



Georgia's State Water Plan

Regional Water Development and
Conservation Plan Review and Revision
Savannah-Upper Ogeechee Water
Planning Council
Meeting 1 Follow-Up Information

www.georgiawaterplanning.org



Georgia's State Water Plan

Plan Review & Revision
Overview/Schedule

www.georgiawaterplanning.org

Review and Revision Process

- In response to Council requests, CDM Smith and EPD will prepare a summary for the Council highlighting top priorities and technical information in the Savannah-Upper Ogeechee region as well as similar information for neighboring Councils
- Summary to be provided to Council prior to the 2nd quarterly meeting to be held on June 23, 2016 in Dublin, Georgia



Georgia's
State Water Plan

Memorandum of Agreement
Operating Procedures
Meeting Rules
Public Involvement Plan

www.georgiawaterplanning.org

Memorandum of Agreement

- Extension of MOA, past the 2011 Plan adoption process and into the Review and Revision period
- EPD working with Council Chair to finalize MOA Renewal

Operating Procedures

- Housekeeping updates to address quorum and voting during Review and Revision process
- Proposed updates to operating procedure were reviewed and approved at Council Meeting 1 (CM1)

Operating Procedures

- Proposed revisions to allow Council to achieve a quorum for decision making in light of the status of:
 - reappointments
 - meeting attendance
- Defines “active Council members” as the criteria for determining a quorum

Operating Procedures

- Generally agreed upon during CM1
- Proposal to go to all Council Members to ensure they are fully informed and have the opportunity to become active members for the review and revision process



Georgia's State Water Plan

Current Agricultural Demand Estimate and
Method for Updates

www.georgiawaterplanning.org

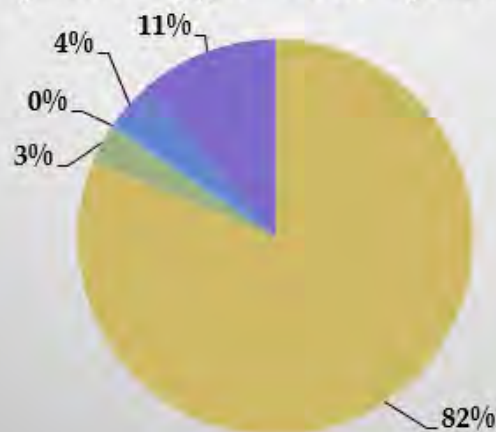
Current Agricultural Demand and Methods for Updates

- Subsequent to CM1, Georgia Water Planning & Policy Center (GWPPC) provided an update to information previously presented
- Agricultural demands will be presented at CM2

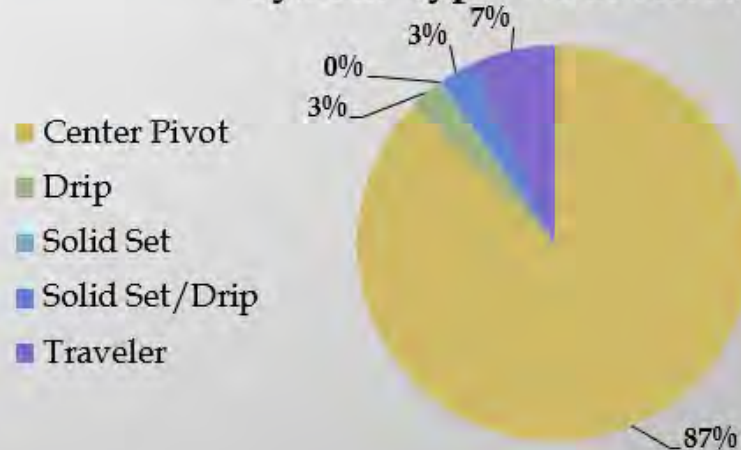
Savannah-Upper Ogeechee RWPC

	2009	2014	% Change
Total # of Fields	1,313	1,876	+ 42.9%
Total Acreage	78,361	111,075	+ 41.7%
Total GW Acreage	50,856	87,466	+ 72.0%
Total SW Acreage	27,505	23,609	- 14.2%
Total Center Pivots	922	1,525	+ 65.4%
Center Pivot Acreage	61,293	96,999	+ 58.3%

System Type - % of Systems



System Type - % of Acreage



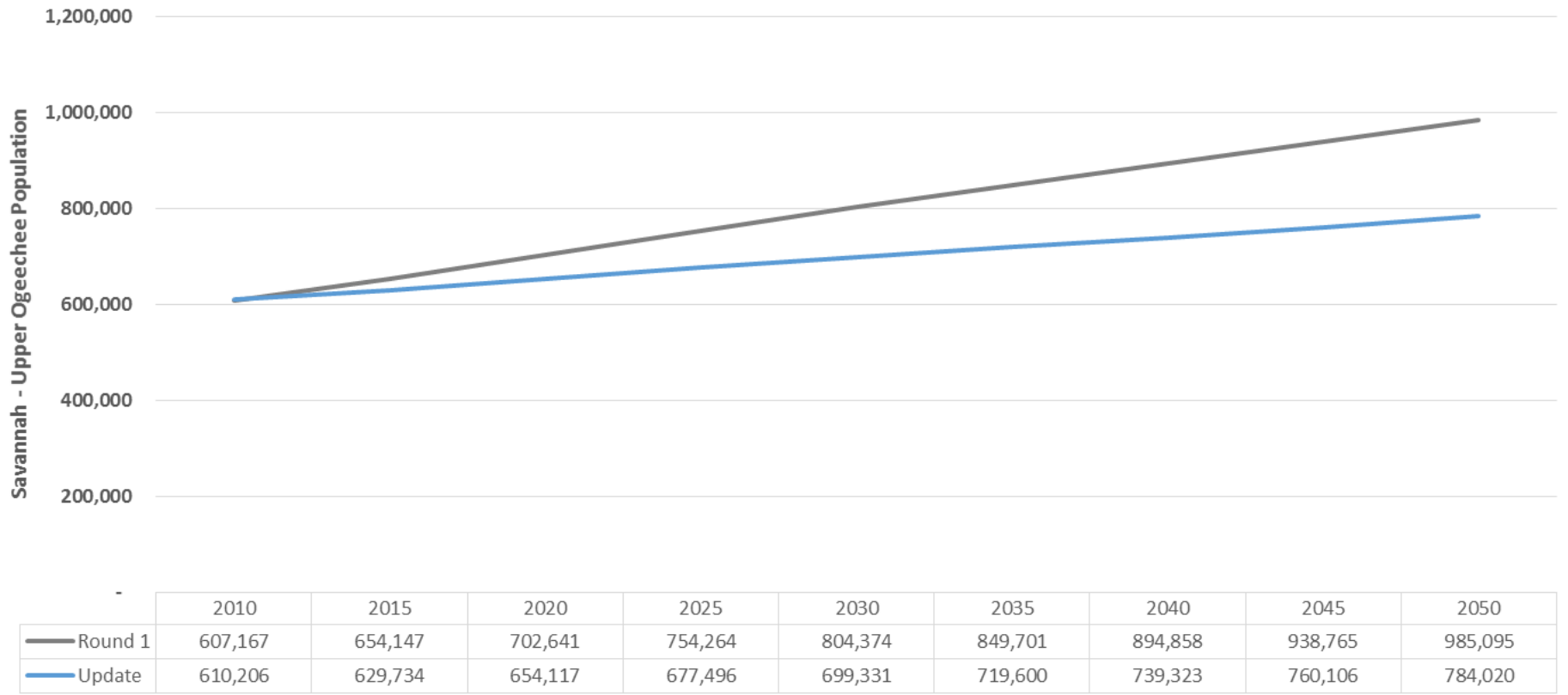


Georgia's
State Water Plan

Updated Population Projections

www.georgiawaterplanning.org

SUO Region Population Projections



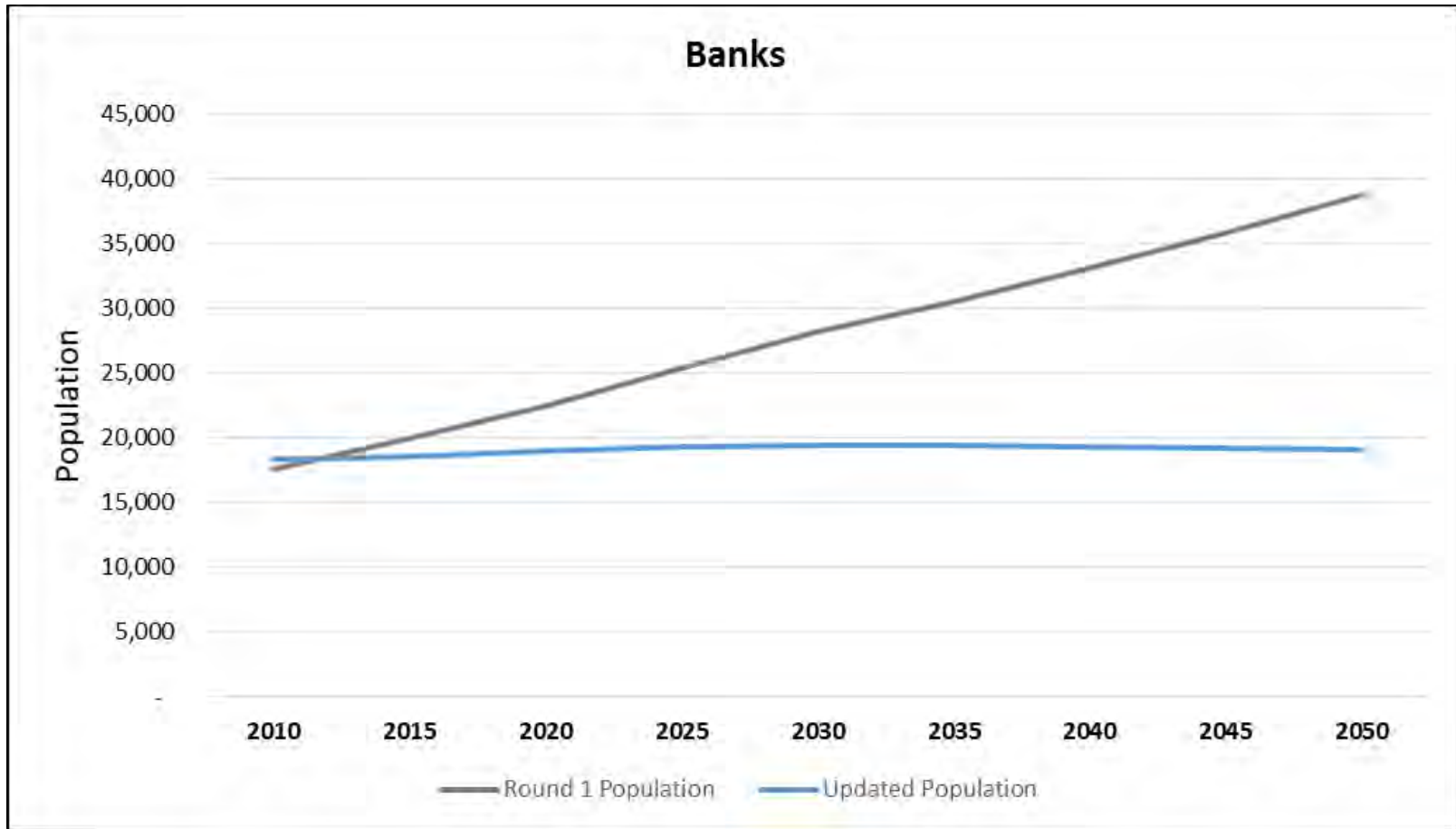
SUO Region Population Projections

- Factors addressing changes in population projections from Round 1
 - Updated projections are more in line with historic trends
 - Lower in-migration
 - Aging population
 - Lower birth rates
 - Majority of counties with declining population are rural counties
- Trends are different between Round 1 and update

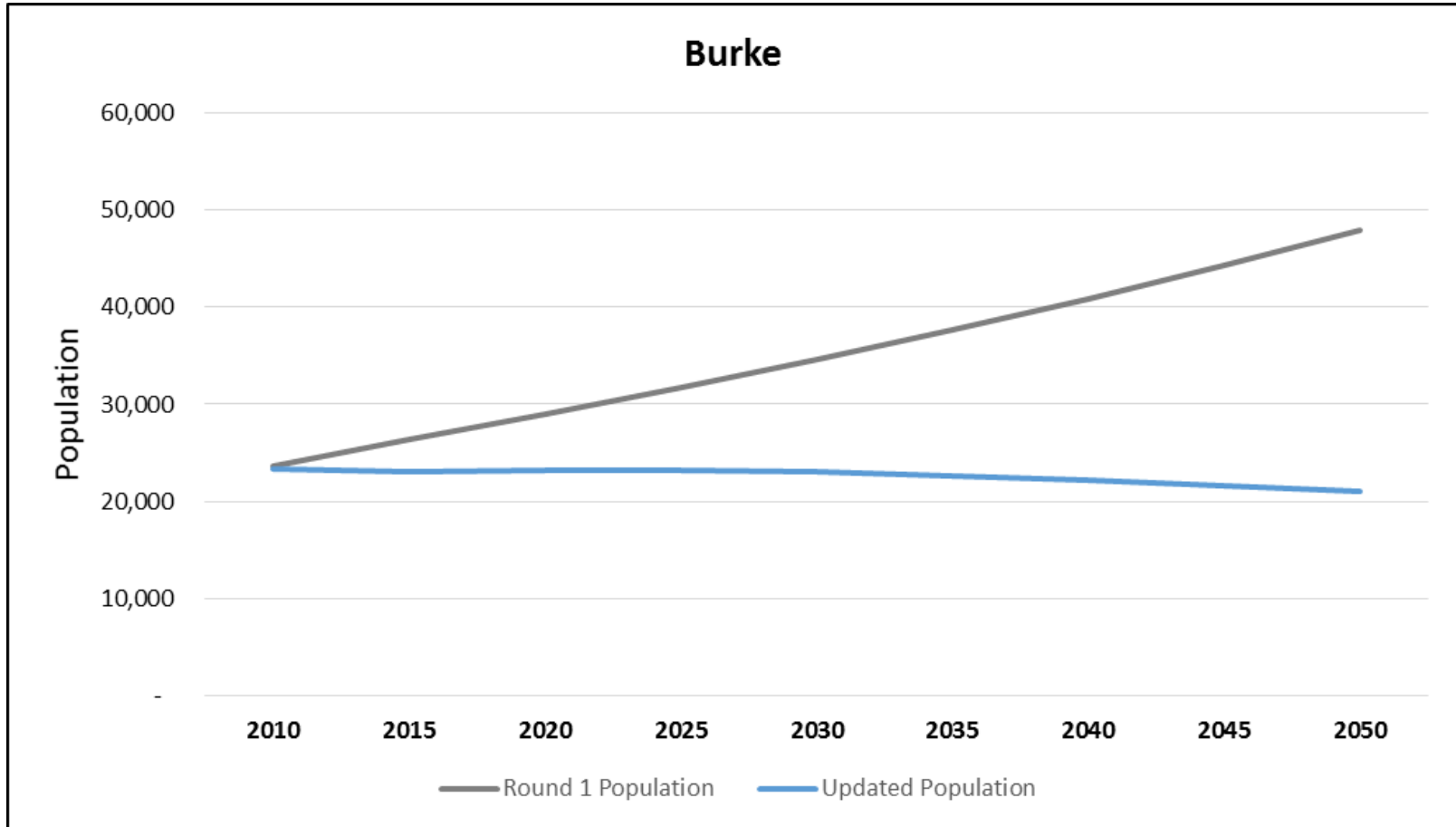
SUO Region Population Projections

- The following slides provide a summary of updated population projections for each County in the Region

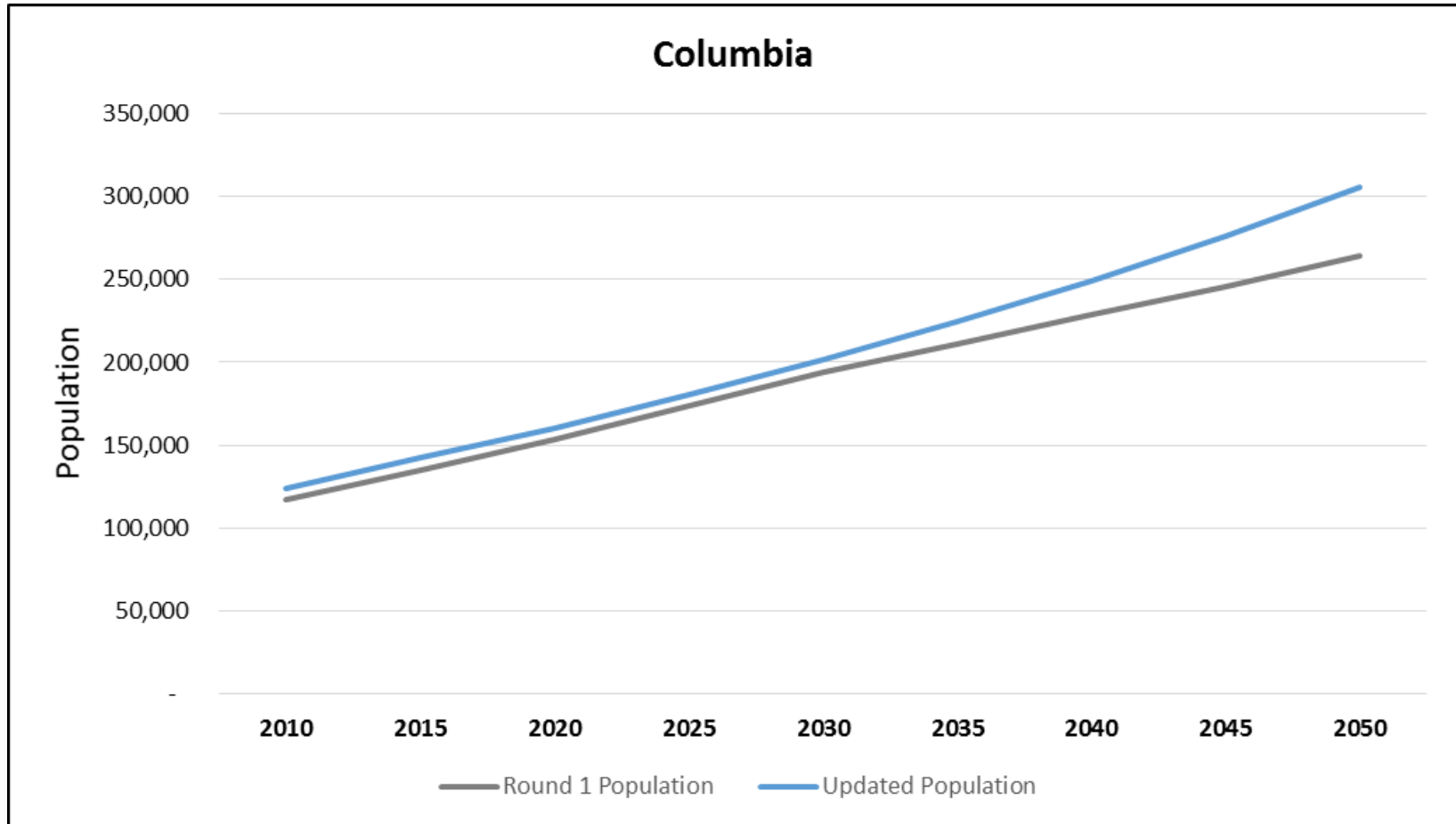
Updated Population Projections by County



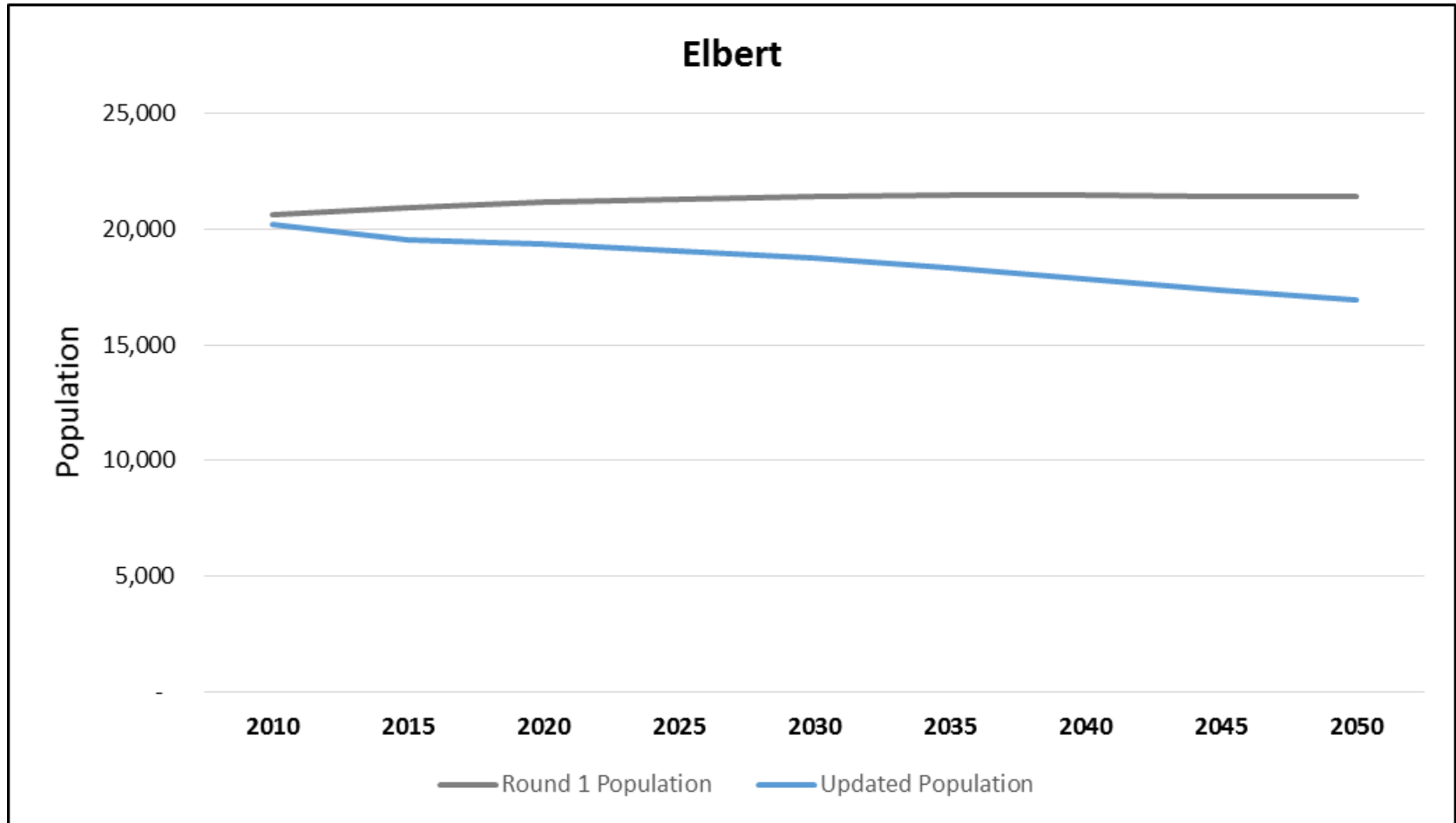
Updated Population Projections by County



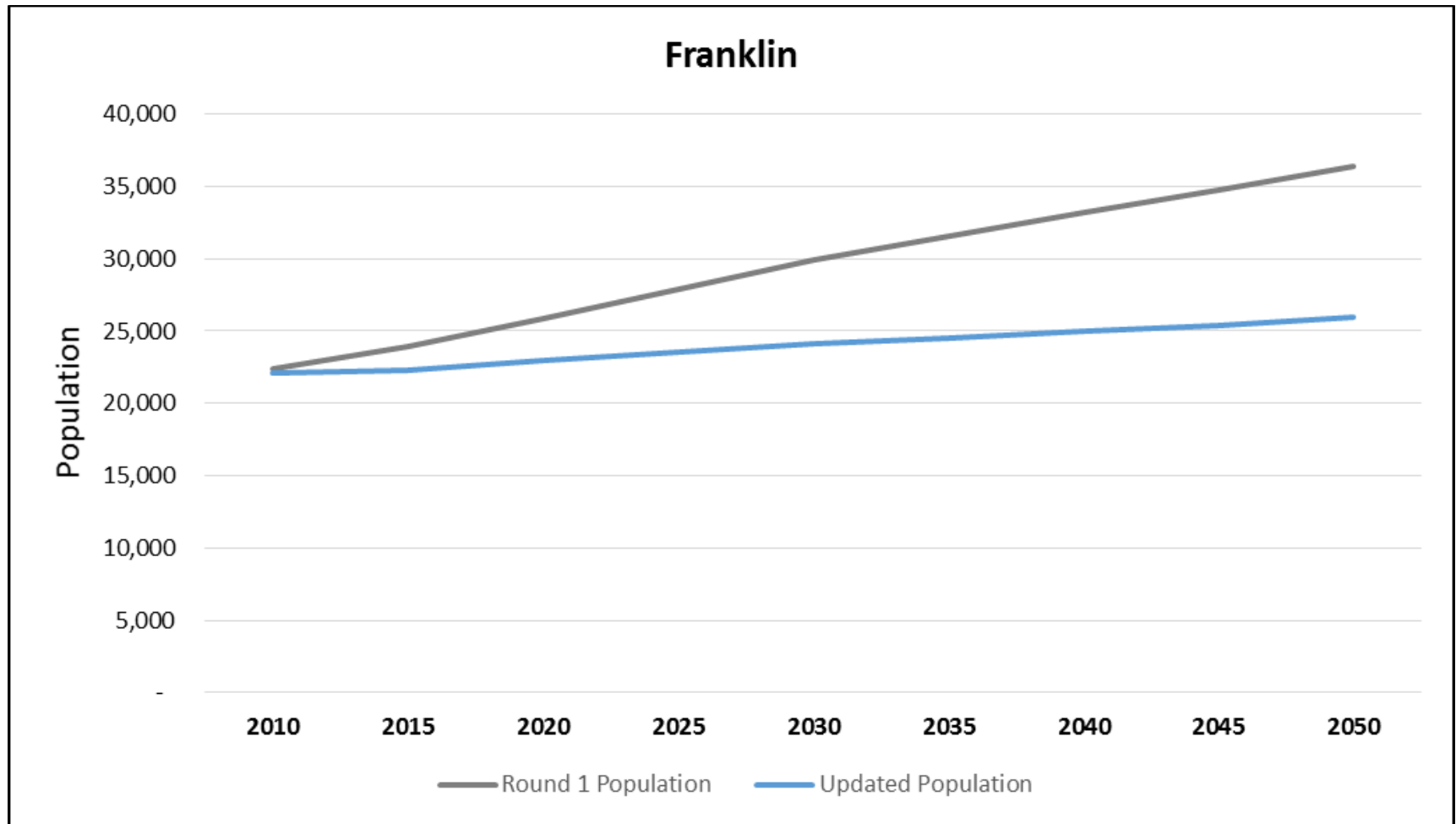
Updated Population Projections by County



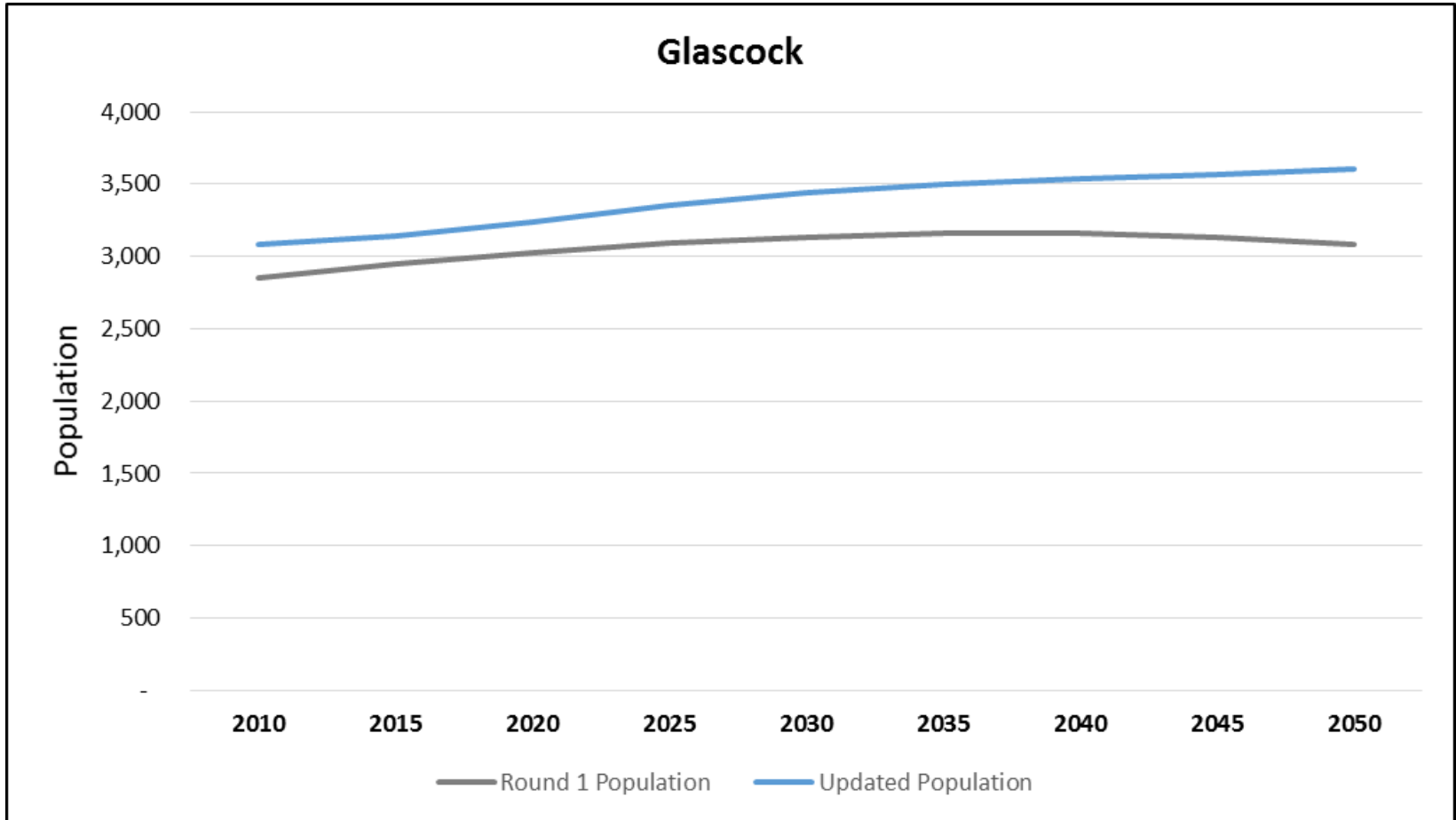
Updated Population Projections by County



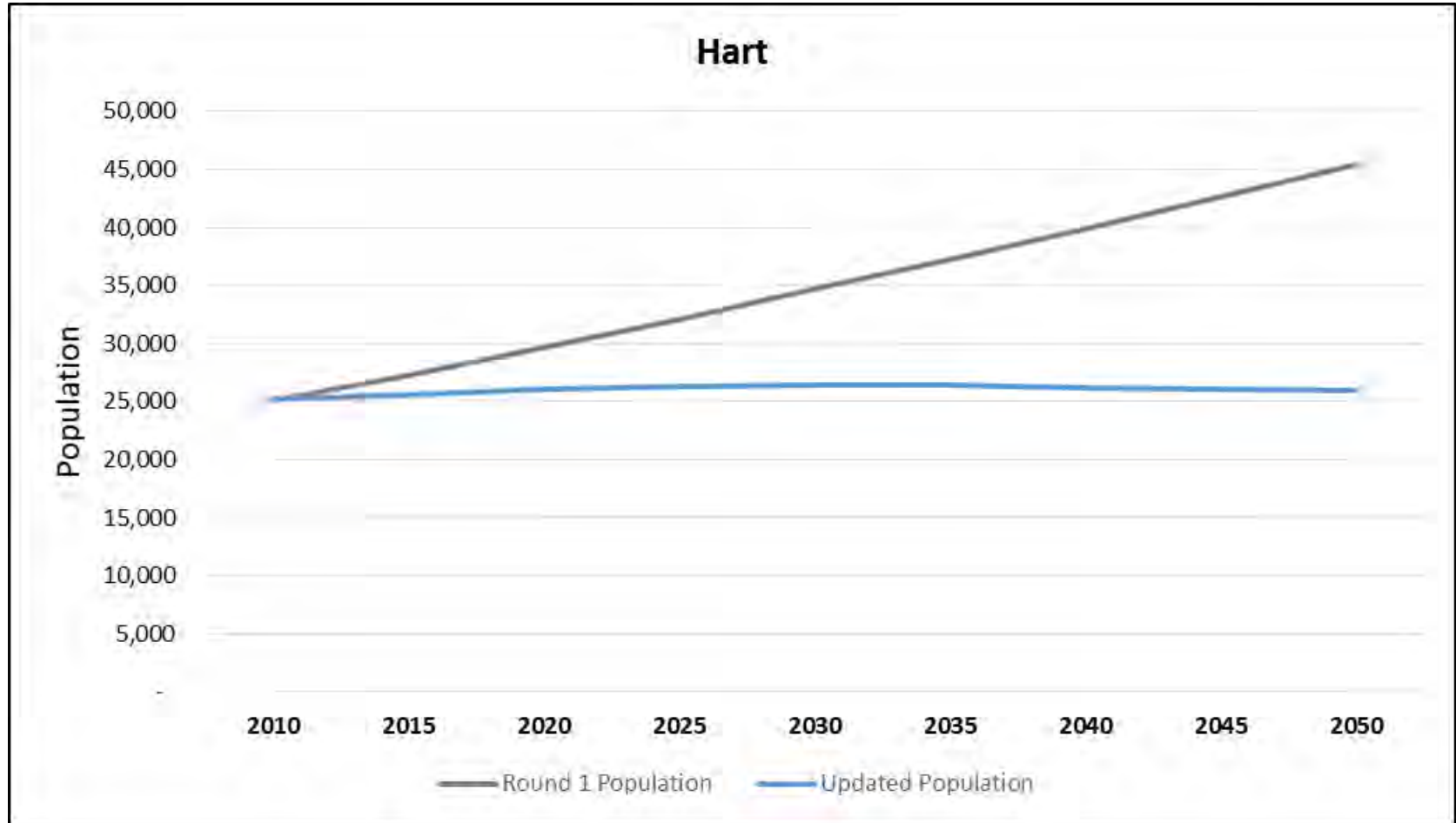
Updated Population Projections by County



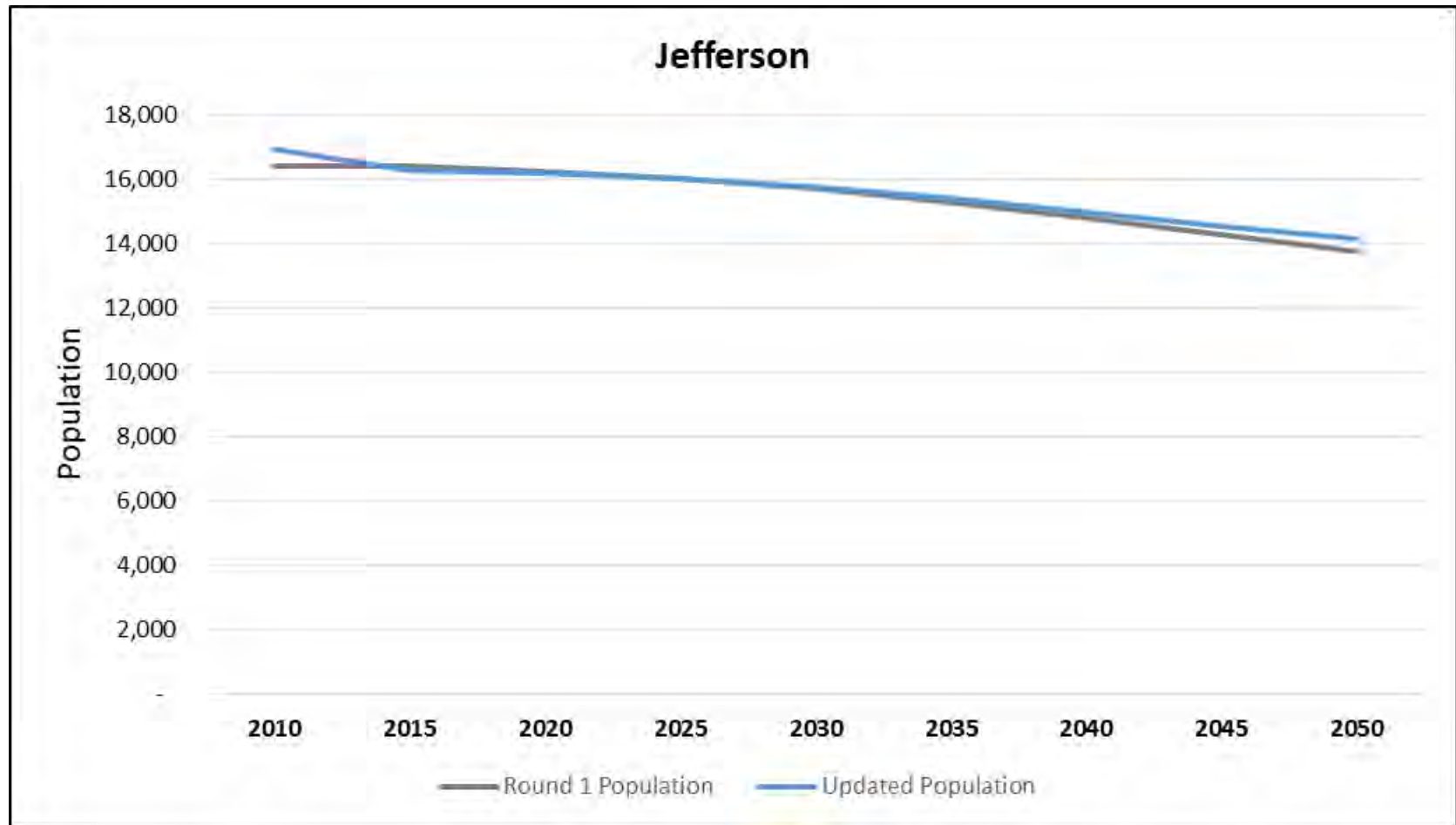
Updated Population Projections by County



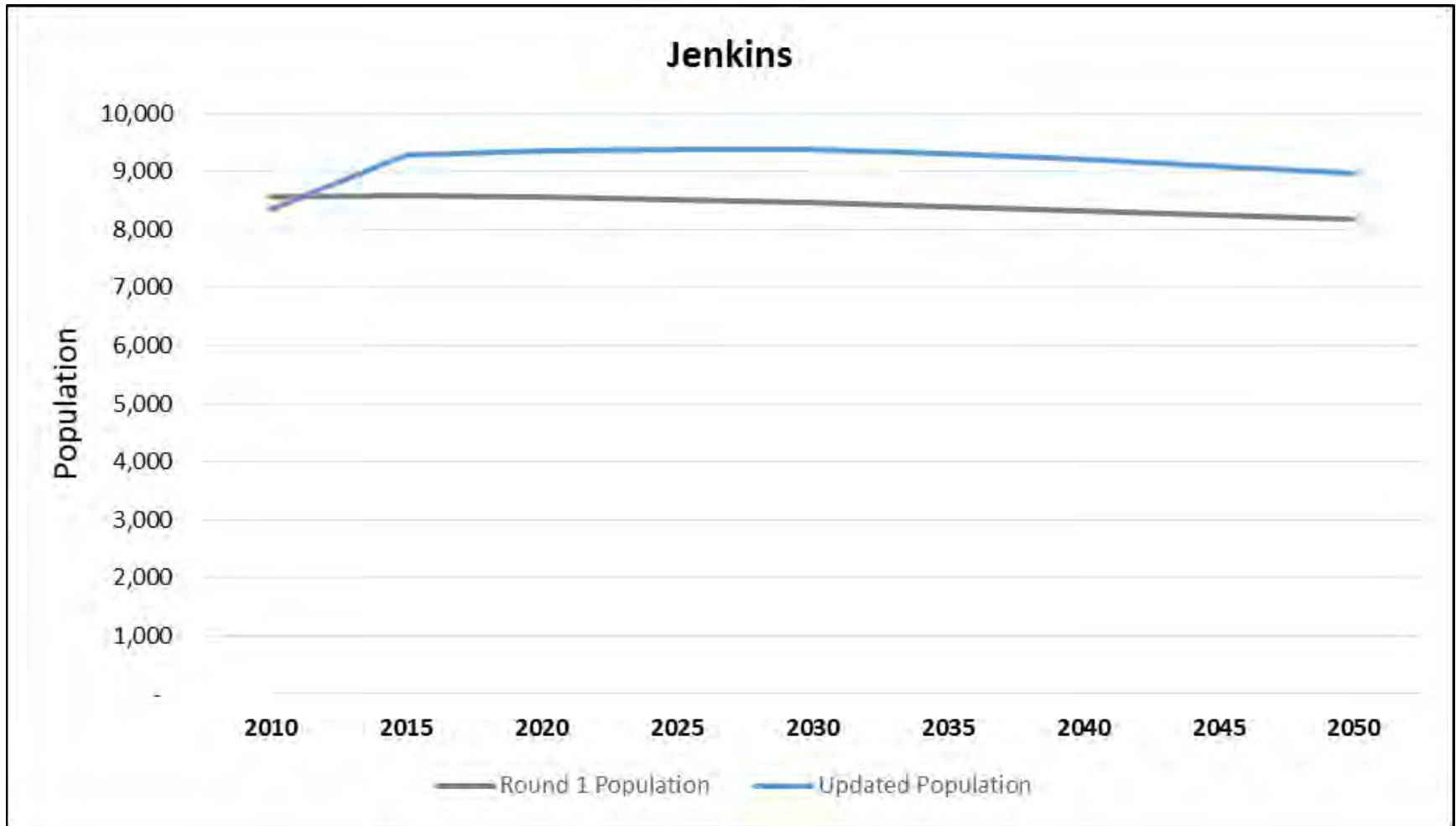
Updated Population Projections by County



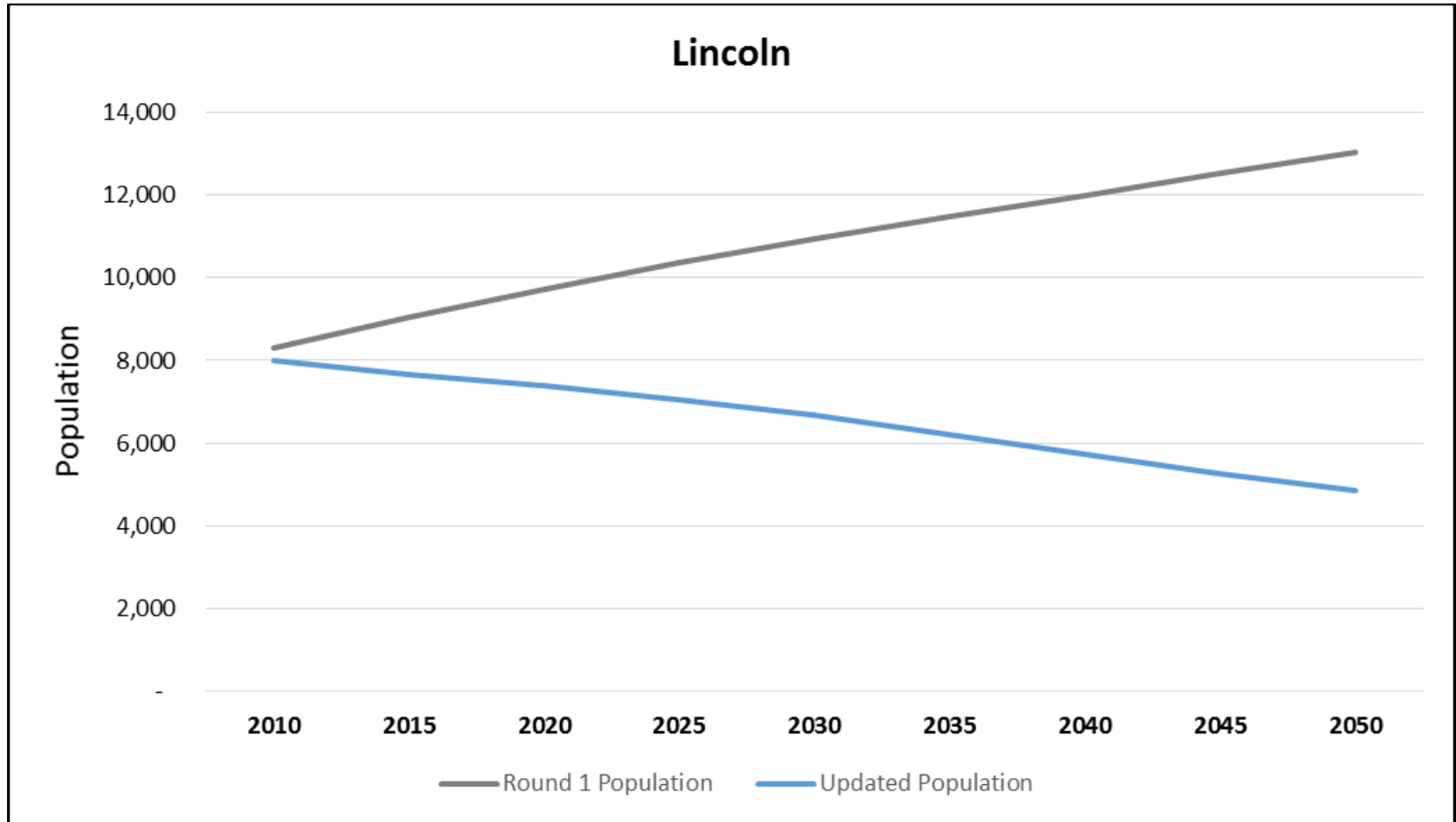
Updated Population Projections by County



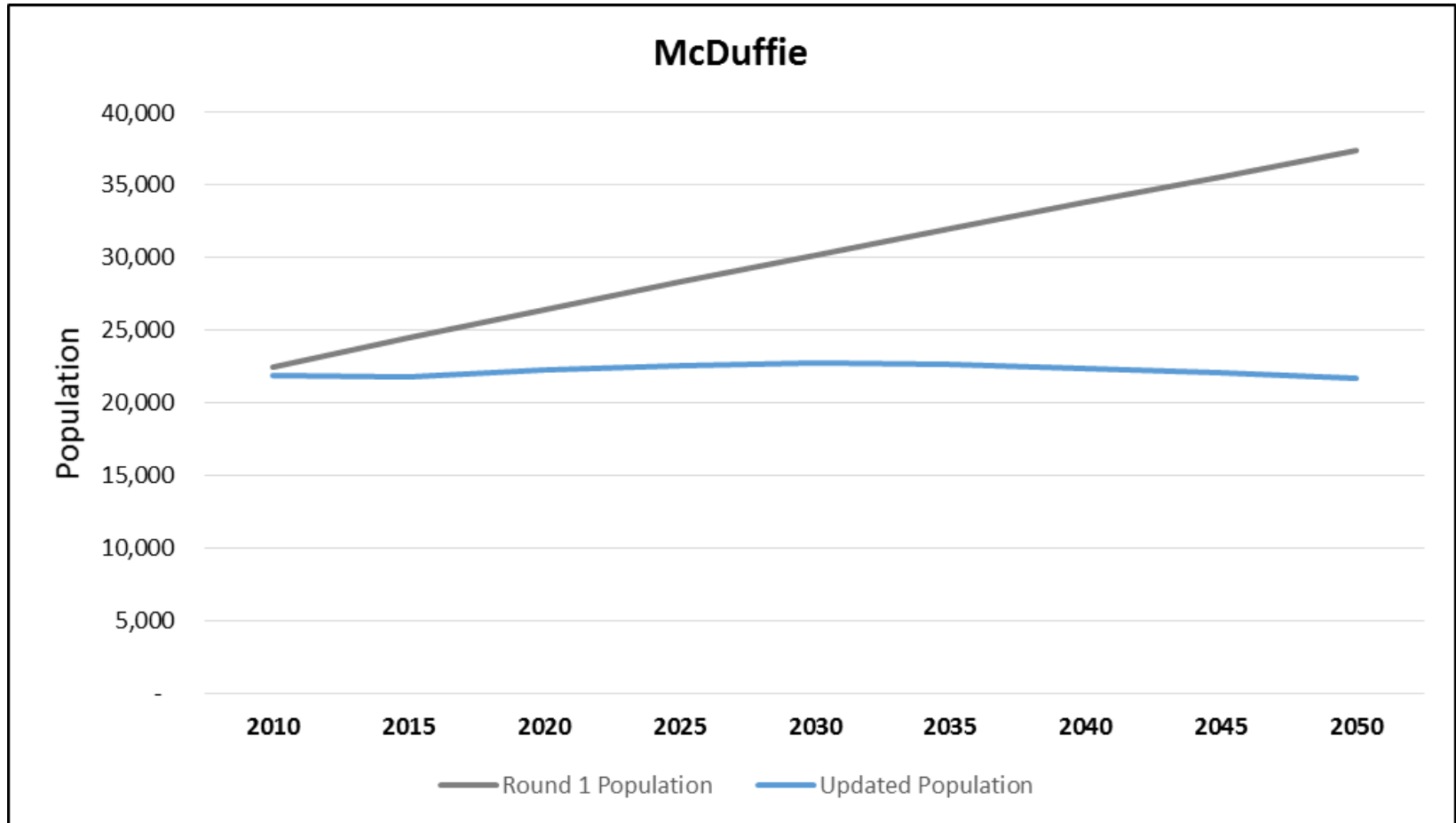
Updated Population Projections by County



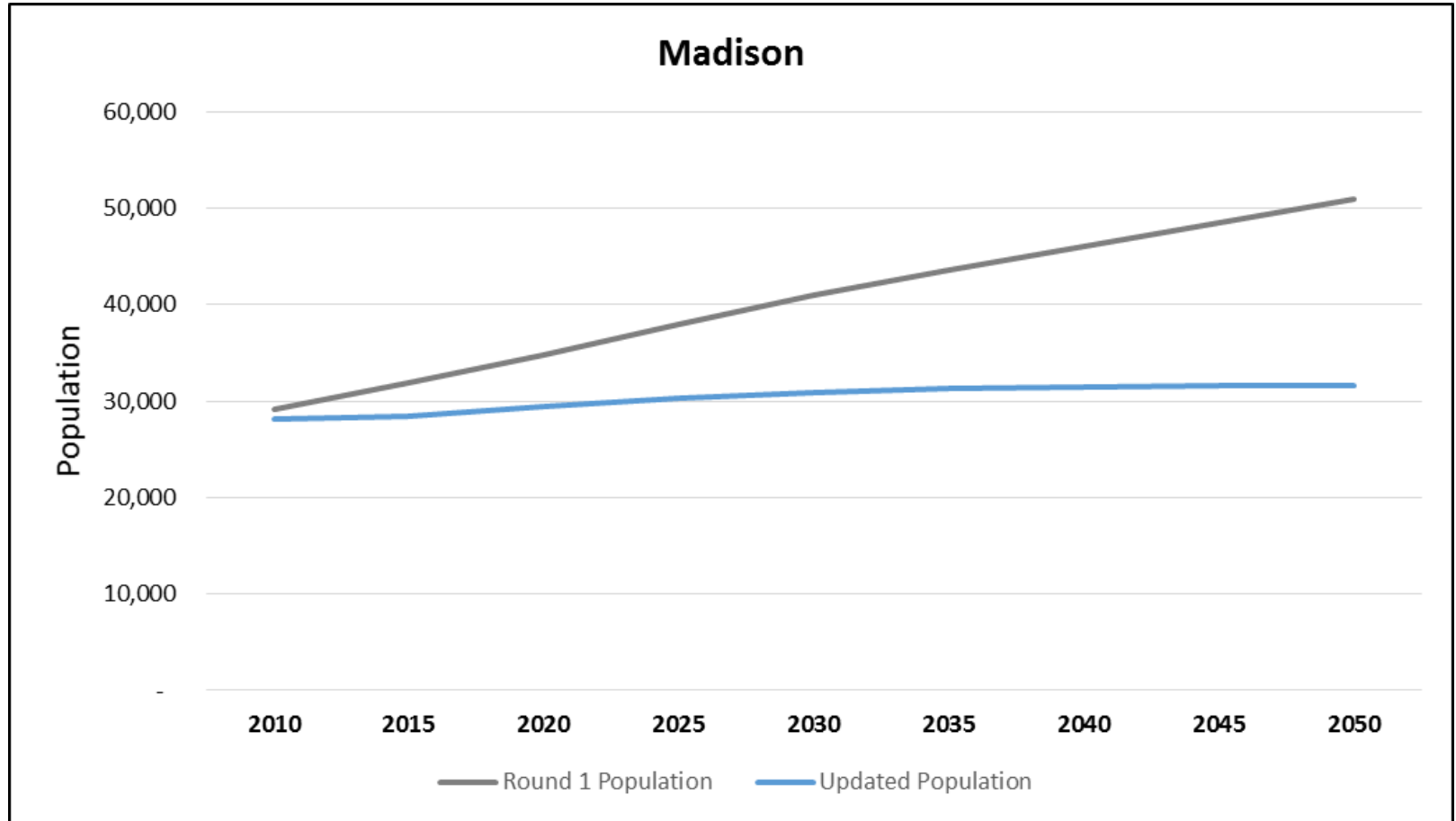
Updated Population Projections by County



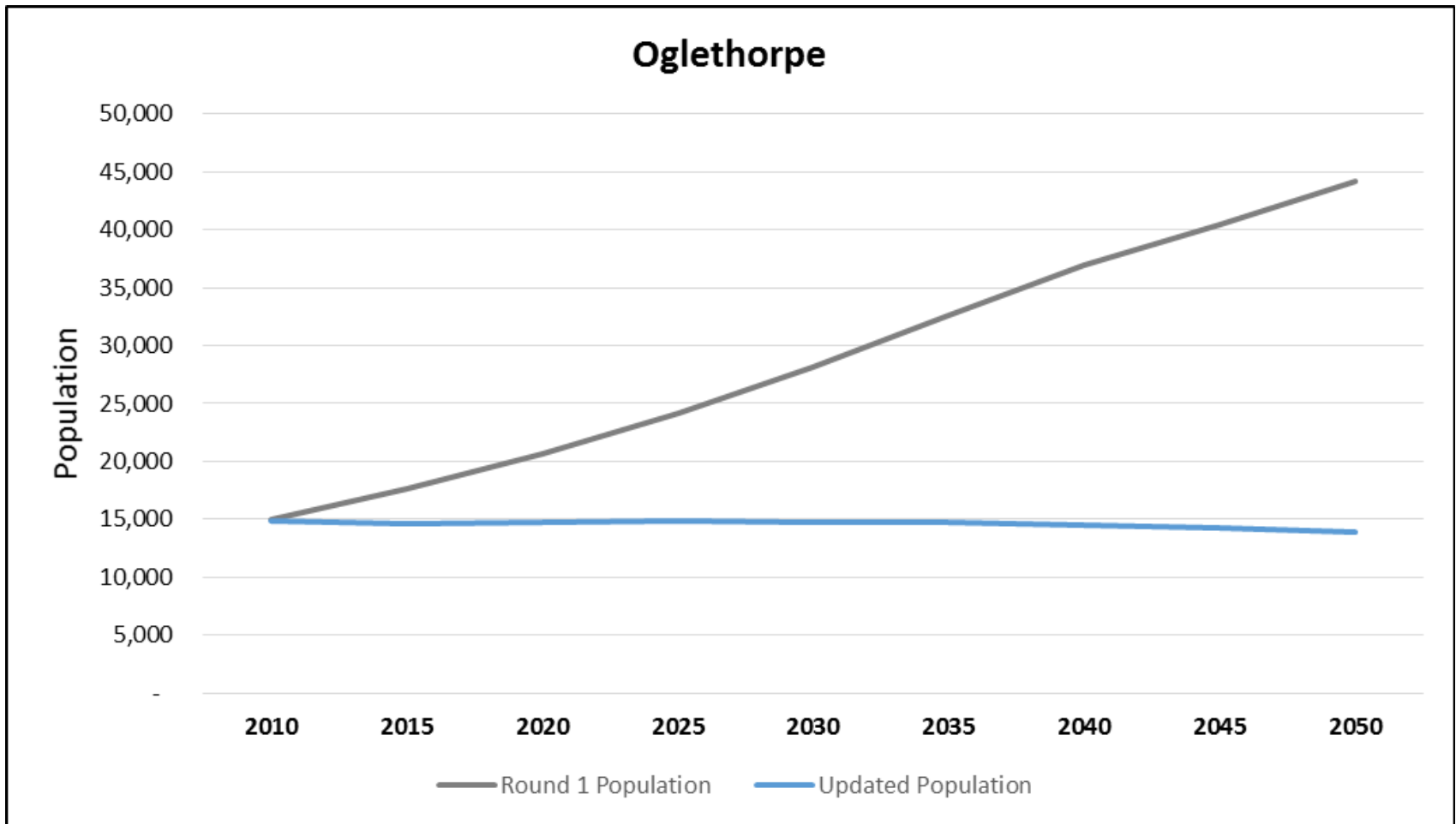
Updated Population Projections by County



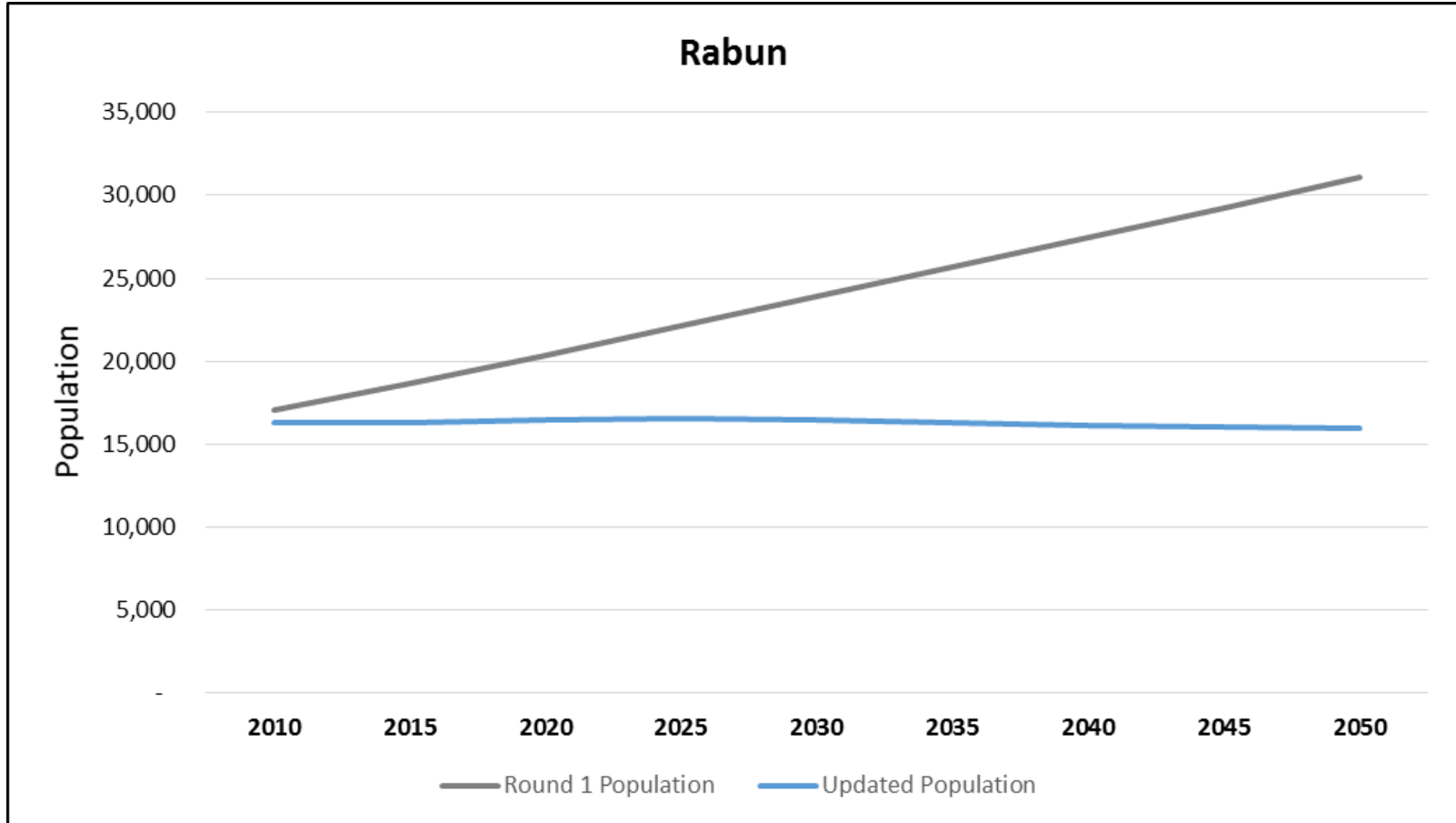
Updated Population Projections by County



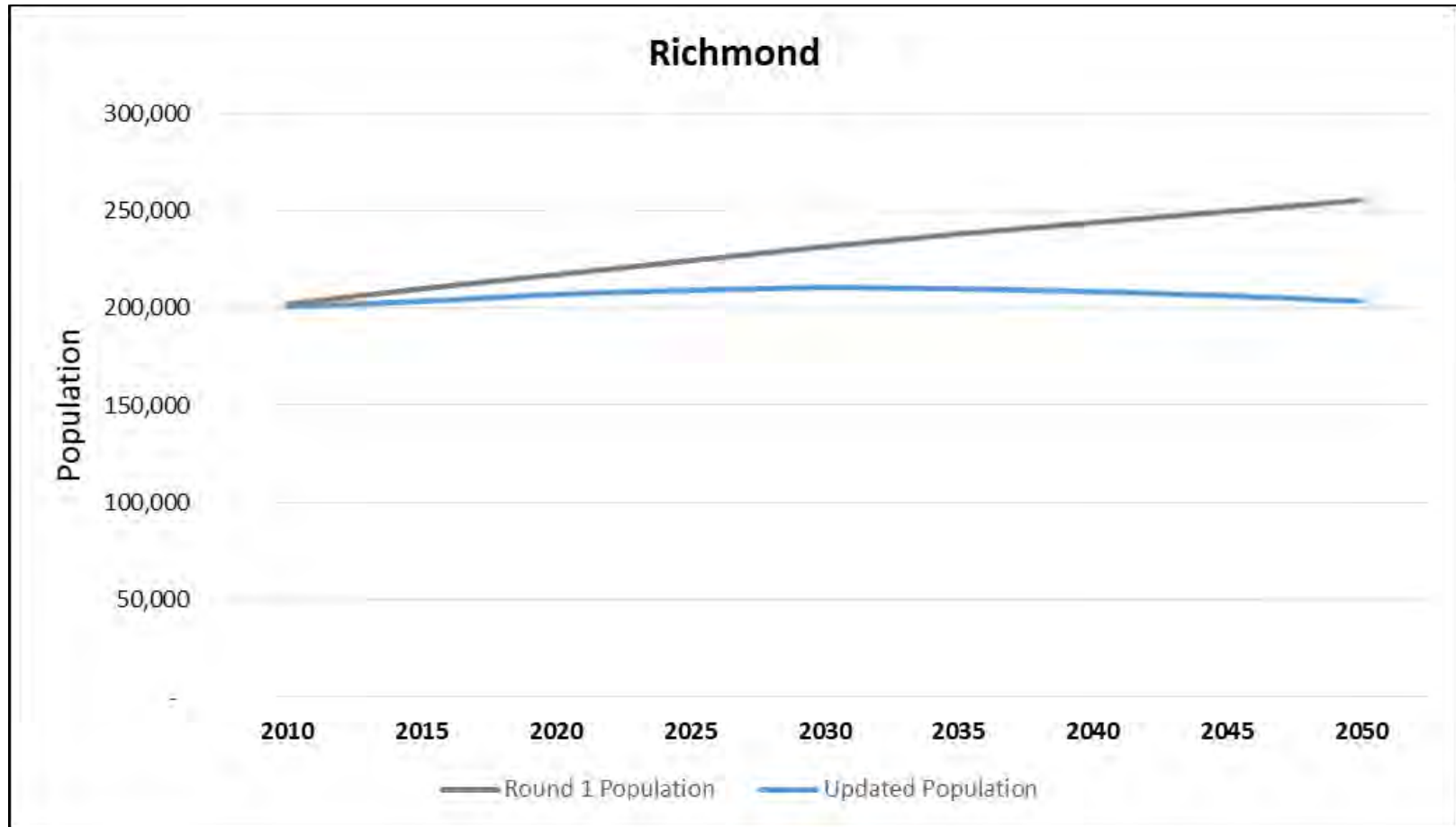
Updated Population Projections by County



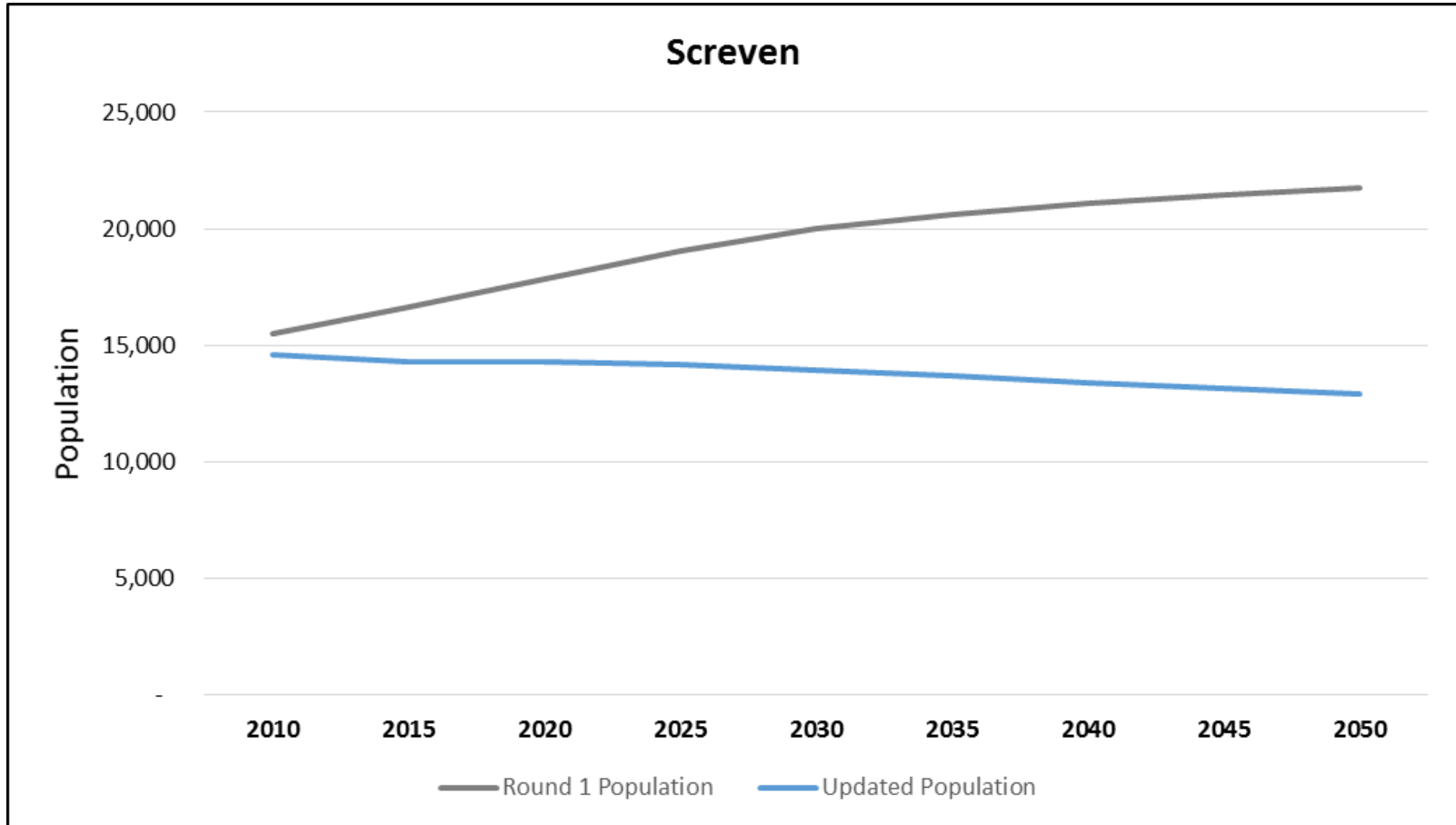
Updated Population Projections by County



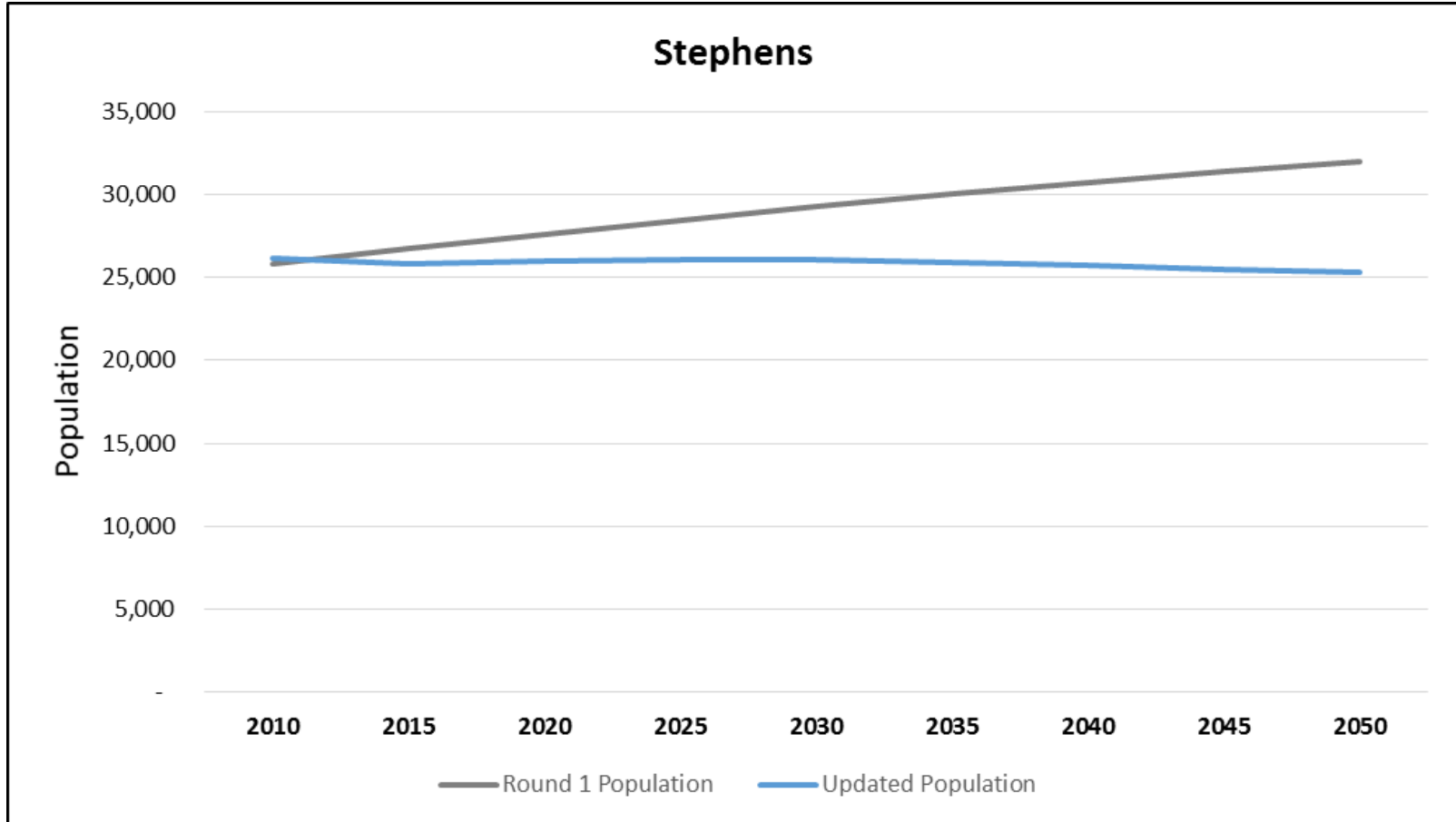
Updated Population Projections by County



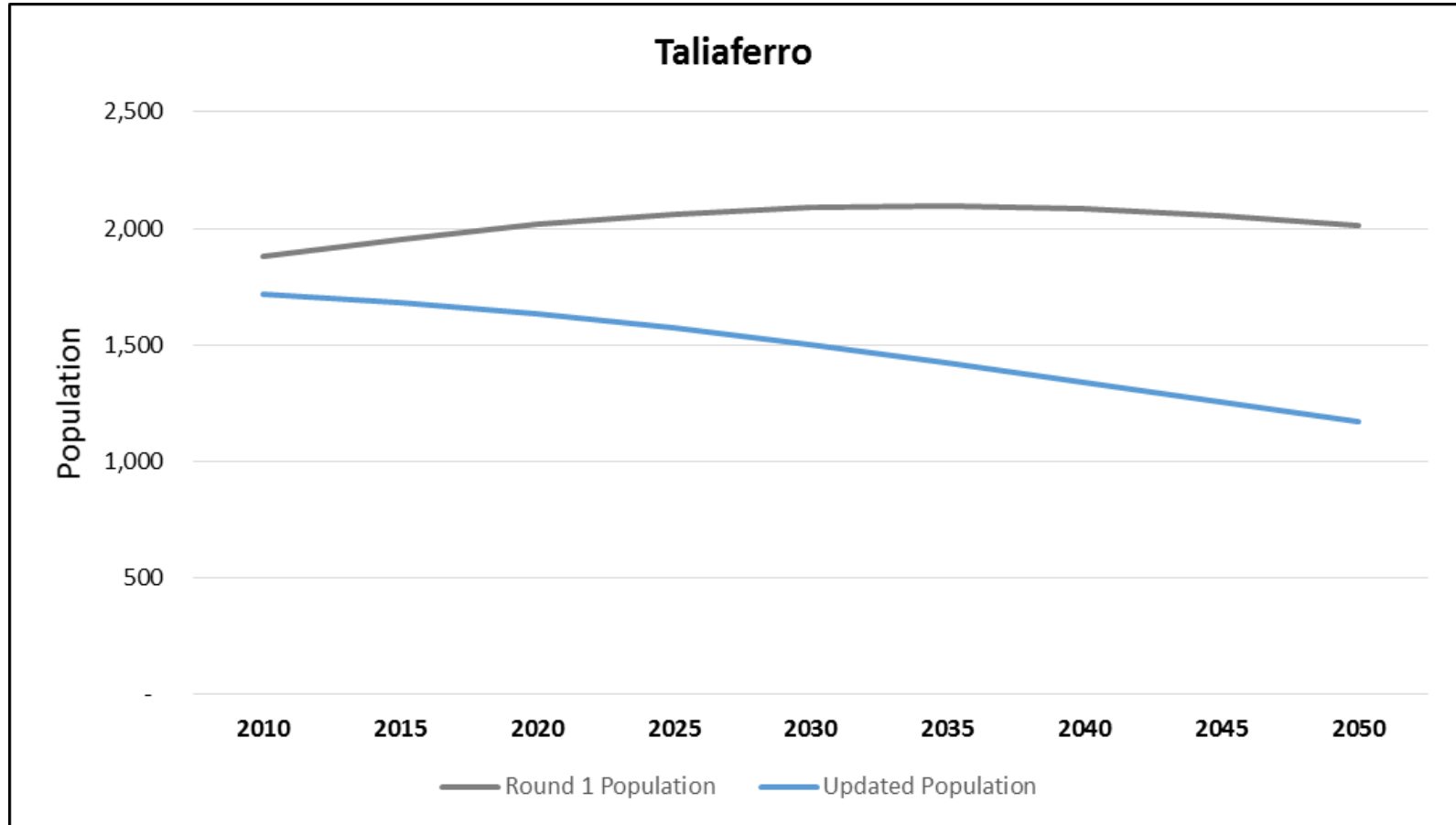
Updated Population Projections by County



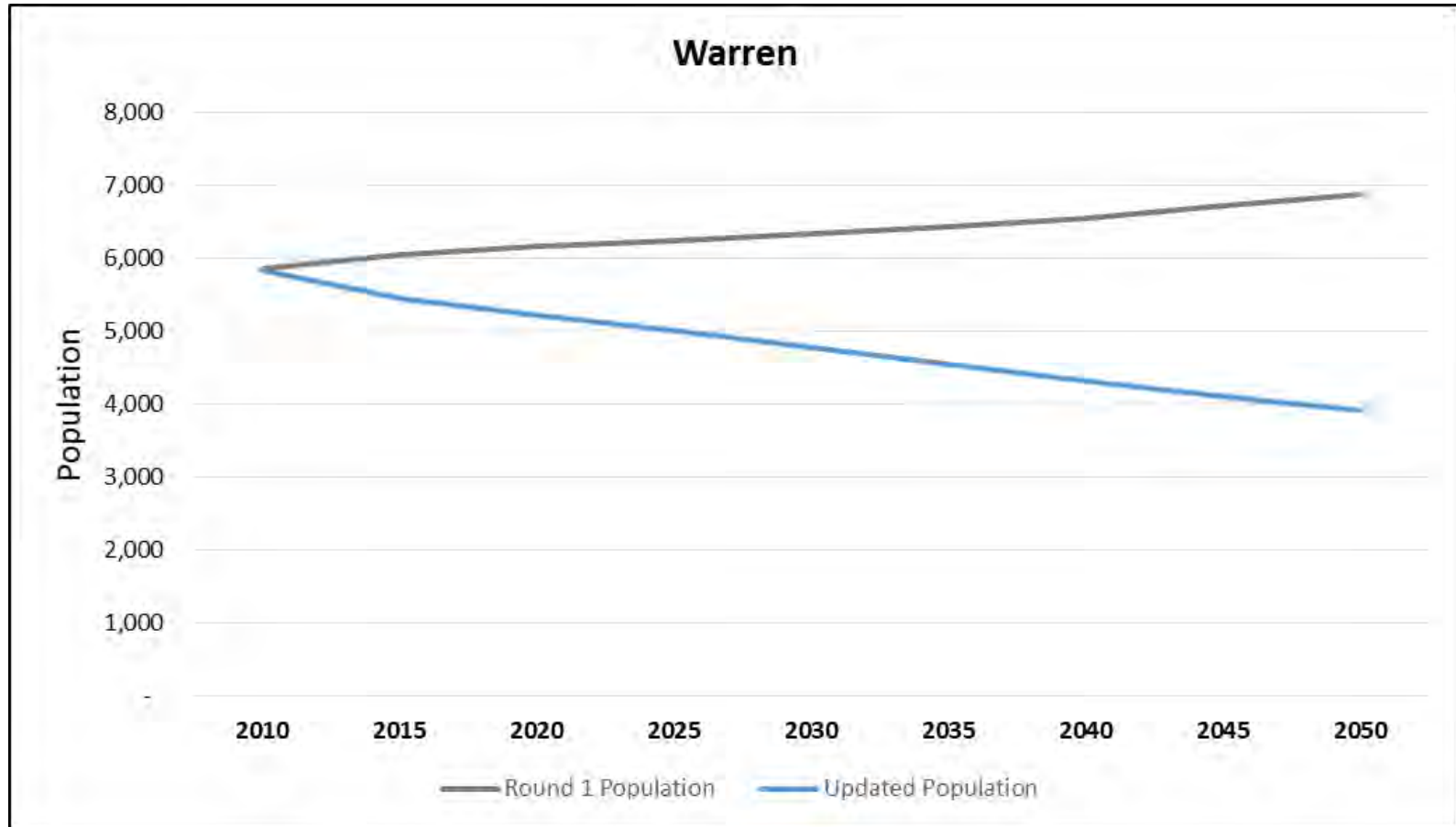
Updated Population Projections by County



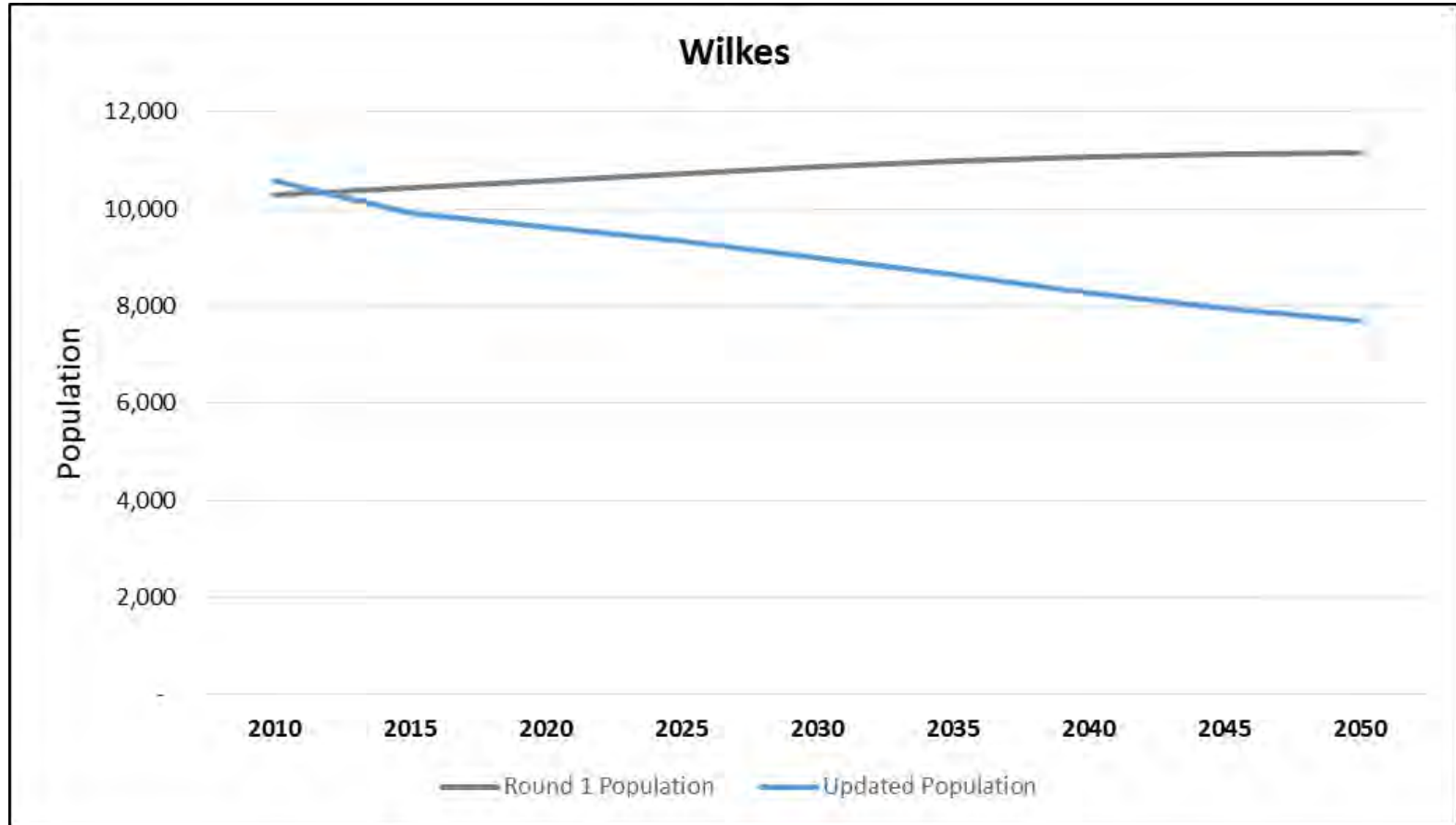
Updated Population Projections by County



Updated Population Projections by County



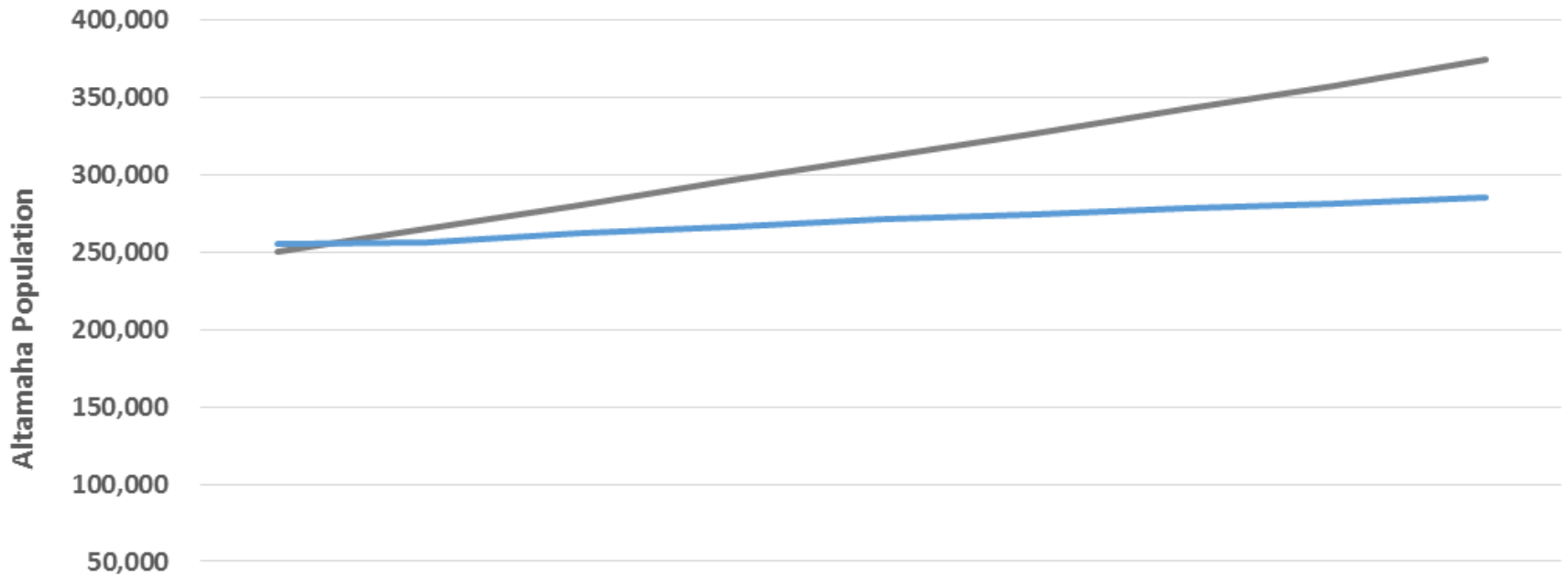
Updated Population Projections by County



Neighboring Regional Population Projections

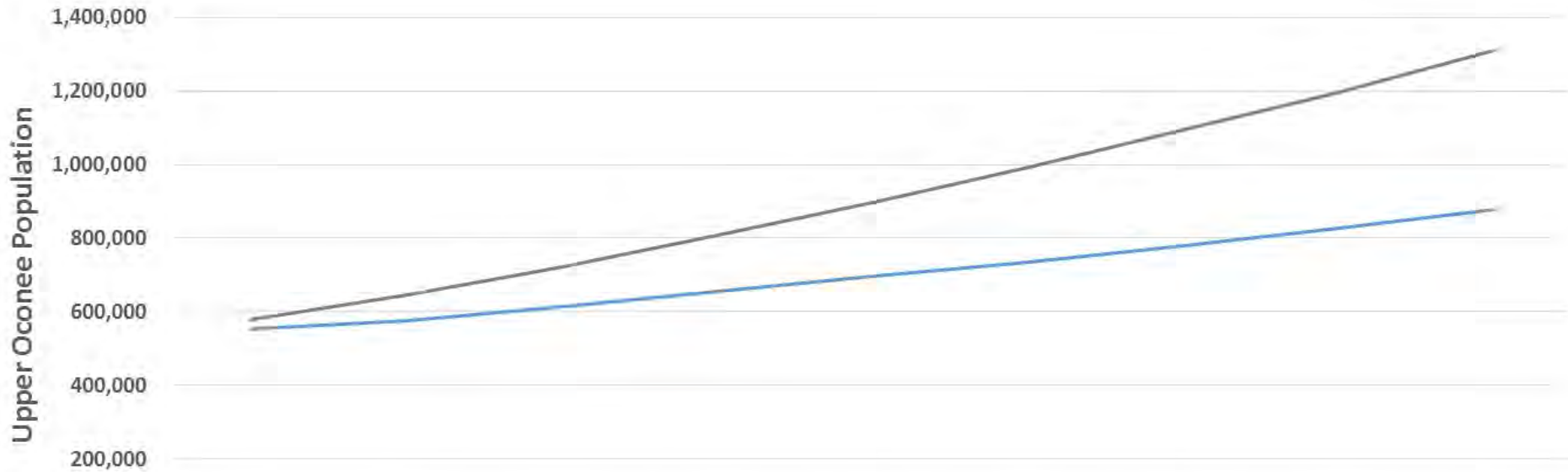
- The following slides provide a summary of population projections in neighboring regions
 - Altamaha
 - Upper Oconee
 - Coastal

Altamaha Region Population Projections



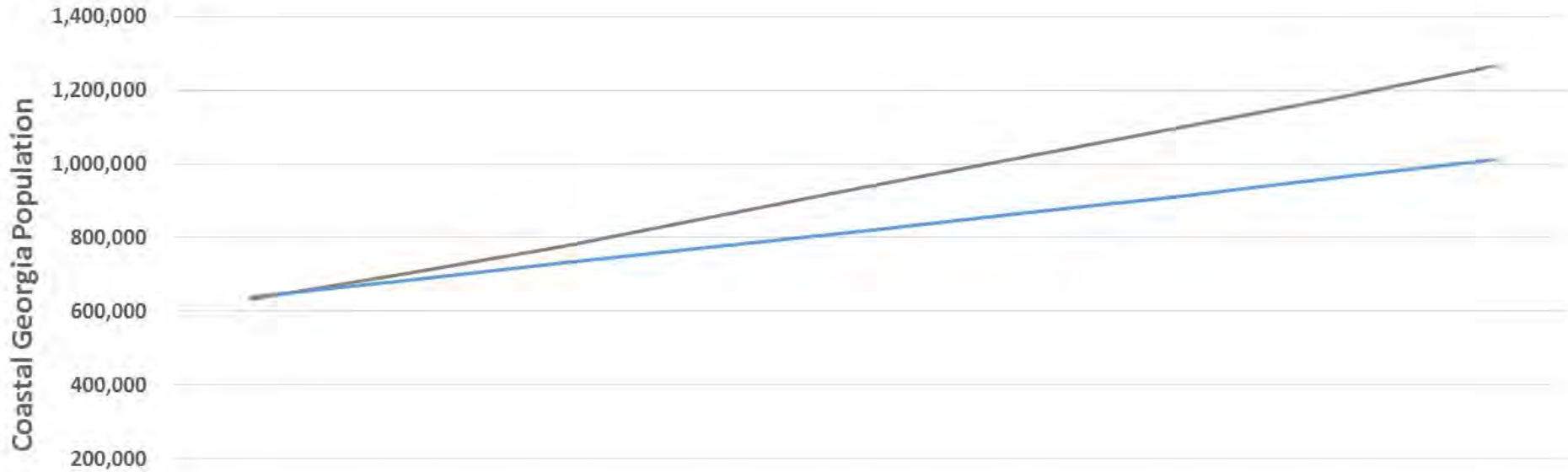
	2010	2015	2020	2025	2030	2035	2040	2045	2050
— Round 1	250,659	265,670	280,643	295,994	311,418	326,524	341,872	357,879	374,565
— Update	254,765	256,305	262,028	266,757	271,485	274,776	278,067	281,658	285,248

Upper Oconee Region Population Projections



	2010	2015	2020	2025	2030	2035	2040	2045	2050
— Round 1	579,873	646,773	721,933	806,791	897,760	992,452	1,092,719	1,195,307	1,309,893
— Update	552,555	577,039	615,383	655,244	695,509	736,431	779,290	825,590	876,884

Coastal Region Population Projections



	2010	2015	2020	2025	2030	2035	2040	2045	2050
— Round 1	632,813	703,854	777,695	859,962	942,920	1,021,169	1,101,517	1,181,052	1,265,982
— Update	640,217	683,803	730,540	776,168	821,796	867,611	913,427	963,024	1,012,621

Neighboring Regional Population Projections

- Projections for neighboring regions compared to Savannah-Upper Ogeechee

Region	2010 Population	2050 Population
Savannah-Upper Ogeechee	610,206	784,020
Altamaha	254,765	285,248
Upper Oconee	552,555	876,884
Coastal	640,217	1,012,621



Georgia's
State Water Plan

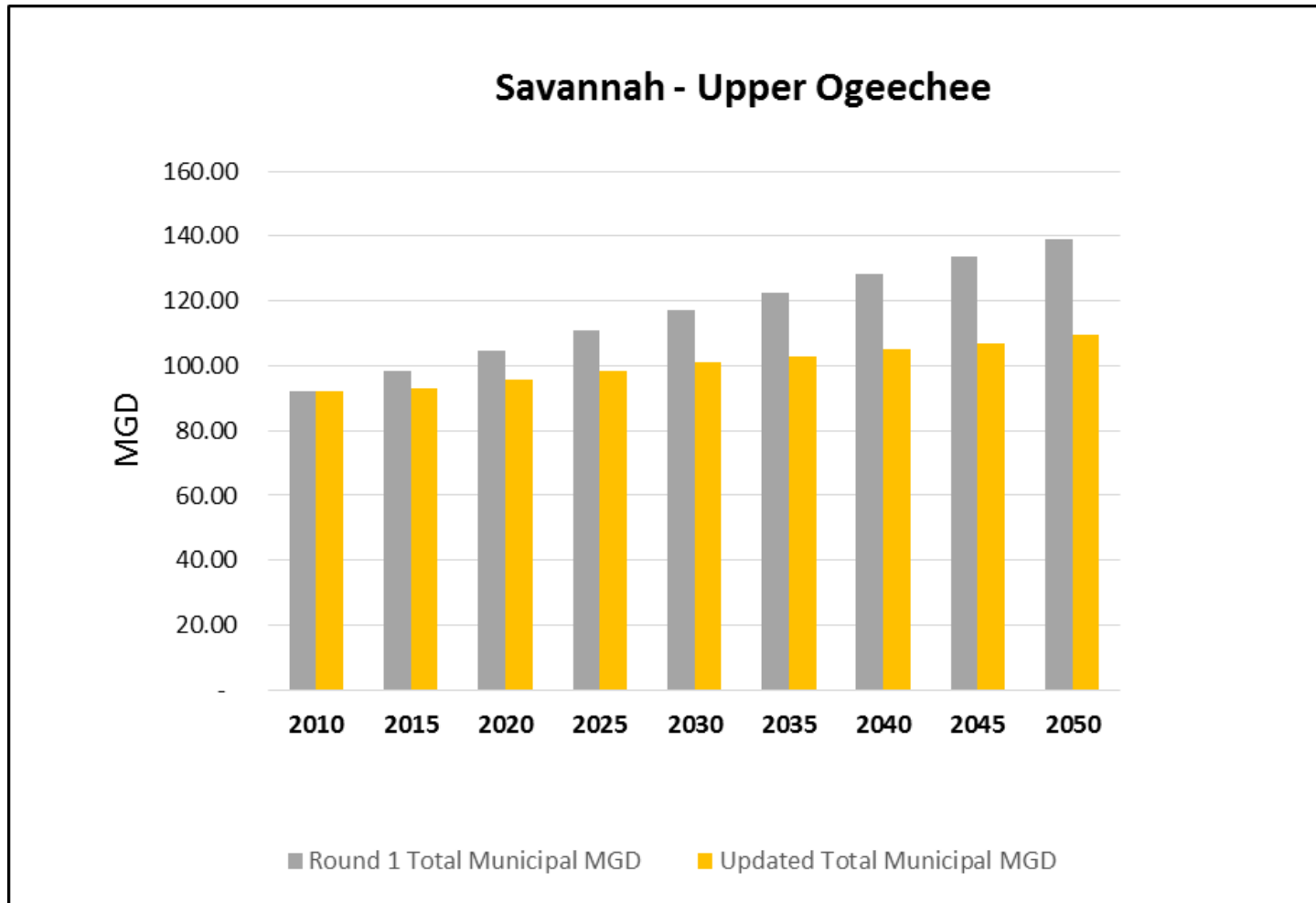
Municipal Water Demand Forecast
Update

www.georgiawaterplanning.org

Municipal GPCD Adjustment Results - SUO Region

- EPD determined adjustment factors for each County based on 2010-2014 use data
- Small relative change
- 15 out of 20 counties have less than ± 3 GPCD change
- Round 1 Regional Average GPCD: 127.5
- Updated Regional Average GPCD: 126.5
- Average change across region is -0.4%

SUO Region Updated Municipal Water Demand



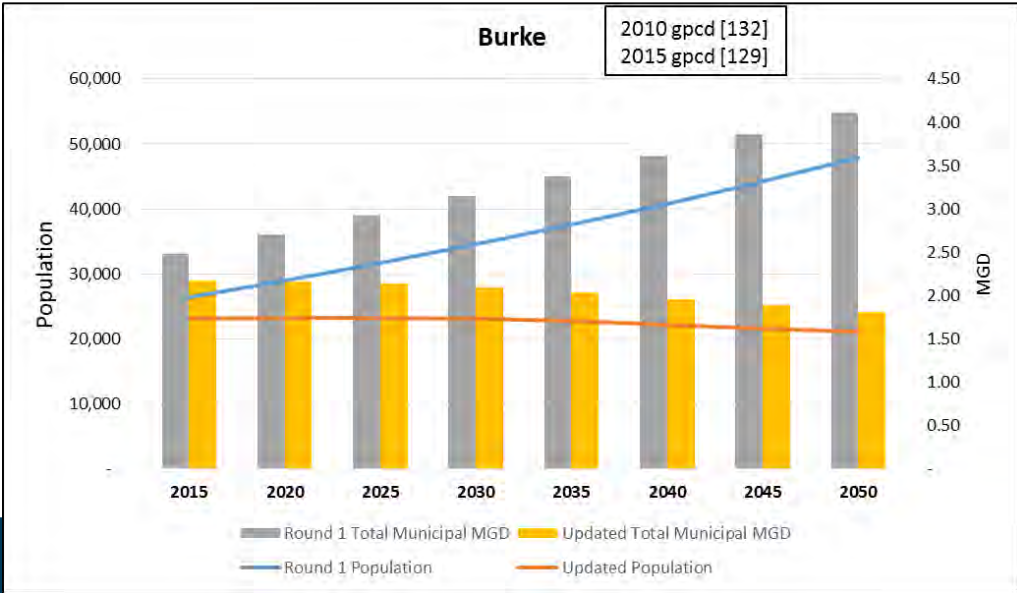
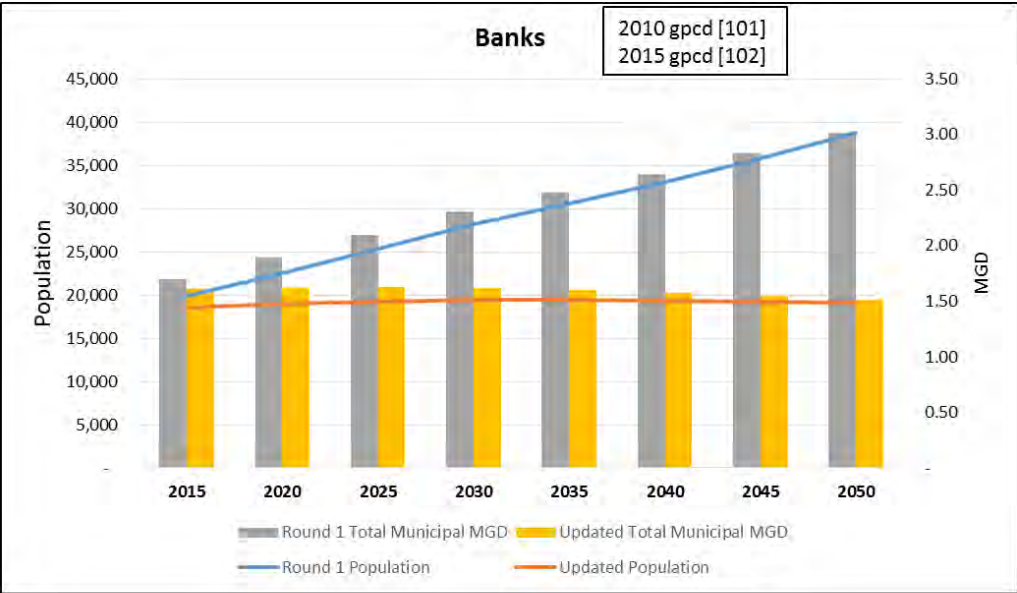
Municipal GPCD Adjustment Results by County

County	Round 1 GPCD	% Adjustment Factor	Adjusted GPCD	GPCD Δ
Banks	101	1.3%	102	1
Burke	132	-2.4%	129	-3
Columbia	153	-12.6%	134	-19
Elbert	102	2.9%	105	3
Franklin	164	-1.7%	161	-3
Glascock	73	0.0%	73	0
Hart	154	2.6%	158	4
Jefferson	169	-3.1%	163	-6
Jenkins	101	5.3%	107	6
Lincoln	67	-0.7%	66	-1
McDuffie	139	1.8%	141	2
Madison	107	-3.3%	104	-3
Oglethorpe	94	6.1%	100	6
Rabun	168	-2.3%	164	-4
Richmond	221	-2.1%	217	-4
Screven	161	-0.5%	160	-1
Stephens	144	1.4%	146	2
Taliaferro	71	0.0%	71	0
Warren	73	-1.3%	72	-1
Wilkes	156	0.3%	156	0

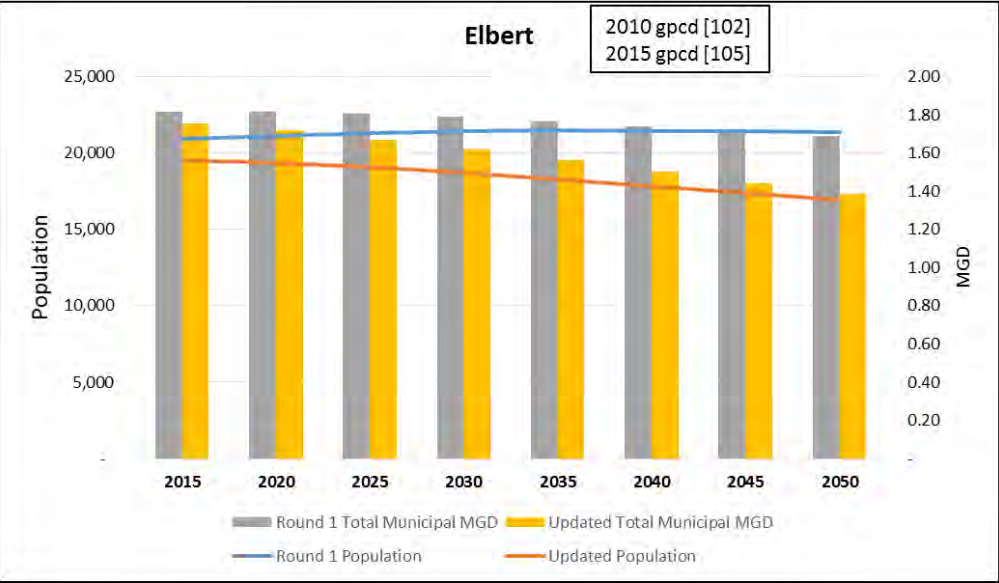
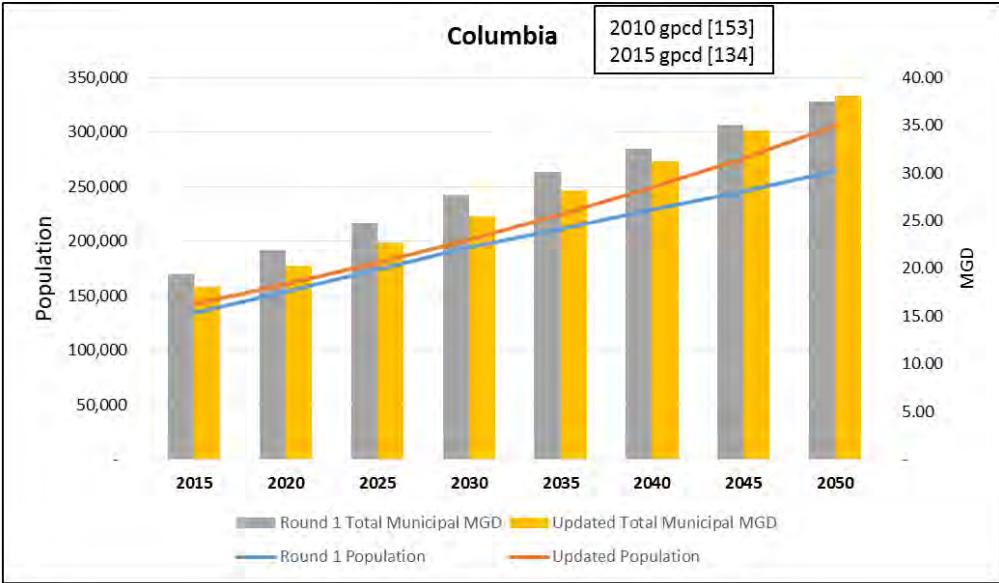
Updated Municipal Water Demand Results by County

- The following slides present the County-level updated municipal water demand forecasts

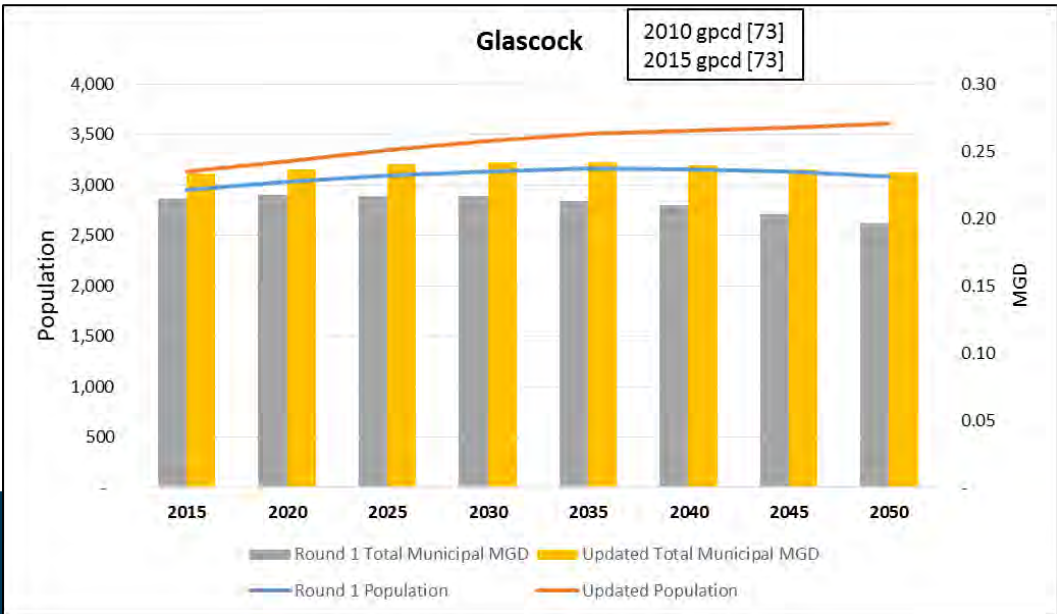
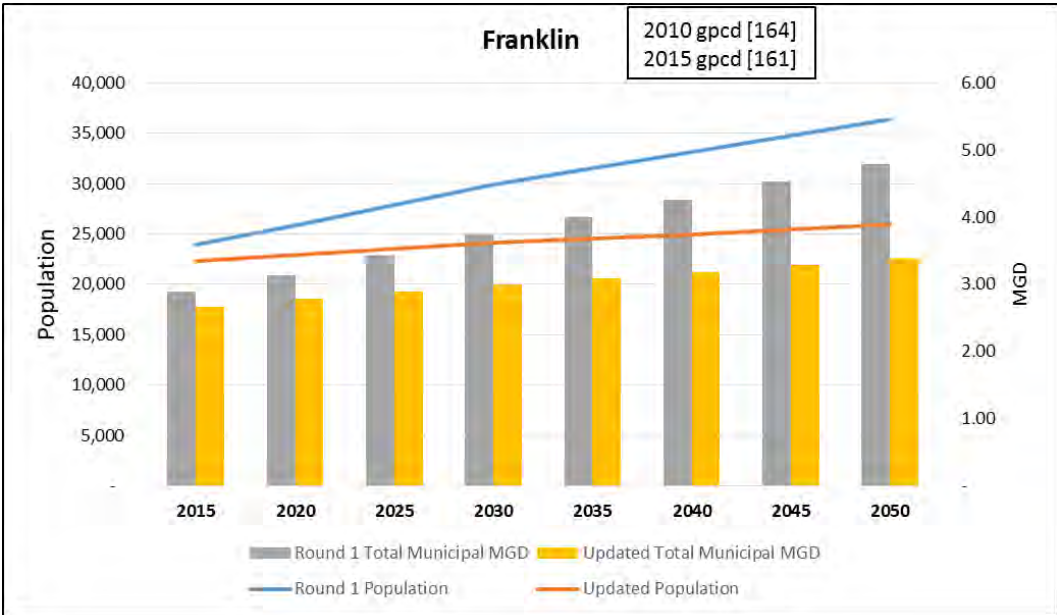
Municipal Water Demand Forecast by County



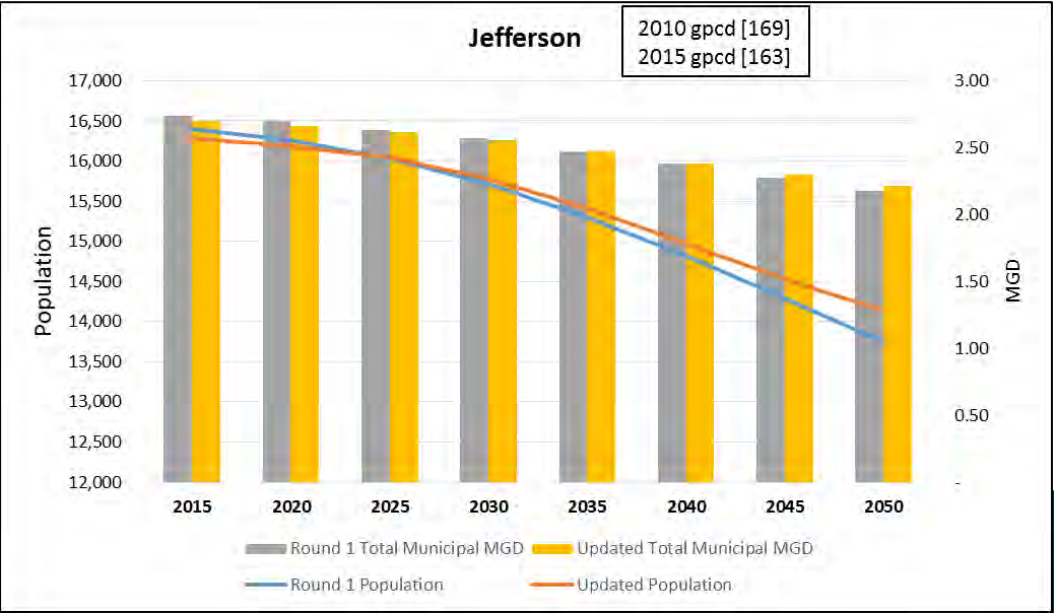
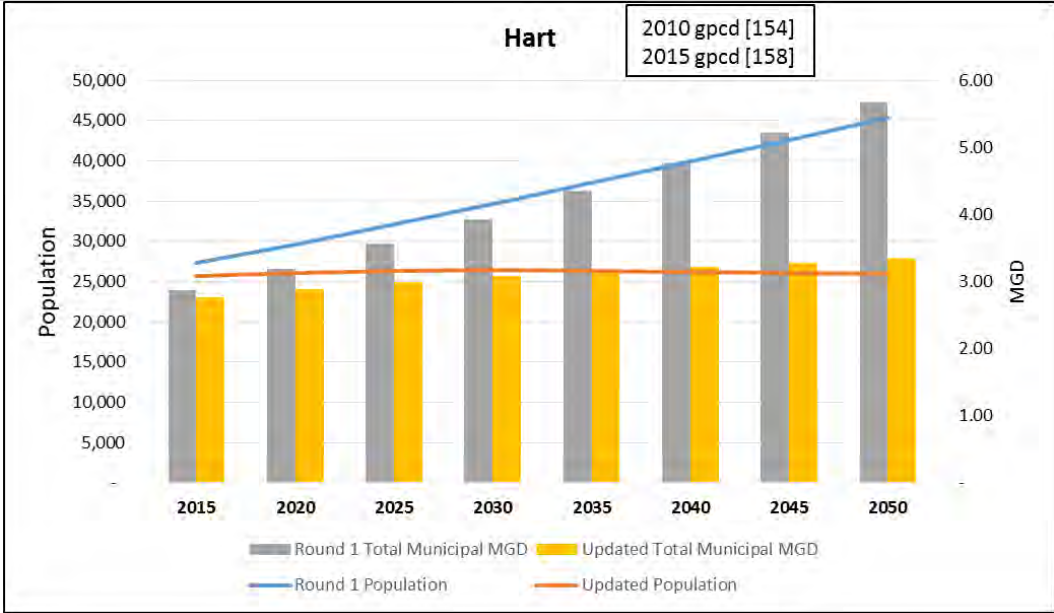
Municipal Water Demand Forecast by County



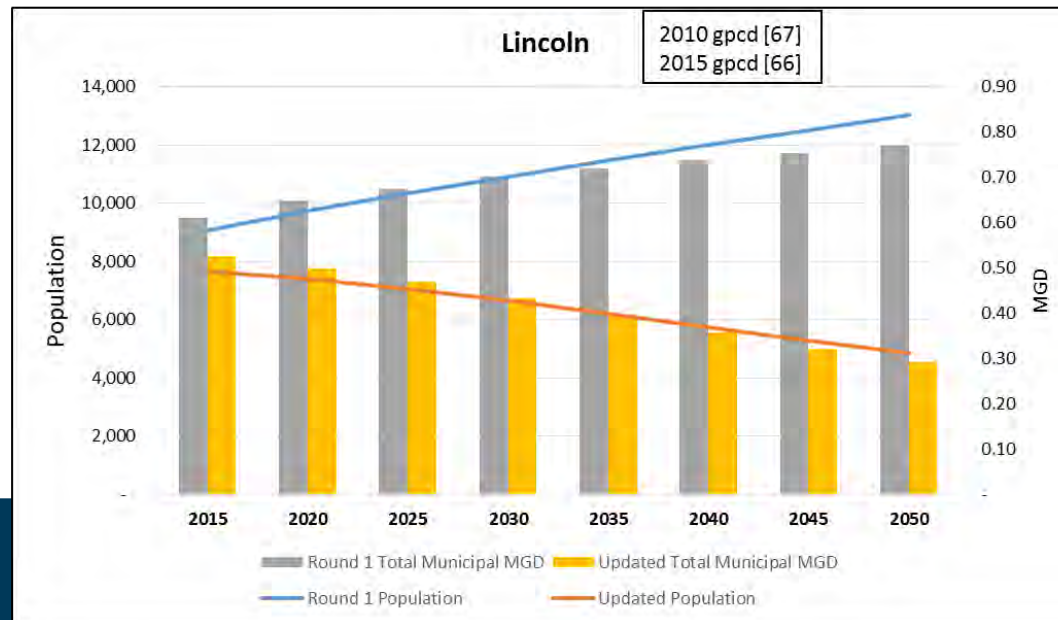
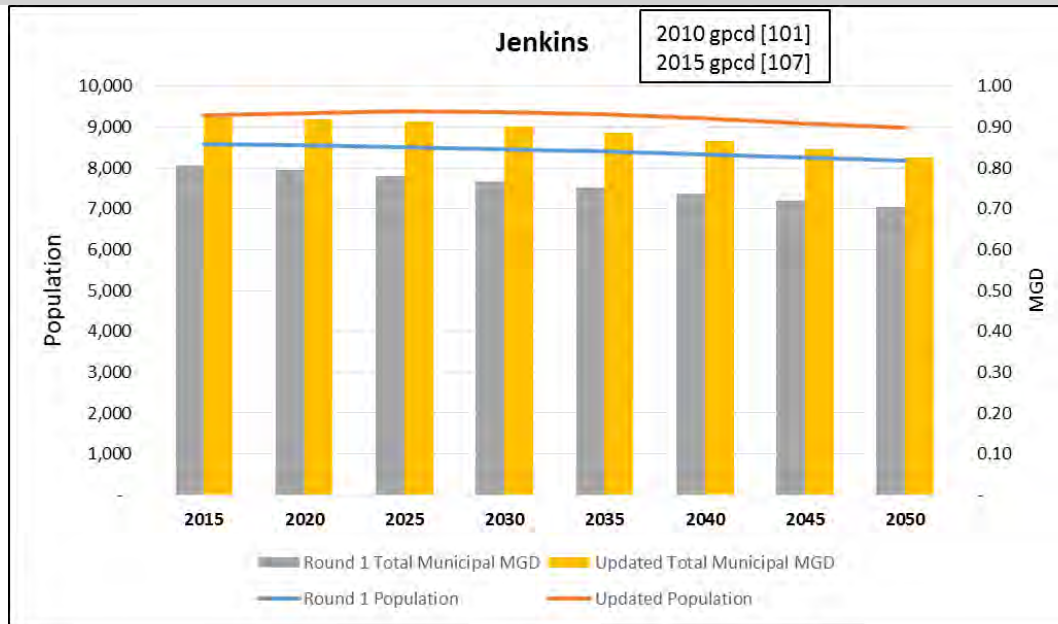
Municipal Water Demand Forecast by County



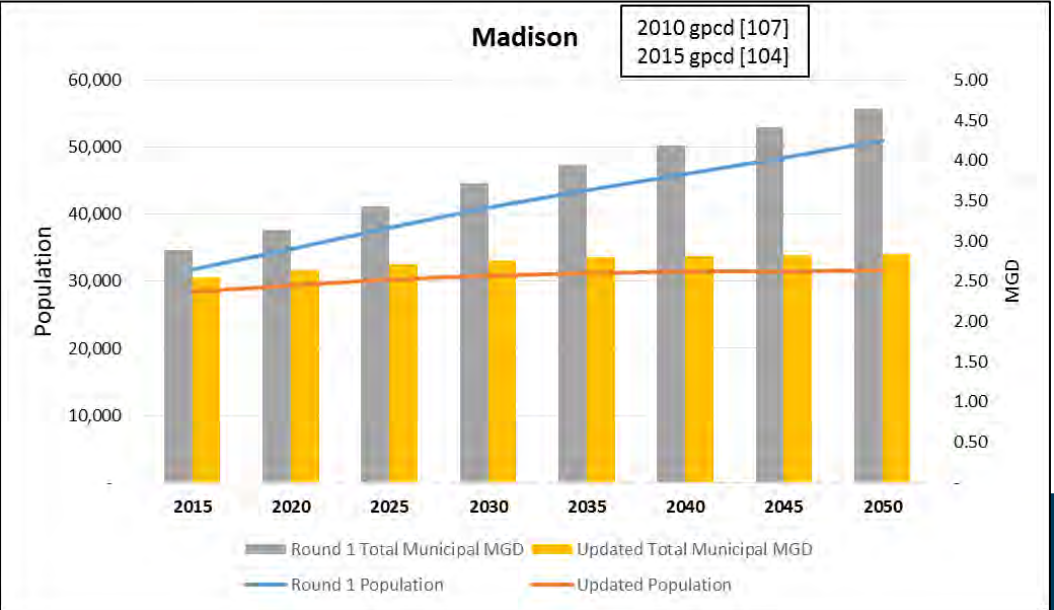
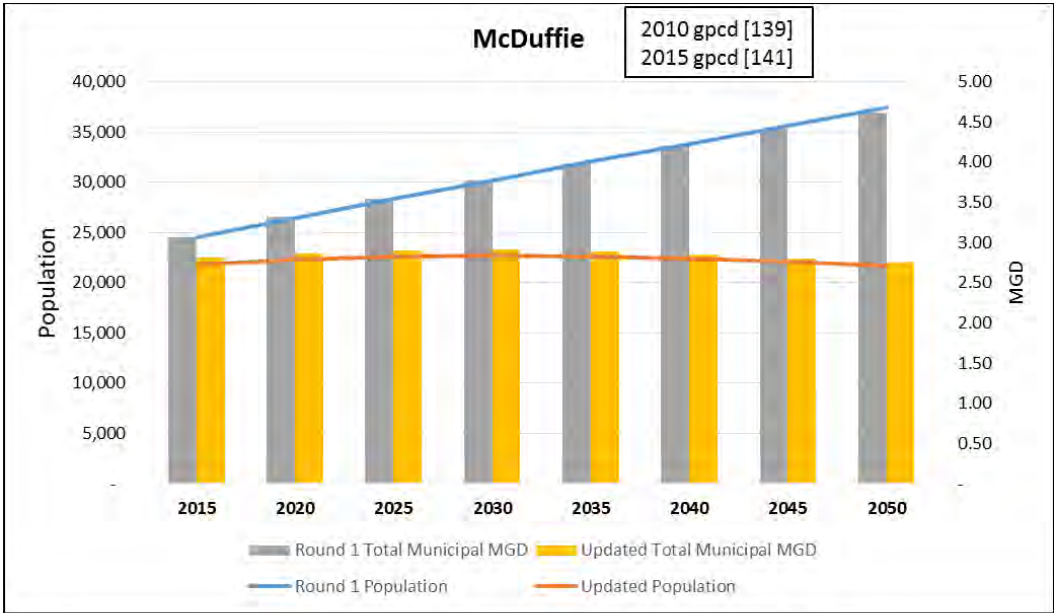
Municipal Water Demand Forecast by County



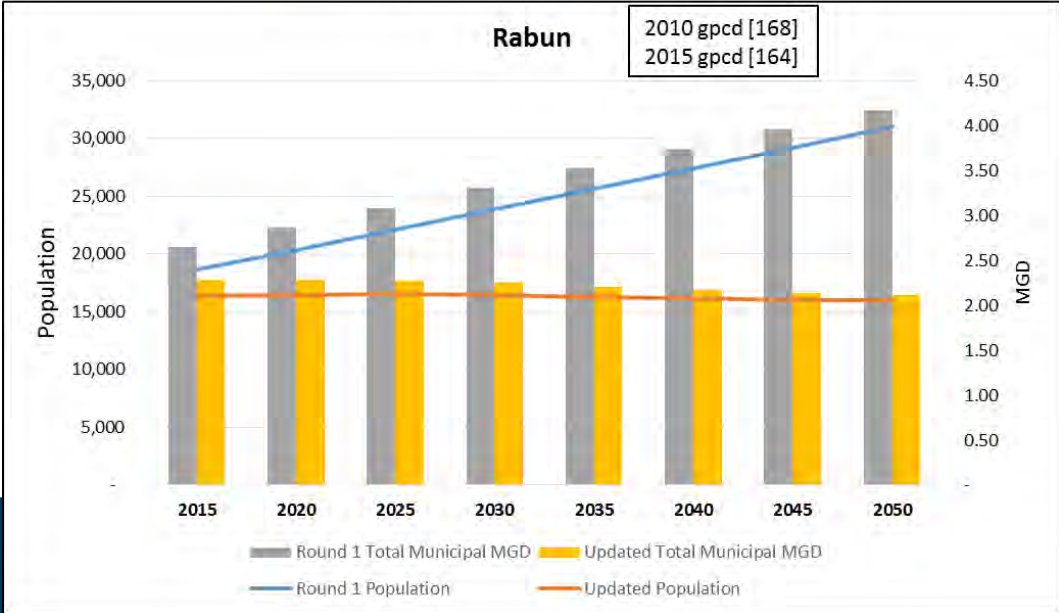
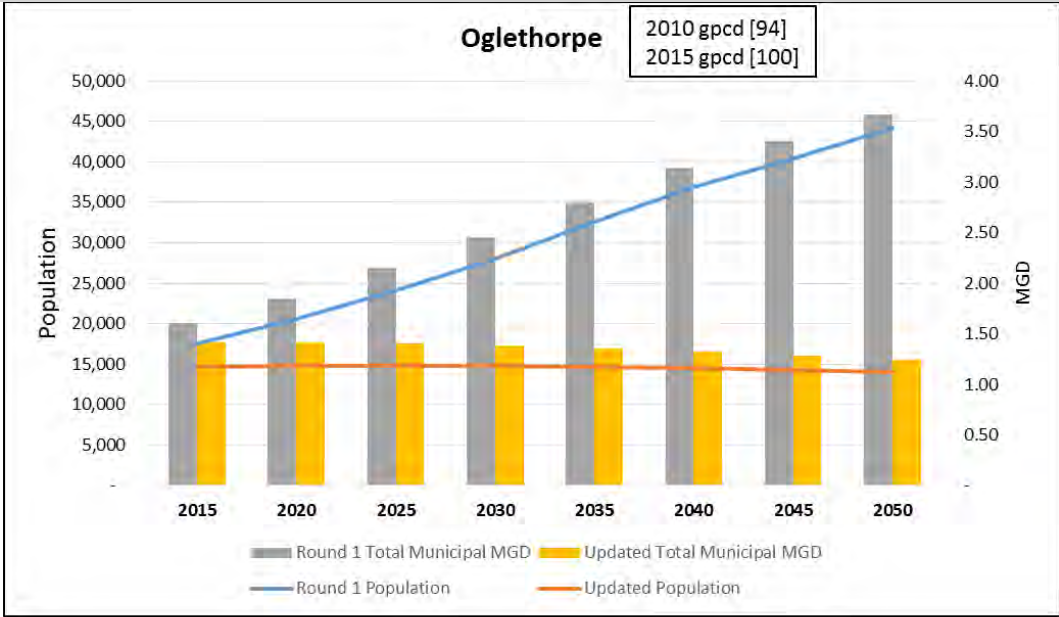
Municipal Water Demand Forecast by County



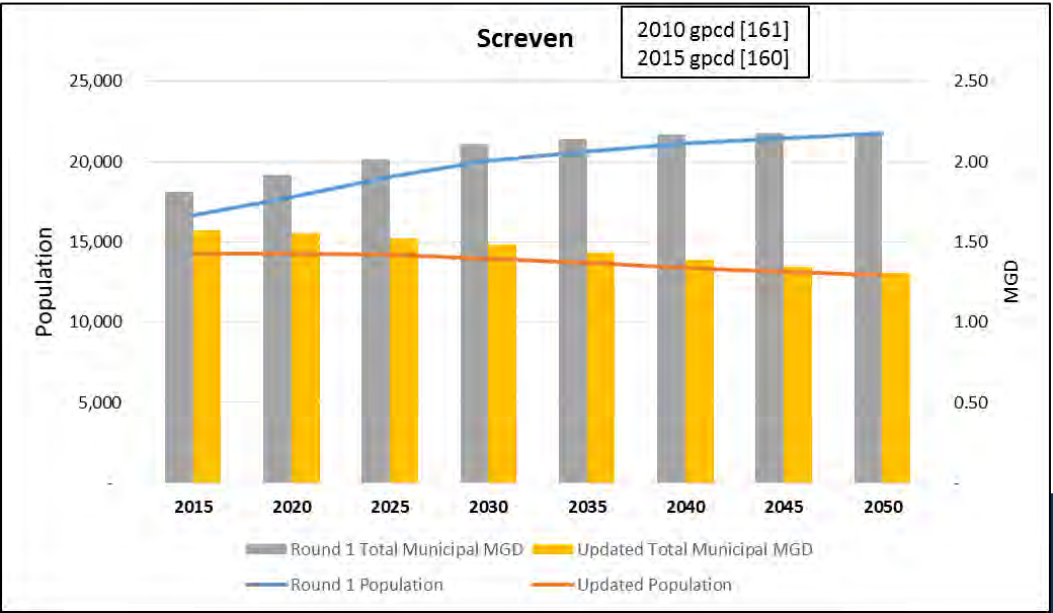
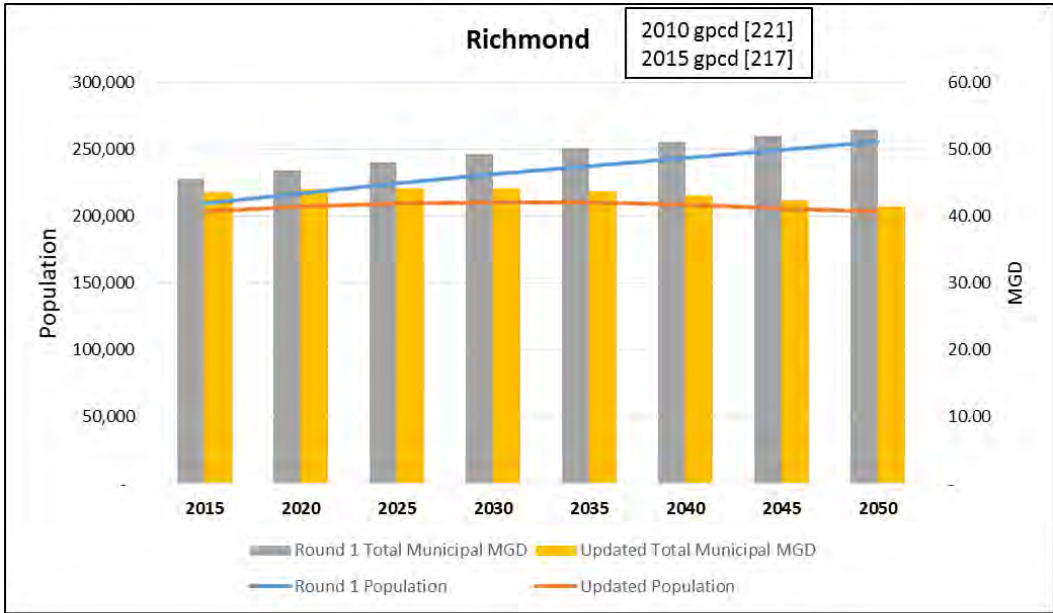
Municipal Water Demand Forecast by County



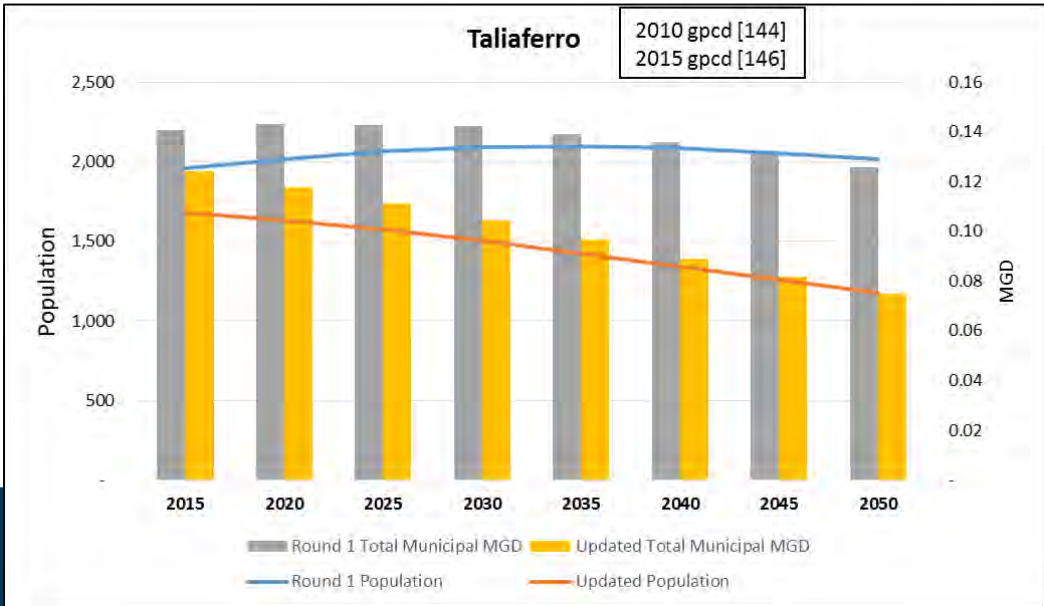
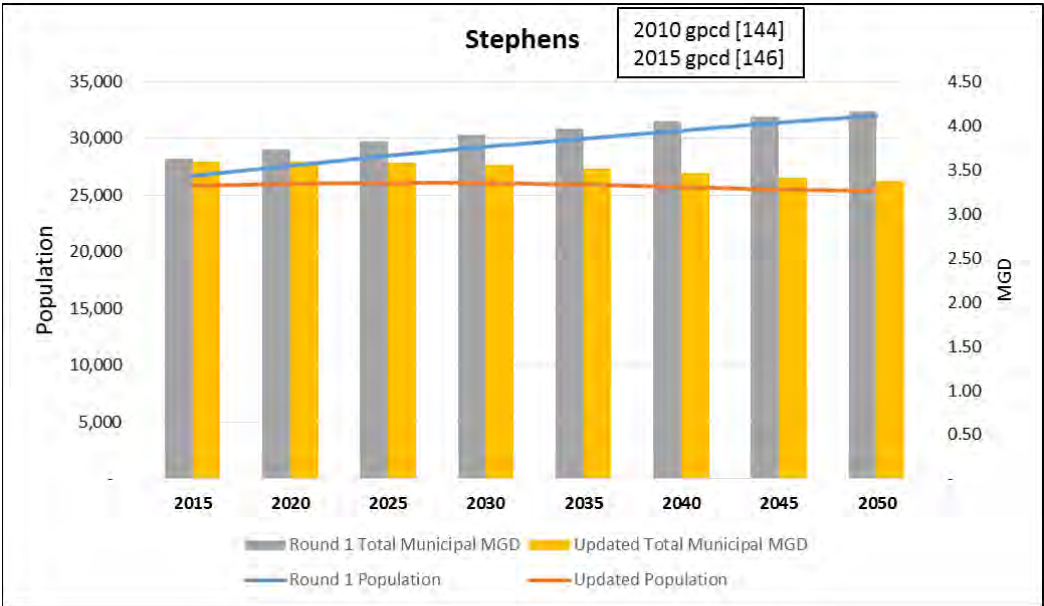
Municipal Water Demand Forecast by County



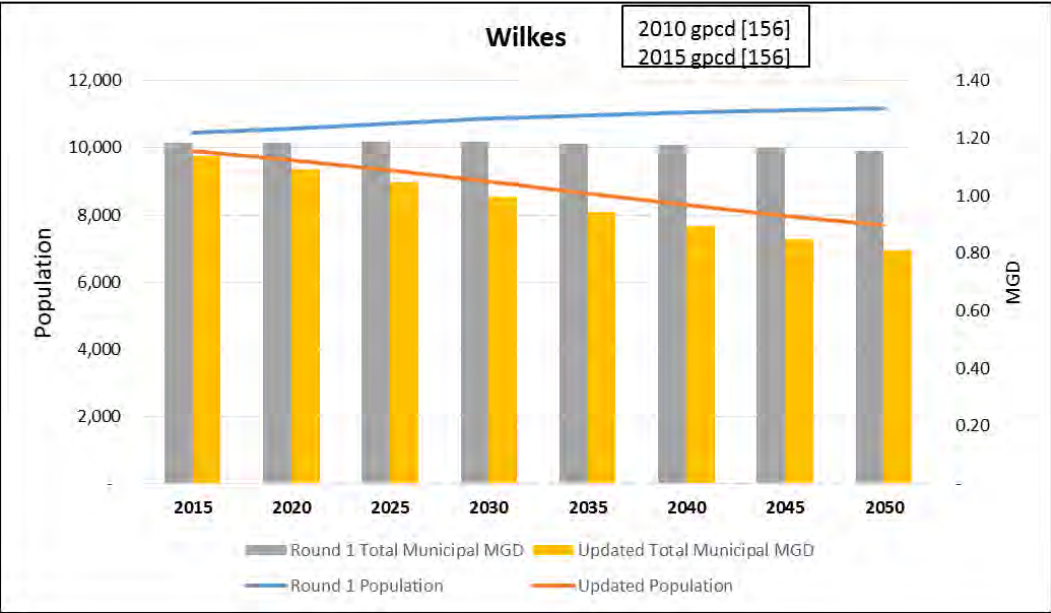
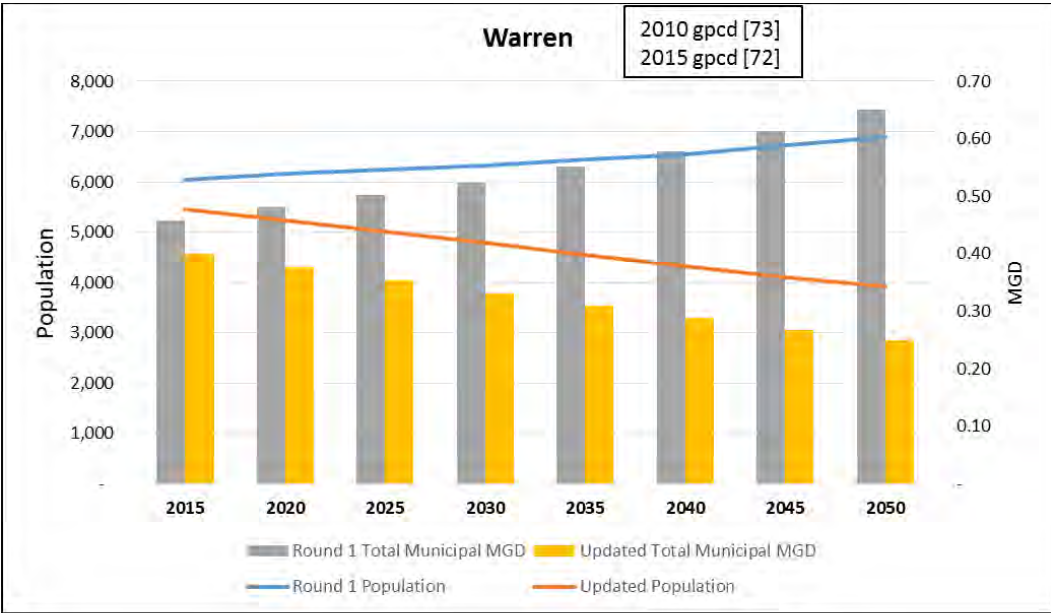
Municipal Water Demand Forecast by County



Municipal Water Demand Forecast by County



Municipal Water Demand Forecast by County



Additional GPCD Analysis by EPD

- EPD is further evaluating an additional source of information on County-level per capita
- The additional source of information currently indicates a regional GPCD of 134, but it is still under evaluation
- EPD will share more information with the Council once it is available
- Planning Considerations:
 - Regional and statewide planning are conducted at a different scale than that used in facility planning and permitting
 - Data requirements, local and site specific conditions are unique



Georgia's
State Water Plan

Municipal Wastewater Demand
Forecast Update

www.georgiawaterplanning.org

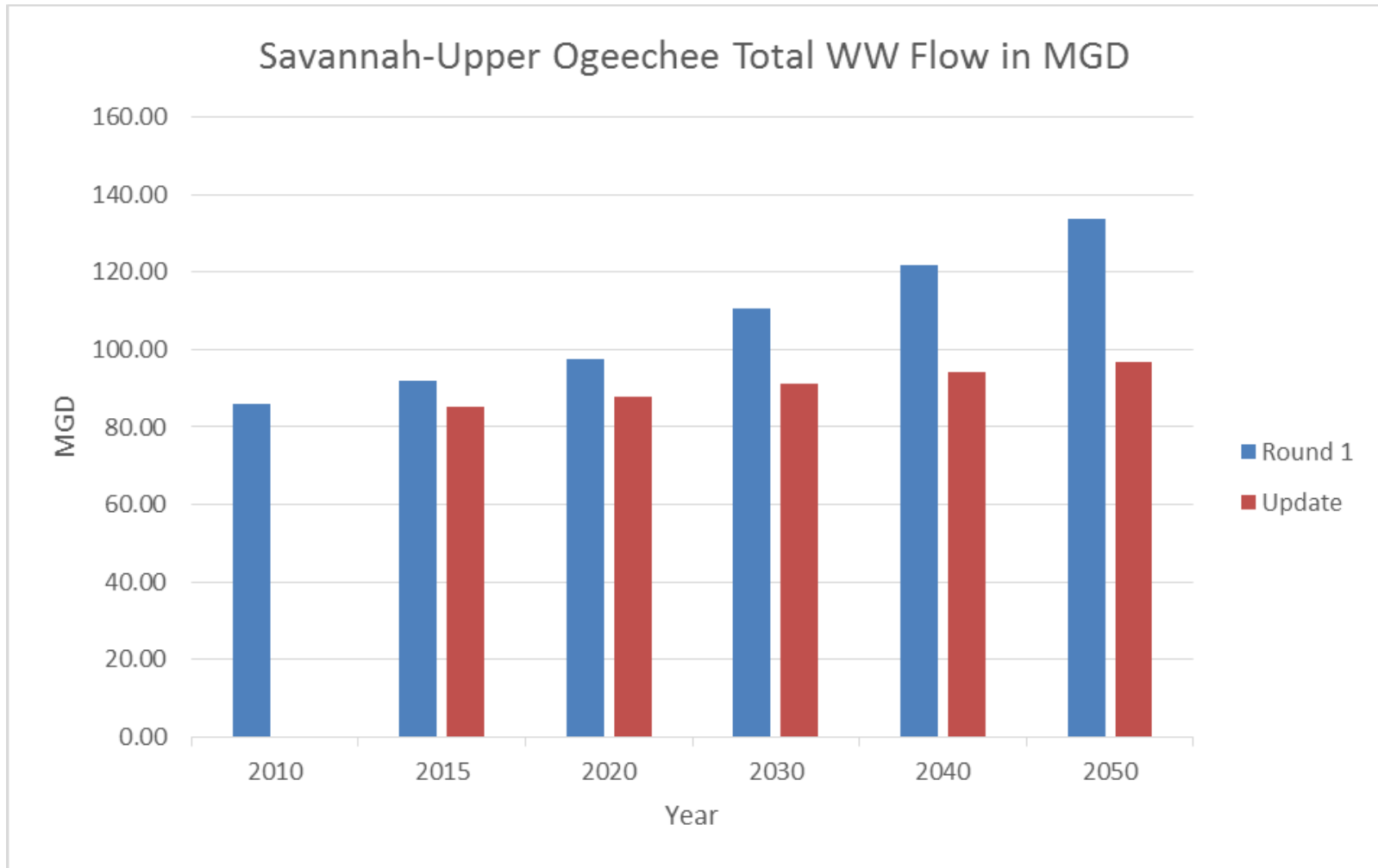
Municipal Wastewater Forecast Update

- In Round 1 the municipal water demand served as the basis for estimating the municipal wastewater flows for each county
- A **new** methodology is being used for these updates based on:
 - 2014 wastewater discharges by county
 - % change in population
 - Future wastewater changes at the rate of population change

Municipal Wastewater Forecast Update

- Under the **new** methodology:
 - No adjustments are made due to Inflow & Infiltration (I&I), but it is implicitly accounted for
 - The ratio of central to septic identified in Round 1 is being held constant
 - Septic flows from Round 1 are adjusted based on changes in population projections
 - EPD will further evaluate local health department and other septic information in the next round of planning

Municipal Wastewater Forecast Update Results

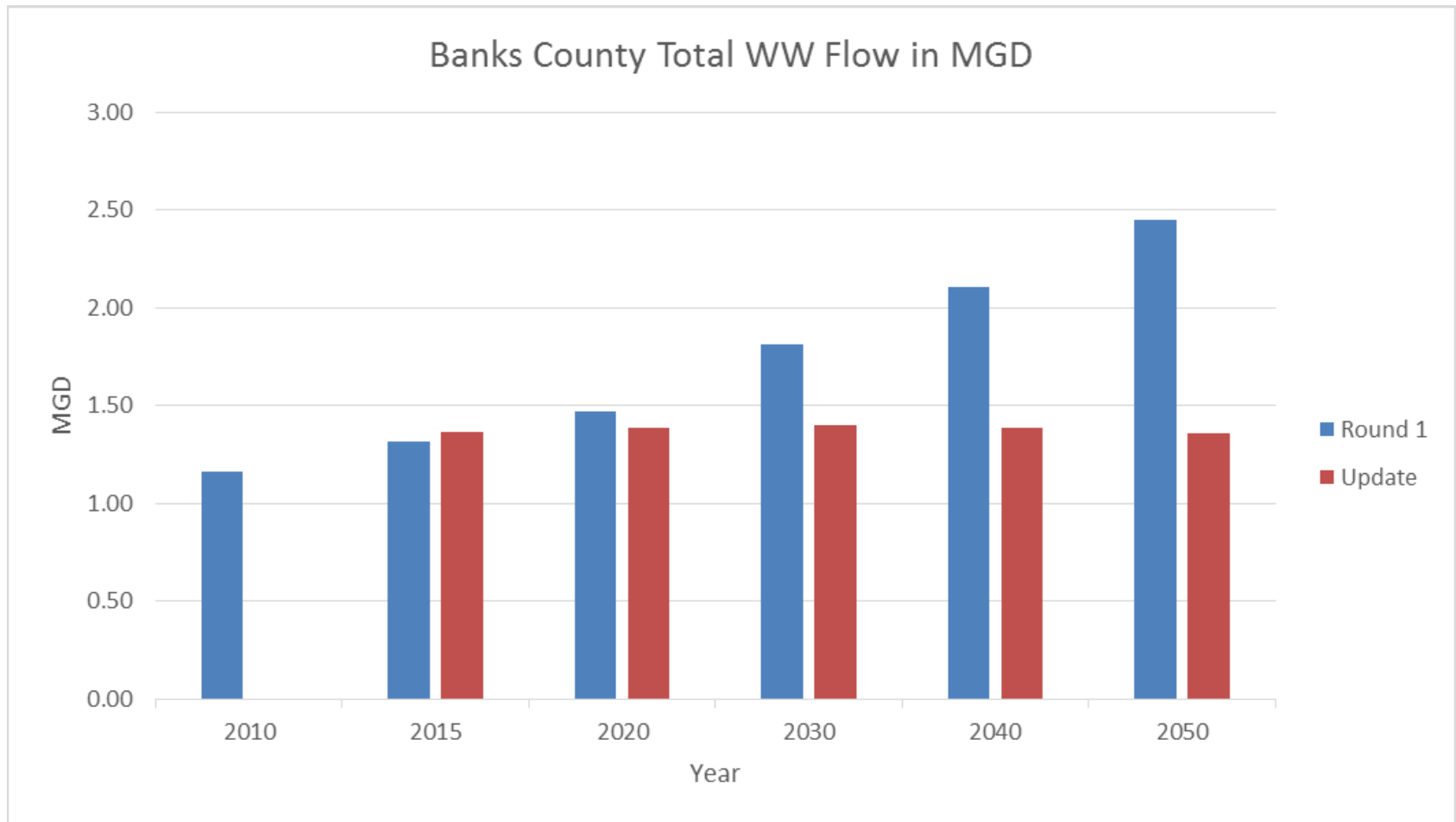


**Results shown on this slide have been updated since Council Meeting 1 due to recent adjustments made by EPD to the calculations*

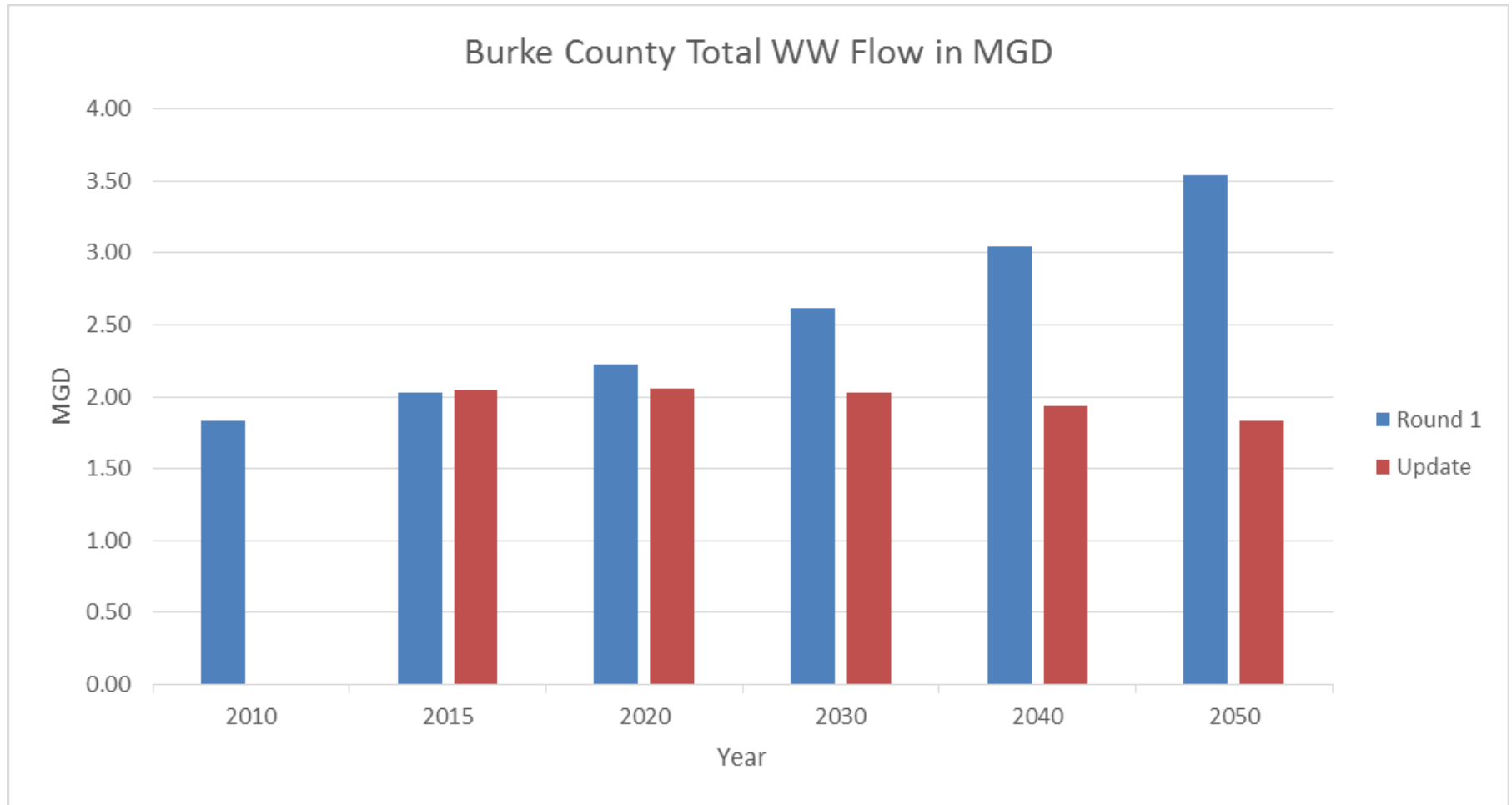
Municipal Wastewater Forecast Results by County

- The following slides present the County-level updated municipal wastewater forecasts

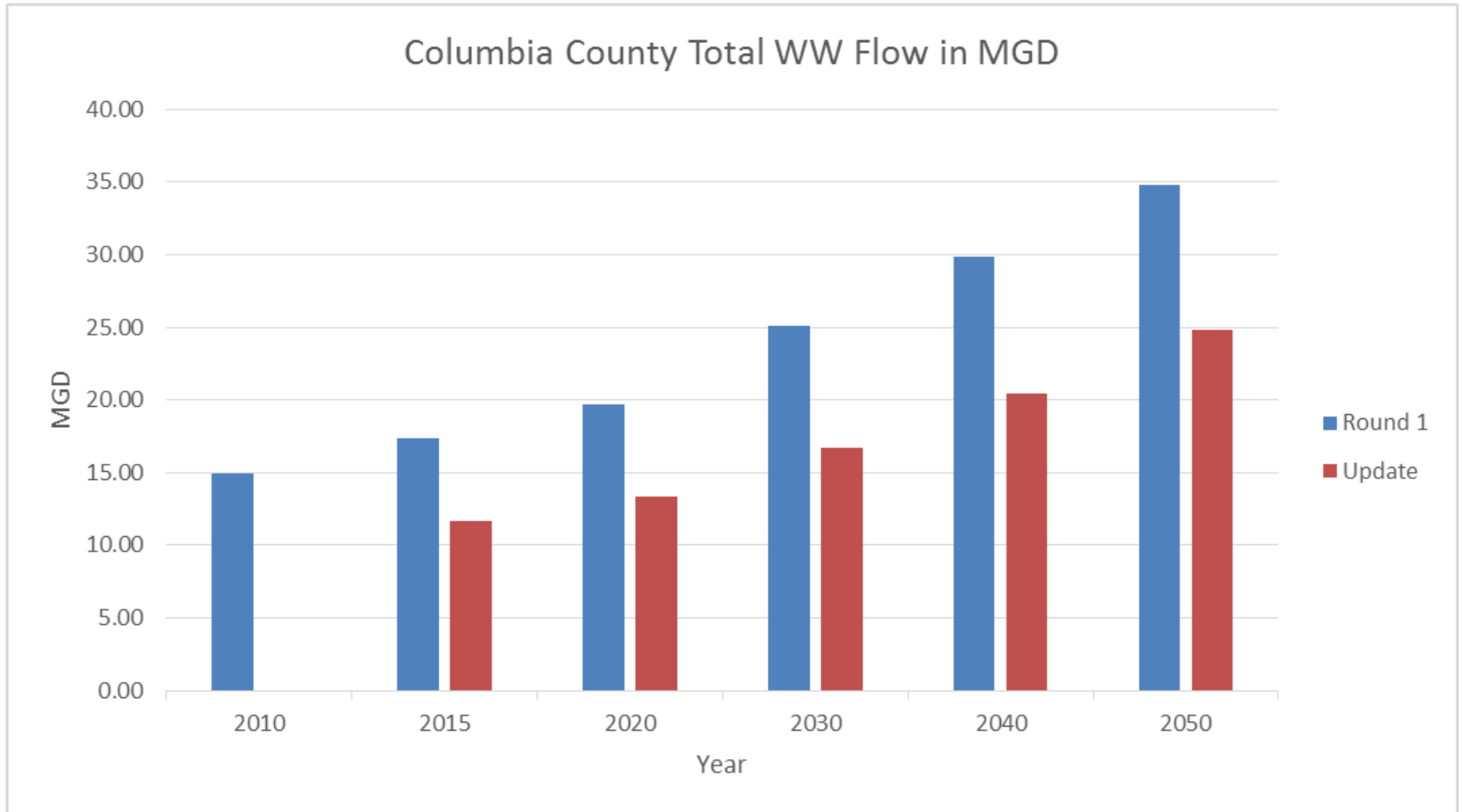
Results by County



Results by County

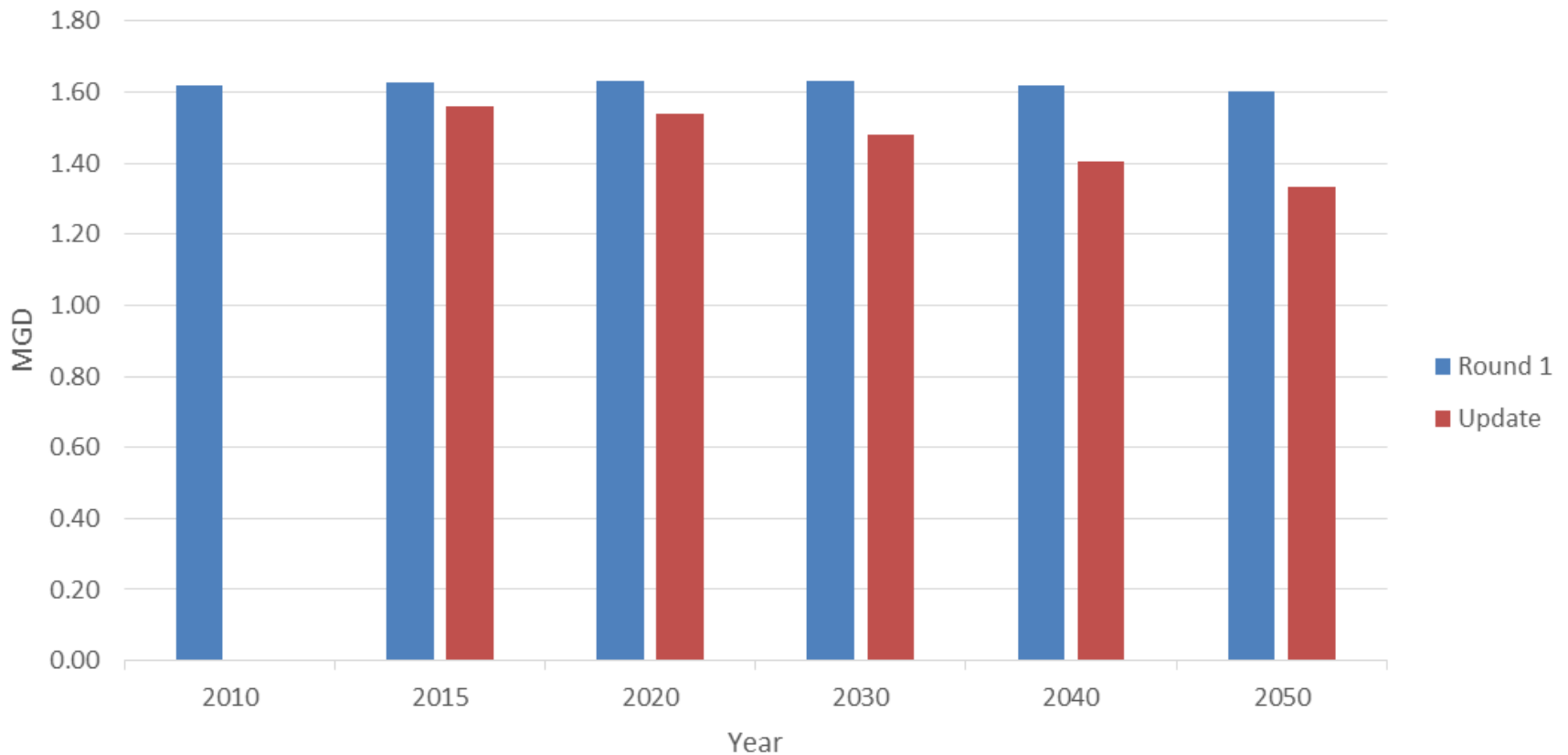


Results by County

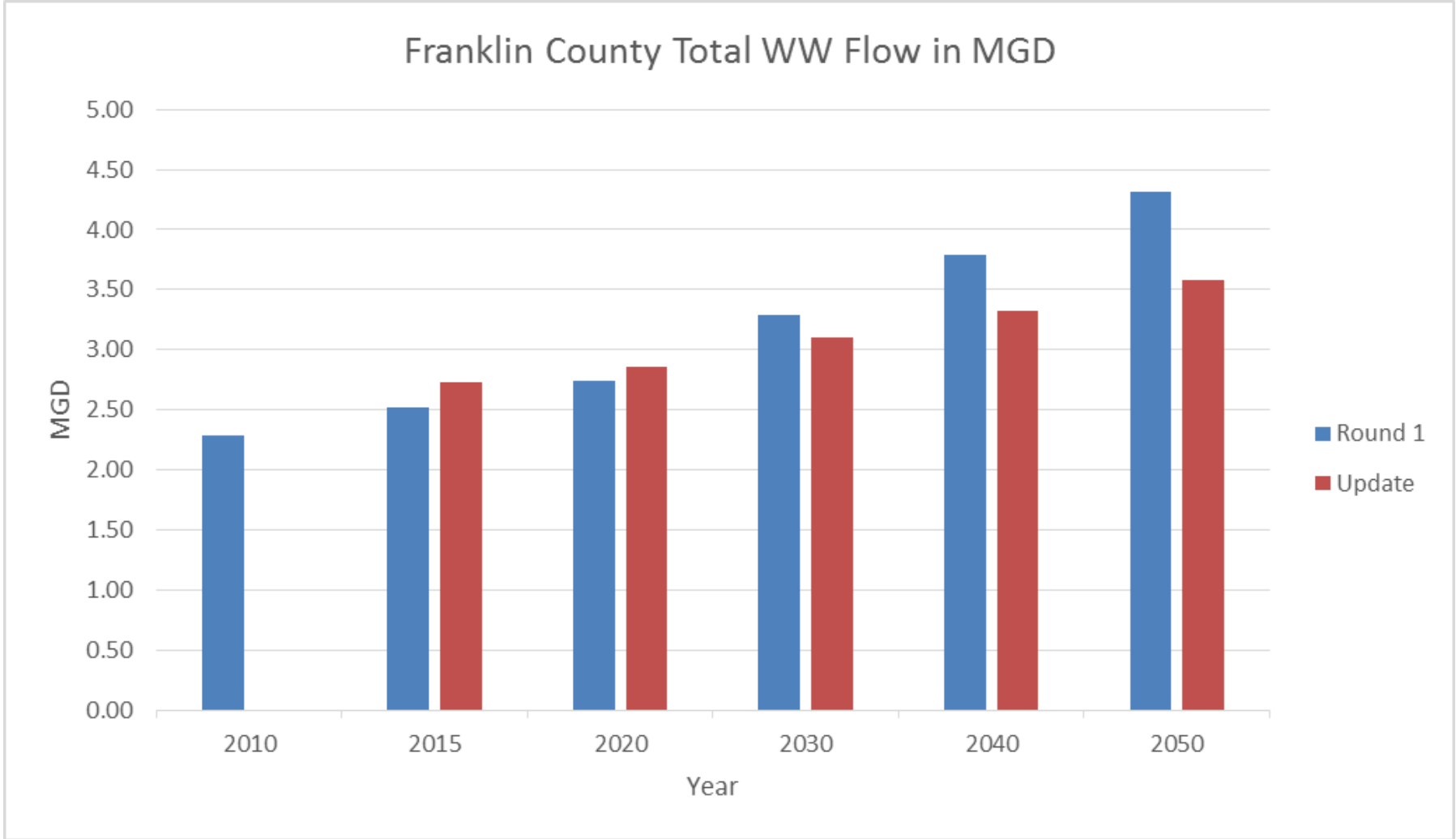


Results by County

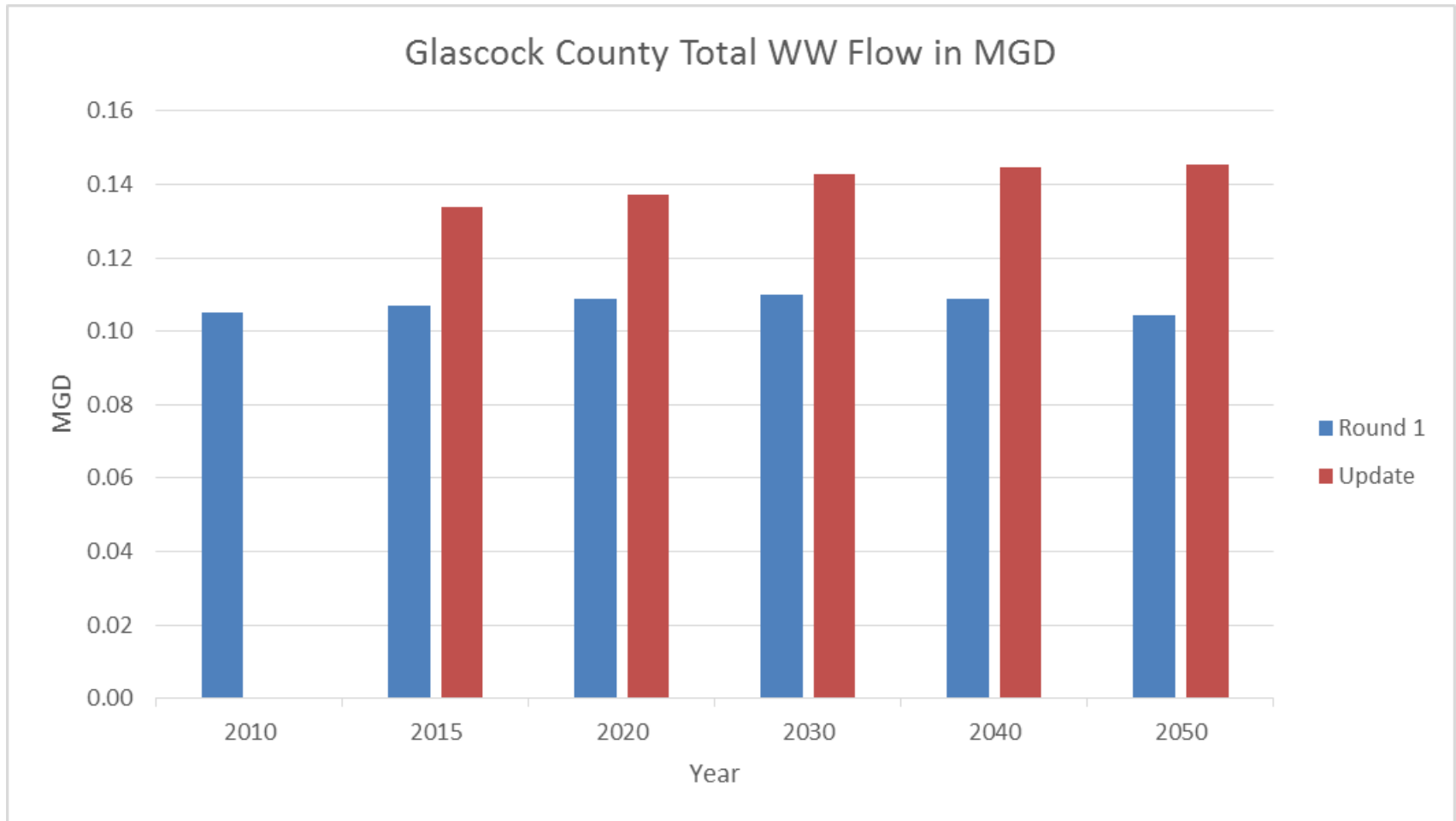
Elbert County Total WW Flow in MGD



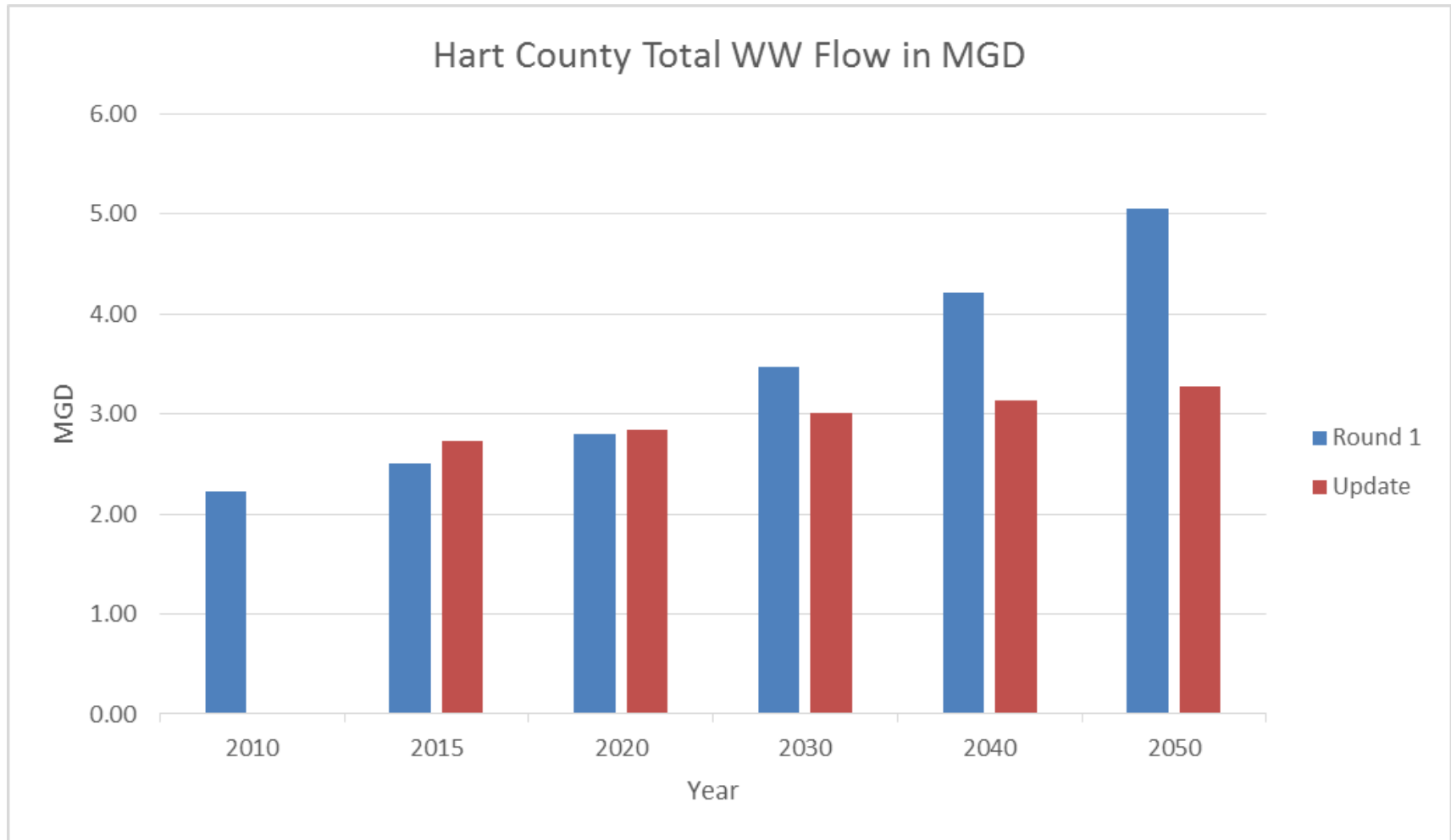
Results by County



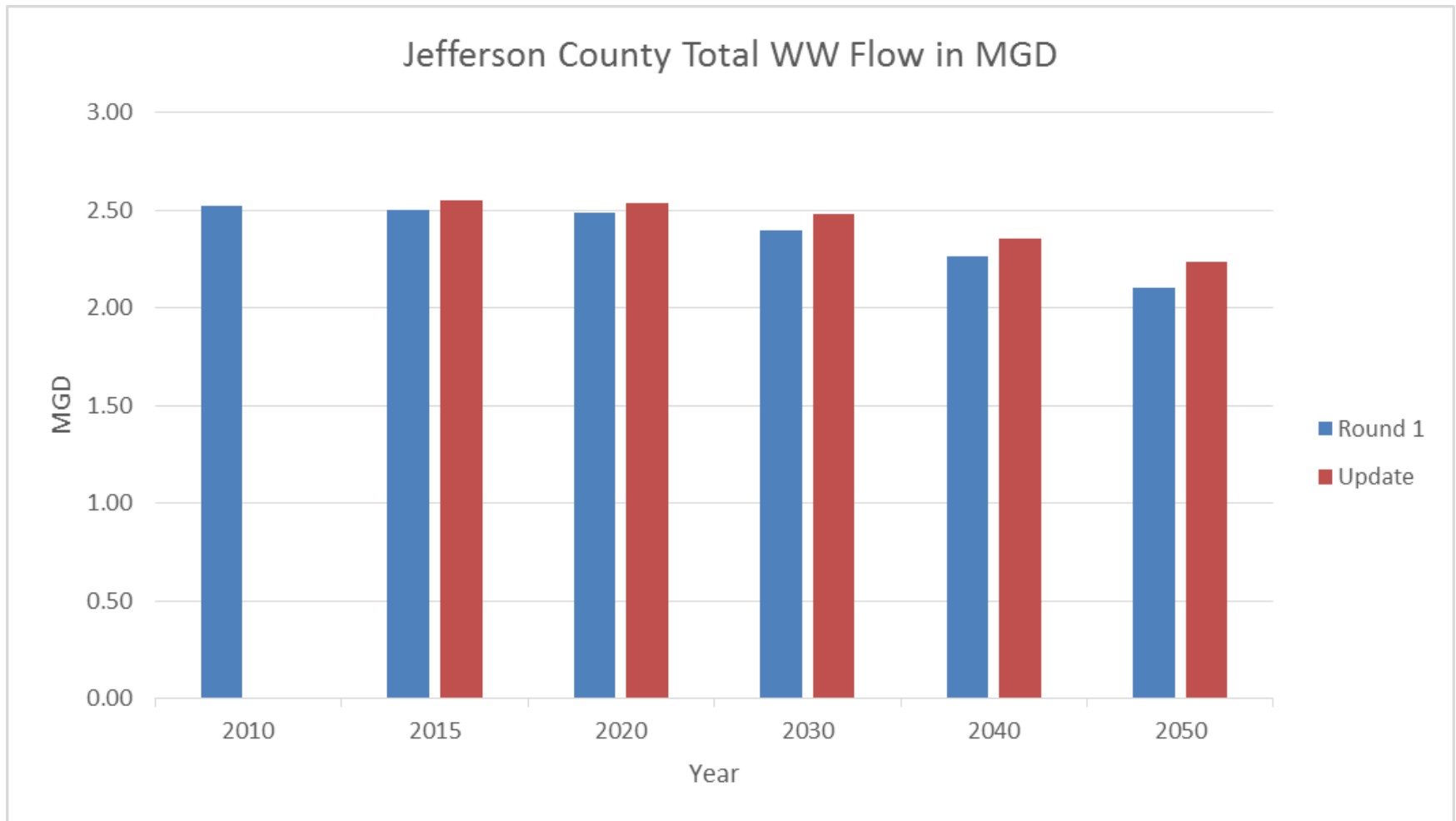
Results by County



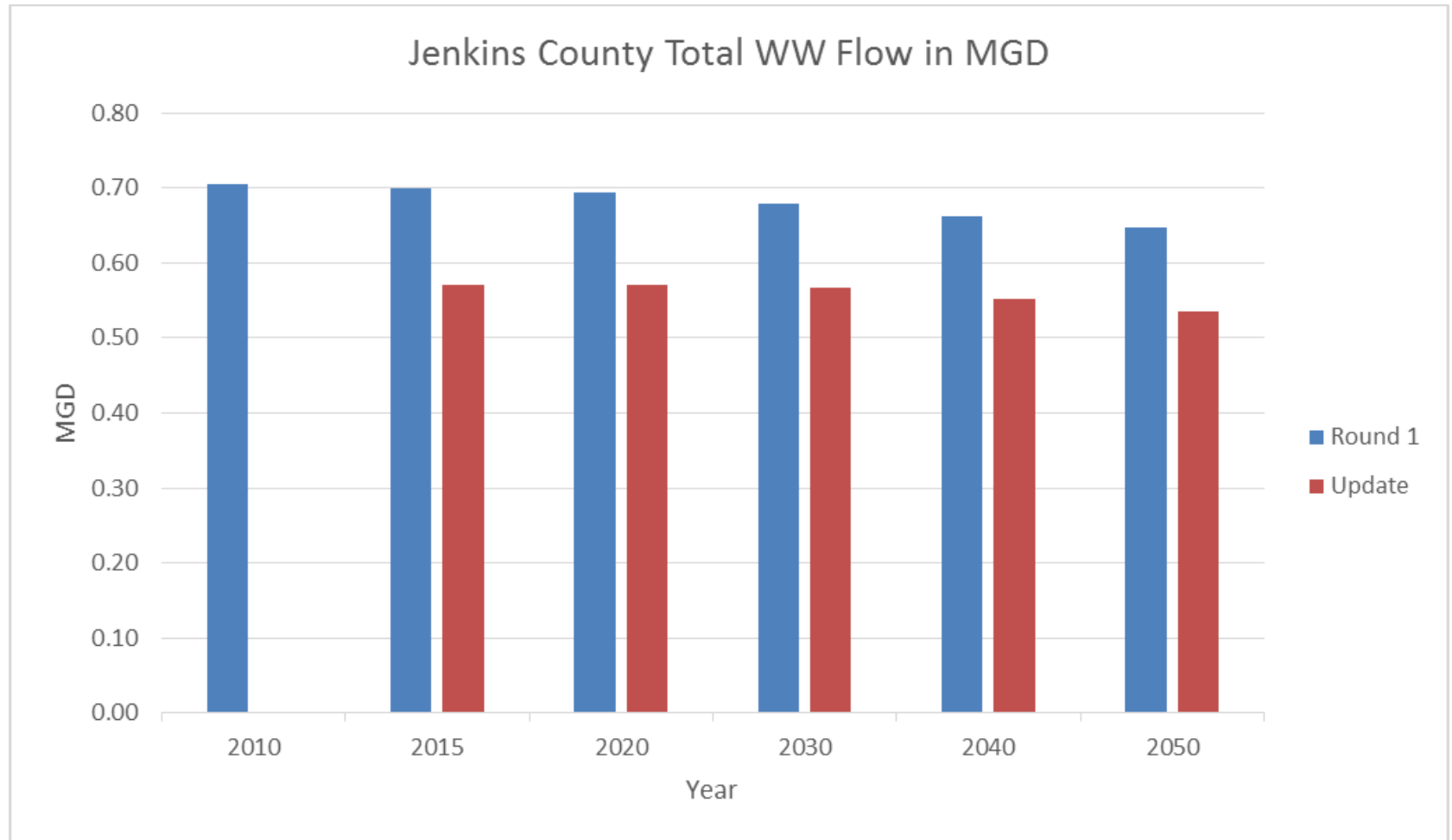
Results by County



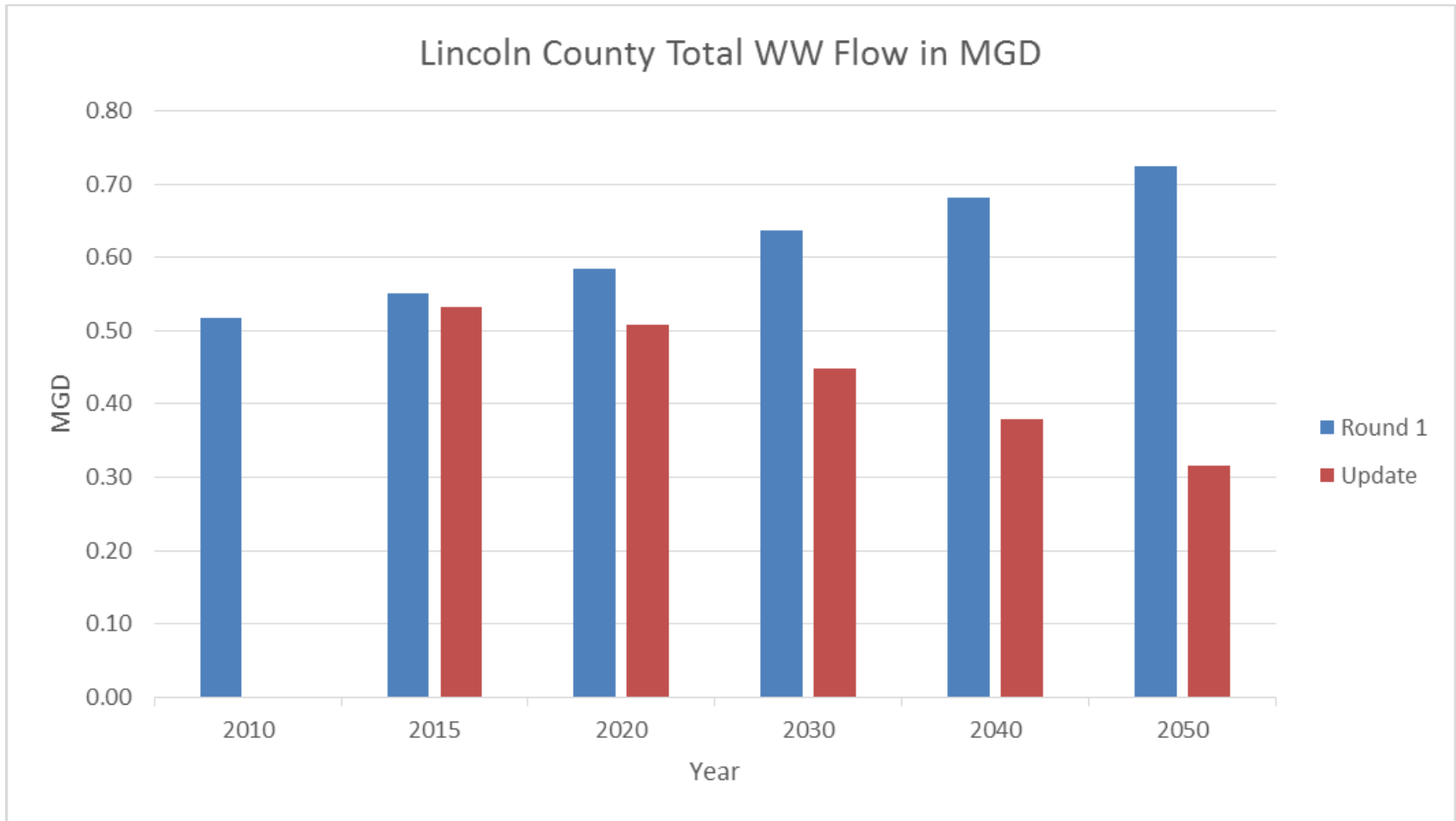
Results by County



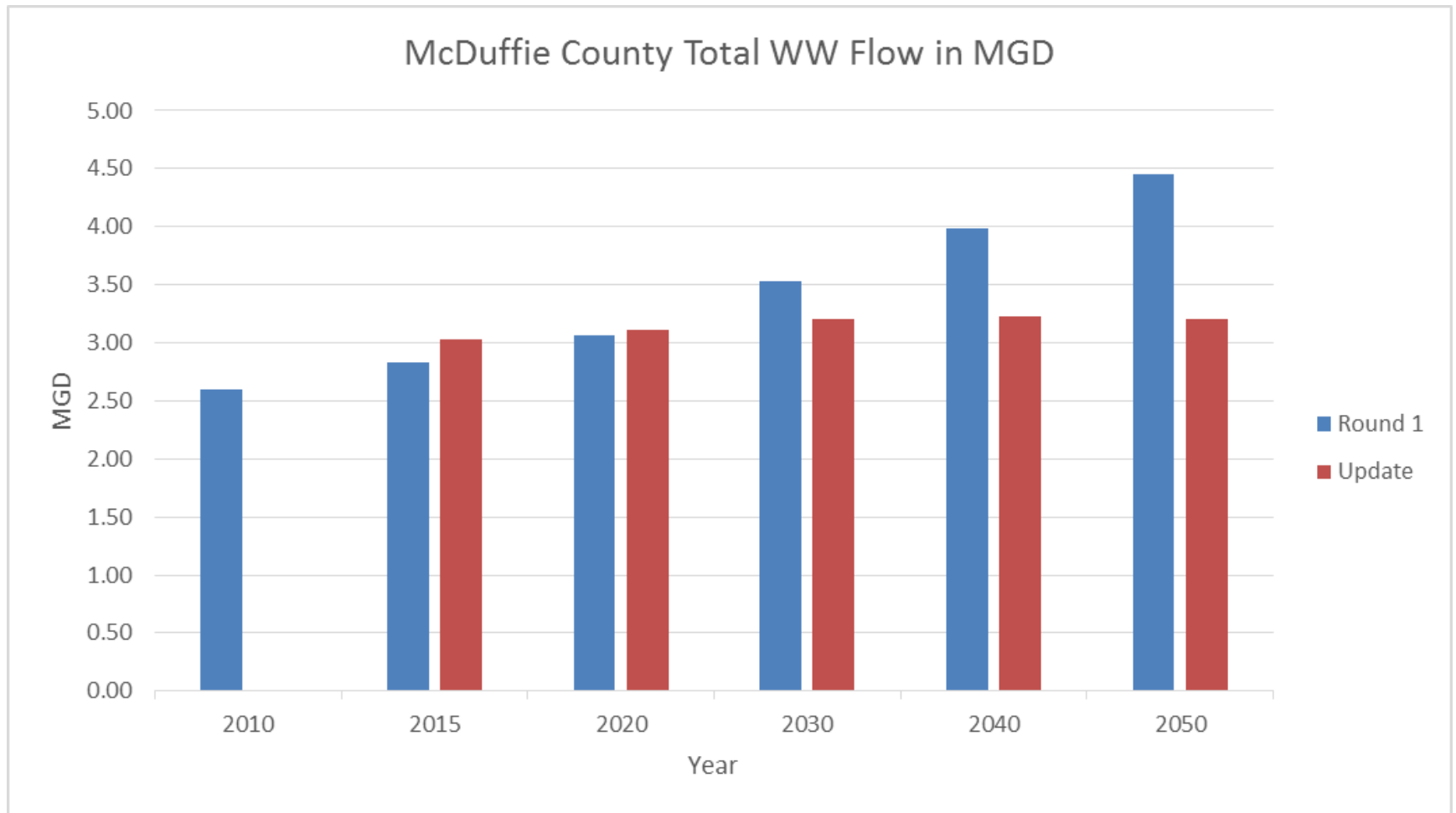
Results by County



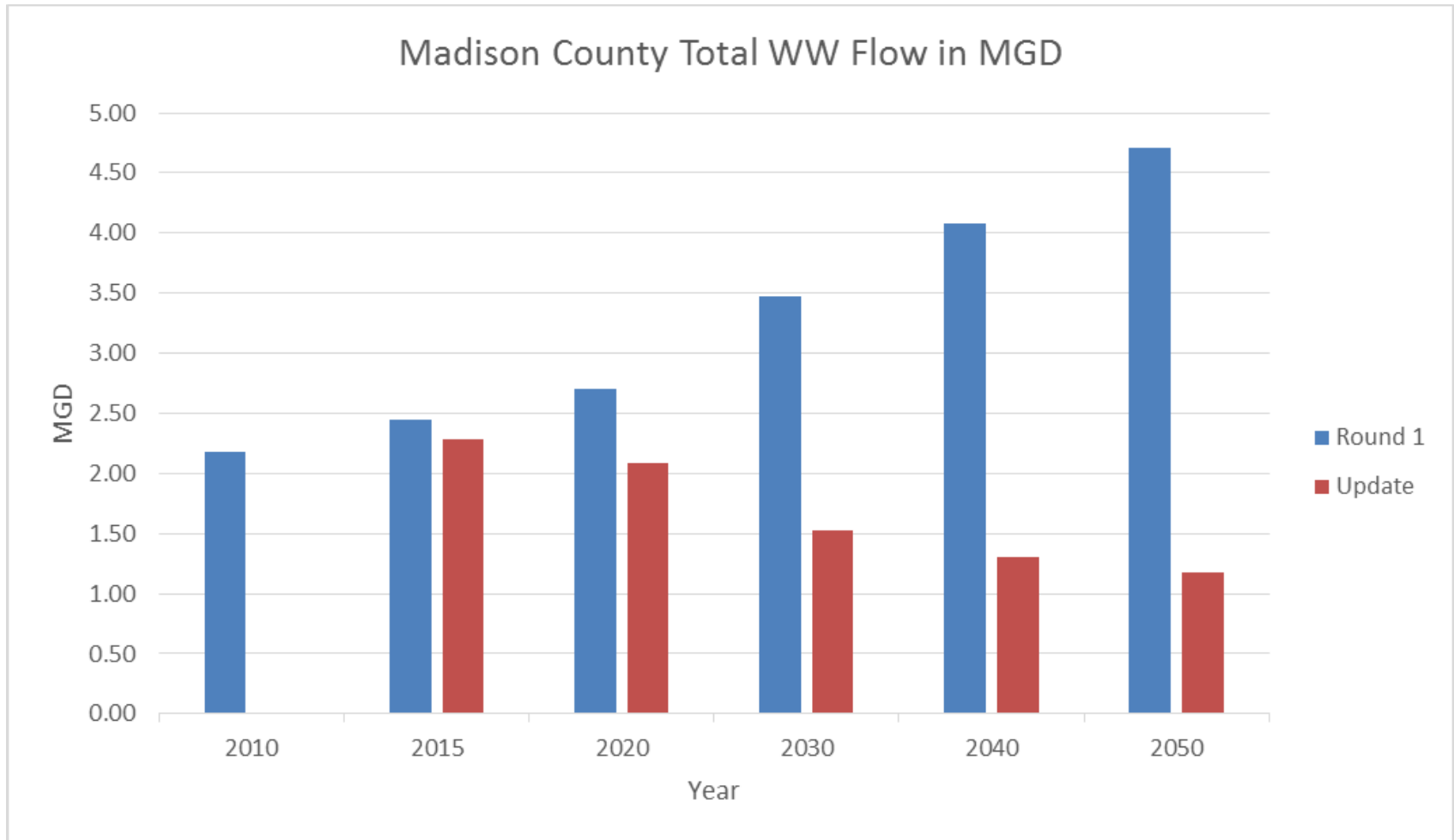
Results by County



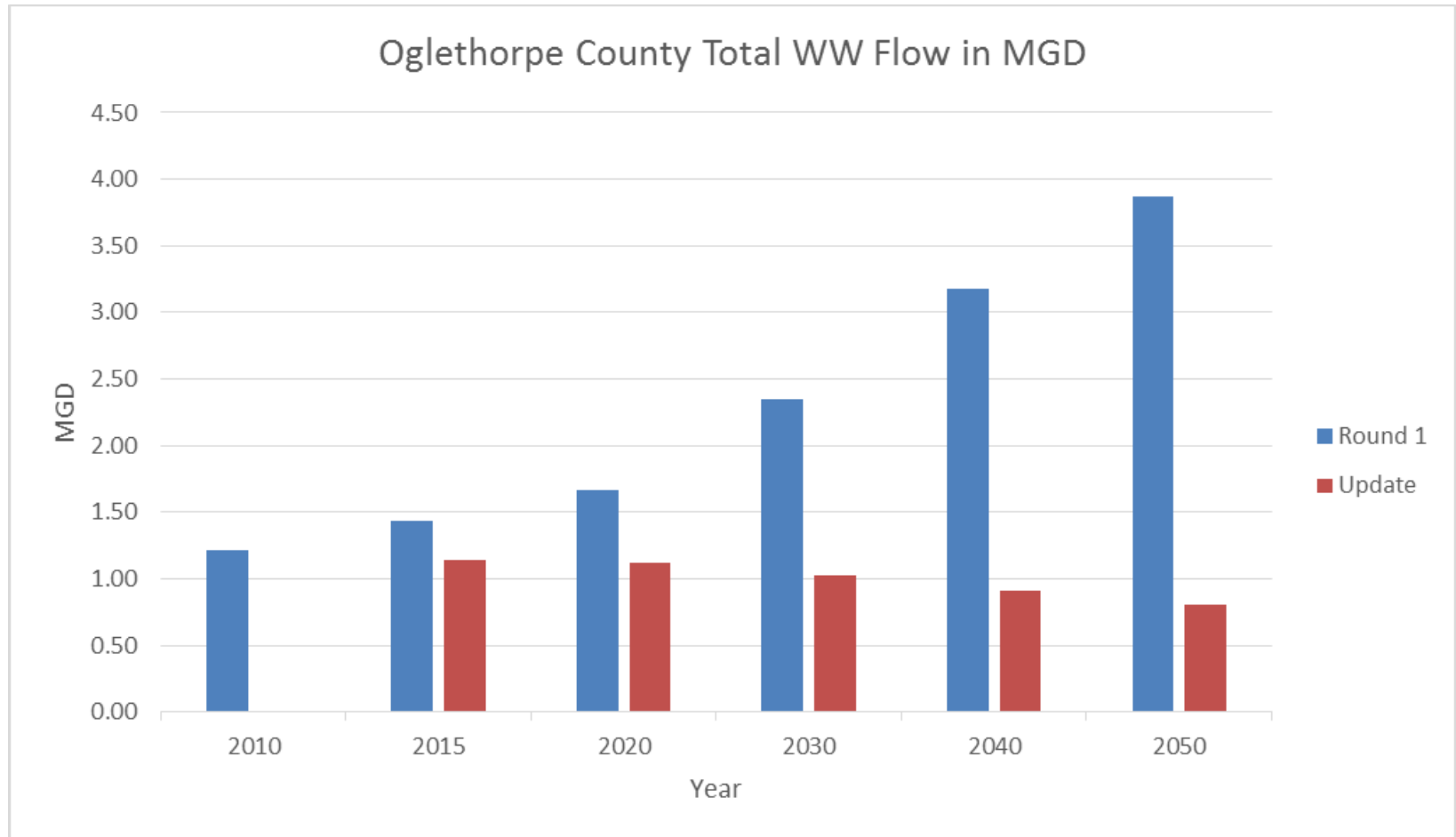
Results by County



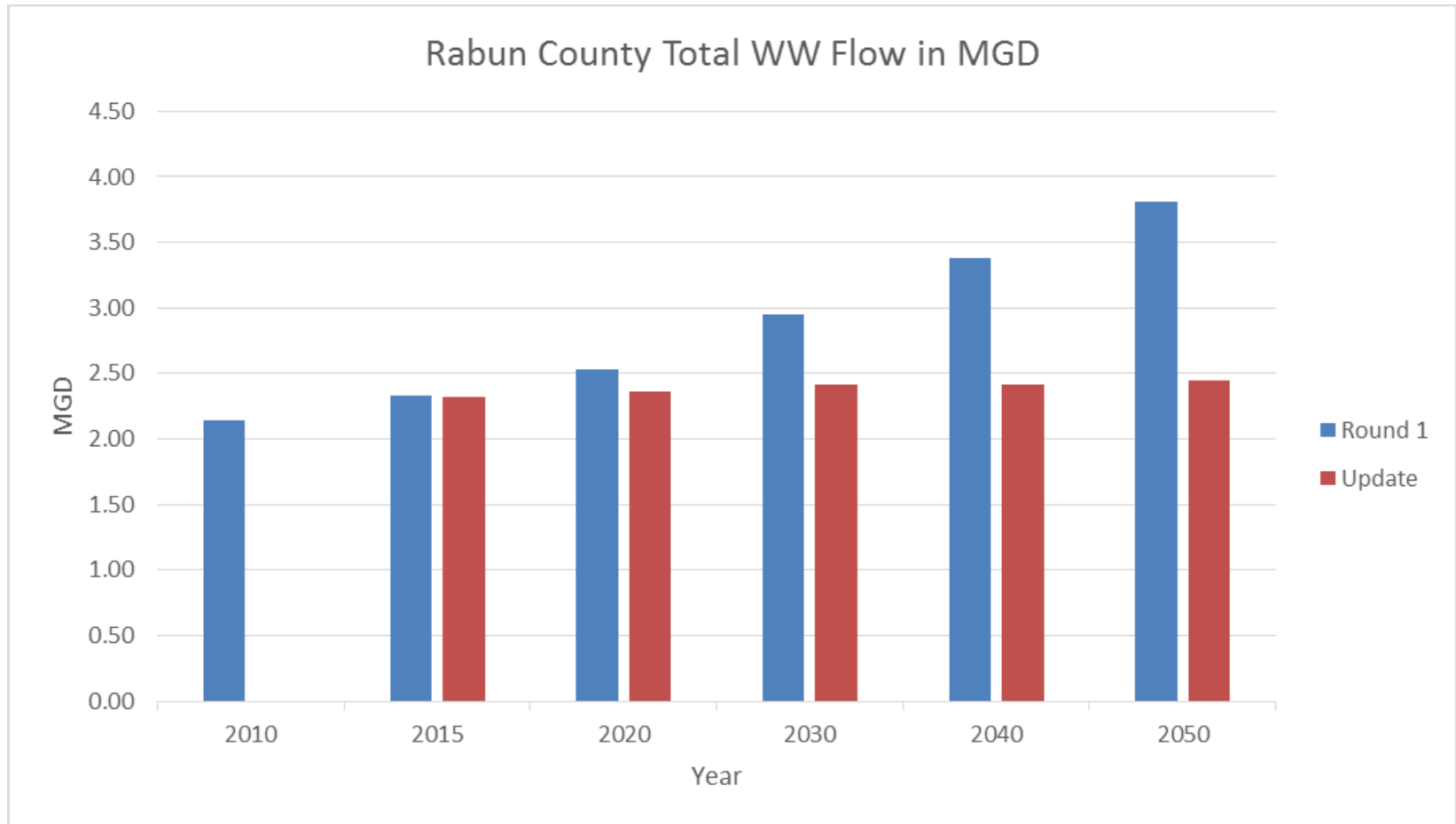
Results by County



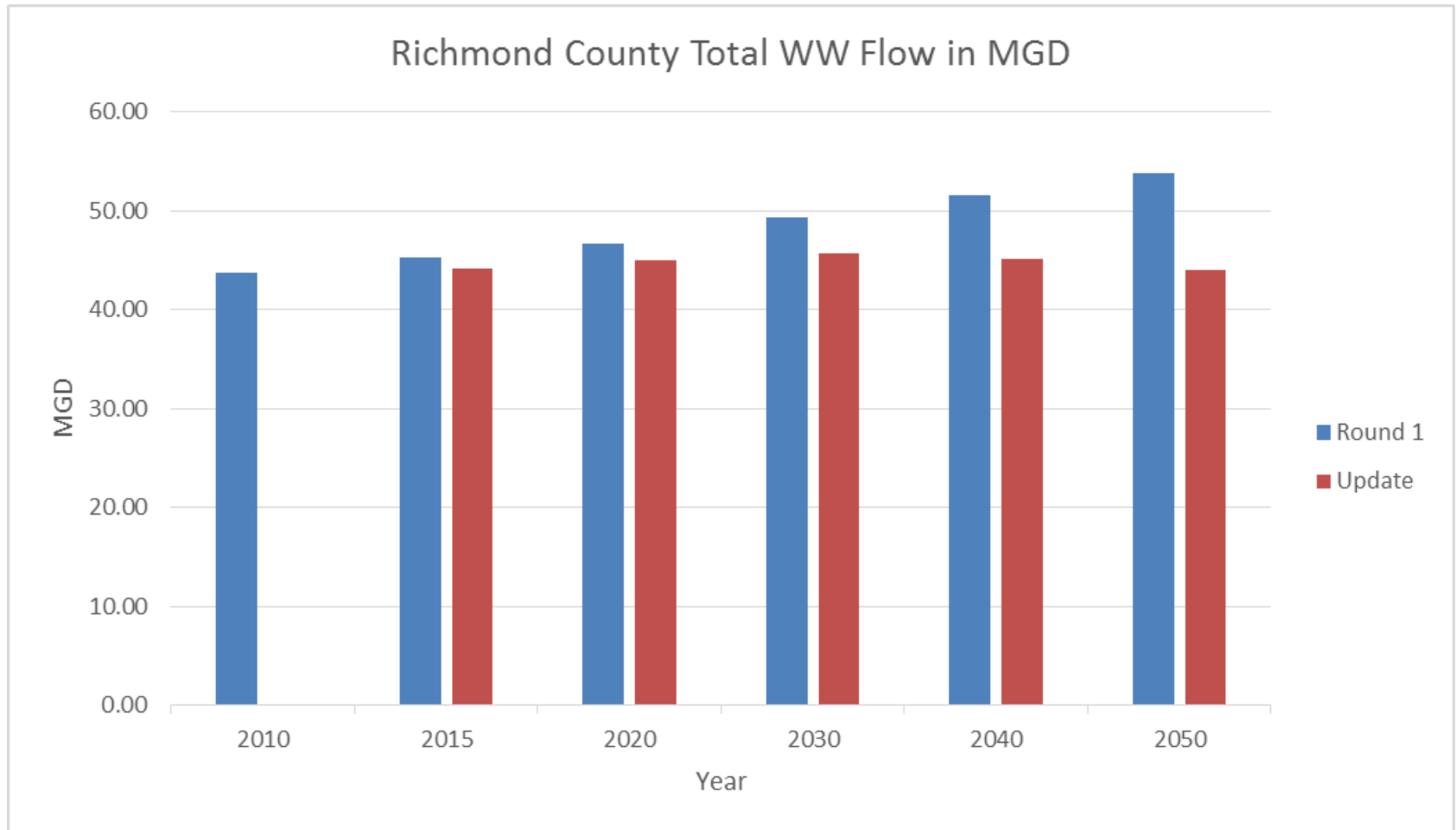
Results by County



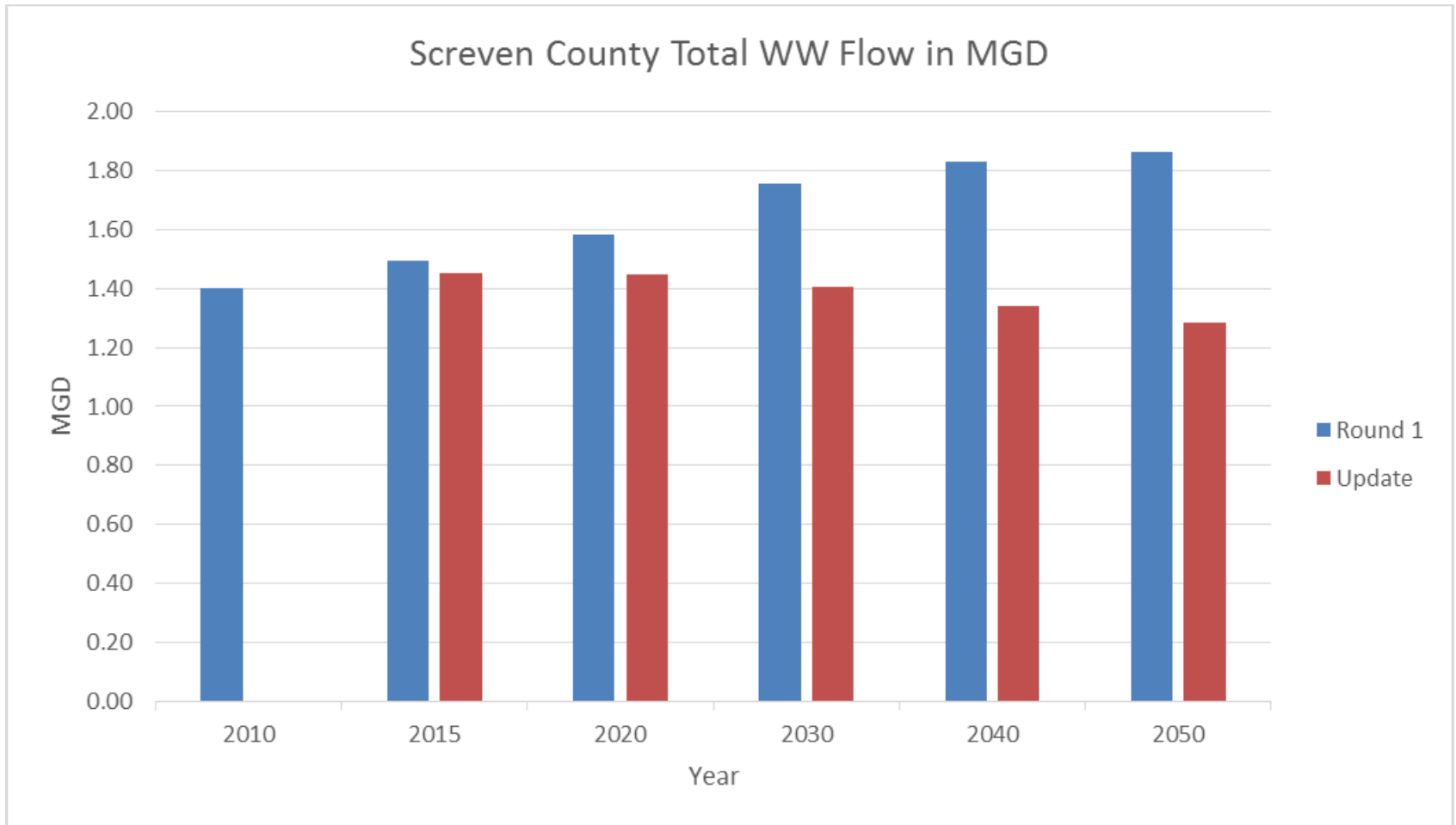
Results by County



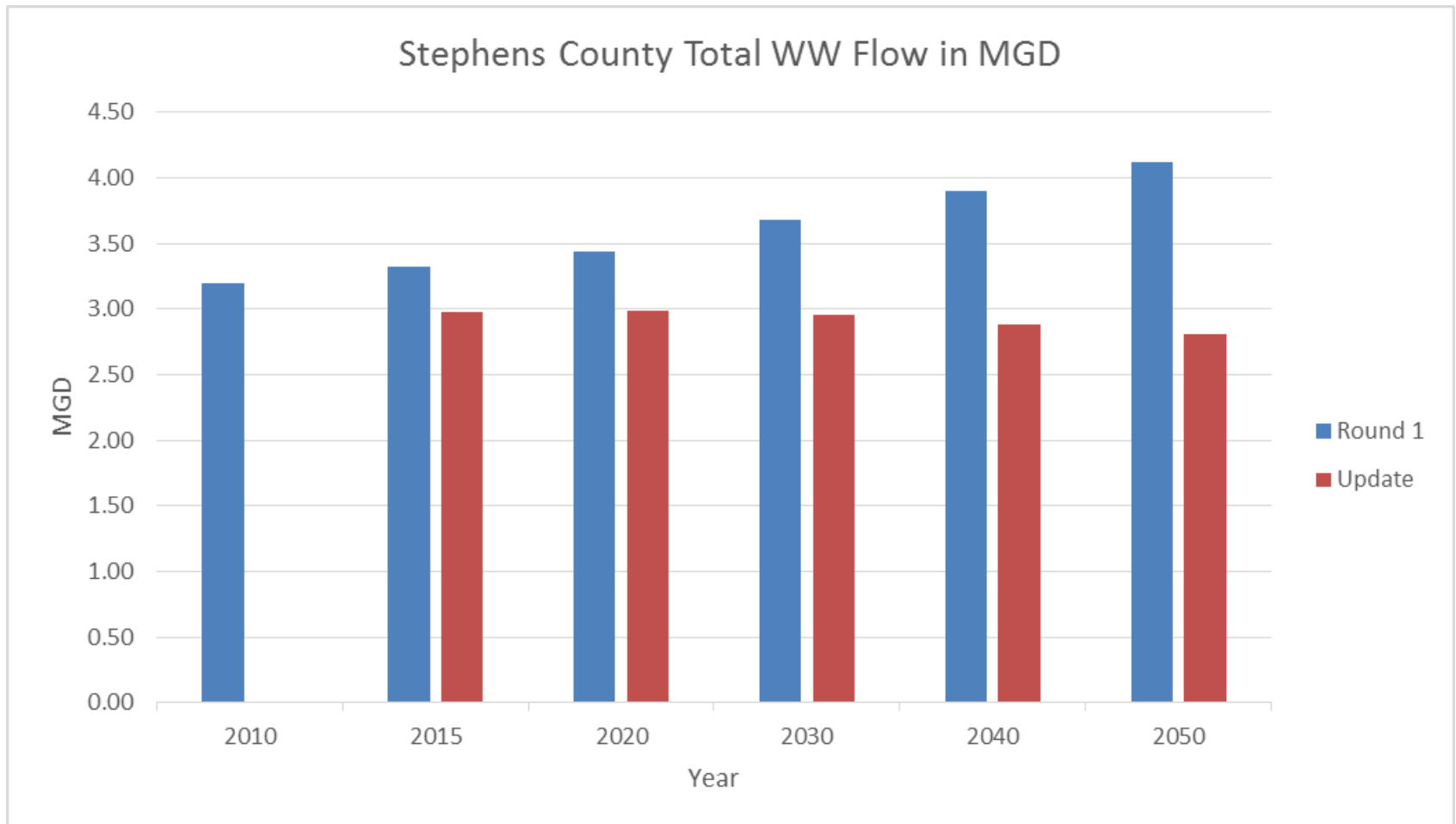
Results by County



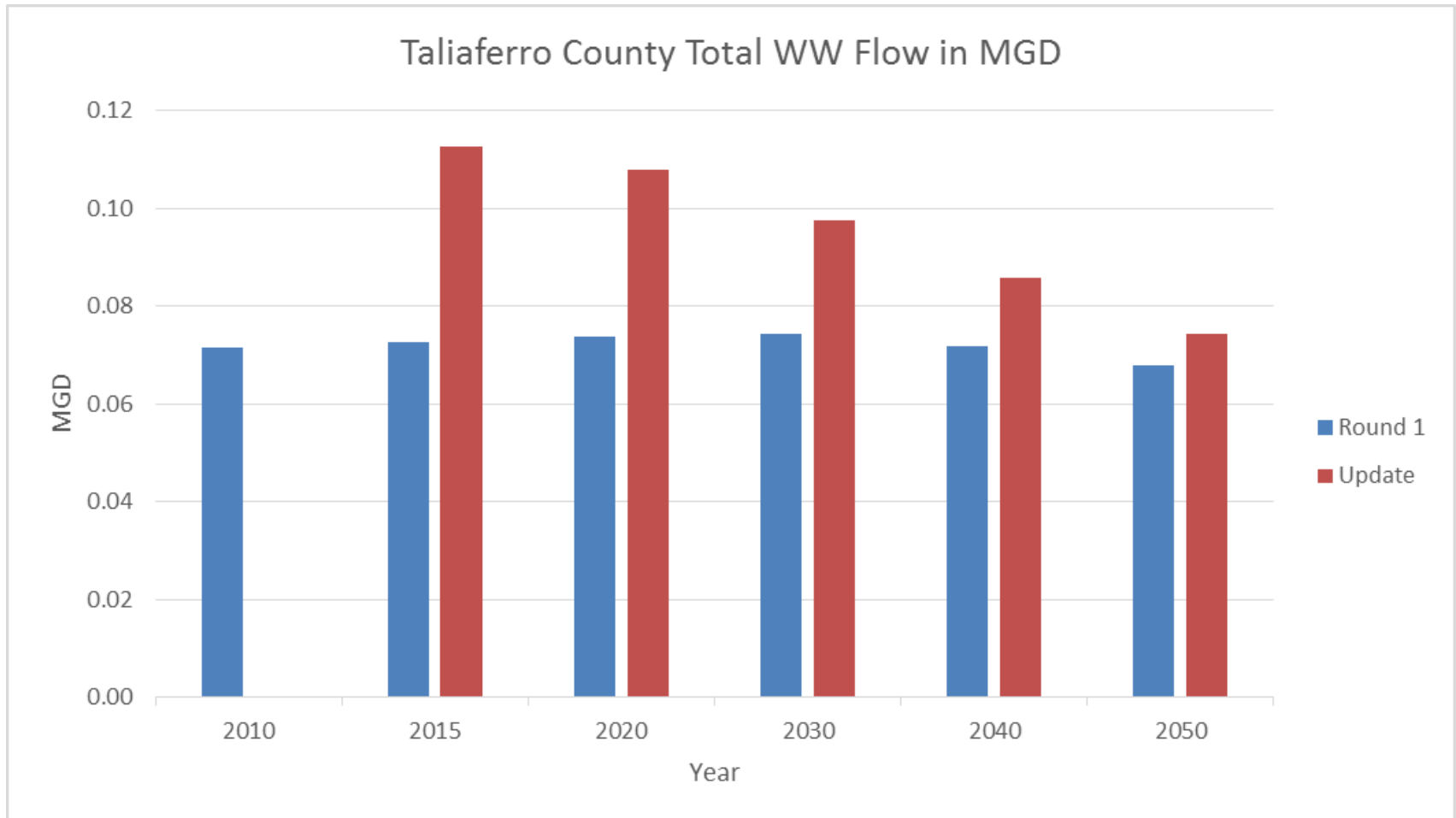
Results by County



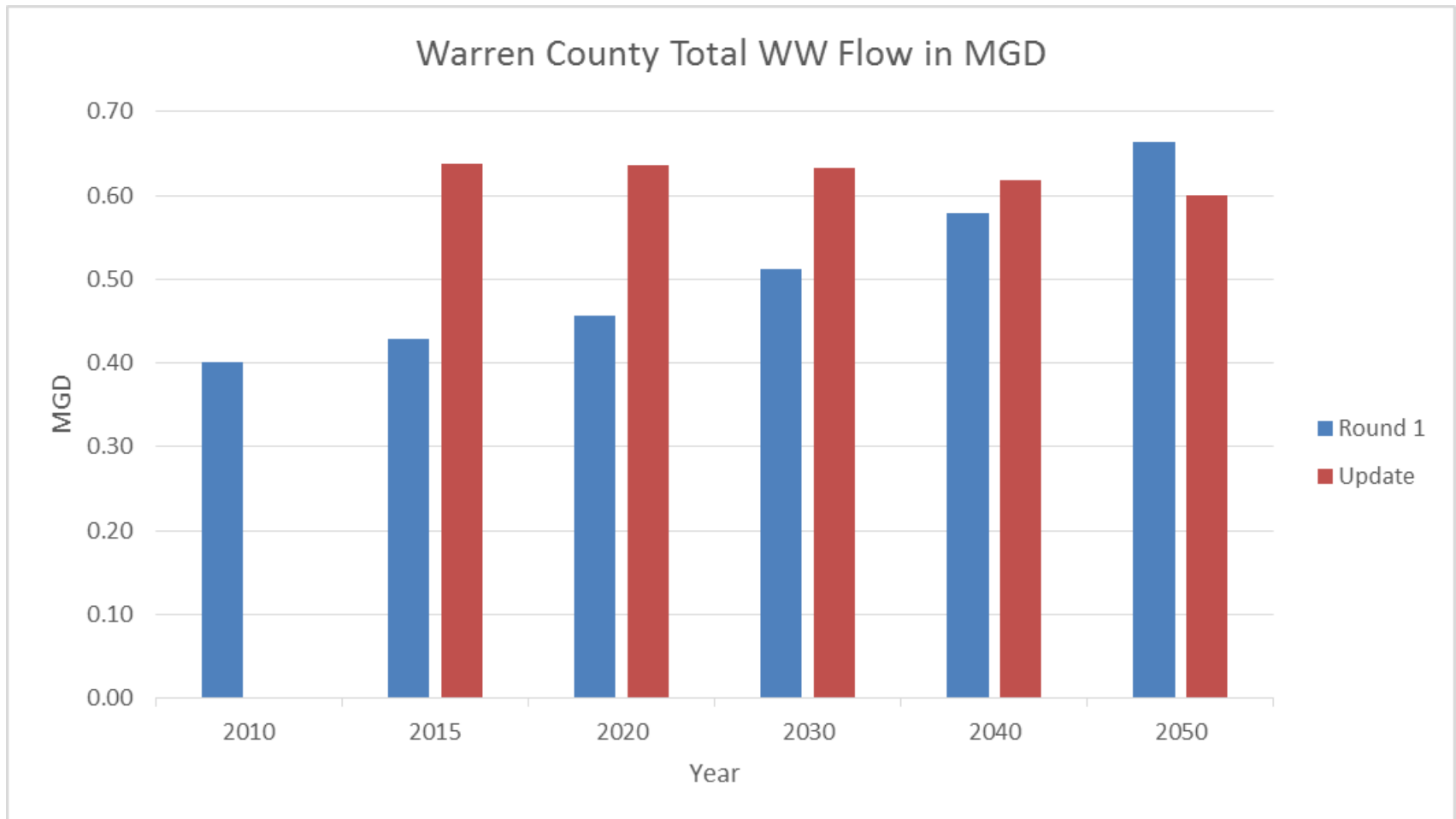
Results by County



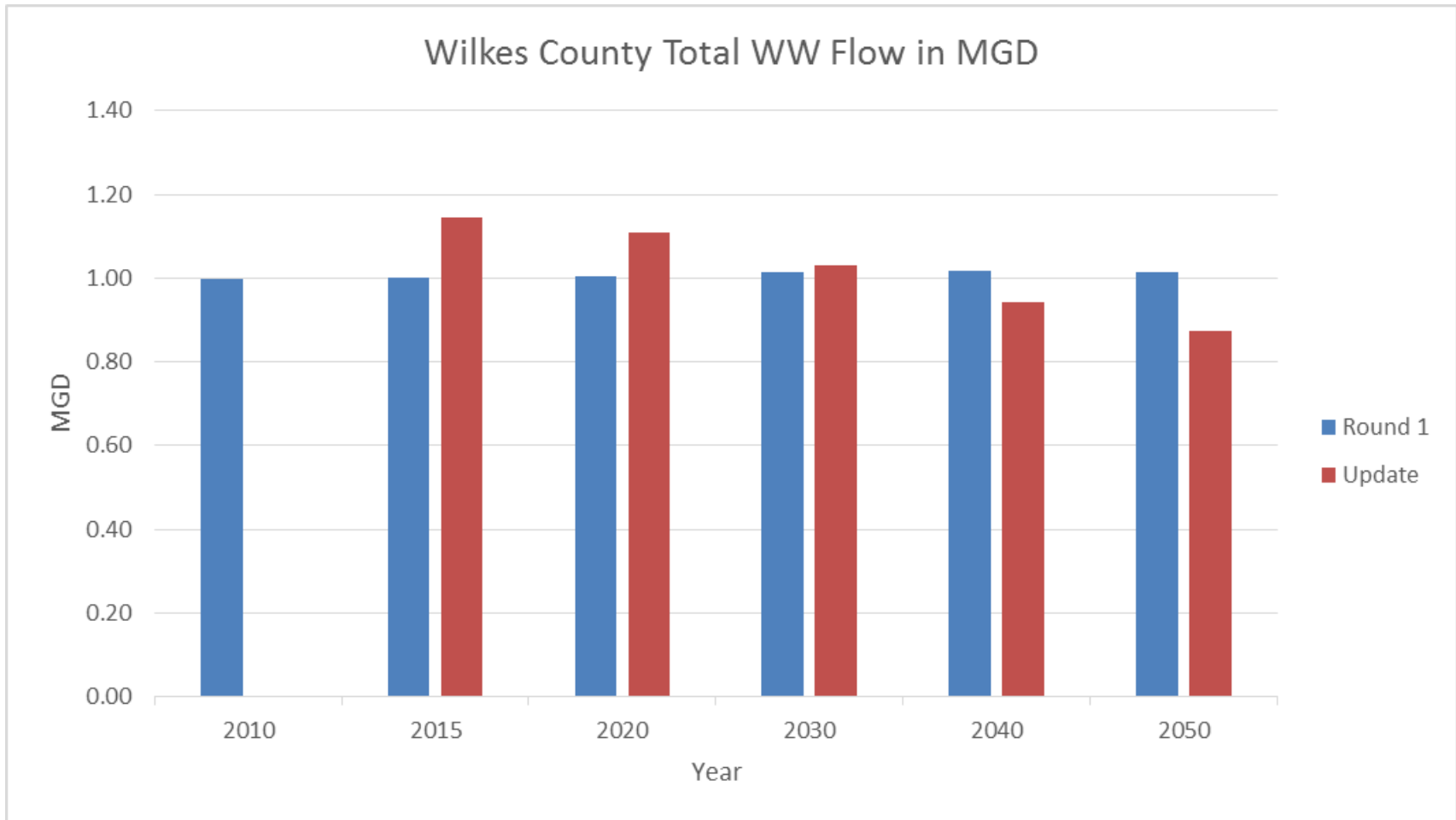
Results by County



Results by County



Results by County





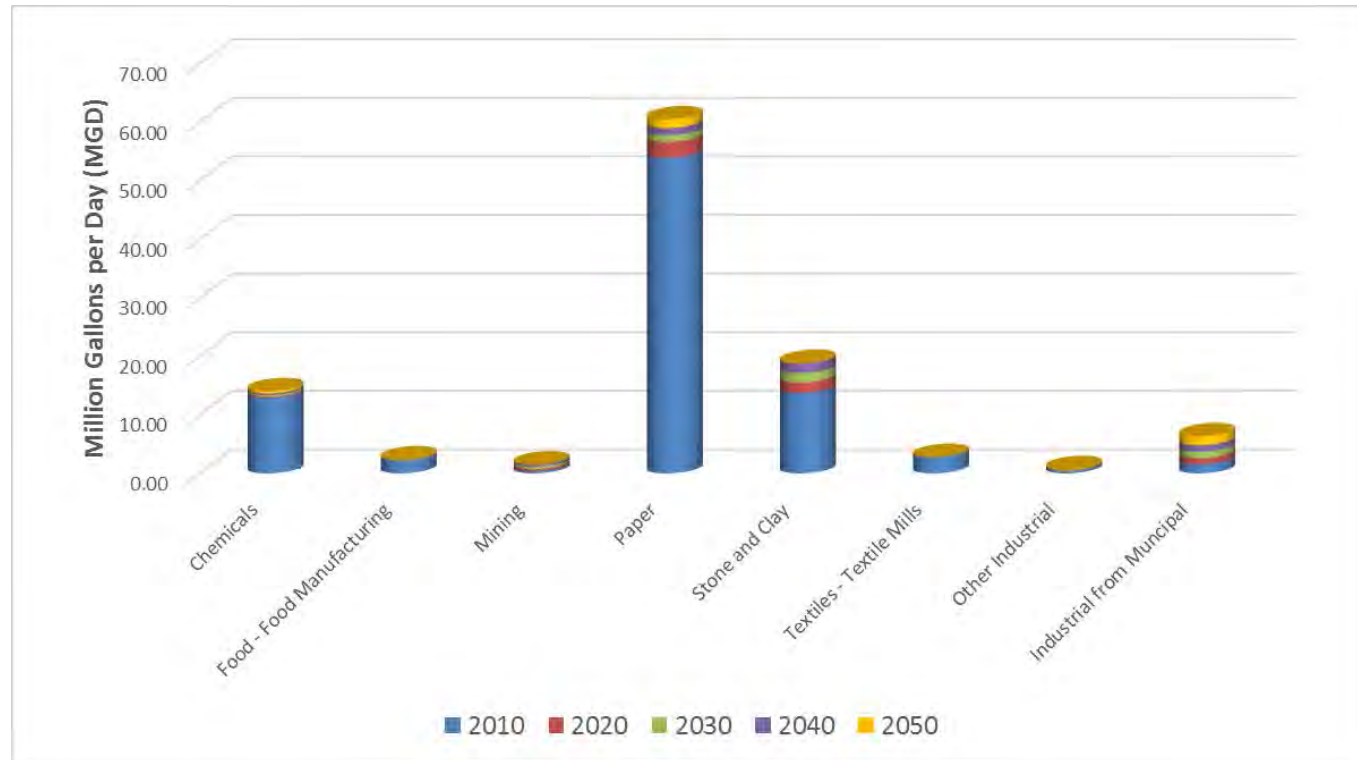
Georgia's
State Water Plan

Industrial Water Forecast Updates

www.georgiawaterplanning.org

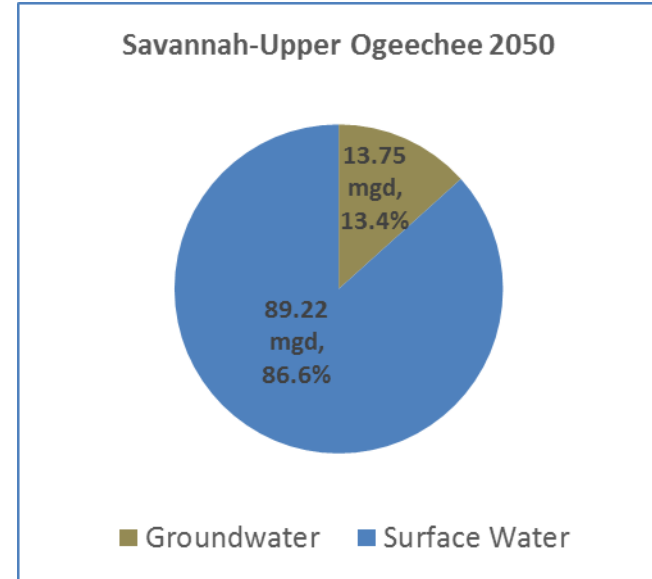
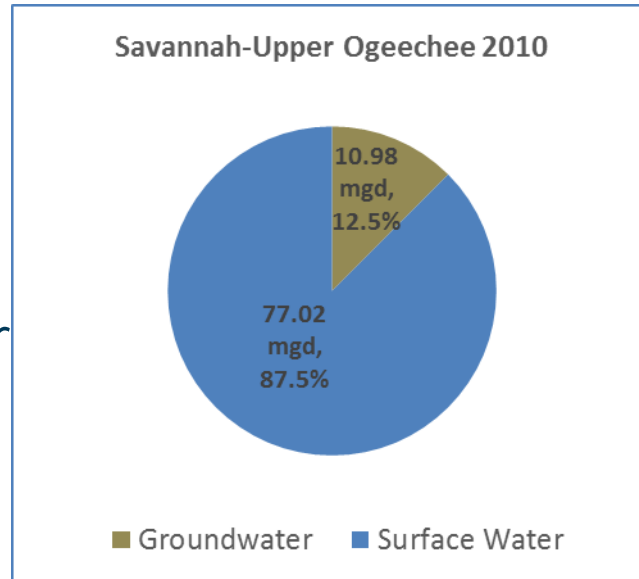
Industrial Water Demand

Round 1 – Savannah- Upper Ogeechee Industrial Water Demand by Category



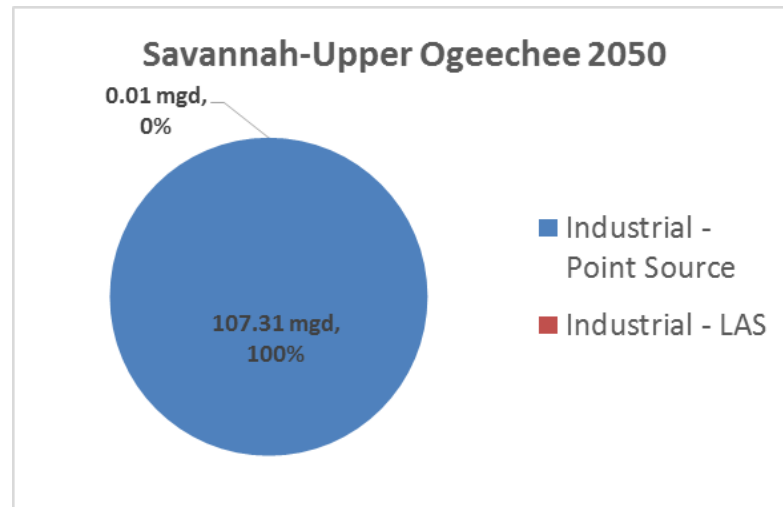
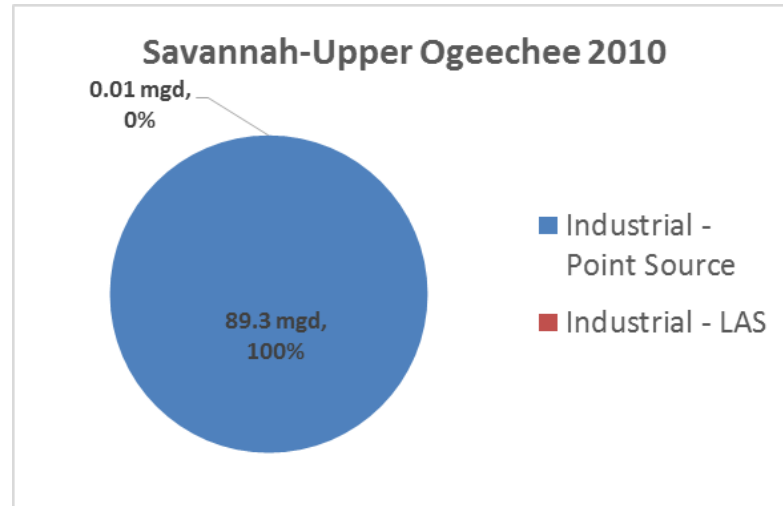
Industrial Water Demand

Round 1 - Savannah-Upper Ogeechee Industrial Water Demand by Source



Industrial Wastewater Flow

Round 1 - Savannah-Upper Ogeechee Industrial Wastewater Flow by Discharge Method



Industrial Water & Wastewater Demand

- Round 1 estimates of industrial water & wastewater forecasts are being maintained through current update
- Round 1 demands over time show modest increases and are reflective of Round 1 approach (*Future Water Need by Industry Type = Current Water Need x Employment Growth Rate*)
- Methodology may be re-visited in future rounds of water planning updates



Georgia's
State Water Plan

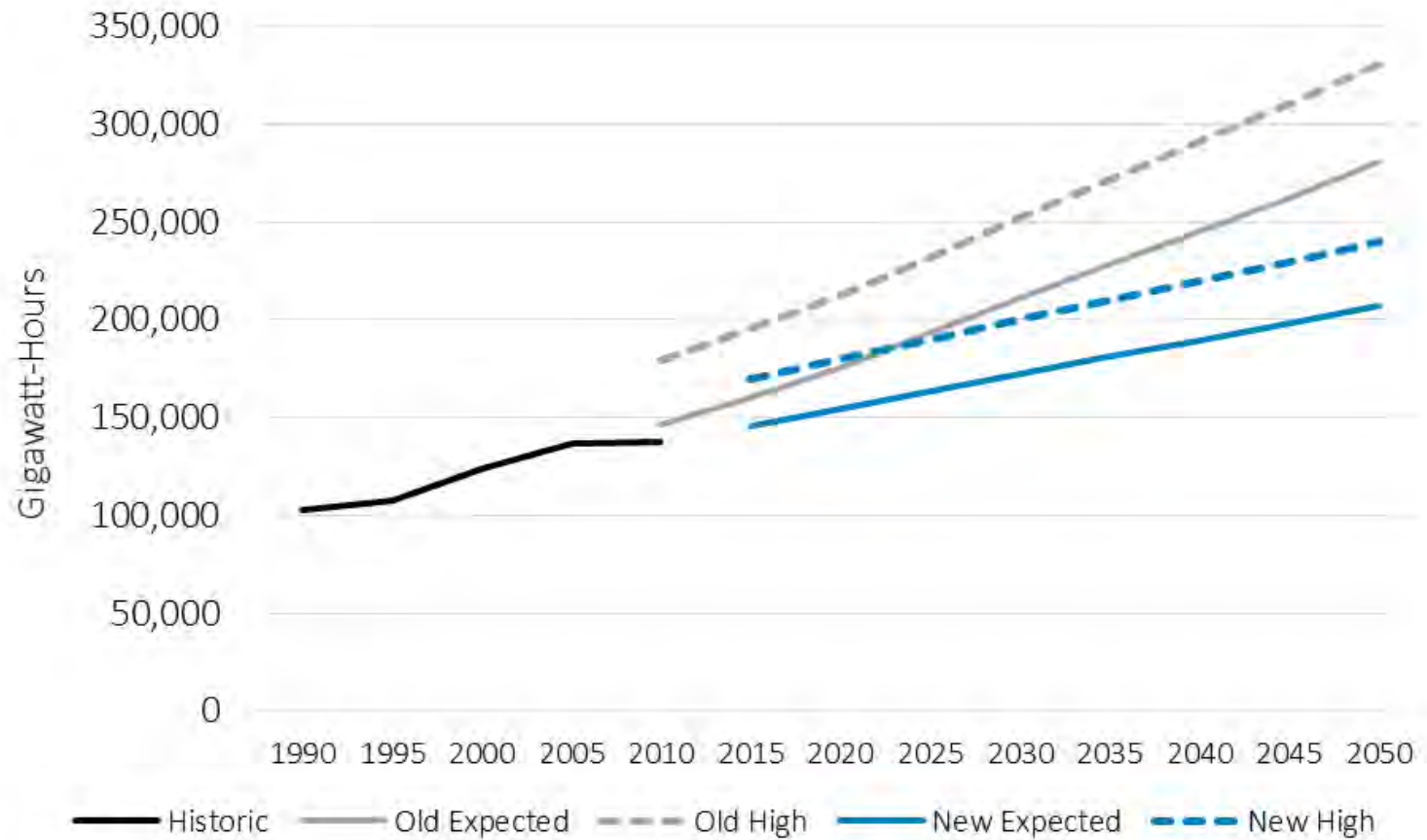
Energy Forecast Updates

www.georgiawaterplanning.org

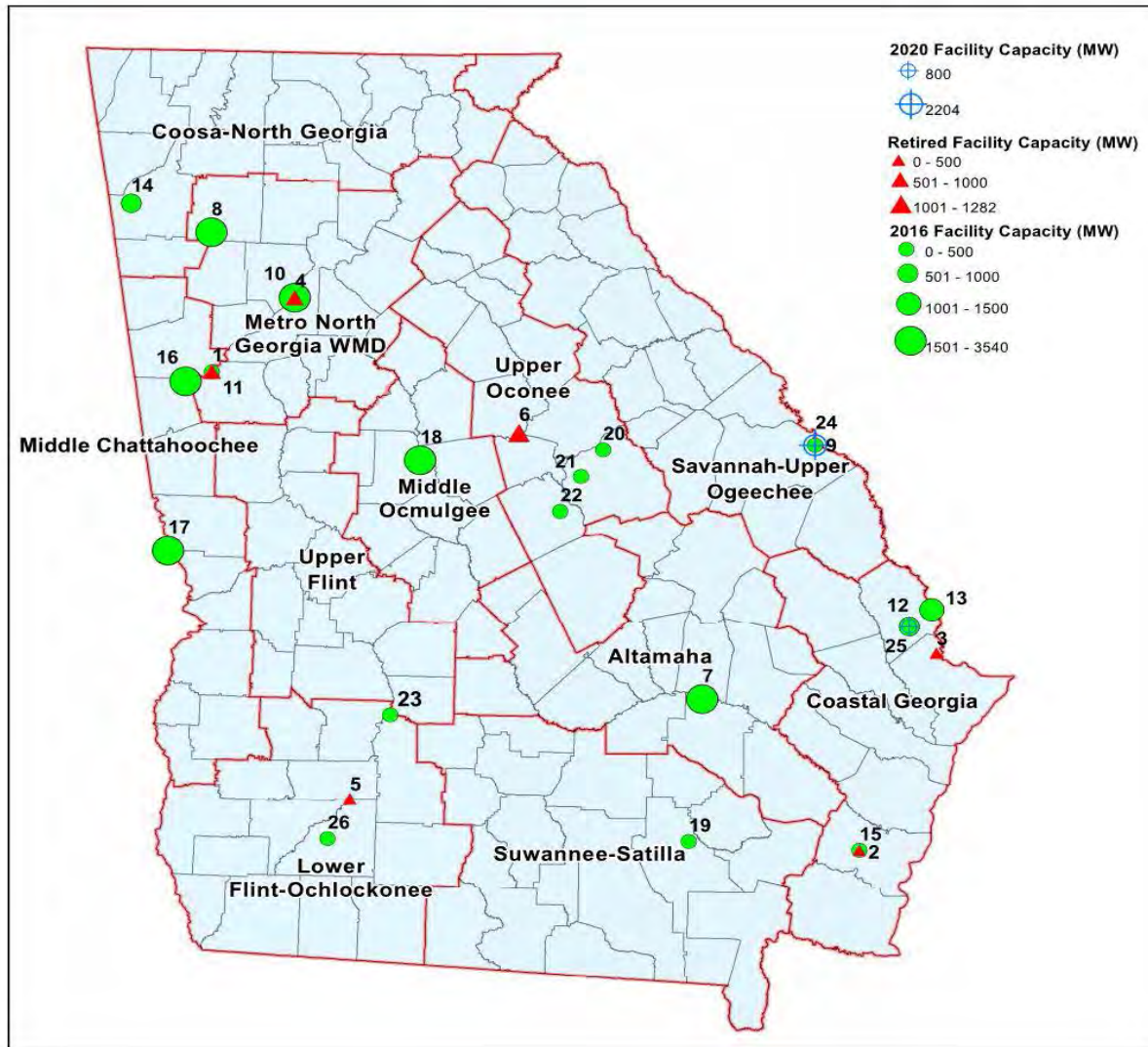
Water Demands for Thermo-Electric Power Generation

- Energy forecast was under development with input from the Energy Ad Hoc group at the time of CM1
- Energy forecast updates have since been completed and results are summarized on following slides

Updated Statewide Power Need in Georgia

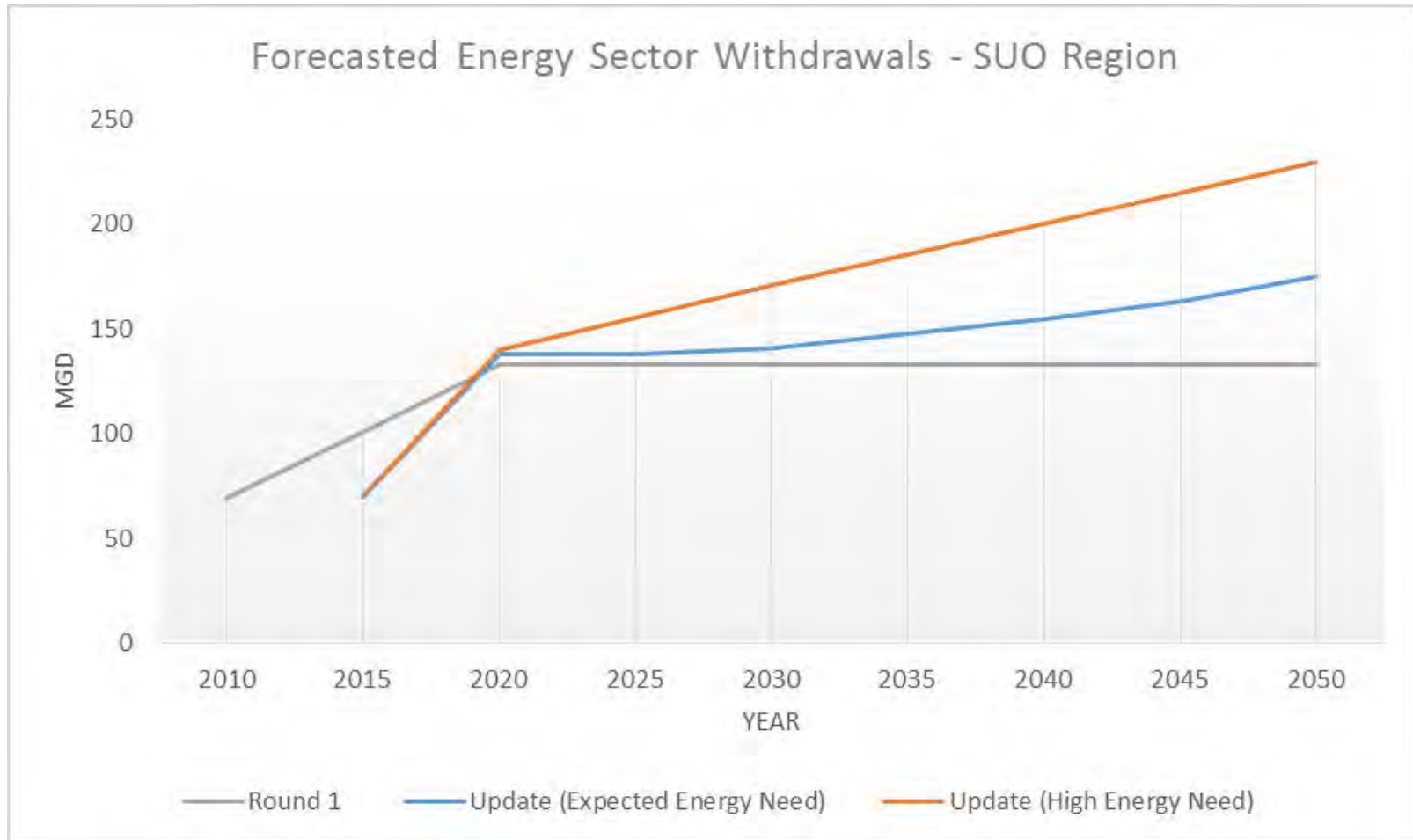


Update - Thermoelectric Power Facilities in Georgia with Water Withdrawal Permits

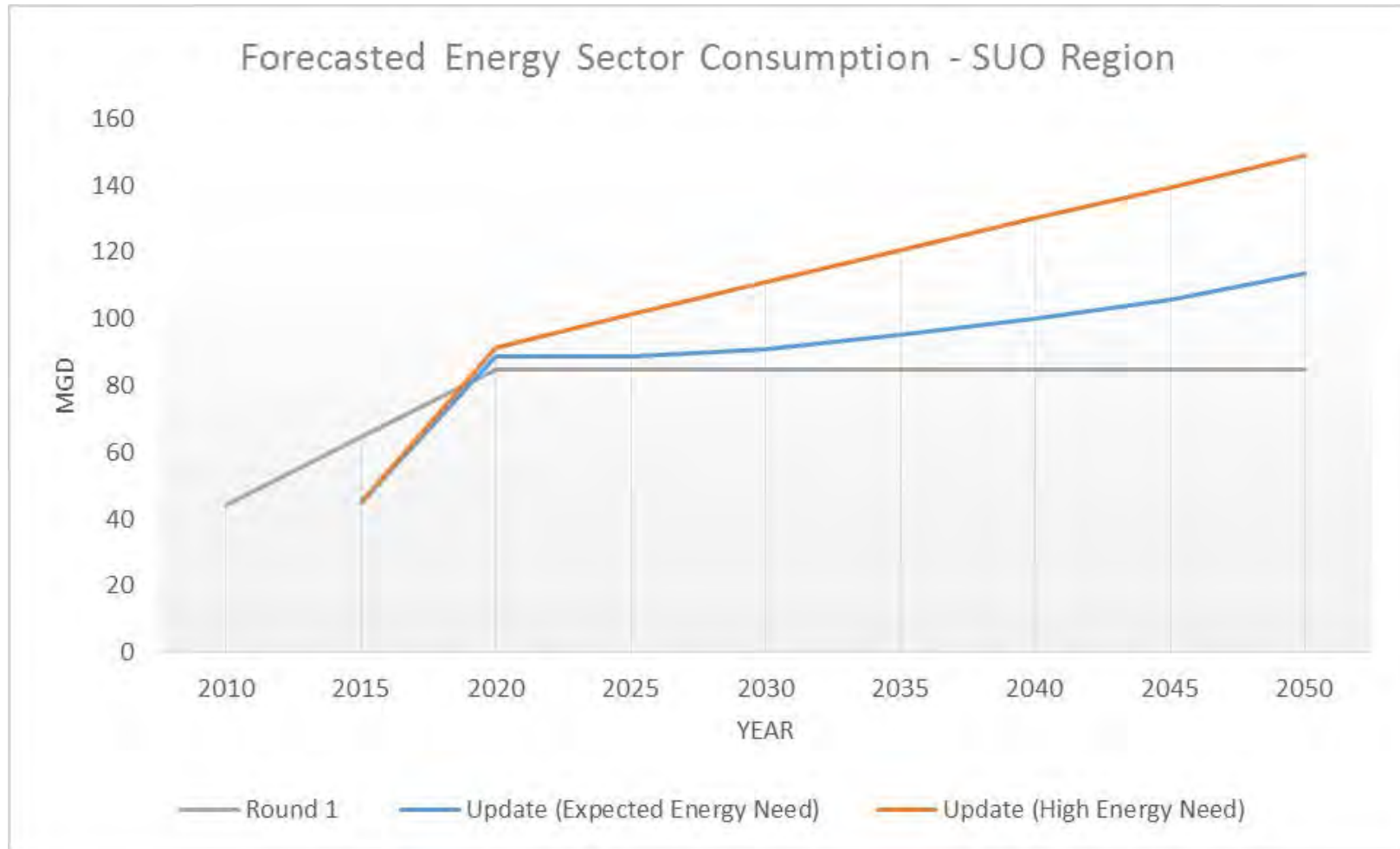


ID	Plant Name
1	Plant Yates
2	Plant McManus
3	Plant Wentworth (Kraft)
4	Plant McDonough
5	Plant Mitchell
6	Plant Harlee Branch
7	Plant Hatch
8	Plant Bowen
9	Plant Vogtle
10	Plant McDonough
11	Plant Yates
12	Effingham County Power Project
13	Plant McIntosh
14	Plant Hammond
15	Plant McManus
16	Plant Wansley
17	Plant Franklin (in AL)
18	Plant Scherer
19	Georgia Biomass
20	AL Sandersville
21	Washington County Power
22	Blue Ridge Energy Development
23	Crisp County Power Comm
24	Plant Vogtle
25	Effingham County Power Project
26	Gum Power Plant

Updated Water Demands for Thermo-Electric Power Generation



Updated Water Demands for Thermo-Electric Power Generation



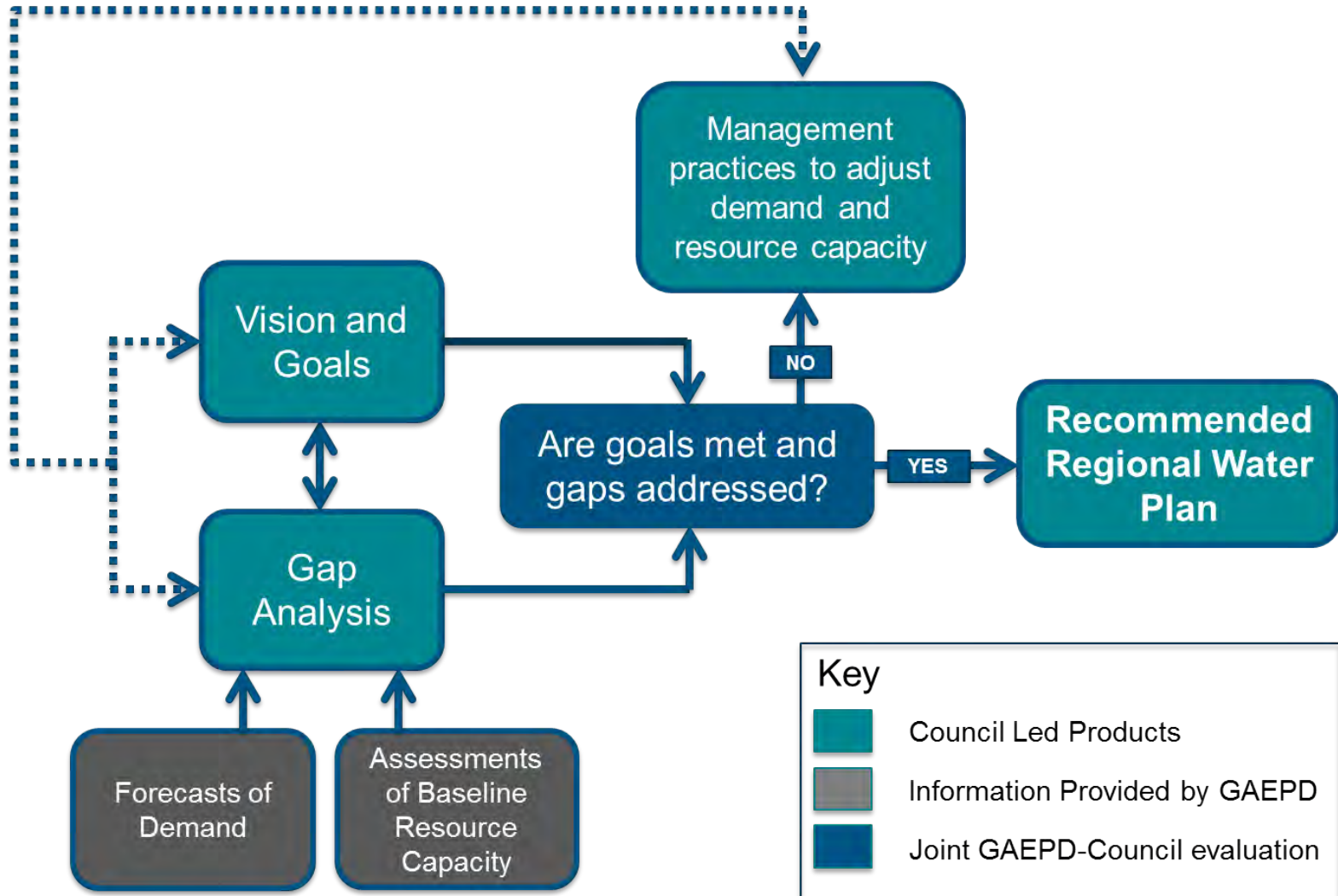


Georgia's
State Water Plan

Next Steps

www.georgiawaterplanning.org

Major Inputs and Steps in the Update Process



Next Steps in Review and Revision Process

- Finalize Municipal, Industrial and Energy Water and Wastewater Demands and Forecasts (CM1 and Follow-up)
- Updates to M&I and Energy Forecasting Technical Memorandum underway
- Agricultural Demand Estimates (CM2)
- Updates to Water Availability Resource Assessments (CM2)
- Updates to Gap Analysis (CM2)

Thank You!

Questions? Comments? Need
More Information?

Katherine.Atteberry@jacobs.com

jeff.larson@dnr.ga.gov