A Tradition of Stewardship
A Commitment to Service

Napa County
Groundwater Resources
Advisory Committee

AGENDA

REGULAR COMMITTEE MEETING

Thursday, December 12, 2013, 2:00 p.m.

Agricultural Commissioner's Office/UCCE Conference Room
1710 Soscol Avenue, Napa CA

Committee Members

Michelle Benvenuto
Tucker Catlin
Alan Galbraith
Don Gleason
Dave Graves
Michael Haley
Peter McCrea
Charles Slutzkin
Steve Soper
Marilee Talley
Bill Trautman
Jim Verhey
Susanne von Rosenberg
Duane Wall
Dale Withers

1. CALL TO ORDER & ROLL CALL

2. WELCOME & OPENING REMARKS *(Chair)*

3. ORGANIZATIONAL ITEMS *(10 min) (Staff, Consultant, Committee)*
   a. APPROVAL OF ACTION MINUTES & MEETING SUMMARY
   b. REVIEW WORK PLAN/SCHEDULE
   c. REVIEW MEETING AGENDA AND PROCESS

4. PUBLIC COMMENT
   In this time period, anyone may comment to the Committee regarding any subject over which the Committee has jurisdiction, or request consideration to place an item on a future Agenda. No comments will be allowed involving any subject matter that is scheduled for discussion as part of this Agenda. Individuals will be limited to a three-minute presentation. No action will be taken by the Committee as a result of any item presented at this time. *(Chair)*

5. PRESENTATIONS AND DISCUSSION ITEMS:

COMMITTEE REVIEW, DISCUSSION & DIRECTION

a. REPORT FROM THE AD-HOC COMMITTEE ON RECOMMENDATIONS FOR THE DRAFT WATER AVAILABILITY ANALYSIS (WAA) *(55 min)*
   (Steve Lederer, Director/Public Works; Vicki Kretsinger Grabert/LSCE, Ad-Hoc Committee Members)
   - RECONFIRM AD-HOC COMMITTEE APPOINTMENTS
   - DISCUSS DRAFT WAA AND AD-HOC COMMITTEE RECOMMENDATIONS
   - Q&A - REVIEW/DISCUSS GRAC QUESTIONS
   - DISCUSSION/DIRECTION ON NEXT STEPS

b. REPORT FROM THE AD-HOC COMMITTEE ON RECOMMENDATIONS FOR GROUNDWATER SUSTAINABILITY OBJECTIVES *(45 min)*
   (Dorian Fougères, Center for Collaborative Policy, Ad-Hoc Committee Members)
   - DISCUSS AD-HOC COMMITTEE RECOMMENDATIONS
   - Q&A - DISCUSS GRAC QUESTIONS
   - DISCUSSION/DIRECTION ON NEXT STEPS

804 First Street,
Napa, CA
94559

Tel: 707-259-8600
Fax: 707-259-8619

- COMMITTEE BREAK (CHAIR TO CALL WHEN NEEDED)

5. PRESENTATIONS AND DISCUSSION ITEMS: (cont'd)

   c. UPDATE ON INDUSTRY/PUBLIC OUTREACH & WELL OWNER OUTREACH *(10 min)*
      (Patrick Lowe, Natural Resources Conservation Mgr/Public Works)
      - UPDATE ON OUTREACH EFFORTS BY COMMITTEE/STAFF
      - OTHER NEWS/UPDATES

   d. DISCUSSION OF GRAC FINAL REPORT & PRESENTATION *(10 min)*
      (Dorian Fougères, Center for Collaborative Policy, Patrick Lowe, NRC Mgr/Public Works)

6. OTHER BUSINESS

7. ANNOUNCEMENTS

   a. UPCOMING EVENTS OR ITEMS OF INTEREST FROM THE COMMITTEE AND STAFF (*5 min)*

8. FUTURE AGENDA ITEMS

9. ADJOURNMENT TO THE NEXT REGULAR MEETING (*Chair)*
   - Meeting Date: Thursday, February 27, 2014 – 2:00 p.m.

Note: Where times are indicated for agenda items they are approximate and intended as estimates only, and may be shorter or longer, as needed. If requested, the agenda and documents in the agenda packet shall be made available in appropriate alternative formats to persons with a disability. Please contact Greg Morgan at 707-259-8621, 804 First St., Napa CA 94559 to request alternative formats.

A Tradition of Stewardship
A Commitment to Service

Napa County
Groundwater Resources
Advisory Committee

ACTION MINUTES
NAPA COUNTY GROUNDWATER RESOURCES ADVISORY COMMITTEE MEETING
October 24, 2013

1. CALL TO ORDER & ROLL CALL

The Napa County Groundwater Resources Advisory Committee (GRAC) met in regular session on Thursday, October 24, 2013 with the following members present:
Alan Galbraith; Don Gleason; Michael Haley; Chair Peter McCrea; Charles Slutzkin; Steve Soper; Marilee Talley; Jim Verhey; Susanne von Rosenberg; Duane Wall; and Dale Withers.
Dave Graves arrived during Item No. 3.b; Vice-Chair Michelle Benvenuto arrived during Item No. 4; Bill Trautman was excused; and Tucker Catlin was absent.

2. WELCOME & INTRODUCTIONS

Chair Peter McCrea provided opening comments.

3. ORGANIZATIONAL ITEMS

a. APPROVAL OF ACTION MINUTES AND MEETING SUMMARY

Action Minutes of June 27, 2013 approved as amended, and Meeting Summary of June 27, 2013 approved.

MB	TC	AG	DG1	DG2	MH	PM	CS	SS	MT	BT	JV	SVR	DW1	DW2
X	X			X						X				

Action Minutes of July 25, 2013 approved.

MB	TC	AG	DG1	DG2	MH	PM	CS	SS	MT	BT	JV	SVR	DW1	DW2
X	X			X		A	A			X				

b. REVIEW WORK PLAN/SCHEDULE

Before reviewing the workplan/schedule, Patrick Lowe, Natural Resources Conservation Program Manager, Public Works, gave a brief update of the joint Board of Supervisors and City of St. Helena City Council meeting of October 17. The City Council is very supportive of the groundwater monitoring efforts and is willing to help recruit for additional monitoring sites and provide access to sites along the river side. Mr. Lowe will try to meet with departing Public Works Director John Ferons next week to go over some of the details, as well as discuss two existing wells that are being monitored as a part of project conditions. Mr. Lowe then went over the work plan/schedule, noting the tasks for August were moved to October and the remaining tasks were moved up to December, February and April with the goal of having the GRAC's work concluded in April, which staff believes is achievable due to the GRAC's good progress.

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4. PUBLIC COMMENT

None.

5. PRESENTATIONS AND DISCUSSION ITEMS

a. DISCUSSION OF INDUSTRY/PUBLIC OUTREACH AND WELL OWNER OUTREACH

Patrick Lowe, Natural Resources Conservation Program Manager, Public Works, reported on the most recent updates to the volunteer monitoring well outreach table that occurred after the agenda packet was distributed. Mr. Lowe met with a property owner in AOI 15 (NVF/Calistoga) who will recruit around their neighborhood in Calistoga. As mentioned under Item No. 3.b., the City of St. Helena will work on obtaining additional sign-ups. Dale Withers brought in three sign-ups for Angwin. Board of Supervisor Keith Caldwell has two sign-ups in American Canyon that he is the process of finalizing. Dave Graves will be receiving paperwork for another sign-up in Carneros. Jim Verhey has received several sign-ups for his area (NVF/Napa/Yountville) and has two more individuals he'd like to contact. Outreach efforts will probably be finished up within the next few months after sign-ups are received for the areas where wells are still needed. The County is finishing up monitoring for the fall, and the new wells will be picked up for monitoring in the spring. Mr. Lowe referenced the letter from the Napa Valley Grape Growers to the Board of Supervisors that was included in the agenda packet, which stresses the concern of confidentiality for vineyard owners. Steve Lederer, Director, Public Works, discussed the issue with the County's legislative lobbyists, who were unfamiliar with it. If confidentiality was narrowly framed in the context of a voluntary program with a minimal amount of data within a government program, the lobbyists thought it conceptually could work, but any sort of bill that limits public access to information and data could, ideologically, be an uphill battle. The lobbyists will further discuss the issue with their colleagues and will get back to County staff. Alan Galbraith requested the GRAC be informed of where specifically in each sub-region more wells are needed. Mr. Lowe responded that he didn't want to be too limiting of the number of wells in the areas and wanted a cross section of wells to choose from, but he would send the GRAC an updated table that would note the areas that are completely deficient. Vicki Kretsinger Grabert, Principal Hydrologist, LSCE, added that of particular interest is to have a defined screen interval so it's not multiple screens over long lengths of the aquifer. A number of potential wells in a given area would help in selecting the best candidates. Besides the AOIs that are highlighted as priorities, there are other areas mentioned in the Groundwater Monitoring Plan that are also of interest but aren't as high of a priority.

b. REPORT FROM THE AD-HOC COMMITTEE ON RECOMMENDATIONS FOR DEVELOPMENT OF GROUNDWATER SUSTAINABILITY OBJECTIVES

Dorian Fougères, Ph.D., Mediator, Center for Collaborative Policy, CSUS, summarized the work the Ad-Hoc Committee has done since July and went over the highlights of the Sustainability Objectives Framework included in the agenda packet, such as the goal of developing groundwater sustainability objectives, suggested definition of groundwater sustainability, design principles, potential objective topics and guest speaker considerations. Appendix A lists the potential objective topics the Ad-Hoc Committee came up with that could possibly be incorporated into the sustainability objectives. The table of example objectives illustrates the structure of how a good objective might look; the years listed are just examples that were used as placeholders. There was some discussion on the example of an unacceptable consequence of loss of fish habitat and decline of fish population related to excessive groundwater use or decline of groundwater. Ad-

Item No. 5.b…Continued

Hoc Committee Member Susanne von Rosenberg replied that the example could be re-written. There was also discussion of the GRAC's role in developing the sustainability objectives for the Board of Supervisors and how the objectives would be used. Patrick Lowe, Natural Resources Conservation Program Manager, Public Works, read the GRAC's charge from the Board of Supervisor's Resolution, which includes "assisting County staff and technical consultants with the recommendation regarding the development of groundwater sustainability objectives that can be achieved through voluntary means and incentives." Steve Lederer, Director, Public Works, added it is ultimately the Board of Supervisors' decision as to what they will do with the GRAC's recommendation. Chair Peter McCrea acknowledged the Ad-Hoc Committee's hard work and suggested the GRAC read through the Sustainability Objectives Framework and provide comments to Patrick Lowe or Dorian Fougères that would be shared with the Ad-Hoc Committee. Ad-Hoc Committee Member Marilee Talley added she would like the GRAC's input on sustainability being a process rather than a definition, as well as the design guidelines, such as having general countywide objectives and objectives that would be specific to problem areas like MST and Carneros. Mr. Lowe asked the GRAC to submit their comments by November 1 so they could be shared with the Ad-Hoc Committee at their next meeting on November 5.

c. REVIEW, DISCUSSION AND DIRECTION ON THE FRAMEWORK FOR POSSIBLE CHANGES TO THE WATER AVAILABILITY ANALYSIS (WAA)

Steve Lederer, Director, Public Works, went over proposed revisions to the WAA that deal with water usage, well to well and well to surface water interference standards. There will be no changes to the existing water usage standards except the addition of a "no net increase for the MST," which is a CEQA requirement that has been used since 2004. Well to well interference standards will have a proposed new process wherein under the first tier analysis a project well that is 500 feet or more away will not require further evaluation. For a project well that is less than 500 feet away, a second tier analysis would be required to evaluate distance to the nearest well, hydrogeologic setting, well construction details and operational procedures. Standards for well to surface water interference will be added to the WAA and will be similar to the well to well interference standards but will have a threshold of 500 to 1,500 feet (pending the pumping capacity). Vicki Kretsinger Grabert, Principal Hydrologist, LSCE, added the thresholds were derived from analyses based on conditions in the Napa Valley area and are conservative. Mr. Lederer stated the proposed revisions to the WAA will create more work for the discretionary permit applicant but would provide more defense at different levels for a project that could easily be challenged and not approved. There was broad discussion on the proposed revisions to the well to well and well to surface water interference standards. Mr. Lederer would like the GRAC's input on the proposed new process and whether or not the well to surface water interference standards should be added. Mr. Lederer also mentioned having an ad-hoc committee work on the wording of the WAA, bring it back to the GRAC in December for recommendations and incorporate the recommendations into a final version to be brought back in February. A motion was made and approved to have the ad-hoc committee come up with a specific number and recommend whether or not the well to surface water interference standards should be added, and if so, what the criteria would be.

MB	TC	AG	DG1	DG2	MH	PM	CS	SS	MT	BT	JV	SVR	DW1	DW2
	X									X				

d. CONSIDERATION OF APPOINTMENT OF AN AD-HOC COMMITTEE ON THE WAA

Vice-Chair Michelle Benvenuto and members Dave Graves, Steve Soper and Susanne von Rosenberg volunteered to be on the Ad-Hoc Committee. Tucker Catlin was also recommended to be included and will be contacted to confirm his interest. The Ad-Hoc Committee was subsequently appointed.

MB	TC	AG	DG1	DG2	MH	PM	CS	SS	MT	BT	JV	SVR	DW1	DW2
	X									X				

6. OTHER BUSINESS

None.

7. ANNOUNCEMENTS

Jeff Sharp, Principal Planner, Public Works, reported on the County's efforts to update its groundwater monitoring database. Part of LSCE's prior work was to provide the County with a Microsoft Access database that contained information on 4,000 to 6,000 wells. The goal is to develop a database that consolidates well information currently in multiple locations into one location that can be accessed by select Planning, Building and Environmental Services and Public Works staff. The Access database will be converted to a Microsoft SQL Server and integrated into the County's in-house system with added security features. The upgraded database will be linked to the County's permitting system so that when someone applies for a new well permit, that information will automatically be added to the database. Hardcopy well drillers' reports will be scanned and added to the database for electronic access by those who have permission. A preview of the system will be presented to the GRAC once it is in place.

8. FUTURE AGENDA ITEMS

Steve Lederer, Director, Public Works, reiterated the WAA would continue to be revised in December with finalization in February and tying up any loose ends in April to conclude the GRAC's work.

9. ADJOURNMENT TO THE NEXT MEETING

Adjourned to the next regular meeting of the Napa County Groundwater Resources Advisory Committee on Thursday, December 12, 2013 at 2:00 p.m.

_____
PETER McCREA, Chair

ATTEST:

_____
PATRICK LOWE, Secretary

_____
By: GREG MORGAN, Supervising Office Assistant

Voting Key

If not unanimous, member votes will be tallied (N = No; X = Excused; A = Abstained) using the following Committee Member abbreviations:
MB = Michelle Benvenuto; TC = Tucker Catlin; AG = Alan Galbraith; DG1 = Don Gleason; DG2 = Dave Graves; MH = Michael Haley; PM = Peter McCrea; CS = Charles Slutzkin; SS = Steve Soper; MT = Marilee Talley; BT = Bill Trautman; JV = Jim Verhey; SVR = Susanne von Rosenberg; DW1 = Duane Wall; DW2 = Dale Withers

Example Key:

MB	TC	AG	DG1	DG2	MH	PM	CS	SS	MT	BT	JV	SVR	DW1	DW2

DRAFT MEETING SUMMARY

Napa County Groundwater Resources Advisory Committee

October 24, 2013

Prepared by the Center for Collaborative Policy, CSUS

Meeting Synopsis

The Napa County Groundwater Resources Advisory Committee (GRAC) held its fourteenth meeting on October 24, 2013. The meeting began with Mr. Patrick Lowe, Napa County, reviewing the updated work plan schedule for the Committee and noting that the GRAC's work is anticipated to be concluded by April 2014. Mr. Lowe then provided a status update on well owner and industry outreach for the voluntary monitoring program. Members requested that County staff identify remaining areas of interest that are still in need of monitoring wells. The sustainability objectives ad-hoc committee and staff then reviewed their preliminary framework on the scope and appropriate level of detail for the objectives. Their work included suggestions for defining the sustainability goal and process, design principles and potential topics, guest speaker criteria, and a format for objectives. Members agreed to send comments on the sustainability objectives framework to Mr. Lowe and Mr. Fougeres by November 1. Mr. Steven Lederer, Department of Public Works, presented proposed revisions to the Water Availability Analysis (WAA), which included new well-to-well and well-to-surface water interference standards. The GRAC then created an ad-hoc committee to review and provide recommendations on the proposed amendments to the WAA process prior to the December meeting. Mr. Jeff Sharp, Napa County, then provided an update on the County's groundwater data management system. The GRAC's next meeting will be on December 12, 2013.

Please see the GRAC's webpage (www.countyofnapa.org/bos/grac) for copies of the October 24, 2013 presentations and handouts.

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Action Items

1. **ALL MEMBERS** to send comments on sustainability objectives framework to **PATRICK LOWE** by COB Friday, November 1 (**PATRICK LOWE** to send group reminder).
2. **PATRICK LOWE** to identify areas of interest that lack a sufficient number of monitoring wells.
3. **GREG MORGAN** to update June 27 Action Minutes.
4. **VICKI KRETSINGER GRABERT** to review next draft sustainability objectives framework for technical accuracy and feasibility.
5. **STAFF** to organize Water Availability Analysis ad-hoc committee meeting prior to the next GRAC meeting on December 12.

Agreements

1. The GRAC agreed to create a WAA ad-hoc committee. Ms. Michelle Benvenuto, Mr. David Graves, Mr. Steve Soper, and Ms. Susanne von Rosenberg were appointed to the committee. It was also suggested that Mr. Tucker Catlin, not present, be included on the committee.

1. Call to Order & Roll Call

All members of the Napa County Groundwater Resources Advisory Committee (GRAC) were in attendance, except for Tucker Catlin, who was absent and Bill Trautman, who was excused.

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2. Welcome & Opening Remarks

Chair Peter McCrea opened the session.

3. Organizational Items

1. Approval of Action Minutes & Meeting Summary

Chair Peter McCrea invited comments on the meeting minutes and meeting summaries for the June 27 GRAC and July 25 GRAC-WICC meetings.

For the June 27 Action Minutes, the following corrections were noted: on page 2 change "as the range" to "and the range" and "observing" to "description"; page 3 "mitigate the situation" to "evaluate existing conditions".

ACTION ITEM: GREG MORGAN to update June 27 Action Minutes.

With these modifications, the June 27, 2013 GRAC and July 25, 2013 GRAC-WICC meeting minutes and meeting summaries were approved. Chair Peter McCrae and GRAC member Charles Slutzkin abstained from approving the July 25 GRAC-WICC meeting minutes, as they didn't attend this meeting.

2. Review Work Plan/Schedule

Patrick Lowe, Napa County, reviewed the work plan and projected the final GRAC work could be completed in April 2014 rather than the original August 2014 completion date.

3. Review Meeting Agenda and Process

Chair Peter McCrea invited GRAC comments on agenda topics. There were no comments.

4. Updates

This discussion occurred after the minutes and summary approval.

Mr. Patrick Lowe and Mr. Steven Lederer, Napa County, provided a brief update on the Napa County Board of Supervisors and St. Helena City Council joint meeting on October 22. Mr. Lowe said the St. Helena City Council expressed interest in the GRAC's monitoring efforts and supported providing access along the river for future monitoring sites. County staff will gather additional monitoring and well information from St. Helena's departing public works director.

4. Public Comment

Chair Peter McCrea invited public comments. There were no public comments.

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5. Presentations and Discussion Items

a. Discussion of Industry/Public Outreach and Well Owner Outreach

Mr. Patrick Lowe, Napa County, shared updates on outreach efforts with industry groups and the general public on the Voluntary Groundwater Monitoring Program. Ms. Vicki Kretsinger Grabert, Luhdorff and Scalmanini Consulting Engineers (LSCE), answered the GRAC's technical questions.

The GRAC received a memo summarizing the current status for the well owner outreach, a table with additional details on outreach in the Areas of Interest (AOIs), and a map of the AOIs. Certain areas still needed well sign-ups, especially in the valley floor's northern region, but outreach is progressing well in all AOIs. Mr. Lowe expressed his appreciation for the GRAC's outreach efforts, and meetings such as the recent St. Helena joint meeting enhance outreach progress. Mr. Lowe will continue to regularly distribute updates to the volunteer monitoring well outreach list.

The GRAC also received a copy of the Napa Valley Grapegrowers' (NVG) letter to the Board of Supervisors. NVG expressed their support for the GRAC's efforts and pointed out some concerns that had been raised at the NVG Industry Issues Committee meeting with GRAC and County representatives, such as the confidentiality of the monitoring data and data use. NVG asked that the County Legislative Committee pursue the confidentiality issue for the protection of property owners that might want to join the voluntary monitoring effort. Mr. Lederer indicated he had met with Napa County's lobbyists about the potential for legislative protection for well owners voluntarily providing groundwater monitoring information. The lobbyists said the media often opposes any bill limiting public access, but they would review the issue further and report back to County staff.

QUESTIONS AND DISCUSSION:

- **Understanding of Napa Valley Grapegrowers' position.** The NVG do not largely expect legislative change, but they want the Board of Supervisors to be aware and continue to discuss the issue. Many well owners would participate in the monitoring program if they had greater assurance of well data confidentiality.

- **NVG question on protocols.** What did NVG mean by "unclear protocols"?
  - **Staff Response**: They were concerned about possible contamination when monitoring staff move from well-to-well. We addressed many of these concerns when we met with them in June. This letter basically expresses NVG's support for the GRAC, but they want the Board of Supervisors to be aware of particular issues that had been discussed.

- **Information for other city councils**. Are County staff and the Board going to the other city councils besides St. Helena?

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- **Staff Response**: We likely won't schedule a meeting specifically for this topic. The meeting with St. Helena City Council was part of the Board of Supervisor's annual meeting with each city council.

- **Identifying priority AOIs**. When Mr. Lowe distributes well owner updates, can he specifically note which AOIs need wells?
  - **Response:** Most of the AOIs labeled "In-progress" are deficient of any wells. The other areas also need wells because a larger number of wells in an AOI improves its accuracy. The "Notes" column in the outreach-status update table provides further detailed information.
    ACTION ITEM: PATRICK LOWE to identify areas of interest that lack a sufficient number of wells.

- **Preferred criteria for monitoring wells.** Do you want any type of well for the monitoring program?
  - **Response**: We prefer newer wells with their construction logs.
  - **LSCE Response**: The 18 AOIs have highest priority, but we recommended other areas for well monitoring, too. If we have multiple wells in one area, we can select the ideal candidates. We also want a defined screen interval to account for the subsurface heterogeneity with confined and unconfined aquifers. Multiple screens within different parts of the aquifer system can mislead inferences on which part of the aquifer system the data represent.

- **Monitoring only water level, not pumping**. The existing County water level records should be accurate throughout Napa Valley. The Monitoring Program only tracks water levels, not pumping.
  - **LSCE Response**: Yes, and one challenge is different well construction types can produce misleading information. For example, some areas near the periphery of the valley floor have deeper screen intervals with overlying, less permeable parts of the aquifer system that cause some confinement. Any stresses imposed on that deeper aquifer have a large response, but does not accurately represent the aquifer system's dynamics at the water table surface.

- **Recruiting new wells to the Monitoring Program**. When a new discretionary project builds its well, can we ask the well owner to participate in the Monitoring Program?
  - **Staff Response:** Participation is voluntary, but we can provide outreach materials and inform them of the program.

State Water Board Groundwater Work Plan

One GRAC member said the State Water Resources Control Board is drafting a groundwater work plan and requesting public input. The GRAC member mentioned the importance of Napa County determining its groundwater status and dynamics before potential state government intervention in groundwater management. Another GRAC

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member said the information will help Napa County obtain state funding because the State supports counties developing their own groundwater stewardship plans.

Emergency Groundwater Restrictions in San Luis Obispo County
Patrick Lowe, Napa County, provided an update on the groundwater issues in San Luis Obispo County. Their Board of Supervisors decided to extend the emergency ordinance/moratorium banning new pumping for two more years. They are also considering creating a special district for managing the Paso Robles groundwater basin.

b. Report from the Ad-Hoc Committee on recommendations for development of Groundwater Sustainability Objectives

Mr. Dorian Fougères, Center for Collaborative Policy (CCP) Senior Facilitator, provided an overview of the groundwater sustainability objectives ad-hoc committee (AHC) work since the June meeting. The GRAC created the sustainability objectives AHC to develop initial thoughts on the scope and appropriate level of detail of objectives. The objective for this discussion was to gather GRAC feedback and recommendations for the AHC's next steps.

The GRAC received a handout summarizing the AHC's initial thoughts and suggestions for a potential definition, design principles, potential topics, and guest speaker criteria. The GRAC also received four AHC meeting summaries and a table of example objectives. Mr. Fougères emphasized the dates and numbers in the table serve only as placeholder examples to help visualize the suggested style for the objectives.

Several GRAC members commended the AHC for their hard work and thorough consideration of the issues. In the discussion that followed, concerns mentioned repeatedly included staying at the appropriate level of detail for objectives and not getting overly prescriptive; language in the unacceptable consequences list that called out sensitive fish species in particular, rather than potential habitat impacts more generally; and disagreement over the existence of evidence for any potential acceptable/non-acceptable consequence.

The AHC will meet November 5 to incorporate GRAC members' feedback into the revisions and begin drafting ideas for the groundwater sustainability objectives.

QUESTIONS AND DISCUSSION:

- **Riparian habitat health relevance to groundwater sustainability objectives**. Why is the loss of fish habitat and fish stock in the list of unacceptable consequences? It seems unrelated to groundwater objectives. It also presumes groundwater is directly linked to surface water, which is not always the case. Depending on the physical setting, groundwater depend more on the health of riparian habitats than the inverse relationship of groundwater affecting riparian habitat quality.

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- **Response**: It is not an objective, it is an example of an unacceptable consequence and part of how we described groundwater sustainability. LSCE's data provided evidence of an interconnectivity between groundwater and surface water. We still do not know the locations of all those linkages, but the possibility exists, especially decades from now.
- **Comment**: By identifying lost fish habitat as an unacceptable consequence, opponents against a permit proposal could claim potential loss of fish habitat. We should not risk that claim if we lack scientific evidence.
- **Comment**: The major concern is avoiding unacceptable habitat-related consequences, and fish habitat loss appears to be a poor example for addressing this issue. The AHC should find alternative language that talks more generally about habitat-related unacceptable consequences.

- **Scientific evidence for surface water and groundwater linkages**. Is there scientific evidence that groundwater and surface water are definitely linked?
  - **LSCE Response**: The interconnectivity between surface water and groundwater exists, but we still do not have sufficient data to thoroughly describe that relationship and understand the groundwater dynamics in all parts of the County. The goal is to recruit more wells into the monitoring program to defensibly indicate where pumping is or is not adversely affecting groundwater-surface water linkages.
  - **Comment**: If the monitoring program data demonstrate potential for lost fish habitat, it is an example of an unacceptable consequence worth our concern.
  - **Comment**: It is premature to label lost fish habitat as an unacceptable consequence without the scientific evidence to support it. The AHC should refrain from labeling issues as "unacceptable" without having the appropriate technical expertise.

  The following relevant comments occurred later in discussion:
  - **Public Comment**: Scientific evidence exists for similar systems with groundwater-surface water interactions. Locally, several tributaries feeding into Napa River contain water even in the peak of a drought. That water can only be coming from groundwater. Whether this issue is unacceptable or unintended is up to the GRAC, but there is definitely an impact on fish habitat regarding groundwater-surface water interactions.
  - **Comment**: We know the general hydrogeological drivers for gaining or losing streams is partly due to the interaction between groundwater and surface water. There is no justification for removing the topic of groundwater-surface water interaction. Granted, we need more information, but the evidence exists and demonstrates there is a link.

- **Reference to GRAC charge from Board of Supervisors**. The GRAC's charge from the Board of Supervisors is to provide information and recommendations. It is the Board of Supervisors' decision, and not the GRAC's, to identify what is or is not

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unacceptable. The GRAC should identify unintended consequences that need further investigation, but not invent policy by defining what is unacceptable.
  - **Suggestion**: The precise charge from the Board of Supervisors should guide this discussion.

- **Distinction between unacceptable and unintended consequences**. The AHC focused on unacceptable consequences because sustainability is defined both as protecting benefits and avoiding adverse or unacceptable consequences. Unintended consequences will inevitably occur. The AHC wanted to provide concrete examples of what could be considered as adverse consequences.

- **Future usage of the sustainability objectives**: Do we know who will use the sustainability objectives and for what purposes? That affects the content and the language.
  - **Question**: Will the sustainability objectives likely be general guidelines, ordinances, or have the force of law?
  - **Staff Response**: It depends on how the Board of Supervisors decides to use the sustainability objectives. Even though the GRAC may focus their efforts more easily if the sustainability objectives had a guaranteed final use, the Board of Supervisors only want the GRAC's recommendations.
  - **Comment**: Language to this effect should be added at the start of the document to explain that these are recommendations to the Board.

- **Appropriate level of detail**. The AHC should consider maintaining a low level of detail for the sustainability objectives. The GRAC does not know how the Board of Supervisors will use the groundwater sustainability objectives. Additionally, if GRAC members reacted strongly to fish habitat, other stakeholders will likely react similarly to certain issues.
  - **Ad Hoc member response**: Specificity has both benefits and drawbacks. For the sustainability objectives, we may want to specifically address certain issues to demonstrate we thoroughly considered that issue. Otherwise someone might use the California Environmental Quality Act to call the entire process into question and claim we did not adequately identify significant environmental effects.
  - **Comment**: The AHC should be cognizant of legal consequences as they consider the appropriate level of specificity for each objective.

- **Prioritize objectives for Board of Supervisors**. Staff Suggestion from Mr. Lederer: I recommend the GRAC focus on a few critical issues. The Board of Supervisors has limited resources to address groundwater as well as other major issues in the General Plan.
  - **Comment**: While we do not want to overwhelm the Board of Supervisors, we also want substantive objectives for Napa County to proactively protect groundwater sustainability.

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- **Support for education as an objective**. Education and outreach is a potential objective. The entire GRAC has consistently supported improving education and outreach.

- **Background for the AHC's initial thoughts guiding decisions**. The AHC's proposed sustainability objectives framework is primarily based on the language in the General Plan and the Monitoring Plan. The "unacceptable consequences" term stems from the USGS' definition of sustainability, and the AHC adopted the term because it is realistic and maintains Napa County's autonomy to choose what is best for the County. For example, Napa County promoted agriculture instead of affordable housing. Less housing was an acceptable consequence for Napa County.

- **Objectives attainable by voluntary means and incentives**. I find it difficult to conceptualize what objectives are attainable by voluntary means and incentives. The criterion regarding relevance helps narrow our focus.

- **List of unacceptable consequences is overly inclusive**. The USGS acknowledges that "unacceptable" consequences is a subjective term. The AHC wants to be less subjective, but their list of unacceptable consequences is too inclusive.

- **Include a process in case of future groundwater emergencies**. The GRAC should consider including a process in the sustainability objectives or another appropriate document that advises what to do if Napa has a groundwater problem in the future. Paso Robles' groundwater problems intensified partly due to a lack of a groundwater emergency process.

    - **Technical expert review of sustainability objectives**: LSCE should review the next drafted sustainability objectives and identify any mistakes prior to the next GRAC meeting in December.
      ACTION ITEM: VICKI KRETSINGER GRABERT to review the next draft sustainability objectives framework for technical accuracy and feasibility.

- **Guidance for offline GRAC review**. **Request**: Each GRAC member should review the AHC's sustainability objectives information and send the comments to County Staff.
  ACTION ITEM: **ALL MEMBERS** to send comments on sustainability objectives framework to **PATRICK LOWE** by COB Friday, November 1. (**MR. LOWE** to send group reminder during the prior week).

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c. Review, Discussion, and Direction on the Framework for Possible Changes to the Water Availability Analysis (WAA)

Steven Lederer, Division of Public Works (DPW) Director, Napa County, reviewed potential modifications for the Water Availability Analysis (WAA) standards based on a detailed memorandum provided to the GRAC, and Ms. Vicki Kretsinger Grabert, LSCE, responded to technical questions. DPW invited GRAC input and recommended next steps for updating the WAA.

Per the memo, the WAA applies only to discretionary project applications (e.g., new wineries, new vineyards on slopes greater than 5%, and new commercial uses in unincorporated areas). The WAA does not apply to ministerial or non-discretionary projects.

The current Phase 1 water use standards will not change (i.e., 1.0 acre foot of water/acre foot of land/year on the valley floor, 0.3 for the MST, and 0.5 for the rest of Napa County), but Phase 2 needs modification because it does not accurately evaluate well-to-well interference. The memorandum contained the details of the proposed revisions, which are meant to simplify the application process while still protecting groundwater availability. The First Tier thresholds are meant to decrease the number of applications that require additional Second Tier analyses. Without the well-to-surface water interference criteria, proposed projects are easily challenged and consequently delayed, altered, or abandoned.

QUESTIONS AND DISCUSSION:

- **Source of threshold distance values.** How did you choose those threshold values for the well-to-well and well-to-surface water body distances?
  - **LSCE Response**: The thresholds come from our analyses using Napa Valley data; however, these threshold values are not the final judgment for an application. A well that is within 500 to 1500 feet (range is pending pumping capacity) from another surface body could still theoretically be built after satisfying the Second Tier evaluation. Our analyses suggested that the further a well is from a stream, the more factors there are, which decreases the chances of negative impacts. The 1500 feet threshold was a conservative estimate, and the Second Tier process allows for exceptions.

- **Rate of reliability for threshold values**. Can you tell applicants that if they satisfy either the First or Second Tier, they can be assured that X% of the time, there will not be interference?
  - **LSCE Response**: No, we cannot provide that level of detail because sometimes there was insufficient or highly variable data.

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- **Potential discouragement for project proposals**. If a person does not meet the 500 feet between well-to-well or 500 to 1500 feet between well-to-surface water body thresholds, that person may not want to pay for the Second Tier analyses. In actuality however, that well would have been fine. That applicant loses that opportunity.

- **Potential real estate value changes.** Land that is less than 500 to 1500 feet from a stream becomes less valuable because a well cannot be drilled in that region. The property owner would not have the same price per acre.
  - **LSCE Response**: The region within 500 to 1500 feet of a stream is not automatically off-limits for a new well. However, additional analyses are necessary.

- **Examples for First and Second Tier processes**. Are there project examples applicable to the First and Second Tier processes for well-to-well and well-to-surface water body criteria? It could help conceptualize how real project applications would be processed.
  - **LSCE Response**: We used hypothetical examples for our analyses, but we could use actual examples.

- **Potentially beneficial to past proposals**. The small vineyard project was challenged because it was in proximity to a tributary. The vineyard operators could not afford the necessary additional analyses and abandoned the project. Would these standards have helped that case?
  - **Response**: I do not have a definitive answer because I do not know the exact distance between the well and the creek. Hypothetically, if the well was more than 500 to 1500 feet away, this standard would have been helpful. If it was less than 500 to 1500 feet, at least they would have had a process.
  - **LSCE Response**: There were multiple places in the Second Tier process that would have likely helped them.

- **Context for WAA revision discussion.** DPW and LSCE asked a few GRAC members to review the WAA revisions proposals prior to this meeting. We advised they simplify the revision proposals and then discuss it with GRAC members that are more strongly associated with the topic.

- **Field experience incongruent with analyses.** As a well driller, in reality we do not come across the same issues, such as well-to-well interference, that the LSCE analyses predict.
  - **LSCE Response:** The Second Tier hydrologic parameters can help account for the variability.

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- **Conservative vs. realistic estimates**. We want a simplified process; however, these analyses use conservative estimates, which may or may not be realistic. What are the downsides to using realistic estimates?
    - **Response**: The criteria given to LSCE were for estimates that were conservative, but defendable as well as realistic. If estimates are too conservative, they are not practical.

Three WAA Standards for Consideration

Mr. Lederer then reviewed implications of the well-to-well and well-to-surface water standards. Under the current WAA process, an applicant could meet the water use standard yet violate the well-to-well/surface water standards. Under the new proposed method, the applicant considers all three standards. The applicant has more tasks and potential costs, but the project will be more scientifically defensible. Mr. Lederer asked for GRAC feedback.

QUESTIONS AND DISCUSSION:

- **Large change from WAA's previous step-wise procedure.** It is a big change for an applicant to evaluate two additional parameters even after satisfying water use. If the thresholds were decreased, more applications could go through.
    - **Response**: Scientific evidence needs to justify that decrease.
    - **LSCE Response**: The shorter distance threshold is an option, but then other factors (e.g., well depth, soil type, and pumping intensity) need to be considered in the First Tier. The 500 feet (well to well) or 500 to 1500 feet (well to surface water) thresholds keep the First Tier simple for the applicant.

- **Second Tier detailed steps.** Is there a way to characterize what the Second Tier steps are?
    - **LSCE Response**: We have those details in the first draft we presented to a few GRAC members.
        - **ACTION ITEM**: **VICKI KRETSINGER GRABERT** to prepare walk through of LSCE theoretical analyses for **WAA AD-HOC COMMITTEE**

- **Water sensor requirements.** Every permittee should be required to install a water sensor. It would avoid many of these conflicts and extended application processes.

- **Confidentiality of neighbor's well information.** You would need the neighbor's well information to make accurate comparisons. What if the neighbor does not want to share the information needed to make accurate comparisons, and who looks at that information?
    - **Response**: DPW reviews that data assuming the well was built after 1969. The ultimate purpose of this process is to satisfy CEQA, which does not require every analysis, only what is reasonable.

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- **Comment**: If the County has that information, the neighbor's information can remain confidential. The County could simply tell the applicant that X feet is inadequate, but Y feet is fine.

- **Number of complaints post-permit approval.** How many times has someone returned to the County because the project well did have an impact? Are we creating policy for something that is not a problem right now?
  - **Response**: I can't recall any cases after the project was approved. However, there are many cases prior to that approval stage where someone challenges a project. Even if the project satisfies the water use standard, the project can be challenged under CEQA. Inevitably the project is delayed, altered, or abandoned.
  - **Comment**: We need a concrete number of these scenarios to know if there really is a problem.

- **County monitoring wells along Napa River**. Did LSCE receive funding to install County monitoring wells along the Napa River? That will help further evaluate the interconnection between surface water and groundwater.
  - **LSCE Response**: Yes, the County did receive the grant funding.

- **Motivation to analyze beyond water use**. Under the current WAA, a false sense of security develops if the applicant stops at Step 1 and no one challenges the project. The next two steps make the project more defensible.
  - **Concern**: Could people challenge beyond those steps? Yes.
  - **Concern:** What is the legal perspective on the well-to-well/surface water standards?
  - **Response**: The County's legal department supports the changes, but the decision is ultimately up to the Board of Supervisors.

- **Targeted beneficiaries**. Phillip Miller, DPW Deputy Director, Napa County, said the proposed standards are meant to protect the people with existing wells against negative impacts of new wells.
  - **Comment**: Conversely, the existing wells could be problematic. A neighbor could claim the new well interferes with his existing well, but it is actually due to a different issue (e.g., iron build-up). The burden should be on the neighbor to rehabilitate an outdated well.

- **Justification for 5% slope category**. Why are new vineyards on slopes greater than 5% considered discretionary? The 5% is due to erosion control, which seems inapplicable to groundwater.
  - **GRAC response**: It is in the existing conservation regulations, but could technically be modified.

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- **Understated issues with well interference**. Many people lack the resources to challenge a project before or after permit approval. Just because there is no lawsuit does not mean there isn't a problem.

- **Applicability and equity of county-wide policy**. Threshold standards are more appropriate for certain county regions than others (e.g., MST's water use standards). It is unreasonable to apply county-wide policy standards for a varied landscape.
  - **County Response**: We receive groundwater complaints county-wide.
  - **Comment**: The Carneros area is agriculture watershed with small parcels. The water usage permits are a major concern there.

ACTION ITEM: **COUNTY STAFF** to incorporate GRAC feedback into draft WAA and present revisions at the next GRAC meeting in December.
ACTION ITEM: **STAFF** and **WAA AD-HOC COMMITTEE** to coordinate a November meeting to review and provide recommendations for the proposed well-to-well and well-to-surface water interference revisions.

d. Consideration of Appointment of an Ad-Hoc Committee on the WAA

Staff requested three to five GRAC volunteers for the WAA ad-hoc committee. Chair Peter McCrea mentioned benefits for member overlap from the sustainability objectives ad-hoc committee.

AGREEMENT: The GRAC agreed to create a WAA ad-hoc committee. Ms. Michelle Benvenuto, Mr. David Graves, Mr. Steve Soper, and Ms. Susanne von Rosenberg volunteered. It was also suggested that Mr. Tucker Catlin, not present, be included on the committee.

6. Other Business

Mr. Jeff Sharp, Napa County, provided an update for the Monitoring Program's database system. They are consolidating information including LSCE's previous work for the County, well construction info, and water usage permits. They developed a beta system, built in confidential information security, and linked it to the permitting system to automatically synchronize with new permit applications.

- **Question**: Can you access well drilling reports?
  - **Response**: Those documents will be scanned, and those with authorization can retrieve that information.

7. Announcements

No announcements were presented.

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8. Future Agenda Items

Proposed items include:

1. Update on outreach efforts
2. Updated Sustainability Objectives
3. Recommendations for WAA revised standards

9. Adjournment to the Next Meeting

Thursday, December 12, 2013 – 2:00 p.m. to 5:00 p.m.
Agricultural Commissioner's Office/UCCE Conference Room
1710 Soscol Avenue, Napa CA

10. Attendees

Groundwater Resources Advisory Committee Members

1. Michelle Benvenuto
2. Alan Galbraith
3. Donald Gleason
4. David Graves
5. Michael Haley
6. Peter McCrea
7. Charles Slutzkin
8. Steve Soper
9. Marilee Talley
10. James Verhey
11. Susanne von Rosenberg
12. Duane Wall
13. Dale Withers

Public Attendees

14. Robyn Bishop
15. Warren Flint
16. Mark Nordberg, California Dept. of Water Resources

County Staff, Facilitators, Consultants

17. Brian Bordona
18. Dorian Fougères, CCP
19. Stephanie Horii, CCP
20. Vicki Kretsinger Grabert, LSCE
21. Steve Lederer
22. Patrick Lowe
23. Phillip Miller
24. Greg Morgan
25. Jeff Sharp

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GRA Committee Work Plan

October 2011
1st Meeting of GRAC
Welcome/Intro
Organization
GW Study Background

February 2012
Sonoma County GW Program
GW Concepts
Consultant Scope of Work
Well Demo
Comm/Ed Plan

June 2012
Adopt Mission St
Comm/Ed
Hydro Cond. Concept.
GW Monitor-Plan(1-3)

August 2012
GW Monitor-Plan(1-7)
Adopt Comm-Ed Plan
Outreach Broch/Info

January 2013
GWM Plan Adoption
Outreach Broch/Info
LSCE Hydro-Condition & Recharge (Part I)

April 2013
GW Ordin Updates (cont'd)
Outreach Activities Updates

July 2013
Joint GRAC-WICC Meeting

December 2013
GW Sustainability Objectives
WAA/Ad-Hoc Updates
Outreach Updates

April 2014
Conclude GRACs Work
Final Recomms to Board of Supervisors

2011 2012 2013 2014

December 2011
GW Study Background
CASGEM
Outreach/Ed

April 2012
Outreach/Ed
MST Update
Outline of GW Monitoring
Data Mgmt/ Well Conf

July 2012
Joint GRAC-WICC Meeting

October 2012
Work Plan
Data Mgmt/ Disclosure
GWM Plan AOIs
Outreach Broch/Info
Next steps>

February 2013
LSCE Hydro-Conditions (Part II)
GW Data Mgmt
Outreach Schedule
GW Ordin Updates (Intro)

June 2013
Ed/Outreach Updates
GW Ordin Updates
WAA Updates
Sustainability Ad-Hoc

<August to October 2013
Outreach Updates
GW Sustainability Objectives
WAA Updates & Ad-Hoc

WE ARE HERE

February 2014
GW Sustainability Objectives
WAA Updates & GW Ord
Outreach Updates

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Division of Public Works

1195 Third Street, Suite 101
Napa, CA 94559-3092
www.countyofnapa.org/publicworks

Main: (707) 253-4351
Fax: (707) 253-4627

Steven E. Lederer
Director

A Tradition of Stewardship
A Commitment to Service

GRAC
12-12-13
Item No. 5.a

To: Groundwater Resources Advisory Committee (GRAC)

From: Steve Lederer, Director

Date: December 12, 2013

Subject: Possible Changes to the Water Availability Analysis (WAA)

The purpose of today's agenda item is to report the results of the Ad-Hoc Committee's discussion of the draft Water Availability Analysis (WAA), and to obtain GRAC direction on a single threshold issue, as discussed further below.

As discussed at our last meeting, the WAA was first put in place in the early 1990's and has been used successfully ever since (with minor revisions) as a tool for analyzing ***DISCRETIONARY*** projects (such as wineries, new vineyards on slopes over 5%, restaurants, hotels, etc.) that propose to use groundwater.

There are three key areas of evaluation to consider in the context of the WAA:

- **Water Usage (Tier 1):** The current WAA includes a section for evaluating proposed **water usage** and thresholds for acceptable use. These thresholds (1 acre-ft allowed/acre of land on the valley floor, 0.3 acre-ft allowed/acre of land in the MST, and 0.5 acre-ft allowed/acre of land in all other areas) have been successfully "field tested," and LSCE's work also finds them technically defensible. No changes are proposed in this area, although at the GRAC's direction, we've explicitly addressed the "no net increase" criterion that applies in the MST.
- **Well to Well Interference (Tier 2):** The current WAA also contains a "**well to well**" interference analysis (known as Phase 2) which is used only when the initial water usage standards (as discussed above) are exceeded. The Phase 2 analysis is a pumping test which was (theoretically) designed to identify both well capacity and well to well interference. Unfortunately, the Phase 2 process has not worked well from a practical standpoint, and LSCE's analysis finds it questionable from a technically defensible standpoint. The framework of a new well to well interference process is discussed below.

- **Well to Surface Water Interference (Tier 3):** The current WAA does not contain standards for evaluating "**well to surface water**" interference. The lack of this standard resulted in the inability of a recently proposed small vineyard project to reasonably demonstrate the lack of impact of the project that was located in proximity to a small stream that feeds the Napa River. Opponents of the project raised the issue that the project's well would reduce flows in the tributary stream, which is a habitat for endangered species. In the absence of adopted standards, the only methods of countering the

opponents' arguments were expensive project specific consultant studies and an EIR, which would have been outside the applicant's ability to conduct. The project died.

Under the current process, every discretionary project conducts the water usage (Tier 1) analysis, but Tier 2 and Tier 3 only come into play if the Tier 1 thresholds are exceeded or when a project is specifically challenged on one of those grounds. The question left to the Ad-Hoc Committee was as follows:

> **<u>Question</u>: Do you think the County should require all projects to conduct "well to well (Tier 2)" and "well to surface water (Tier 3)" analyses prior to processing the application, or should these analyses only be conducted in the somewhat rare cases when a project is challenged? Or, is there support for doing Tier 1 and Tier 2, but not Tier 3?**

Here is a summary of the three aspects of the WAA:

Criteria	Current WAA	Proposed WAA
Water Usage	Exists	No change (except to explicitly add "no-net-increase" requirement)
Well to Well Interference	Exists	Proposed change to method
Well to Surface Water Interference	Does not address	Proposed to include

The basic steps of a "well to well" interference analysis are as follows:

- Step 1: If project well is >500 feet away from other wells, well is approved (Note: The well to be used for the project (the "project well") could be an existing or new well);
- Step 2: If well is not approved under Step 1, determine approved location of well following further analysis of the site specific conditions, such as:
    - Distance to nearest well
    - Hydrogeologic setting
    - Well construction details (i.e., design pump rates, depth, screen and seal depths)
    - Operational procedures

The basic steps of the well to surface water procedure are similar, but the threshold distance in Step 1 is between 500 to 1500 feet depending on pumping capacity. A flow chart showing the basic steps of the three aspects (water use, well to well and well to surface water) of the WAA is attached.

While I don't want to oversimplify the Ad-Hoc Committee's findings, and I encourage all to read the eight-page summary of the meeting, a divided committee essentially came down in two separate camps. The rationale for both positions has been discussed by this body previously and is well discussed in the Ad-Hoc Committee's meeting minutes. The positions are:

- Keep the process the same: All discretionary applicants conduct a water usage (Tier 1) analysis and stop there unless Tier 1 thresholds are exceeded or the project is challenged—or—

- Change the process to require all discretionary applicants to conduct Tier 1 and Tiers 2 and/or 3 as part of every discretionary application. (This option would be most consistent with the goals established in the Groundwater Monitoring Plan adopted by this body in February 2013.)

Staff requests that the Ad-Hoc Committee report out, and that the full GRAC discuss this issue and provide their input for consideration by the Board of Supervisors.

Pending the direction provided by the GRAC today, next steps would include:

1. Board consideration of GRAC and staff input on the WAA and policy direction to staff;
2. Based on that policy direction, staff will redraft the WAA accordingly;
3. Though the GRAC's mission will be completed at that time, GRAC members who would like and other interested citizens will be provided the opportunity to provide public comment on the WAA as it moves through the process to completion.

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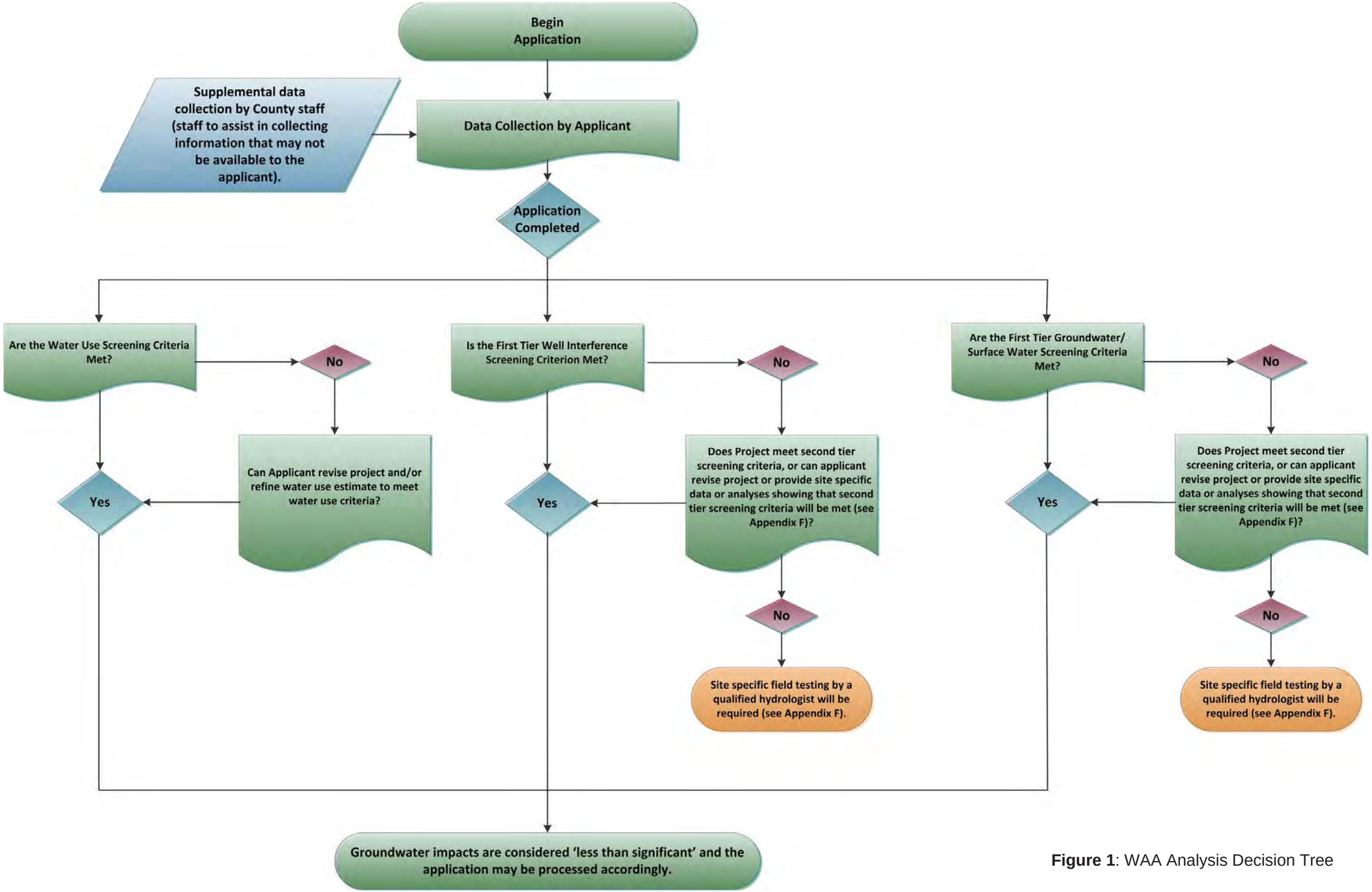

Figure 1: WAA Analysis Decision Tree

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DRAFT MEETING SUMMARY

WATER AVAILABILITY ANALYSIS AD-HOC COMMITTEE
Napa County Groundwater Resources Advisory Committee (GRAC)
November 19, 2013
Prepared by the Center for Collaborative Policy, CSUS

Per direction at the GRAC's October 24, 2013 meeting, the Water Availability Analysis (WAA) Ad-Hoc Committee (AHC) met on November 19, 2013, to review the County's proposed revisions to the WAA. The meeting goals included providing feedback on the WAA revisions and preparing a discussion update to share with the GRAC at its next meeting on December 12, 2013.

Action Items

1. **CCP Staff** to circulate meeting summary to **AHC Members**.
2. **AHC Members** to review meeting summary and verify whether concerns and suggestions are accurately represented.

1. Welcome & Opening Remarks

Mr. Steven Lederer, Director of the Department of Public Works, Napa County, welcomed members and opened the session.

Mr. Lederer asked AHC members to keep in mind that they were chosen to represent the interests of all people in Napa County (e.g., small project proponents, property owners, and environmentalists), and to recommend what is best for the County as a whole.

2. Review of the Purpose of the WAA

Mr. Lederer reviewed the WAA's purpose, and the reasoning for its proposed revisions. Key points included:

- The WAA addresses the CEQA process and helps the Planning Department and the Department of Public Works (DPW) review discretionary projects.

A. Shortcomings of current WAA

- While the WAA's Phase 1 water use standards work well, the current Phase 2 pumping test criteria are technically inadequate and lack defensible evidence.
- Meeting the Phase 1 water use standards does not guarantee the absence of interference with neighboring wells or surface water bodies.
- Application outcomes are highly unpredictable because applications are processed on a case-by-case basis and challenges are highly variable. This can inconvenience County staff review and applicants' project design by delaying the application process and increasing expenses.

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B. Rationale and anticipated benefits for proposed revisions

- The overarching goal for the WAA is to protect Napa's groundwater resources, while also making the permit process more predictable. More specifically, the proposed revisions would protect neighbors through well-to-well interference standards, and protect the environment through well-to-surface water standards.
- The well and surface water interference standards with the Tier 1/Tier 2 analysis processes reduce risk for applicants by providing a clear and scientifically defensible path.
- Unlike the current Phase 2 pumping test criteria, the well-to-well and well-to-surface water standards are scientifically credible (based on an analysis by LSCE) due to the assumptions behind the standards proposed, better protecting applicants from project challenges.

C. Concern about proposed revisions

- The established water use criteria has generally worked well to our knowledge (though citizens often complain about localized problems that may or may not be actual indications of groundwater problems), and groundwater levels in many parts of Napa County are stable, yet new discretionary applicants who do meet the water use criteria will be still be required to do additional analysis that could limit flexibility in siting a new well or using an existing well to support their new proposed uses.
- All applicants will need to provide some information to address the well-to-well and well-to-surface water interference issues, even if they meet the water use criteria (currently applicants who meet the water use criteria are not required to do anything more). The revised WAA will provide additional protection from challenges as compared to the current WAA. Taking the revised WAA through the CEQA process to adopt it as a "threshold of significance" would provide even greater protection, but this is a long and expensive process the County is unlikely to undertake. As such, projects will remain subject to a CEQA challenge, though at a lower level than today.

3. Recap of GRAC Comments from October 24

Facilitator Dorian Fougères reviewed main GRAC questions and concerns expressed at the October 24 meeting:

- **Justification**. Do project challenges occur frequently enough to warrant WAA revisions?
- **Burden of proof**. Why test for well or surface water interference if the project satisfies the water use criteria?
- **Distance estimates**. Why use a conservative/defensible estimate compared to an alternative estimate?
- **County-wide policy**. A single value may not be appropriate for all County sub-regions.
- **Possible confounding information from old wells**. The WAA revisions do not address old wells that may be disproportionally impacted by new wells nearby or have interference problems attributable to their lack of depth or poor construction.

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- **Cost of additional analyses**. What is the cost for Tier 2 analyses?
- **Opportunity cost**. What is the opportunity cost for people who are deterred from proposing a new project under the new policy?
- **Potential decreased property values**. The new well and surface water interference standards might negatively impact property values.
- **Potential benefit for those with limited resources**. WAA revisions may safeguard people lacking the resources to challenge a project before or after its approval.

4. Current Affairs in the County

Brian Bordona and John McDowell, Napa County, provided an overview and examples of the frequency and geographic scope of permit challenges and likely associated costs. AHC members made comments and asked questions during the presentations, which prompted further details and elaboration by Mr. Bordona and Mr. McDowell. Major points included:

- The County wants to promote projects while protecting groundwater resources. It needs to achieve a balance between gathering the necessary data to make informed decisions without overburdening the applicant, while still giving fair opportunity for the project to be challenged on justifiable grounds.
- Different levels of challenges exist. Formal challenges subsequent to the County Planning Commission actions are rare, though they do occur (approximately one per year). More commonly, objections occur early in the process or verbally at the Planning Commission, usually resulting in project approvals, often with project modifications and additional conditions of approval, but sometimes with delays (continuances) or project abandonment. Applicants have often complained of the current process.
- Large vineyard projects are rarely formally challenged because their high water use warrants intensive CEQA review (typically EIRs) and comprehensive mitigation and monitoring programs. Wineries use less water and receive the majority of Mitigated Negative Declarations.
- Project challenges often occur in areas with greater groundwater issues (e.g., MST and Carneros), warranting more-detailed reviews in these areas.

Under the proposed revisions, estimated costs for projects requiring Phase 2 tiered analyses are widely varied (LSC&E provided estimated cost ranges to implement Phase 2).

A. Current dilemmas and rationale for WAA revisions

- A major concern is lack of information creating higher uncertainty in accurate decision-making.
    - Vineyard projects often require substantial information for CEQA analyses or monitoring programs beyond what the proposed WAA requires. As such, the WAA changes are less needed for vineyard projects (though they would have helped in the Dunphy case).

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    - Winery and low-profile applications usually provide less information because they use less water than vineyards. However, that also increases their vulnerability when challenges do occur.
- Challenges to winery projects are highly unpredictable. Staff and winery project applicants often struggle to gather defensible evidence on short notice. Adoption of the WAA would provide additional defensible evidence early in the process, possibly heading off certain challenges, though it is clear that no process will solve this issue entirely.
- The current WAA guidelines for estimating water use do not adequately reflect varying operations within the same use category. For example, two wineries with the same production capacity will have the same estimated water signature under the WAA guidelines but may have a much higher water use because it uses more water for tourism and hosting events.
    - Mr. Lederer said the County added language to the WAA stating that other guidelines exist besides the rule-of-thumb standards in the WAA, and the applicant should choose the appropriate model.
    - It was suggested that the County's current process of gathering and requesting water use information needs revision and that these changes to the WAA should be pursued whether the tiering system is revised or not.
- Projects can receive irrational (or more extensive and costly) permit requirements partly due to a lack of a standardized process (e.g., the Circle S project was required to import unnecessary water).
- If future groundwater controversy triggers the County to hastily adopt an ordinance, costly and excessive project protocols may be the result.

B. Anticipated benefits of WAA revisions

- Greater consistency and predictability helps applicants design their projects to meet the standards and criteria requirements.
- Winery projects will be more defensible with a standardized process since they usually have less available information.
- A standard and accurate process, based on sound scientific evidence, could decrease challenges. Required CEQA analyses with excessive mitigation requirements also could become less likely, although challenges can never be stopped completely.

C. WAA revision and other general concerns

- The County will need to address the subjective definition for groundwater impact as "substantial decline."
- Pumping test protocols still require modification if they are to be used to accurately determine well interference effects.
- The WAA will need a provision that the well location stated in the application shall not change after the project is approved.

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County staff and LSCE discussed the following points with AHC members in response to their questions:

- The WAA does not apply to ministerial well permits (e.g., houses, replacements for existing wells, vineyard replants). A well that is used for discretionary or non-ministerial purposes would be subject to the WAA.
- Ordinances provide laws and regulations that apply to specific projects and generally through the project's entire duration. The WAA is a policy/procedure for the DPW and Planning Department to process applications.
- If the Board of Supervisors adopted a formal CEQA threshold, that would be more defensible, however, creating CEQA threshold is a labor-intensive process that in and of itself requires CEQA review. However, use of a WAA policy is still fairly defensible because courts have historically upheld longstanding administrative policies.
- CEQA documents for large vineyard projects are less vulnerable because they usually go beyond what the WAA requires.
- Wineries are trending towards higher water use to maximize the visitor experience, which can be addressed by a revised process of analysis of water use.
- The County has not yet developed a mass balance or water usage formula that can consider recaptured and recycled water (generally winery waste water that is stored in ponds and reused for vineyard irrigation or that seeps back into the ground). However, the permit application can address seasonal differences by asking about how the water is used and the highest use period.
- Vineyard projects are formally challenged about once a year. The County usually conducts an EIR for large vineyard projects or a significant negative declaration on vineyards because vineyards use more water and are likely to have other potential impacts.
- Formal challenges to winery projects occur 1-3 times out of 12-20 applications per year. Changes to the process are less important for vineyard projects due to the extensive reviews already conducted, but the revised WAA would help support winery and other use permit applications.
- The County has the authority to require monitoring at a later date if the County determines water usage at the vineyard is affecting or may potentially affect groundwater supplies for nearby wells, but this is rarely implemented.

5. Review of the Scientific and Technical Basis for the Proposed Revisions

Ms. Vicki Kretsinger Grabert, LSCE, presented the existing science (particularly as related to Napa County studies) that is the basis for the proposed WAA revisions. Key points included:

- LSCE compiled the best data available, which included reviewing more than 1300 drillers' reports, updating geologic cross-sections, and developing a hydrogeological conceptualization of the Napa Valley Floor. The scientific information has improved the understanding of groundwater conditions, and this will continue to progress.

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- The highest potential for direct groundwater-surface water connection occurs where the depth to groundwater is shallow and where highly permeable soil is present above the aquifer.
- Pumping near-surface groundwater could result in less groundwater discharge to the river (reduced base-flow) where such conditions exist and surface water flow is susceptible to pumping (i.e. - direct groundwater to surface water connection).
- The upcoming shallow groundwater monitoring wells project will help evaluate where groundwater interacts with surface water.
- Shallow depths to groundwater are found primarily in the northern and central regions of the Napa Valley Floor, around the City of Napa, and the most southern area of the Valley Floor.
- For the proposed Tier 1 application criteria, LSCE derived the well and surface water interference standards from areas where drawdown was not significantly affected by variables, such as hydraulic conductivity, pumping rates, and aquifer conditions. Further details on threshold estimates are in the WAA.
- Tier 2 analyses involve an equation to determine the potential for well and surface water interference based upon the hydrogeologic conditions and proposed project operations.
- The estimated costs for projects under the new proposed tiers are likely to vary widely. Projects with adequate available information and low complexity may cost between $7,500 and $15,000. Medium complexity may cost $30,000, and highly complex projects with little available information may be significantly more expensive depending on what field investigations are needed.

Ms. Kretsinger Grabert also explained how past challenges to projects could have been processed with the proposed revisions to the WAA and using existing information. Major points included:

- **Dunphy Vineyard expansion**. The owner withdrew the expansion project after it was challenged.
    - If the project underwent the proposed tiered criteria, it would have met the water use criteria but not automatically meet the well and surface water interference standards, triggering Tier 2 analyses.
    - The project would have met the Tier 2 criteria because analyses determined groundwater impacts were less than significant due to hydrogeologic conditions that showed the absence of a connection between the applicant's well and surface water. Although this particular challenger would likely have continued their challenge under any circumstances, this information and these standards would have been useful in defending against that challenge.
- **Woolls Vineyard Conversion and Winery**. The owners chose to incorporate a monitoring program rather than conduct an EIR.
    - Not enough information is available to determine if the project would have satisfied the well and surface water interference standards.

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- Due to the lack of a standardized process, the project is susceptible to onerous and potentially unnecessary monitoring requirements.

6. Additional AHC Questions and Discussion

AHC members shared comments and suggestions for improving the WAA. The group did not reach a consensus on recommendations. The following major issues were discussed during the meeting and compiled in this section:

A. Comments

- Water taken from the top of the basin may disrupt underground recharge or subsurface flow to the bottom of the basin.
- The County frequently receives new evidence of groundwater problems in last minute challenges to projects, some of which turn out to be accurate, at least on a very local level, so there are likely more groundwater problems yet to be revealed.
- Ideally, the number of challenges would decrease because the County's review process would be more robust and defensible, and potential concerns would be addressed early in the application process. However, the well and surface water interference standards may be too difficult to implement compared to the number of challenges received.
- The proposed revisions are meant to make the WAA more robust and defensible, but that does not seem to justify revision if projects are rarely challenged and if the proposed revisions will still not stop all challenges.
    - Response: From a planning perspective, the County is obligated to produce an environmental document that is legally defensible and technically accurate enough for the decision-maker to make informed decisions regardless of whether a project is challenged. Currently, the County is not accurately addressing potential groundwater interference and groundwater/surface water interactions and is making decisions on less than optimal information. The revisions benefit not only the project proponent but also informed neighbors and the public on the issues and how they are impacted.
    - AHC Comment: Improving the WAA would protect the groundwater resources, neighbors, wells, environment, and help those projects that were getting stuck.
- In practice, landowners can record water levels on a weekly basis. If the water levels drop, landowners can quickly respond and decrease the pumping rates until the water level stabilizes again.
    - AHC Comment: This suggests there are pumping test options for addressing neighbor conflict. The County should expand on these options.

- If there is a lot of pumping, the water table can fall, but large cones of depression are improbable.
    - LSCE Response: We cannot say that is a correct statement. In some parts of the Napa Valley Floor, we have observed lower water levels in the fall in some areas (in between spring-to-spring recovery) and we have not determined the cause.

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Multiple variables affect the size and depth of a cone of depression (e.g., simultaneous pumping of two neighboring wells would create a greater cone than if only one well were being pumped at a time), confined/unconfined aquifers, well construction, and pumping rates).

- AHC Comment: Ideally, we could detect cones of depression by monitoring a network of wells and observe how one well's pumping affects neighboring well.
- AHC Comment: The density of wells that would be required to make this strategy feasible is cost-prohibitive, and installing monitoring wells solely to assess the potential interference effects of one well is also costly.

B. Suggestions

- If formal challenges are rare, site-specificity seems more advantageous. Cost of providing evidence may fall on the client/beneficiary more so than the County. More information may be kept confidential.
  - Response: Whether site specific or not, all information provided to the County is public record.
- Developing conflict resolution training and educating opposing parties on the facts seems more worthwhile.
  - Response**:** Parties with pre-existing adversarial relationships will likely challenge each other even if they have full awareness of the issues.
- People are less likely to challenge projects if the information comes from a neutral source, such as the County. The WAA needs to require adequate and accurate information, including procedures to determine whether a proposed project will have a negative effect. Information needs to be accessible, cost efficient, and trustworthy.
- There should be regulation for a third party to conduct well-to-well field pumping tests rather than the interference standards.
  - AHC Comment: That should only be in the case if there is a conflict.

7. Summary of AHC Members' Perspectives on WAA Revisions

Generally speaking, members had two different perspectives on the value of the proposed WAA Revisions.

A. First Perspective on Proposed WAA Revisions

- The need for a complete ordinance change remains unconvincing.
- The goal is to be non-divisive, and the proposed revisions are too divisive and seem non-voluntary. The County should focus on educating the public, mediation procedures, and developing incentives, such as crediting recycled water practices. The charge from the Board of Supervisors implies that all of the GRAC's work products should be voluntary and non-regulatory.
- GRAC members are not qualified to make recommendations on this technical issue.
- The WAA should focus less on controversial threshold standards. Instead, the County should develop a procedure for gathering the appropriate information and addressing

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the issue only when there is a challenge; the answer should not be predesigned. Instead, design the questions to formulate the problem specific to the project, which will suggest the answers. Four hundred feet could be just as satisfactory as 500.

- The proposed revisions affect more people who have in the past never had to do the additional analyses. Non-policy changing improvements, such as water usage form modifications, seem more justified and worthwhile.
- The current scientific information and analytical estimates are inadequate compared to factual evidence.

B. Second Perspective on Proposed WAA Revisions

- The current WAA process is not scientifically defensible. Relying solely on Phase 1 water usage as the cut-off point for acceptable groundwater use is flawed since it does not address well and surface water interference.
- A one-time pumping test, regardless of its duration, does not accurately determine if the proposed project will affect neighboring wells or surface water.
- From a CEQA perspective, a general standard would help provide a consistent evaluation method.

8. Next Steps

- **ACTION ITEM: CCP Staff** to circulate meeting summary to **AHC Members**.
- **ACTION ITEM: AHC Members** to review meeting summary and verify whether concerns and suggestions are accurately represented.

9. Attendees

Ad-Hoc Committee Members

1. Michelle Benvenuto
2. Tucker Catlin
3. David Graves
4. Steve Soper
5. Susanne von Rosenberg

County Staff, Facilitators, Consultants

6. Brian Bordona
7. Dorian Fougères, CCP
8. Stephanie Horii, CCP
9. Vicki Kretsinger Grabert, LSCE
10. Steven Lederer
11. John McDowell
12. Christine Secheli

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W O R K I N G D R A F T

WATER AVAILABILITY ANALYSIS

Policy Report

October 2013 Update

Introduction and Purpose

Comment [LSCE1]: To GRAC:

The introductory language in the June draft has been moved to Appendix A. This revision is intended to focus the reader on the fundamental purpose and justification for the WAA as succinctly as possible.

A Water Availability Analysis is conducted as part of the discretionary groundwater permit application review process described in Napa County Ordinance No. 1162, the Groundwater Conservation Ordinance.

As described in Section 13.15.020 of the Groundwater Conservation Ordinance, a groundwater permit application and a Water Availability Analysis are required, subject to certain exemptions, for any project that may utilize groundwater or will increase the intensity of groundwater use of any parcel through an existing, improved, or new water supply system[1].

Exemptions to the discretionary groundwater permit requirement are detailed in the Groundwater Conservation Ordinance and summarized below, according to the proposed project's location relative to groundwater deficient areas designated by Napa County.

Outside of Groundwater Deficient Areas

Most development in any area of the county, excluding groundwater deficient areas, is exempt from the need to secure any type of groundwater permit. This includes projects to develop an on-site or off-site water source serving agriculture, projects to construct or develop rainwater harvesting or graywater recycling systems and minor and convenience water supply system improvements (see definitions in 13.15.010). Other exemptions outside groundwater deficient areas include projects such as building permits, well and septic permits, lot line adjustments, erosion control plans, etc. There are a couple exceptions to this exemption including:

- projects to develop or improve a water supply to serve *more* than a single contiguous parcel (agricultural development for multiple contiguous parcels is eligible for an exemption under certain conditions) or
- projects that can be served by a public water supply.

[1] The Groundwater Conservation Ordinance (Section 13.15.010) defines a water supply system as "any system including the water source the purpose of which is to extract and distribute groundwater.

Within Groundwater Deficient Areas

Most any type of development in groundwater deficient areas will trigger the need for a discretionary groundwater permit unless specifically exempted or unless eligible for a ministerial groundwater permit (see 13.15.030C). Ministerial groundwater permits are specifically for a single family residence with associated well when no other uses exist on the property or agricultural re-plants. Specific exemptions include applications to construct or develop rainwater harvesting or graywater recycling systems and minor and convenience improvements (see definitions in 13.15.010) which include:

- changes to existing water supply systems for the purposes of repair or rendering a system more efficient or to add to or improve existing legal uses on a property such as swimming pools (if provided with a cover and initially filled with trucked in water),
- replacement dwellings (when an existing legal dwelling unit had previously existed on the property),
- additional potential bedrooms whether or not attached to the single-family dwelling, and replacement of a site's existing well (provided the old well is destroyed and the new well is drilled to the same or smaller diameter as the existing well) are all exempt.

This Policy Report has the following goals: [2]

- Guide County staff in the implementation of the Napa County Groundwater Conservation Ordinance (Ordinance No. 1162), and
- Provide project applicants with a clear set of procedures to follow when seeking approval for discretionary projects involving the use of groundwater resources.

WAA Procedure

Comment [LSCE2]: To GRAC:

This Section has been revised to clarify role of the WAA consistent with the Groundwater Conservation Ordinance.

The Water Availability Analysis (WAA) procedure uses a screening process for discretionary groundwater permit applications to determine if a proposed project may have an adverse impact on the groundwater basin as a whole or on the water levels of neighboring non-project wells or on surface waters.[3] The WAA also provides procedures for further analysis when screening criteria are exceeded. An important sidelight to the process is public education and awareness. The WAA procedure is based on an application which requires the applicant to gather information about existing non-project groundwater wells and water uses at the applicant's site, to describe planned project well operations, and to predict future water demands associated with the proposed project. In addition, other information relating to the geology, proximity to surface water bodies (e.g., river, creeks, etc.), and the location

[2] Background information regarding this policy report and the Groundwater Conservation Ordinance are provided in Appendix A.
[3] For the purposes of this policy report, surface waters are defined to include only those surface waters known or likely to support special status species or surface waters with an associated water right.

and construction of existing non-project wells located near the applicant's property or project well(s) will also be important to evaluate, as warranted, the potential for well interference and effects on surface water. County staff can provide assistance to the applicant in obtaining and reviewing the latter information as part of the application data collection process.

WAA Application

A WAA groundwater permit application may be prepared by the applicant or their agent. **It must be signed by the applicant. If prepared by the applicant's agent, it must contain the letterhead of the agent, the name of the agent, and the agent's signature.** The WAA application contains the following information:

1. The name and contact information of the property owner and the person preparing the application.

2. Site map of the project parcel and adjoining parcels. The map should include: Assessor's Parcel Number (APN), parcel size in acres, location of project well(s) and other water sources, general layout of structures on the subject parcel, location of agricultural development and general location within the county. Approximate locations of existing non-project wells within 500 feet on adjacent parcels should also be identified based the applicant's knowledge. All surface waters within 1500 feet should also be identified, based on the applicant's knowledge. County staff can provide assistance to the applicant in obtaining APNs and parcel size information.

3. Narrative on the nature of the proposed project, including all land uses on the subject parcel, potential for future water uses, details of operations related to water use, description of interconnecting plumbing between the various water sources and any other pertinent information.

4. Tabulation of existing water use compared to projected water use for all land uses contained on the parcel. Should the water use extend to other parcels, they should be included in the analysis (see Appendix E for additional information on determining water use screening criteria when multiple parcels are involved). **These estimates should reflect the specific requirements of the applicant's operations.** The applicant should use the guidelines attached in **Appendix B** to calculate projected water demand.

Public Works Department staff will review the application for completeness and reasonableness (based on the guidelines outlined in **Appendices B and F**), review the County's groundwater data management system for additional relevant information about the characteristics of the groundwater areas/basin and nearby wells, compare the analysis to the screening criteria, and determine if additional analysis is required. In reviewing available information prior to evaluating the proposed project, County staff will determine:

Comment [LSCE3]: To GRAC:
This section has been revised to more clearly define the information required of a project applicant and the information that County staff can assist applicants in obtaining.

This section replaces previous references to the Phase I analysis, which are being removed from the Groundwater Conservation Ordinance.

1. The characteristics of the groundwater area or basin (i.e. confined or unconfined; alluvial or hard rock) and estimate related aquifer properties and;

2. The location and present use of all existing non-project wells within 500 feet of the project parcel(s) or well(s) that are completed to similar depths as the project well(s).

3. The distance to surface waters within 500 feet of any Very Low pumping capacity project well(s) or 1500 feet of project well(s) with a capacity greater than 10 gallons per minute (gpm). [4]

Screening Criteria

Comment [LSCE4]: To GRAC:

This section has been revised to define the three different types of screening criteria. This includes the water usage criteria from the current, 2007 version of the WAA policy report as well as the new well interference criterion and the groundwater/surface water interaction criteria.

A new flow chart has been added to this section to provide an overview of the WAA procedure.

Projects will be evaluated according to one or two tiers of screening criteria. The evaluation will be based on project information, to be provided by the applicant, and available geologic and hydrologic information, to be provided by County staff, as described above. As shown in **Figure 1,** projects that meet the first tier criteria will not be subject to second tier criteria evaluation. All criteria are based on information and experiences outlined in **Appendix B**, as well as a detailed conceptualization of hydrogeologic conditions in the Napa Valley and substantial evidence in the form of monitoring and hydrologic data, past studies, and well drillers' logs. Three sets of screening criteria will be applied independently to each project reviewed:

1. Water Use Criteria
2. Well Interference Criterion, and
3. Groundwater/Surface Water Interaction Criteria.

Figure 1 provides a roadmap for applicants and indicates whether additional analysis will be needed, pending the applicant's project well location(s), water usage, well operations, and the hydrogeologic setting of the subject parcel. The three first tier criteria are presented below. **Appendix F** describes the second tier screening criteria and additional analysis that will be required if second tier screening criteria are not met.

Water Use Criteria

Water use criteria will be compared to the water use estimate provided by the applicant in the WAA application. Water use criteria vary according to the location of the project parcel(s) and consist of only one tier for project evaluation purposes. As such, projects must meet the applicable water use criteria, through project revisions or water use estimate refinements, if necessary, in order to receive a groundwater permit.

Table 1 presents the water use criteria. Napa Valley Floor areas include all locations that are within the Napa Valley except for areas specified as groundwater deficient areas. Groundwater deficient areas are areas that have been determined by the

[4] For the purposes of this WAA, very low pumping capacity wells are defined as wells with a casing diameter of six inches or less and an installed pump capable of producing less than 10 gallons per minute (gpm).

Department of Public Works as having a history of insufficient or declining groundwater availability or quality. The sole currently-designated groundwater deficient area in Napa County is the Milliken-Sarco-Tulocay (MST) Subarea. Areas of the county not within the Napa Valley Floor and MST Groundwater Deficient Area are classified as All Other Areas. Public Works can assist applicants in determining the correct classification for project parcel(s). **Appendix B** contains a discussion of the origins of these water use criteria.

Table 1. Water Use Criteria

Project parcel location	**Water Use Criteria** (acre-feet per acre per year)
Napa Valley Floor	1.0
MST Groundwater Deficient Area	0.3 or no net increase, whichever is less *
All Other Areas	0.5
* Does not apply to the Ministerial Exemption as outlined in the Groundwater Conservation Ordinance	

In general, the acceptable water use screening criterion for parcels located on the Napa Valley Floor is 1 acre-foot per acre of land per year (an acre-foot of water is the amount of water it takes to cover one acre of land to a depth of one foot, or 325,851 gallons). Therefore, a 40-acre parcel will meet this criterion if the projected groundwater use would not exceed 40 acre-feet per year. The criterion for parcels not located in the Napa Valley Floor or a groundwater deficient area, termed All Other Areas (primarily located in volcanic rock and soils), is 0.5 acre-feet per acre per year or 20 acre-feet per year for a 40-acre parcel. Areas designated as groundwater deficient areas as defined in the Groundwater Conservation Ordinance will have criteria established for that specific area. For example, the MST Subarea is currently the only groundwater deficient area. The screening criterion for the MST Groundwater Deficient Area is 0.3 acre-feet per acre per year or “no net increase” over existing conditions, whichever is less (see **Appendices B and C**).

Well Interference Criterion

For the purposes of this WAA, the first tier well interference criterion is met if no non-project wells are within 500 feet of the project parcel(s) or well(s). For those projects with non-project wells within 500 feet of the project parcel(s) or well(s), additional evaluation will be required to assess the potential drawdown in existing wells within 500 feet relative to the second tier criteria, presented in **Appendix F**. The potential interference will be determined based on data including the distance between the project parcel(s) or well(s) and the nearby non-project well(s), the hydrogeologic setting, and various well construction and operational configurations for the project well(s). Well construction configurations will detail:

- the design pumping rate of well(s),
- well depth(s),
- well screen intervals and
- well seal locations.

Low pumping capacity project wells in unconfined aquifers will typically require a minimum amount of information due to the limited drawdown that they induce.[5] Other project well types located at distances of 500 feet or greater from neighboring non-project wells will also likely require a minimum amount of information, particularly when it can be shown that the project well(s) target(s) different aquifer units than neighboring non-project wells.

Groundwater/Surface Water Interaction Criteria

The first tier groundwater/surface water criteria, presented in **Tables 2, 3, and 4,** vary according to groundwater pumping capacity, well construction information and operational configurations for the project well(s), and aquifer properties as developed in a separate Technical Memorandum developed for the County and described in **Appendix F**. The first tier criteria presented in **Tables 2, 3, and 4** are also based on a 140-day period to account for the effect of groundwater withdrawal on surface waters throughout the dry season (typically late May through early October).

For proposed projects that do not meet the first tier criteria and conform to the associated well construction assumptions (See **Tables 2, 3, and 4)**, additional evaluation will be required to identify the potential for impacts of very low pumping capacity wells within 500 feet of surface waters, low pumping capacity wells within 1000 feet of surface waters, and moderate to high pumping capacity wells within 1500 feet of surface waters relative, as described in **Appendix F**.[6] The potential impacts will be determined based on data including the distance between the project parcel(s) or well(s) and the nearest surface water body, the hydrogeologic setting, the streambed (or equivalent feature) hydraulic properties, and various well construction and operational configurations for the proposed project. Well construction configurations will detail:

- the design pumping rate of well(s),

[5] For the purposes of this WAA, low pumping capacity wells are defined as wells with a casing diameter of six inches or less and an installed pump capable of producing between 10 gpm up to 30 gpm. As shown in Appendix F, Table F-6, a well pumping 30 gpm continuously for one day in an unconfined aquifer, even in an aquifer with a low hydraulic conductivity, is expected to induce a drawdown of two feet or less at radial distances as small as 25 feet.
[6] For the purposes of this WAA, moderate to high pumping capacity wells are defined as wells with a casing diameter greater than six inches and an installed pump capable of producing more than 30 gpm.

- well depth(s),
- well screen intervals and
- well seal locations.

Very low pumping capacity wells in unconfined aquifers will typically require a minimum amount of information due to the limited potential for surface water flow depletion. Other well types located at distances of 1500 feet or greater from surface waters will also likely require a minimum amount of information, particularly when it can be shown that the project well targets aquifer units not hydraulically connected to surface water.

If the proposed project does not meet the applicable first tier screening criteria for well interference or groundwater/surface water interaction, or if insufficient information is available to judge its conformance with these first tier criteria, then evaluation subject to second tier screening criteria will be required.

Table 2. First Tier Well Siting and Construction Criteria; Very low capacity pumping rates (i.e., less than 10 gpm), constructed in unconsolidated deposits in the upper part of the aquifer system (unconfined aquifer conditions).

Aquifer Hydraulic Conductivity (ft/day)	**Acceptable Distance from Surface Water Channel**			**Surface Seal Depth (feet)**	**Depth of Uppermost Perforations (feet)**
	500 feet	1000 feet	1500 feet		
80	✓	✓	✓	50	100
50	✓	✓	✓	50	100
30	✓	✓	✓	50	100
0.5	✓	✓	✓	50	100

Table 3. First Tier Well Siting and Construction Criteria; Low capacity pumping rates (i.e., between 10 gpm and 30 gpm), constructed in unconsolidated deposits in the upper part of the aquifer system (unconfined aquifer conditions).

Aquifer Hydraulic Conductivity (ft/day)	Acceptable Distance from Surface Water Channel			Surface Seal Depth (feet)	Depth of Uppermost Perforations (feet)
	500 feet	1000 feet	1500 feet		
80			✓	50	150
50			✓	50	150
30			✓	50	100
0.5		✓	✓	50	100

Table 4. First Tier Well Siting and Construction Criteria; Moderate to high capacity pumping rates (i.e., greater than 30 gpm), constructed in unconsolidated deposits in the upper part of the aquifer system (unconfined aquifer conditions).

Aquifer Hydraulic Conductivity (ft/day)	Acceptable Distance from Surface Water Channel			Surface Seal Depth (feet)	Depth of Uppermost Perforations (feet)
	500 feet	1000 feet	1500 feet		
80			✓	50	150
50			✓	50	150
30			✓	50	100
0.5			✓	50	100

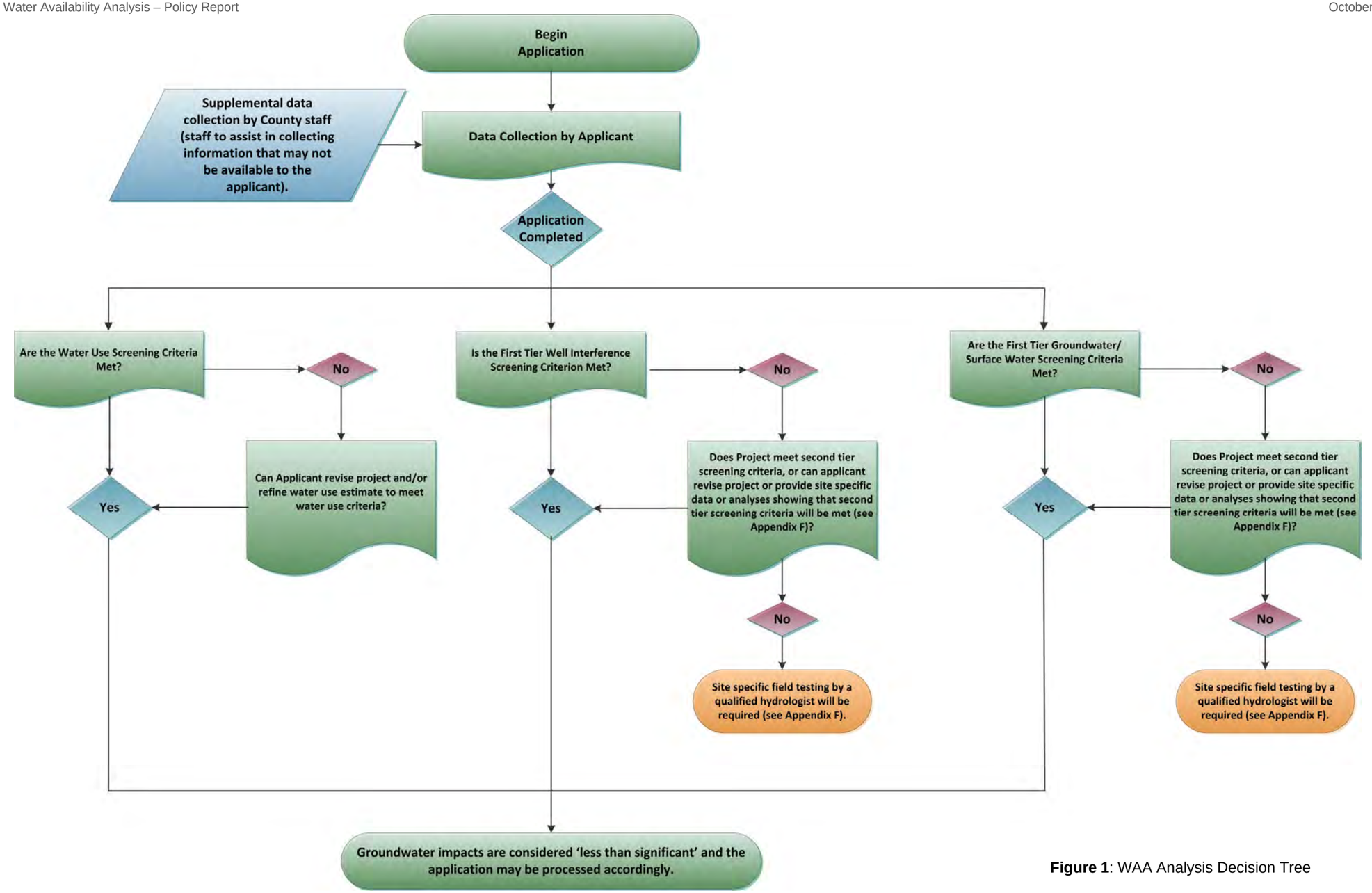

Figure 1: WAA Analysis Decision Tree

Additional Analysis Required

Comment [LSCE5]: To GRAC:
This section has been revised to summarize the possible cases where additional analysis will be required and identify potential sources of hydrogeologic data that would be required for the additional well interference or groundwater/surface water analysis.

This section replaces the previous discussion of Phase II and Phase III analyses, which are being removed from the Groundwater Conservation Ordinance.

If the proposed project would exceed one or more of the first tier screening criteria and the applicant is unable to modify the project (i.e., different location, well construction, water usage, or operations) to meet the first tier screening criteria then further analysis will be required, subject to second tier screening criteria, as applicable (see **Appendix F**). Additional analysis will also be required if insufficient information exists in the project application to judge conformance with the criteria.

The applicant or the applicant's agent should consult with County staff regarding the required scope of the analysis, which is likely to include consultation with a professional hydrologist, and may include field testing. **Appendix F** describes the second tier screening criteria and additional analysis that will be required if the first tier screening criteria are not met.

The geology in the Napa County is very complex, including in the Napa Valley (LSCE and MBK, 2013). Accurate determination of hydrologic parameters (See **Appendix F**) is important to the additional analyses that may be necessary to evaluate potential well interference or impacts on surface water. Several approaches may be considered. One approach is to estimate aquifer hydraulic conductivity values, which includes evaluation of lithologic data reported for wells drilled in the vicinity of project parcel(s) or well(s) and interpreted based on knowledge of the local hydrogeologic setting and published hydraulic conductivity values for similar aquifer materials. The recommended method, however, for determining the aquifer hydraulic conductivity is by conducting an aquifer test and analyzing aquifer test data. In some cases, pump test data may be recorded by a well driller at the time of well construction and included as part of the Well Completion Report submitted to the California Department of Water Resources. However, these tests are not always conducted to the standards required to result in meaningful aquifer parameters (i.e., the pumping rate may not be constant, the pumping rate may not be sufficiently large enough to analyze aquifer parameters, the test may be of too short a duration, and measurements made in an observation well are necessary to compute a storage coefficient, etc.). If adequate aquifer test data are not available, and the project (including the proposed location, construction and operation of any project wells) raises sufficient concern regarding potential impacts on neighboring non-project wells or nearby surface waters, then an aquifer test may be required of the applicant's project well(s). Pending the proposed project details, the County may also require installation of a monitoring well or monitoring of a nearby existing non-project well.

As described in the Groundwater Conservation Ordinance, the County may require the applicants in groundwater deficient areas to install a water meter to verify actual groundwater usage. In addition to the above screening criteria, if the actual usage exceeds the projected use, or the screening criteria, the applicant may be required to reduce groundwater consumption and/or find alternate water sources (See **Appendix D**).

WAA Application Submittals

WAA applications for all use permits and parcel divisions, as well as for all Groundwater Conservation Ordinance permits must be submitted to the Department of Planning, Building and Environmental Services (PBES), which will consult with the Department of Public Works, and be the conduit for communication between the County and the applicant. All subsequent communication should likewise pass through PBES. Any mitigation measures identified via the additional analysis will become either project modifications to, or conditions of approval for, the proposed project.

Details of the use permit, land division, or groundwater ordinance can be obtained from PBES, along with mapping of groundwater deficient areas.

Conclusions

Comment [LSCE6]: To GRAC:
This section has been revised to provide consistency with the County's groundwater ordinance and state Water Code.

This includes language to specify that the intent of the screening criteria.is to reflect understanding of groundwater occurrence and availability and to fairly allocate groundwater resources given the hydrogeologic and hydrologic constraints and potential for replenishment of the aquifer system.

The Napa County Board of Supervisors has long been committed to the preservation of groundwater for agriculture and rural residential uses within the County. It is their belief that through proper management, the excellent groundwater resources found within the county can be sustained for future generations.

Several conclusions can be drawn from application of the Water Availability Analysis process to date:

- In the process of conducting the analysis, applicants develop a greater awareness of water use by their project, providing a higher level of awareness and potentially leading to more efficient use of the resource.

- Information submitted by applicants has led to a broader database for future study and management.

- Groundwater use can vary widely depending upon its availability, local hydrogeologic constraints, and periodic hydrologic constraints which may affect the recharge and replenishment of the aquifer system.

- The practice of evaluating an applicant's WAA by using screening criteria to determine if additional analysis is an accepted method for making groundwater determinations. Based on the information available on Napa County groundwater basins, the screening criteria present a reasonable approach to the process and the water use criteria have not been shown to be inaccurate or inadequate since their original application in 1991. As such, the established WAA procedures for making groundwater determinations as outlined above and throughout the Appendices will continue to be the accepted method of making groundwater determinations and findings.

The Water Availability Analysis is based upon the basic premise that each landowner has equal right to the groundwater resource below his or her property. Furthermore, the

WAA provides sufficient information and supporting documentation to enable the director of Public Works to determine the likelihood that a proposed project will significantly affect groundwater resources and the reasonable and beneficial uses in the proposed area. By implementing policies to prevent wasteful or harmful use of groundwater, it is intended that sufficient groundwater will be available for both current and future property owners. By ensuring wells are located and constructed so as to avoid impacting neighboring wells and surface water bodies, the County will minimize neighbor disputes and avoid the potential for significant environmental impacts. In summary, this WAA implements a process that recognizes:

- The current understanding of the occurrence and availability of the County's groundwater resources,
- The hydrogeologic constraints that can locally affect the utilization of those resources, and
- The periodic hydrologic constraints that may also affect the utilization of the resource and replenishment of the aquifer system.

APPENDIX A: Water Availability Analysis Background

Comment [LSCE7]: To GRAC:

This Appendix is new and includes the text included in the Introduction of the June draft. The text is relocated here to keep the Introduction as succinct as possible, while retaining this historical perspective as part of the document.

At the height of the 1990 drought in Napa County, the Napa County Board of Supervisors and the Napa County Planning Commission became very concerned with the approval of use permits and parcel divisions that would cause an increased demand on groundwater supplies within Napa County. During several Commission hearings, conflicting testimony was entered as to the impact of such groundwater extraction on water levels in neighboring wells. The Commission asked the Department of Public Works to evaluate what potential impact an approval might have on neighboring wells and on the groundwater system as a whole. In order to simplify a very complex analysis, the Department developed a three phase Water Availability Analysis to provide a cost-effective answer to the question.

On March 6, 1991 an interim policy report, prepared by County staff, was presented to and approved by the Commission requiring use permit and parcel division applicants to submit a Water Availability Analysis with their application. The staff policy report provided a procedure by which applicants could achieve compliance with the Commission policy. Oversight of groundwater development within the County's jurisdiction was later refined by the Board of Supervisors approval of Napa County Ordinance No.1162 (Groundwater Conservation Ordinance) on August 3, 1999. A revised staff policy report was subsequently adopted by the Board of Supervisors in August 2007. The 2007 Policy Report updated the Water Availability Analysis procedure and restated the purpose and functionality of the analysis relative to the Groundwater Conservation Ordinance.

In January 2011, as part of the County's Comprehensive Groundwater Monitoring Program initiated in 2009, the County's technical consultants, Luhdorff & Scalmanini, Consulting Engineers, completed a review of the County's Groundwater Conservation Ordinance and procedures, and recommended updating the staff policy report and Water Availability Analysis procedure. The consultants' review found that the initial "phase one" analysis was valuable as a screening process, but that the pump test envisioned in "phase two" was not the best way to assess whether projects exceeding the screening criteria would have detrimental groundwater impacts.

On September 11, 2011 the Board of Supervisors appointed a Groundwater Resources Advisory Committee (GRAC) to assist with development of a groundwater monitoring program, and to recommend updates to the Groundwater Conservation Ordinance, as needed. As part of their work, the GRAC also reviewed changes to this Water Availability Analysis policy report in late 2013.

APPENDIX B: Estimated Water Use for Specified Land Use

Guidelines for Estimating Residential Water Use:

The typical water use associated with residential buildings is as follows:

Primary Residence	0.5 to 0.75 acre-feet per year (includes minor to moderate landscaping)
Secondary Residence or Farm Labor Dwelling	0.20 to 0.50 acre-feet per year

Additional Usage to Be Added

1. Add an additional 0.1 acre-feet of water for each additional 1000 square feet of drought tolerant lawn or 2000 square feet of non-xeriscape landscaping above the first 1000 square feet.
2. Add an additional 0.05 acre-feet of water for a pool with a pool cover.
3. Add an additional 0.1 acre-feet of water for a pool without a cover.

Residential water use can be estimated using the typical water uses above. All typical uses are dependent on the type of fixtures and appliances, the amount and type of landscaping, and the number of people living onsite. If a residence uses low-flow fixtures and has appliances installed, is using xeriscape landscaping, and is occupied by two people, the water use estimates will be on the low side of the ranges listed above.
Examples of Residential Water Usage:

Residential water use can vary dramatically from house to house depending on the number of occupants, the number and type of appliances and water fixtures, the amount and types of lawn and landscaping. Two homes sitting side by side on the same block can consume dramatically different quantities of water.

Example 1:
Home #1 is 2500 square feet. Outside the house there is an extensive bluegrass lawn, a lot of water loving landscaping, and a swimming pool with no pool cover. Inside the house all the appliances and fixtures, including toilets and shower-heads, are old and have not been upgraded or replaced by water saving types. The owners wash their cars weekly but they don't have nozzles or sprayers on the hose. They do not shut off the water while they are soaping up the vehicles, allowing the water to run across the ground instead. Water is commonly used as a broom to wash off the driveways, walkways, patio, and other areas. The estimated water usage for Home #1 is 1.2 acre-feet of water per year.

Example 2:
Home #2 is also 2500 square feet. Outside of the house there is a small lawn of drought tolerant turf, extensive usage of xeriscape landscaping, and no swimming pool. Inside the house all of the appliances and fixtures, including toilets and showerheads, are of the low flow water saving types. The owners wash their cars weekly, but have nozzles or sprayers on the hose to shut off the water while they are soaping up the vehicles. Driveways, walkways, patios, and other areas are swept with brooms instead of washed down with water. Estimated water usage for Home #2 is 0.5 acre-feet of water per year.

The above are only examples of unique situations. The estimated water use for each project will vary depending on existing parcel conditions.

Guidelines For Estimating Non-Residential Water Usage:

Agricultural:	
Vineyards	
Irrigation only	0.2 to 0.5 acre-feet per acre per year
Heat Protection	0.25 acre feet per acre per year
Frost Protection	0.25 acre feet per acre per year
Irrigated Pasture	4.0 acre-feet per acre per year
Orchards	4.0 acre-feet per acre per year
Livestock (sheep or cows)	0.01 acre-feet per acre per year
Winery:	
Process Water	2.15 acre-feet per 100,000 gal. of wine
Domestic and Landscaping	0.50 acre-feet per 100,000 gal. of wine
Industrial:	
Food Processing	31.0 acre-feet per employee per year
Printing/Publishing	0.60 acre-feet per employee per year
Commercial:	
Office Space	0.01 acre-feet per employee per year
Warehouse	0.05 acre-feet per employee per year

Parcel Location Factors:

The water use screening criterion for each parcel is based on the location of the parcel. There are three different location classifications: Napa Valley Floor, Milliken-Sarco-Tulocay (MST) Groundwater Deficient Area, and All Other Areas. Napa Valley Floor areas include all locations that are within the Napa Valley excluding areas specified as groundwater deficient areas. Groundwater deficient areas are areas determined by the Department of Public Works as having a history of insufficient or declining groundwater

availability or quality. The only groundwater deficient area in Napa County is the MST Subarea. Areas of the County not within the Napa Valley Floor and MST Groundwater Deficient Area are classified as All Other Areas. Public Works can assist applicants in determining the appropriate classification for project parcel(s).

Project Parcel Location	**Water Use Criteria**
Napa Valley Floor	1.0 acre feet per acre per year
MST Groundwater Deficient Area	0.3 acre feet per acre per year or no net increase, whichever is less*
All Other Areas	0.5 acre feet per acre per year
* Does not apply to the Ministerial Exemption as outlined in the Groundwater Conservation Ordinance	

The criterion for the Napa Valley Floor Area was determined in 1991 in the form of a Staff Report to the Board of Supervisors.

The criterion of 0.3 acre feet per acre per year for the MST Groundwater Deficient Area was determined using data from the 1977 USGS report on the Hydrology of the MST Subarea (Johnson, 1977). The value is calculated by dividing the "safe annual yield" ,as determined by the USGS (Johnson, 1977), by the total acreage of the affected area (10,000 acres). The addition of the "no net increase" standard reflects the County's obligation to assess potential cumulative impacts under CEQA. In a groundwater deficient area, any discretionary project that increases groundwater use may contribute to the declining groundwater levels in the aquifer.

The criterion for the All Other Areas was established due to the uncertainty of the geology, and the increasingly fractured aquifer in the mountainous and non-Napa Valley areas, including Carneros, Pope Valley, Wooden Valley, and Capell Valley.

All three criteria of the above were reviewed and validated by the County's groundwater consultants in 2011-2013 as reasonable indicators of the levels below which significant environmental impacts would not occur. Their validation was based on a review of monitoring data and an updated hydrogeologic conceptualization of the Napa Valley system (LSCE and MBK, 2013) and is consistent with the County's experience since establishment of the water use criteria in 1991. In addition, these criteria have been successfully applied as part of the WAA procedure since their establishment.

APPENDIX C: Guidance for MST Subarea Permit Applications

Historical data collected from the monitoring of wells within the MST Subarea over many decades indicate that it may be in overdraft, leading to the conclusion that the existing water users within the basin are pumping more water from the ground than is being naturally replaced each winter season. The only way to end the overdraft trend is to cease additional water extraction from the area. However, as no other reasonable water resources currently exist in the MST, the County, to avoid a ban on all new construction, has permitted each property owner to develop their property with the uses involving ministerial approvals under Section 13.15.030(C) of the groundwater ordinance, which are limited to a "reasonable" level of water use that may reduce the rate at which the groundwater levels are being lowered.

Single Family Dwellings on Small Parcels In the MST Subarea: The average, single family dwelling will likely use between 0.5 and 0.75 acre-feet of groundwater per year. Using a criterion of 0.3 acre-ft/year/acre, the minimum parcel size able to support the above range is between 1.5 to 2.5 acres. Therefore, if an existing residence that uses 0.5 acre-feet per year of groundwater is located on a one-acre parcel, it already exceeds the acceptable level of water use for the property. Applications for the construction of a single family home in these instances can be approved ministerially if the owner agrees to the conditions outlined in the Groundwater Ordinance. If the conditions are not agreed upon, or if the project involves a secondary dwelling or other groundwater uses not consistent with a single family dwelling, then the project would be subject to the analysis outlined in the WAA report, and the County cannot approve the groundwater permit unless the proposed use is off-set by reductions elsewhere, such that the "no net increase" screening criterion is met.

Agricultural Development In the MST Subarea: Agriculture in the MST Subarea is not exempt from the groundwater permit process. In these cases, such development will require an application for a groundwater permit and a WAA detailing the existing and proposed water use(s) on the project parcel(s). All new agricultural development in the MST will be required to meter all wells supplying water to the property with periodic reports to the Department, and the County cannot approve the groundwater permit unless the proposed use is off-set by reductions elsewhere, such that the "no net increase" screening criterion is met.

Existing Vineyard, New Primary or Secondary Residence In the MST Subarea: On an application related to a new residence on a parcel with an existing vineyard or residence, the WAA shall include all water use on the property, both existing and proposed. Projects on parcels with an established vineyard will be required to meter all wells supplying water to the property with periodic reports to the Department.

Wineries and Other Use Permits In the MST Subarea: On an application for a use permit, the applicant is required to provide a WAA. Should the application be approved, a specific condition of approval will be required to meter all wells supplying groundwater to the property with periodic reports to the Department. It is also possible that water

conservation measures will be a condition of approval. All new use permits must meet the criterion for water use for the project parcel and the County cannot approve the groundwater permit unless the proposed use is off-set by reductions elsewhere, such that the “no net increase” screening criterion is met.

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APPENDIX D: Water Meters (in Groundwater Deficient Areas Only)

If required, water meters shall measure all groundwater used on the parcel. Additional meters may also be required for monitoring the water use of individual facilities or operations, such as a winery, residence, or vineyard located on the same parcel. If a meter(s) is installed, the applicant shall read the meter(s) and provide the readings to the County Engineer at a frequency determined by the County Engineer. The applicant shall also convey to the County Engineer, or his designated representative, the right to access and verify the operation and reading of the meter(s) at any time.

If the meters indicate that the water consumption of a parcel in the MST Subarea exceeds the fair share amount, the applicant will be required to submit a plan which will be approved by the Director of Public Works to reduce water usage. The applicant may be required to find additional sources of water to reduce their groundwater usage. Additional sources may include using water provided by the City of Napa, the installation of water tanks which are filled by water trucks, or other means which will ensure that the groundwater usage will not exceed the fair share amounts.

The readings from water meters may also be used to assist the County in determining trends in groundwater usage, adjusting baseline water use estimates, and estimating overall groundwater usage in the MST Subarea.

Appendix E: Determining water use numbers with multiple parcels

The Water Availability Analysis is based on the premise that each landowner has equal right to the groundwater resource below his or her property. There will be cases where one person or entity owns multiple parcels and requests that the total water allotment below all of his or her parcels be considered in the water availability analysis. Determining the total water demand based on multiple parcels is acceptable; however, to protect future property owners, certain safeguards must be in place to ensure that the water allotment and transfer between parcels is clearly documented and recorded, especially in cases where the water from more than one parcel will ultimately serve a use on a single parcel.

When multiple parcels are involved, the parcels for which the total water usage is being based on must be clearly identified on a site plan with assessors parcel numbers noted. The transfer of water from these parcels to the parcel on which the requested use is located must be documented using the form provided by the department of public works. The form must be approved by the County and subsequently recorded by the applicant prior to commencement of any activity authorized by the groundwater permit or other county permit or approval. A condition requiring such will be placed on the use permit, groundwater permit or other permit for approval.

Alternatively, if the method above is not feasible, the applicant may provide an additional analysis for each project parcel, with the understanding that the water use on each individual parcel must not exceed the fair share for that parcel (and or the existing use if the parcel is in the MST Groundwater Deficient Area).

Appendix F: Water Availability Analysis Second Tier Screening Criteria and Additional Analysis

Comment [LSCE8]: To GRAC:

This Appendix is entirely new to the Draft WAA. It has been added to provide County staff and project applicants with a source for standard procedures to use when conducting the additional analysis that is required if any of the screening criteria are not met.

Additional analysis, as part of the Water Availability Analysis (WAA), is required when a proposed project would exceed one or more of the first tier screening criteria and the applicant is unable to propose an alternative project (i.e., different location, well construction, water usage, or operations) that meets the first tier screening criteria. Additional analysis will also be required if insufficient information exists in the project application to judge conformance with the criteria. County staff will conduct, or require the applicant to conduct, additional analysis of the proposed project according to any screening criteria that are not met. Any additional analysis will be reviewed by County staff and compared to second tier screening criteria, as applicable.

Water Use Evaluation

When the proposed project's estimated water demand does not meet the applicable water use criterion, the applicant will be encouraged to first revise the project and/or refine the water use estimate based on project details not adequately reflected in the water use screening criterion. County staff will then review the revised estimate and determine if the acceptable water use criterion has been met.

Well Interference Evaluation

When a project well is within 500 feet of a neighboring non-project well or wells additional analysis of well interference will be required (see **Figure F-1**). The analysis will first determine whether the project and non-project wells are, or are proposed to be, screened in the same aquifer unit and, if so, whether any drawdown induced in the non-project well(s) would constitute a significant adverse effect. **Table F-1** provides standard second tier well interference criteria for induced drawdown in a non-project well that will be used in the absence of site-specific information regarding the susceptibility of existing non-project wells to drawdown induced by project well(s).

The additional analysis will consider site-specific information including:

- the distance between the project well(s) and any existing non-project wells within 500 feet;
- depth, screen intervals, and pump design flow rate for project well(s);
- depth, screen intervals, and pumping capacity/well type for the existing non-project well(s);
- site hydrogeology (including aquifer units accessed by the project well and existing non-project well(s) and aquifer hydraulic properties (see **Tables F-2 and F-3**).

Data collected for the analysis will initially come from the WAA application, including information about existing non-project wells and site hydrogeology provided by County staff. These data will be used to calculate drawdown at any existing non-project wells, completed in the same aquifer unit, resulting from planned operation of the project well(s). Drawdown will be calculated using industry standard methods appropriate to the

aquifer unit under consideration; such methods include the Theis Equation applicable for confined or unconfined aquifers.[7] If the initial calculated drawdown exceeds the second tier well interference criteria, the applicant shall be required to submit a site-specific analysis prepared by a qualified hydrologist demonstrating that the proposed project will not have an adverse effect (direct, indirect, or cumulative), on groundwater resources. This site-specific analysis may include an aquifer test or an alternative study at the proposed well site to refine aquifer properties used in drawdown calculations. The site-specific analysis may also demonstrate less than significant impacts by proposing modifications to the location, construction, or operation of project well(s).

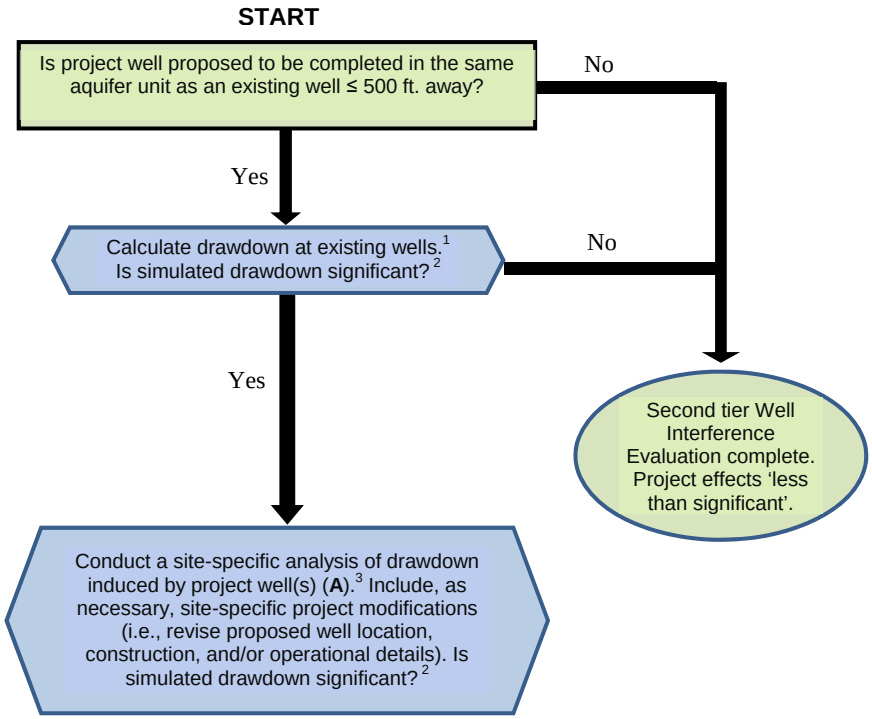
Table F-1 presents a standard measure by which the groundwater drawdown calculated during the well interference evaluation may be considered in the determination of significant adverse effects. The minimum significant drawdown values presented in **Table F-1** are intended for use in cases where information about existing non-project wells is limited. However, when the status and configuration of an existing non-project well are known, for example the depths of screen intervals, locations of any annular seals, and/or water levels in the well and the pump depth setting, then site-specific measures of significance should be used. Site-specific measures of significance should also account for known seasonal variations in groundwater elevations in the vicinity of the proposed project. County staff shall inform the applicant of the site-specific second tier well interference criteria that will be applied in the evaluation of a project before the applicant conducts a site-specific analysis.

Table F-1. Second Tier Well Interference Criteria

Type of wells within 500 ft. screened within the same aquifer as project well	**Estimated Drawdown at Neighboring Non-Project Wells**
Wells with a casing diameter of six inches or less	5 feet
Wells with a casing diameter greater than six inches	10 feet

[7] Drawdown is to be calculated using industry standard method(s) appropriate to the aquifer under consideration, such methods include the Theis Equation applicable for confined or unconfined aquifers (Theis, 1935).

FIGURE F-1. WAA Additional Analysis Decision Tree (as shown, for well interference evaluation), where designated A = applicant responsibility, C = County staff responsibility



[1] Drawdown to be calculated using industry standard method(s) appropriate to the aquifer under consideration, such methods include the Theis Equation applicable for confined or unconfined aquifers (**A** or **C**).

[2] See **Table F-1** or similar, superceding criteria provided by County staff (**C**).

[3] This site-specific analysis may include an aquifer test or an alternative study at the proposed well site to refine aquifer properties used in drawdown calculations and must include details of the project well(s) construction and operation relative to the site hydrogeology and any known information concerning the construction of any existing non-project wells under consideration (**A**).

Groundwater/Surface Water Interaction Evaluation

When a project well is not located and constructed, or not proposed to be located and constructed, in accordance with the distance and construction criteria presented in **Tables 2, 3, and 4**, as applicable, additional analysis of groundwater and surface water interaction will be required (see **Figure F-2**). The analysis will first determine whether the project well(s) are, or are proposed to be, screened in an aquifer unit hydraulically connected to the surface water(s) within the applicable distance specified by the first tier criteria. If a hydraulic connection does exist, even one of limited temporal extent, then an analysis of the streamflow or surface water depletion induced by the project well(s) will be conducted. The streamflow depletion induced by the project well(s) will be compared to second tier groundwater/surface water interaction criteria to determine if they constitute a significant adverse effect. The second tier groundwater/surface water interaction criteria will include streamflow depletion criteria established as appropriate for the surface water(s) under consideration. Depending on the temporal extent of hydraulic connection and the special status species and/or surface water rights under consideration, more or less restrictive streamflow depletion criteria may be required, up to and including no measurable streamflow depletion.

The additional analysis will consider site-specific information including:

- the distance between proposed well and naturally-present surface water bodies within 1500 feet;
- depth, screened intervals, seal depths, and pumping capacity of applicant's well(s);
- site hydrogeology (including aquifer zones accessed by proposed well and existing wells and aquifer hydraulic properties (see **Tables F-2 and F-3**)); and
- streambed (or equivalent feature) hydraulic properties.

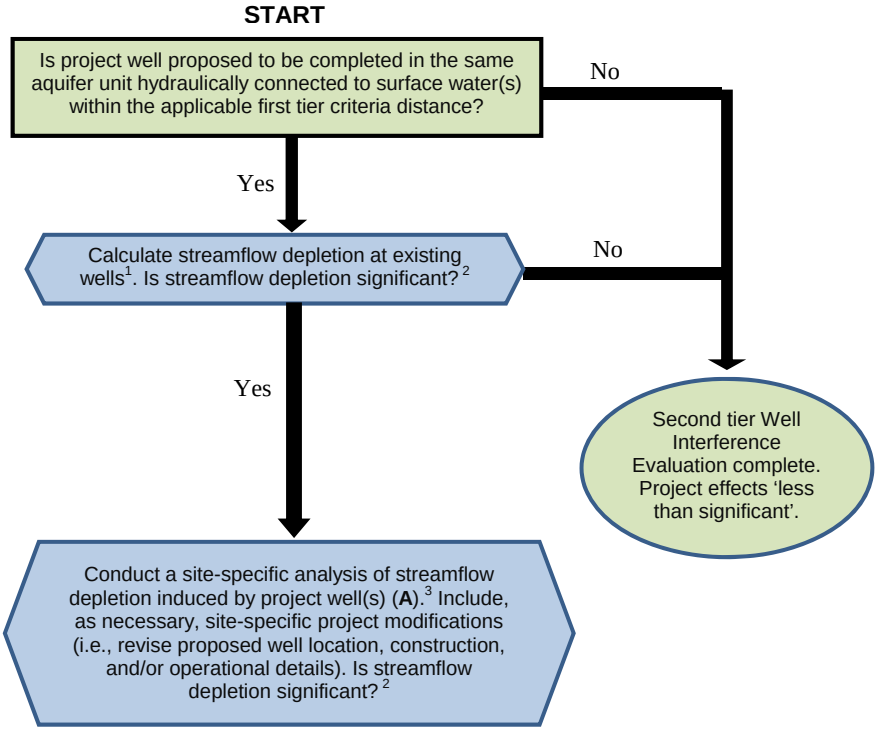
Data collected for the analysis will initially come from the WAA application, including information about existing non-project wells and site hydrogeology provided by County staff. The evaluation will include calculation of streamflow depletion due to planned operation of the project well(s). Streamflow depletion will be calculated using industry standard methods appropriate to the aquifer under consideration; such methods include the Hantush Equation applicable for aquifers hydraulically connected with surface waters.[8] If the initial calculated streamflow depletion exceeds the second tier groundwater/surface water interaction criteria, the applicant shall be required to submit a site-specific analysis prepared by a qualified hydrologist demonstrating that the proposed project will not have an adverse effect (direct, indirect, or cumulative), on surface water resources. This site-specific analysis may include an aquifer test or an alternative study at the proposed well site to refine aquifer properties used in streamflow depletion calculations. The site-specific analysis may also demonstrate less than significant impacts by proposing modifications to the location, construction, or operation of project well(s).

[8] Streamflow depletion is to be calculated using industry standard method(s) appropriate to the aquifer and surface water source under consideration, such methods include the Hantush Equation applicable for unconfined aquifers with a direct hydraulic connection to a surface water body (Hantush, 1965).

Modifications to the proposed project will be considered acceptable in satisfying the second tier criteria where project well(s) can be shown to have a sufficient geologic or hydraulic separation from the surface water(s) that would prevent the well from causing streamflow depletion at least as much as would be expected at the minimum distance specified by the first tier criteria. The California Department of Water Resources (DWR) and U.S. Bureau of Reclamation (USBR) allow for similar exemptions when considering the potential effect on surface water flows of groundwater pumping proposed for water transfers involving groundwater substitution pumping in the Sacramento Valley. Some example circumstances for exception to the stated criteria (based on DWR and USBR, 2013) include:

- Sufficient information, including site-specific geologic or hydrologic data, is provided to demonstrate that the well does not have significant hydraulic connection to the surface water system;
- The well's uppermost perforations are planned to be deeper than recommended and there is demonstration of low permeability deposits overlying the zone from which extraction is proposed to occur (i.e., a confining unit at least 20 feet thick exists above the depth of the uppermost perforation). In this case a somewhat lesser distance from the surface channel may be considered, pending the well type and planned well operations;
- If the well's uppermost perforations are planned to be shallower than recommended and there is demonstration of low permeability deposits overlying the zone from which extraction is proposed to occur (i.e., a confining unit at least 40 feet thick exists above the depth of the uppermost perforation). In this case a somewhat lesser distance from the surface channel may be considered, pending the well type and planned well operations;
- If the project well is a moderate to high pumping capacity well and the criteria call for the uppermost perforations to be located no shallower than 150 feet deep, the perforations may be shallower (e.g., 100 feet deep), if there is a total of at least 50 percent fine-grained materials in the interval above 100 feet below ground surface (bgs), and at least one fine-grained layer that exceeds 40 feet in thickness in the interval above 100 feet bgs.

FIGURE F-2. WAA Additional Analysis Decision Tree (as shown, for groundwater/surface water evaluation), where designated A = applicant responsibility, C = County staff responsibility



[1] Streamflow depletion to be calculated using industry standard method(s) appropriate to the aquifer under consideration, such methods include the Hantush Equation applicable for aquifers hydraulically connected with surface waters (**A** or **C**).

[2] Streamflow depletion criteria will be determined according to site-specific conditions (**C**).

[3] The site-specific analysis may include an aquifer test or an alternative study at the proposed well site to refine aquifer properties used in drawdown calculations and must include details of the project well(s) construction and operation relative to the site hydrogeology and any known information concerning the construction of any surface water(s) under consideration (**A**).

Data Needs for Additional Analysis

Hydrogeologic information at or in the vicinity of the subject parcel may be available from previous activities, or may be reasonably estimated from prior work conducted by the County. Previous activities may include aquifer tests, well completion reports with lithologic logs, water level, and well yield data, water level data collected as part of groundwater monitoring activities. County staff will determine whether and how to best include such data in the WAA evaluation process. If no geologic information exists in the vicinity of the subject parcel, additional analysis may be required of the applicant (see **Additional Analysis Required**).

The hydrogeologic information needed for WAA evaluation may include the aquifer storage coefficient, hydraulic conductivity, transmissivity, and aquifer thickness. The aquifer storage coefficient is defined as the volume of water that can be drained from a unit area of aquifer materials per unit decline in head. In unconfined aquifers the coefficient is often represented by the specific yield of the aquifer materials.[9] **Table F-2** presents a range of values for specific yield for a variety of potential aquifer materials. In a confined aquifer the storage coefficient is defined as specific storage multiplied by aquifer thickness, where specific storage is the volume of water produced by a unit volume of aquifer material per unit decline in head. **Table F-3** presents a range of possible specific storage values for potential aquifer materials. Storage coefficients for confined aquifers typically range from $5x10^{-5}$ to $5x10^{-3}$ (Todd, 1980). Storage for unconfined aquifers typically range from 0.1 to 0.3 (Lohman, 1972).

Table F-2. Representative Specific Yield[1] Ranges for Selected Earth Materials (Walton, 1970)

Sediment	Specific Yield
Clay	0.01 – 0.10
Sand	0.10 – 0.30
Gravel	0.15 – 0.30
Sand and Gravel	0.15 – 0.25
Sandstone	0.05 – 0.15
Shale	0.005 – 0.05
Limestone	0.005 – 0.05

[1]Specific yield can be considered equivalent to the storage coefficient for unconfined aquifers where aquifer compressibility is negligible.

[9] An unconfined aquifer is defined by a water table that occurs where pore space pressures coincide with atmospheric pressure and where water released from aquifer storage occurs in large part due to the draining of saturated pore spaces in the aquifer material.

Table F-3. Representative Specific Storage[1] Ranges for Selected Materials (Batu, 1998)	
Material	**Specific Storage (ft^{-1})**
Loose Sand	$1.5x10^{-4}$ to $3.1x10^{-4}$
Dense Sand	$3.9x10^{-5}$ to $6.2x10^{-5}$
Dense Sandy Gravel	$1.5x10^{-5}$ to $3.1x10^{-5}$
Rock, fissured	$1x10^{-6}$ to $2.1x10^{-5}$
[1]The storage coefficient is defined as specific storage multiplied by aquifer thickness for confined aquifers.	

Transmissivity is another frequently used aquifer parameter. Transmissivity is defined as the capacity of the aquifer to transmit water across its entire thickness, calculated as the product of the aquifer hydraulic conductivity and the aquifer thickness. Hydraulic conductivity ranges for the alluvial aquifer system have been mapped in Napa Valley by the US Geological Survey (USGS) (Faye, 1973), with more recent interpretations provided here based on a review of well driller's logs and other geologic data available through 2011 (LSCE and MBK, 2013). These ranges for hydraulic conductivity are depicted in **Figure F-3** and described in **Table F-4**, as interpreted by the County's groundwater consultants. Recent hydrogeologic investigations performed for the County have also produced maps and cross sections of subsurface geologic conditions which may be consulted for the determination of aquifer thickness in the vicinity of a proposed project (LSCE and MBK, 2013).

Table F-4. Representative Hydraulic Conductivity values for WAA analysis

Hydraulic Conductivity, K, class	**Hydraulic Conductivity range[1], ft./day**	**Hydraulic Conductivity value, ft./day** (used for scenario results)
high	80 - 140	80
moderate	50 - 80	50
low	30 - 50	30
very low	0.5 - 30	0.5, 10[2]

[1] Hydraulic conductivity range have been developed from mapped values from Faye (1973) and interpretations based on a review of well driller's logs and other geologic data available through 2011 (LSCE and.MBK, 2013).
[2] A hydraulic conductivity value of 0.5 ft./day was applied for calculations of groundwater and surface water interaction. A hydraulic conductivity value of 10 ft./day was applied for calculations of well interference.

County staff will review well construction permits and records for wells within 500 feet of the proposed project. Information about existing wells within 500 feet of the proposed

project site will include the following as available: the location of those wells relative to the project well's, total depth, depth of screened intervals, annular seal depths, the geologic or lithologic record made as part of well construction, the elevation of the static water level in the well post-construction, the elevation of water levels while pumping, and the pump depth setting.

Tables F-5 to F-8 present, for comparison purposes, the results of scenarios intended to represent the groundwater drawdown experienced in the vicinity of a proposed project after a 24-hour continuous pumping period. The results in **Tables F-5 and F-6** indicate that drawdown in a confined aquifer would be greater than drawdown in an unconfined aquifer for a given pumping rate. These results also indicate that wells pumping at rates less than 30 gallons per minute (gpm) for periods of time less than 24-consecutive hours will likely have negligible drawdown effects at distances beyond 50 feet for in a confined aquifer.

These scenarios are presented for comparison purposes. Actual drawdown due to well interference will have to be calculated using well construction information and values from Tables F-2, F-3, and F-4 that are applicable to site-specific conditions.

Table F-5: Simulated effect of a project well on water levels at an existing non-project well after one day of pumping at the stated flow rate in a confined aquifer

30 gpm Scenarios, calculated drawdown (ft)					
time = 1 day	aquifer thickness = 75 ft.	distance between project well and existing non-project well (ft)			
Specific Storage	Hydraulic Conductivity (ft./day)	**25**	**50**	**100**	**500**
0.0005	10	5.3	4.4	3.6	1.6
0.001	10	4.8	4.0	3.1	1.2

Table F-6: Simulated effect of a project well on water levels at an existing non-project well after one day of pumping at the stated flow rate in a confined aquifer

100 gpm Scenarios, calculated drawdown (ft)					
time = 1 day	aquifer thickness = 100 ft.	distance between project well and existing non-project well (ft)			
Specific Storage	Hydraulic Conductivity (ft./day)	**25**	**50**	**100**	**500**
0.0005	10	13.6	11.5	9.4	4.5
0.001	10	12.5	10.4	8.3	3.5

Table F-7: Simulated effect of a project well on water levels at an existing non-project well after one day of pumping at the stated flow rate in an unconfined aquifer

30 gpm Scenarios, calculated drawdown (ft)					
time = 1 day	aquifer thickness = 75 ft	distance between project well and existing non-project well (ft)			
Specific Storage	Hydraulic Conductivity (ft./day)	**25**	**50**	**100**	**125**
0.1	80	0.4	0.3	0.2	n/a
0.1	50	0.6	0.4	n/a	n/a
0.1	30	0.9	0.6	n/a	n/a
0.1	10	2.0	n/a	n/a	n/a

"n/a" denotes cases where Theis equation results are not available due to mathematical constraints on valid parameter values.

Table F-8: Simulated effect of a project well on water levels at an existing non-project well after one day of pumping at the stated flow rate in an unconfined aquifer

100 gpm Scenarios, calculated drawdown (ft)					
time = 1 day	aquifer thickness = 100 ft	distance between project well and existing non-project well (ft)			
Specific Storage	Hydraulic Conductivity (ft./day)	**25**	**50**	**100**	**125**
0.1	80	1.1	0.8	0.6	0.5
0.1	50	1.6	1.2	n/a	n/a
0.1	30	2.4	1.7	n/a	n/a
0.1	10	5.5	n/a	n/a	n/a

"n/a" denotes cases where Theis equation results are not available due to mathematical constraints on valid parameter values.

Example Applications of Additional Analysis Methods

Example 1*: Addition of a commercial tasting room facility with 10 acres of new vineyard and landscaping to an existing winery in a non-groundwater deficient area. The project involves construction of a new well proposed to be 30 feet from an existing non-project well.*

Is well proposed to be completed in the same aquifer as an existing well ≤ 500 ft. away?

Yes, County well construction records indicate that the existing non-project well was constructed to a total depth of 120 feet in an unconfined aquifer, with a total screened interval of 60 feet throughout the older alluvium that is also mapped in the vicinity of the proposed well.

Calculate drawdown at all existing wells within 500 ft. of the proposed well. Is the calculated drawdown significant?

Yes, 6.9 feet of drawdown is calculated at the existing non-project well, based on available information about the existing well and the hydrogeology of the site (see **Table F-9**).

Table F-9. Example 1: Drawdown calculated at an existing non-project well as a result of pumping a proposed well at 150 gallons per minute, where hydraulic conductivity = 30 ft./day, storage coefficient = 0.02, and aquifer thickness = 60 feet.

	Distance between Proposed Well and Existing Well (ft.)	**Calculated Drawdown in Existing Well (ft.)[1]**
Initial Projoect Well Location	30	6.9
Alternate Project Well Location A	50	5.6
Alternate Project Well Location B	70	4.8

[1] Drawdown at an existing non-project well as a result of pumping the project well calculated using the Theis Equation.

Conduct a site-specific analysis of drawdown induced by project well(s). Include, as necessary, site-specific project modifications (i.e., revise proposed well location, construction, and/or operational details). Is simulated drawdown significant (see Table F-1)?

No, after reviewing the site's existing and proposed infrastructure the project applicant modified the proposed well location to a location 70 feet away from the existing non-project well. Calculated drawdown values at the existing wells using the same available information about the existing wells and site hydrogeology, and the new proposed well location show less than significant drawdown at the existing non-project well (i.e., 4.8 feet). The applicant's groundwater use permit was approved on the condition of adherence to the revised well location and County standards for well construction.

Example 2*: Modification of an existing 40-year old irrigation well on a 12-acre parcel. The parcel also includes a primary, single-family residence with an existing (or available) connection to a public water supply system. The applicant proposes installing a new 80 gallon per minute pump to supply irrigation water for 10 acres of replanted winegrapes on lands which had not been actively farmed for several years. The applicant proposes operating the pump for 3 days at a time during the irrigation season. One existing non-project well is located 50 feet from the applicant's project well on one adjacent parcel and another existing non-project well is located 120 feet from the applicant's project well on another adjacent parcel.*

Is well proposed to be completed in the same aquifer as an existing well ≤ 500 ft. away?

Yes, well construction records provided by the applicant (or available from the County) indicate that the applicant's existing well is constructed to a total depth of 140 feet, with a total screened interval of 60 feet, in the older, unconsolidated alluvium.

County well construction records indicate that the existing non-project 50 feet from the project well was constructed to a total depth of 115 feet, with a total screened interval of 50 feet throughout the older alluvium.

Calculate drawdown at all existing wells within 500 ft. of the proposed well. Is the calculated drawdown significant?

Yes, 5.8 feet of drawdown is calculated at the existing non-project well, based on available information about the existing well and the hydrogeology of the site (see **Table F-10**).

Table F-10. Example 2: Drawdown calculated at an existing non-project well as a result of pumping the applicant's existing project well, where hydraulic conductivity = 10 ft./day, storage coefficient = 0.1, and aquifer thickness = 60 feet.

	Applicant's well pumping rate (gpm)	**Applicant's well seasonal pumping duration (days)**	**Calculated Drawdown in Existing Well (ft.)[1]**
Initial Proposal	80	3	5.8
Alternate Proposal A	100	2.4	6.6
Alternate Proposal B	150	1.6	8.5

[1] Drawdown at an existing non-project well as a result of pumping the applicant's existing project well calculated using the Theis Equation.

Conduct a site-specific analysis of drawdown induced by project well(s). Include, as necessary, site-specific project modifications (i.e., revise proposed well location, construction, and/or operational details). Is simulated drawdown significant (see Table F-1)?

Since changing the location of the applicant's well relative to the existing non-project well is not possible in this case, other mitigation measures are considered, including modifying the proposed pumping rate and/or pumping duration. The applicant initially proposed to reduce the scheduled pumping duration to 2.4 days, while increasing the pumping rate to 100 gallons per minute, in order to meet the same irrigation demand. Recalculating the drawdown at the existing non-project well with the revised pumping rate and duration for the applicant's well showed that drawdown would increase to 6.6 feet. Additional recalculations of drawdown at the existing non-project well based on other variations of pumping rates and durations of the applicant's well were not able to reduce the result to a less than significant level.

In this example, the County contacted the owner of the existing non-project well to collect further information about the operation of that well. In so doing, the County and applicant learned that the pump in the existing non-project well could be lowered a distance equivalent to the calculated drawdown, in order to mitigate the anticipated effect of the applicant's groundwater use. The applicant's groundwater use permit was approved contingent on implementation of the modified pump depth setting for the existing non-project well.

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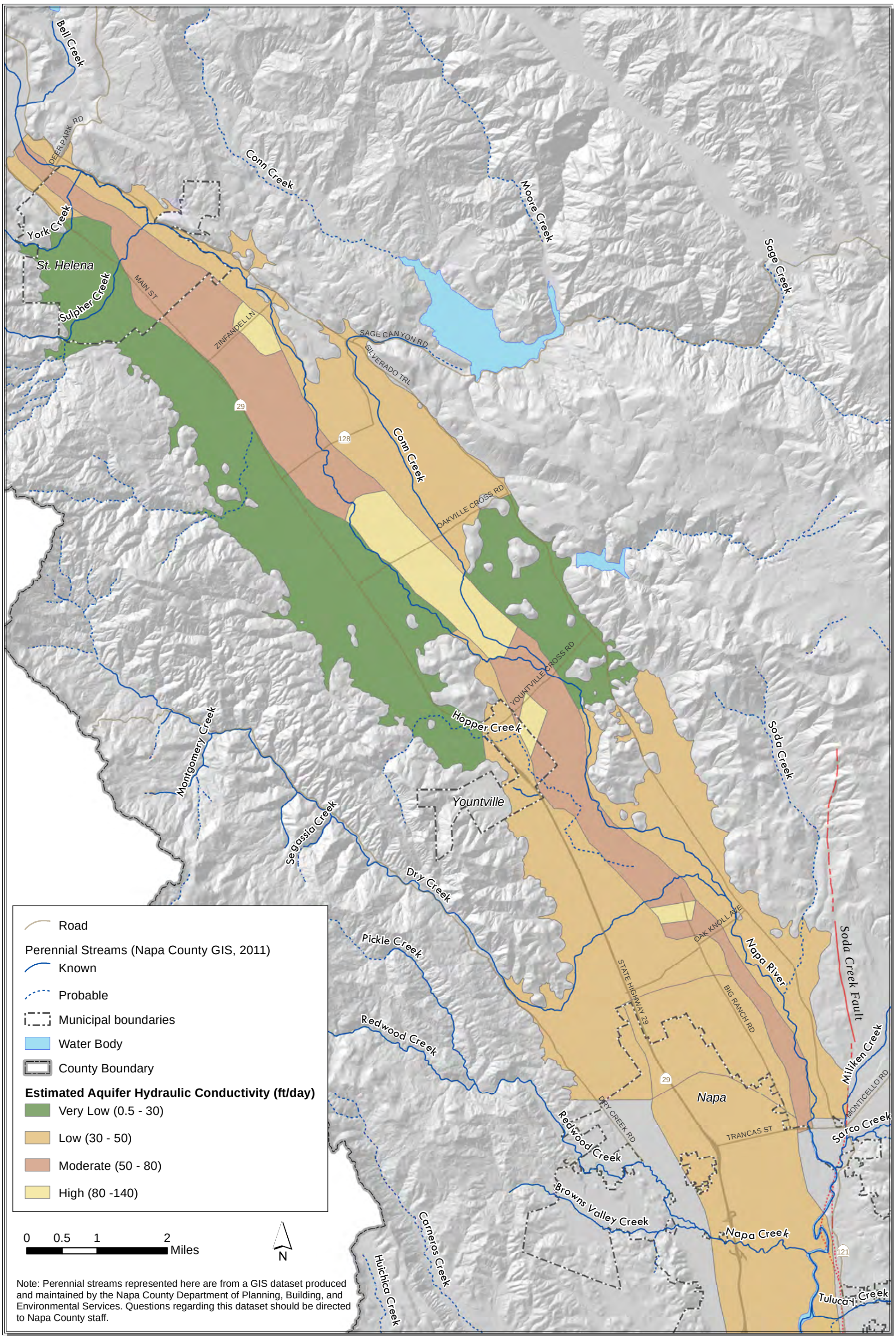

Note: Perennial streams represented here are from a GIS dataset produced and maintained by the Napa County Department of Planning, Building, and Environmental Services. Questions regarding this dataset should be directed to Napa County staff.

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LUHDORFF & SCALMANINI CONSULTING ENGINEERS

Figure F-3
Estimated Alluvial Aquifer Hydraulic Conductivity Ranges, Napa Valley Floor

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DRAFT MEETING SUMMARY

GROUNDWATER SUSTAINABILITY OBJECTIVES AD-HOC COMMITTEE
Napa County Groundwater Resources Advisory Committee (GRAC)
November 5, 2013
Prepared by the Center for Collaborative Policy, CSUS

Per direction at the GRAC's October 24, 2013 meeting, the Groundwater Sustainability Objectives Ad-Hoc Committee (AHC) met on November 5, 2013 to refine the sustainability objectives materials based upon the GRAC's feedback. The meeting goals included addressing key suggestions and concerns of the GRAC, refining the framework, and developing draft objectives to share with the GRAC at its next meeting on December 12, 2013.

Action Items

1. **Dorian Fougères** to revise the sustainability objectives framework handout per discussion.
2. **Dorian Fougères** to combine the draft sustainability objectives and major framework contextual statements.
3. **Dorian Fougères** to coordinate with **Marilee Talley** to refine objectives language, then circulate revised objectives to **AHC members** for review.
4. **AHC members** to provide feedback to **Patrick Lowe** and **Dorian Fougères** on revised sustainability objectives within approximately four days of circulation.
5. **Susanne von Rosenberg** to input the sustainability objectives' components into a table with columns for "Responsible Party" and "Long/Short Term" after **AHC** input.

Welcome & Opening Remarks

Patrick Lowe, Napa County, welcomed members and opened the session.

Staff Updates

- Facilitator Dorian Fougères reported that several GRAC members shared positive feedback on the sustainability objectives framework and the AHC's thorough consideration of the issues and appropriate design principles.
- Mr. Lowe mentioned County staff is reviewing past projects that could have been impacted by the proposed revisions to the Water Availability Analysis.

Review of Member Comments

The facilitator reviewed key GRAC suggestions and concerns on the sustainability objectives framework (e.g., sufficient evidence, appropriate language, level of detail, and focusing topics). Discussion followed:

- Future County groundwater documents should cite updated and current research and literature.
- Adequate evidence exists to develop the objectives framework and make certain recommendations (e.g., groundwater and surface water interconnectivity), but some issues require additional research (e.g., groundwater/surface water impacts).

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- Mr. Fougères noted that Ms. Vicki Kretsinger Grabert, Luhdorff and Scalmanini Consulting Engineers (LSCE) agreed to review drafted objectives before the December meeting.
- At the next GRAC meeting, Ms. Kretsinger Grabert should compare what science is fundamental to the analyses and what science would lead to only incremental improvements in the analyses.
- Several group participants supported an understood process for presenting evidence (e.g., peer-reviewed journals, gray literature, and anecdotal field experience).
- Confirming a prior discussion, "unacceptable" is the term intended in the document, not "unintended."
- While project opponents may potentially use the sustainability objectives to initiate the California Environmental Quality Act (CEQA) process, project opponents already use CEQA to challenge permit applications.
- Borrowing from the Association of California Water Agencies (ACWA), the term "fish habitat" will replace "environmental damages."
- Mr. Lowe reminded the group that one reason to conclude the GRAC's work by April 2014 is to present the final product to the Board of Supervisors at the time of their annual budget deliberations.
- The definition of sustainability is both a process and a goal.

ACTION ITEM: Dorian Fougères to revise the sustainability objectives framework handout per discussion.

Discussion for Draft Sustainability Objectives

A. Issues for Consideration

The group identified discussion parameters for the draft Sustainability Objectives:

- Include language from Resource Conservation District (RCD) and ACWA documents.
- Must be attainable by voluntary means or incentives.
- Level of specificity is largely proportionate to the level of scientific evidence and urgency (e.g., small regional objectives for the MST).
- Objectives may become either principle objectives or sub-objectives in the future.

B. Draft Sustainability Objectives

Based on discussion, AHC members agreed on five objectives to recommend to the GRAC on December 12. AHC members shared the following main points:

1. **Initiate and carry out outreach and education efforts**
   This objective promotes awareness and support, which are crucial for the other objectives to be attained by voluntary means.
   - Generate a common understanding among everyone who lives and works in the County of our shared interests and shared stewardship roles.

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    - Education is a large component for maintaining the current groundwater basin's stability.
- Education enables people with the tools to take action.
    - This includes sharing knowledge for optimal water use and conservation (e.g., through associations, County workshops, etc.)

2. **Make better use of existing water supplies and systems**
   This objective promotes enhancing the available water to maintain Napa County's well-being. The objective should be general due to the difficulty of predicting water needs in the future.
    - Support landowners in implementing best sustainable practices (BSPs), such as improving irrigation systems and water conservation.
    - Many BSPs do not exist at higher levels (e.g., County, City, and some industry levels).
    - BSPs are more appropriate for the individual's discretion and their use is especially influenced by peer education and outreach.
    - The objective should acknowledge existing programs to coordinate and support parallel efforts (e.g., Napa County Resource Conservation District (RCD) and Napa County Watershed Information Center and Conservancy (WICC)).
- Enhance the water supply system and infrastructure.
    - Includes, but is not limited to, system efficiencies, reservoir dredging, recycled water, groundwater storage and recharge, and conjunctive use.
    - Addresses evolving issues, such as saltwater intrusion, weather pattern changes, temperature changes.
- Consider and incorporate best available technologies.
- Promote improving use of existing resources rather than building new supplies.

3. **Continue long-term monitoring and evaluation**
   A monitoring objective ensures the process continues to improve and advances the other objectives. It supports data collection and storage, data sharing with appropriate confidentiality standards, and data synthesis.
- Needs to be substantive beyond monitoring implementation alone.
- Develops a scientific profile of the groundwater basin.
    - May include groundwater elevation, the groundwater/surface water connectivity, land subsidence, hydrogeophysical condition of the County, and County-level groundwater inflow/outflow estimation.

4. **Scientific understanding of groundwater recharge and groundwater/surface water interactions**
   This emphasizes that this complex issue is particularly important and has high uncertainty and therefore requires more research.
- Focuses on improving our understanding of groundwater/surface water interactions.

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- The Board of Supervisors is particularly interested in groundwater recharge.

5. **Improve preparedness to address groundwater issues that might emerge**
   The purpose of the objectives, such as long term monitoring, is to prevent adverse groundwater issues. However, since acute unforeseeable events are possible, as well as long-term trends that may become unfavorable, Napa County needs a process for addressing groundwater issues that might emerge.
   - Long-term trends and evolving issues include adverse groundwater trends (e.g., level and quality), changes in precipitation and temperature patterns, and saltwater intrusion.
   - Acute crises include water supply disruptions and drought conditions.
   - The process can be developed at different governance levels (County, municipal, industry, etc.).
   - This objective should be general due to the difficulty of predicting future water needs. It could also be a sub-objective since it relies on monitoring data.
   - The response process needs indicators to detect and evaluate emerging crises and a method for re-prioritizing and addressing new issues.
   - This objective should acknowledge existing policies and programs (e.g., drought ordinances).

C. Possible Integration with County Stewardship Plans

Based on discussion, AHC members agreed that if a County or sub-regional groundwater stewardship and sustainability plan is developed in the future, the GRAC's sustainability objectives should be the foundational objectives. The following key points were shared:

- Indicators, such as the California Water Code (AB 3030) and ACWA's groundwater framework document, suggest California will use funding incentives for county and local agencies to develop their own groundwater management plans.
- ACWA recommended that management plans should be required to receive State funding, but it accepts functional equivalents to a management plan.
- AB 3030 said action is voluntary and not mandatory and that many AB 3030 compliant plans are relatively simple. Mr. Lowe mentioned it is easier to obtain state funding if a county adopts a plan.
- The AB 3030 procedure for plan adoption is complex, but Napa County has many of the AB 3030 technical requirements, and the GRAC groundwater sustainability objectives could be the framework.
- The State may be less concerned about Napa County if the sustainability objectives demonstrate that Napa County is diligently and comprehensively addressing groundwater issues.
- While the AHC is not advocating a stewardship plan, the sustainability objectives should support and not hinder future decisions about groundwater sustainability.
- The major goal for the GRAC sustainability objectives is to provide the community support and scientific basis that is the foundation for any plan to succeed.

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D. Preparation for the December GRAC meeting

Members discussed the next steps for the draft sustainability objectives based on GRAC comments and AHC discussion.

- Since future support will come primarily from existing organizations (e.g., RCD and WICC), members can help identify which institutions should implement the groundwater sustainability objectives.
    - Identifying existing institutions emphasizes that we are all involved and establishes next steps without creating new bureaucracy.
- Mr. Lowe suggested using the General Plan template, which presents goals, policy and objectives, and implementation actions in tabular form.
- Members were asked to review the objectives' language and feasibility and elaborate on strategies where needed.

ACTION ITEM: Dorian Fougères to combine the draft sustainability objectives and major framework contextual statements.
ACTION ITEM: Dorian Fougères to coordinate with **Marilee Talley** to refine objectives language, then circulate revised objectives to **AHC members** for review.
ACTION ITEM: AHC members to provide feedback to **Patrick Lowe** and **Dorian Fougères** on revised sustainability objectives within approximately four days of circulation.
ACTION ITEM: Susanne von Rosenberg to input the sustainability objectives' components into a table with columns for "Responsible Party" and "Long/Short Term" after **AHC** input.

Attendees

Ad-Hoc Committee Members

1. Donald Gleason
2. David Graves
3. Marilee Talley
4. Susanne von Rosenberg
5. Jim Verhey

County Staff, Facilitators

6. Dorian Fougères, CCP
7. Stephanie Horii, CCP
8. Patrick Lowe, Napa County

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PROPOSED SUSTAINABILITY OBJECTIVES

GRAC - AD HOC COMMITTEE
4-December-2013

General Objective	Specific Objective	Basis/Strategy	Metric	Timeframe	Who Will Implement?	Cost Range
I. Conduct Outreach and Education	a. Develop and widely distribute public outreach programs and materials	Make everyone who lives and works in the County aware that the protection of our water supplies is a shared responsibility, and everyone needs to participate	No. of individuals and organizations reached	Short-term – develop and distribute materials, On-going long-term – continue outreach effort, update information as needed	County and cities through professional/ educational and community organizations*	Low
	b. Educate people about opportunities for taking action	Provide a direct pathway to taking action	No. of individuals taking action to reduce water use	Short-term, On-going long-term	County and cities through professional/ educational and community organizations*	Low to moderate (if funding is made available to implement some measures)
II. Optimize Existing Water Supplies	a. Support landowners in implementing best sustainable practices	Solicit information on, and widely share best practices with regard to water use in vineyards, wineries, and other agricultural/commercial applications	No. of individuals and organizations reached	Short-term - solicit best practices information and rank for effectiveness, start outreach effort to share information; On-going long-term – Continue to solicit information and share with appropriate audiences	County through professional/ educational organizations*	Low to moderate (if funding is made available to implement some measures)

* Professional/educational and community organizations : RCD, NVG, NFB, NVV, UC Davis, UC Berkeley, Chamber of Commerce……..others?

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General Objective	Specific Objective	Basis/Strategy	Metric	Timeframe	Who Will Implement?	Cost Range
	b. Enhance the water supply system and infrastructure to improve water supply reliability	May include, but is not limited to system efficiencies, reservoir dredging, recycled water, groundwater storage and recharge, conjunctive use	Potential water savings generated by various actions	Short-term – evaluate and rank opportunities Long-term – seek funding and implement high-value projects	County and cities	Moderate to high
III. Continue Long-Term Monitoring and Evaluation	a. Collect groundwater and surface water data and maintain a usable database that can provide information about the status of the county's groundwater and surface water resources and help forecast future supplies	On-going monitoring is crucial to understand trends	No. of high quality wells monitored; no. of surface water monitoring locations; all data entered into database	On-going: refine monitoring program over time	County with support of private & public landowners, and professional organizations WICC**	Low to Moderate, depending on number of wells monitored
	b. Evaluate data using best analytical methods to better understand characteristics of the county's groundwater and water resources systems, including but not limited to a county-level groundwater inflow/outflow estimation		Reassess groundwater trends at least every 3 years, including inflow/outflow estimation when sufficient data are available	On-going: Every 3 years minimum Annual update: WICC	County & outside consultants (LSCE, others) WICC	Low to moderate, depending on extent of evaluation
	c. Share data and results of related analytical efforts while following appropriate confidentiality standards	Having good information allows organizations and individuals to make better decisions	Appropriate use of existing data becomes routine within the County	Short-term; On-going long-term On-going updates through WICC	County & outside consultants (LSCE, others) WICC	Low

** WICC: Watershed Information Center & Conservancy of Napa County

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General Objective	Specific Objective	Basis/Strategy	Metric	Timeframe	Who Will Implement?	Cost Range
IV. Improve our scientific understanding of groundwater recharge and groundwater-surface water interactions		Potential connectivity between groundwater and surface water in various locations in the County is not well understood	Extent of groundwater-surface interaction in key areas of the County is understood	Short-term – clarify data needs; intermediate to long-term – collect and evaluate data	County and outside consultants (LSCE, others)	Moderate
V. Improve preparedness to address groundwater issues that might emerge	a Improve preparedness for responding to long-term trends and evolving issues	Increase ability to address adverse groundwater trends (including level and quality), changes in precipitation and temperature patterns, and saltwater intrusion		Long-term	County and cities with outside consultants (LSCE, others)	Low; primarily a planning effort
	b Improve preparedness for responding to acute crises, such as water supply disruptions and multiyear drought conditions			Long-term	County and cities with outside consultants (LSCE, others)	Low; primarily a planning effort

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