THE NEXT PHASE OF DATA SHARING: FINANCIAL BENCHMARKING & REPORTING

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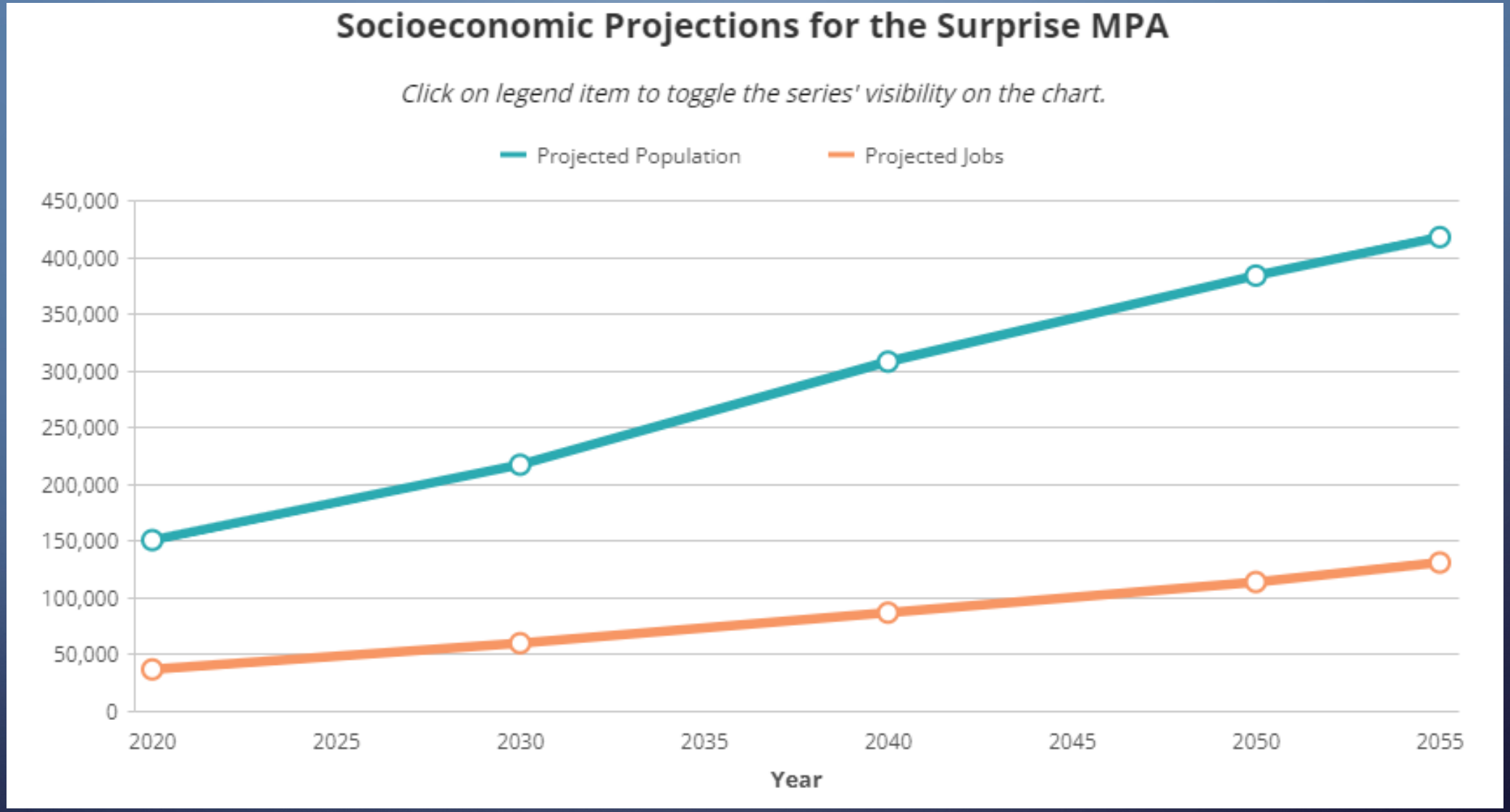
IDENTIFYING THE NEED

- City of Surprise had experienced exponential growth and the Finance Department was tasked with researching new revenue sources. The need for comparative financial data was required in order to support decision-making. The following key questions arose:
  - What are other cities doing?
  - How do we compare?
  - Is this a true ‘apples to apples’ comparison?
  - What unique situations should be taken into consideration?



Source: MAG Socioeconomic Projections 2019
https://azmag.gov/Programs/Maps-and-Data/Population-Housing/socioeconomic-Projections

INITIAL SOLUTION

- Identified a consistent data source
  - ACFR Statement of Revenues, Expenditures, and Changes in Fund Balances- Governmental Funds
- Identified comparable cities
  - Size, growth rates, makeup
- Compiled data in Excel
  - Data categorization, formulas, ad-hoc tables, charts

City of Surprise

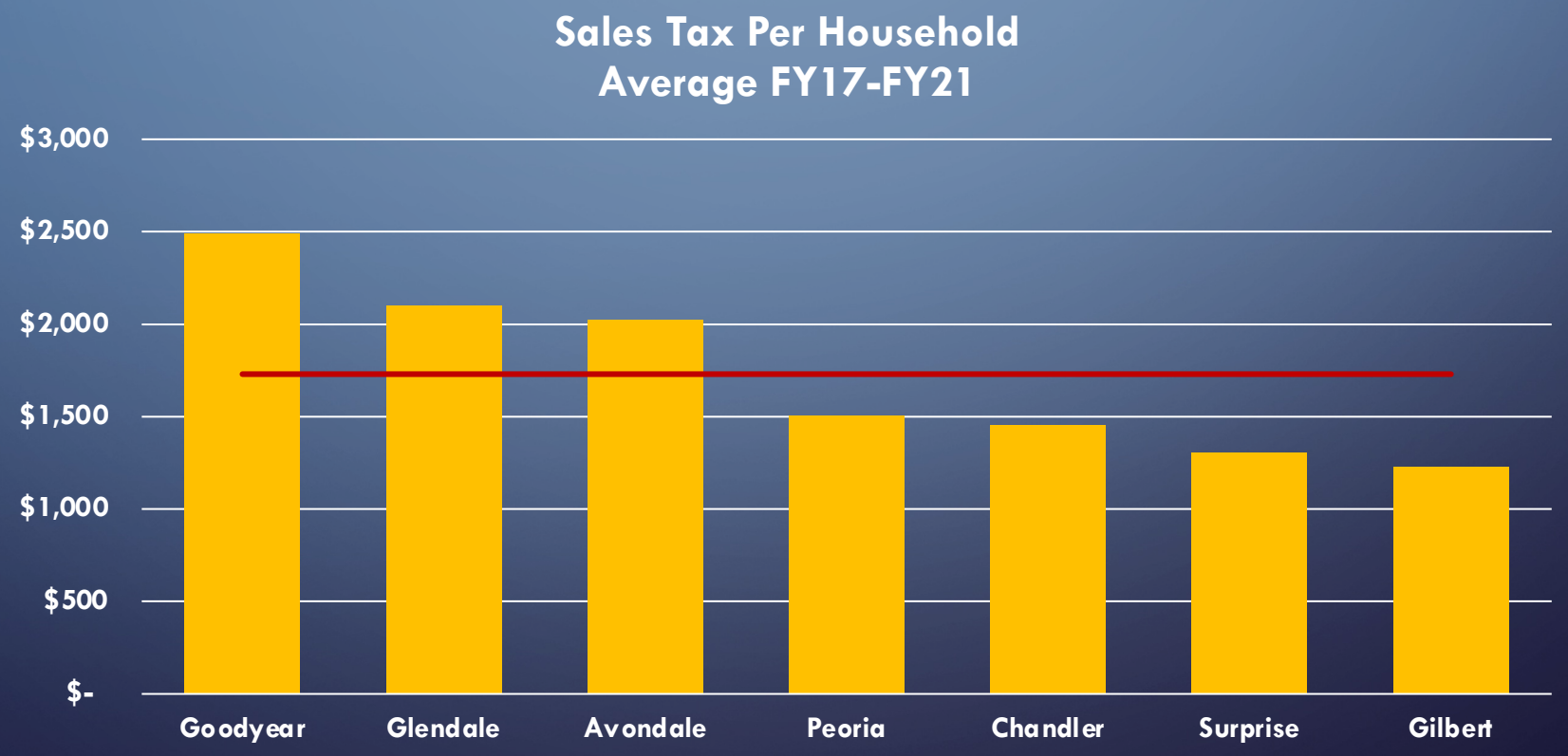
Statement of Revenues, Expenditures, and Changes in Fund Balances

Governmental Funds

Revenues

Chart Categories		Total Governmental Funds		2015	2019	2020	2021
Revenues	Taxes		Taxes	52,178,522	77,739,476	87,768,923	108,394,703
Revenues	Licenses/Permits		Licenses & Permits	4,975,398	5,991,243	5,944,021	6,168,794
Revenues	Intergov		Intergovernmental	37,947,604	45,774,226	48,421,077	55,052,905
Revenues	Charges for Services		Charges for Services	9,241,853	19,189,262	18,680,847	24,318,166
Revenues	Grants		Grants	1,659,609	1,581,233	11,165,982	11,476,297
Revenues	Fines		Fines	1,768,671	1,788,745	1,340,263	1,441,835
Revenues	Other		Rents	549,400	724,073	620,862	621,198
Revenues	DIF		Development Fees	2,224,125	6,482,159	5,321,641	6,892,441
Revenues	Special assessments		Special assessments				
Revenues	Other		Interest	400,260	3,299,929	3,169,797	207,335
Revenues	Other		Donations	245,671	125,872	103,910	52,791
Revenues	Indirect charges		Indirect charges	4,682,772	5,481,600	5,591,100	6,348,174
Revenues	Other		Other	1,155,192	726,564	670,836	855,497
			Total	117,029,077	168,904,382	188,799,259	221,830,136

Sales Tax per HH	FY2017	FY2018	FY2019	FY2020	FY2021	5 Year Average	Average2
Goodyear	$ 1,939	$ 2,071	$ 2,295	$ 2,986	$ 3,159	$ 2,490	$ 1,730
Glendale	$ 1,905	$ 1,967	$ 2,076	$ 2,169	$ 2,392	$ 2,102	$ 1,730
Avondale	$ 1,862	$ 1,946	$ 1,976	$ 1,945	$ 2,390	$ 2,024	$ 1,730
Peoria	$ 1,413	$ 1,460	$ 1,476	$ 1,544	$ 1,624	$ 1,503	$ 1,730
Chandler	$ 1,343	$ 1,385	$ 1,493	$ 1,476	$ 1,574	$ 1,454	$ 1,730
Surprise	$ 1,052	$ 1,142	$ 1,266	$ 1,421	$ 1,653	$ 1,307	$ 1,730
Gilbert	$ 1,079	$ 1,133	$ 1,217	$ 1,294	$ 1,412	$ 1,227	$ 1,730



CHALLENGES

- Manual data entry with risk of error
- Duplicative tables and charts
- Multiple users in one file
- Version control

Can organizations directly import data?

Can we create an intuitive data model?

Can access be granted to multiple users?

Who can take ownership of this?

THE NEXT PHASE

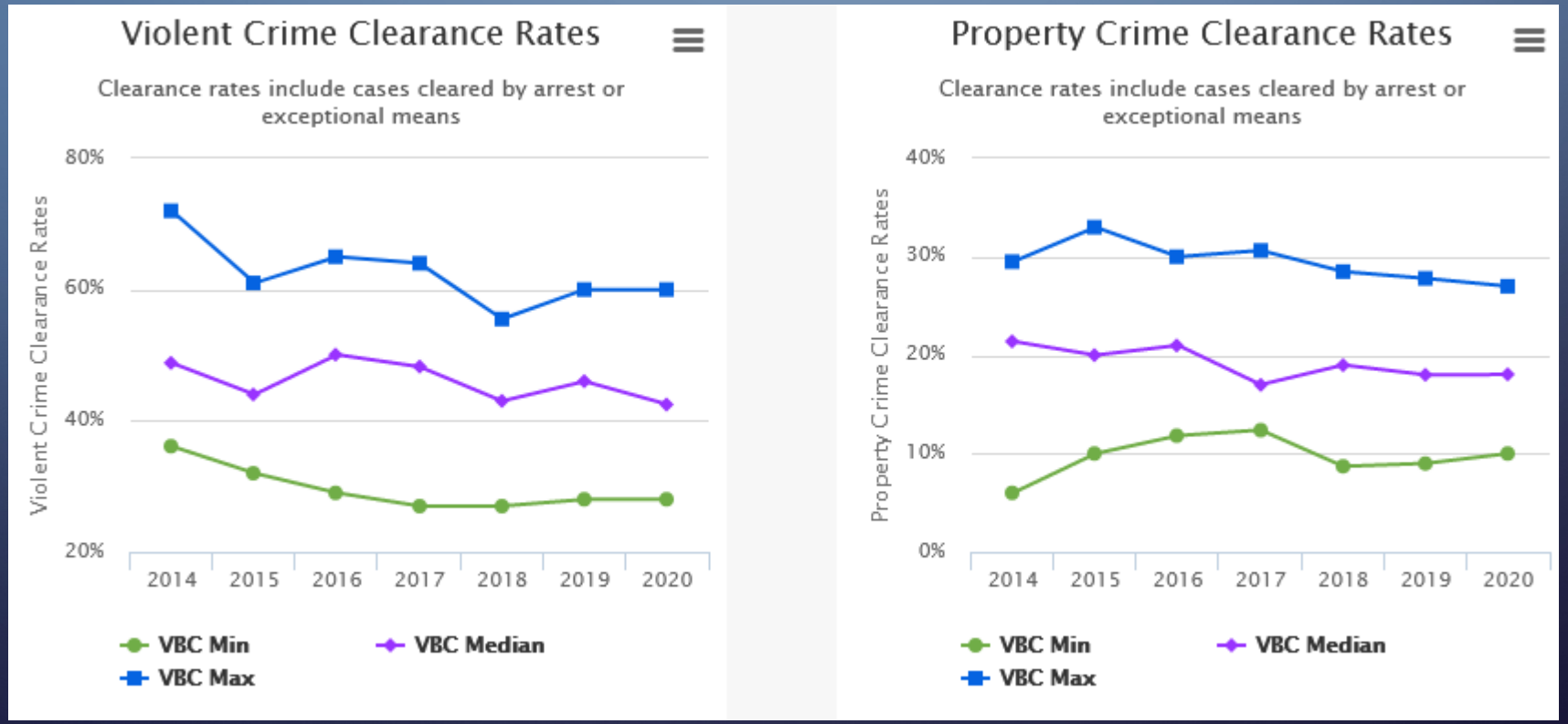
- Arizona State University Capstone Project
  - MPA and MPP programs require students to demonstrate competency by applying core knowledge, skills, and abilities to real-life challenges faced by governmental agencies
  - City of Surprise “pitched” the idea of creating an intuitive data resource that organizations could use to access audited financial data for comparisons, performance management, and decision-making

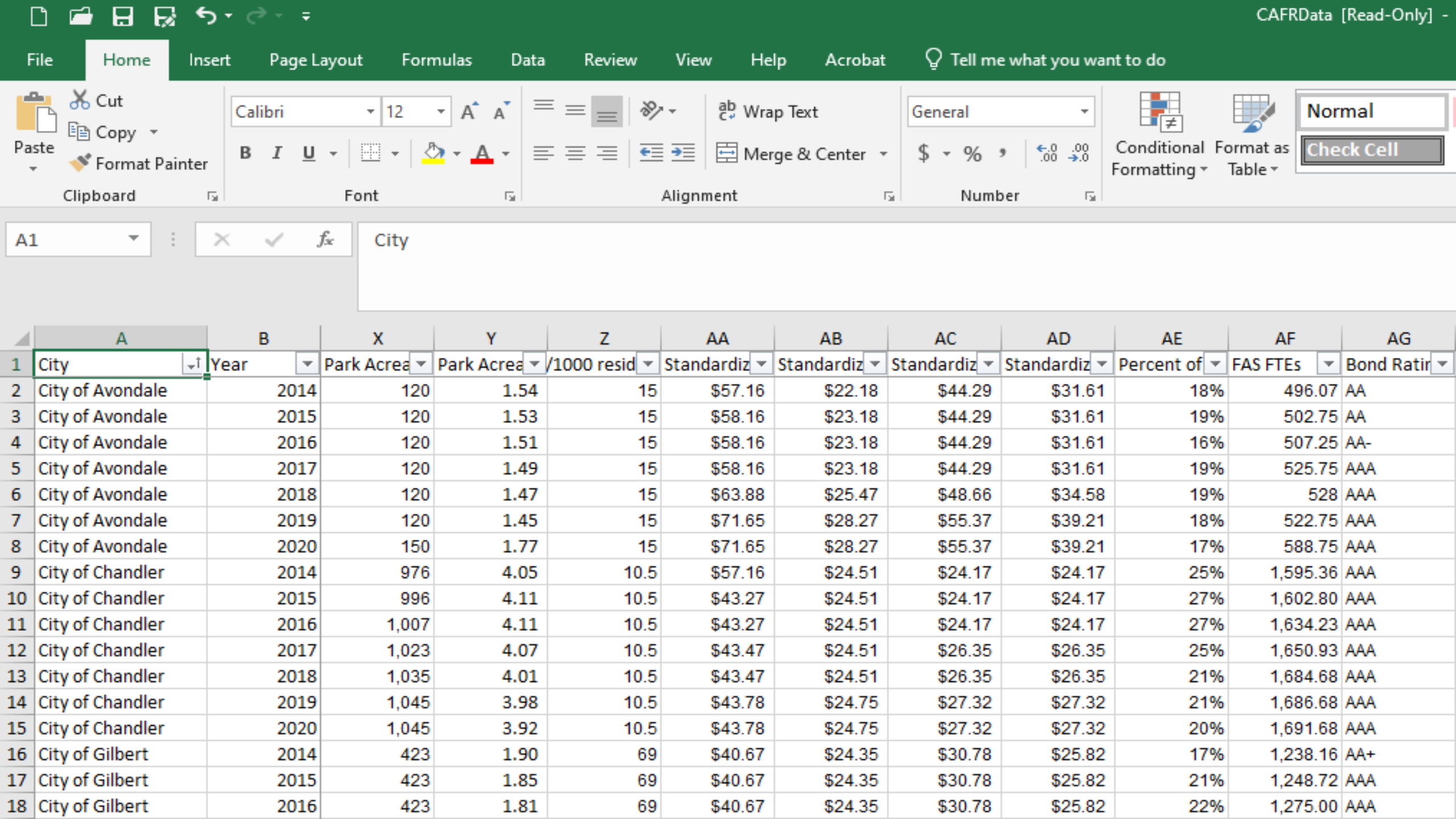
THE MPA/MPP CAPSTONE

- Process
- Goals
- Example Products
  - Opioid Settlement Spending (Mesa)
  - Hiring Workers for Solid Waste Collection (Scottsdale)
  - Alternative Police Services to non-Emergency 911 Calls (Phoenix)
  - Financial Benchmark Reporting Tool (Surprise)

CONTEXTUAL BACKGROUND

- My Interests
- ASU and the Valley Benchmark Communities project





	A	B	X	Y	Z	AA	AB	AC	AD	AE	AF	AG
1	City	Year	Park Acrea	Park Acrea	/1000 resid	Standardiz	Standardiz	Standardiz	Standardiz	Percent of	FAS FTEs	Bond Ratir
2	City of Avondale	2014	120	1.54	15	$57.16	$22.18	$44.29	$31.61	18%	496.07	AA
3	City of Avondale	2015	120	1.53	15	$58.16	$23.18	$44.29	$31.61	19%	502.75	AA
4	City of Avondale	2016	120	1.51	15	$58.16	$23.18	$44.29	$31.61	16%	507.25	AA-
5	City of Avondale	2017	120	1.49	15	$58.16	$23.18	$44.29	$31.61	19%	525.75	AAA
6	City of Avondale	2018	120	1.47	15	$63.88	$25.47	$48.66	$34.58	19%	528	AAA
7	City of Avondale	2019	120	1.45	15	$71.65	$28.27	$55.37	$39.21	18%	522.75	AAA
8	City of Avondale	2020	150	1.77	15	$71.65	$28.27	$55.37	$39.21	17%	588.75	AAA
9	City of Chandler	2014	976	4.05	10.5	$57.16	$24.51	$24.17	$24.17	25%	1,595.36	AAA
10	City of Chandler	2015	996	4.11	10.5	$43.27	$24.51	$24.17	$24.17	27%	1,602.80	AAA
11	City of Chandler	2016	1,007	4.11	10.5	$43.27	$24.51	$24.17	$24.17	27%	1,634.23	AAA
12	City of Chandler	2017	1,023	4.07	10.5	$43.47	$24.51	$26.35	$26.35	25%	1,650.93	AAA
13	City of Chandler	2018	1,035	4.01	10.5	$43.47	$24.51	$26.35	$26.35	21%	1,684.68	AAA
14	City of Chandler	2019	1,045	3.98	10.5	$43.78	$24.75	$27.32	$27.32	21%	1,686.68	AAA
15	City of Chandler	2020	1,045	3.92	10.5	$43.78	$24.75	$27.32	$27.32	20%	1,691.68	AAA
16	City of Gilbert	2014	423	1.90	69	$40.67	$24.35	$30.78	$25.82	17%	1,238.16	AA+
17	City of Gilbert	2015	423	1.85	69	$40.67	$24.35	$30.78	$25.82	21%	1,248.72	AAA
18	City of Gilbert	2016	423	1.81	69	$40.67	$24.35	$30.78	$25.82	22%	1,275.00	AAA

City of Surprise

Financial Benchmark Reporting Tool User Guide

Arizona State University

What is it?

The Financial Benchmark Reporting tool is an interactive reporting tool designed to examine the effectiveness and efficiency of spending across a set of benchmark cities. The goal of the tool was to provide both a compelling, initial collection of visualizations and an environment to add new visualizations and more data sources as the tool grows. The two main components are:

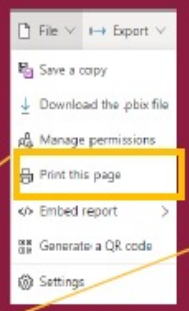
The Data - Data from the City of Surprise Spreadsheet, the Valley Benchmark Cities project and other sources were restructured and saved into standardized Excel files.

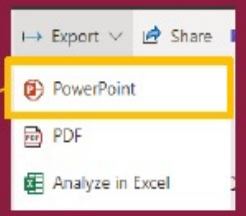
The Tool – The field definitions, screens and reports are built in a reporting platform called Power BI, that imports data from the files and makes it available for visualization.

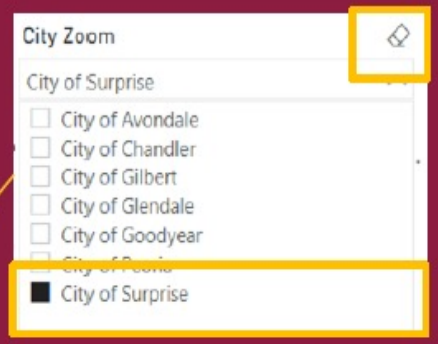
Using the Tool

Navigate to other Screens using the Pages section

Print or Export screens or the full tool

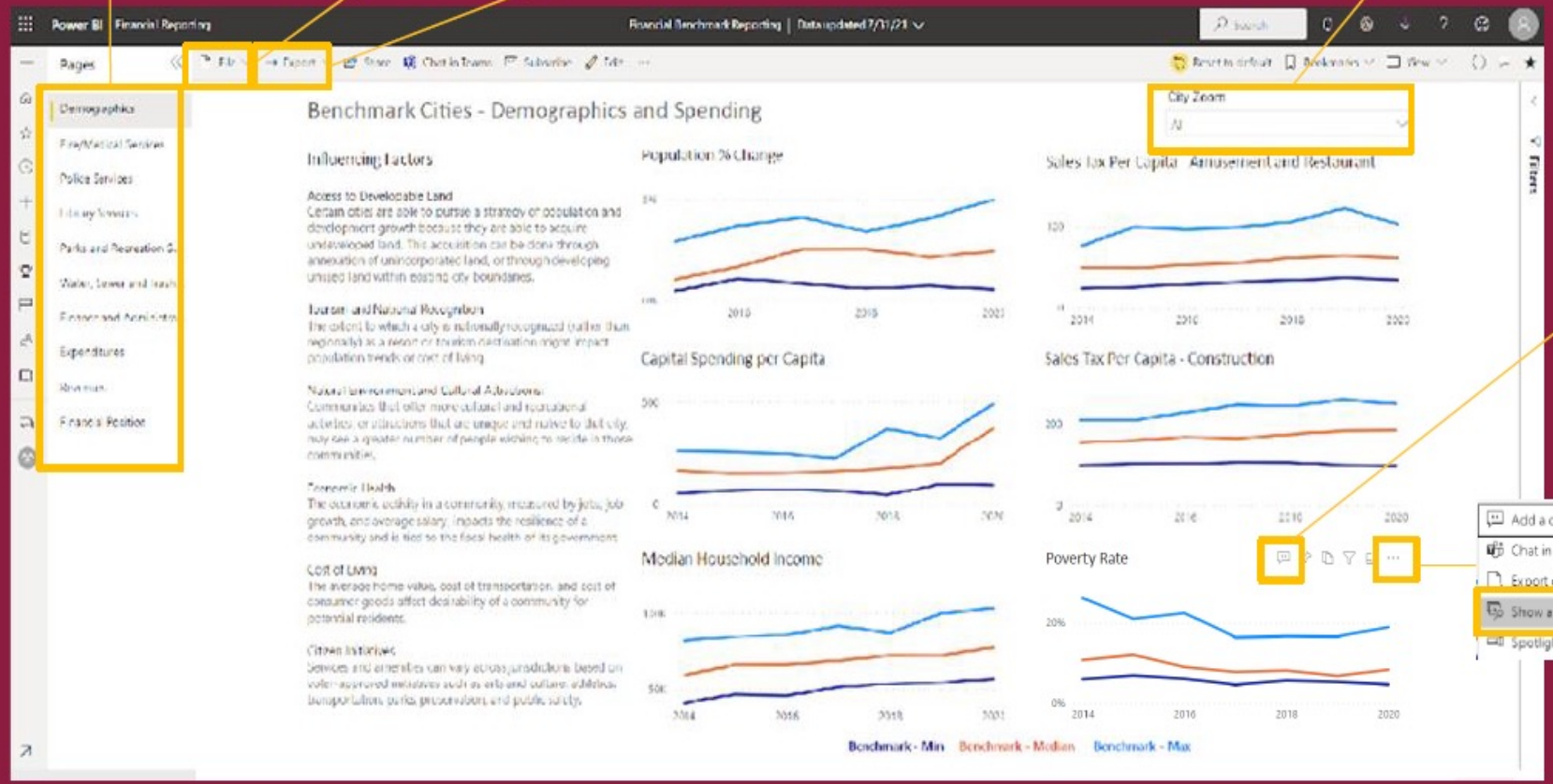


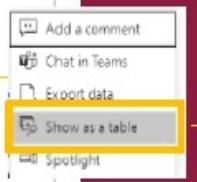


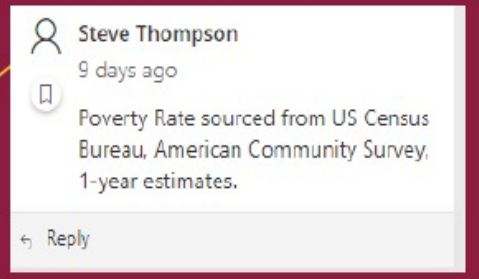


Erase the selection

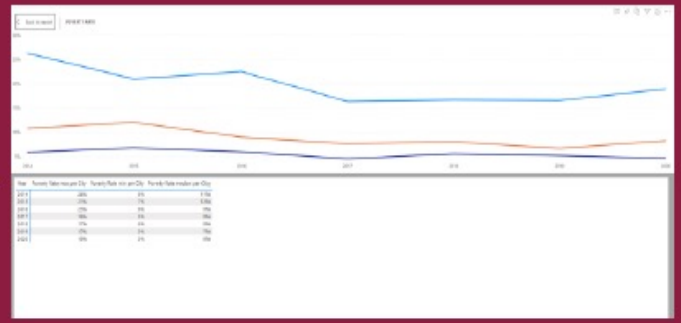
Select a city to replace the benchmark view







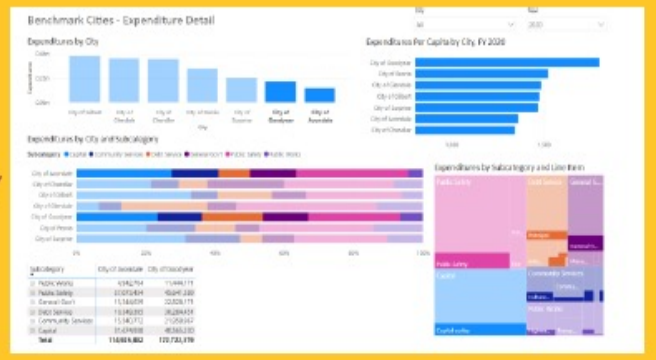
Get the source of the data



Zoom in on a single visual

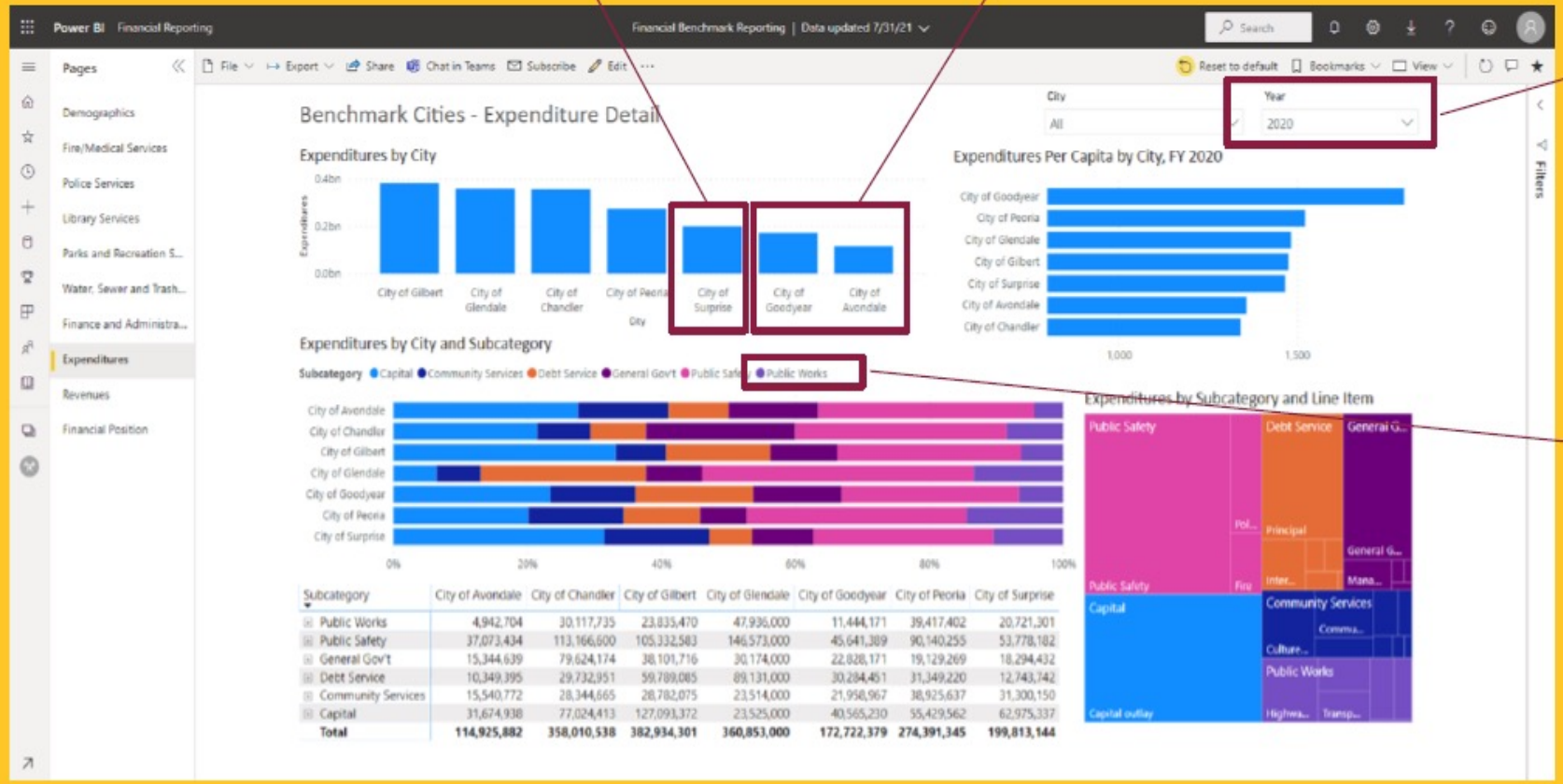
Using the Tool

Filter the interactive view on one city

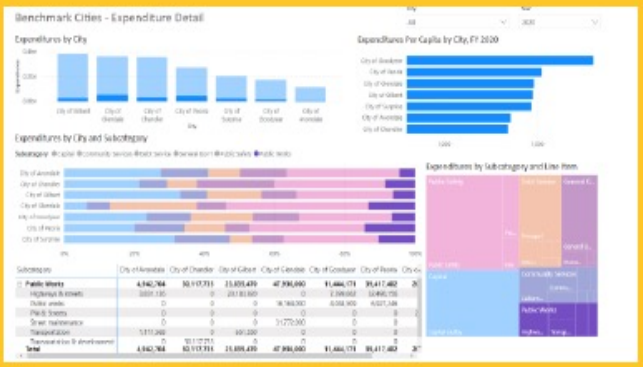


Filter the interactive view on comparison cities

Change the Year of the data.



Subcategory	City of Avondale	City of Chandler	City of Gilbert	City of Glendale	City of Goodyear	City of Peoria	City of Surprise
Public Works	4,942,704	30,117,735	23,835,470	47,936,000	11,444,171	39,417,402	20,721,301
Public Safety	37,073,434	113,166,600	105,332,583	146,573,000	45,641,389	90,140,255	53,778,182
General Gov't	15,344,639	79,624,174	38,101,716	30,174,000	22,828,171	19,129,269	18,294,432
Debt Service	10,349,395	29,732,951	59,789,085	89,131,000	30,284,451	31,349,220	12,743,742
Community Services	15,540,772	28,344,665	28,782,075	23,514,000	21,958,967	38,925,637	31,300,150
Capital	31,674,938	77,024,413	127,093,372	23,525,000	40,565,230	55,429,562	62,975,337
Total	**114,925,882**	**358,010,538**	**382,934,301**	**360,853,000**	**172,722,379**	**274,391,345**	**199,813,144**



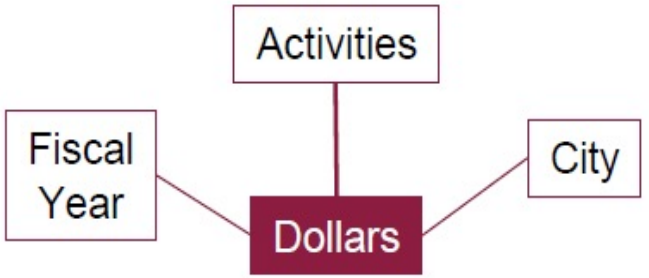
Filter the interactive view on one category of expenditure

Structuring the Data

The data in the Tool was structured to fit within one of three formats

Revenue and Expenditure Detail
This data is standardized to be stored hierarchically in the line-item format of the ACFR Revenue and Expenditure table.

City / Year Summary
This data is standardized many metrics by City and Year. The standardization makes it easy to combine different types of data in the same visual



Asset and Liability Detail
This data is standardized to show asset and liability data organized by activity (i.e., Government or Business)

Integrating the Data

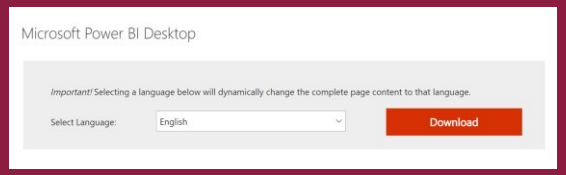
1. Data from the original City of Surprise Spreadsheet were restructured to fit into the new structures. Line-item data were restructured to incorporate the lookup reference into the existing data from the ACFRs. Data were also aggregated by category and added to the City/Year data. All Cities were updated to FY 2020 (FY2021 is pending).
2. Data from the Valley Benchmark Communities GovBenchmark Trend Report were extracted and added to the City/Year level data. Additional fields such as city area were added to augment existing benchmark data
3. Asset and Liability data was gathered from the City ACFRs for 4 of the cities for 2020 and broken out by business and government activities. Information was simplified into and summed to allow for cross city comparison.
4. The three data sets were brought into the Power BI tool using import capabilities and the relationships were modeled.

Building the Tool Environment

- Install Power BI Desktop
- Copy the files to your environment
- Open the Tool in Power BI Desktop
- Update the Data Connections
- Publish the Tool

INSTALL POWER BI DESKTOP

Download

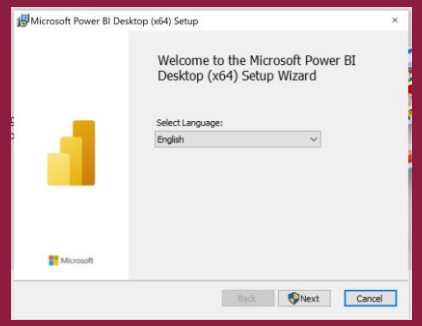


Download Power BI Desktop from the Microsoft Download Center at

https://www.microsoft.com/en-us/download/details.aspx?id=58494

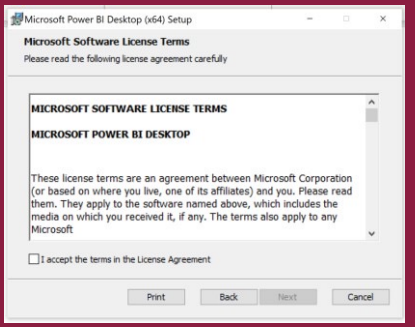
You will need to select whether you want the 32-bit or 64-bit version (_x64). Run the installer after it finishes downloading.

Install

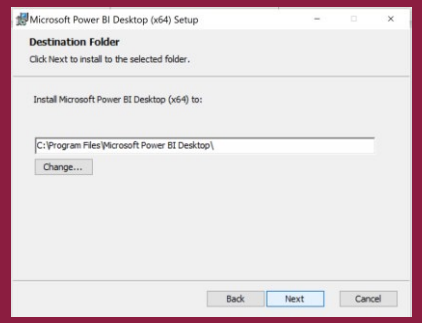


Select Language

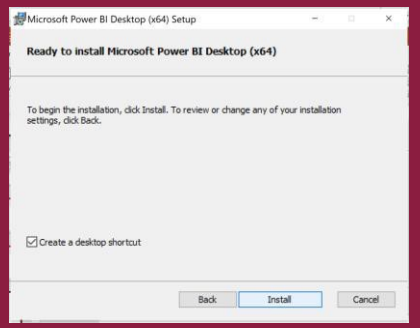
Click ‘Next’ to proceed



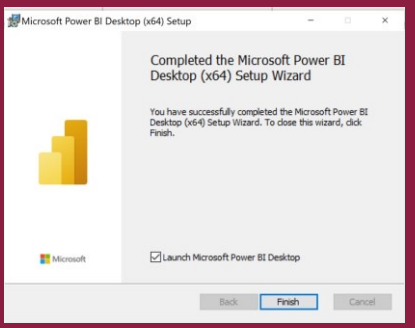
Accept the agreement and click ‘Next to proceed



Select directory for install and click ‘Next’



Click ‘Install’



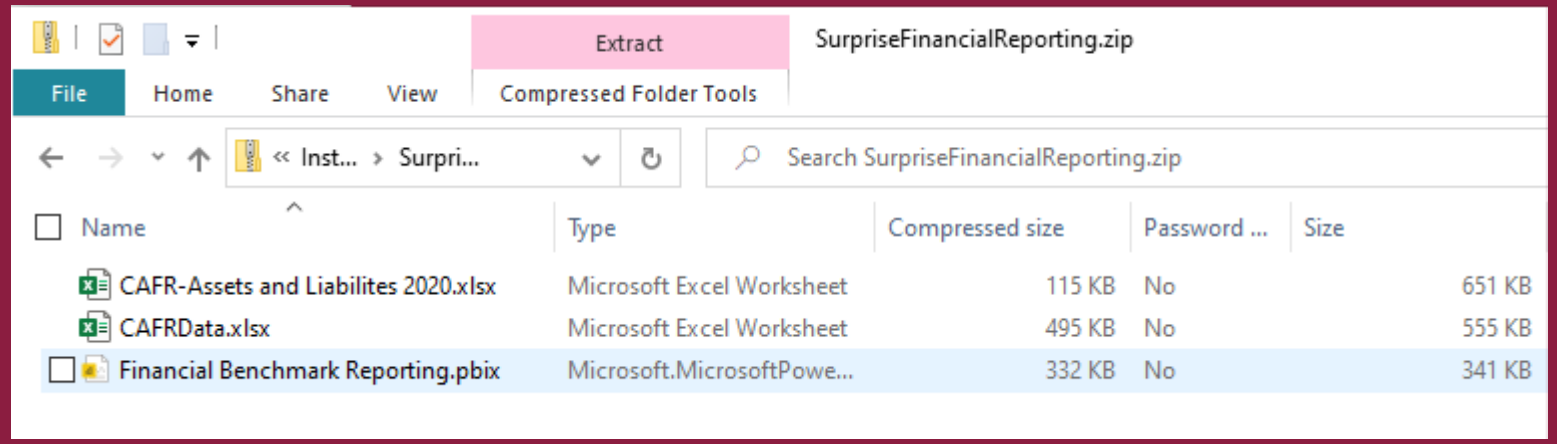
Click ‘Finish’

COPY THE FILES TO YOUR ENVIRONMENT

Copy and Unzip

You will receive a compressed zip file called SurpriseFinancialReporting.zip. Copy it to a local or shared directory and unzip the contents.

Save Files

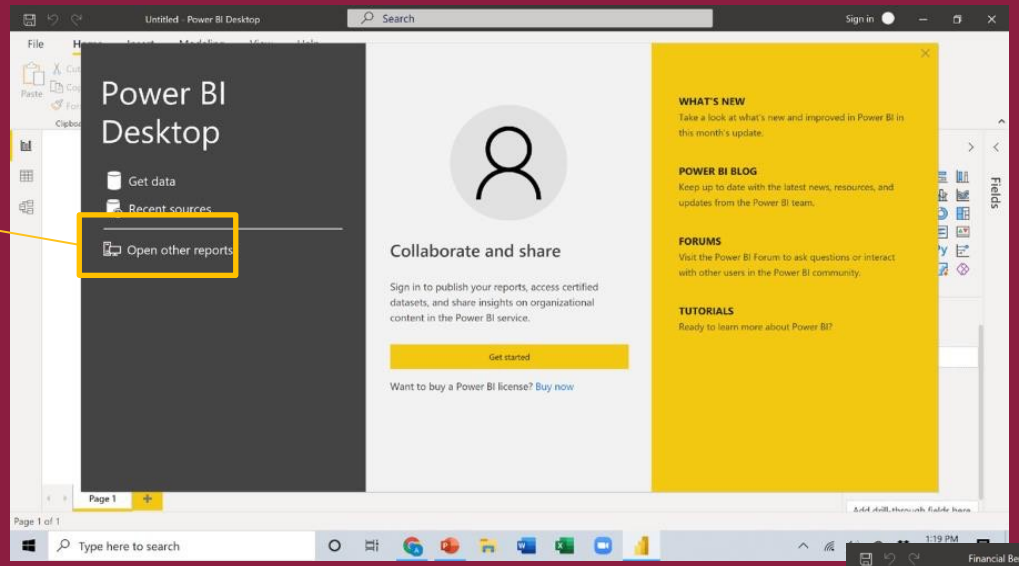


- CAFR-Assets and Liabilities 2020.xlsx – Consolidated Asset/Liability Data
- CAFRData.xlsx – Line Item detail and City/Year summary data
- Financial Benchmark Reporting.pbix – Power BI file that contains the metadata for the field definitions, screens and visualizations

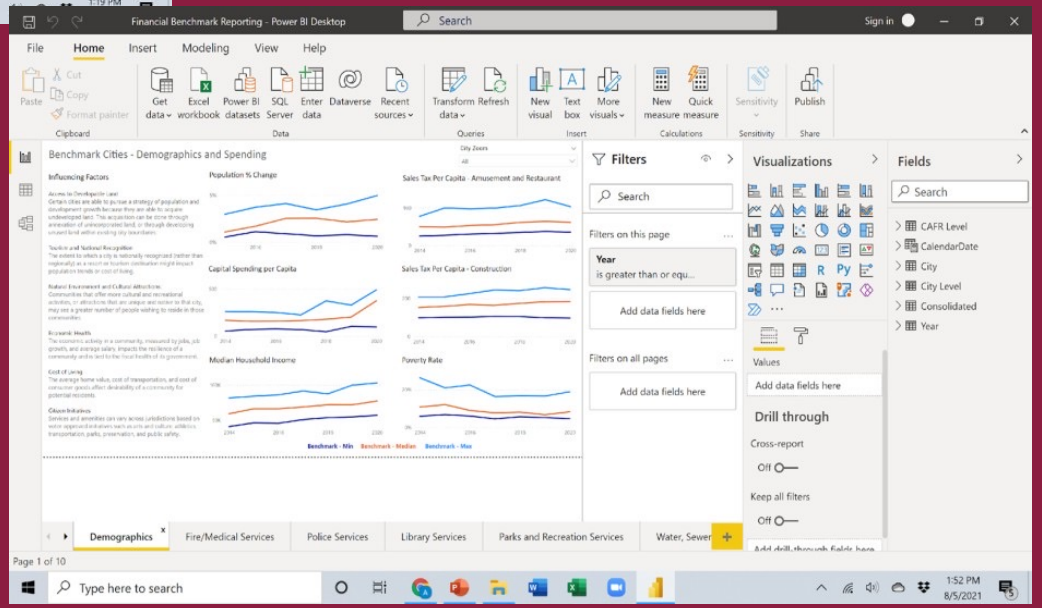
OPEN THE TOOL IN POWER BI DESKTOP

You should get this screen the first time you open Power BI Desktop. Click on ‘Open other reports’.

Navigate the dialog to the folder where the files are located and select ‘Financial Benchmark Reporting.pbix’

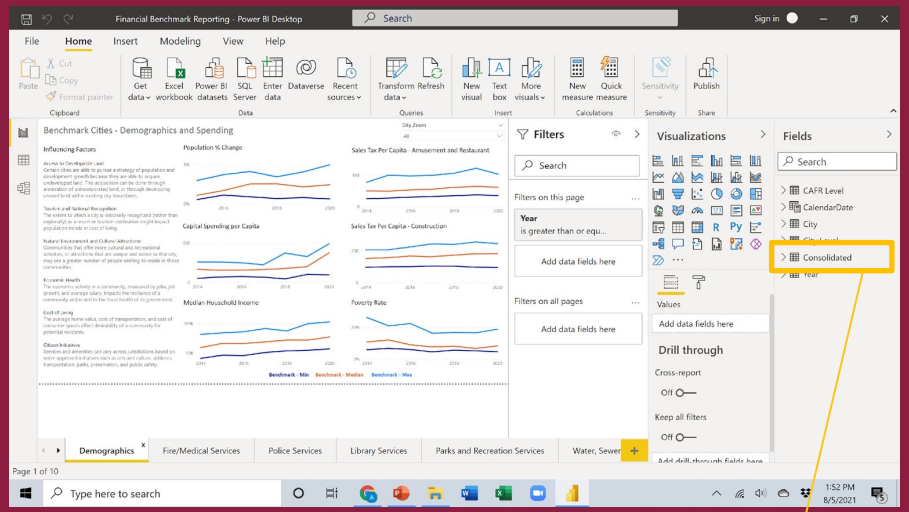


You should see the Financial Benchmark Reporting Tool in the Power BI Desktop interface. Note that the Pages are now laid out Notebook-style across the bottom

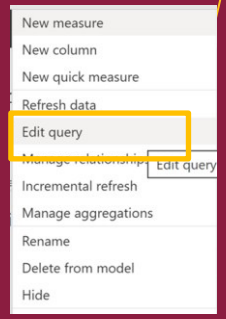


UPDATE THE DATA CONNECTIONS

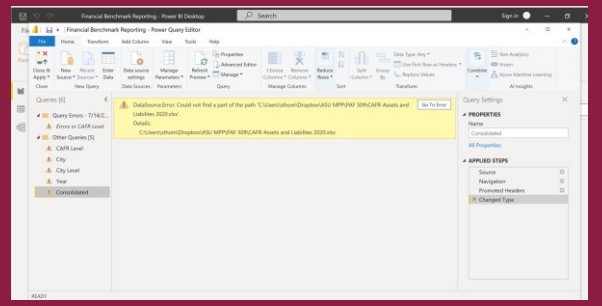
This version of the PBIx file has an existing location where it is expecting to find the Excel files. It is not necessary to change this to be able to use the tool, but to make updates to the data in the future, the queries need to be redefined to point to the location of your new files.



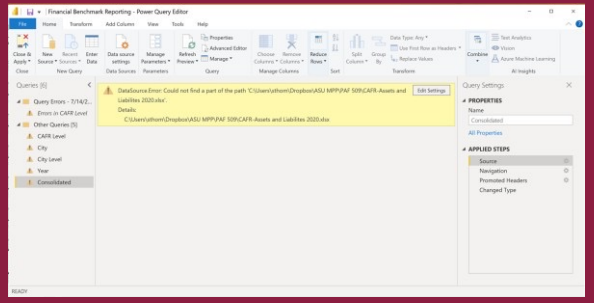
1. Right-click on the 'Consolidated' query and select 'Edit query'.



2. You will be taken to the query editor with an alert that there's an error. Click 'Go To Error'.



3. You will see notification that PBI couldn't find the path. You should click 'Edit Settings'

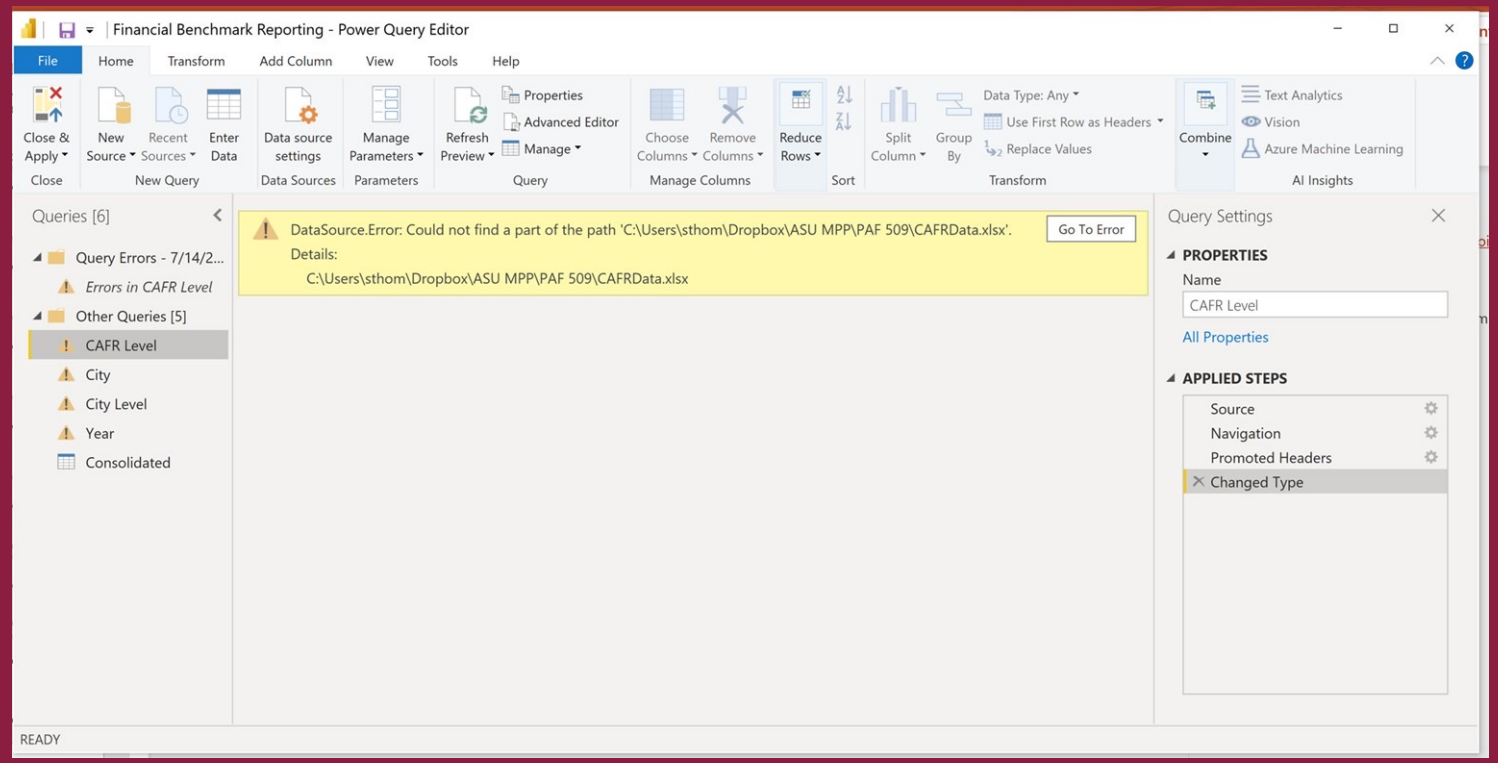


4. Click Browse and update the file path to the location where you saved the files and select 'CAFR Assets and Liabilities_2020.xlsx'

UPDATE THE DATA CONNECTIONS

The Power Query editor should now look like this. Note that the ‘CAFR Level’, ‘City’, ‘City Level’ and ‘Year’ queries still have errors.

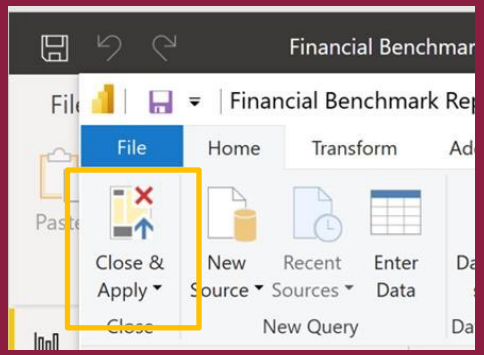
1. Click on the first one, ‘CAFR Level’



2.Follow the same steps for the CAFR Level query that you did for the Consolidated query. At the end you will be repointing the query to the file ‘CAFRData.xlsx’.

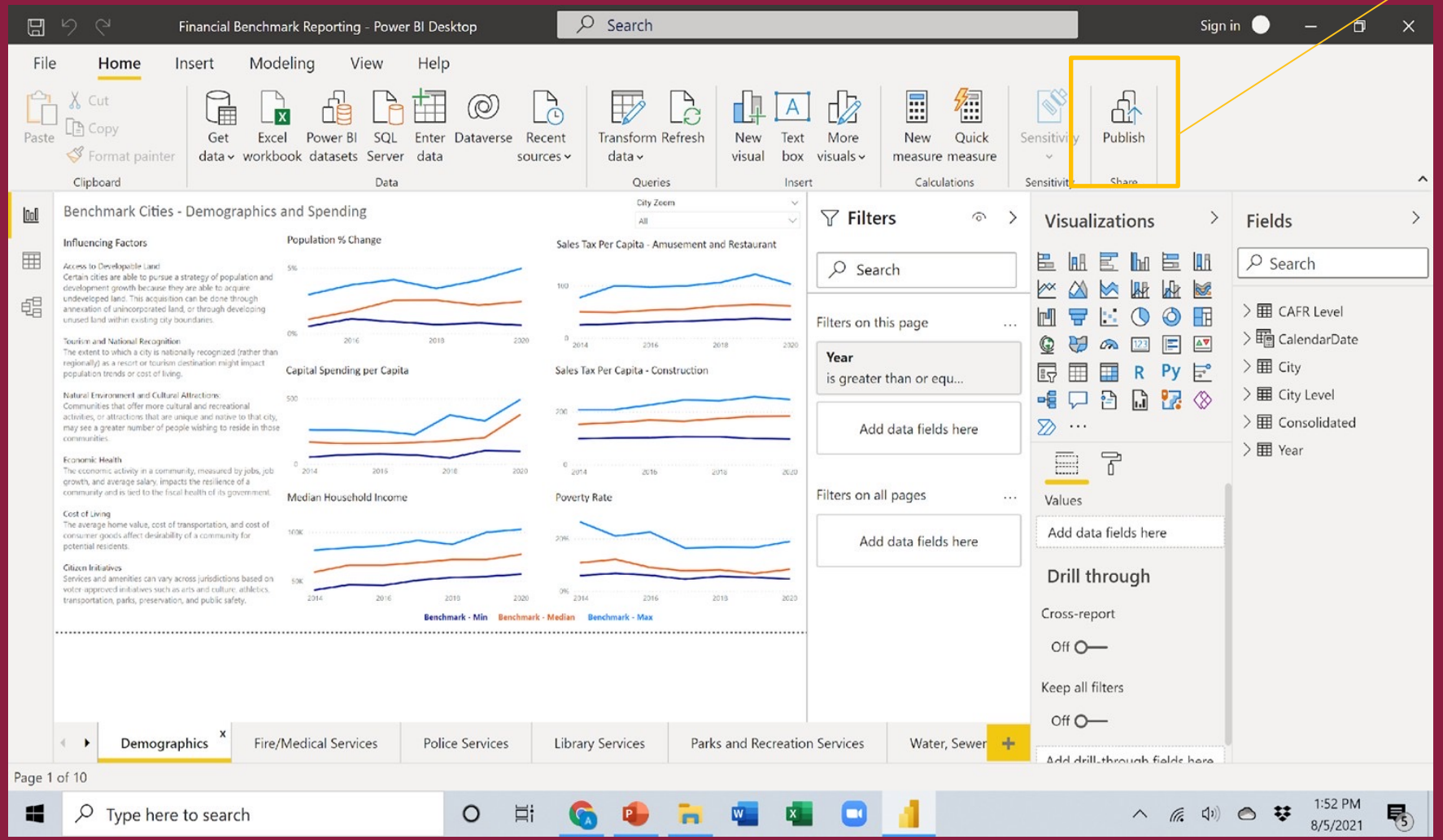
3.Continue this process for the other three data sets.

4.Click the Close & Apply button at the top of the editor when you have repointed all 5 of the queries.



PUBLISH THE TOOL

You now have a fully-functional Financial Benchmark Reporting Tool in Power BI Desktop.



To publish the Tool to a shared environment, click on the publish button. You will need to enter your Power BI Pro user ID and password and select the workspace where you would like to publish it.

Before publishing the tool, you will need to obtain Power BI Pro individual user or Power BI Premium capacity licensing.

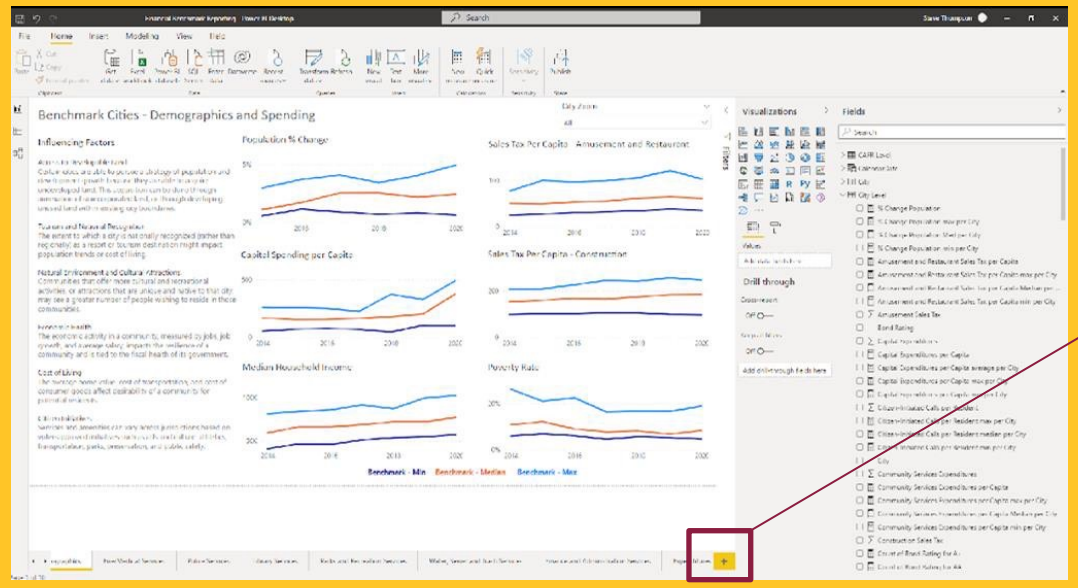
For others to access the Tool, they will need Power BI Pro licenses or they will need user IDs created for them on the Power BI Premium instance.

Adding a New Visualization

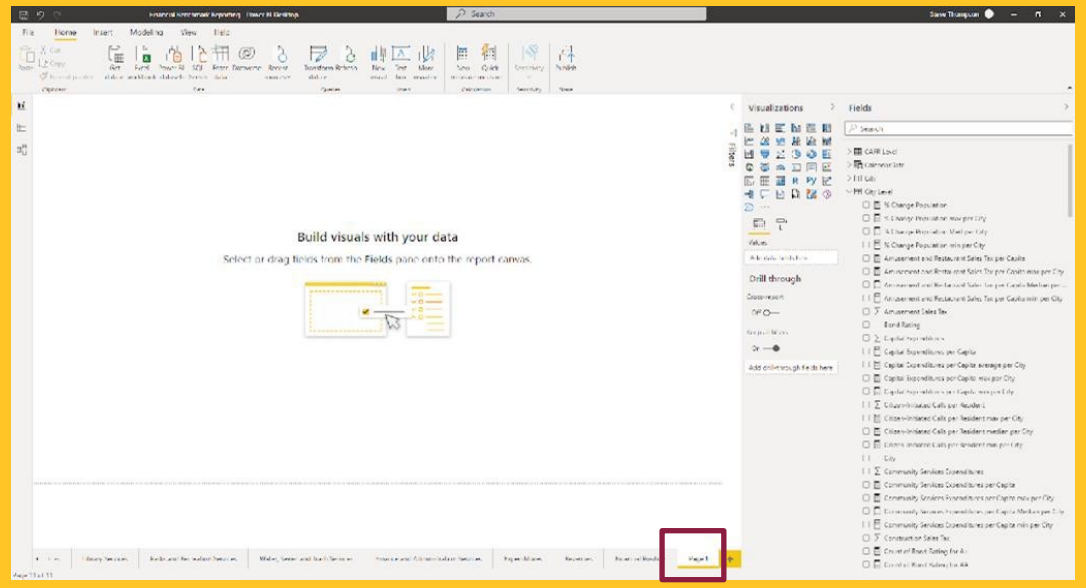
- Create a New Page
- Select the Visualization
- Select the Data
- Add More Visualizations
- Save Changes

CREATE A NEW PAGE

You can create new visualizations within the existing pages of the Tool or create new pages. Here we'll start with a new page.



Click the '+' sign to add a new page to the tool

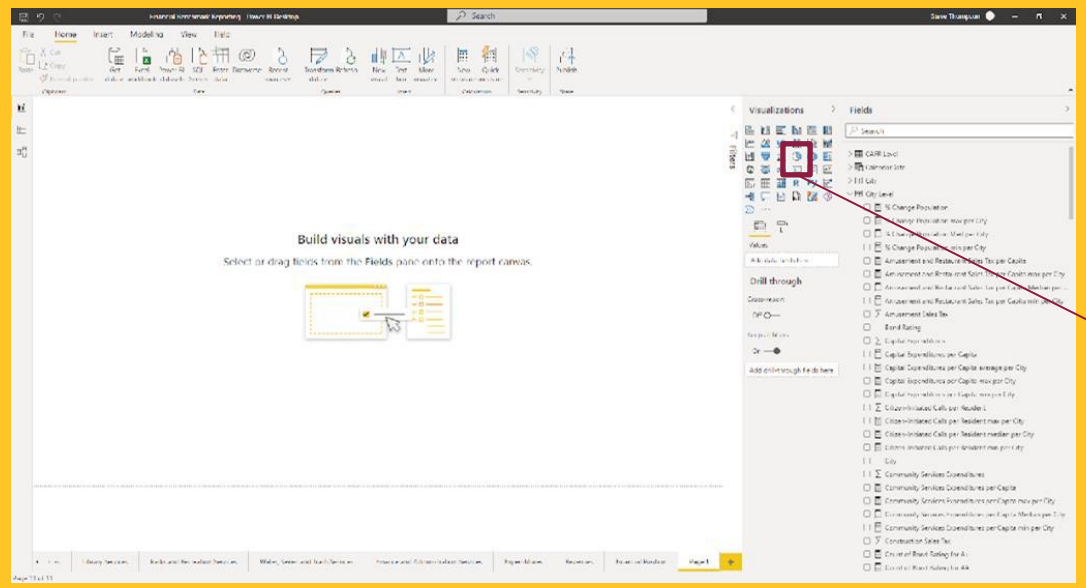


Note: With a global community of developers and users, there are almost limitless resources available on the web for learning Power BI. Along with standard structured training, there are developer forums and 'How to' videos.

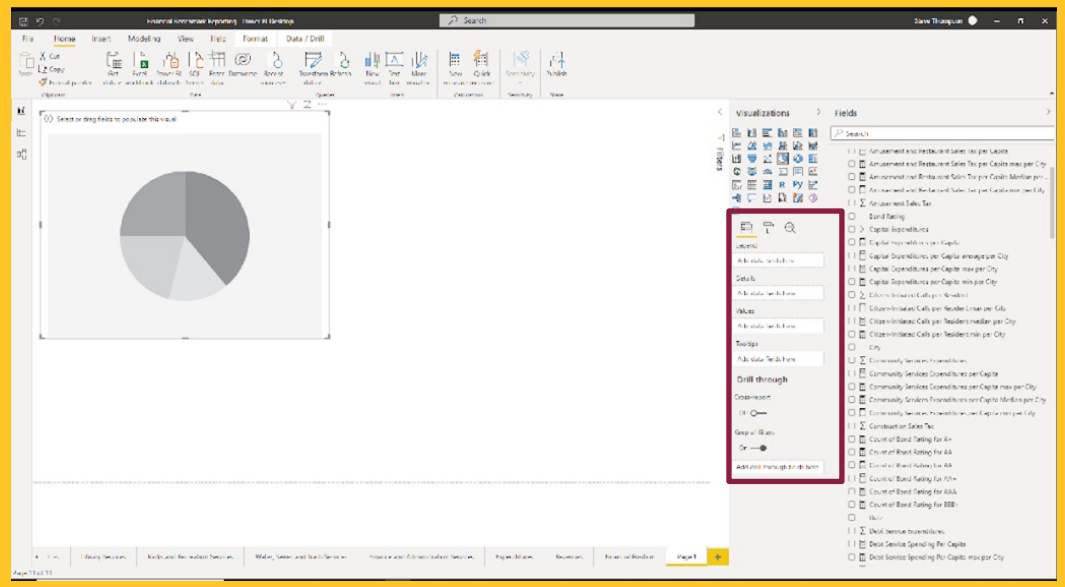
As you get started, we recommend this video. It's a 40-minute tutorial that goes through building a Power BI app from scratch. With starting and stopping and rewinding, it will probably take a ½ day to go through, but it is a very good tutorial and will touch on most of the skills you will need to continue to grow the Tool.

SELECT THE VISUALIZATION

For this example, we'll build a new page with a pie chart showing restaurant and retail sales tax and property tax.



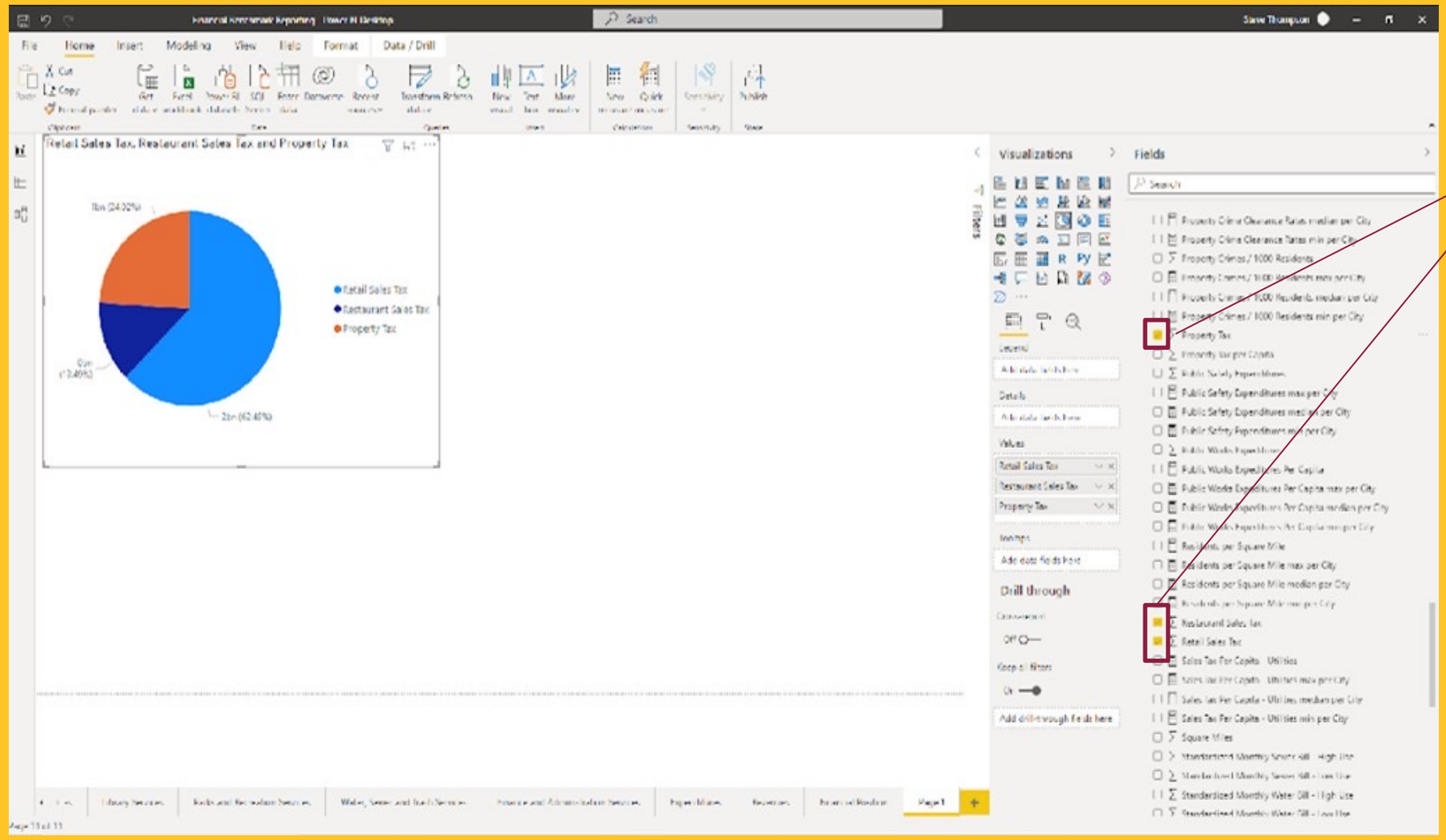
Click the pie chart icon to insert it on the page



The blank pie chart will be inserted on the page and will create a window of parameters to be filled in to define the pie chart.

SELECT THE DATA

The retail and restaurant sales tax and property tax data are all in the City level query. When we select those fields, they'll be added automatically to the visualization.

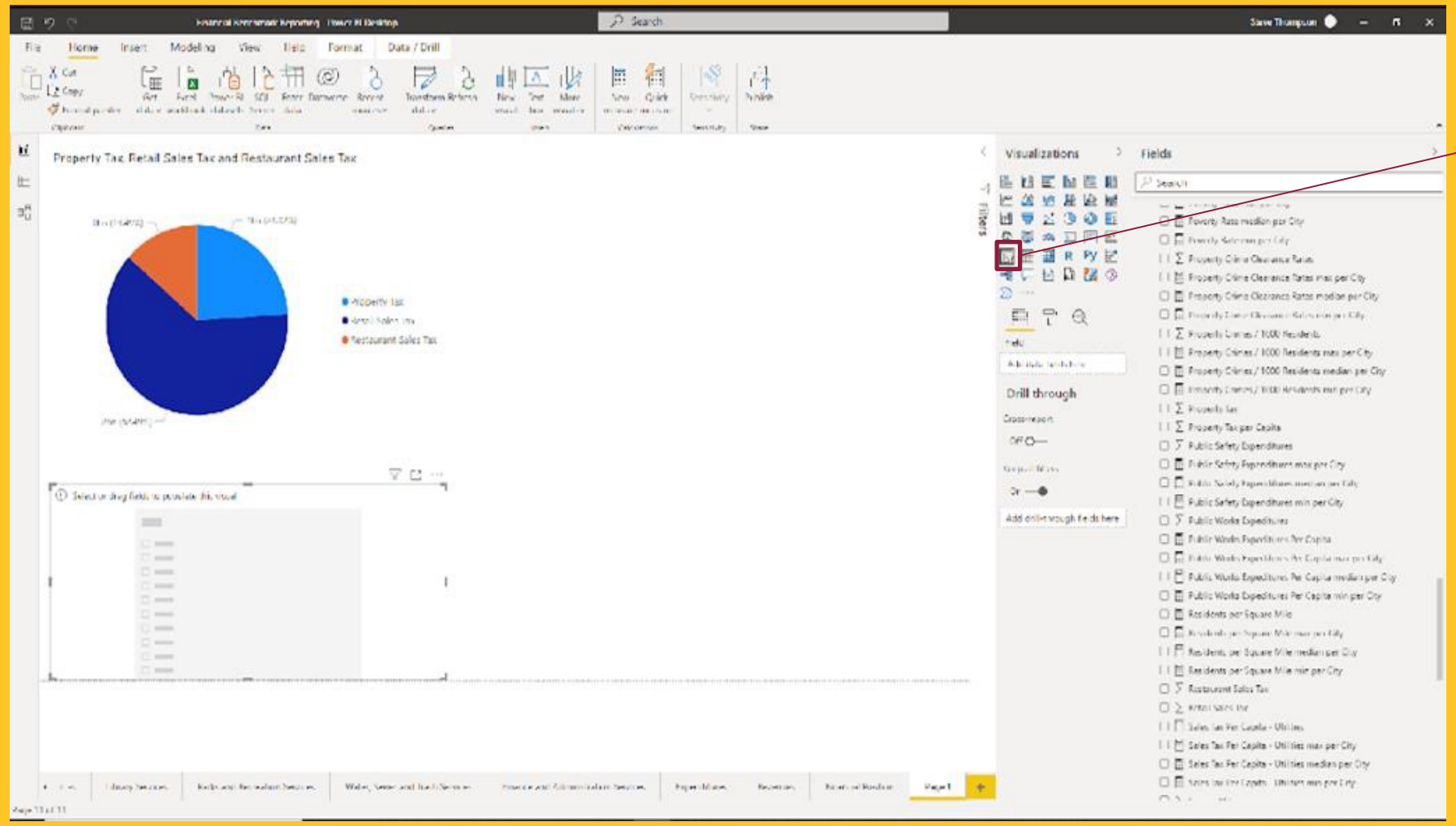


When we click on the three fields, they are added to the pie chart in a default color scheme along with a title and legend based on what was added.

These and other formatting items can be updated. For the purposes of this report, though, we also want to add a slicer for the user to be able to select which year and which city they would like to view.

ADD MORE VISUALIZATIONS

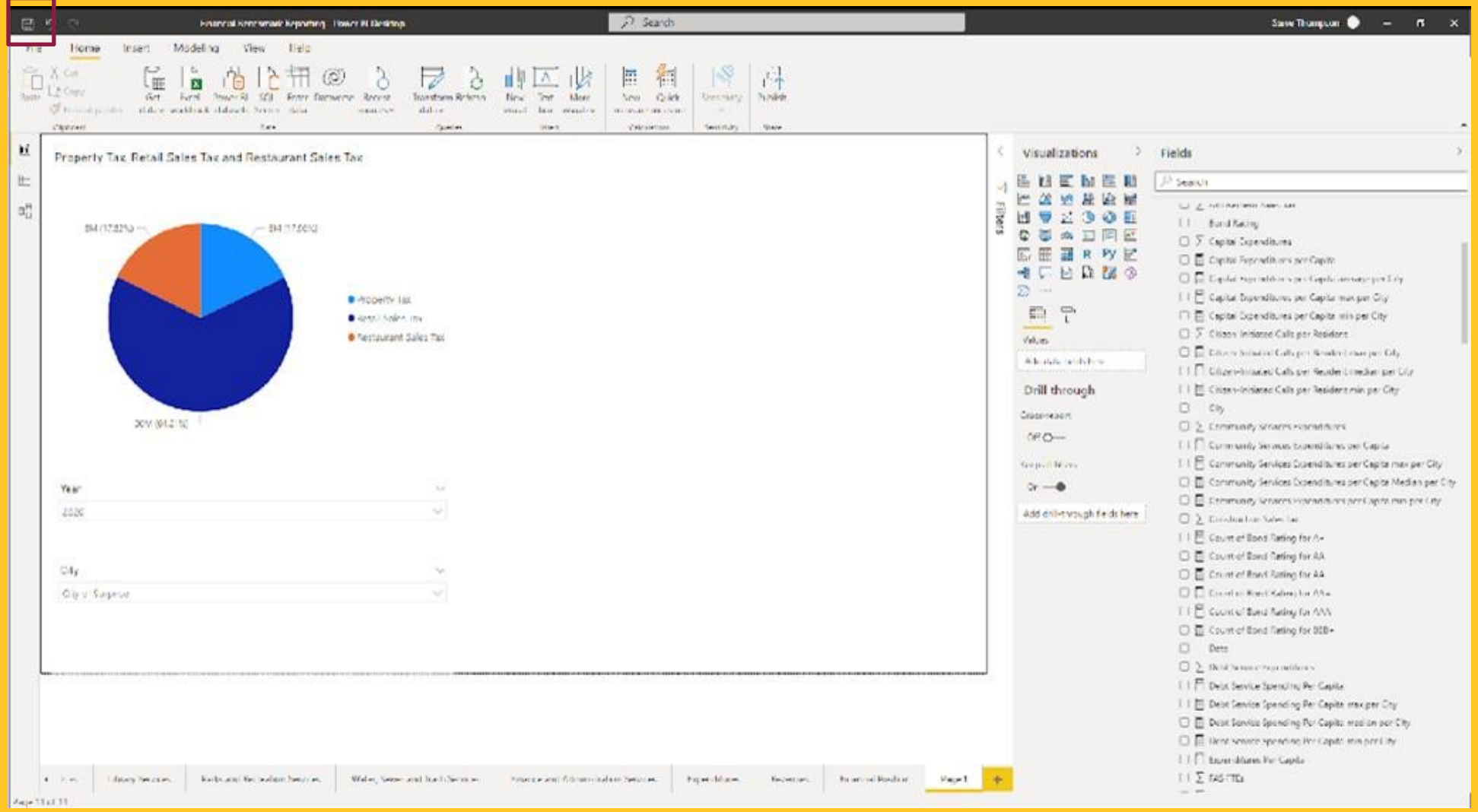
To filter the report, we add two slicer visualizations for ‘City’ and ‘Year’ and define them with the fields in the same way as the pie chart.



Clicking on the slicer visualization adds a blank slicer to the page. To define the slicer, we will need to select the appropriate field.

ADD MORE VISUALIZATIONS

The final version of the page has the pie chart and two slicers. We can also add more visualizations to the page. Here we will just save the changes.



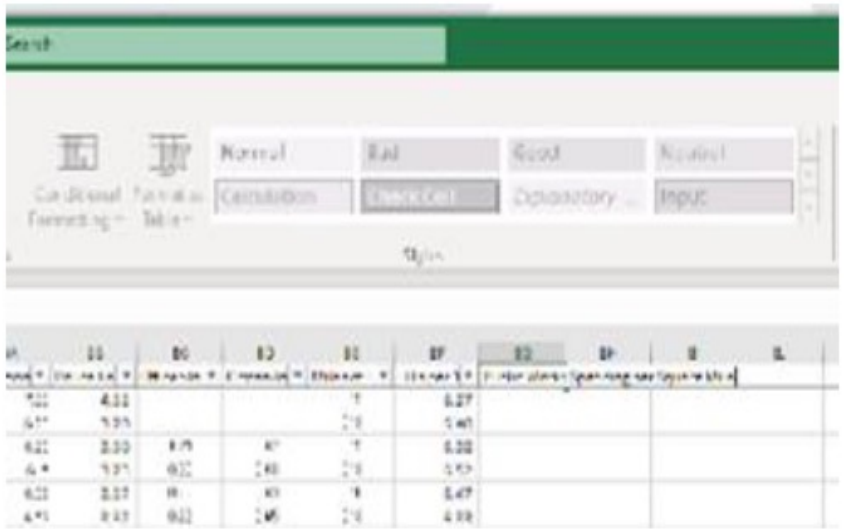
Adding New Data

- Update the Data in Excel
- Refresh the Queries
- Use the New Fields

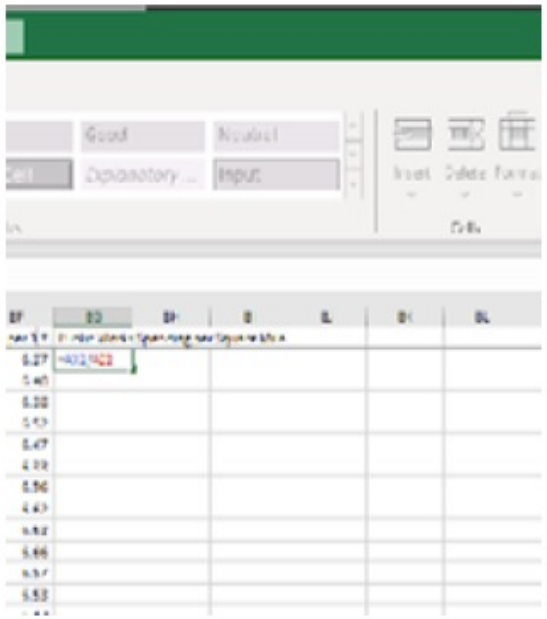
Update the Data in Excel

Going forward, we will want to continue to enhance the tool by incorporating new data. In this example, we'll add a new field into the existing spreadsheet and import it into Power BI. The new field I want in the tool is Public Works Spending per Square Mile.

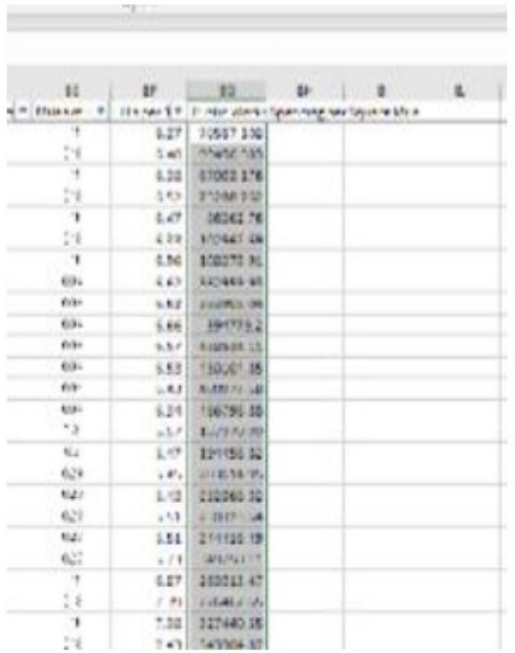
Name the column and add it to the existing spreadsheet



Define the formula

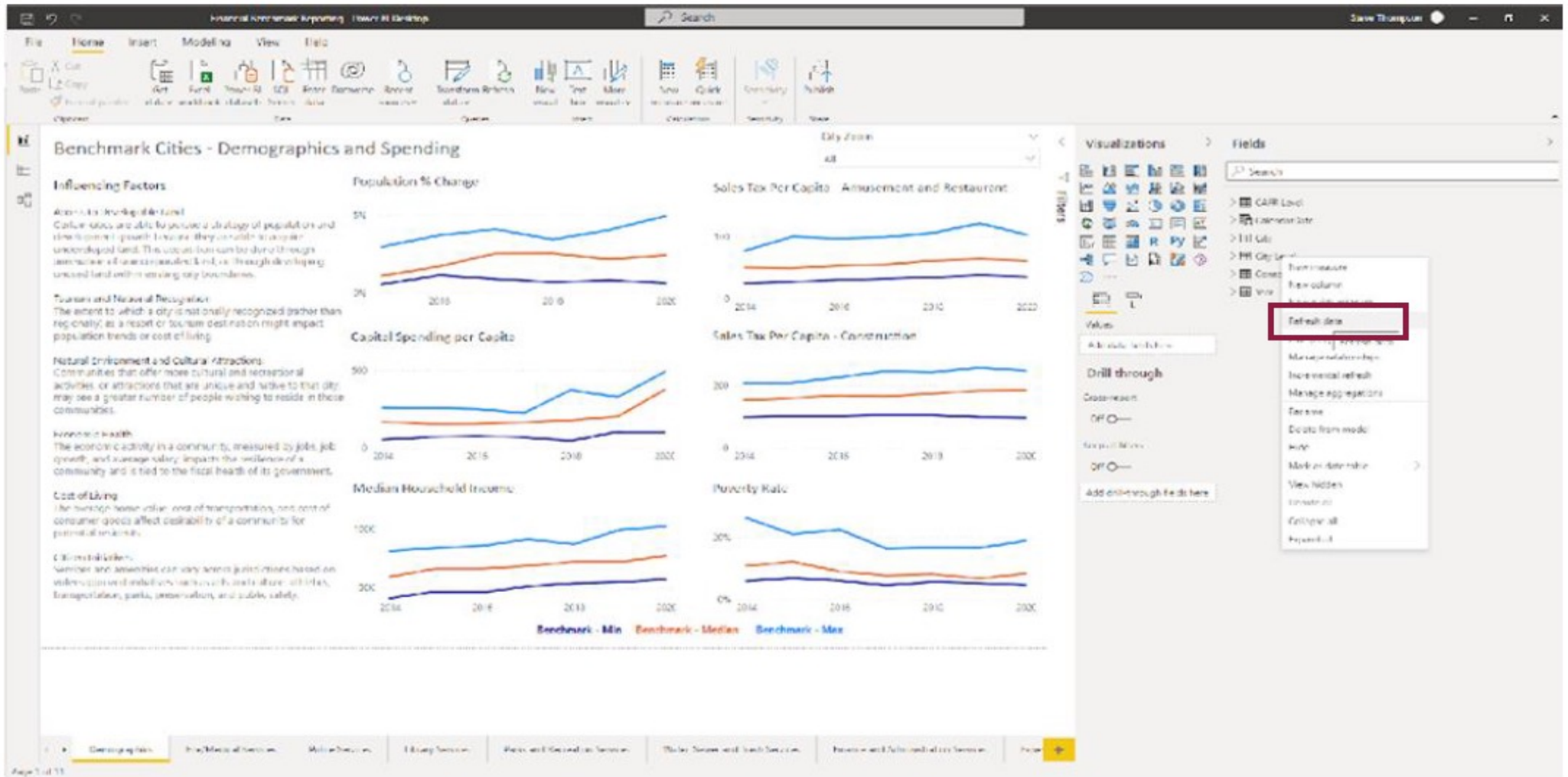


Update for all Cities/Years



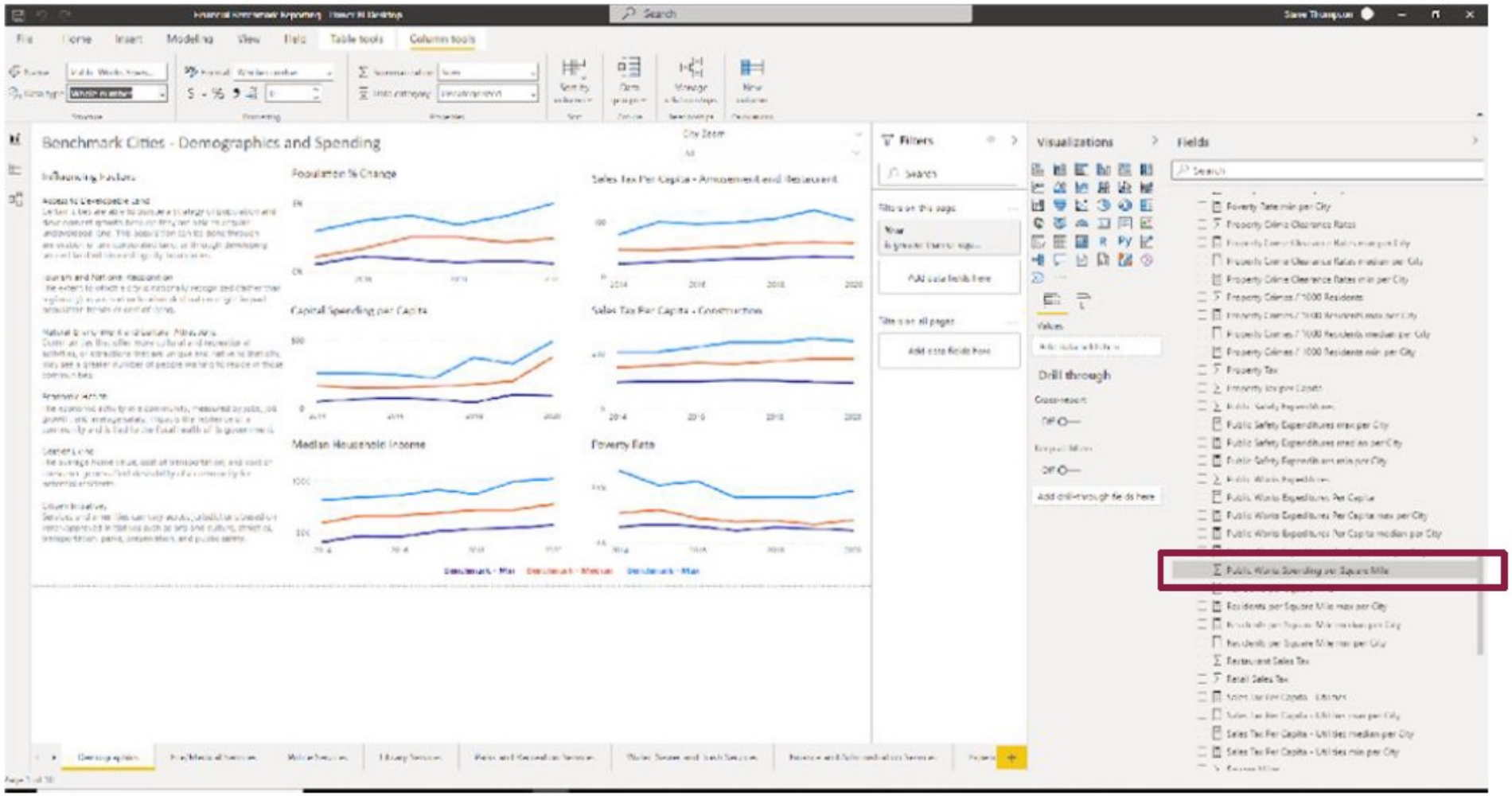
Refresh the Queries

In this case, the new field is in the City Level query, so we right-click on the query and select Refresh data.



Use the New Data

The refresh updates both new data entries (e.g., new years or cities) and new fields (e.g., Public Works Spending per Square Mile). With the refresh, the new field is available in the City Level query.



NEXT STEPS

- Ownership and Facilitation
- Marketing and Expansion

BRAINSTORM

- How could you use this data?
- What situations have you been in where you needed to gather comparative financial data?

OTHER RESOURCES

- Valley Benchmark Communities Annual Trend Report
- Alliance for Innovation
- Center for Urban Innovation

QUESTIONS?

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