

# McKinleyville Community Services District



## Update on NPDES Permit Compliance Tasks and Wastewater Management Facility Planning Services

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## **Presentation Overview**

**This presentation will cover the progress District Staff and SHN have made in addressing the following tasks:**

- Submittal of work plans and subsequent tasks required by the current NPDES permit;
- Review of discharge water quality and compliance issues;
- Progress of the marsh pond/aquatic vegetation establishment plan;
- Coordination with the RWQCB regarding a reduction in the amount and frequency of water quality testing at the WWMF;
- Progress of the 20-year facilities plan for the WWMF; and
- Review of the timelines for all future compliance-related tasks.

## **Work Plans Required and Special Study Tasks**

### **Special Study Work Plans Required:**

1. Toxicity Reduction Evaluation Work Plan (Completed Nov 2008)
2. Discharge Compliance Study Work Plan (Completed Jan 2009)
3. Water Reclamation Study Work Plan (Completed Feb 2009)

### **Special Study Final Deadlines:**

1. Reclamation Study Report of Findings (Due Feb 2011)
2. Discharge Compliance Study Results/Commitment (Due Jan 2012)

## **Work Plans Required**

### **1. Toxicity Reduction Evaluation Work Plan**

The District submitted a work plan in November 2008 that describes the steps that will be followed if toxicity is detected in the WWMF effluent.

### **2. Discharge Prohibition Compliance Work Plan**

The District needed to comply with one of the special study requirements in the NPDES permit in order to assure compliance with the State of California Bays and Estuaries Policy and with the Basin Plan's summer discharge prohibitions for the Mad River. In January 2009, the District submitted a written commitment to modify existing effluent disposal methods (discontinue use of the percolation ponds).

### **3. Water Reclamation Study Work Plan**

The District submitted a water reclamation study work plan in February 2009 addressing tasks needed to determine the appropriate salt, nutrient, and irrigation management practices at the WWMF land reclamation sites.

## **Special Study Tasks**

### **1. Water Reclamation Study Report of Findings**

By February 2011, the District is required to submit a report describing the findings and conclusions of the reclamation study that models the fate and transport of wastewater, nutrients, and salts at the designated land reclamation sites.

### **2. Discharge Prohibition Commitment**

By January 2012, the District is required to submit a written proposal to study disposal alternatives to comply with the Bays and Estuaries and with the Basin Plan discharge prohibitions. The study plan will contain milestones and a time schedule for selection and implementation of an alternative disposal method. The study time schedule will be as short as practicable but no longer than five years from the expiration date of the adopted Order.

## Special Study Tasks

### Other Deliverables/Deadlines in the current NPDES permit:

1. Pollutant Minimization Program
2. Updated O&M Manual
3. Sanitary Sewer Overflow Notification Program
4. Compliance Schedule Tasks for Priority Pollutants
  - Local Business Notification (Completed)
  - Sanitary Sewer Monitoring Implementation (Completed)
  - Develop Local Waste Discharge Permits (Ongoing)
  - Adopt Local Ordinances (Ongoing)
  - Evaluate Compliance with Final Limitations (Ongoing)
  - Comply with Final Effluent Limitations (Due May 2010)

## **Discharge Water Quality Review**

### **Overview of WWMF Discharge Water Quality Testing Parameters:**

- Biochemical Oxygen Demand (BOD)
- Total Suspended Solids (TSS)
- Settleable Solids
- pH/Temp/Chlorine
- Nitrate as Nitrogen
- Total Coliform Organisms
- Acute and Chronic Toxicity Testing
- Other Parameters (Metals, Dioxins, etc.)

**The NPDES permit sets forth effluent limitations for each parameter at the various WWMF compliance monitoring locations.**



## WWMF Compliance Monitoring Locations



### Monitoring Locations:

M-001: WWMF/CC Chamber

M-002: Mad River at Hammond

M-003: Percolation Ponds

M-004: Lower Fischer Ranch

M-005: Upper Fischer Ranch

M-006: Hiller Wetlands Inflow

M-007: Pialorsi Ranch

M-008: Hiller Wetlands Outflow

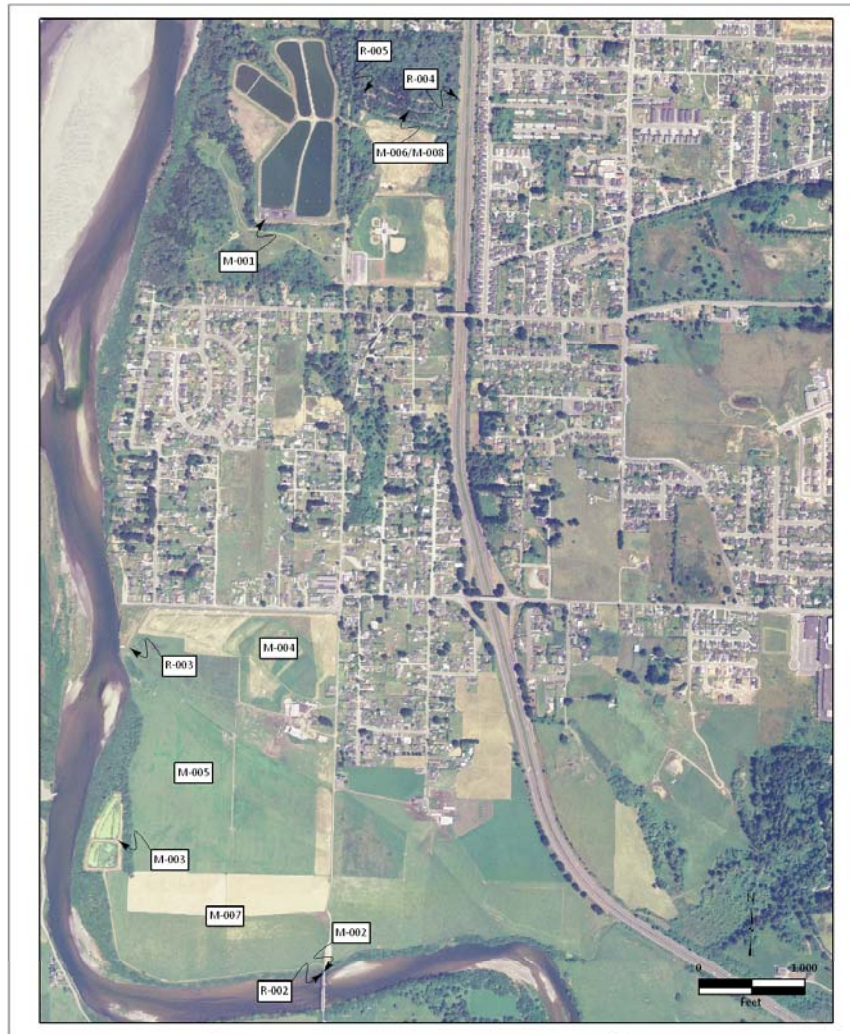


## Discharge Water Quality Review

### Receiving Water Limitations

- Surface Water Limitations
- Groundwater Limitations
- Receiving water limitations are primarily narrative limitations based on water quality objectives for the receiving water.
- The groundwater limitations apply to areas surrounding the land reclamation sites.

## WWMF Receiving Water Locations



### Receiving Water Locations:

R-001: Mad River at Hwy 101

R-002: Mad River at Hammond

R-003: Lower Fischer Ranch

R-004: Hiller Wetlands Inflow

R-005: Hiller Wetlands Outflow

There are also a series of groundwater monitoring wells located in the vicinity of the land reclamation sites.

## Discharge Compliance Summary

### Parameters of Concern

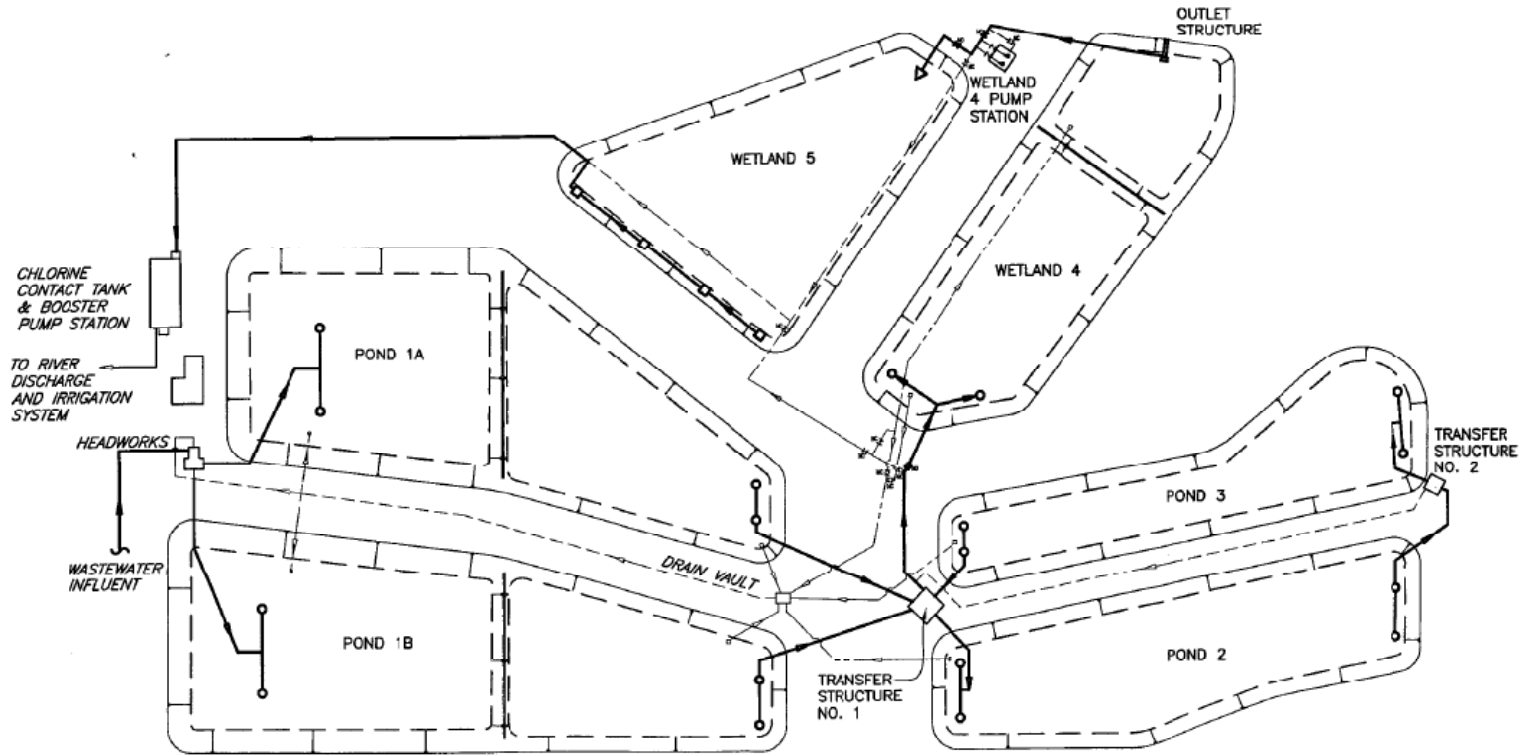
- BOD/TSS
- Priority Pollutants
- Nitrate as Nitrogen
- Acute and Chronic Toxicity

In September 2009, the District submitted a summary of the 2008-2009 discharge season toxicity testing results for the WWMF to the RWQCB, identifying effluent ammonia toxicity concerns.

In October 2009, the RWQCB provided concurrence with the approaches recommended to address the identified ammonia toxicity.

The recommended approaches included both short-term and long-term solutions for addressing ammonia toxicity concerns.

# MCSD Wastewater Management Facility



## Treatment Marsh Planting Program

### Emergent Treatment Wetland Marsh Planting

- The District has an on-going re-vegetation program for the treatment wetland marshes.
- Loss of vegetation is from flooding and waterfowl predation.
- As needed, additional bulrush are planted in Wetlands 4 and 5 every summer to fill in open areas.
- Wetland 4 currently has 60% coverage with mature bulrush.
- Wetland 5 currently has 70% coverage with mature bulrush.

## **Aquatic Plant Establishment Plan**

### **Submerged Aquatic Vegetation Planting**

- The current pond and wetland system at the Facility lacks Submerged Aquatic Vegetation (SAV).
- The EPA has identified SAV as a critical planting media for promoting ammonia removal in open water areas of a constructed treatment wetland system.
- In December 2009, the District submitted an aquatic plant establishment plan to the RWQCB that addresses the proposed task of establishing SAV in Pond 3 at the WWMF.
- District staff have initiated a pilot study to evaluate the use of SAV at the WWMF. Results to date indicate the SAV will help promote ammonia reduction in the treatment system.

## Monitoring and Reporting Program Changes

In December 2009, the District submitted a request to the RWQCB for revisions to the Monitoring and Reporting Program (MRP).

### 1. Change in Receiving Water Designations

- The District is requesting the receiving water designations and the associated monitoring requirements for receiving water monitoring locations R-003, R-004, and R-005 be removed from the MRP.

### 2. Change in Monitoring Frequency for Constituents of Concern

- The District is requesting the monthly monitoring requirements for bis (2-Ethylhexyl) phthalate, 4,4'-DDT, a-hexachloro-cyclohexane, and dioxins be changed to quarterly monitoring requirements.
- The District has also expressed interest in participating in a regional surface water monitoring program for dioxins.

These changes will significantly reduce monitoring costs for the facility in terms of both analytical fees and manpower requirements.

## **20-Year Facilities Plan**

### **20-Year Facilities Plan Goal:**

Develop sustainable wastewater solutions for the MCSD wastewater collection, treatment and disposal system.

### **Overview:**

1. Collection System Evaluation
2. Feasibility Study
3. Wastewater Treatment Plant Improvements
4. Effluent Disposal Options
5. Financing Plan/CIP Development
6. Additional Considerations



## **20-Year Facilities Plan**

### **1. Collection System Evaluation**

- Review Existing System/Rehabilitation Plans
- Address Overflow Prevention
- Evaluate Community Growth Scenarios

### **2. Wastewater Treatment Plant Improvements**

- Identify Treatment Alternatives
  - Expand/Replace Existing System
- Evaluate Disinfection Strategy
  - Existing Chlorine Usage
  - UV Disinfection/Ozone Generation
- Utilize Existing Wetlands
  - Tertiary Treatment
  - Effluent Storage

## 20-Year Facilities Plan

### 3. Effluent Disposal Options

- Mad River Discharge
  - Driven by Basin Plan Regulations
  - Limited Timeframe for Disposal
  - 100:1 Dilution Requirement
- Land Reclamation/Reuse
  - Review Current Reclamation System
  - Evaluate Crop Cover Options for Increased Nutrient Uptake
  - Investigate Requirements for “Purple Pipe” Reuse
- Ocean Outfall
  - Driven by Ocean Plan Regulations
  - Review Permitting Requirements
  - Evaluate Design Constraints

## **20-Year Facilities Plan**

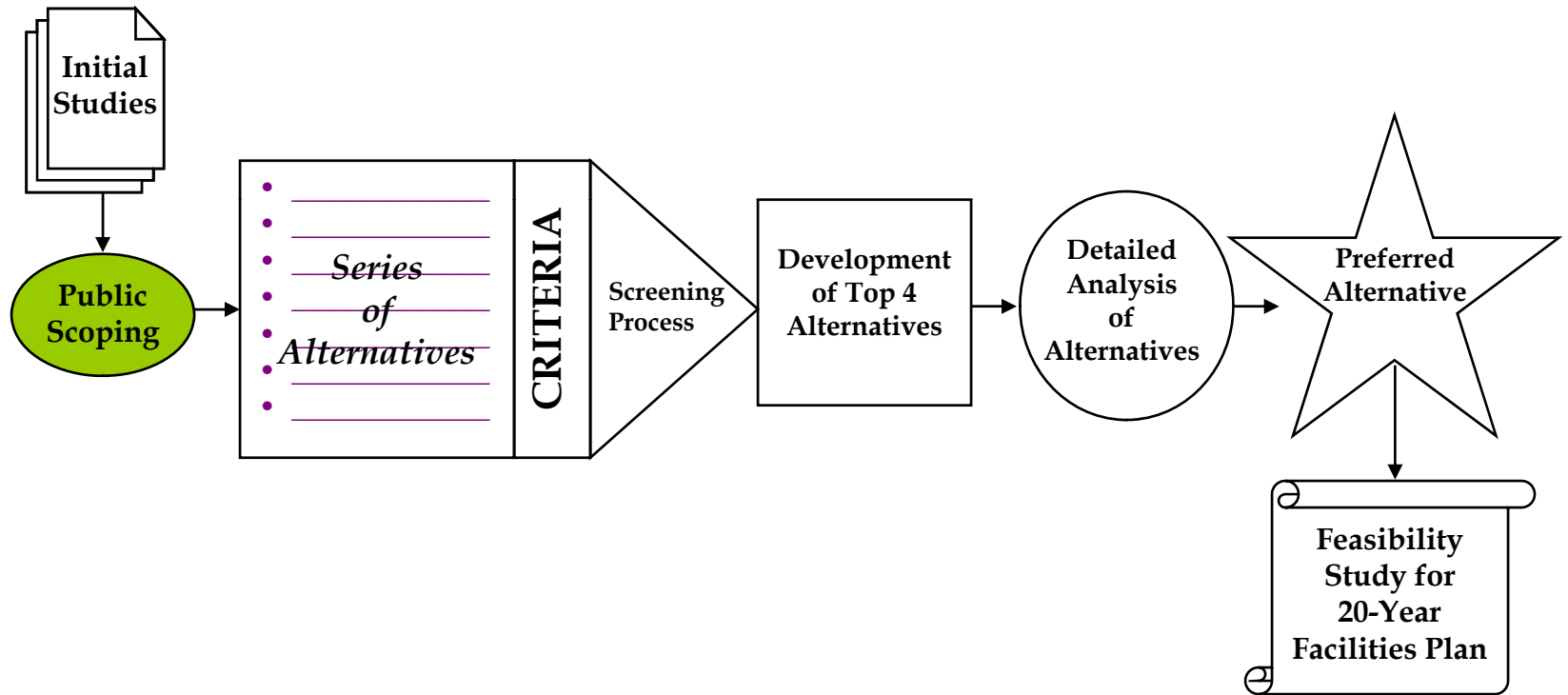
### **4. Financing Plan/CIP Development**

- Upgrade/Replacement Budget
- Operations Budget
- Debt Reduction

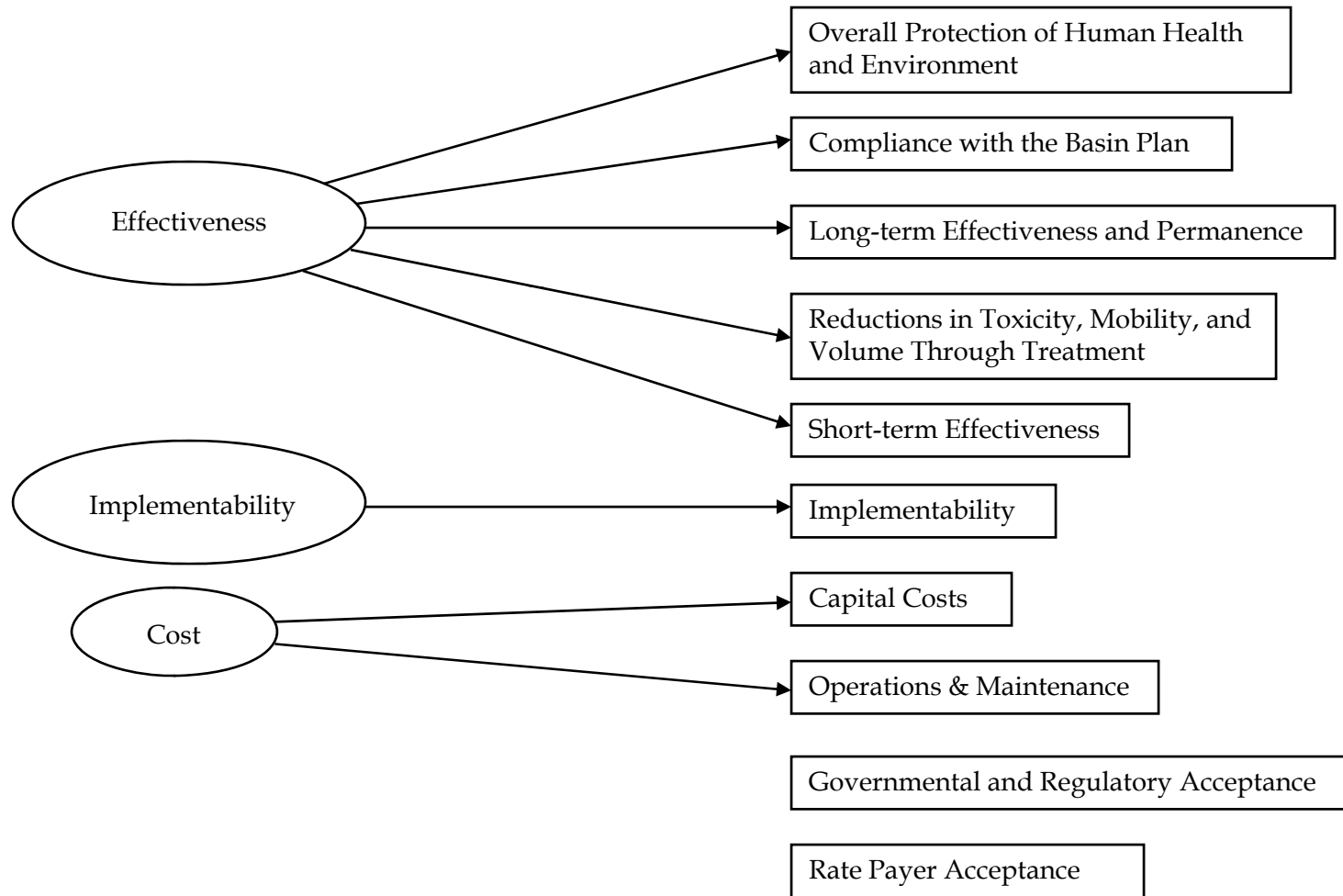
### **5. Additional Considerations**

- Energy Efficiency
- Opportunities for Incremental Improvements
- Anticipated Regulatory Compliance Changes

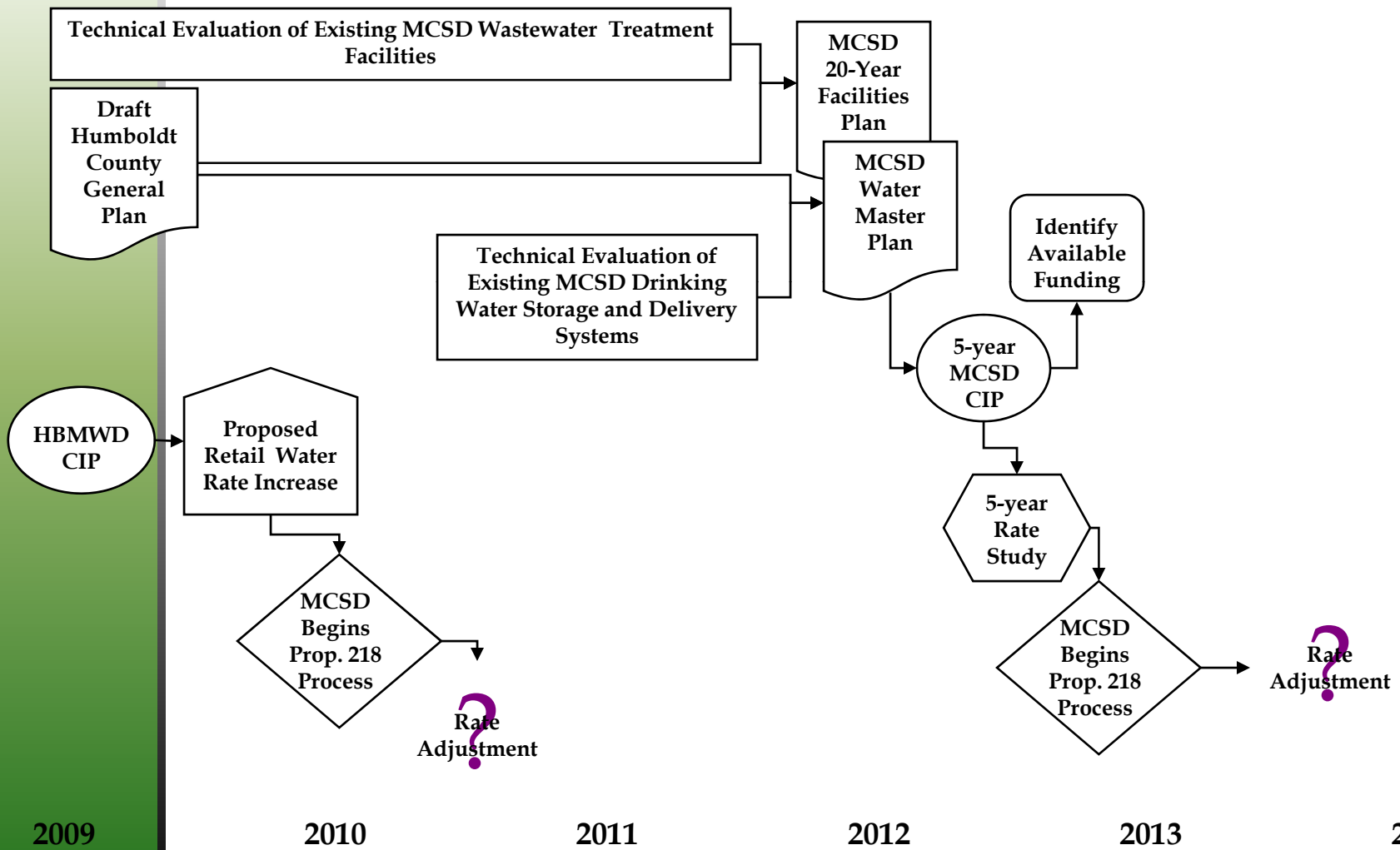
# Feasibility Study for 20-Year Facilities Plan



## Criteria for Feasibility Study



# MCSD Improvement Planning Overview



## **Summary of Future Tasks**

### **Modification of Summertime Effluent Disposal Practices**

- Conduct Pilot Study using Poplar Trees
- Review Discharge/Permitting Requirements for Ocean Outfall

### **Water Reclamation Study**

- Evaluate Land Reclamation Capacity
- Determine if Land Disposal Permit is Needed

### **Aquatic Vegetation Establishment Plan**

- Summarize Pilot Study Findings
- Implement SAV Planting of Pond 3

### **20-Year Facilities Plan**

- Continue Review, Evaluation, and Improvement Planning Process

## **Community Input Opportunities**

**The District will complete the 20-Yr Facilities Plan by December 2011.**

- Community input is an integrated part of the facilities planning process.
- The District looks forward to receiving comments from the public on the improvement plans proposed.
- The District will be hosting a series of workshops this year to provide opportunities for community input.
- The first workshop will be scheduled for Spring 2010.

**We look forward to seeing you there!**

