

Water Resource Protection Act

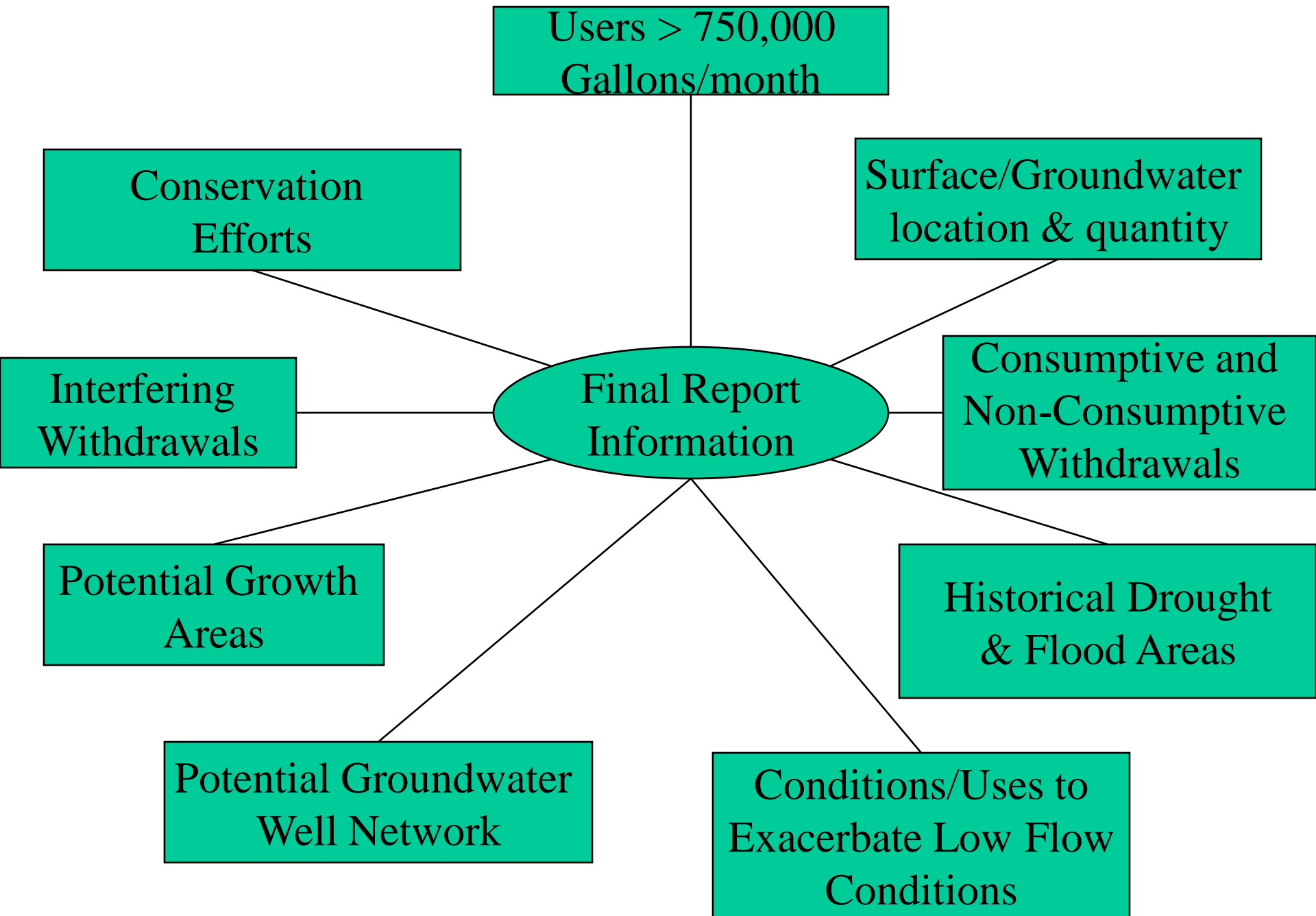
Senate Bill 163

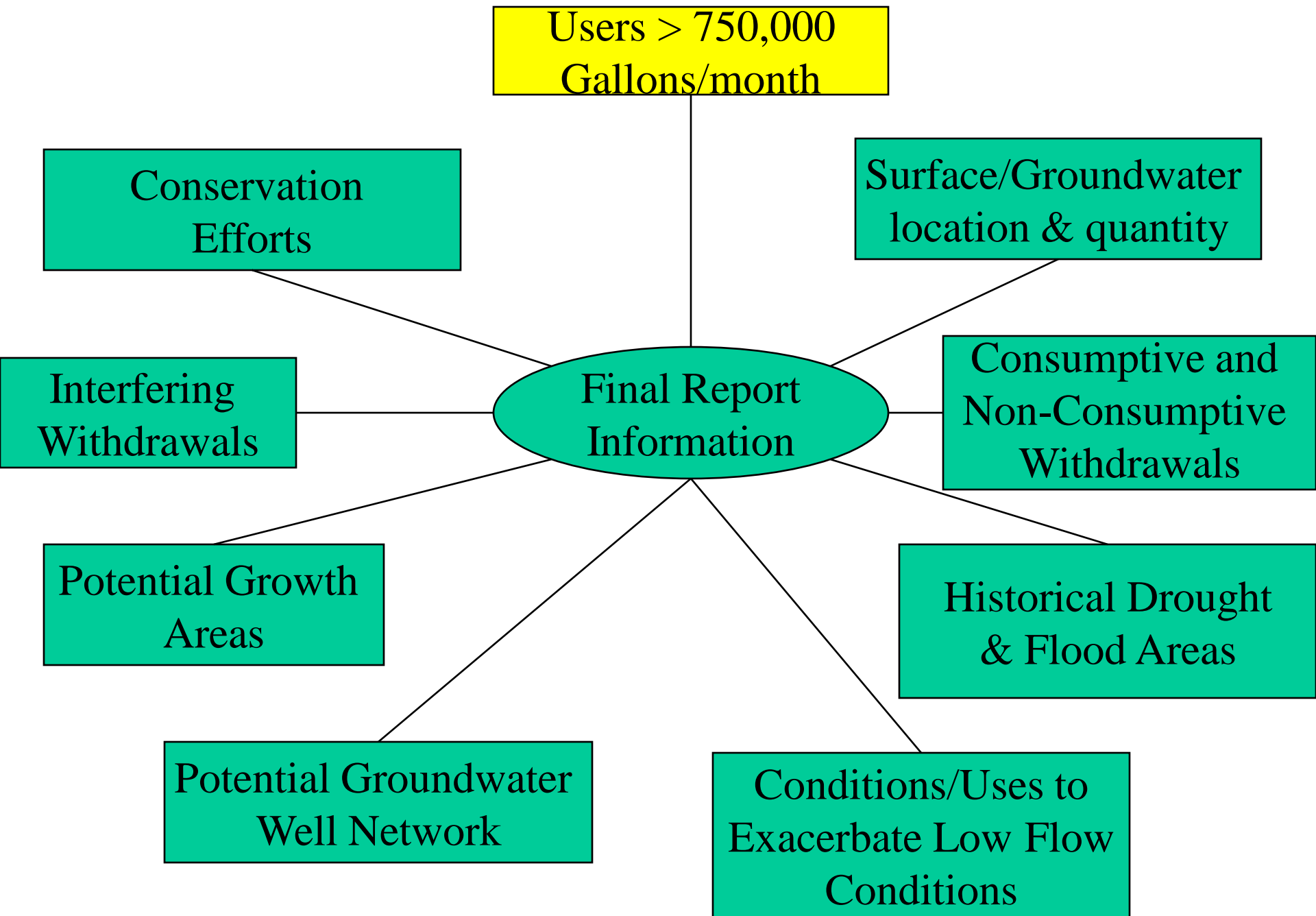
Summary of the Act

- Survey of large water users
- Registration program
- Final Report
- Report to the Joint Legislative Oversight Commission on progress and problems that may be encountered

DEP's Initial Tasks

- Begin identifying and gathering reasonably available data
 - Work with agencies
 - Work with academic institutions
 - Work with survey participants
- Develop time frame for survey
- Develop survey form and web interface





The Survey

- DEP examined surveys and registration forms from other states to avoid “reinventing the wheel”.
- DEP’s Internet Design Group was consulted regarding development of a web based survey.
- Meetings have been held with various groups and agencies to obtain needed information.
- Issuance of 2003 & 2004 survey projected 1st Quarter, 2005.

Stakeholder Meetings Held to Date

- West Virginia Chamber of Commerce
- Manufacturers' Association
- Farm Bureau
- WV-American Water
- Rural Water Association
- Coal Association

Survey Partners

- Contract has been executed with USGS.
- USGS will provide a list of companies that may be large quantity users based on published data.
- WVGES will provide technical assistance for survey design and data validation.
- AEP and Arch Coal have volunteered to be beta testers for the survey.

2005 WATER USE SURVEY

1. General Information

a. Facility Name: _____	i. Mailing Address: _____
b. Facility Address: _____	j. Owner's Name: _____
c. County: _____	k. Owner's Address: _____
d. Phone: () _____	l. Owner's Phone: () _____
e. Contact Name: _____	m. Owner's Email: _____
f. Contact Email: _____	n. NPDES Number: _____
g. Facility Email: _____	
h. SIC Code: _____	

2. Brief description of process requiring water withdrawals. (Ex. cooling water, electric generation, etc...) (§22-25-3(j)(3))

3. Type of Water Use: (§22-25-3(j)(3))(drop box)	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="border: none;">Industrial</td></tr> <tr><td style="border: none;">Commercial</td></tr> <tr><td style="border: none;">Irrigation</td></tr> <tr><td style="border: none;">Mining</td></tr> <tr><td style="border: none;">Public Water</td></tr> <tr><td style="border: none;">Power Generator</td></tr> <tr><td style="border: none;">Recreation</td></tr> <tr><td style="border: none;">Mineral Extraction</td></tr> </table>	Industrial	Commercial	Irrigation	Mining	Public Water	Power Generator	Recreation	Mineral Extraction
Industrial									
Commercial									
Irrigation									
Mining									
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Power Generator									
Recreation									
Mineral Extraction									

Survey (Continued)

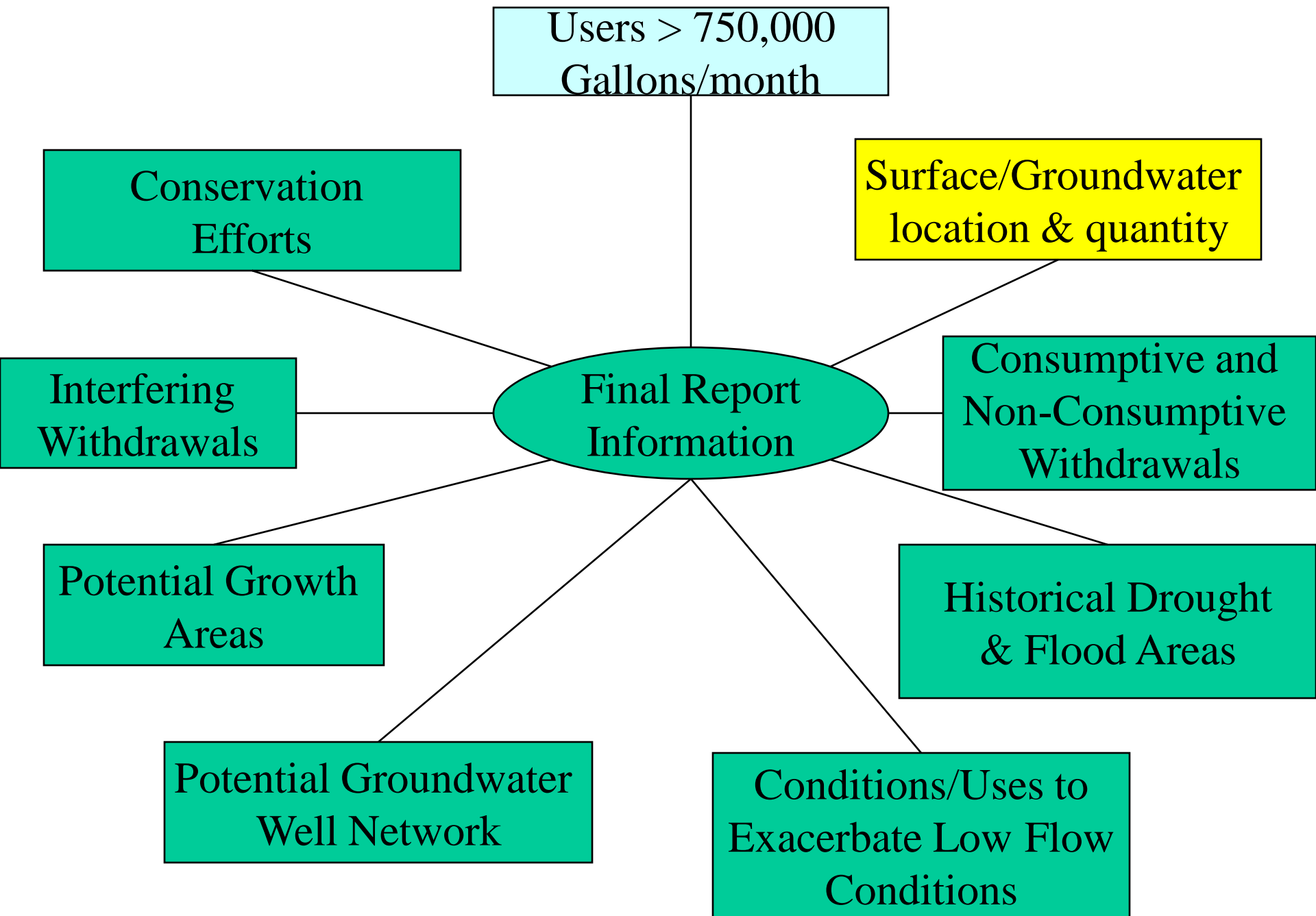
4. Surface Water Intake Information (§22-25-3(j)(3)):											
County	Latitude	Longitude	Source Name			Monthly Withdrawal (gallons/month)					
						Year (Drop Box for 2003 & 2004 options)					
Click year and the following data fields open up											
January	February	March	April	May	June	July	August	September	October	November	December
Water Source (drop box):			Spring	How did you determine withdrawal information? Metered/Calculated							
			Lake/Impoundment	If calculated, describe in detail how the calculation was made.							
			Stream								
5. Groundwater Intake Information (§22-25-3(j)(3)):											
County	Latitude	Longitude	Source Name			Aquifer Source (drop box)		Type of Rock (drop box)			
						Alluvial Aquifer		Sand			
						Upper Pennsylvanian & Permian		Sandstone (SS)			
						Lower Pennsylvanian		Sand & Gravel			
						Mississippian Bedrock		Limestone/Dolomite (LS)			
						Devonian & Siluran		Shale (Sh)			
						Ordovician & Cambrian		Interbedded SS,LS, Sh			
						Unknown		Underground Mine			
								Unknown			
Monthly Withdrawal (gallons/month)											
Year (Drop Box for 2003 & 2004 options)											
Click year and the following data fields open up											
January	February	March	April	May	June	July	August	September	October	November	December

Survey (Continued)

Water Source (drop box):	Spring	How did you determine withdrawal information? Metered/Calculated If calculated, describe in detail how the calculation was made.
	Lake/Impoundment	
	Stream	
6. Do you have any water purchased from a water utility? (§22-25-3(j)(3)) Yes/No		
a. If yes, provide utility name. _____		
7. What is your daily maximum potential to consume? (§22-25-3(g)) _____ (gallons/day)		
8. What is your monthly maximum potential to consume? (§22-25-3(g)) _____ (gallons/month)		
9. If you are a seasonal industry, provide your maximum monthly seasonal use (gallons/month) and number of months. (§22-25-3(g))		
10. Within the next five years, what is your maximum monthly potential to consume? (§22-25-3(g)) _____ (gallons/month)		
11. For coal fired electric generators, what is the facility's nominal design capacity per calendar day? (§22-25-3(g))		
12. Where do you discharge? (§22-25-3(j)(3)) (drop b		
		POTW
		Stream
		Underground Injection Well/Septic System
		Private Reservoir
		Lake
		Other

Survey (Continued)

POTW drop	Stream drop	UIW/SS drop	Private Reservoir (drop)	Lake (drop)	Other (drop)
Name	Name	Lat & Long	Lat & Long	Lat & Long	Text Box
Monthly Discharge (gallons)	Lat & Long	UIC Code	NPDES Number	NPDES Number	
	NPDES number	UIC Permit Number	Monthly Discharge (gallons)	Monthly Discharge (gallons)	
	Monthly discharge (gallons)	Monthly Discharge (gallons)			
13. For public water suppliers, list the zip codes for the areas you serve. (§22-25-3(j)(3) (Drop down box)					
14. Describe stream flow conditions that impact withdrawal rates. §-22-25-3(f)					
15. Describe seasonal conditions that impact withdrawals. §-22-25-3(f)					
16. If you have work planned to conserve water use, describe the project and give an estimated project cost. §-22-25-3(j)(9)					



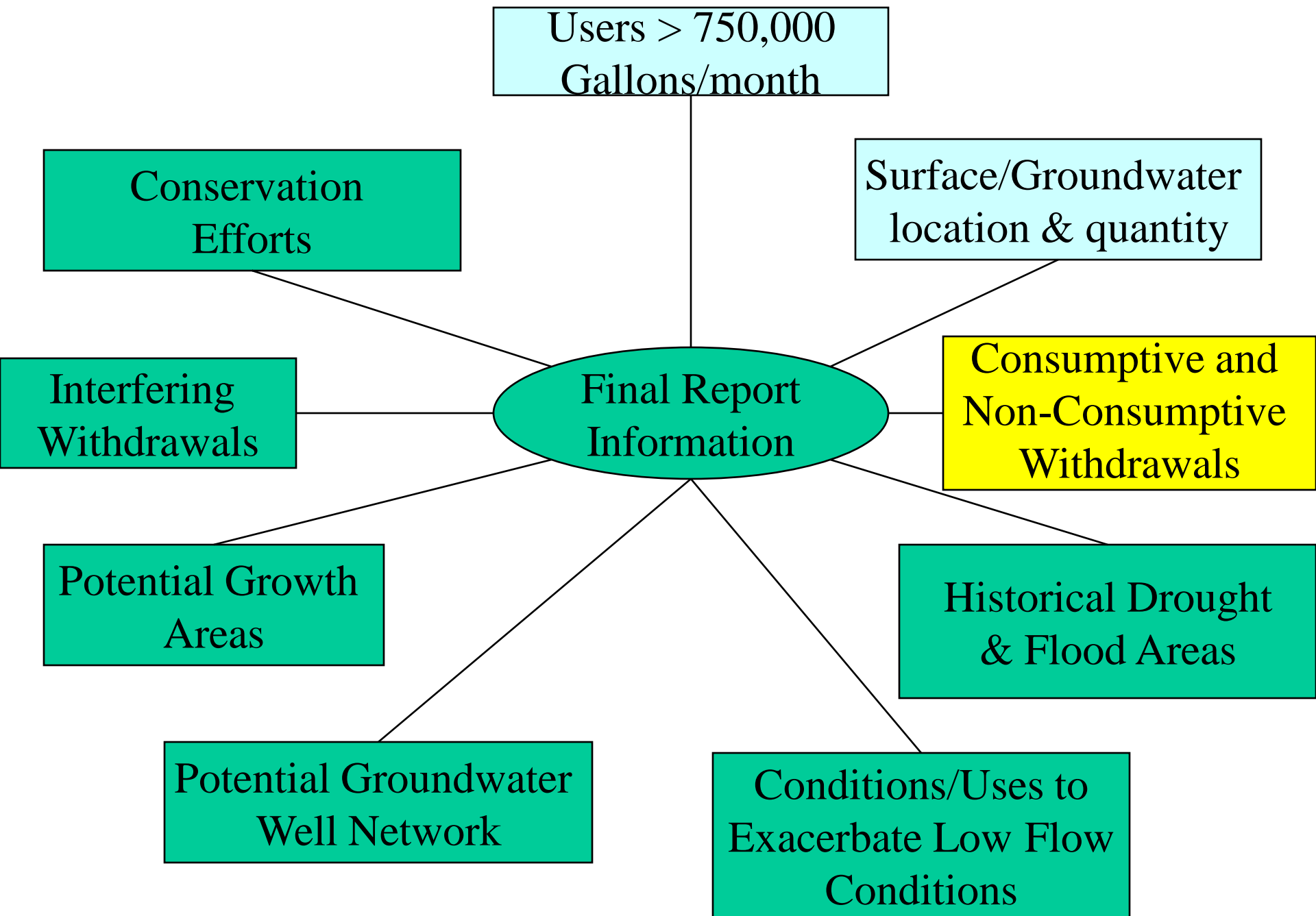
Surface/Groundwater Location and Quantity: Data Elements

Surface Water

- Geographic Maps
- Stream flow rates, estimation of amount of impounded water

Groundwater

- Location of groundwater wells
- Volume produced, depth, formation, total estimated volumes



Consumptive/Nonconsumptive Withdrawals: Data Elements

Intake Amounts

- Survey, estimates from USGS for industrial users, public water-well data, private water well withdrawal estimates

Discharge Amounts

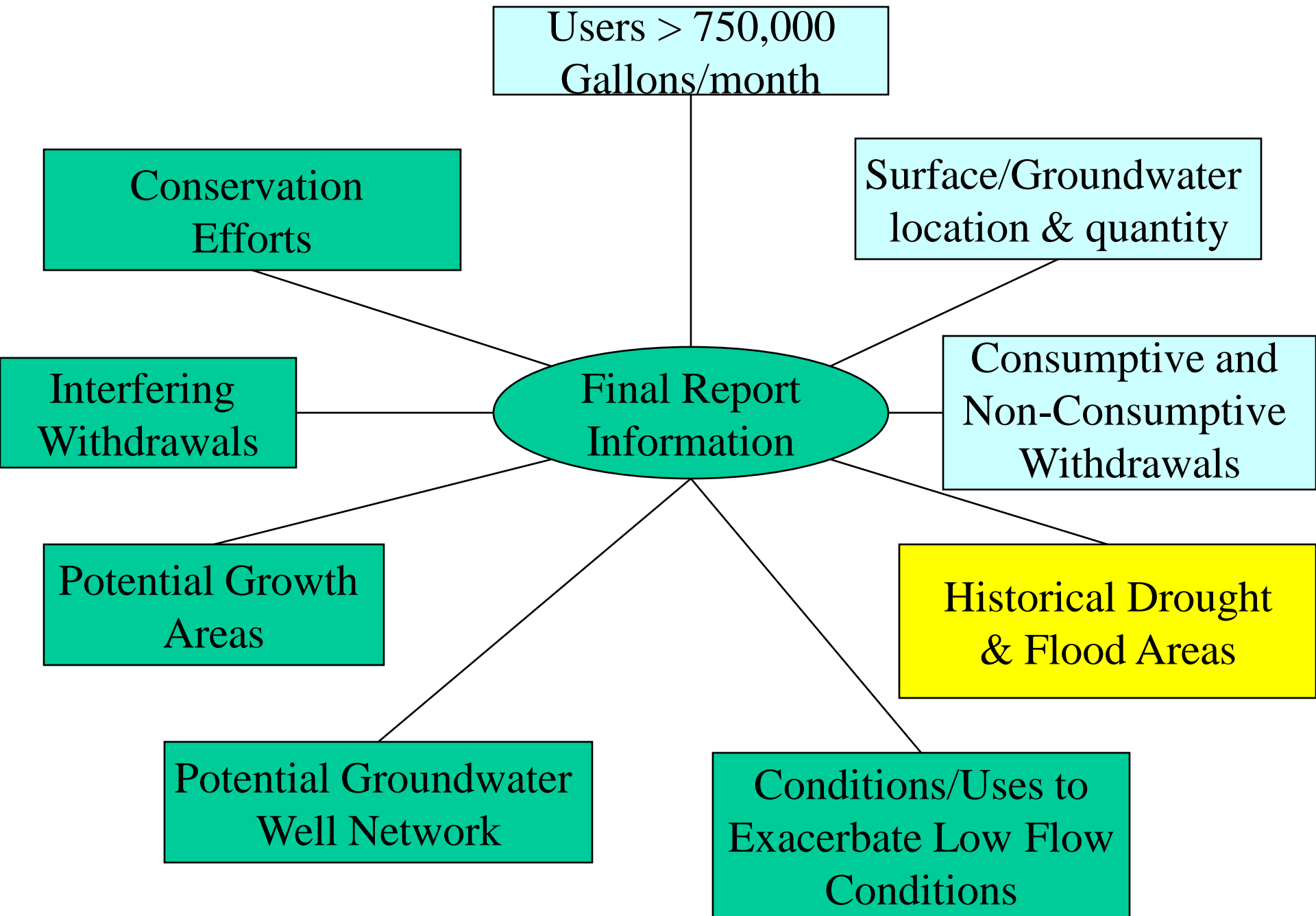
- Survey, NPDES Reports, USGS estimates for industrial users, public water supply well data, private water-well estimates

Consumptive Use

- Calculated

Consumptive/Nonconsumptive Withdrawals: Data Sources

- Public Water Supply Intake reports
- POTW's
- Intake and consumptive use based on SIC codes and other data
- Reported Discharges
- Domestic intake and discharge estimates
- Thermoelectric intake and discharge estimates
- Irrigation and other farm related use estimates
- Mining intake and discharge estimates



Historical Drought and Flood Areas: Data Elements

Low Flow

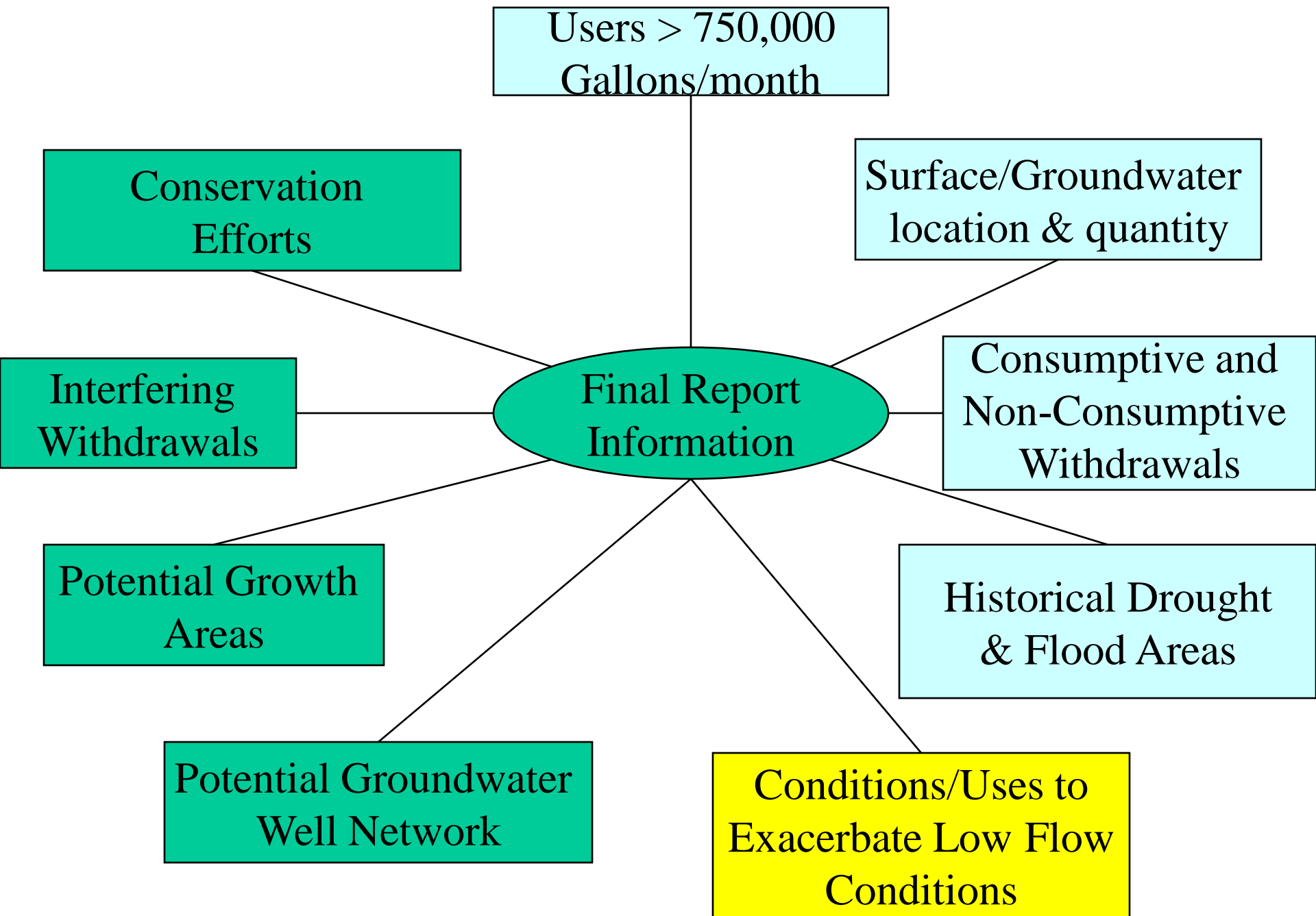
- Stream flow data from actual gauging stations
- Historic groundwater data

Drought

- Rainfall – historic trends
- Socio-economic impacts

Floods

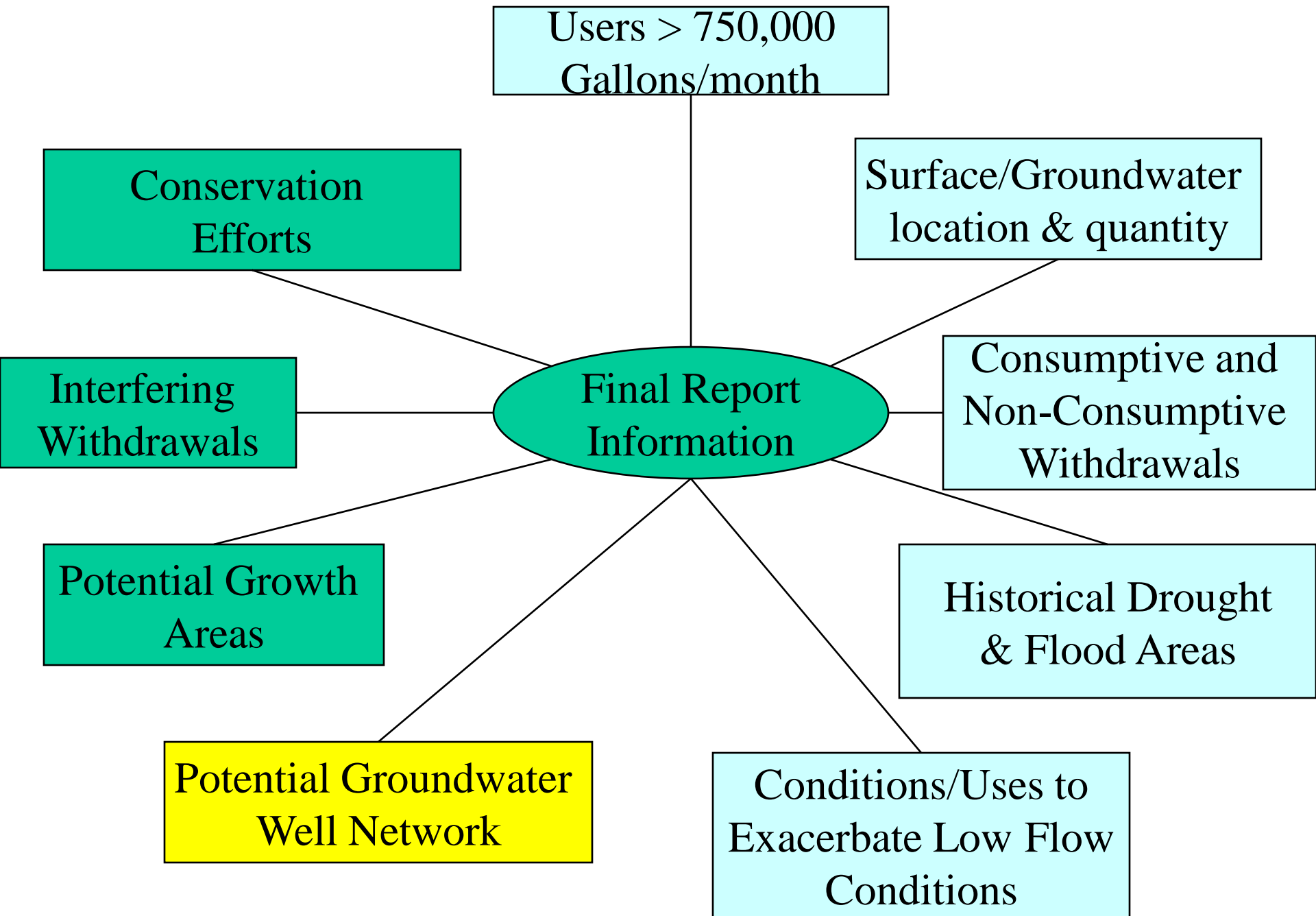
- Rainfall – historic trends
- Socio-economic impacts



Conditions that Exacerbate Low Flows: Data Elements

Current and projected water uses

- Survey data
- Maps and other information delineating flood, drought, and economic/population increase or decline

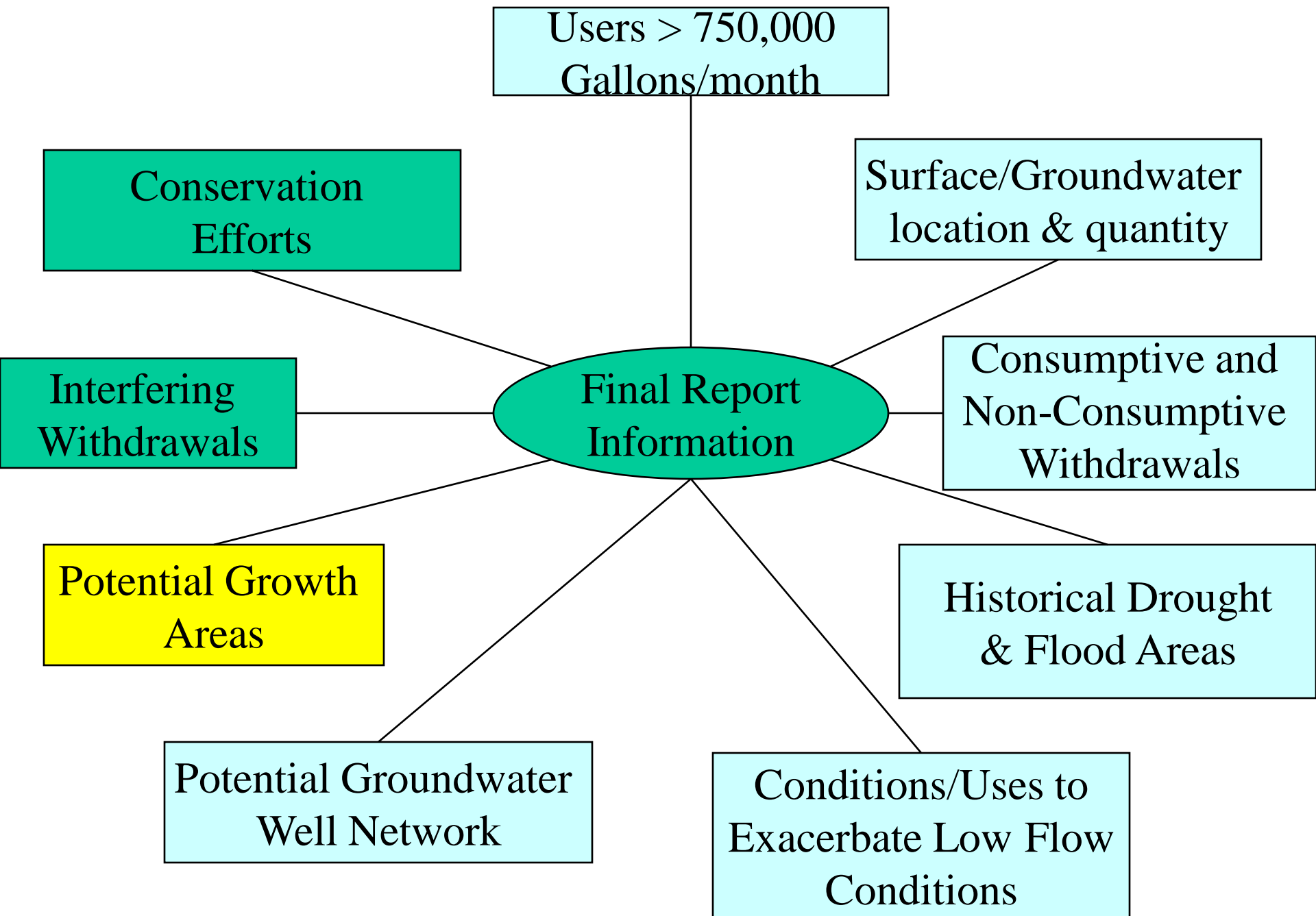


Potential Groundwater Well Network: Data Elements

Information generated from final report elements

- Groundwater locations and quantity (Element 1)
- Consumptive/nonconsumptive uses (Element 2)
- Survey information (Element 3)

Structure, lithologic and isopach maps



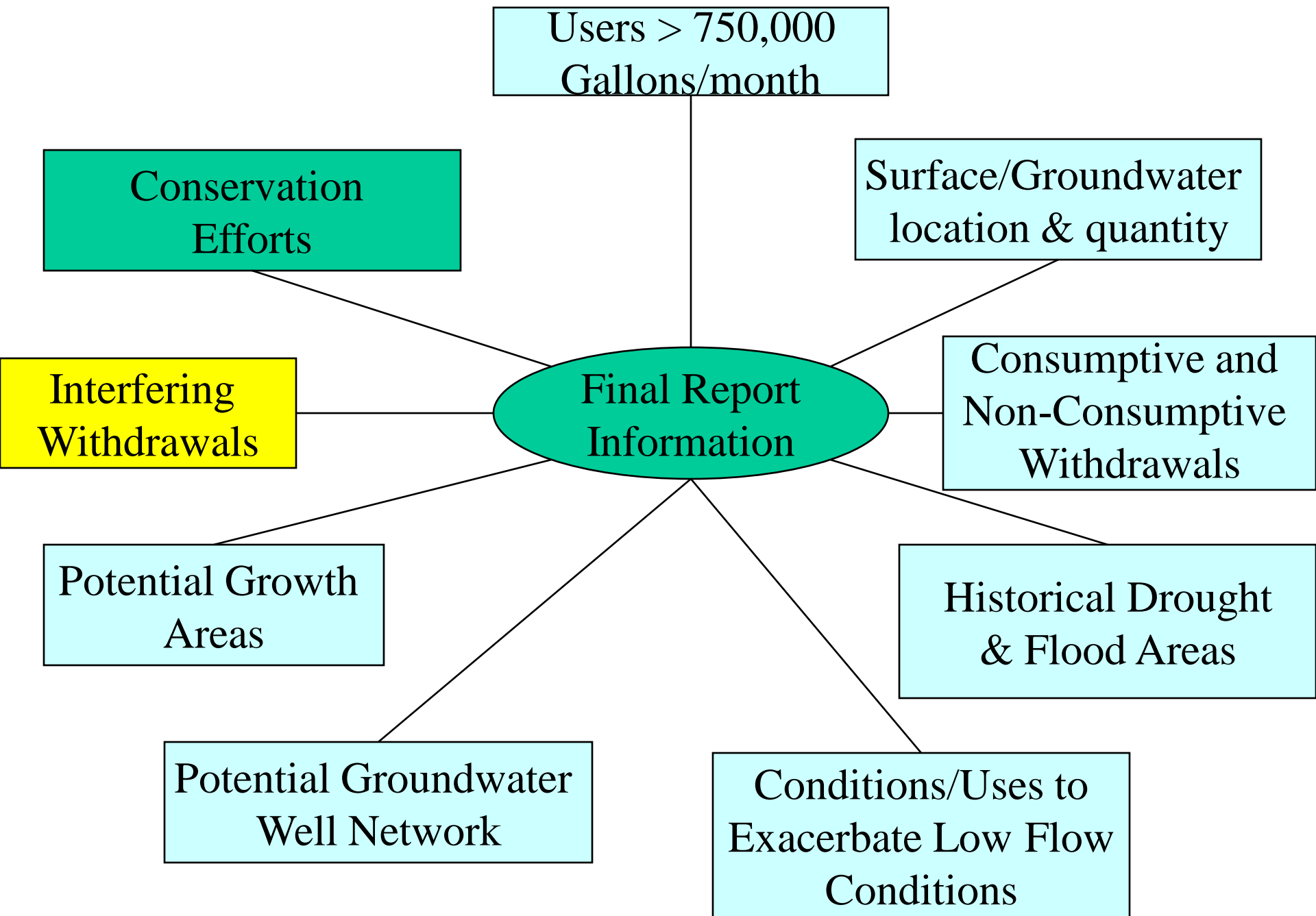
Potential Growth Areas – Competition for Resources: Data Elements

Population data

- Census

Areas of projected industrial growth

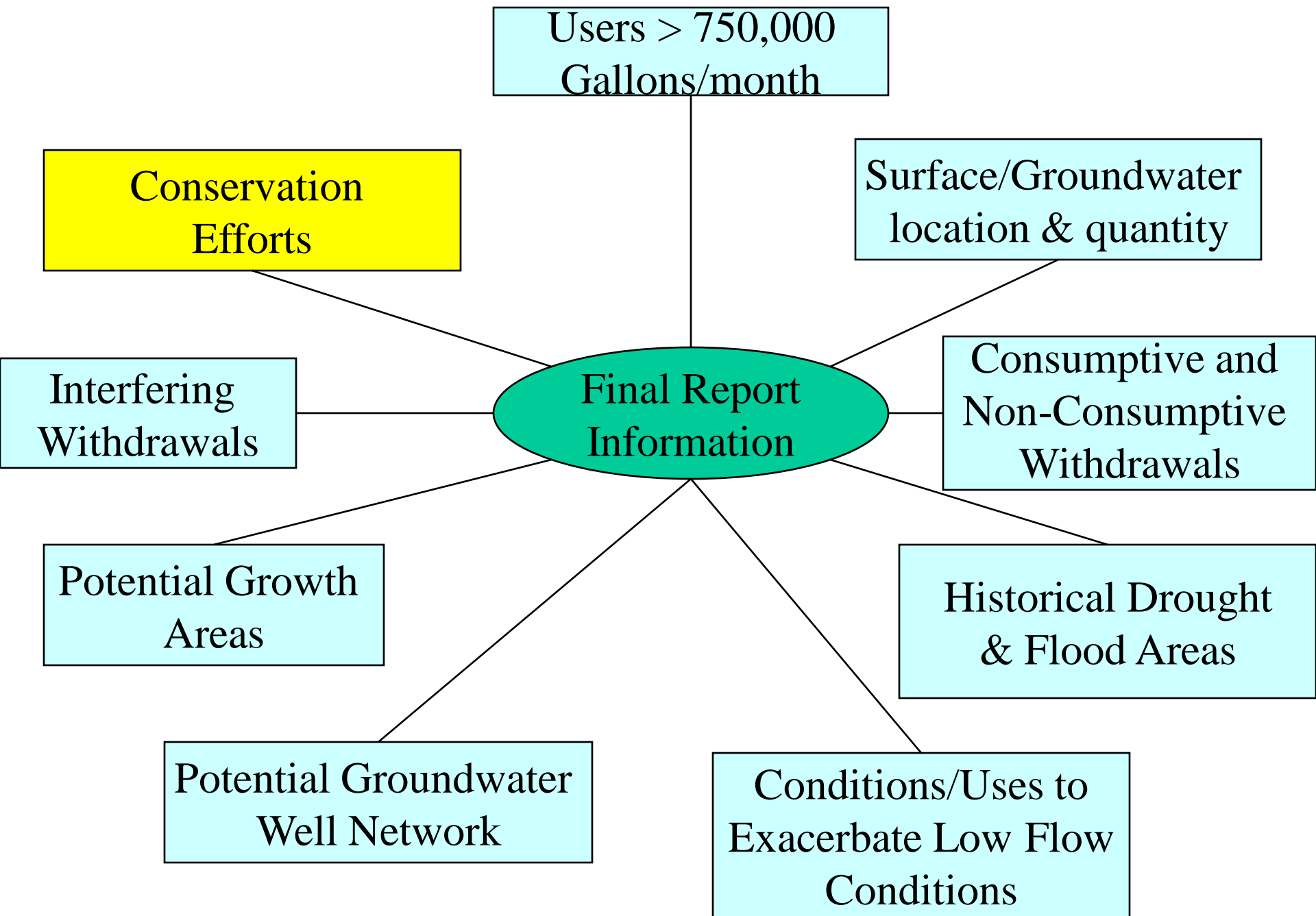
- Economic Development Office
- Information generated from final report elements
 - Location/quantity of surface water, groundwater (Element 1)
 - Consumptive/nonconsumptive uses (Element 2)
 - Survey information (Element 3)



Interfering Withdrawals: Data Elements

GIS map coverage

- Survey data overlay with groundwater and surface water maps and data (Output from final report elements)
 - Groundwater and surface water location and quantity (Element 1)
 - Consumptive/nonconsumptive uses (Element 2)
 - Survey information (Element 3)
 - Historic drought and flood conditions (Element 4)
 - Low flow conditions (Element 5)
 - Potential growth areas – competition (Element 7)



Users > 750,000
Gallons/month

Surface/Groundwater
location & quantity

Consumptive and
Non-Consumptive
Withdrawals

Historical Drought
& Flood Areas

Conditions/Uses to
Exacerbate Low Flow
Conditions

Potential Groundwater
Well Network

Potential Growth
Areas

Interfering
Withdrawals

Conservation
Efforts

Final Report
Information

Conservation Efforts: Data Elements

Response to Survey Question

Information from Academic Institutions

- Current and projected conservation technologies

Participating State Agencies

- Health
- Agriculture
- DNR
- PSC
- OES
- Academic Institutions

WVU and Marshall

- DEP, WVU and Marshall have worked together to prioritize research projects for final report (3 high-priority and 10 lower priority projects)
- WVU and Marshall, with DEP's assistance, will target federal funds as quickly as possible
- WVU has committed to spending \$80,000 of existing state funds to start high-priority projects quickly
- Marshall has committed to search for available funds to assist with starting high-priority projects

WVU/Marshall

High-Priority Projects

- WVU/Marshall will provide cost estimates for the following final report elements:
 - Identify areas of concern regarding historical or current conditions that indicate low flow condition or where a drought or flood has occurred or is likely to occur that threatens the beneficial use of the surface water and ground water (Element 4)
 - Identify potential growth areas where competition for water resources may be expected (Element 7)
 - Practices or methods persons have implemented to reduce water withdrawals (Element 9)

WVU and Marshall Schedule

- Proposals for priority research projects – September 2004
- Priority research project implementation - October 2004
- Complete test project – December 2004
- Complete priority research projects - December 2005
 - DEP will compile a list of available information sources to support the research projects
 - Availability of funding will be critical to meeting time frames and the number of projects that can be initiated

Challenges

- Agricultural data will be difficult to divide between watersheds and surface/groundwater withdrawals
- Industry doesn't measure withdrawals. Survey data will be estimates
- Survey information for users below 750,000 gallons/month is not available
- General accuracy of the data
- Measuring consumptive use

Challenges (continued)

- Double counting water use
- Funding for research projects
- Timeframe for completion of research projects

Schedule of Major Tasks

- Finalize agreements with WVGES and WVU/Marshall – 4th Quarter 2004
- Annual report to legislature – December 2004
- 1st Survey distribution – 1st Quarter 2005
- Annual report to legislature – December 2005
- 2nd Survey distribution – 1st Quarter 2006
- Final Report – December 2006

Questions???

Summary of the Act

- **The Survey**

- A survey of consumptive and non-consumptive water resource use
- Will cover years 2003, 2004, and 2005
- Will include use of both surface and ground water resources
- WVDEP to make good faith effort to obtain survey and registration information from persons who are withdrawing WV water but are outside state borders
- WVDEP to determine form and format of survey
- WVDEP shall, to the extent reliable information is reasonably available from sources other than persons required to participate in the survey, utilize that data to fulfill the requirements of this section.

The Registration Program

WVDEP shall establish a statewide registration program for monitoring of large quantity water users

WVDEP shall, to the extent reliable information is reasonably available from sources other than persons required to participate in the registration, utilize that data to fulfill the requirements of this section.

If necessary data is not otherwise reasonably available to the WVDEP, the registration participants must provide the data.

Registered persons that report on withdrawals annually for at least three consecutive years are not required to register further withdrawals unless the amount withdrawn varies more than 10% from the three-year average.

Participation in the registration program is mandatory.

The Final Report shall include:

- (1) To the extent information is available, the location and quantity of all surface and groundwater resources in the State.
- (2) Discussion of the consumptive and non-consumptive withdrawals of surface water and ground waters.
- (3) A listing of each person whose water withdrawal during any single month exceeds 750,000 gallons:
 - Amount of water used
 - Location of the water resource
 - Location of each intake (latitude, longitude)
 - Location of each discharge point (latitude, longitude)
 - Nature of the use
 - Watershed
 - If more than one watershed or basin, watersheds or basins involved and amount transferred

The Final Report shall include:

- (4) Discussion of (a) any area within State of concern based on historical or current conditions that would indicate low flow, or (b) where drought or flood has occurred, or(c) where drought or flood is likely to occur, where such condition threatens the beneficial use of the surface or ground waters in the area.
- (5) **Current** in-stream or off-stream uses that contribute to or are likely to exacerbate natural low flow conditions to the detriment of the water resource, and **potential** in-stream or off-stream uses that contribute to or are likely to exacerbate natural low flow conditions to the detriment of the water resource.
- (6) Discussion of a potential groundwater well network to provide indicators of groundwater levels in areas where groundwater levels are declining or are expected to decline.

The Final Report shall include:

- (7) Potential areas of growth in the State where competition for water resources may be expected.
- (8) Any occurrence of two or more withdrawals that are interfering with one another or may reasonably be expected to do so.
- (9) Discussion of the practices and methods persons have implemented to reduce water withdrawals.
- (10) Any other information that may be beneficial in:
 - Adequately assessing water availability
 - Adequately assessing water withdrawals
 - Determining the need for water resource plans
 - Preparing for water resource plans

Other Elements:

- WVDEP must also make recommendations to the Joint Legislative Oversight Commission relating to the need to implement a **water management strategy** for the State or regions (watersheds) of the State where:
- Water resources currently stressed due to beneficial or other uses, ecological conditions or other factors
- Water resources likely in future to be stressed due to beneficial or other uses, ecological conditions or other factors
- The report must include a **cost / benefit analysis** regarding the persons likely impacted by the implementation of a water resource management strategy