Laguna de Santa Rosa Watershed Total Phosphorus Blue Ribbon Panel Summary Report

August 2018

Prepared for The City of Santa Rosa by the Consensus and Collaboration Program of the College of Continuing Education at California State University, Sacramento

Attachments

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Attachment A

Blue Ribbon Panel Charter

April 27, 2018

CHARTER

Laguna de Santa Rosa Watershed Phosphorus Blue Ribbon Panel

Process, Purpose and Organization

1. Introduction

This Charter describes the purpose of the Laguna de Santa Rosa Watershed (Laguna), Phosphorus Blue Ribbon Panel (BRP) as convened by the City of Santa Rosa (City). It describes the BRP's structure, participants, roles and responsibilities, general participation guidelines, and decision-making and communication methods.

2. Background

The City's "No Net Loading" of Total Phosphorus (TP) provision contained in its National Pollutant Discharge Elimination System Permit for the Laguna Wastewater Treatment Plant requires the City to offset any phosphorus discharged into the Laguna watershed with equal or greater reductions of phosphorous elsewhere in the watershed. Compliance is determined through existing credit accumulation, meaning the City must forecast the amount of offset credits it might need. It has proven difficult and costly for the City to determine the right amount of offset credits to acquire for future year discharges as offset credits expire regardless of use and the potential for discharge each year is uncertain and depends on two primary factors which cannot be determined in advance:

- Increased flows to the treatment plant during inclement weather and remaining capacity in City storage ponds for the treatment plant to send its treated recycled water, and
- Estimated offset credit needs are forecast, based on statistical weather data and anticipated plant discharges.

3. Blue Ribbon Panel Purpose

The purpose of the BRP is to identify a set of principles and/or framework that supports an alternative watershed-oriented compliance approach that:

- Provides reliable, ongoing water quality benefits to the Laguna de Santa Rosa watershed ecosystem and,
- Provides the City a consistent compliance mechanism that achieves Total Phosphorus (TP) reductions for the watershed.

The City's existing compliance approach which utilizes risk-based calculations to meet TP offset requirements for TP discharges has proven uncertain, unreliable and has only provided intermittent benefits to the watershed, as discharges are intermittent. The BRP's recommendations can ideally inform the current regulatory process with a more holistic and mutually beneficial regulatory approach, consistent with recent United States Environmental Protection Agency support of broader alternative regulatory methods to achieve water quality improvements.

As a public agency that provides disinfected tertiary-treated recycled water for year-round reuse in the Geysers steam fields and summertime reuse for agricultural and urban irrigation, the City's longstanding integrated reuse goals are to:

- Protect public health and the natural environment,
- Assure compliance with all environmental requirements, and
- Provide a stable utility rate structure to the community.

4. BRP Participants

The BRP is made up of parties that have an interest in the water quality, management, regulation, adjacent land use, and Beneficial Uses of the Laguna and environs. BRP members are:

- Ethan Brown — Sonoma County Economic Development Board
- Michael Cohen — Sonoma State
- John Largier — UC Davis
- Don McEnhill — Russian Riverkeeper
- Alison Piccoli — California Restaurant Association
- Matt St. John — North Coast Regional Water Quality Control Board
- Wendy Trowbridge — Laguna de Santa Rosa Foundation
- Amelia Whitson — United States Environmental Protection Agency

The BRP has staff support from the City as provided by:

- Sean McNeil
- Rita Miller
- Ben Horenstein

The BRP is facilitated by a neutral, third party facilitator from the Sacramento State, College of Continuing Education Consensus and Collaboration Program.

- Dave Ceppos

5. BRP Organization

The BRP will meet three times to formulate strategic, alternative regulatory recommendations that promote ongoing investments in beneficial programs to reduce nutrient impairments, achieve beneficial uses, and provide greater environmental, financial and regulatory certainty for the Laguna and its stakeholders.

The BRP has no governance structure. Such organizational tools are likely not necessary for the size and duration of BRP activities. That said, the BRP, City staff, and facilitator have recommended roles and responsibilities to support the process. These are:

BRP Roles and Responsibilities

1. Provide honest perspectives representing a broad scope of interests about the Laguna and water quality improvement methods.
2. Provide and review recommendations.
3. Consistently participate in BRP meetings.
4. Communicate information about the process and products with respective constituencies.
5. Seek agreement (when feasible) on proposals and/or recommendations.

City Staff Roles and Responsibilities

1. Provide technical support and materials
2. Provide logistics support for meetings

Facilitator Roles and Responsibilties

1. Serve as a professional neutral and be responsible to manage dialogue in meetings and oversee the provisions of this charter.
2. Implement a consensus-seeking process.
3. Facilitate meetings and sub-element meetings as necessary.
4. Ensure that all points of view held by Participants are heard and that the interests of each Participant's constituencies are considered.
5. Provide assistance to Participants requesting help with communications.
6. Prepare and distribute meeting agendas, attendance sheets, and Draft Final meeting summaries.
7. Address and resolve emergent conflicts.
8. Facilitate information gathering and sharing in coordination with City staff.
9. Distribute information to the contact list in coordination with City staff.

NOTE: The facilitator works under a contractual agreement with the City however, the facilitator has mutually agreed on (between the City and Sacramento State) neutrality to serve the process and BRP participants in an equitable and balanced manner.

6. BRP Participation Guidelines and Decision Making

General BRP Participation Guidelines

All Ideas and Points of View have Value

All ideas have value in the BRP setting. The goal is to achieve understanding first and then seek agreements when feasibl.

Use Common Conversational Courtesy

Don't interrupt; use appropriate language; avoid side-bar discussions when others are speaking. Disgree with curiosity rather than conflict.

Honor Time and Share the Airtime

The BTP process will be brief (3 meetings) with ambitious agendas for each meeting. To meet process goals, it is important to follow the time guidelines given by the facilitator.

Invite Humor and Good Will

But avoid humor someone else's expense.

Be Comfortable

Take personal breaks when needed. If you have other needs, let the facilitator know.

Embrace Innovative Thinking and New Ideas

Creative problem solving is essential. We have expanded challenges, and we must think about them in a new way to address them.

Be Honest, Fair, and as Candid as Possible

Help others understand you and work to understand others.

Silence Electronics

All BRP members have responsibilities outside of this meeting room. Please leave these responsibilities at the door. Please turn cell phones or other communication devices to "silent." If you do not believe you will be able to participate fully, please discuss this with the facilitator

BRP Decision Making Procedures

As a voluntary gathering of interested parties the BRP is not "*consensus based*". Organizations within the process, nor individual participants on behalf of their organizations, do not have the authority to make or implement binding decisions. Therefore, all elements of the BRP processes are "*consensus-seeking*" wherein, each part participant takes reasonable and appropriate steps to reach consensus (as described below).

Consensus-Seeking Decision Method

The consensus decision method is based on principles of "consensus with accountability". Consensus with accountability requires all Participants to try to reach consensus while at all times supporting and expressing their self-interest. In the event a Participant must reject a proposal, that Participant is expected to provide a counter proposal that legitimately attempts to achieve their interest, and the interests of the other Participants. When seeking consensus, the BRP will not vote and will not seek to identify numeric "winners and losers" on key topics. Rather, a BRP will seek mutually acceptable and beneficial conclusions.

In seeking consensus on an interim or final recommendation, participants will voice their opinions with specific proposals along the way, rather than waiting until a final recommendation has been developed. At all times, participants will ensure that they are providing input commensurate to their prescribed role and constituency. The basic decision-making process is as follows:

Straw Polls: Participants will use straw polls to assess the degree of preliminary support for an idea before it is submitted as a formal proposal for final consideration by the group. Participants may indicate only tentative approval for a preliminary proposal without fully committing to its support.

Draft and Final Decisions: A group will use the following three levels to indicate Participants' degree of approval and support for any proposal being considered and to determine the degree of agreement.

Thumbs Down:	I do not agree with the proposal. I feel the need to block its adoption and propose an alternative.
Thumbs Sideways:	I am not enthusiastic about it, but I can accept the proposal.
Thumbs Up:	I think this proposal is the best choice of the options available to us.
Abstention	At times, a pending decision may be infeasible for a Participant to weigh in on. Examples could include but not be limited to: a topic that has statutory implications that an agency representative cannot be on record conflicting with; a Participant cannot get a consensus of his/her decision-makers and therefore cannot offer a proposal or opinion; and other similar conditions.

The goal is for all Participants to be in the 'Thumbs Up', or Thumbs Sideways' levels of agreement. Any recommendation will be considered to have reached consensus when there is a quorum of participants present, and all Participants present are at Thumbs Up or Thumbs Sideways levels. If any Participant is at a 'Thumbs Down' level, that Participant must provide a counter proposal that legitimately attempts to achieve their interest and the interests of the other Participants. The BRP will then evaluate how best to proceed. Participants that abstain from particular proposals are encouraged to explain why abstention is in their best interest.

Majority Rule Decision Method

Should consensus not be achieved on a topic, any participant may seek to ensure that meeting summaries and the final process report describe the different perspectives from majority and minority opinions

Attachment B

Blue Ribbon Panel Guiding Principles

Final Guiding Principles
Laguna de Santa Rosa Watershed
Total Phosphorus Blue Ribbon Panel

1. Future actions and guidelines should result in the highest public benefit per dollar spent.

2. There should be shared ownership for the costs and development of water quality improvements. Everyone in the watershed contributes to nutrient loading and therefore everyone should have a proportional responsibility to address the impacts.

3. Regulatory requirements should be addressed as existing obligations and not as new voluntary actions.

4. Future approaches to reduce water quality impacts should incentivize beneficial actions and discharger behavior.

5. Future actions should focus on sequestration goals and associated actions (e.g. removal of legacy sediments, capture and reuse of TP, removal of TP from the water column, etc.).

6. Compliance options should focus on restoring ecological functions and achieving multiple benefits.

7. Regulatory solutions should take a system wide-view to address nutrient loading.

Attachment C

Blue Ribbon Panel Meeting 1 Agenda

AGENDA
Laguna de Santa Rosa Watershed
Phosphorus Blue Ribbon Panel

Meeting 1
Utilities Field Office (UFO) Room F
April 27, 2018. 11:00 am – 2:30 pm

Meeting Purpose:

- Convene the Total Phosphorus (TP) Blue Ribbon Panel (BRP)
- Create mutual understanding of Laguna de Santa Rosa Watershed history, physical conditions and regulatory background
- Start BRP development of their proposed ideas

11:00 Meeting Introduction

- Agenda review (*Dave Ceppos, Facilitator – Sacramento State*)
- BRP introductions (*All*)

11:10 Blue Ribbon Panel Process Review (*Dave)*

- Meeting schedule and potential topics
- Process Critical Path
- BRP Proposed Charter / Guidelines (*All*)

11:30 History of Laguna de Santa Rosa (*Sean McNeil – City of Santa Rosa*)

- Natural history
- Beneficial Uses
- Water quality impairments and regulatory history

12:10 Working Lunch (Lunch provided by the City)

12:30 History of Discharge Compliance (*Rita Miler– City of Santa Rosa*)

- National Pollutant Discharge Elimination System permit process
- Discharge compliance history and challenges
- "No Net Loading" approach to-date

1:15 Watershed Water Quality Compliance - Guiding Principles Discussion (*All*)

- BRP Discussion – Potential Questions to Address:
    - What regulatory sideboards must be achieved / accommodated?
    - What impairment conditions are we focusing on?
    - What topics need to be addressed in BRP recommendations? (e.g. water quality, aquatic ecosystems, economics / rate structures, time frames, best management practices, etc.)

2:20 Next Steps (*Dave*)

- Action Items
- Proposed Agenda for Meeting 2

1:30 Adjourn

Attachment D

Blue Ribbon Panel Meeting 2 Agenda

AGENDA
Laguna de Santa Rosa Watershed
Phosphorus Blue Ribbon Panel

Meeting 2
Utilities Field Office (UFO) Room F
June 1, 2018.
9:00 am – 1:30 pm

Meeting Purpose:

- Continue work by the Total Phosphorus (TP) Blue Ribbon Panel (BRP) to develop recommendations on TP regulations and water quality improvements
- Continue education about the Laguna de Santa Rosa Watershed history, physical conditions and regulatory background

9:00 Meeting Introduction

- Agenda review and BRP introductions (*Dave Ceppos, Facilitator – Sacramento State*)
- BRP Proposed Charter Comments and Finalization (*Dave*)
- Review of Meeting 1 DRAFT Summary (*All*)

9:15 Phosphorus Compliance Approaches

9:20 – 10:00 Water Quality Trading Framework for the Laguna de Santa Rosa Watershed (*David Kuszmar, Alydda Mangelsdorf, and Matt St. John – North Coast Regional Water Quality Control Board*)

- Questions and Answers

10:00 – 10:45 Nutrient Management in California: A Current Perspective (*Tom Grovhoug, Larry Walker Associates [consultant to the City]*)

- Presentation
- Questions and Answers

10:45 – 11:10 Chemically Enhanced Treatment for Phosphorus Reduction (*Mike Prinz, City; Linda Sawyer, Brown & Caldwell[consultant to the City*)

- Presentation
- Questions and Answers

11:10 Wastewater Rate Comparison and Considerations (*Sean McNeil – City of Santa Rosa)*

- Presentation
- Questions and Answers

11:20 Working Lunch (Lunch provided by the City)

11:40 Guiding Principles Discussion - Continued

- Review Meeting 1 outcomes and suggestions since Meeting 1

12:00 Brain Storming Session – Preliminary Framework Ideas (*All*)

- Brain Storming Guidelines
    - Propose idea
    - Describe anticipated benefits
    - Describe Guiding Principles achieved
    - Discuss potential constraints
    - Identify data / information needs to assess further
    - Repeat

1:20 Next Steps (*Dave*)

- Action Items
- Proposed Agenda for Meeting 3

1:30 Adjourn

Attachment E

Blue Ribbon Panel Meeting 3 Agenda

AGENDA
Laguna de Santa Rosa Watershed
Phosphorus Blue Ribbon Panel

Meeting 3
Utilities Field Office (UFO) Room F
June 27, 2018.
10:00 am – 2:00 pm

Meeting Purpose:

- Finalize work by the Total Phosphorus (TP) Blue Ribbon Panel (BRP) to develop recommendations on TP regulations and water quality improvements

10:00 Meeting Introduction

- Agenda review and BRP introductions (*Dave Ceppos, Facilitator – Sacramento State*)
- Review of Meeting 2 DRAFT Summary (*All*)

10:15 Presentations and Discussions - Framework Proposals (*All*)

- *NOTE: Similar to the discussion at Meeting 2, proposal advocates will present their ideas (as presented in their documents)*. Each advocate will review:
    - Proposed idea
    - Anticipated benefits
    - Guiding Principles achieved
    - Potential constraints
    - Data / information needs to assess further
- Group Discussion / Proposal Amendments
- Straw Poll

12:00 Working Lunch Break

12:20 Presentations and Discussions (continued)

12:45 BRP Outcomes Discussion (*All*)

- Summary of anticipated next steps and use of BRP outcomes by the City of Santa Rosa and others (*Ben Horenstein, City of Santa Rosa*)
- Final BRP Decision
    - *NOTE: In this agenda item, the facilitator will review the prior discussions, potential agreements and amendments and will call for a final roll call vote for each item to formally memorialize consensus (if achieved), and majority/minority conditions (if applicable)*

1:50 BRP Close Out and Acknowledgements

- Review process for Meeting 3 Summary (*Dave*)
- Potential next steps

2:00 Adjourn

Attachment F

Blue Ribbon Panel Meeting 1 Summary

Meeting 1 Summary
Laguna de Santa Rosa Watershed
Total Phosphorus Blue Ribbon Panel

April 27, 2018.

Blue Ribbon Panel (BRP) Attendees:

Don McEnhill	Russian River Keeper
Ethan Brown	Sonoma County Economic Development Board
Alison Piccoli	Northern California Restaurant Association
John Largier	UC Davis
Michael Cohen	Sonoma State
Matt St. John	North Coast Regional Water Quality Control Board (RWQCB)
Wendy Trowbridge	Laguna Foundation
Amelia Whitson	EPA – Region IX

Staff Attendees

Ben Horenstein	City of Santa Rosa (City)
Sean McNeil	City
Rita Miller	City
Dave Ceppos	Sacramento State

Public Attendees

Veronica Astells	Town of Windsor
Heather Johnson	City
David Kuszmar	RWQCB
Barbara Adelman	Russian River Watershed Protection Committee
Toni Bertolero	Town of Windsor
Lisa Badenfort	City, Board of Public Utilities Member

Meeting Purpose:

- Convene the Total Phosphorus (TP) Blue Ribbon Panel (BRP)
- Create mutual understanding of Laguna de Santa Rosa Watershed history, physical conditions and regulatory background
- Start BRP development of their proposed ideas

Meeting Introduction

Dave Ceppos (Facilitator) started the meeting and reviewed the agenda and purpose of the meeting. He asked BRP members to introduce themselves and describe any goals they have for the BRP process. Dave then discussed the intended role of BRP members. He noted that the two regulatory agency members may have to limit engagement at times because they have a unique and necessary role in their regulating capacity and that sometimes requires that they listen to other member discussion more than actively engage.

Ben Horenstein from the City provided a welcome and thank you from the City to the BRP members for their willingness to serve on the BRP. He reviewed a document recently distributed by the City that describes the background of nutrient loading and water quality management by the City, and the goals and objectives of the BRP process (Attachment A).

Blue Ribbon Panel Process Review

Dave briefly reviewed the BRP meeting schedule and described that the process will cover three meetings with the goal of finalizing recommendations by the end of Meeting 3. He then reviewed the proposed BRP Charter (Attachment B), describing its purpose and use. He asked for any questions or revisions from the BRP and there were none. He stated that for this meeting, the Charter will be used as "conditional". He described that BRP members will be given a chance to review the Charter and provide any suggestions and that the City will consider those and provide a final version at Meeting 2.

History of Laguna de Santa Rosa

Sean McNeil of the City gave a presentation (Attachment C) on the natural history of the Laguna de Santa Rosa (Laguna), the regulated "Beneficial Uses" (as defined by the RWQCB), and a background on the history of water quality impairments and regulatory conditions regarding the Laguna and its inflow and outflow tributaries.

Following the presentation, the BRP addressed several questions. Discussion took place about the role of total phosphorus on primary productivity in the Laguna and similarly the role that hydrogeomorphic changes in the Laguna and tributaries flowing into the Laguna have played on primary productivity and aquatic ecosystem health. The group discussed how there has been significant sediment loading into the Laguna and that such changes, along with nutrient loading (including TP and total nitrogen [TN]) have impacted the growth of invasive vegetation species, algal blooms, and associated impacts to the ecosystem. The group further discussed how historic marsh in the Laguna that was not impacted by excessive sediment loading allowed for more nutrient uptake by the native marsh plant species and that the loss of such marshlands has played a role in the excess TP that impairs the system.

Following BRP discussion, Dave opened the floor for public comments and questions. A question was asked about whether agricultural runoff resulting from recycled water irrigation gets included in the watershed TP loading calculation. A City representative that said agricultural runoff is not included in the watershed loading calculation and that agricultural irrigation sites are closely monitored to manage water application rates and to avoid water waste.

The BRP paused for a working lunch and then proceeded to the next agenda topic.

History of Discharge Compliance

Rita Miller of the City gave a presentation (Attachment D) about the history of the National Pollutant Discharge Elimination System permit process, Santa Rosa's wastewater discharge compliance history and challenges, and the use of the "No Net Loading" approach to-date for water quality regulation and improvements within the Laguna.

Following the presentation, the BRP addressed several questions. Expanding on some of the information in the presentation, City staff discussed the option that the City could use chemical treatment processes

as a method to reduce TP but prefers not to for a variety of reasons including (but not limited to) cost, and the general preference to avoid complicating treatment plant process operations through use of an additional chemical method to improve water quality.

Discussion ensued about how the plant's tertiary treated disinfected recycled water is addressed if it cannot be volumetrically stored by the recycled water treatment ponds, and/or sent to the Geysers site. Similarly, a question was asked about the fate of TP loads within the Laguna ecosystem during significant wet years. In such conditions, said loads pass through the Laguna, into the Russian River, and then they are transported to the ocean in river flow. A member asked what percent of the TP load is from agriculture and, more specifically, what type of agriculture. City staff didn't have a specific answer on the percent load question but the types of contributing agricultural lands include vineyards, orchards, and rangeland.

Discussion then took place about the types of actions that could be taken to improve flow conveyance and water quality conditions. Options being considered and/or having been done in the past include dredging sediment from the Laguna, and bank and riparian restoration in the Laguna and tributaries to it. City staff pointed out that dredging is a likely option to be considered in the future however it is very expensive due to regulatory permitting (associated with short term environmental impacts such as alteration of the stream bed, and potential impacts to special status species), and contractor mobilization. Discussion continued more specifically about long range water quality improvements centered around the approach anecdotally known as "diet and exercise", meaning that long range improvements are likely to be best achieved through a combination of reducing TP load ("diet") into the system, and making and maintaining physical changes to the system ("exercise") that allow the hydrology and morphology of the Laguna and environs to function in as natural and passive a manner as possible to facilitate nutrient uptake. Expanding on this, several members focused on what the assimilative and reductive capacity of the Laguna is, and can be as a means to address TP loading. Questions included:

- Can projects that maximize nutrient uptake be prioritized in the regulatory construct?
- What do we know about TP cycling in the Laguna, and fate and transport conditions to and through the Laguna and out to the ocean?
- What constitutes a "treatment wetland" versus a "natural wetland" and how might such differences be implemented and regulated?
- How can we capture TP and not burden a treatment system with excess solids borne from treatment methods with alum and/or iron, or through other chemical methods (as previously referred to by the City)?
- How can we maximize TP sequestration?

Discussion also took place about some of the water quality improvement ideas the City has and how the regulating community must address these ideas. In particular, the regulatory members spent time educating the BRP about the legal and regulatory prohibitions against "back sliding" from permit targets set to reduce impairment of a waterbody. They informed the BRP that there are methods through which a regulated community can propose and achieve changes in such targets but that such proposals must be defensibly based on proving that such changes will not create further deleterious effects to an already impaired waterbody and that said impairment can still be reversed and beneficial uses can be

achieved and maintained. Related discussion took place about how numeric and narrative targets have been set for the Laguna. It was suggested that the RWQCB provide a presentation on this topic at Meeting 2.

Watershed Water Quality Compliance - Guiding Principles Discussion

Following the robust discussion by the BRP about the two presentations, the BRP was then asked by Dave to start developing "Guiding Principles" for their future work. He described the process and the benefit of such principles as allowing the group to define individual "interests" that reflect their unique perspectives but that they can ideally, also mutually agree on. These principles should frame and define the types of options the BRP might recommend such that each member can feel confident that if a future recommendation is consistent with said principles, it means that it is believed to help achieve water quality improvements, AND the mutual interests of stakeholders (e.g. the regulated and regulating communities). The following list (not prioritized) was generated by the BRP as a starting place for expansion and discussion prior to and during Meeting 2.

1. Future actions and guidelines should result in public benefit
2. There should be shared ownership for the costs and development of water quality improvements. Everyone in the watershed contributes to nutrient loading and therefore everyone should have a proportional responsibility to address the impacts.
3. Regulatory requirements should be addressed as existing obligations and not as new voluntary actions.
4. Future approaches to reduce water quality impacts should incentivize beneficial actions and discharger behavior.
5. Future actions should focus on sequestration goals and associated actions (e.g. removal of legacy sediments, capture and reuse of TP, removal of TP from the water column, etc.)
6. Compliance options should focus on restoring ecological functions and multiple benefits.
7. Regulatory solutions should include expanding / extending the credit life.
8. Regulatory solutions should take a system wide-view to address nutrient loading rather than a point source discharger view only.

Next Steps

Dave reviewed meeting action items:

1. Draft Charter to be distributed to the BRP for review and comment
2. Presentation to be potentially scheduled for Meeting 2 regarding the history and background of numeric and narrative targets for nutrient loading in the Laguna and associated environs.
3. Draft Guiding Principles to be distributed to the BRP for further consideration and expansion by BRP members prior to Meeting 2.

Dave asked for closing comments. Ben thanked everyone for their excellent participation and launch of the BRP process. Several members likewise thanked their BRP colleagues and the City for the discussion and opportunity to participate.

Attachment G

Blue Ribbon Panel Overview Sheet

OVERVIEW
City of Santa Rosa Phosphorus Blue Ribbon Panel
Supporting Compliance Toward Watershed Restoration

Introduction
The purpose of the City of Santa Rosa (City) Phosphorus Blue Ribbon Panel (BRP) is to identify a set of principles and/or framework that supports an alternative watershed-oriented compliance approach that:

- Provides reliable, ongoing water quality benefits to the Laguna de Santa Rosa watershed ecosystem and,
- Provides the City a consistent compliance mechanism that achieves Total Phosphorus (TP) reductions for the watershed.

The City's existing compliance approach which utilizes risk-based calculations to meet TP offset requirements for TP discharges has proven uncertain, unreliable and has only provided intermittent benefits to the watershed, as discharges are intermittent. The BRP's recommendations can ideally inform the current regulatory process with a more holistic and mutually beneficial regulatory approach, consistent with recent United States Environmental Protection Agency support of broader alternative regulatory methods to achieve water quality improvements.

As a public agency that provides disinfected tertiary-treated recycled water for year-round reuse in the Geysers steam fields and summertime reuse for agricultural and urban irrigation, the City's longstanding integrated reuse goals are to:

- Protect public health and the natural environment,
- Assure compliance with all environmental requirements, and
- Provide a stable utility rate structure to the community.

Background
The City's No Net Loading of TP provision contained in its National Pollutant Discharge Elimination System Permit for the Laguna Wastewater Treatment Plant requires the City to offset any phosphorus discharged into the Laguna watershed with equal or greater reductions of phosphorous elsewhere in the watershed. Compliance is determined through existing credit accumulation, meaning the City must forecast the amount of offset credits it might need. It has proven difficult and costly for the City to determine the right amount of offset credits to acquire for future year discharges as offset credits expire regardless of use and the potential for discharge each year is uncertain and depends on two primary factors which cannot be determined in advance:

- Increased flows to the treatment plant during inclement weather and remaining capacity in City storage ponds for the treatment plant to send its treated recycled water, and
- Estimated offset credit needs are forecast, based on statistical weather data and anticipated plant discharges.

It is important to note that since the Geyser's steam fields recharge system came on-line in 2003, the City has successfully reused 100% of the recycled water it produced annually and has not needed to discharge into the watershed during dry to normal years. In wetter years, discharges into the watershed are often necessary. Intermittent discharges result in intermittent investments in nutrient offset programs, thus providing intermittent beneficial investments in support of Laguna watershed improvements.

Strategy:

Convene a BRP to formulate strategic, alternative regulatory recommendations that promote ongoing investments in beneficial programs to reduce nutrient impairments, achieve beneficial uses, and provide greater environmental, financial and regulatory certainty for the Laguna watershed and its stakeholders.

Attachment H

Laguna Background Presentation

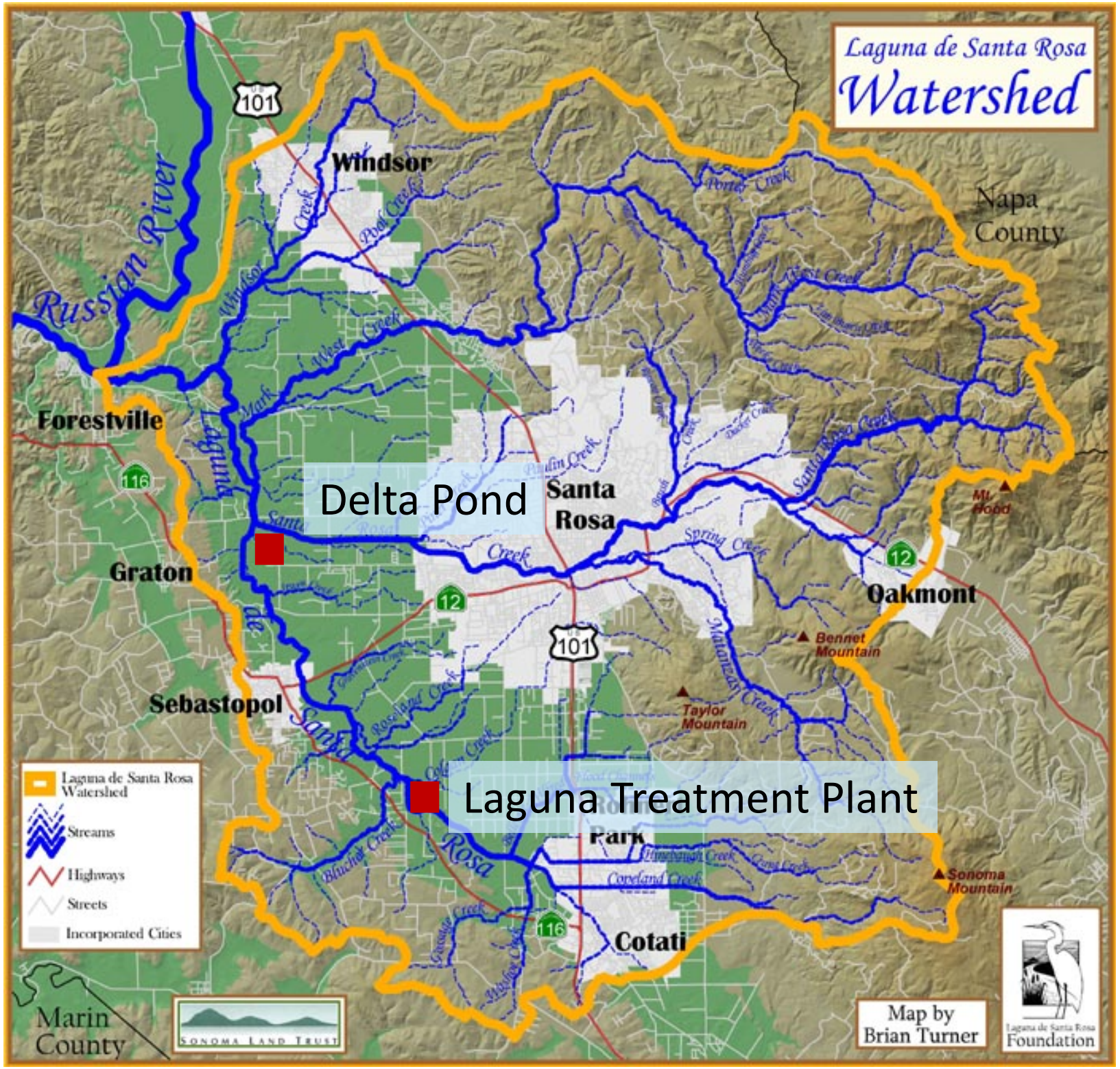
The Laguna de Santa Rosa Watershed

Phosphorus Blue-Ribbon Panel

April 27, 2018

Outline

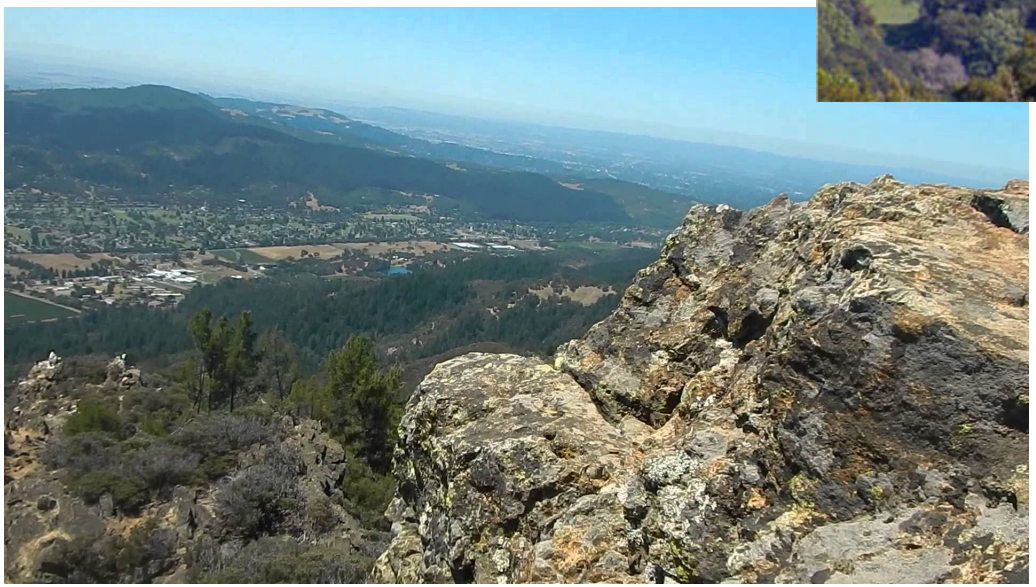
- Location of Laguna Watershed
- Ecological Condition


Laguna de Santa Rosa
Watershed
Delta Pond
Laguna Treatment Plant
Windsor
Forestville
Graton
Sebastopol
Santa Rosa
Oakmont
Cotati
Rohnert Park
Napa County
Marin County
Russian River
Laguna de Santa Rosa Watershed
Streams
Highways
Streets
Incorporated Cities
Sonoma Land Trust
Map by Brian Turner
Laguna de Santa Rosa Foundation

The Watershed is like a flat bottom bowl

- Steep erosive slopes from Sonoma Mountains
- Rolling hills on south and west regions
- Flat alluvial fan in the Santa Rosa Plain
- Has large stretches with permanent flow
- The Laguna is slow draining and traps pollutants

Steep hillslopes in the East



Hillslopes drain into the flat Santa Rosa Plain

Habitats and Biological Resources

- Lakes and open water
- Riparian forests and floodplains
- Wetlands

Habitat – Lakes and Open Water

- Summer resting spots for aquatic species
- Support migratory birds

Habitat – Riparian Forest

- Land area near water ways with many trees
- Provide shade
- Increase nutrient uptake
- Buffer stream from polluted runoff
- Support wildlife including: eagles, mountain lions and coyotes

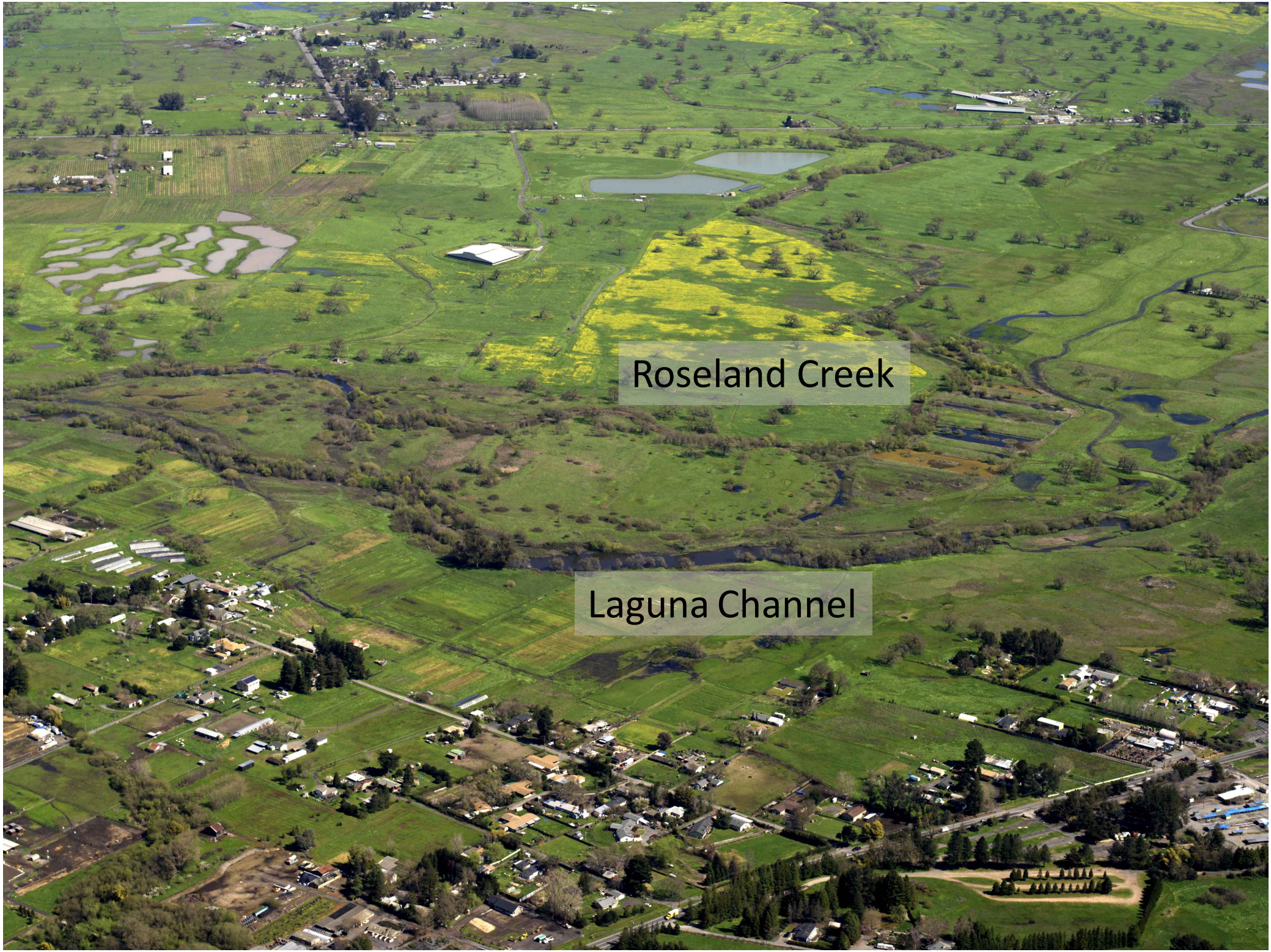

Riparian and Floodplain Forests
Oak Woodlands
Dense Riparian Forest
Laguna de Santa Rosa

Habitat - Wetlands

High density of wetlands in the Laguna Watershed

Benefits of Wetlands

- Improve water quality
- Highly productive areas
- Support rare plant and animal species
- Increase flood protection
- Increase groundwater infiltration


Roseland Creek
Laguna Channel

Vernal Pools

- Depressions in or above the floodplain
- Fill with water in winter and dry out by summer
- Were once widespread throughout the Laguna watershed
- Home to diverse organisms adapted to these unique conditions

North Coast Basin Plan

- Water quality is protected for “beneficial uses”
- Listed as existing (E) or potential (P)

- These protections result in regulations for dischargers

HU/HA/ HSA	HYDROLOGIC UNIT/AREA/ SUBUNIT/DRAINAGE FEATURE	BENEFICIAL USES																								
		MUN	AGR	IND	PRO	GWR	FRSH	NAV	POW	REC1	REC2	COMM	WARM	COLD	ASBS	SAL	WILD	RARE	MAR	MIGR	SPWN	SHELL	EST	AQUA	CUL	FLD	WET	WQE
114.21	Laguna Hydrologic Subarea	P	E	E	P	E	E	E	E	E	E	E	E	E			E	E		E	E	P		P				

Existing Beneficial Uses

- Water supply- Ag, Industry
- Groundwater recharge
- Freshwater replenishment
- Recreation – eg. Swimming and boating
- Commercial and sport fishing
- Warm water habitat
- Coldwater habitat
- Freshwater species migration and reproduction

• Potential Beneficial Uses

- Water supply- Municipal
- Shellfish harvesting
- Aquaculture

Impairments

- Sediment
- Pathogen and Indicator Bacteria
- Mercury
- Temperature
- Dissolved Oxygen
  - Nutrients phosphorus and nitrogen

Dissolved Oxygen

- Indicator of water quality
- Negatively affected by nutrients
- Impacted by increased temperature
- Decreases in slow moving or stagnant water

Nutrients

- No specific numeric objectives identified in the basin plan
- Increased phosphorus and nitrogen levels causes invasive plant and algal growth
- These organisms grow and die – a process that consumes oxygen
- Invasive *Ludwigia* chokes the channel

Phosphorus Sources - Agriculture

- 115,696 lbs Phosphorus

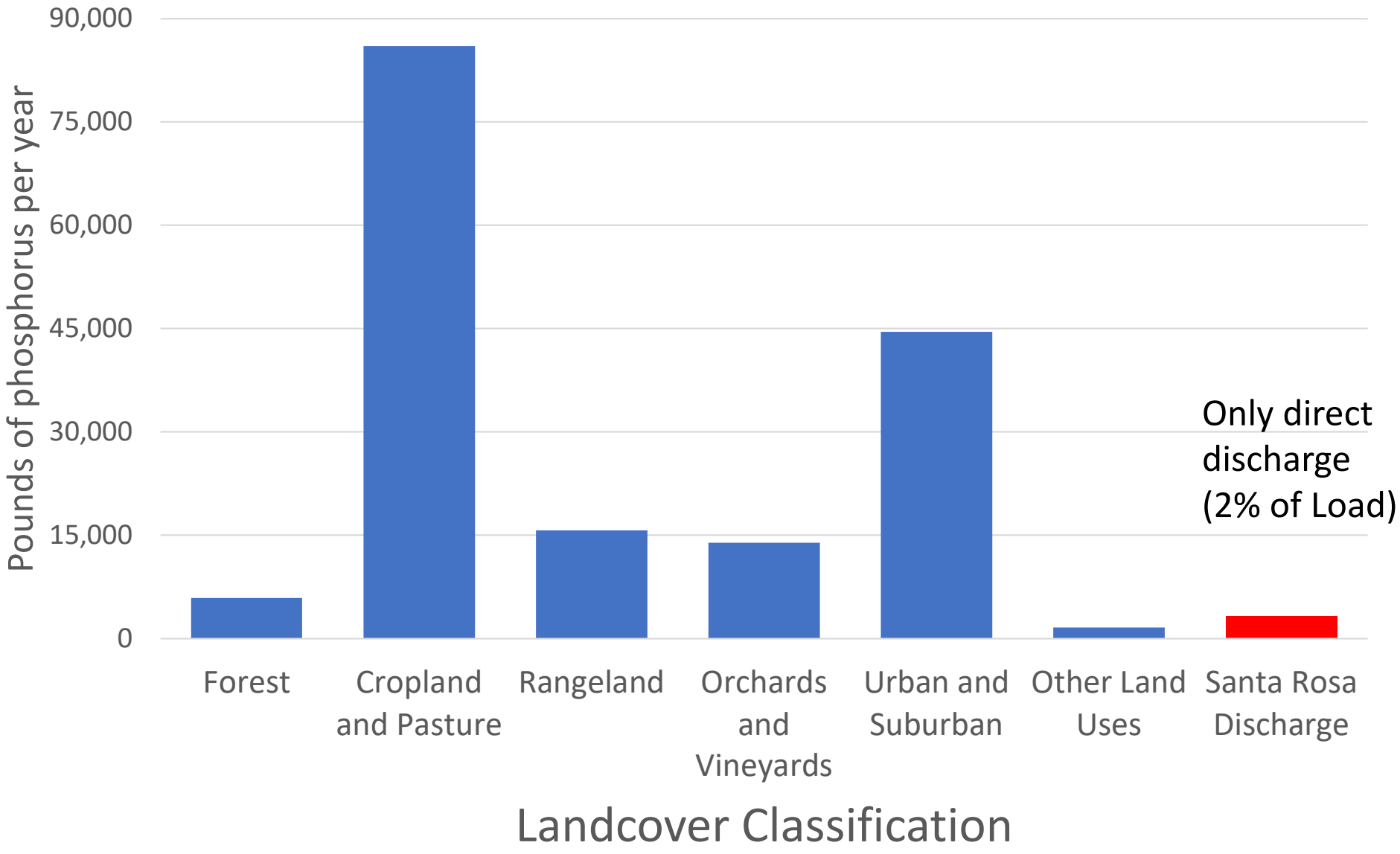
Nutrient Sources – Urban and suburban development

- 44,528 lbs Phosphorus

Impairment Sources – Waste water treatment plants

- 3,300 lbs Phosphorus

Annual Sources of Phosphorus in the Laguna



Laguna Recovery Needs

- Loading Reduction
- Restoration

Questions?

Attachment I

Wastewater Treatment / Recycled Water Reuse Program – Environmental Protection / Regulatory Compliance Presentation

Wastewater Treatment/ Recycled Water Reuse Program

Environmental Protection/ Regulatory Compliance

Outline

- Laguna Wastewater Treatment Plant - Facts
- Recycled Water Reuse Program
- Environmental Protection
  - NPDES Permit History & Phosphorus Requirements
  - Compliance Strategy
- Case for Alternative Compliance

Facts

- Regional Facility ~ serves 230,000 people in Santa Rosa, Rohnert Park, Cotati, Sebastopol and County areas
- Average daily inflow = 17.5 Million Gallons
- Average annual total = 7 Billion Gallons of Recycled Water produced
- Goals:
  - 100% Reuse
  - -0- discharge

Recycled Water Program Overview

Distribution:

2/3: Geysers Steamfields

(All Year)

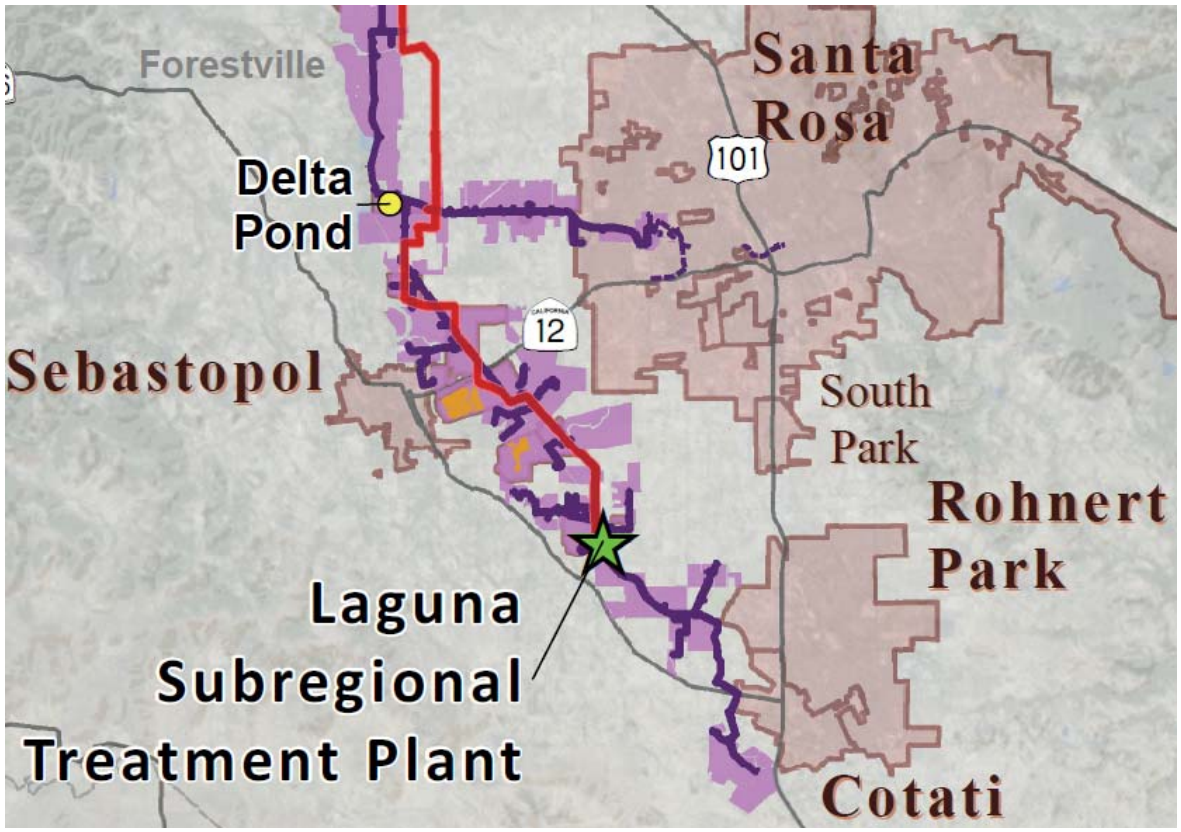
1/3: Irrigation

- Agriculture
- Urban

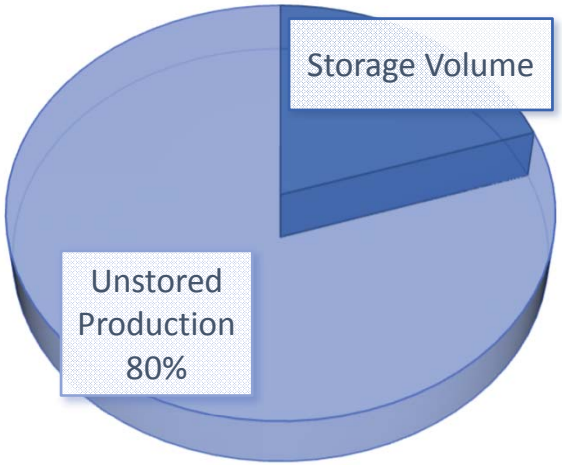
~ Santa Rosa

~ Rohnert Park

(Growing Season)



Recycled Water:
Annual Production & Storage



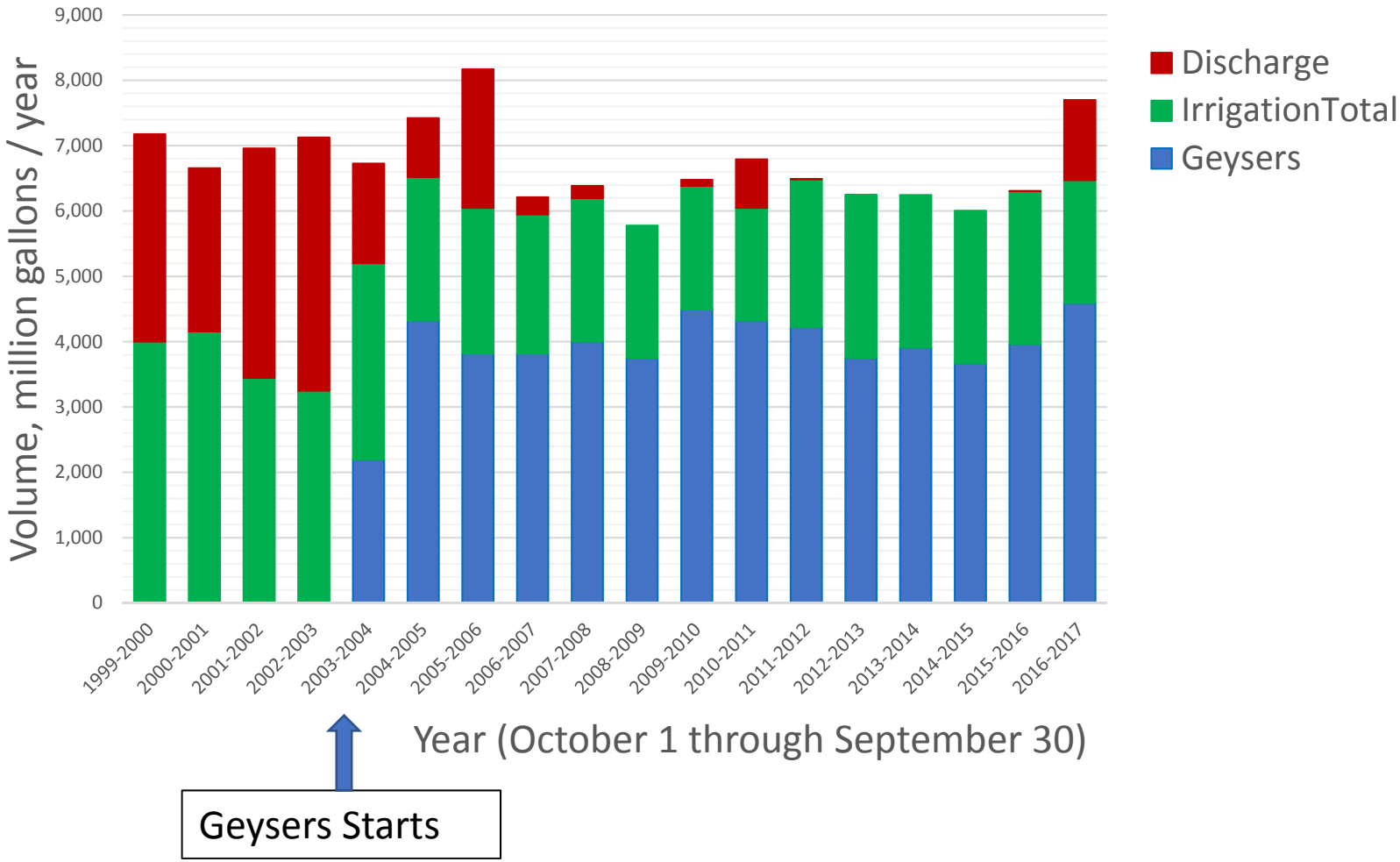
7 Billion Gallons – Produced, Annual Average

1.4 Billion Gallons – Pond Storage Capacity, Total

Recycled Water – Geysers Steamfields

- 2/3's Amount of Total Reuse
- Project Construction $225M
  - 42 miles long
  - 5 Pump stations
- Uses Recycled Water all year!

Annual Goal of 100% Reuse



Overview: Environmental Protection

- Clean Water Act - NPDES Discharge Permits:

  Sets water quality standards for discharges from wastewater treatment plants.

  (Note: NPDES = National Pollutant Discharge Elimination System)

- North Coast Regional Water Quality Control Board (RWB):

  Issues NPDES Permit for Laguna Treatment Plant discharges into Santa Rosa Creek.

Regulatory Requirement for Phosphorus

Phosphorus Discharged < Phosphorus Offset

- 2006: Attain Zero Net Loading for both Nitrogen & Phosphorus
- 2008 RWB Approves Nutrient Offset Program (NOP) to support compliance options
  - ✓ Beyond Regulations
  - ✓ Water Quality/Ecosystem Benefits
  - ✓ Calculation Approval.
- 2009-present: NOP Project Development, Implementation
- 2013: Changed Zero Net Loading to Phosphorus only, sets 2016-17 as first compliance timeline

(Need to refine message…)

Phosphorus Compliance Approach

Strategies:

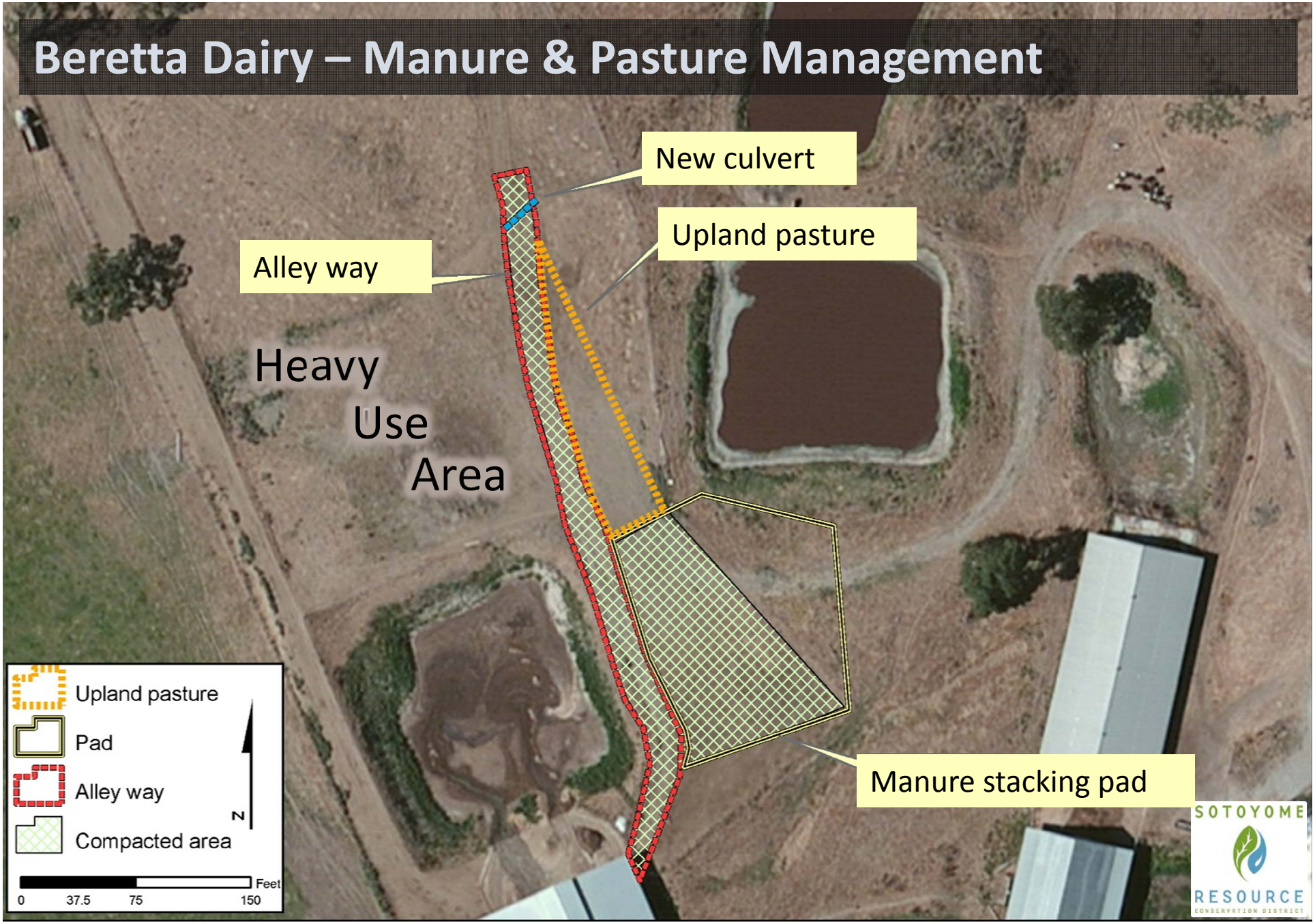
1. Maximize Reuse/Minimize Discharges
2. Decrease phosphorus in Recycled Water
3. Offset Discharges via Nutrient Offset Projects


Identify Projects
Land-owner Negotiation
Calculate Credits
City Board Approval
Regulator Approval
Build & Verify
Report
Credits

Three Nutrient Offset Projects Implemented

1) **Beretta Dairy –**
   Manure & Pasture Management
2) **Pepperwood Nature Preserve –**
   Road & Drainage Improvements
3) **Ocean View Dairy –**
   Manure Removal & Land Application

Beretta Dairy – Manure & Pasture Management



Beretta Dairy – Manure & Pasture Management

Pepperwood Preserve – Road & Drainage Improvements

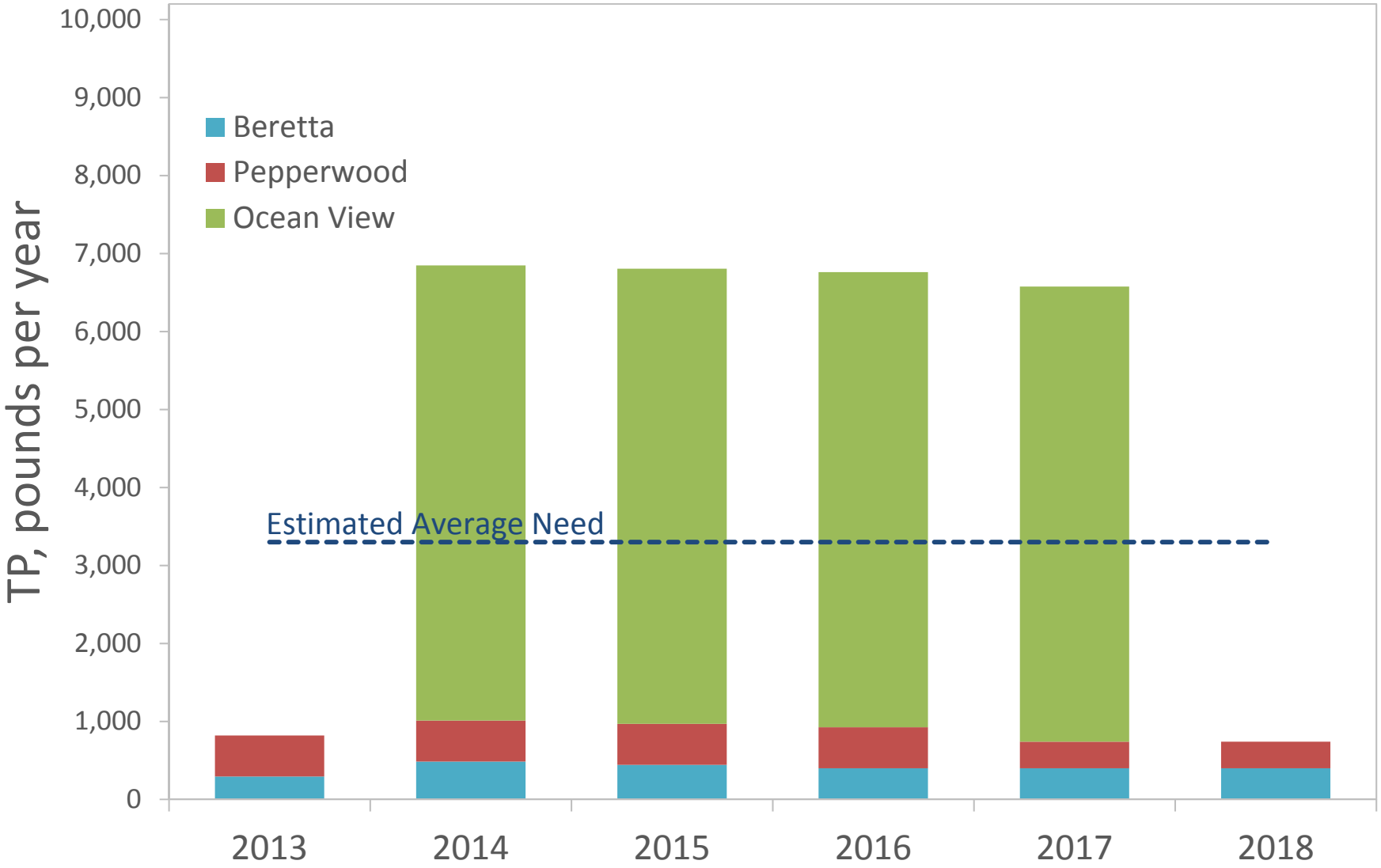
Ocean View Dairy - Manure Removal & Land Application

Nutrient Offset Credit Summary

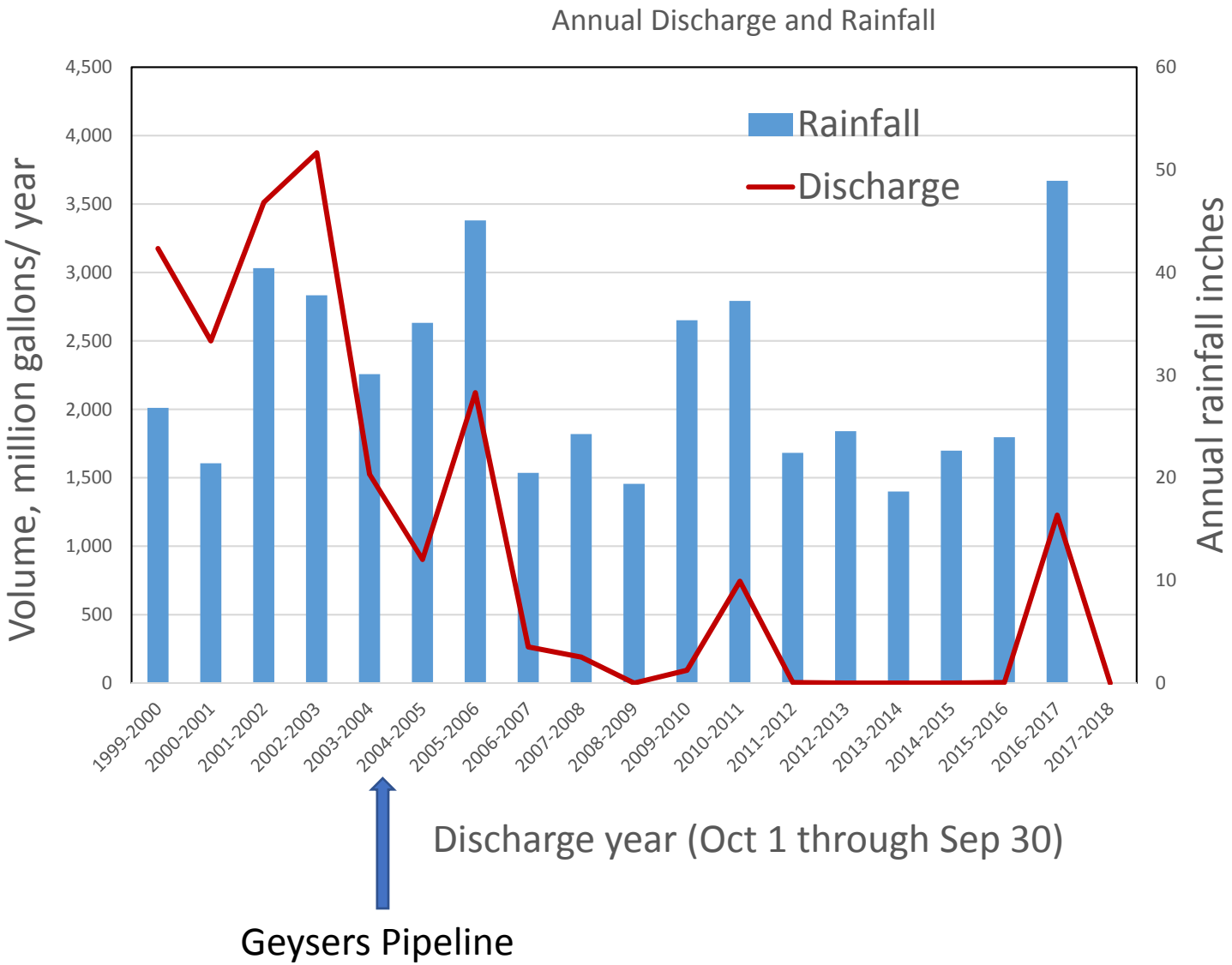
Project	Cost	Total Sum of Phosphorus Offset Credits	Cost per Credit
Beretta	$508,250	7,600	$67
Pepperwood	$512,850	10,964	$47
Ocean View	$474,000	23,345	$20
Total	$1,495,100	**41,909**	

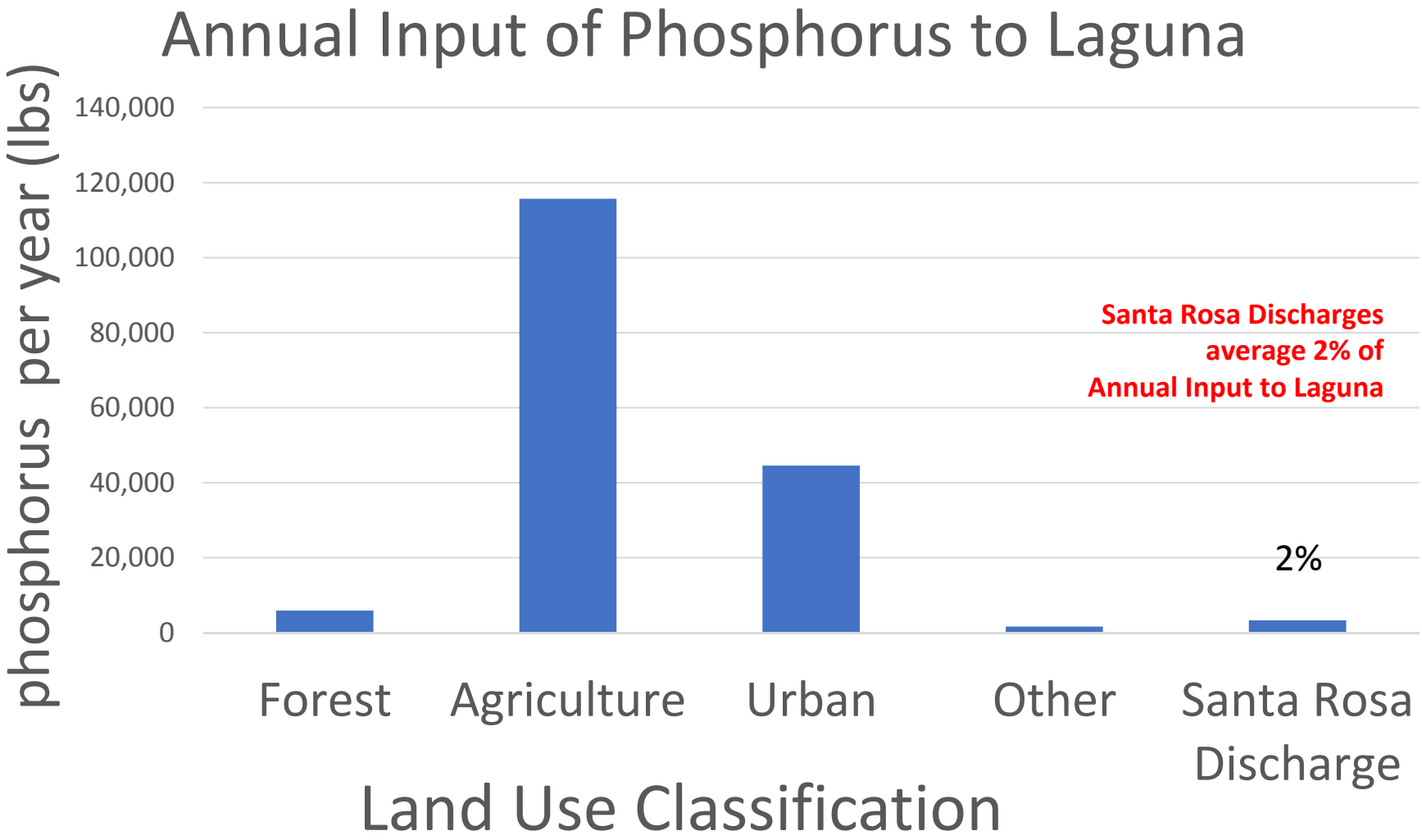
Note: Unused credits expire over time.

Earned Phosphorus Credits and Average Need



Santa Rosa has Episodic Discharges




Annual Input of Phosphorus to Laguna
phosphorus per year (lbs)
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
Santa Rosa Discharges average 2% of Annual Input to Laguna
2%
Forest
Agriculture
Urban
Other
Santa Rosa Discharge
Land Use Classification

Laguna de Santa Rosa Restoration

How to Derive Compliance to Support Ecological Uplift ?

Quantifying benefits of creek restoration is challenging

- Need full scale pre and post restoration hydraulic model $350K
- Need to have historic stream data
- Guarantee of credits
- Projects are expensive

Creek Restoration does not compete for quantified benefits.

Project	Cost	Total Sum of Phosphorus Credits	Cost per Credit
Beretta	$508,250	7,600	$67
Pepperwood	$512,850	10,964	$47
Ocean View	$474,000	23,345	$20
Colgan Creek	$2,500,000	21	$119,000

Considerations for the Future

No Net Loading Provision

- More entities will be responsible to offset their discharges – more projects needed
- Fewer projects will be available
- Compliance remains risk-based and uncertain
- Cost per offset credit will increase dramatically – chemical treatment may become cost-effective option.

Alternative Framework

- More entities responsible = greater amount of potential funding for large-scale restoration projects
- Large multi-benefit watershed projects can be funded
- Compliance will be certain
- Cost for Compliance will be predictable
- Stable rates for Ratepayers

Case for Alternative Compliance

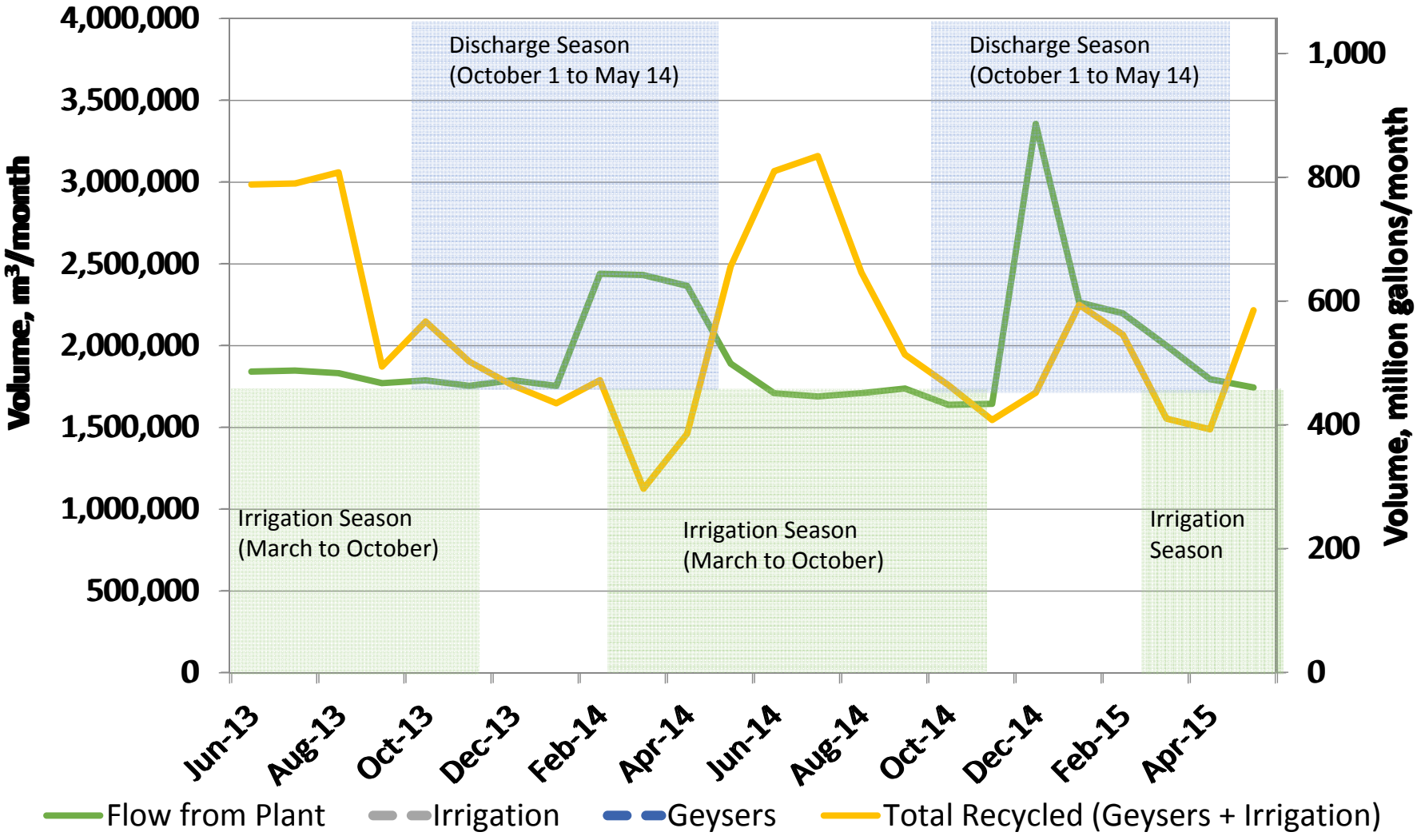
1. City has episodic discharge and actual credit needs are dependent on weather which cannot be predicted.
2. City's discharge/phosphorus input is small compared to overall watershed inputs.
3. Zero net loading is restricts projects to easily quantifiable measures.
4. Beneficial alternatives are not competitive:
   - Watershed Monitoring has no measurable offset benefit
   - Benefits of restoration are real but not easy to quantify
   - If restoration benefits are estimated, the results are low
5. Projects will become more costly as regulations tighten and additional entities are regulated.
6. Watershed scale projects provide watershed scale benefits.

Alternative Compliance Strategy Could Lead to Win-Win!

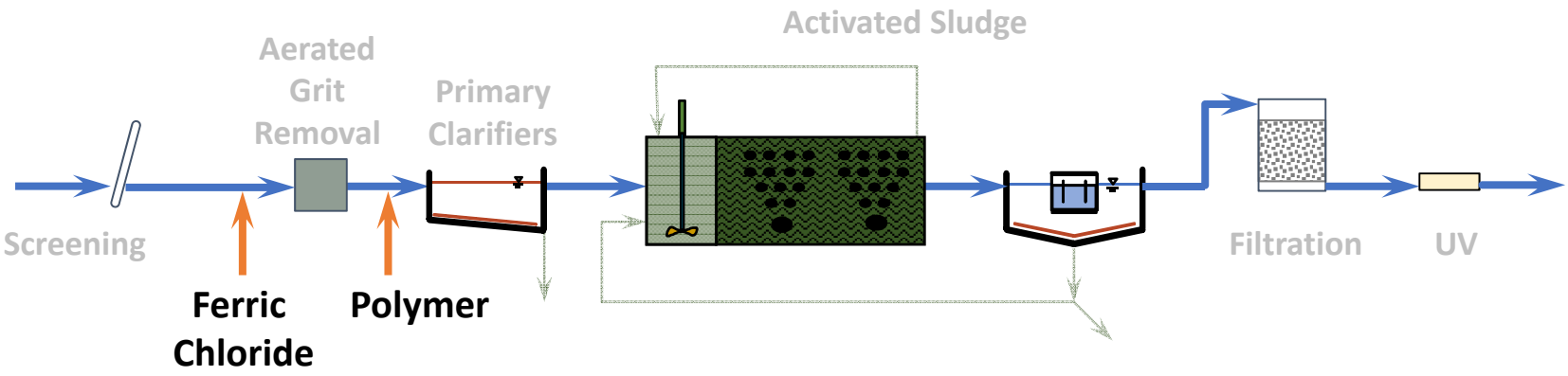
Need for Regional Monitoring

- Science-based decisions require data
- Laguna is a highly complex watershed
- Remove sources versus increase assimilative capacity?
- Identify multiple benefits

Strategy 1: Maximize Reuse/Minimize Discharge



Strategy 2: Reduce Phosphorus Levels



Offset Discharges via Nutrient Offset Program

- How is Compliance Determined?

  Three-year Rolling Average Mass Balance

- How many offset credits are needed?

  Depends! 3,300 lb/year average

- Eligible Project Types?

  Agricultural, Parks, Creek Restoration