Appendix A: Considerations

1. Adaptation Pathways Decision Types

This appendix to the draft Change Management Strategy (CMS) document describes the various types of adaptive decisions that may come into play in the Adaptive Pathway the Committee will develop as part of its eventual Water Supply Augmentation Plan (the Plan). The intent of this appendix is to provide the Committee with enough information to create a shared understanding about the various types of decisions, so that the Committee can use that understanding as a foundation for its discussions toward an Agreement.

Some important considerations to keep in mind at this time:

- Note first that this appendix addresses **adaptive decisions**, as distinct from **implementation adjustments**. These terms are defined and described in the CMS document in section 2 ("Adjustments and Adaptations"). Briefly, **adaptive decisions** relate to the Plan's progress on the Adaptive Pathway, the paths that the Plan ends up following, and the thresholds that the Plan may approach or cross along the way. **Adjustments** refer to the appropriate steps the Water Department will take to plan, develop, design, and construct or implement and operate Plan Elements as laid out in the Plan. The Department will also make necessary and appropriate adjustments during the implementation of the Plan, doing everything reasonable and feasible to make the Plan's Elements work within expected performance parameters. Those adjustments are not reflected here.
- The decision types described in this appendix are merely illustrative of the various types of decisions that we may make over time. They do not represent or imply a final or even a proposed strategy.
- Similarly, the Adaptive Pathway images are merely illustrative; they, too, do not represent any particular strategy as being preferred in advance of the Committee's discussion of and decision on its strategy.
- Finally, the timelines on the images are relative, not absolute; they do not necessarily reflect actual timelines that may be defined in the Committee's Agreement.

1.1. Appendix Organization and Content

The appendix is split into 4 major sections:

- The first, "Common Principles", provides the foundation upon which all Adaptive decisions are made. This section complements section 3 of the CMS, "Guidelines and Rules[1]", and defines the common "guiding principles" or "rules of the road" that apply to *all* adaptive decisions undertaken in pursuit of the Plan, unless there are special considerations that apply only to a specific decision type.

[1] "Guidelines and Rules" should be renamed "Guidelines and Principles"; this document will adopt the term Principles.

- The remaining 3 sections each discuss the decision types that relate to a given Plan Element. Each decision type discusses the possible outcomes of a given decision node on the Plan's Adaptive Pathway.

Within each section, the appendix addresses each possible adaptation decision type that relates to that Element. For example, the section "Start Element 1 [1.1]" discusses the context for and parameters relating to the decision to start operation of Element 1 (in-lieu water transfers). The "[1.1]" refers to the numbered decision node on the Adaptive Pathway figure. In some cases you may see "[n/a]" instead of a node number; this corresponds to the start of an Element's path (which isn't represented by a numbered decision node).

Note that there may be several possible decision types that relate to a given decision node. Each of these decision types corresponds to a potential outcome of that decision node. When thinking about a decision node, it's important to consider all of those potential outcomes.

Further, note that there may be circumstances where there are decision considerations that are unique to a given decision type, either complementing or in some cases over-riding the Common Principles (that apply by default to all decision types). Where this is the case, these considerations are addressed in sub-topics titled "Special Considerations" for each appropriate decision type.

Finally, particularly in the Common Principles discussion, the appendix includes some specific parameter values. As noted above, none of these are final until they are discussed and agreed upon by the Committee. Such values are enclosed in [square brackets] and highlighted in yellow, [like this].

1.2. General Note About the "Subway Map" Images

The last three sections of the appendix are introduced by and refer to a sample Adaptive Pathway image. The various decision types relate back to that image. That image includes a brief legend that defines the types of nodes depicted in the image. This image comes from the Pathway images that the Technical Team has provided in the September meeting packet, in document 6a-1, "Overview to the Adaptive Pathways 'Subway Maps' and Gantt Chart". You should refer to that separate overview document for more-complete descriptions of each of the Adaptive Pathways and the various pathway nodes.

2. Common Principles

As noted previously, this appendix addresses adaptive decisions that relate to the Plan's progress and the Plan's performance against agreed upon thresholds. Those basic thresholds and guiding considerations are documented in the "Adjustments and Adaptations" and "Guidelines and Rules" sections of the draft Change Management Strategy document – please take a moment to familiarize yourself with those sections of that document.

This section contains elaborations or extensions to those basic guidelines and considerations. Taken together with the CMS document, these considerations and elaborations represent the "guiding principles" or "rules of the road" that the City will follow as it implements the Plan. As noted previously, any specific principles outlined in either the CMS document or in this appendix are currently in draft form, pending discussion of and agreement on them by the full Committee. At some point these principles will be included in the Committee's Agreement document(s).

The concepts and values captured here and in the CMS document are critical to the Agreement and to the Plan. They apply, by default, to every adaptive decision type. Rather than repeat those thresholds and considerations throughout this appendix, they are addressed here, once. When reading and thinking about a decision type, you should consider all of these considerations to be at play in that decision. If a decision type requires additional or different considerations, they are enumerated in a "Special Considerations" topic in the discussion of that decision type.

> ***NB***: Any values in this draft are preliminary in nature, and must be discussed and agreed upon by the Committee before they would be included in the Committee's Agreement. Eventually, they should migrate to the Change Management document.

In general, this appendix assumes that the Plan and its elements are operating within acceptable performance ranges, unless stated otherwise. The Department will decide on and make any and all necessary and practicable adjustments in order to help to ensure that the Plan and its Elements perform optimally. These adjustments do not constitute adaptive decisions. Adaptive decisions are made in the context of more-comprehensive Assessments of the Plan's progress.

2.1. Threshold Types (Criteria)

Recall that CMS identifies four major threshold types (or criteria) that, taken together, define the envelope of acceptable overall Plan performance.

They are:[2]

- Cost
- Yield
- Timeliness
- Public Acceptance

These four criteria define the conceptual space within which the Plan's performance is assessed on a regular basis. Evaluating the risk attendant on each of those criteria individually, as well as the collective risk projected for the Plan as a whole, is the essence of each such Assessment.

In general, the Plan's goal is to cover at least [100%] of the projected peak season supply /demand gap in a timely manner, within budget, and in a manner that is understood and accepted by the public, while allowing for curtailments up to [15%] in up to [2] years out of 10. [With clear evidence that the aquifer(s) are, in fact, being successfully recharged and while accumulating sufficient storage, curtailments up to [25%] in up to [4] years out of 10 are acceptable.][3]

In addition, there are common principles that, coupled with an objective evaluation of the Plan's performance within these four major criteria, provide the complete context for any adaptive decision. These are defined in the "Guidelines and Rules" section of the CMS and apply to all adaptive decision types described in this appendix.

The following topics elaborate on the core threshold types (or criteria).

2.2. Cost

When evaluating whether and, if so, how to proceed with an Element, Cost is a major consideration, both in terms of the absolute cost of the Plan as a whole, and in terms of the relative cost of different Elements of the Plan.

In general, adaptive decisions should favor lower-cost alternatives.

For cost comparisons, we are using ***annualized cost per unit of yield in average years***, as follows:

- *C is defined as the **annualized cost per unit of yield in average years** for all elements (Elements 1 and 2, and all possible Elements 3)*

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[2] Public Health is assumed to be a core value that the Plan must protect. This will be added to the CMS document.

[3] This square-bracketed sentence about the possible acceptability of greater curtailments attempts to capture the potential willingness of the Committee and the community to "live with" occasional deeper curtailments during the aquifer recharge cycle, as long as it's clear that the aquifers are, indeed, recharging and will do so timely.

- *C' is defined as the* ***annualized cost per unit of yield in average years*** *for all Candidate Elements 3*
- *C'' is defined as the* ***annualized cost per unit of yield in average years*** *for Elements 1 and 2*
    - *See accompanying Excel spreadsheet for the calculations of C, C' and C''*
- Unless otherwise specified, C represents the threshold cost value for comparisons.

In any cost comparisons between Elements, cost differences less than [+/- 20%] are deemed immaterial.

2.3. Yield

Yield relates to the Plan's ability to meet projected supply / demand gaps. The costs of a given yield are captured in the Cost criterion. Yield indicates how well the Plan is meeting the gap.

As with cost, there is acceptable variance of [+/- 20%] around the target yield of any given Element.[4] However, the acceptability of any such variance must be evaluated in the context of the Plan's overall performance, taking into account all of the major criteria. Such evaluation could take into account other Elements that are exceeding target, for example.

2.4. Timeliness

Considerations of solution timeliness relate to and are affected by such factors as

- Climate and weather
- Performance of Plan Elements to-date
- Public's sense of urgency around a solution
- The time required to bring another Element on line

As such, Assessments of the Plan's performance will reflect the sense of timeliness that reflects conditions and sentiments at the time of the Assessment based on how conditions have evolved to that time, and not based on a "snapshot" set of events.

In general, timeliness variance of [+/- 20%] may be acceptable. However, the acceptability of any such variance must be evaluated in the context of the Plan's overall performance, taking into account the other major criteria.

2.5. Public Acceptance

Having the public understand the nature of Santa Cruz's water supply and the reliability issues it faces is a prerequisite for establishing and maintaining public support for the steps needed to address the issues and improve the system's ability

[4] Note that this refers to the yield shortfall of a *single Element* in the Plan. The impact of that shortfall must be understood in the context of that Element's contribution to the total Plan yield. For example, if an Element that is responsible for ¼ of the Plan's yield falls 20% short, then the resulting Plan yield shortfall would be 5%.

to provide reliable service during droughts. The City needs to provide regular opportunities for community members and interest groups to learn about the water system, the demand management, infrastructure and operational changes that are being pursued to improve system performance and the options available for increasing supply. Ultimately, the public must understand and accept the Plan and its Elements. To that end, the CMS document has identified as one of its guiding principles that the City will endeavor to "over-communicate" about the Plan, its progress and performance, and any adjustments and adaptations.

In the case of Element 3, given the City's history with desalination, the Plan may call for focused, substantial efforts relating to study, education, and public discussions about the technologies that may be employed in that Element.

The Committee may choose to include recommendations about how and how frequently to gauge the Public's attitudes about the Plan and its various Elements.

3. Element 1 Decision Types

This section discusses the various adaptive decision types that relate to Element 1 in the Plan. Throughout this and subsequent sections we will refer to the sample Adaptive Pathway shown in Figure 1. In this section we work with the path related to Element 1, in-lieu recharge.

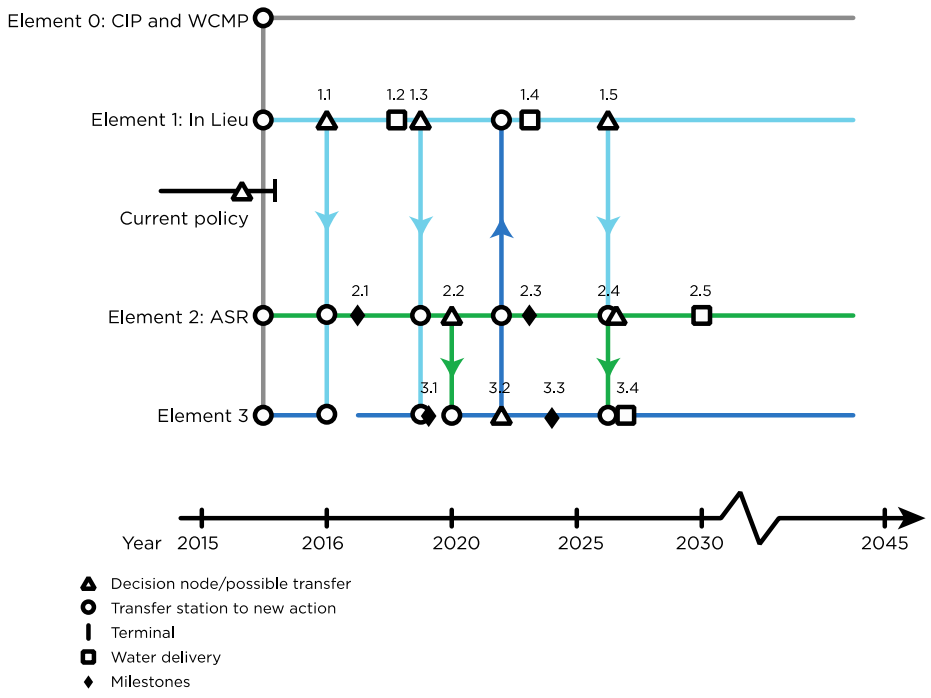

Figure 1: Sample Adaptive Pathway "Subway Map"

3.1. Plan Element 1 [n/a]

Start planning to do in-lieu transfers within existing water rights and using existing infrastructure.

This doesn't really represent a decision; instead, this is the default starting point for Element 1 within the Plan. It relates to the unlabeled circle ("transfer point") at the beginning of the Element 1 path, and it starts immediately upon adoption of the Plan.

The output of Plan Element 1 should satisfy all the conditions needed in order to evaluate starting Element 1. These conditions may include such things as:

- Agreements with cooperating agencies, or
- Enhanced water rights, or
- Assurance that the City's infrastructure is up to the task

3.2. Start Element 1 [1.1]

Decide whether to start transferring water to cooperating agencies (presumably only SqCWD), using existing water rights and infrastructure.

Further, engage in planning work toward expanded Element 1: agreements with any other cooperating agencies, necessary changes to water rights, additional infrastructure, etc.

For each agency that will participate, the City would evaluate Element 1 in the context of the defined criteria (using Cost [C]) and guiding principles. If that evaluation shows that Element 1 can function within those criteria and principles for the subject agency, then the City would consider whether to proceed.

If no agencies choose to participate, then the City may choose to evaluate whether Element 1 can be pursued at all, or should be abandoned.

3.2.1. Special Considerations

While this Plan phase will have stated goals relating to each of the key criteria, these goals, particularly as regards Cost, Yield, and Timeliness, will be very preliminary in nature, with wide uncertainty.

3.3. Expand Element 1 [1.3]

Decide whether to expand water transfers up to the original design limits of Element 1, engaging additional interested agencies into the program, based on expanded water rights, using additional infrastructure, assuming adequate river flows.

For each agency that will participate, evaluate expanded Element 1 in the context of the defined criteria (using Cost [C]) and guiding principles. If that evaluation shows that Element 1 can function within those criteria and principles for the subject agency, then the City would consider whether to proceed.

It may be the case that no additional agencies choose to participate. In that case, the City could choose to evaluate whether to operate Element 1 in a "steady state" within the initial Element 1 parameters (existing infrastructure and water rights) or to abandon Element 1 altogether.

3.3.1. Special Considerations

Note that the City may choose to develop an expanded implementation of in-lieu without having previously conducted in-lieu transfers using existing infrastructure, depending upon the success of Start Element 1 [1.1].

3.4. Scale Up Element 1 [1.5]

Decide whether to further scale up water transfers beyond the original design limits of Element 1, perhaps engaging additional interested agencies into the program, or expanding water rights, or using additional infrastructure, or extending the time period during which in-lieu transfers are made (that is, not just "winter transfers"), effectively increasing the amount of water transferred, and therefore providing greater opportunity for aquifer recharge.

Scaling up Element 1 might be appropriate if the solution is generally working within acceptable performance parameters, and:

- River flows can support greater transfer volumes than originally anticipated
- Aquifers are responding well to the well-resting that in-lieu allows
- Infrastructure can support the additional transfers

For each agency that will participate, evaluate scaled-up Element 1 in the context of the defined criteria (using Cost [C]) and guiding principles. If that evaluation shows that Element 1 can function within those criteria and principles for the subject agency, then the City may choose to proceed.

3.5. Slow Element 1 [1.5]

Decide whether to slow, or scale down, Element 1.

Slowing or scaling down Element 1 might be appropriate if the solution is generally working within acceptable performance parameters, but:

1. Cooperating agencies decide to reduce, suspend, or terminate their participation in the solution, or
2. Aquifers do not respond at an acceptable level, or
3. Aquifers are full.

In the first two cases, slowing Element 1 would necessarily affect how Elements 2 and/or 3 are pursued.

In the third case (full aquifers), continued operation of Element 1 would reflect and respond to ongoing aquifer management practices and, thus, are part of an Adjustment to be determined by the Water Department, guided by considerations discussed above in this appendix, rather than being treated as an Adaptation issue.

Alternatively, it may make sense to slow or scale down Element 1 if it is not working within acceptable performance parameters (for example, costs [greatly exceed C']), but it's sufficiently popular and effective to warrant keeping it in the Plan.

3.6. Stop Element 1 [1.5]

Decide whether to stop Element 1.

Stopping Element 1 might be appropriate if the solution is not working within acceptable performance parameters (for example, yield is far below projections or

costs [greatly exceed C']) and other Elements can meet or exceed their performance parameters, such that the Plan can meet its goals without Element 1.

4. Element 2 Decision Types

This section discusses the various adaptive decision types that relate to Element 2 in the Plan. Throughout this discussion we will refer to the sample Adaptive Pathway shown in Figure 1, and specifically to the path related to Element 2, ASR (aquifer storage and recovery).

4.1. Plan Element 2 [n/a]

Start high-level planning for and modeling of Element 2, with an eye toward initiating pilot testing using existing infrastructure and water rights at one or more locations.

This doesn't really represent a decision; instead, this is the default starting point for Element 2 within the Plan. It relates to the unlabeled circle ("transfer point") at the beginning of the Element 2 path, and it starts immediately upon adoption of the Plan.

The output of Plan Element 2 should satisfy all the conditions needed in order to evaluate starting Element 2. These conditions may include such things as:

- Agreements with cooperating agencies, or
- Appropriate water rights, or
- Assurance that the City's infrastructure is or, with modification, will be up to the task

4.2. Pilot Element 2 [2.1]

Decide whether to start pilot testing of Element 2 using existing infrastructure, within existing water rights, at one or more geographic locations.

Further, engage in planning work toward expanded Element 2: agreements with any other cooperating agencies, necessary changes to water rights, additional infrastructure, etc.

4.2.1. Special Considerations

Because this is pilot (exploratory) work, the Common Considerations do not apply as regards Cost, Yield, etc. Rather, the point of this effort is to learn enough to be able to properly project ASR's Costs and Yields, at least for the subject location(s).

Further, since these pilots are intended to evaluate the suitability of various locations for ASR, the Department would make appropriate operational adjustments during each pilot in order to determine the reasonable viability of ASR at that location along with any implications with respect to viability that can be determined for other locations in the aquifer. Those adjustments would not constitute adaptive decisions, but would be undertaken by the Department as a matter of course.

However, if the City finds that these Pilot projects consistently run well above budget in certain locations, then the City may choose to evaluate whether to pursue ASR in those locations that are problematic.

4.3. Expand Element 2 [2.2]

Decide whether to expand ASR up to the original design limits of Element 2, engaging additional interested agencies into the program, based on expanded water rights, using additional infrastructure.

Presumably, Pilot Element 2 generally worked within acceptable performance parameters within one or more locations.

For each location, evaluate ASR within the criteria (using Cost [C]) and guiding principles based on pilot results. (In essence, each location is its own sub-project, including pilot work as above.) If ASR can function within those criteria and principles for the subject location, then consider proceeding. If not, then consider abandoning that location.

4.3.1. Special Considerations

The Common Considerations do not apply as regards Cost, Yield, etc. to the pilot work for any given location. Rather, the point of the pilot component of this effort is to learn enough to be able to properly project ASR's Costs and Yields, for the subject location(s).

Further, since these pilots are intended to evaluate the suitability of various locations for ASR, the Department should make appropriate operational adjustments during each pilot in order to determine the reasonable viability of ASR at that location.

However, if the City finds that these Pilot projects consistently run well above budget in a location, then the City could evaluate whether to pursue ASR in that problematic location.

4.4. Scale Up Element 2 [2.4]

Decide whether to further scale up Element 2 beyond the original design limits of Element 2, perhaps engaging additional interested agencies into the program, or expanding water rights, or using additional infrastructure.

Scaling up Element 2 might be appropriate if the solution is generally working within acceptable performance parameters, and:

- River flows can support greater transfer volumes than originally anticipated,
- Aquifers are responding well to ASR,
- Infrastructure can support the additional transfers, or
- Element 1 has not worked or is not projected to work within acceptable performance parameters

4.4.1. Special Considerations

The Common Considerations do not apply as regards Cost, Yield, etc. to the pilot work for any new locations. Rather, the point of this effort is to learn enough to be able to properly project ASR's Costs and Yields, for the subject location(s).

Further, since these pilots are intended to evaluate the suitability of various locations for ASR, the Department should make appropriate operational adjustments during each pilot in order to determine the reasonable viability of ASR at that location.

However, if the City finds that these Pilot projects consistently run well above budget in a location, then the City could evaluate whether to pursue ASR in that problematic location.

4.5. Slow Element 2 [2.4]

Decide whether to slow, or scale down, Element 2.

Slowing or scaling down Element 2 might be appropriate if the solution is generally working within acceptable performance parameters, but:

1. Cooperating agencies decide to reduce, suspend, or terminate their participation in the solution, or
2. Aquifers do not respond at an acceptable level, or
3. Aquifers are full.

In the first two cases, slowing Element 2 would necessarily affect how Elements 1 and/or 3 are pursued.

In the third case (full aquifers), continued operation of Element 2 would reflect and respond to ongoing aquifer management practices and, thus, are part of an Adjustment to be determined by the Water Department, guided by considerations discussed above in this appendix, rather than being treated as an Adaptation issue.

4.6. Stop Element 2 [2.4]

Decide whether to stop Element 2.

Stopping Element 2 might be appropriate if the solution is not working within acceptable performance parameters, for example, something systemic to the aquifer appears to make all test sites unsuccessful in effecting aquifer recharge, and other Elements can meet or exceed their performance parameters, such that the Plan can meet its goals without Element 2.

5. Element 3 Decision Types

This section discusses the various adaptive decision types that relate to Element 3 in the Plan. Throughout this discussion we will refer to the sample Adaptive Pathway shown in Figure 1, and specifically to the path related to Element 3, which is assumed to relate to some form of membrane-based water purification, such as desalination, direct potable reuse (DPR) or indirect potable reuse (IPR).

This discussion is complicated by the fact that the Committee has not yet reached basic agreement around the nature, scope, and timing of Element 3. As such, the appendix presents several decision types relating to the startup and progress of Element 3. Each of those decision types corresponds to one of the options presented in the "Overview of the Adaptive Pathways 'Subway Maps' and Gantt Chart" (document 6a-1 in the September meeting packet): Sequential, Staggered, and Parallel. For each of the separate possible startup paths, the corresponding timing sequence pathway image is referred to by name within the discussion. See the separate Overview document for the corresponding images.

By way of background, any project of this scope requires that all of the appropriate project steps be undertaken, including (but not limited to): general study and outreach, planning, feasibility studies, general design and estimating, environmental and regulatory filings and reviews, permitting, detailed design and budgeting, and, eventually, construction and start-up. In each of the startup paths described here, all of these activities are involved. What's not yet decided is the timing of the work in terms of initiation as well as any inserted "pauses" along the way.

5.1. Study and Choose Element 3 [Sequential Development Approach]

Conduct study of and public discussions about the various candidate Element 3 alternatives in order to choose an Element 3 for the Plan.

This doesn't necessarily represent a decision; instead, this is one possible starting point for Element 3 within the Plan. It relates to the unlabeled circle ("transfer point") at the beginning of the Element 3 path. It applies if the Committee decides not to choose a specific Element 3 in its Agreement.

Note that the Committee should agree upon the starting point for this activity. Options include:

- Start this activity at the time that the Plan starts (Element 3 line would move all the way to the left).
- Start this activity as the result of a Plan Assessment (e.g., relating to the outcome of Expand Element 2 [2.2], as depicted in Figure 1).
- Start this activity at a specific point in time (Element 3 line would move left or right, depending upon the agreed upon start date).

5.1.1. Special Considerations

Since this is exploratory and educational work, the Common Considerations (such as Cost, Yield, etc.) do not apply. The City would establish and adhere to a budget for this work.

As part of this effort, the City would presumably specify when it would embark on either 5.2 Preliminary Design of Element 3 or 5.3 Design Element 3.

5.2. Preliminary Design of Element 3 [Staggered Development Approach]

Conduct feasibility studies and preliminary designs of, and public discussions about Element 3. This effort involves activity up to, but not including, permitting, CEQA processes, specific design, etc.

This doesn't necessarily represent a decision; instead, this is one possible starting point for Element 3 within the Plan, or can be a continuation of the Sequential Development Approach. As a starting point, it relates to the unlabeled circle ("transfer point") at the beginning of the Element 3 path. It applies if the Committee chooses a specific Element 3 in its Agreement and does not immediately start design work, or, if the Committee does not make such a choice in its Agreement, at some point in time after Study and Choose Element 3 is complete.

Note that the Committee should agree upon the starting point for this activity. Potential starting points include:

- At the time that the Plan starts (Element 3 line would move all the way to the left)
- At some time after completion of Study and Choose Element 3 [Sequential Development Approach]
- As the result of a Plan Assessment (e.g., relating to the outcome of Expand Element 2 [2.2], as depicted in Figure 1)
- At a specified point in time (Element 3 line would move left or right, depending upon the agreed upon start date)

5.2.1. Special Considerations

Since this is preliminary design work, the Common Considerations (such as Cost, Yield, etc.) do not apply. The City would establish and adhere to a budget for this work.

A key goal of the work, though, should be to determine whether Element 3 would be able to meet the key criteria and guidelines.

As part of this effort, the City would presumably specify when it would embark on 5.3 Design Element 3.

Note that if Element 3 is desalination, then the Committee's Agreement may include recommended timing for a Measure P vote to approve moving forward with

desalination. Such a vote could be only with respect to Element 3 or on the overall Plan, including Element 3.

5.3. Design Element 3 [Parallel Development Approach]

Initiate all efforts required to be "shovel ready" for Element 3 (conduct feasibility studies and preliminary design of, and public discussions about Element 3, and pursue design, permitting, CEQA, etc.), short of spending construction or land-acquisition funds.

This doesn't necessarily represent a decision; instead, this is one possible starting point for Element 3 within the Plan, or can be a continuation of either the Sequential or Staggered Development Approaches. As a starting point, it relates to the unlabeled circle ("transfer point") at the beginning of the Element 3 path. It applies if the Committee chooses a specific Element 3 in its Agreement and decides to start design immediately, or, if the Committee does not make such a choice in its Agreement, at some point in time after Preliminary Design of Element 3 is complete (in either the Sequential or Staggered approaches).

Note that the Committee should agree upon the starting point for this activity. Potential starting points include:

- At the time that the Plan starts (Element 3 line would move all the way to the left)
- At some time after the completion of Preliminary Design of Element 3 [Sequential or Staggered Development Approach]
- As the result of a Plan Assessment (e.g., relating to the outcome of Expand Element 2 [2.2], as depicted in Figure 1)
- At a specified point in time (Element 3 line would move left or right, depending upon the agreed upon start date)

5.3.1. Special Considerations

Since this is preliminary design work, the Common Considerations (such as Cost, Yield, etc.) do not apply. The City would establish and adhere to a budget for this work.

A key goal of the work, though, should be to determine whether Element 3 will be able to meet the key criteria and guidelines.

Note that if Element 3 is desalination, then the Committee's Agreement may include recommended timing for a Measure P vote to approve moving forward with desalination before starting Design Element 3. Such a vote could be only with respect to Element 3 or on the overall Plan, including Element 3.

5.4. Build Element 3 [3.2]

Decide whether to build the Element 3 solution and bring it online.

Building Element 3 may make sense if:

- Elements 1 and/or 2, taken together, are not projected to meet the City's needs in a timely way, or
- Future projections indicate that, while Elements 1 and/or 2 are functioning acceptably now, they likely won't meet the City's future needs (where those future needs fall within the productive lifespan of Element 3)

5.4.1. Special Considerations

In evaluating the cost-effectiveness of the Element 3 solution, its Cost should be compared to both [C''] (the costs of Elements 1 and 2, if they are operational), and to [C'] (the costs of the various candidate Element 3 options).

5.5. Scale Up Element 3 [3.4]

Decide whether to further scale up Element 3 beyond the original design limits of Element 3, perhaps engaging additional interested agencies into the program and/or using additional infrastructure.

Scaling up Element 3 might be appropriate if the solution is generally working within acceptable performance parameters, and:

- Elements 1 and/or 2 have not worked or are not projected to work within acceptable performance parameters, or
- Other agencies are interested in becoming partners in the Element 3 solution

If these conditions are not met, then scaling up would not be appropriate.

5.5.1. Special Considerations

In evaluating the cost-effectiveness of scaling up the Element 3 solution, its Cost should be compared to both [C''] (the costs of Elements 1 and 2, if they are operational), and to [C'] (the costs of the various candidate Element 3 options).

In the event that other agencies are interested in becoming partners in the Element 3 solution, then the City should evaluate appropriate cost-sharing and/or buy-in arrangements with those agencies.

5.6. Slow Element 3 [3.4]

Decide whether to slow, or scale down, Element 3.

Slowing or scaling down Element 3 might be appropriate if the solution is generally working within acceptable performance parameters, but:

1. Cooperating agencies decide to reduce or terminate their participation in the solution, or
2. Elements 1 and/or 2 can adequately meet the supply/demand gap more economically, or
3. Aquifers are full.

In the first two cases, slowing Element 3 would necessarily affect how Elements 1 and/or 2 are pursued.

In the third case (full aquifers), continued operation of Element 3 would reflect and respond to ongoing aquifer management practices and, thus, are part of an Adjustment to be determined by the Water Department, guided by considerations discussed above in this appendix, rather than being treated as an Adaptation issue.

5.7. Stop Element 3 [3.4]

Decide whether to stop Element 3.

Stopping Element 3 might be appropriate if the solution is not working within acceptable performance parameters and other Elements can meet or exceed their performance parameters, such that the Plan can meet its goals without Element 3.