

Powersim Constructor Mini Model, version 08A

03-05-2002



Rio Grande Native Inflow (measured at Otowi)

Some Explanation:

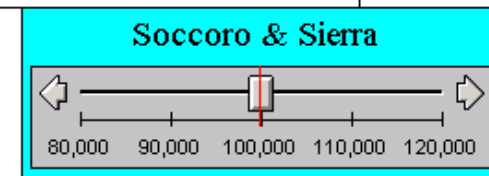
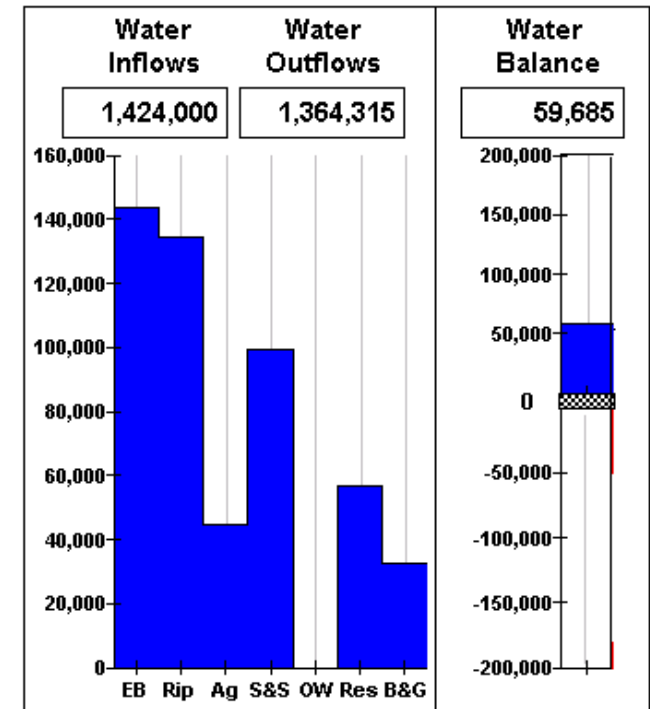


Some Considerations:

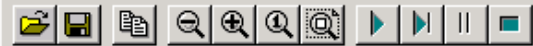


The Budgeting:

	25-Year Average	2020 Projection	2050 Projection	Your Budget	% of Avg.
S&S Delivery	100,000	100,000	100,000	100,000	100%



- Inflows
- R.G. Compact
- Elephant Butte
- Riparian
- Agri-culture
- Socorro & Sierra
- Open Water
- Resi-dential
- Business & Gov.
- Totals



Tributaries and Groundwater

Some Explanation:

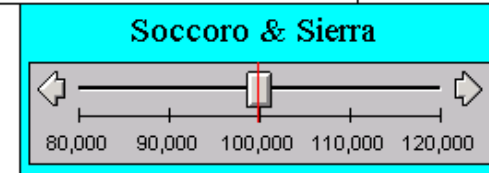
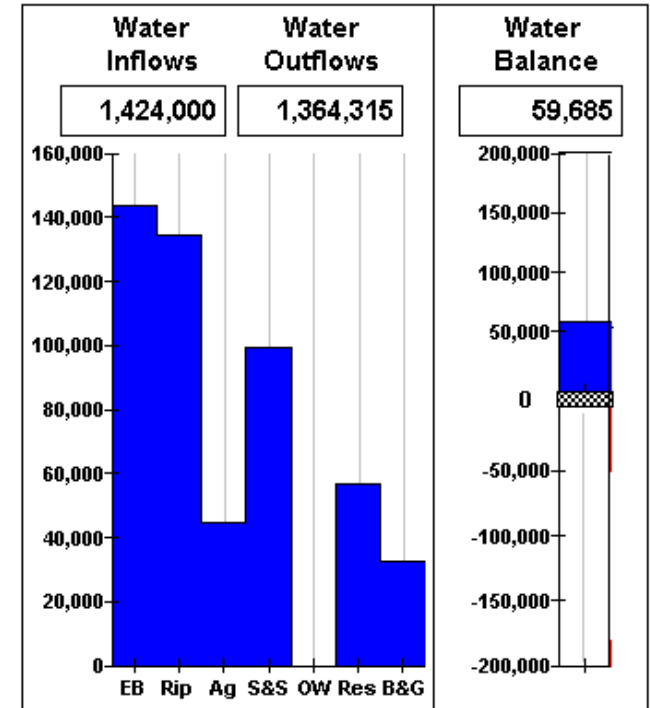


Some Considerations:

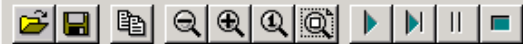


The Budgeting:

	25-Year Average	2020 Projection	2050 Projection	Your Budget	% of Avg.
S&S Delivery	100,000	100,000	100,000	100,000	100%



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San Juan/Chama Inflows

Some Explanation:

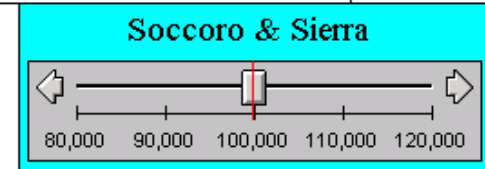
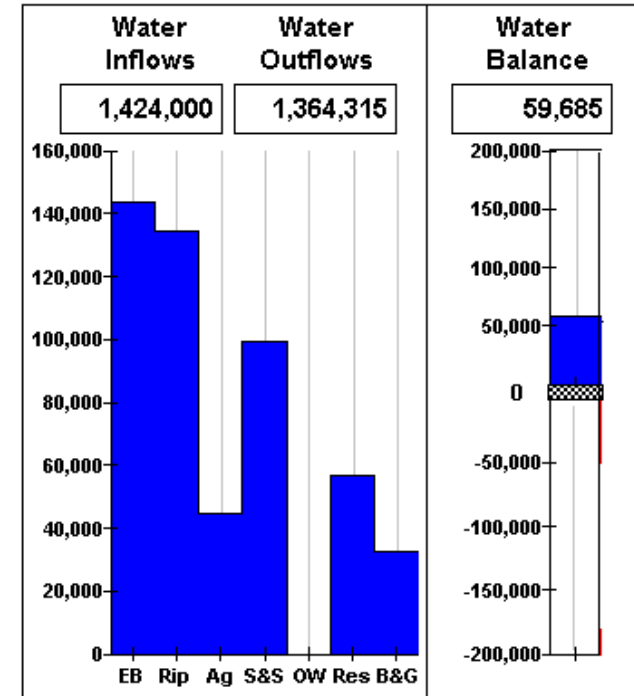


Some Considerations:

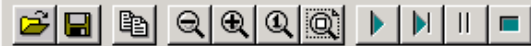


The Budgeting:

	25-Year Average	2020 Projection	2050 Projection	Your Budget	% of Avg.
S&S Delivery	100,000	100,000	100,000	100,000	100%



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Imports from Socorro & Sierra Counties

Some Explanation:

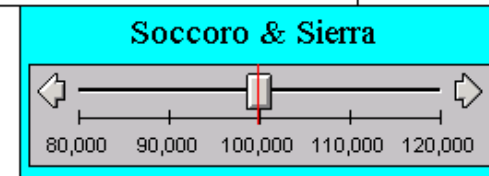
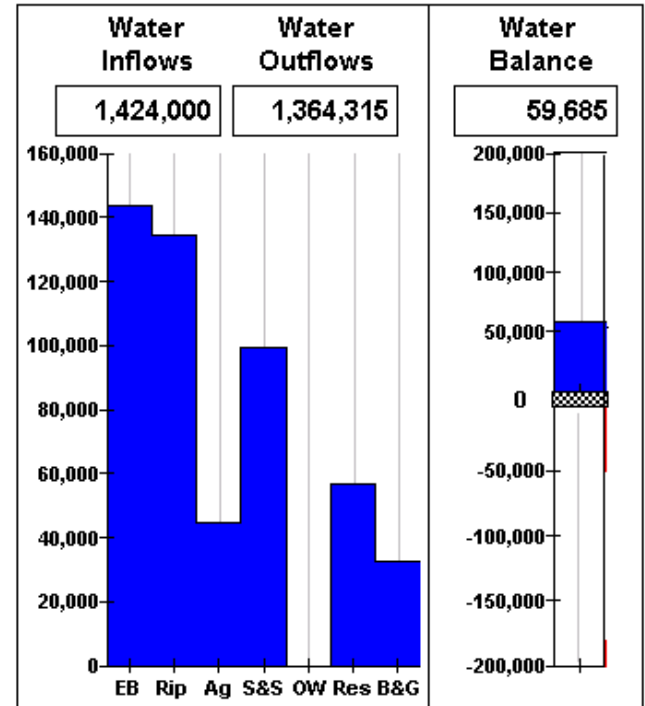


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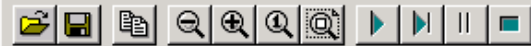


The Budgeting:

	25-Year Average	2020 Projection	2050 Projection	Your Budget	% of Avg.
S&S Delivery	0	?	?		



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- Socorro & Sierra



Imports from Other Regions

Some Explanation:

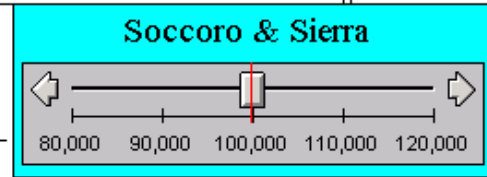
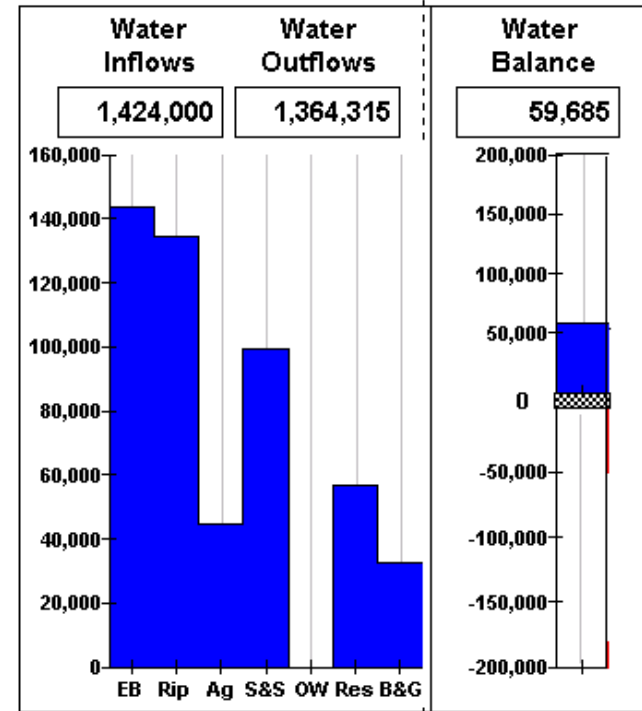


Some Considerations:

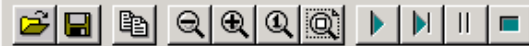


The Budgeting:

	25-Year Average	2020 Projection	2050 Projection	Your Budget	% of Avg.
S&S Delivery	100,000	100,000	100,000	100,000	100%



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Urban Storm Drain Inflow

Some Explanation:

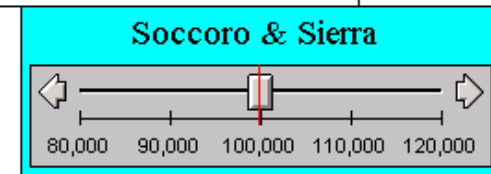
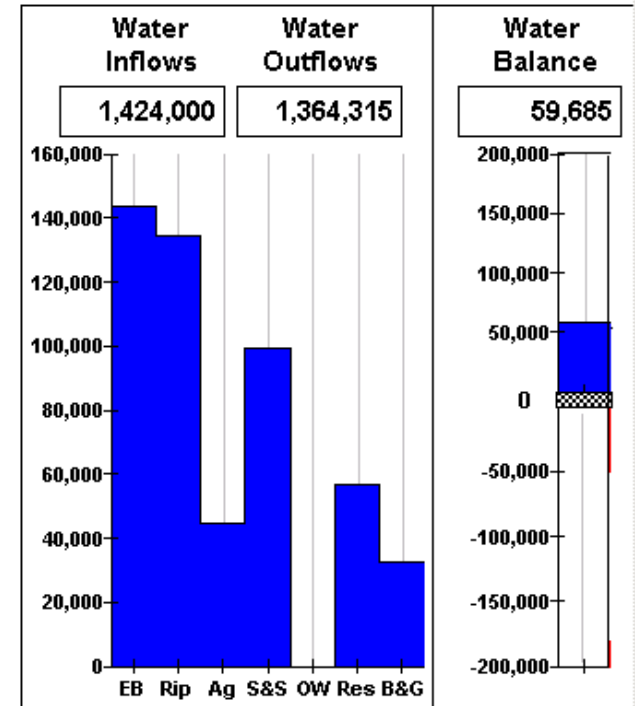


Some Considerations:

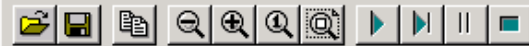


The Budgeting:

	25-Year Average	2020 Projection	2050 Projection	Your Budget	% of Avg.
S&S Delivery	100,000	100,000	100,000	100,000	100%

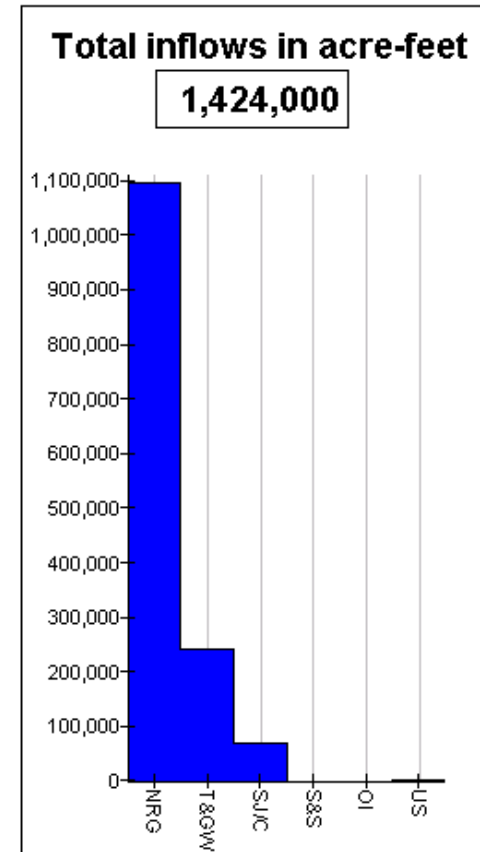


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Total Water Inflows (25-year averages; 1972-1997)

Native Rio Grande (NRG)	1,100,000 acre-feet
Tributaries and Ground Water (T&GW)	245,000 acre-feet
San Juan/Chama (SJ/C)	74,000 acre-feet
Imports from Socorro & Sierra Region (S&S)	0 acre-feet
Imports from Other Sources (OI)	0 acre-feet
Urban Storm Drains (US)	5,000 acre-feet
Total inflows	1,424,000 acre-feet



Navigation buttons: Inflows, R.G. Compact, Elephant Butte, Riparian, Agriculture, Socorro & Sierra, Open Water, Residential, Business & Gov., Totals

Rio Grande Compact Deliveries (RGC)

Some Explanation:

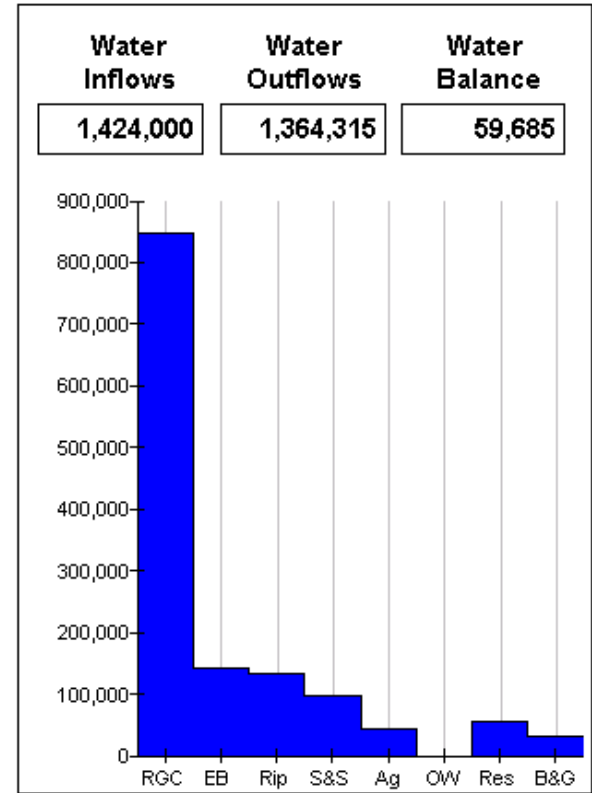
- Established in 1930s
- Divides available water among CO, NM, TX
- Enforced by U.S. Supreme Court
- NM-ISC responsible to ensure NM deliveries

Some Considerations:

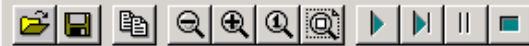
- NM obligation depends on inflow at Otowi gage
- Delivery is measured at EB dam
- Storage requirement at EB is also specified
- Mechanism exists for short-term credits/deficits

The Budgeting:

	25-Year Average	2020 Projection	2050 Projection
RGC Obligation	850,000	850,000	850,000



All water measured in acre-feet, unless otherwise indicated.



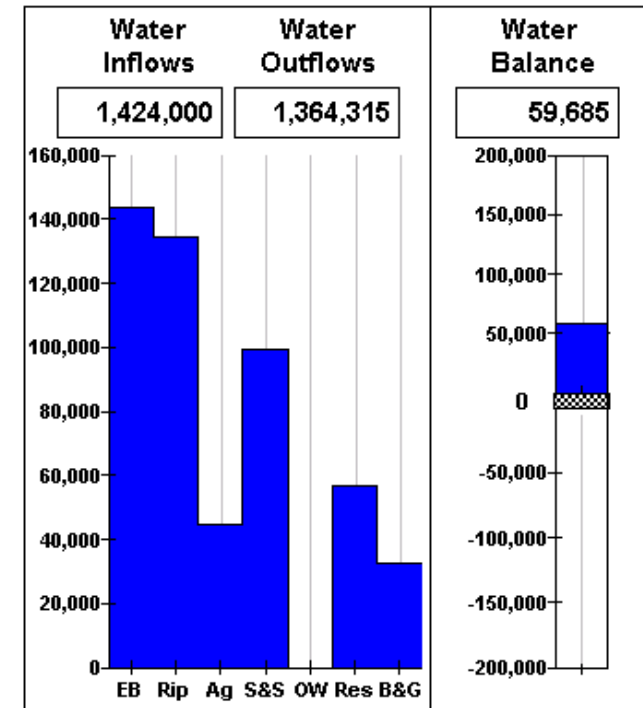
Elephant Butte Reservoir Evaporation (EB)

Some Explanation:

Under the RG Compact, water is stored at EB Reservoir for delivery downstream. Evaporation from the reservoir's surface is charged to the Middle Rio Grande region.

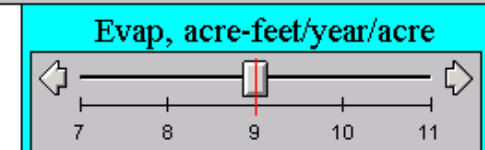
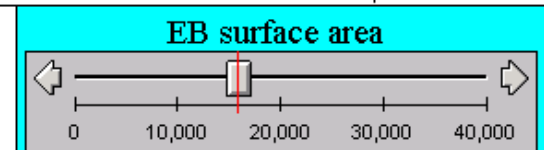
Some Considerations:

- EB Reservoir is heavily used for recreation.
- Location is low altitude, hot, and dry, with high evaporation rates.
- Water storage at EB is required under RG Compact.

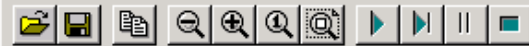


The Budgeting:

	25-Year Average	2020 Projection	2050 Projection	Your Budget	% of Avg.
Surface Acres	16,000	16,000	16,000	16,000	100%
Evaporation/Acre	9	9	9	9	100%
Total Use	140,000	140,000	140,000	144,000	100%



Navigation buttons: Inflows, R.G. Compact, Elephant Butte, Riparian, Agriculture, Socorro & Sierra, Open Water, Residential, Business & Gov., Totals.



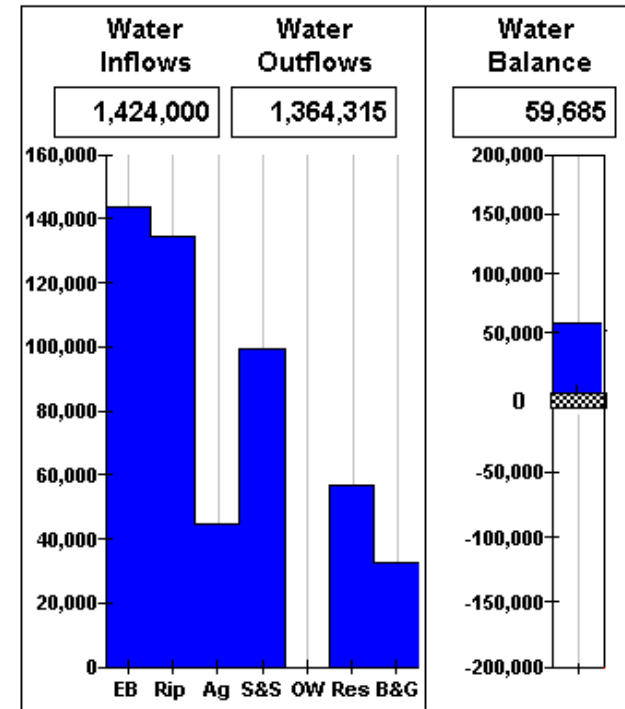
Riparian Evapotranspiration (Rip)

Some Explanation:

Riparian evapotranspiration is consumption of water by plants in and along rivers and streams. It includes evaporation and transpiration of water through plants. It includes the bosque as well as growth along streams and ditchbanks.

Some Considerations:

- Plant species consume various amounts of water.
- Some endangered species need riparian habitat.
- Riparian use continues during droughts.
- Removing high-water-use plants can reduce consumption.



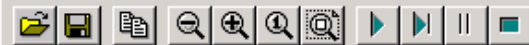
The Budgeting:	25-Year Average	2020 Projection	2050 Projection	Your Budget	% of Avg.
Surface Acres	45,000	45,000	45,000	45,000	100%
ET/Acre	3	3	3	3.00	100%
Total Use	135,000	135,000	135,000	135,000	100%

Riparian acreage

0 20,000 40,000 60,000

ET, acre-feet/acre/year

2.0 2.5 3.0 3.5 4.0



Agricultural Consumption (Ag)

Some Explanation:

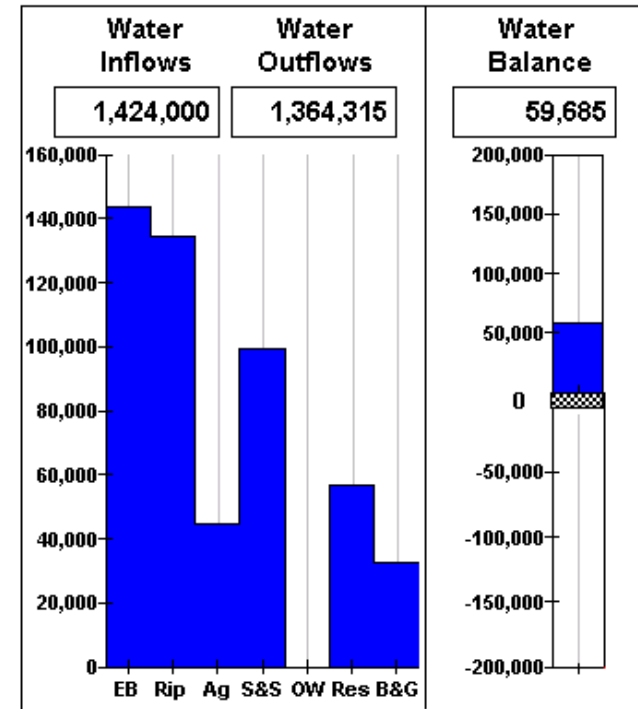
Water consumed in irrigated agriculture is that which evaporates from fields, transpires from plants, and which is contained in plants.

Some Considerations:

- Agriculture maintains rural landscapes.
- Agricultural way of life is historic, aesthetic, and valued.
- Local food production and consumption has advantages.
- Difficult to restore agriculture after conversion to urban.

The Budgeting:

	25-Year Average	2020 Projection	2050 Projection	Your Budget	% of Avg.
Surface Acres	48,000	42,400	34,000	48,000	100%
Evaporation/Acre	2.1	2.1	2.1	0.94	45%
Total Use	100,000	89,000	72,000	45,347	45%



Agricultural acreage

← [Slider] →

30,000 40,000 50,000 60,000

ET, acre-feet/acre/year

← [Slider] →

0 1 2 3 4

Inflows

R.G. Compact

Elephant Butte

Riparian

Agricultural

Socorro & Sierra

Open Water

Residential

Business & Gov.

Totals



Deliveries to Socorro & Sierra Counties (S&S)

Some Explanation:

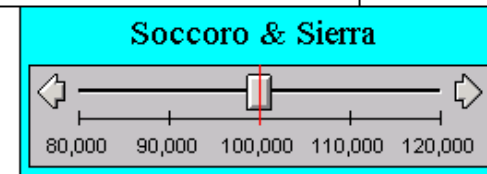
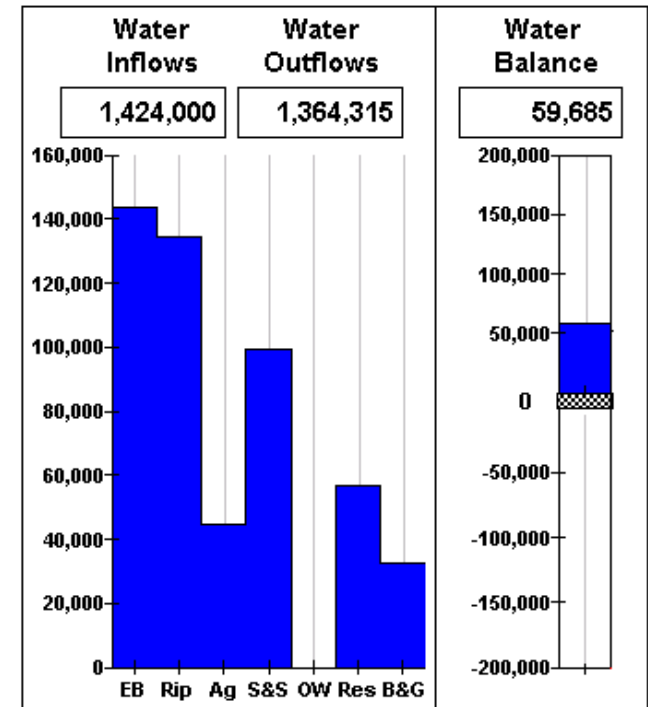
There is no formal water delivery agreement between the S&S and MRG regions. Current values are traditional average deliveries from MRG to S&S for consumption in S&S.

Some Considerations:

- MRG could reduce deliveries to S&S via purchase, lease, or other mechanisms.
- S&S is developing its own regional water plan.
- S&S also projects regional growth in demand.

The Budgeting:

	25-Year Average	2020 Projection	2050 Projection	Your Budget	% of Avg.
S&S Delivery	100,000	100,000	100,000	100,000	100%





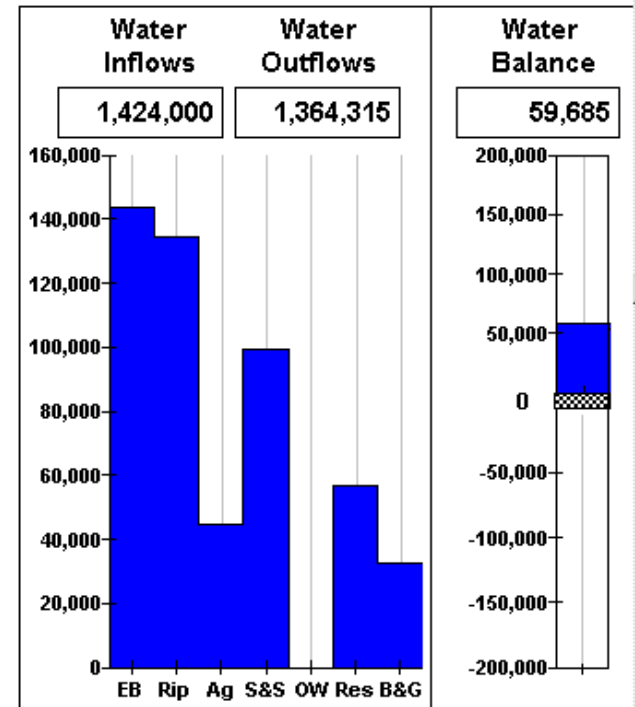
Open Water Evaporation (OW)

Some Explanation:

Open water includes rivers, streams, lakes, wetlands, ditches and pools. Because of its size, Elephant Butte is considered separately.

Some Considerations:

- Open water provides recreation & habitat for endangered species.
- Some open water can be replaced with pipes but conversion costs are high.



The Budgeting:	25-Year Average	2020 Projection	2050 Projection	Your Budget	% of Avg.
Surface Acres	12,000	12,000	12,000	5,000	42%
Evaporation/Acre	5	5	5	0.00	0%
Total Use	60,000	60,000	60,000	0	0%

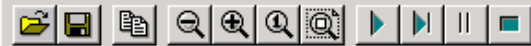
Open water acreage

Slider: 5,000 to 20,000 (Current: 12,000)

Evap., acre-feet/acre/year

Slider: 0 to 9 (Current: 5)

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Residential Uses (Res)

Some Explanation:

Residential consumption includes evapotranspiration from outdoor plants and trees, and indoor human uses.

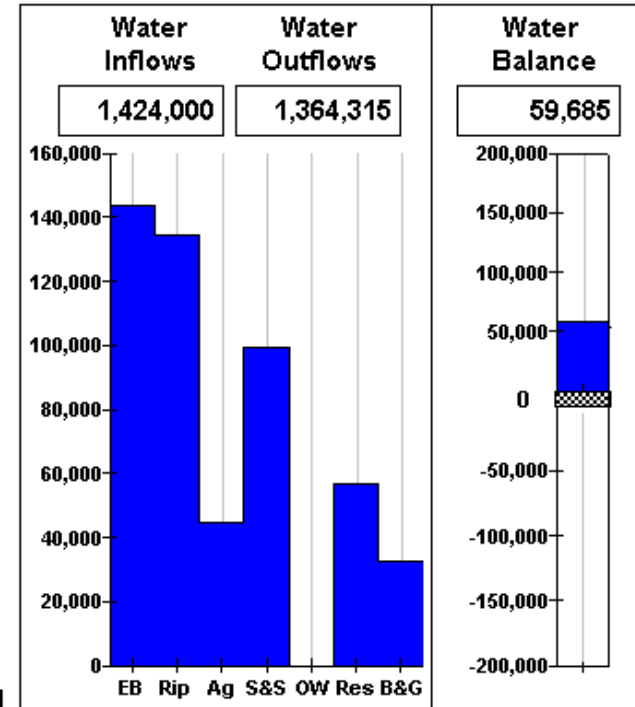
Some Considerations:

- Use is linked to population.
- Use is affected by population behavior.
- At current rate, population in MRG will double by 2050

The Budgeting:

	25-Year Average	2020 Projection	2050 Projection	Your Budget	% of Avg.
Population	713,000	1,016,000	1,470,000	713,000	100%
Per capita use	0.08	0.08	0.08	0.08	100%
Total Use	57,000	81,000	118,000	57,040	100%

Note: "Per capita use" reflects residential use on a regional basis.



Population

Slider: 600,000 | 1,000,000 | 1,400,000

Use/person/year

Slider: 0.04 | 0.08 | 0.12





Business & Government (B&G)

Some Explanation:

B&G covers consumption from commercial, industrial, municipal, state and federal activities, including commercial and industrial production, human consumption, lawns, parks.

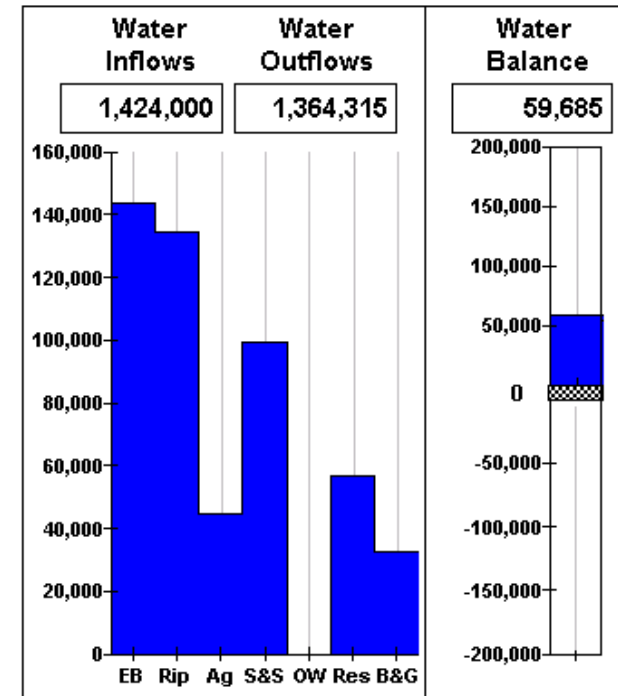
Some Considerations:

- Jobs are needed for a healthy economy.
- Some endeavors produce more jobs.
- Some endeavors use more water.

The Budgeting:

	25-Year Average	2020 Projection	2050 Projection	Your Budget	% of Avg.
Jobs	343,000	489,000	707,000	343,000	100%
Consumption/job	0.096	0.087	0.073	0.10	100%
Total Use	33,000	43,000	52,000	32,928	100%

Note: "Consumption/job" reflects business & gov. use on a regional basis



Jobs

← [Slider] →

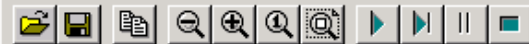
300,000 500,000 800,000

Acre-feet/job/year

← [Slider] →

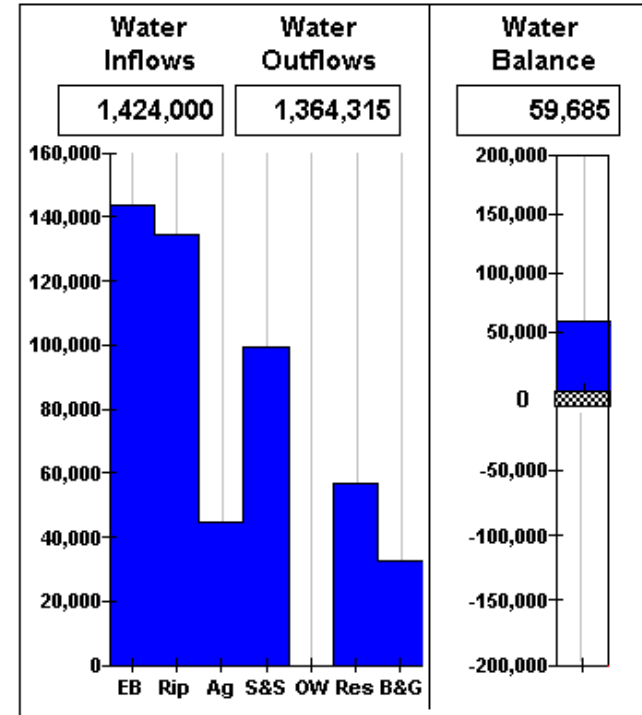
0.00 0.05 0.10 0.15 0.20





Totals

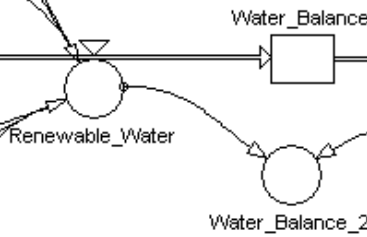
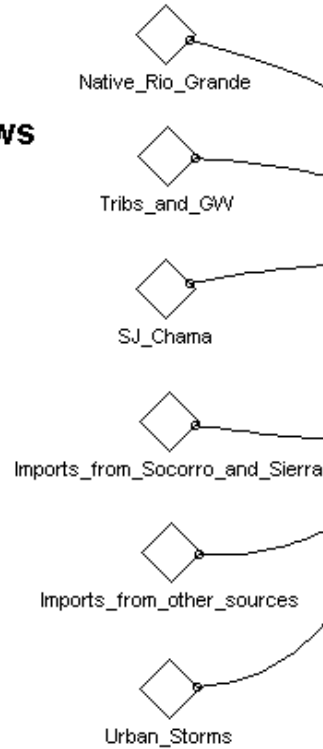
	Units	Units, % of 25-yr. avg.	Per Unit Use	Per Unit Use, % of 25-yr. avg.	Sub- total	Sub- total, % of 25-yr. avg.
Rio Grande Compact					850,000	
Elephant Butte Evaporation	16,000	100%	9.00	100%	144,000	100%
Socorro & Sierra Deliveries					100,000	100%
Riparian Use	45,000	100%	3.00	100%	135,000	100%
Open Water Evaporation	5,000	42%	0.00	0%	0	0%
Irrigated Agriculture	48,000	100%	0.94	45%	45,347	45%
Business & Government	343,000	100%	0.10	100%	32,928	100%
Residential Uses	713,000	100%	0.08	100%	57,040	100%



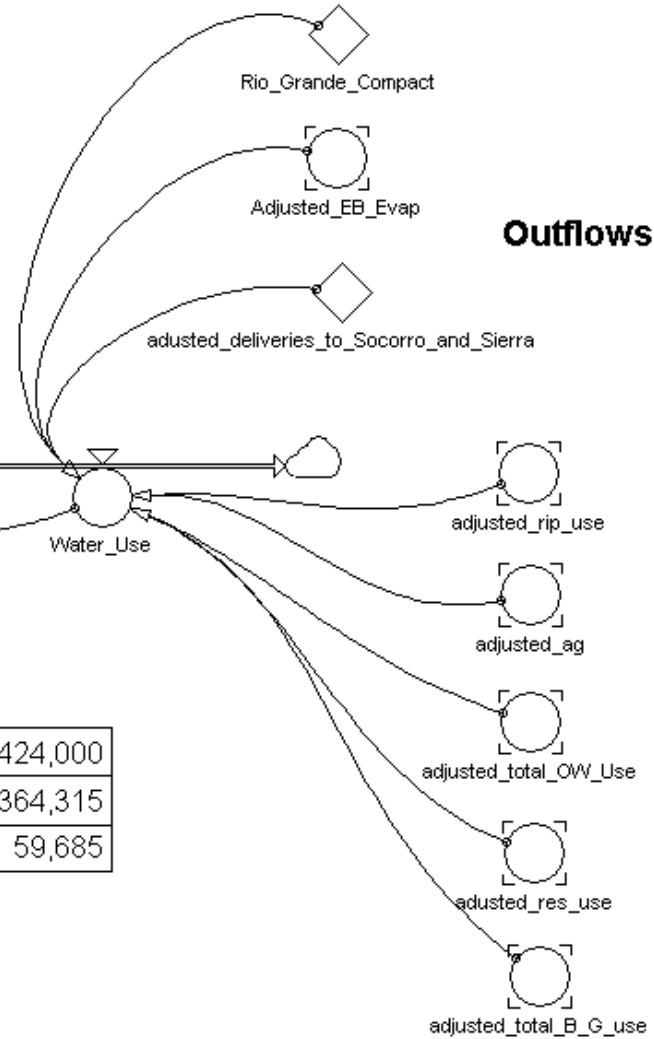


Main Model

Inflows



Outflows



Renewable Water	1,424,000
Water Use	1,364,315
Water Balance	59,685



Submodels

