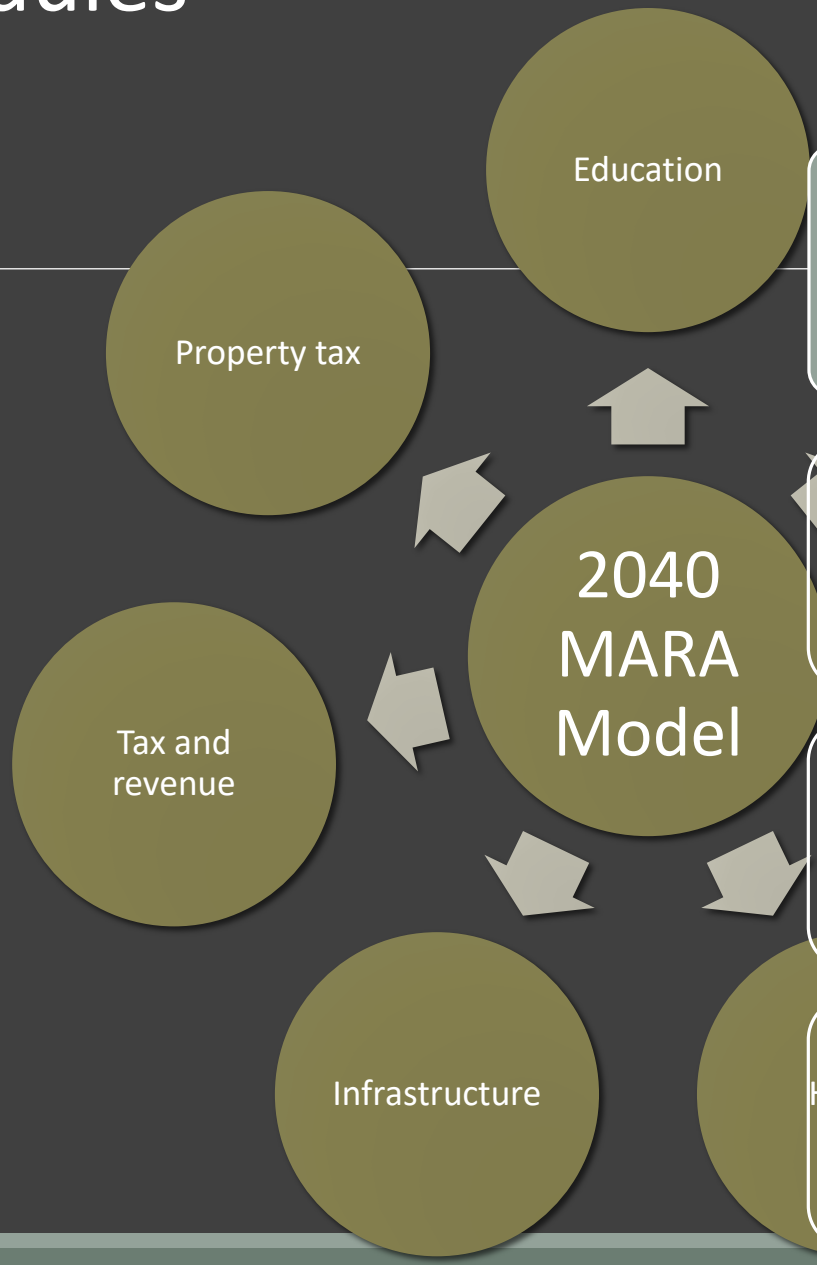
Input and Feedback



- Committees
- Agencies
- OBPP
- Stakeholders
- Contractors

Modules

Everything Else



State Data

Personal Services

Operating

Equipment & Assets

State Data

Personal Services

Operating

Equipment & Assets

Forecast Modules

Modeling

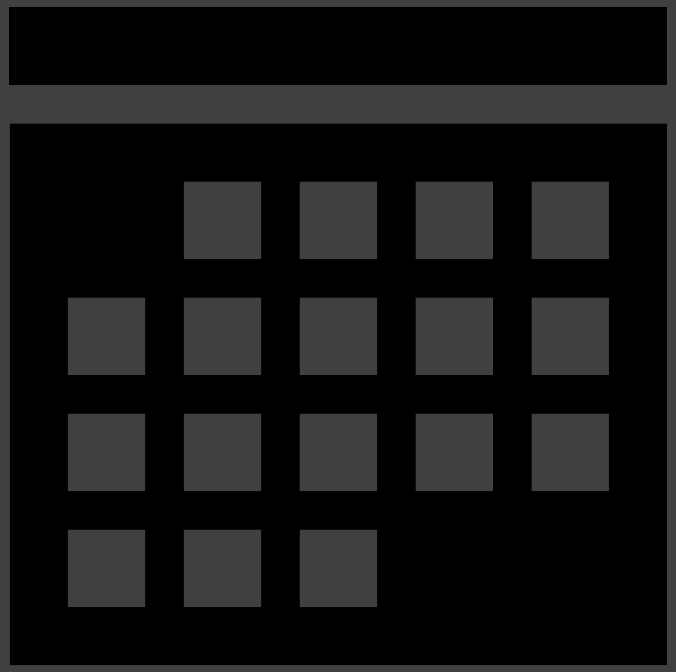
Attach to Financial Data

Business Intelligence Software

- Link Data Sets

Business Intelligence Software

- Link Data Sets
  - Time



Business Intelligence Software

- Link Data Sets
  - Time
  - Location

Business Intelligence Software

- Link Data Sets
  - Time
  - Location
- Regular Updates

Accounting data from SABHRS
- Nightly

IHS Markit economic forecasting data
- Monthly

Department of Revenue Property Tax Data
- Annually

REMI population forecasts by county
- Biannually

Business Intelligence Software

- Link Data Sets
  - Time
  - Location
- Regular Updates
- Visualize
  - Modules
  - Roll Up

Business Intelligence Software

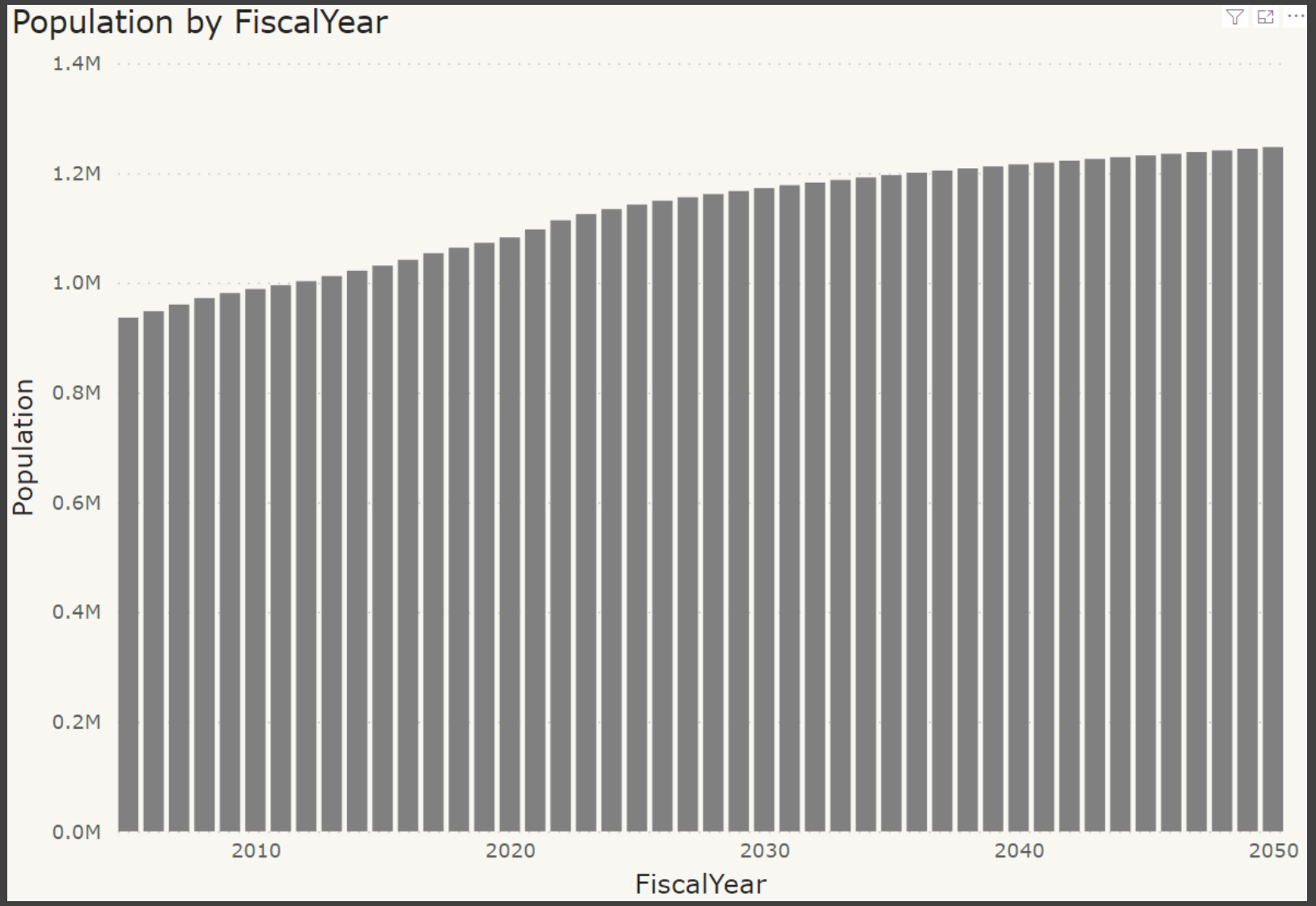
- Link Data Sets
  - Time
  - Location
- Regular Updates
- Visualize
  - Modules
  - Roll Up
- Define Variables
  - Modular
  - Global

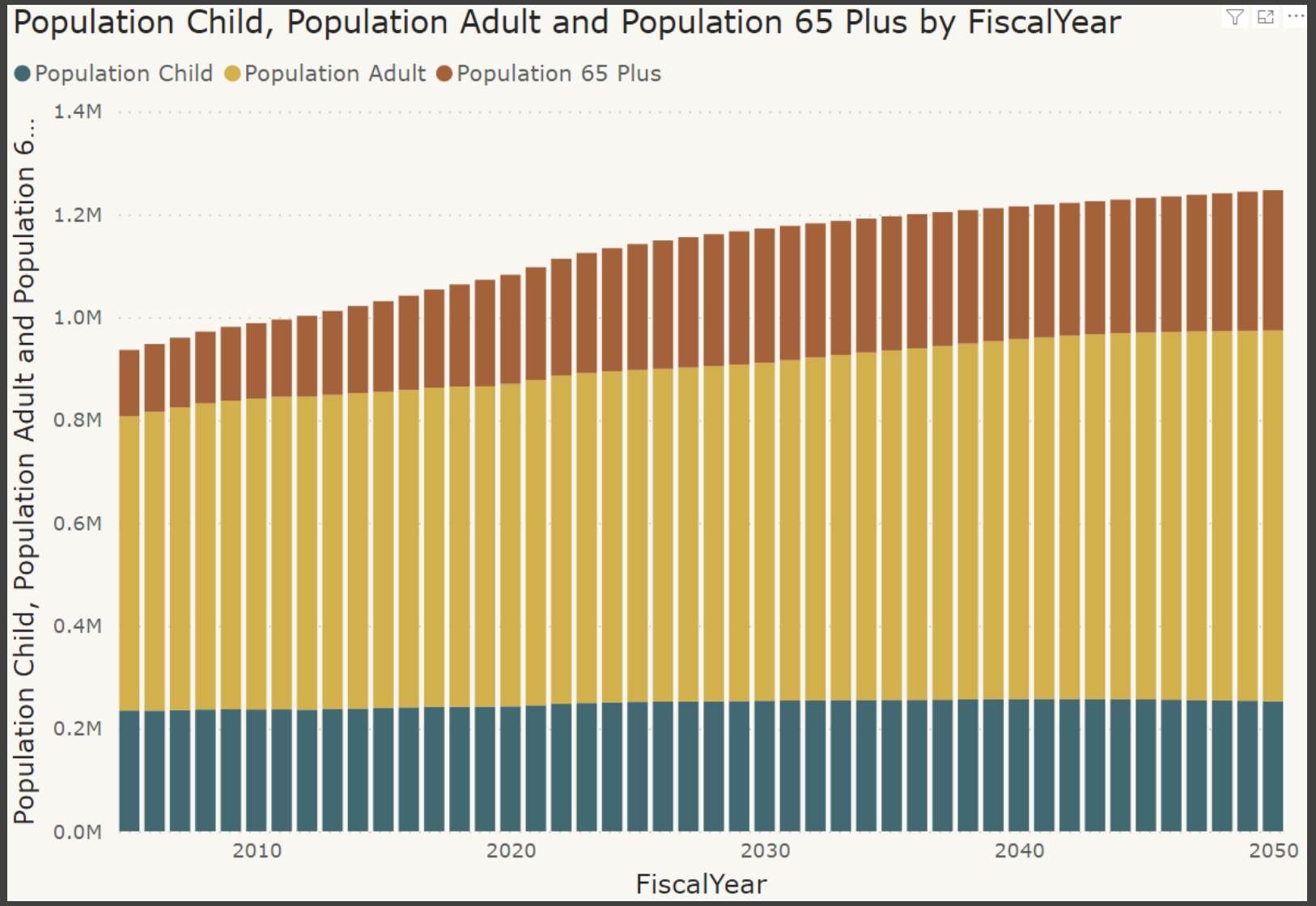
EXAMPLE

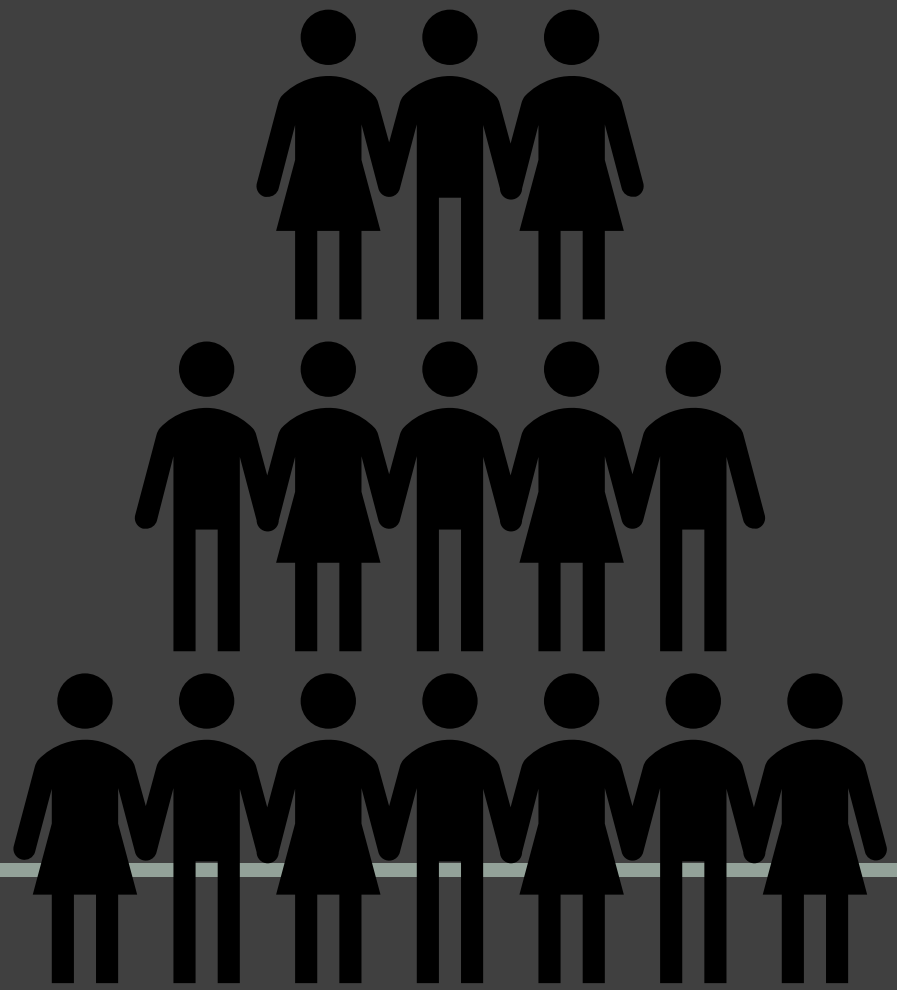
GLOBAL

VARIABLE

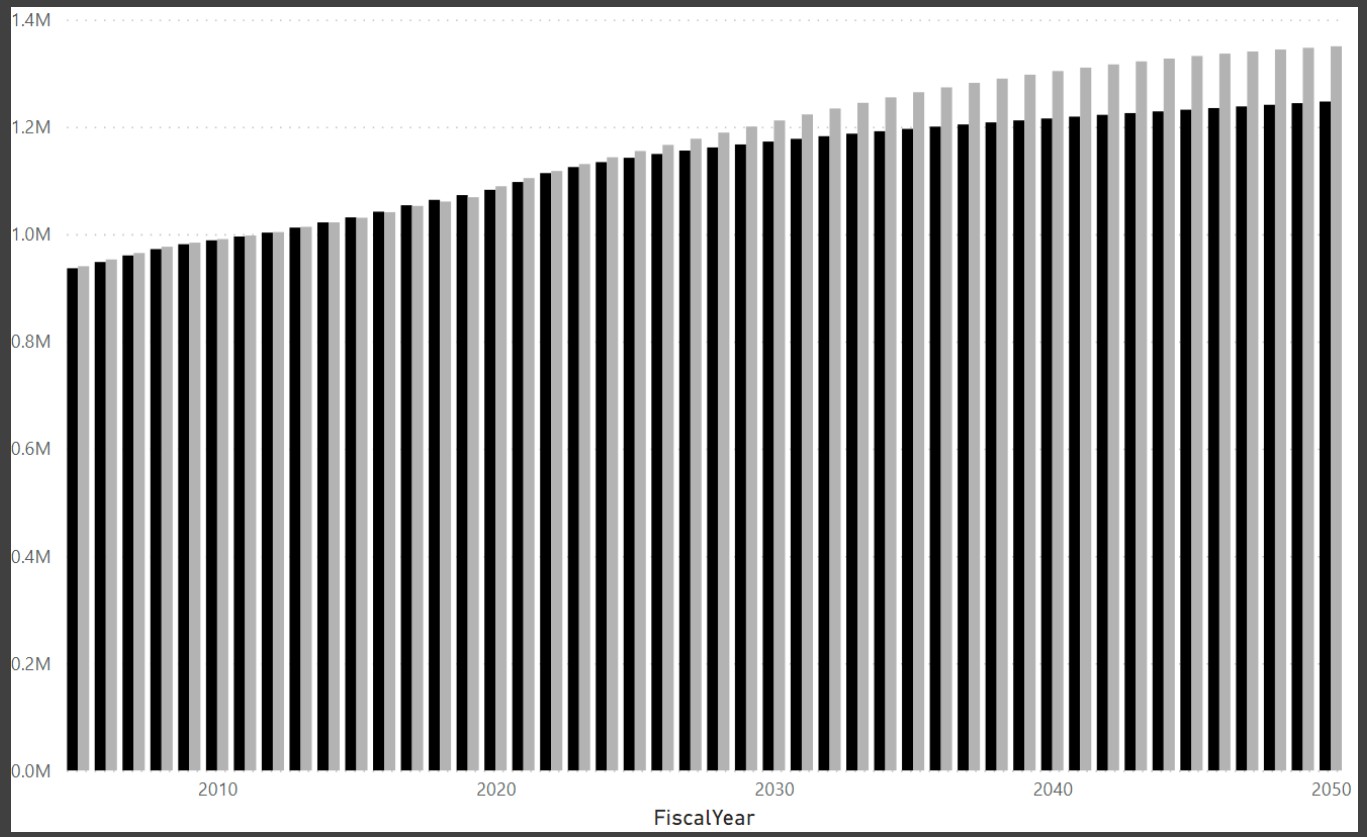
Population


Population by FiscalYear
1.4M
1.2M
1.0M
0.8M
0.6M
0.4M
0.2M
0.0M
Population
2010
2020
2030
2040
2050
FiscalYear


Population Child, Population Adult and Population 65 Plus by FiscalYear
Population Child
Population Adult
Population 65 Plus
Population Child, Population Adult and Population 6...
1.4M
1.2M
1.0M
0.8M
0.6M
0.4M
0.2M
0.0M
2010
2020
2030
2040
2050
FiscalYear



Demographic Age Change



REMI

IHS Markit®

Scenarios

Forecast Modules

Modeling

Attach to Financial Data

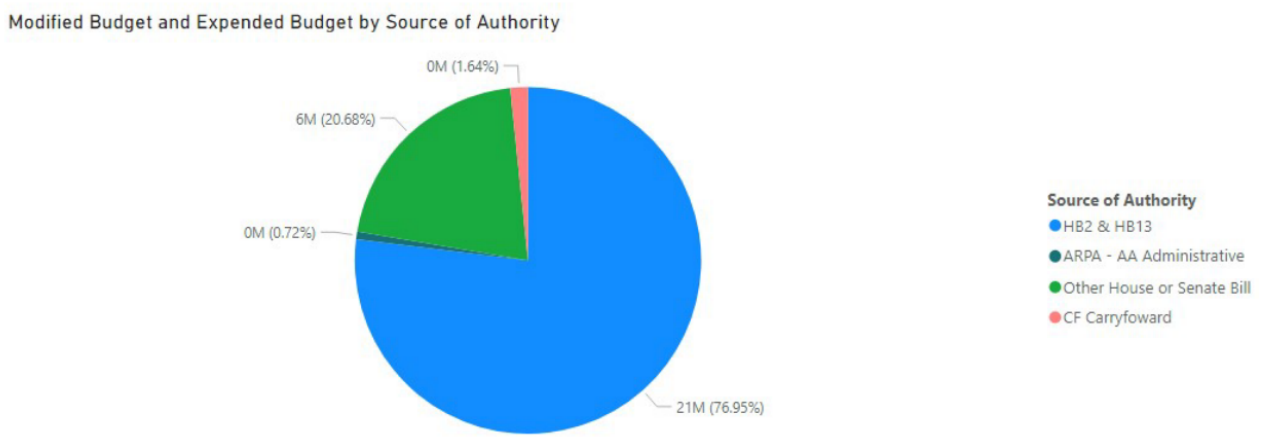
Financial Data Sets

1. State Accounting Data (SABHRS)
2. School Accounting Data (Trustee Reports)
3. Local Government Accounting Data (Financial Reports)

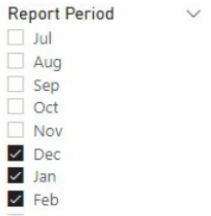
LEGISLATIVE BRANCH

TOTAL APPROPRIATION AUTHORITY

The total appropriation authority for the agency is shown in the pie chart below. HB 2 and HB 13 provide 77.0% of the total authority for this agency. All types of appropriation authority for this agency are described below, including total budget and the percent expended by source of authority.

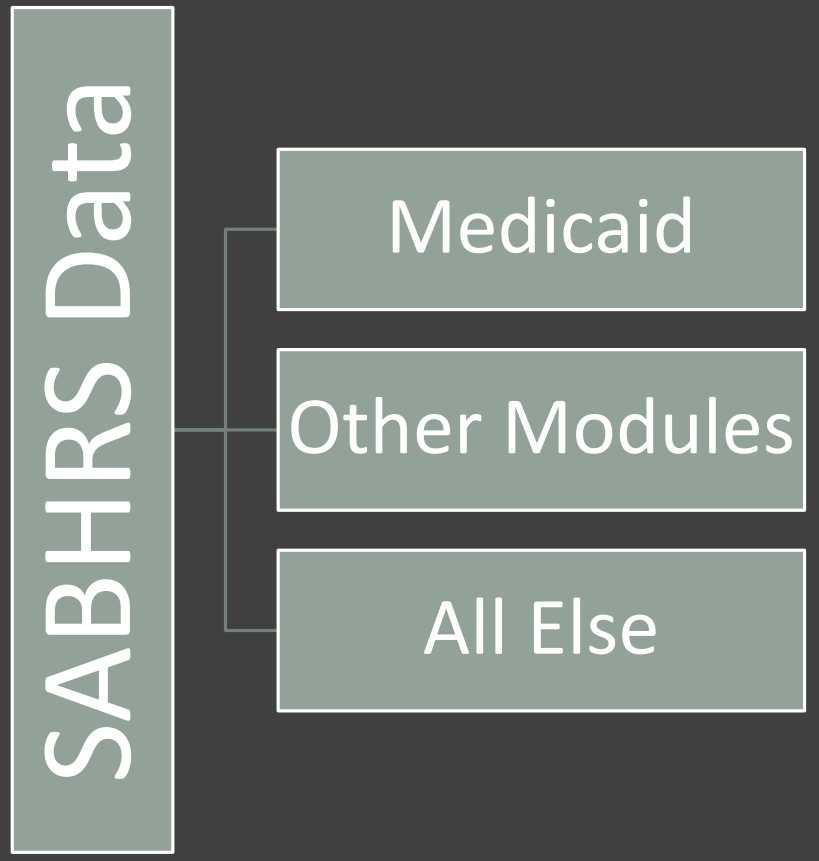


Source of Authority	Modified Budget	Expended Budget	Percent Expended
HB2 & HB13	21,307,495	11,482,066	53.9%
CF Carryfoward	454,749	14,643	3.2%
Other House or Senate Bill	5,726,173	1,536,606	26.8%
ARPA	200,000	55,989	28.0%
Total	**27,688,417**	**13,089,304**	**47.3%**

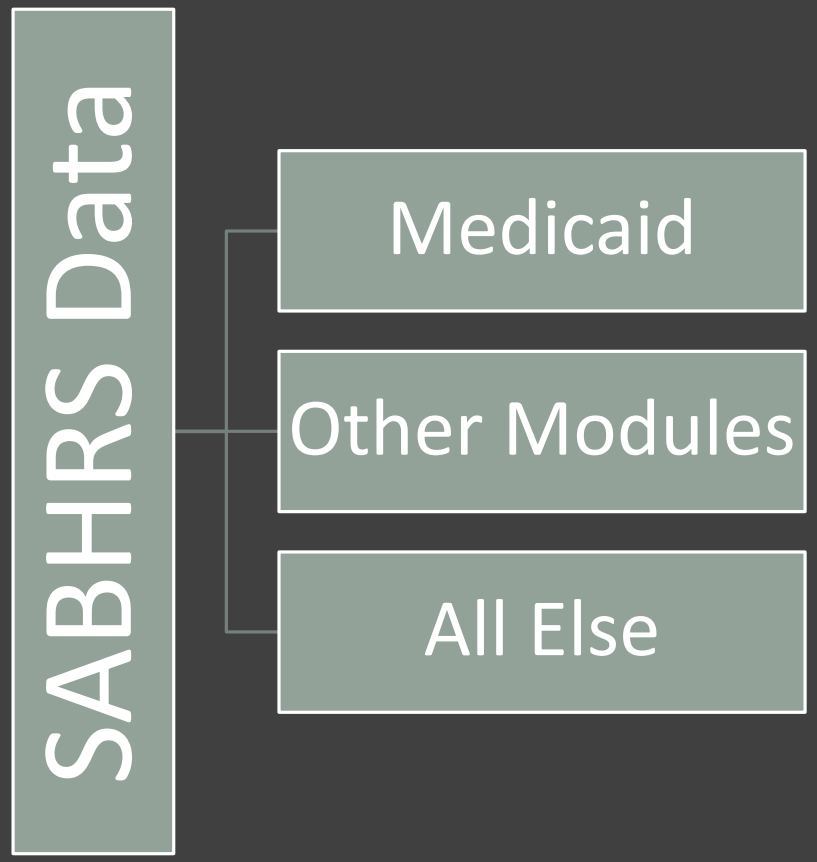


STATE ACCOUNTING DATA

SABHRS Breakout Example



SABHRS Breakout Example

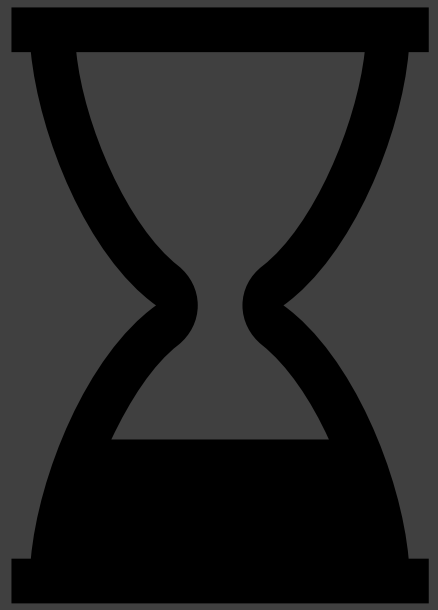


History

Pulling it Together

Forecast Modules

Modeling



History

Financial Forecast

Reference Case

Scenarios

Discussion

In The End

Process and Next Steps

AMY CARLSON

Anticipated MARA meetings

Late April

Property tax model look back for long- term understanding property tax system

Health industry wrap up

Past expenditure and revenue review

June

First draft of model

Preliminary findings

Communication tools

Next steps

Committee discussion

Early September

Draft of model

Draft findings

Insights and observations from outside groups

Next steps

Committee discussion

Early October

Final Model 2022
- Communication tools for the legislature
- Recommended future study

Interim Committee Legislation

Committee discussion

Next steps

Product and Process – outside MARA

End

Census Crosswalk – State, Local, and Schools

Not Census data, but Census and other types of groupings of revenue and expenditure

Decades of experience in understanding how state and local government finance should be considered together

Eliminates duplicates so that transfers between government entities do not get captured multiple times – major time and credibility saver

Census Crosswalk - example