APPENDIX H—EVALUATION OF REGION-WIDE MUN EVALUATION PROCESS PROJECT ALTERNATIVES AND OPTIONS

Project alternatives are evaluated based on their ability to meet the following selection criteria:

1. Maintain consistency with federal and state water quality laws and policies as applicable (e.g. Sources of Drinking Water Policy, Federal Antidegradation Policy, State Antidegradation Policy~~Anti-degradation Policy~~)

2. Provide the appropriate protection of MUN in Ag dominated surface water bodies with consideration given to the current and potential future use of drinking water.

3. ~~Ensure~~ Assure compliance with all relevant water quality objectives downstream.

4. Allow constructed Ag dominated water bodies to be utilized for their intended design and purpose

5. Provide a solution for dischargers faced with implementing treatment measures to meet MUN use-based water quality criteria/objectives when no such use exists in their Ag dominated surface water bodies.

6. Make efficient (reasonable) use of Central Valley Water Board and stakeholder resources to develop and implement water quality standards.

(Note - Project options are also evaluated using the same criteria as above, if applicable)

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Table H - 1 Project Alternatives

Project Alternatives	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1 (Laws)	2 (Potential Use)	3 (Downstream Protection)	4 (Intended Use)	5 (Relief for dischargers)	6 (Reasonable use of resources)	
1. No Action	This alternative does not amend the Basin Plan to include a framework for the Sacramento River, San Joaquin River and Tulare Lake Basins to evaluate the MUN beneficial use in agriculturally dominated surface water bodies; rather it continues to maintain the current MUN beneficial use designation in all water bodies that are not specifically listed in the Basin Plans as having no MUN beneficial use and a full Basin Plan Amendment is needed to utilize the Sources of Drinking Water exceptions.	Low	Low	High	Low	Low	Med	– Maintaining the MUN beneficial use in certain categories of water bodies does not reflect the intent of the Sources of Drinking Water Policy exceptions – Potentially costly measures to Ag dischargers in the future to ensure that current MUN water quality objectives and CTR criteria are met – Maintaining the MUN beneficial use in certain categories of water bodies is not consistent with the Department of Drinking Water's policies regarding impaired drinking water sources
2. Region-wide Water Body Categorization Framework	This alternative amends the Basin Plans to add a standardized process to determine the appropriate application and levels of protection of the MUN beneficial use based on categories of Ag dominated surface water bodies across the Central Valley region. Utilizes the Sources of Drinking Water Policy exceptions where appropriate to de-designate the MUN beneficial use. Establishes a new LMUN (LMUN) beneficial use category for Ag dominated water bodies that do not meet the Sources of Drinking Water Policy exceptions but are not currently providing municipal or domestic supply	High	High	High	High	High	Med	– Utilizes the Sources of Drinking Water Policy exceptions and ensures downstream MUN beneficial uses are protected – The MUN beneficial use application is more consistent with the Department of Drinking Water's policies regarding drinking water sources – A standardized process makes the MUN evaluation in Ag dominated surface water bodies more efficient and streamlined for Central Valley Water Board staff to implement – Considers operational/maintenance activities needed to utilize constructed facilities for their intended purpose – Implementation measures may require ongoing staff time to evaluate water body categorization reports and utilize the process for future evaluations
3. Basin-by-Basin Water Body Categorization Framework	This alternative mirrors that of Alternative 2, but with the Sacramento River, San Joaquin River and Tulare Lake Basins each having their own separate process for evaluating the appropriate MUN beneficial use in Ag dominated surface water bodies. This option takes into account the different hydrology and management practices between the three basins.	High	High	High	High	High	Low	Same comments as in #2 apply, except: – Different requirements for each basin make the overall framework more complex and less efficient – Stakeholder work in the 1990s and currently indicate that a single categorization process will work for all three basins
4. Site Specific	This alternative uses the development of Site Specific	Med	Med	Med	Med	Low	Low	– Does not utilize the Sources of Drinking Water Policy exceptions

Table H - 1 Project Alternatives

Project Alternatives	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1 (Laws)	2 (Potential Use)	3 (Downstream Protection)	4 (Intended Use)	5 (Relief for dischargers)	6 (Reasonable use of resources)	
Objectives	Objectives (SSOs) to replace or serve as alternatives to using existing Basin Plan water quality objectives and CTR criteria to protect the MUN beneficial use.							– Expensive and time consuming to conduct the scientific reviews and justification necessary to use different water quality objectives in place of current Basin Plan objectives and CTR criteria – Developing SSOs is still an available option – a region -wide process does not take this away

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Table H - 2 Flowchart Options for a Water Body Categorization Framework

WB Cat. Flowchart Options	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1 (Laws)	2 (Potential Use)	3 (Downstream Protection)	4 (Intended Use)	5 (Relief for dischargers)	6 (Reasonable use of resources)	
Original 1992 ISWP Flowchart	This flowchart was developed and adopted in 1992 by the Central Valley Water Board to categorize different Ag dominated water bodies as part of the Inland Surface Water Plan. Categories included natural supply and drainage water bodies, constructed supply and drainage water bodies, and modified water bodies	Low	-	-	-	-	High	– Flowchart has already been adopted by the Central Valley Water Board and over 6000 water bodies throughout the Central Valley have been named and categorized – no starting from scratch with a new flowchart – The flowchart is over 20 years old and may not be sufficient to meet present day conditions and policies – Does not distinguish between modified water bodies that carry drainage or supply water (this is an important distinction that is needed to apply the Resolution 88-63 Exception 2b) and does not included a category for recirculating systems – Categorizes supply channels as water bodies with supply and/or drainage water. Resolution 88-63 Exception 2b focuses on water bodies that contain drainage water so additional work would be needed to parse out these differences – New/modified water bodies would still need to go through the categorization flowchart and be assigned

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Table H - 2 Flowchart Options for a Water Body Categorization Framework

WB Cat. Flowchart Options	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1 (Laws)	2 (Potential Use)	3 (Downstream Protection)	4 (Intended Use)	5 (Relief for dischargers)	6 (Reasonable use of resources)	
2014 WBC Flowchart (Updated ISWP Flowchart)	Developed via the 2012-2014 MUN evaluation stakeholder process, this flowchart used the original ISWP framework as a starting point. Modifications were made to distinguish different types of modified water bodies and recirculating systems. Other changes reflect the usage of GIS technology to help with the categorization process.	High	-	-	-	-	Med	– Developed with stakeholder input, including the work done as part of the Ag Water Task Force in 1995, this flowchart better reflects today's conditions and policies regarding the MUN beneficial use and recycling water. – Working definitions were developed to help clarify the terminology used in the flowchart – Distinguishes between modified water bodies that contain drainage versus supply water only, and Includes recirculating systems as a separate water body category – Opens up the use of GIS tools and other records (e.g. National Hydrography Dataset) as a step in categorization process – Categorizes water bodies with drainage or a combination of drainage and supply together to better fit with Resolution 88-63 Exception 2b – Changes to the original flowchart will require that all water bodies go through the process even if they were categorized back in 1992 with the original ISWP flowchart (increase in time and cost)
2014 WBC Flowchart (Updated ISWP Flowchart) plus an expansion to further delineate C2 constructed supply canals	This option includes the 2014 WBC Flowchart (Updated ISWP Flowchart) as a first step in identifying water body categories, but includes an additional flowchart for categorizing different types of constructed supply-only water bodies based on MUN use, operational spills and regulated monitoring.	Med	-	-	High	-	Low	- Provides more specificity as to the type and uses of a constructed supply channel (with water being so scarce, these water bodies could potentially supply MUN and must be carefully considered) - Supply water bodies may serve as multi-use facilities so consideration is given to the intended use(s). - Includes supply water bodies with a current MUN use – this is out of scope of the project. - Attempts to set the MUN beneficial use and compliance through the flowchart process instead of through a reporting process using implementation provisions - Puts a LMUN (LMUN) use on a certain types of supply only channels which may be difficult to justify – no examples provided

Table H - 3 MUN Beneficial Use Components (to be applied to different options in Table H - 4)

Beneficial Use Components	Brief Description
No change to MUN designation	No change to the current MUN beneficial use application.
De-designate MUN	Using a flowchart water body categorization framework, specified categories will have a MUN de-designation. Verification that the water body meets relevant regulatory requirements (e.g. Resolution 88-63 exception 2B) for de-designation will be made using a water body categorization report.
Apply a LMUN	Using a flowchart water body categorization framework, specified categories will have a MUN designation as “LMUN”. Verification that the water body meets relevant regulatory requirements for a reduction in beneficial use protection will be made using a water body categorization report.

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Table H - 4 MUN Beneficial Use Designation Options for a Water Body Categorization Framework

Beneficial Use Designation Options	**Brief Description** *(note- Water Body Categorization Reports would be required to validate assigned designations)*	**Level of Consistency with Selection Criteria Ratings = High, Medium, or Low**						**Notes**
		1 (Laws)	**2 (Potential Use)**	**3 (Downstream Protection)**	**4 (Intended Use)**	**5 (Relief for dischargers)**	**6 (Reasonable use of resources)**	
No Change to current MUN designation	All categories assigned to the MUN beneficial use.	**Low**	**Low**	**High**	**Low**	**Low**	**Med**	– Does not reflect the intent of the Sources of Drinking Water Policy exceptions – Maintaining the MUN beneficial use in certain categories of water bodies is not consistent with the Department of Drinking Water's policies regarding impaired drinking water sources
De-designate MUN only in C1/M1 water bodies	C1 (constructed Ag Drain/Combo) – No MUN M1 (modified Ag Drain/Combo) – No MUN <u>No changes to the following:</u> B1 (natural Ag Drain/Combo) – MUN B2 (natural Ag Supply) – MUN C2 (Constructed Ag Supply) – MUN M2 (Modified Ag Supply) – MUN Ag Recirculating System - MUN	**High**	**Med**	**High**	**Med**	**High**	**High**	– Utilizes the Sources of Drinking Water Policy exceptions and ensures downstream MUN beneficial uses are protected – The MUN beneficial use application is more consistent with the Department of Drinking Water's policies regarding drinking water sources – Less complexity than other options – does not include a new beneficial use (LMUN) category
De-designate MUN in C1/M1 AND approved Recirculating systems	C1 (constructed Ag Drain/Combo) – No MUN M1 (modified Ag Drain/Combo) – No MUN Ag Recirculating System – No MUN (with approved Operational Plan) <u>No changes to the following:</u> B1 (natural Ag Drain/Combo) – MUN B2 (natural Ag Supply) – MUN	**High**	**Med**	**High**	**Med**	**High**	**Med**	– Allows recirculating systems to be utilized for their intended design and purpose – Adds an additional reporting requirement to the existing water body categorization reports

Table H - 4 MUN Beneficial Use Designation Options for a Water Body Categorization Framework

Beneficial Use Designation Options	**Brief Description** *(note- Water Body Categorization Reports would be required to validate assigned designations)*	**Level of Consistency with Selection Criteria Ratings = High, Medium, or Low**						**Notes**
		1 (Laws)	**2 (Potential Use)**	**3 (Downstream Protection)**	**4 (Intended Use)**	**5 (Relief for dischargers)**	**6 (Reasonable use of resources)**	
	C2 (Constructed Ag Supply) – MUN M2 (Modified Ag Supply) – MUN							
De-designate MUN in C1/M1 AND approved Recirculating systems. Apply LMUN to C2/M2 Supply Water Bodies	C1 (constructed Ag Drain/Combo) – No MUN M1 (modified Ag Drain/Combo) – No MUN Ag Recirculating System – No MUN (with Regional Board approved Operational Plan) C2 (Constructed Ag Supply) – LMUN M2 (Modified Ag Supply) – LMUN <u>No changes to the following:</u> B1 (natural Ag Drain/Combo) – MUN B2 (natural Ag Supply) – MUN	**High**	**High**	**High**	**High**	**Med**	**Med**	– Establishes a new LMUN beneficial use category for Ag dominated water bodies that do not meet the Sources of Drinking Water exceptions but are not currently providing MUN, providing more flexibility to allow constructed/modified channels to be utilized for their intended design and purpose.

Table H - 4 MUN Beneficial Use Designation Options for a Water Body Categorization Framework

Beneficial Use Designation Options	**Brief Description** *(note- Water Body Categorization Reports would be required to validate assigned designations)*	**Level of Consistency with Selection Criteria Ratings = High, Medium, or Low**						**Notes**
		1 (Laws)	**2 (Potential Use)**	**3 (Downstream Protection)**	**4 (Intended Use)**	**5 (Relief for dischargers)**	**6 (Reasonable use of resources)**	
De-designate MUN in C1/M1 AND approved Recirculating systems. Apply LMUN to all other Ag dominated water bodies	C1 (constructed Ag Drain/Combo) – No MUN M1 (modified Ag Drain/Combo) – No MUN Ag Recirculating System – No MUN (with Regional Board approved Operational Plan) C2 (Constructed Ag Supply) – LMUN M2 (Modified Ag Supply) – LMUN B1 (natural Ag Drain/Combo) – LMUN B2 (natural Ag Supply) – LMUN	**High**	**High**	**High**	**High**	**High**	**Med**	– Expands the new LMUN beneficial use category to natural Ag dominated water bodies that are not providing the MUN use
De-designate MUN in C1/M1 AND approved Recirculating systems. Apply special consideration to supply channels based on third flowchart option Apply LMUN to all other Ag dominated water bodies	C1 (constructed Ag Drain/Combo) – No MUN M1 (modified Ag Drain/Combo) – No MUN Ag Recirculating System – No MUN (with Regional Board approved Operational Plan) C2 (Constructed Ag Supply) – dependent on supplemental flowchart M2 (Modified Ag Supply) – LMUN B1 (natural Ag Drain/Combo) – LMUN B2 (natural Ag Supply) – LMUN	**Low**	**Med**	**Med**	**High**	**High**	**Med**	- Incorporates the MUN designations proposed in the C2 supplemental flowchart - Supply-only canals do not meet the Sources of Drinking Water Policy exception 2b so removing MUN may be challenging

Table D - 5 Implementation Options for a Water Body Categorization Framework

Implementation Options	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1 (Laws)	2 (Potential Use)	3 (Downstream Protection)	4 (Intended Use)	5 (Relief for dischargers)	6 (Reasonable use of resources)	
Apply on "As Needed" Basis	Water Bodies go through the process only as needed/desired. Existing MUN designation remains on unlisted (in the Basin Plans) Ag dominated surface water bodies. A Reference Document is used to list water bodies and their MUN designation on an interim basis. The Reference Document can be utilized to set interim permit limits for a finite period. The Triennial Review process or other Board/Public approval process is used to adopt water bodies into Basin Plan on a periodic basis.	Med	Med	-	-	High	Med	– Provides flexibility to water agencies or other stakeholders to decide whether or not they want to evaluate the MUN beneficial use designation in their area – Reference Document provides a way to set interim permit limits without waiting for a Basin Plan Amendment to be done – Less of an immediate time and resource commitment – As an ongoing implementation process, evaluations can be made when hydrologic or management changes are made to a water body – MUN beneficial use will continue to be applied in water bodies where it may not be an appropriate designation – Will require an ongoing resource and time commitment by staff to evaluate reports and update the Reference Document and the Basin Plans
Establish a Time Schedule to categorize and evaluate MUN beneficial use designation in ALL Ag dominated water bodies	A Time Schedule is created to have all Ag dominated water bodies categorized and accordingly designated/de-designated for the MUN beneficial use. Water bodies are adopted into the Basin Plans (with their appropriate MUN beneficial use designation) according to the requirements set forth in the Time Schedule.	Med	Med	-	-	Low	Med	– Sets a clear timeline to evaluate all Ag dominated water bodies in the Central Valley – A greater immediate need to commit staff resources and time to the evaluations – Once the evaluations are complete and the MUN designations are adopted into the Basin Plans, there is less of an ongoing commitment of staff resources – Less flexibility to water agencies and other stakeholders – they will need to comply by a certain time frame – Does not provide a way to set interim permit limits or evaluate future changes to water bodies