

Draft Issues Assessment



Upper Petaluma River Watershed Flood Control Project - Scoping Study

Subject: Draft Issues Assessment

Date: May 19, 2011

1 Introduction

The Sonoma County Water Agency (Water Agency) is presently undertaking a Scoping Study within the Upper Petaluma River Watershed (Project) to identify stormwater management/groundwater recharge projects that provide flood hazard reduction and groundwater benefits (Key Project Purpose). The Scoping Study is in its initial phase of developing a set of project objectives, assessing potential project issues, and designing a stakeholder coordination process. As part of this first phase, a Preliminary Issues Assessment table was developed and shared with the Water Agency at a project kick-off meeting held on November 15, 2010, and a subsequent meeting with the City of Petaluma (City) on December 14, 2010.

The purpose of this Draft Issues Assessment is to elaborate on and refine key issues, strategies, and supporting objectives related to the Key Project Purpose.

2 Key Project Issues

Since development of the Preliminary Issues Assessment (table), the RMC project team has held a kick-off meeting with the Water Agency and one meeting with the City. Information from these meetings as well as information obtained from review of reference reports gathered for this project has helped to expand upon and refine the issues to date.

The overarching project issues identified have not changed from those identified in the Draft Issues Assessment and include the following:

- Objectives Definition/Prioritization
- Watershed Understanding
- Stakeholder Coordination
- Project Integration
- Regulatory Constraints
- Funding Identification
- Effective Communication

Each of these project issues is discussed in detail below.

2.1 Objectives Definition & Prioritization

Defining and prioritizing objectives is a critical component of any successful project. Objectives definition and prioritization is especially important for this Scoping Study because at this early stage there are many different directions in which the project could go. Well-defined objectives will allow the project to proceed efficiently.

2.1.1 Learned to Date

The Water Agency initiated the objectives definition process in identifying the need for the project and in issuing the request for qualifications. As discussed below, the project objectives have been refined since

then via the combined efforts of the Water Agency, the RMC team, and the City of Petaluma. The project's primary objective, proposed supporting objectives and next steps in objectives definition and prioritization are discussed below.

Core Objectives

As described above, the Key Project Purpose is to identify stormwater management/groundwater recharge projects that provide flood hazard reduction and groundwater benefits within the Upper Petaluma River Watershed. To that end, the Water Agency has established two core objectives for the Project, as follows:

- **Flood Hazard Reduction** – Improve management of stormwater that contributes, directly or indirectly, to reduced flood hazards.
- **Groundwater Recharge** – Increase beneficial recharge of groundwater, whether or not that recharged groundwater is directly accessible as water supply.

Based on discussions with Water Agency staff, it is understood that these core objectives still hold unless it becomes clear during the course of the Project that one of the core objectives does not apply to the Petaluma River watershed. The City is also supportive of the Project's purpose and core objectives. Some points of clarification that were brought up in the Kick-Off Meeting, the meeting with the City, or the Preliminary Objectives Report meeting include:

- The geographic focus area of the scoping study for flood hazard reduction should be the Upper Petaluma River Watershed. The Upper Petaluma River Watershed is considered to be the watershed for the Petaluma River upstream of and including the confluence with Lynch Creek. The City has several planned or ongoing projects within city limits but would be appreciative of upstream projects that could help alleviate flooding within the City. Groundwater recharge projects will be considered throughout the Project area (within the approximate boundary of Zone 2A).
- The eventual project to be recommended at the conclusion of the Scoping Study and subsequent Feasibility Analysis may be a suite of projects that can be implemented at several locations within the study area.
- Flood mitigation and groundwater recharge are understood to be of approximately equal weight within the Key Project Purpose. It is noted, however, that outside funding may be more available for initiatives that have significant flood mitigation benefits. It is also noted that project components that achieve the core objectives may be geographically disconnected.

Proposed Supporting Objectives

The proposed supporting objectives for the Project are:

- Water Quality;
- Water Supply;
- System Sustainability;
- Ecosystem;
- Agricultural Land;
- Open Space; and
- Community Benefits.

These supporting objectives have been developed in conjunction with the Agency and in coordination with similar watershed studies being conducted by the Agency within the Sonoma Valley and Laguna Mark West watersheds. The City has also endorsed a multi-benefit approach and the proposed supporting objectives.

The proposed supporting objectives along with the core objectives are generally defined in the **Table 2-1** below.

Table 2-1: Core and Supporting Objectives

Core Objectives
Flood Hazard Reduction - Improve management of stormwater that contributes, directly or indirectly, to reduced flood hazards.
Groundwater Recharge - Increase beneficial recharge of groundwater, whether or not that recharged groundwater is directly accessible as water supply.
Supporting Objectives
Water Quality - Protect or improve water quality of surface water (Petaluma River, its tributaries and the San Francisco Bay) and groundwater.
Water Supply - Increase or improve water supply availability, reliability and flexibility for domestic, municipal, industrial, agricultural, and environmental use.
System Sustainability - Support energy and water efficiency and climate change resiliency of water management systems and developed supplies; Provide for channel stability and sedimentation control; and Consider the long-term viability of implemented project and impact on affected systems.
Ecosystem - Improve ecosystem function and/or habitat enhancement, especially for listed species.
Agricultural Land - Preserve agricultural land use.
Open Space - Preserve and/or enhance open space.
Community Benefits - Create and/or enhance recreation, public access, education, etc.

Benefits Associated with the Objectives

The core and supporting project objectives each have associated benefits. The matrix below outlines benefits expected to be realized by pursuing each of the project objectives. Benefits have been organized into “triple bottom line” categories. A summary of the association between objectives and benefits is provided below in **Table 2-2** and the following bullet points further develop the primary benefits that could be realized by implementing a project that fulfills the associated objective.

Table 2-2: Benefits Associated with Objectives

Objectives	Social Benefits			Environmental Benefits			Economic Benefits		
	Public Health & Safety	Property Protection	Public Amenities	Local Env. Enhancement	Regional Env. Enhancement	Global Env. Enhancement	Regulatory Streamlining	Community Viability	Maintenance Efficiency
Flood Hazard Reduction	X	X		X				X	
Groundwater Recharge	X				X	X		X	
Water Quality	X			X	X		X		
Water Supply	X			X	X	X		X	
System Sustainability	X	X		X	X	X	X	X	X
Ecosystem			X	X	X	X		X	
Agricultural Land		X		X	X	X		X	
Open Space		X	X	X	X	X			
Community Benefits			X	X	X			X	X

Flood Hazard Reduction: The most significant benefits associated with the flood mitigation objective have been identified as follows:

- **Social Benefits**

- Public Health and Safety: Aspects of the project that address the flood mitigation objective will provide the benefit of protecting public health and safety by preventing or lessening flooding in publicly accessible areas (including roads) as well as private property.
- Property Protection: Working toward the flood mitigation objective will protect public and private properties from damage from flood waters.

- **Environmental Benefits**

- Local Environmental Enhancement: Although flooding is a “natural” process, flooding can also be harmful to individual animal species and to habitats and ecosystems as a whole in areas where the environment is not adapted to intermittent flooding.

- **Economic Benefits**

- Community Viability: Flooding can cause significant economic impacts within affected communities. Cleaning up after floods is expensive and a community that is at risk of flooding may also be restricted in its ability to retain and attract businesses. Flood mitigation helps to lessen these potential costs while providing economic benefits in the form of increased property values and reduced insurance rates.

Groundwater Recharge: The most significant benefits associated with the groundwater recharge objective have been identified as follows:

- **Social Benefits**

- Public Health and Safety: Reliable high-quality water supply is a critical public health and safety issue. Communities that have more than one water supply source (for example a surface water source supplemented by groundwater) guard themselves against catastrophic events such as infrastructure failure as well as longer-term changes in supply availability such as those that may result from climate change.

- **Environmental Benefits**

- Regional Environmental Enhancement: Enhancing groundwater recharge could allow for decreased reliance on surface water for water supply. Reducing reliance on surface water supplies allows greater flexibility in the management of surface water supplies to meet environmental goals such as the protection of endangered salmonid species.
- Global Environmental Enhancement: Relying on water supplies that are close to end users could result in energy savings and reduced carbon emissions due to reduced pumping needs.

- **Economic Benefits**

- Community Viability: Reliable water supplies are essential to the economic viability of any community. Additionally, as conditions change, groundwater may become increasingly the more economically attractive water source.

Water Quality: The project alternatives can be formulated so as to protect or improve the quality of surface water and groundwater. For example, upstream detention basins that provide flood mitigation and allow for groundwater recharge can also be designed to protect water quality by trapping sediment. To

the extent that water quality enhancement is pursued as a supporting objective, the follow benefits are likely to result:

- **Social Benefits**
 - Public Health and Safety: Excellent water quality is a critical public health issue in terms of drinking water and recreational use of waterways.
- **Environmental Benefits**
 - Local and Regional Environmental Enhancement: Improving water quality is beneficial to species and the ecosystem in the immediate areas of projects and in downstream areas.
- **Economic Benefits**
 - Regulatory Streamlining: Explicitly pursuing objectives related to water quality may speed up the regulatory approval process and result in reduced project costs associated with permitting efforts.

Water Supply: The most significant benefits associated with the water supply objective have been identified as follows:

- **Social Benefits**
 - Public Health and Safety: Reliable high-quality water supply is a critical public health and safety issue. Communities that have multiple water sources and flexibility in their use are more likely to weather infrastructure failure and long-term changes while being able to provide for multiple uses.
- **Environmental Benefits**
 - Local, Regional and Global Environmental Enhancement: Diversifying the water supply portfolio and supplies will enable more efficient use and distribution of available resources.
 - Global Environmental Enhancement: Relying on water supplies that are close to end users could result in energy savings and reduced carbon emissions due to reduced pumping needs.
- **Economic Benefits**
 - Community Viability: Reliable water supplies are essential to the economic viability of any community.

System Sustainability: Flood control projects can oftentimes be designed so as to increase channel stability and decrease excess sedimentation in associated waterways. Groundwater recharge can be an efficient way to utilize episodic water resources to improve water supply and prevent subsidence. Addressing system sustainability through the project is likely to result in the following benefits:

- **Social Benefits**
 - Public Health and Safety: Improving channel stability provides public safety benefits.
 - Property Protection: Improving channel stability and maintaining hydrostatic pressure in the aquifer provides property protection benefits.
- **Environmental Benefits**
 - Local and Regional Environmental Enhancement: Controlling excess sedimentation is beneficial to species and the ecosystem in the immediate areas of projects and in downstream areas. Utilizing passive groundwater recharge methods requires minimal

amounts of imported energy, requiring a smaller carbon footprint than an alternative, more power intensive water supply.

- **Economic Benefits**

- Regulatory Streamlining: Minimizing the amount of maintenance will reduce the regulatory requirements and oversight of operations.
- Maintenance Efficiency: To the extent that flood control/groundwater recharge projects can meet channel stability objectives, these projects will provide benefits to the overall efficiency of stream maintenance activities.

Ecosystem: The flood control/groundwater recharge projects can potentially be designed so as to enhance habitats/ecosystems and improve conditions for native species.

- **Social Benefits**

- Public Amenities: Improved habitat for birds, fish and other species results in improved conditions for bird watches, fishing hobbyists, and nature enthusiasts.

- **Environmental Benefits**

- Local, Regional and Global Environmental Enhancement: Protecting and restoring habitat benefits species that live within the immediate area of the project as well as migratory birds and insects that may rest within the enhanced habitats on their way to other parts of the world.

- **Economic Benefits**

- Community Viability: Enhanced habitats and wildlife populations have the potential to attract additional tourism and business to the project areas.

Agricultural Land: With consideration for preserving agricultural lands, the implemented project could achieve the following benefits.

- **Social Benefits**

- Property Protection: Preserving land as agricultural will protect the property from short and long term land use changes.

- **Environmental Benefits**

- Local, Regional and Global Environmental Enhancement: Agricultural lands can provide benefits to local animals as well as provide stop-over points for migratory birds.

- **Economic Benefits**

- Community Viability: Continued agricultural land use brings jobs and income to the community.

Open Space: With consideration for preserving or enhancing open space, the implemented project could achieve the following benefits.

- **Social Benefits**

- Property Protection: Preserving or establishing new land as open space will protect the property from short and long term land use changes.
- Public Amenities: Open space can be established as parks or vistas.

- **Environmental Benefits**

- Local, Regional and Global Environmental Enhancement: Open space can provide habitat to local and regional animals as well as provide stop-over points for migratory birds.

- **Economic Benefits**

- Community Viability: Continued agricultural land use brings jobs and income to the community.

Community Benefits: The flood control/groundwater recharge projects can potentially be designed to provide for recreational and educational opportunities. For example, trails with information signage can be incorporated into projects.

- **Social Benefits**

- Public Amenities: Providing recreational and educational opportunities will be beneficial to the community.

- **Environmental Benefits**

- Local and Regional Environmental Enhancement: Educational and recreational opportunities incorporated within the project can help to improve public understanding of environmental issues and public willingness to participate in environmental enhancement activities.

- **Economic Benefits**

- Community Viability: Enhanced recreational and educational opportunities make for a stronger, more economically viable community.

Challenges and Constraints Associated with the Objectives

The project will encounter challenges and constraints in association with pursuing each of the project objectives. Acquiring funding is one of the most significant challenges/constraints. Balancing the different project objectives is one key to a successful funding strategy.

Additional anticipated challenges and constraints associated with each project objective are summarized in **Table 2-3** and are further discussed in following pages.

Table 2-3: Challenge Matrix for Objectives

	Expected Challenges/Constraints			
	Stakeholder Agreement	Aligning Project Partners	Regulatory Approval	Technical Challenges
Core Objectives				
Flood Hazard Reduction	X			X
Groundwater Recharge		X	X	X
Supporting Objectives				
Water Quality				X
Water Supply		X	X	X
System Sustainability				X
Ecosystem	X	X		
Agricultural Land	X			
Open Space	X	X		
Recreation & Education	X	X		

Flood Hazard Reduction: The most significant anticipated challenges associated with the flood mitigation objective have been identified as follows:

- **Stakeholder Agreement:** Stakeholders agree that flooding is problematic, especially on their own property. However, selecting, prioritizing and obtaining stakeholder endorsement of flood control project locations may be challenging.
- **Technical Challenges:** Numerous technical considerations are involved in planning flood mitigation projects.

Groundwater Recharge: The most significant anticipated challenges associated with the groundwater recharge objective have been identified as follows:

- **Aligning Project Partners:** Determining the roles of different project partners and stakeholders with respect to recharge objectives is likely to be challenging.
- **Regulatory Approval:** Water supply in general and groundwater recharge in particular is often subject to intense regulatory scrutiny.
- **Technical Challenges:** Establishing the necessary understanding of hydrogeologic conditions can be challenging.

Water Quality: The most significant anticipated challenges associated with the water quality objective have been identified as follows:

- **Technical Challenges:** Maximizing water quality improvements through the project will require careful considerations of technical issues.

Water Supply: The most significant anticipated challenges associated with the water supply objective have been identified as follows:

- **Aligning Project Partners:** Determining the roles of different project partners and stakeholders with respect to water supply objectives is likely to be challenging.
- **Regulatory Approval:** Water supply is often subject to intense regulatory scrutiny.
- **Technical Challenges:** Meeting water demands and developing ways to store and move water to where it is needed in an effective and efficient manner, consistent with the other objectives of the Project, can be challenging.

System Sustainability: The most significant anticipated challenges associated with the system sustainability objective have been identified as follows:

- **Technical Challenges:** Maximizing channel stability and sedimentation improvements through the project will require careful considerations of technical issues.

Ecosystem: The most significant anticipated challenges associated with the ecosystem objective have been identified as follows:

- **Stakeholder Agreement:** While some stakeholders may be strongly supportive of efforts to enhance ecosystems through the project, others may consider such efforts a “waste of money”.
- **Aligning Project Partners:** Potential project partners involved in environmental enhancement efforts are likely to be a diverse group with minimal previous interactions with water resources projects.

Agricultural Land: The most significant anticipated challenges associated with the agricultural land objective have been identified as follows:

- **Stakeholder Agreement:** While some stakeholders may be strongly supportive of efforts to preserve agricultural land, identifying willing land owners from which to acquire easements or titles may be difficult.

Open Space: The most significant anticipated challenges associated with the open space objective have been identified as follows:

- **Stakeholder Agreement:** While some stakeholders may be strongly supportive of efforts to preserve or enhance open space, identifying willing land owners from which to acquire easements or titles may be difficult.
- **Aligning Project Partners:** Identifying a project partner to operate and maintain the open space may be difficult, as could be developing documentation regulating its operation and permissible uses.

Community Benefits: The most significant anticipated challenges associated with the recreation and education objective have been identified as follows:

- **Stakeholder Agreement:** While some stakeholders may be strongly supportive of efforts to improve recreation and education opportunities through the project, others may consider such efforts a “waste of money”.
- **Aligning Project Partners:** Potential project partners involved with recreational and educational opportunities are likely to be a diverse group with minimal previous interaction with water resources projects.

2.1.2 Issue Strategy & Next Steps

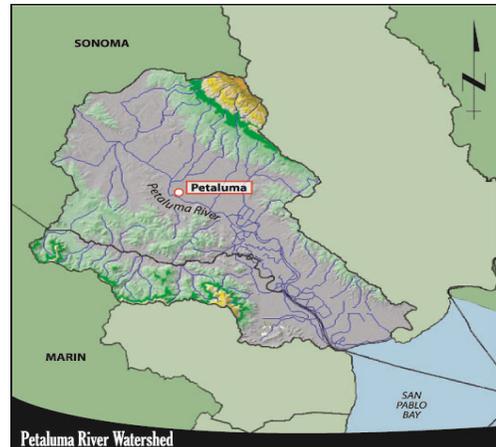
Although agreement on project objectives is an important first step of any project, project objectives need not remain unchanged throughout the course of the project. Objectives should be flexible enough to allow

for moderate modifications as a greater understanding of the study area needs is developed. In particular, the relative importance of various objectives will need to be prioritized.

2.2 Watershed Understanding

Understanding the characteristics of the Upper Petaluma River Watershed is a critical issue in the process of development of project objectives and later, project alternatives. Watershed characteristics that are being studied include:

- Flooding in Petaluma (history, degree and frequency)
- Water supply and groundwater conditions
- Watershed geography, land use, soils and geology
- Understanding of the Petaluma Watershed model

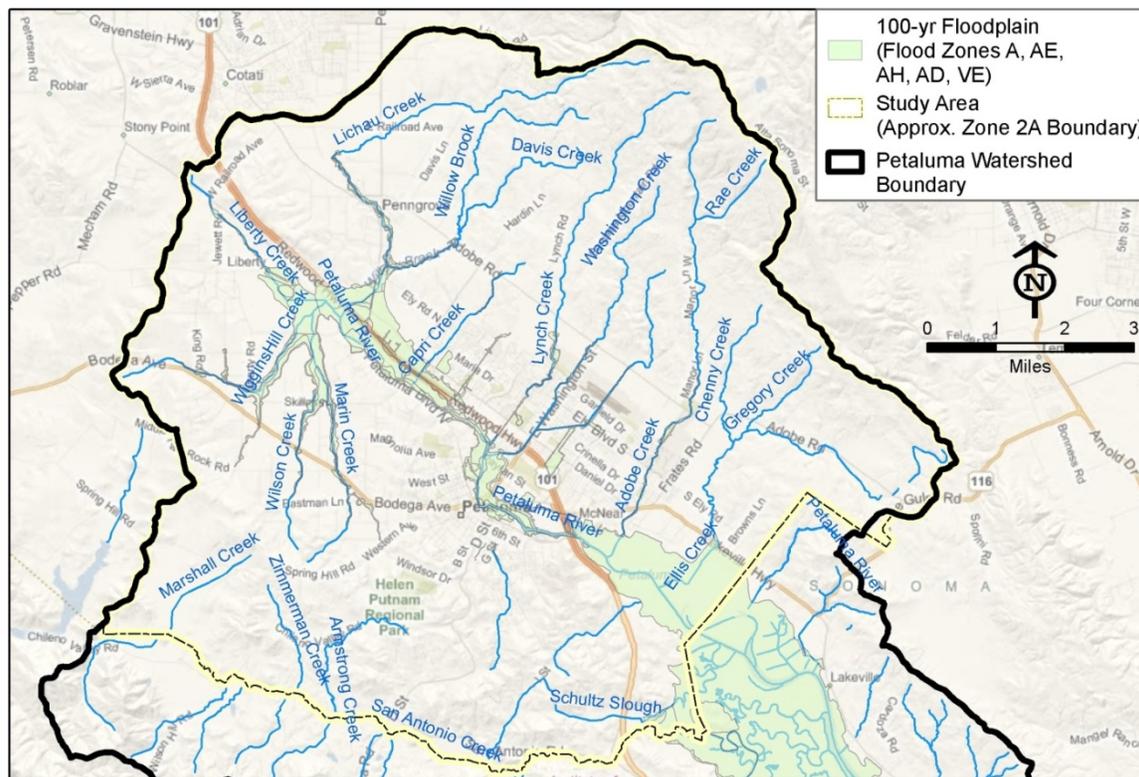


2.2.1 Learned to Date

Flooding Conditions

As can be seen in the figure below, there are extensive 100-year floodplains for the Petaluma River and many of its tributaries within the study area. Since there is little demand for additional flood control projects downstream of the City and the City has planned several flood control projects to alleviate flooding within city limits, the focus of flood protection alternative identification will be upstream of the confluence between the Petaluma River and Lynch Creek. Noted exceptions to this are projects that have been identified by the City on Thompson and Kelly creeks. Of particular importance to the Project are the developed areas within the 100-year floodplain along Highway 101 and Petaluma River tributaries including Lichau Creek, Liberty Creek, Wiggins Creek, Wilson Creek, and Marin Creek.

Figure 2-1: Flooding within Study Boundary



Existing and Planned Flood Control Projects

The City and US Army Corps of Engineers (USACE) have been working together to complete the Petaluma Flood Improvement Project in the Payran neighborhood to control flooding in the downtown area of Petaluma. Most of this project has been completed, removing the downtown area from the 100-year flood plain. Three remaining pieces of the downtown project to be finished include modification of the existing sheet-pile wall, rip rap, I-cap removal and replacement.

The City has implemented and planned many other flood control projects. For example, the City has implemented the Denman Reach Flood Management Project along the Petaluma River, which relieves flooding pressure within Zone 2A through implementation of benched terraces. Additionally, the City has utilized its watershed model to develop a list of 26 planned flood management projects which are primarily sediment basin and terracing projects. The Zone 2A Flood Control Advisory Committee has also been and will continue to be an active proponent of flood control and stream maintenance projects. Current or recently completed projects include work in Ellis Creek, Marin Creek, Adobe Creek, Lichau Creek, Lynch Creek, Petaluma River (Denman and Corona Reaches), Capri Creek, Washington Creek and Kizer Creek. Zone 2A is also currently planning projects for Ellis Creek, Adobe Creek, Capri Creek, Petaluma River, Kelly Creek, and Washington Creek.

There are six projects, described in **Table 2-4** below, that will be evaluated in a separate memorandum. The purpose of the memorandum will be to determine whether the projects are feasible and whether they should be considered for implementation.

Water Supply and Groundwater Conditions

The current state of groundwater supplies is currently unknown. Per the Petaluma River Master Drainage Plan (SCWA, 2003):

... Natural topographic constraints prevent the Petaluma Valley ground water basin from filling more than the 84 percent [1,420,000 acre feet] indicated by the DWR's computer program... The [1982 DWR] report concludes, "The Petaluma Valley basin is therefore, in effect, completely filled at the present time.

The City currently has 20 wells in service (as well as several other off-line wells) and is planning to develop additional well capacity to provide water supply reliability. The City has also increased pumping over the past several years to offset potable surface water use. A current analysis must be performed to determine whether there is capacity in the aquifer to justify a recharge project in the Petaluma Valley groundwater basin. This analysis should also include a review of the existing water quality in the basin. Historical contaminants are nitrates, manganese, and salts. The USGS also plans to conduct a comprehensive study of the groundwater basin starting in 2012.

At this time, the sites preliminarily identified as having the greatest beneficial recharge potential are located in the high infiltration rate zones northwest of the City. Additional recharge sites will be investigated along the eastern edge of the Petaluma Valley basin.

Table 2-4: Projects to Be Evaluated in Separate Strategy Memorandum

Previously Identified Projects	Objective
Marin, Wilson and Wiggins Creek Channel Maintenance and Revegetation Project	To prevent flooding to residents adjacent to the creeks and reduce erosion that contributes sediment to the Petaluma River
Holm Rd. Ditch Extension Feasibility Study	Relieve flooding in the Corona/N.McDowell area. To provide a bypass channel, designed to convey storm waters that would have originally flowed overland into the Petaluma River prior to construction of the railroad and Hwy 101
Corona Reach Linear Overflow Channel Feasibility Analysis	Allow continuation of existing linear channel to capture, contain and direct storm flows within grass lined swales toward the Petaluma River. Provide a containment, filtration and sediment/debris settling period prior to storm flows entering the Petaluma River
Willowbrook Flood Reduction Feasibility Analysis	Meet goal and objectives of the Petaluma General Plan 2025 and the Sonoma County General Plan pertaining to reduction of peak storm flow impact and preservation of groundwater resources within the Petaluma Watershed
Lichau Creek Hydraulics and Vegetation Management	To identify projects to accommodate winter storm flows, benefit groundwater recharge and enhance fish habitat. To maintain revegetation with irrigation while installing additional native vegetation over successive years
Marin Creek/Denman Flats Drainage Study	To investigate the hydrology, hydraulics, routing, right-of-way and environmental issues in the drainage area and propose a drainage improvement project

Petaluma Watershed Model

The XP-SWMM watershed model developed by the City is currently under review by FEMA and will not be released to the Water Agency until the review is completed and the model approved. The current model is focused within the Urban Growth Boundary, with limited nodes outside of the boundary. The Water Agency has an early version of the model, but it does not account for more recent changes the City has made to the model, including a 13% increase in the design storm. A draft hydraulic/hydrologic study (H/H Study) was prepared by the Water Agency utilizing this previous version of the model. The intent of the draft H/H study was to “conduct a hydrologic/hydraulic analysis of the Upper Petaluma River Watershed [using the XP-SWMM model]. The study identifies and evaluates potential flood mitigation alternatives, with a focus on detention basins, which may provide regional flood reduction benefits.” (H/H Study, 2010) The H/H Study identifies the top five alternatives for flood mitigation (of twenty alternatives studied) and makes several recommendations for further work including refinement of the five recommended alternatives, consideration of low impact development (LID) strategies, and additional refinement of the basin hydrology within the model.

2.2.2 Issue Strategy & Next Steps

Data gaps remain due to the need to obtain the Petaluma River Watershed Model and other technical documents that have not yet been released by the City or the USACE.

Further substantial development of the watershed understanding will be conducted within the project alternatives development process.

2.3 Stakeholder Coordination

One of the keys to a successful project will be building consensus around the project objectives and eventual project alternatives developed during the Scoping Study. Early and effective stakeholder coordination is the basis on which this consensus is developed.

2.3.1 Learned to Date

Through the Kick-off Meeting and subsequent meeting with the City, RMC has developed a draft list of stakeholders to engage for the Scoping Study. Stakeholder workshops will be a part of the scoping study process and will be a forum for discussion and collective input on project objectives, screening criteria and project alternatives.

Issues may arise if stakeholders do not feel a part of the process, either through lack of communication and notification, or not including stakeholder input in the final work product. The Water Agency has developed an outreach strategy that facilitates contact with project proponents, watershed stakeholders, and regulatory agencies. RMC will work closely with the Water Agency to engage stakeholders early in the project screening process, and use visioning tools in workshops to develop ideas as a team, thus building consensus for multi-objective project alternatives.

2.3.2 Issue Strategy & Next Steps

Next steps for stakeholder engagement include identifying the appropriate contacts and notifying stakeholders of the project and planned stakeholder process. An initial stakeholder workshop has been scheduled for late March 2011 to notify stakeholders of the project; and receive input on the project development process, draft project objectives and considerations for identification of potential project alternatives.

2.4 Project Integration

Project implementation can affect the performance of other flood hazard reduction and groundwater recharge projects elsewhere in the same stream system and groundwater basin. The impacts and benefits of the projects must therefore be considered as a system, rather than as individual projects.

2.4.1 Learned to Date

As described in the sections above, many projects have been identified as providing potential flood hazard reduction and groundwater recharge benefits. Some projects, such as 26 City projects, are known to exist in some state, but no additional details are known. The RMC team will work with the Water Agency to determine how best to capture planned projects or projects where implementation is underway within the Scoping Study Report.

2.4.2 Issue Strategy & Next Steps

RMC will utilize available planning work to assess how these projects may integrate or relate to one another. The potential for packaging projects will also be assessed to determine if benefits to the watershed and stakeholders can be improved.

2.5 Regulatory Constraints

Regulatory drivers will be a key issue in developing project objectives, screening criteria and project alternatives. By developing projects with multi-benefit objectives, regulatory aspects and requirements can be more easily interwoven with project concepts. In order to develop feasible projects, the RMC team will develop a permitting strategy early on in the feasibility analysis, and will begin engaging with regulators even earlier as part of the stakeholder group.

2.5.1 Learned to Date

The Petaluma River has draft 303d listings for the following constituents:

- Diazinon (a pesticide)
- Nutrients
- Pathogens
- Sediment
- Trash – (notably a key concern for the City)
- Nickel

Other regulatory constraints within the watershed are related to listed species including:

- California Freshwater Shrimp, Red-Legged Frog, and Tiger Salamander
- Foothill Yellow-Legged Frog
- Western Pond Turtle
- Central California Coast Steelhead

2.5.2 Issue Strategy & Next Steps

Regulatory agencies will be engaged as part of the stakeholder process. The degree to which regulatory constraints will be an issue for the project is dependent on location and type of project selected. Specific regulatory issues will come to light as project alternatives are identified.

2.6 Funding Identification

While there are many funding opportunities available through local, state and federal programs, the challenge will be finding grant programs that best fit the project and therefore have the highest potential for success.

2.6.1 Learned to Date

A number of local, state and federal grants have been identified which may be applicable to the project. The upcoming Proposition 1E (Prop 1E) grant funding through the California Department of Water Resources is a potential source of funding, however, the Petaluma project is still in the scoping phase and specific implementation projects have not been determined at this time. Prop 1E assigns a higher score to projects that are ready to be implemented rather than those in the feasibility phase, therefore the Petaluma project may not score as highly as other Sonoma County projects that are further in their development process. For this reason, Round 1 funding for Prop 1E is not being pursued by the project at this time.

Other funding opportunities are shown in **Table 2-5** below.

Table 2-5: Potential Funding Opportunities

Agency	Program	Timeline
SWRCB	Clean Water State Revolving Fund (SRF) Loans	Ongoing
DWR	Prop 84 (North Coast and Bay Area): Planning Grant	Round 2 – 6/11
	Prop 1E (North Coast and Bay Area)	Round 1 – 4/11 Round 2 - TBD
	AB303 Local Groundwater Assistance	May 2011
	Prop 82 Local Water Supply Construction or Feasibility Study Loans	Continuous
	Prop 84 California River Parkways Grants	Dependent
US Army Corps	Water Resources Development Act	Continuous
CA Infrastructure and Economic Development Bank	Infrastructure State Revolving Fund	Continuous
Coastal Conservancy	Coastal Conservancy Grant	Ongoing
Sonoma Open Space District	Coordination with District regarding land preservation	Open

Most of these funding opportunities do not have a specific deadline and allow continuous project submittal. Once the Scoping Study has generated project alternatives, prioritizing funding will be a focus area.

2.6.2 Issue Strategy & Next Steps

The most immediate next step is to determine applicability and timing of submitting the project to the Bay Area Integrated Water Resources Management Plan (IRWMP). This will be an important next step if the project is suitable for Round 2 of Prop 1E or Prop 84 funding. Having the project align with Bay Area IRWMP management objectives and be consistent with the Plan will allow for greater funding opportunities through the State outside of the Prop 1E and Prop 84 processes.

Other next steps include soliciting stakeholder input on funding opportunities, reviewing other grant/loan funding deadlines and requirements, and then prioritizing which to pursue.

2.7 Effective Communication

The Petaluma project is one of three similar projects being pursued by the Water Agency within Sonoma County. Due to overlap of certain stakeholders (primarily regulatory), and the process of objectives development, screening and alternatives development; many efficiencies may be realized through effective, interwatershed coordination.

2.7.1 Learned to Date

The Water Agency is the driver for coordination between watersheds. The Water Agency has made Kick-Off Meeting minutes and Preliminary Issues Assessments for all three watersheds available for review. Each watershed is in the process of objectives development and beginning to consider screening criteria.

2.7.2 Issue Strategy & Next Steps

As each watershed Scoping Study begins the process of stakeholder engagement, it will be useful to develop a strategy with the Water Agency to engage regulators and other stakeholders that span multiple watersheds.

3 Overall Project Strategies

Efforts to date on the project have confirmed that strategies for developing a successful project include the following.

- Commitment to the multi-benefit approach
- Early and effective stakeholder coordination with particular emphasis on partnership with the City of Petaluma
- Consider potential funding opportunities throughout project development

Strategies will be further refined and updated through the project development process.