Project Status Update

PRESENTATION




Feasibility Study for Dry Creek Bypass Pipeline Project

Sonoma County Water Agency

HDR

In collaboration with

Kennedy Jenks

May 2010

Presentation Agenda

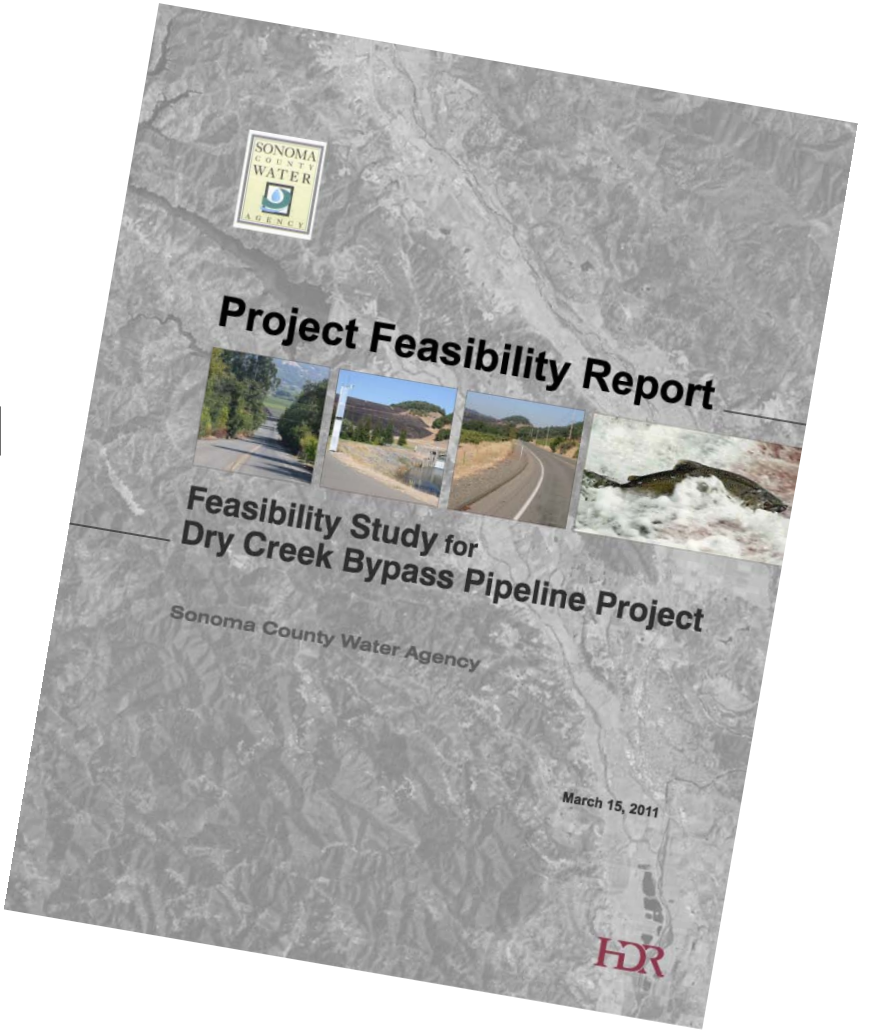
- Project Overview
- Alternatives Evaluation
  - Inlet
  - Pipeline Alignment
  - Outlet
- Preferred Alternative

Project Need

- Biological Opinion limits flow in Dry Creek during high water demand periods
- Bypass pipeline would convey flows that cannot be sustainably managed in Dry Creek

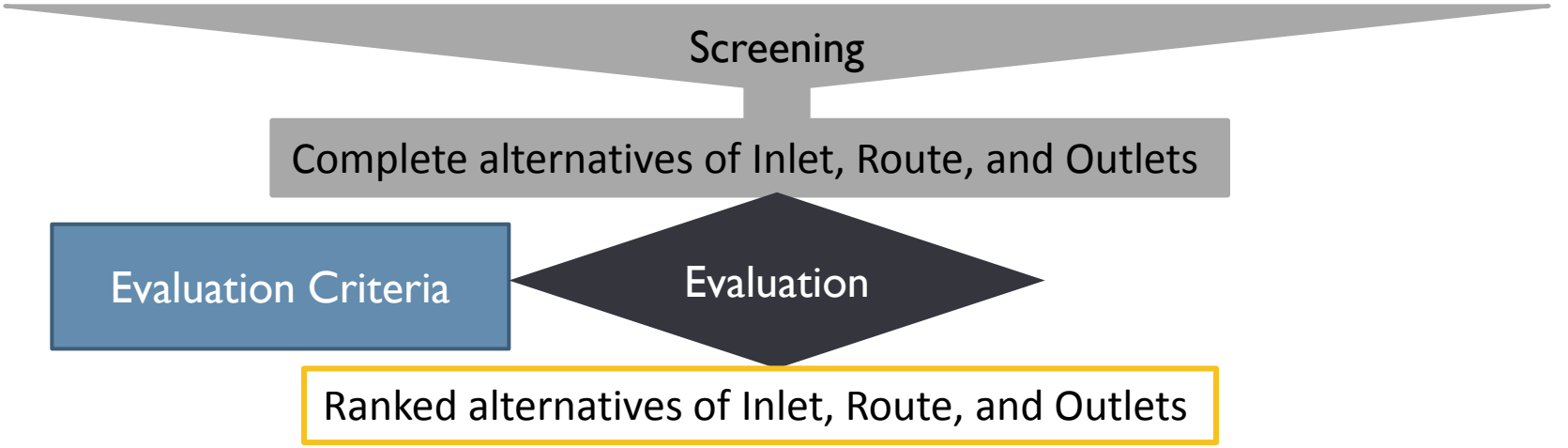
Project Objectives

- Identify the Most Advantageous Project
  - Inlet
  - Pipeline Alignment
  - Outlet
- Define Project, Permitting, and Regulatory Requirements
- Define Capital and Operating Costs

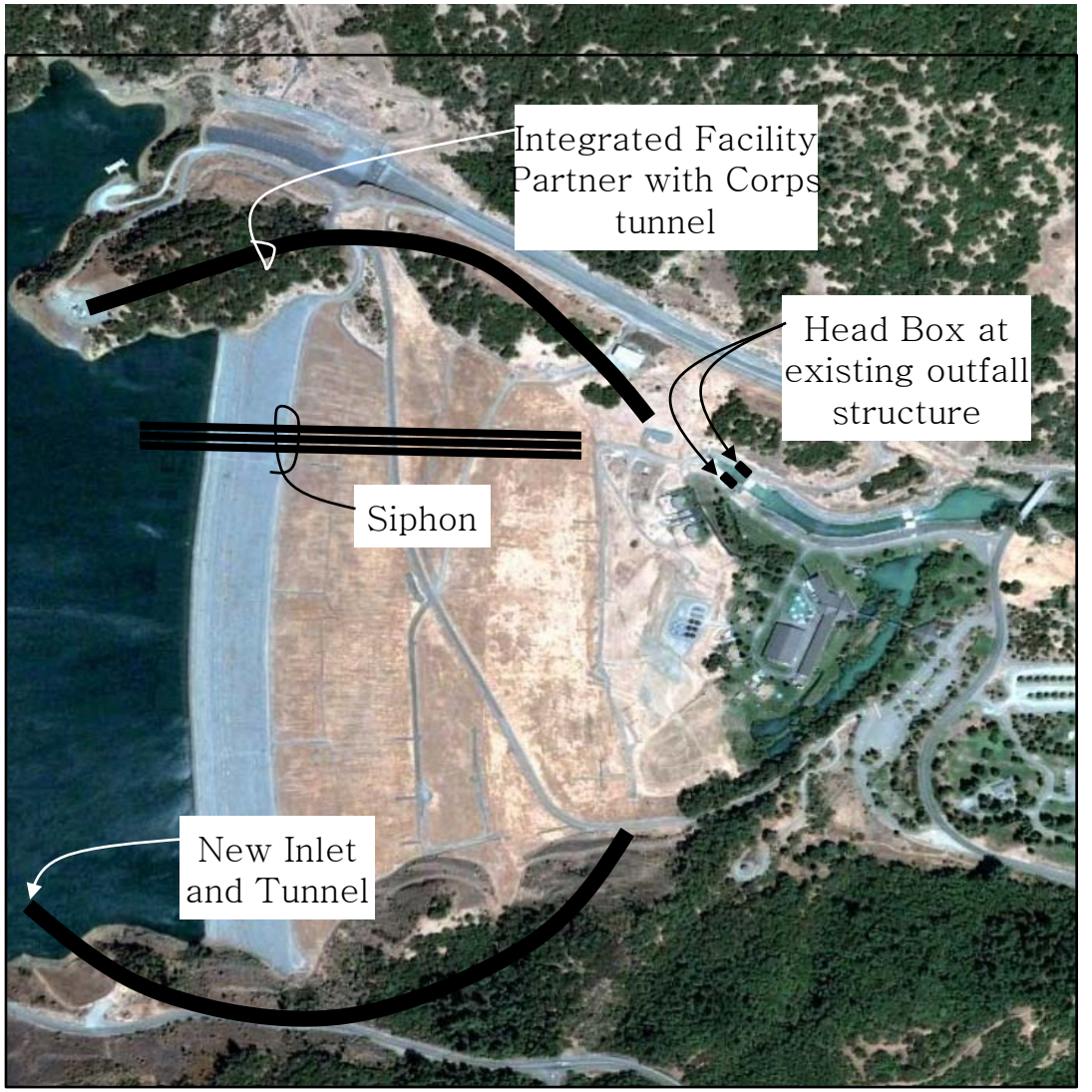


Screening and Evaluation Process

Inlet Options	Pipeline Routes	Outlet Options
Headbox at Stilling Basin	Northern	Dry Creek
Siphon over Dam	Central	Russian River
New Works at Left Abutment	Southern	
Tie to Existing Control Tower		



Inlet Options



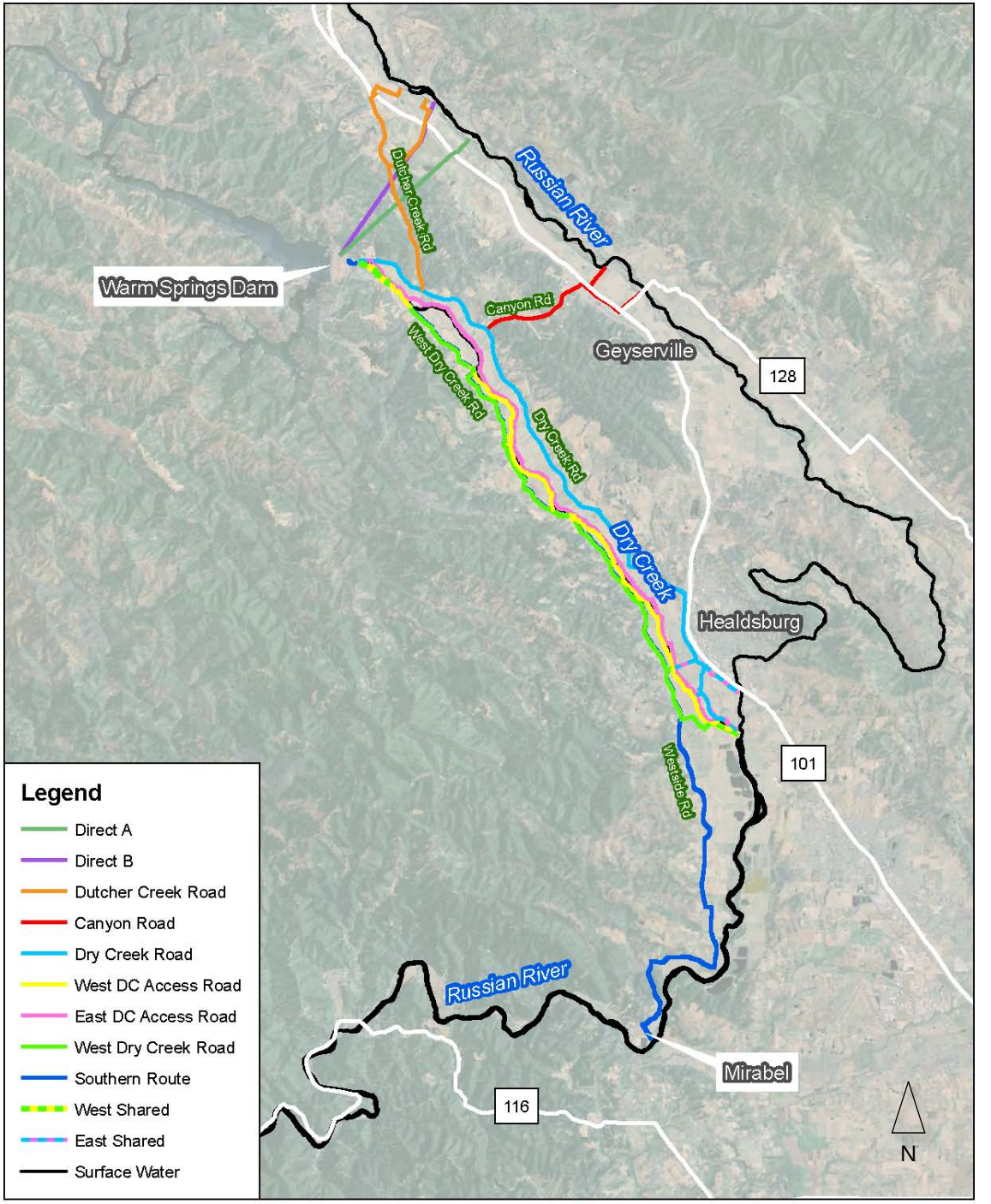
- Stand Alone Facilities
  - New outlet facility through left abutment
  - New head bay adjacent to existing stilling basin
  - Siphon system over dam
- Integrated Facilities
  - New tunnel/pipeline tapping into existing wet well

Inlet Screening

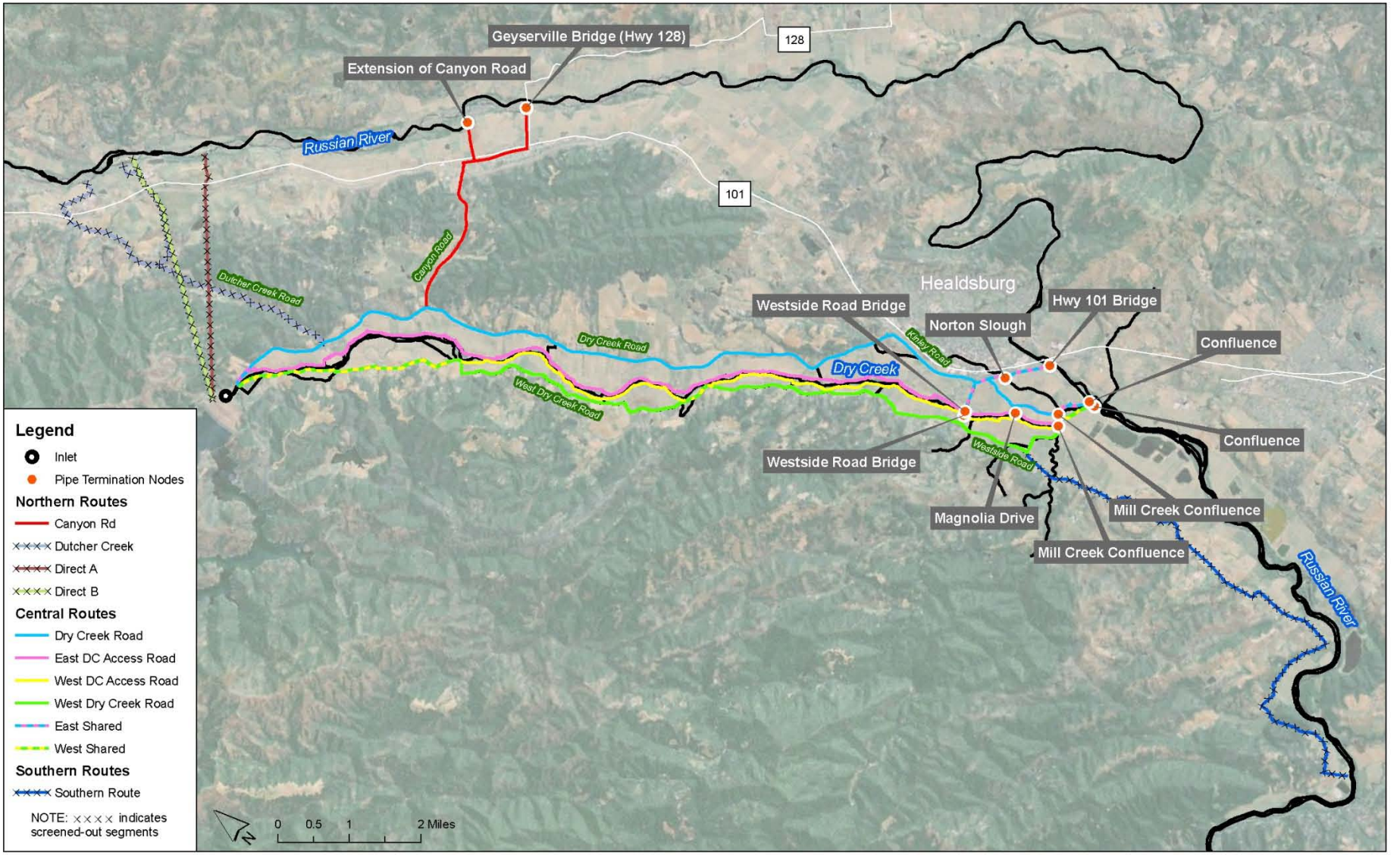
Option	Design & Construction	Facility Operability
Head Box Adjacent to Stilling basin	Satisfactory	Satisfactory
Siphon Over Existing Dam	Unacceptable	Unacceptable
New Tunnel Through Left Abutment	Conditionally Unacceptable	Satisfactory
Integrated Facility	Satisfactory	Satisfactory

Route Options

- Northern
  - Canyon Rd
- Central
  - Dry Creek Rd
  - W. Dry Creek Rd
  - Paralleling Dry Creek
- Southern
  - Westside Rd

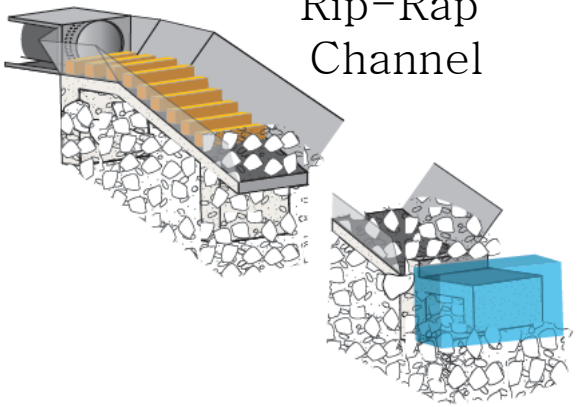


Route Screening & Outlet Sites

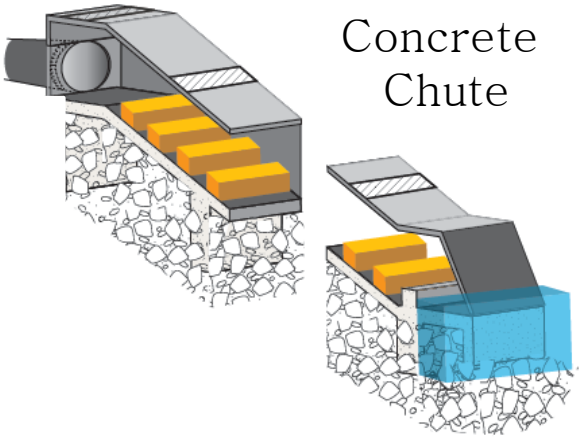


Outlet Facility Options

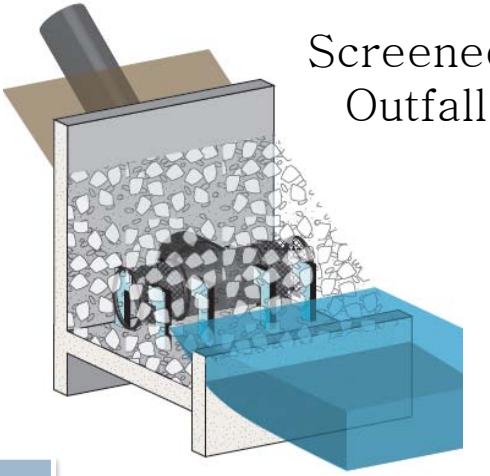
Riverbank Outfalls



Rip-Rap Channel

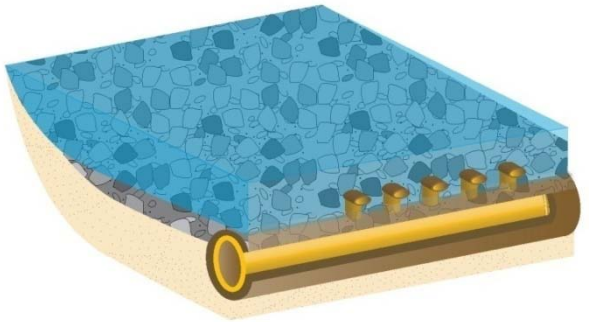


Concrete Chute

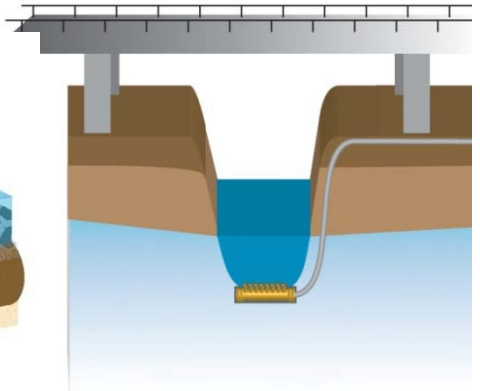


Screened Outfall

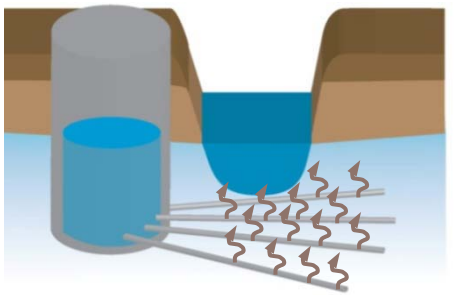
Diffusers



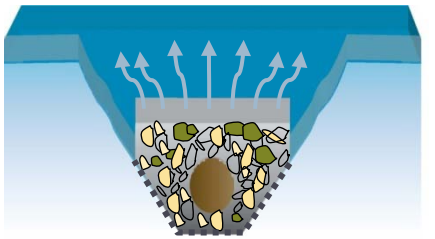
In-River Diffuser



Bridge Pier



Radial Injection Well



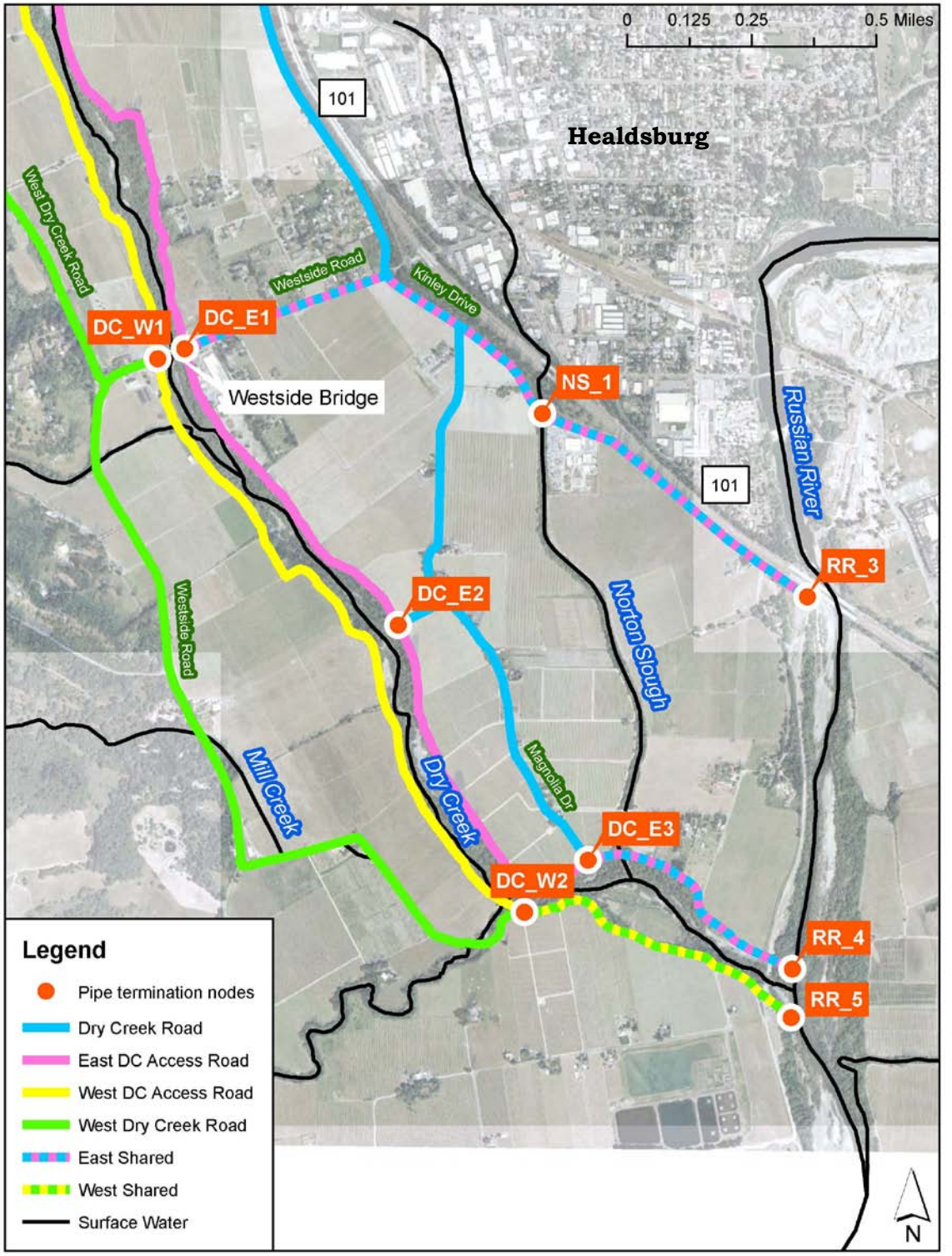
In-Bed or In-Bank

Outfall Type Screening

Outlet Facility	Engineering Criteria	Fisheries Criteria
Riverbank Outfalls		
Riprap River Riverbank Outfall	Excellent	Satisfactory
Concrete Chute Riverbank Outfall	Excellent	Poor
Screened	Excellent	Excellent
In-River Diffusers		
Typical In-River Diffuser Installation	Satisfactory	Poor
Microtunnel In-River Diffuser Installation	Satisfactory	Satisfactory
Bridge Pier In-River Diffuser Installation	Satisfactory	Poor
In-Bed Diffusers		
Without Engineered Backfill	Poor	Excellent
With Engineered Backfill	Poor	Excellent
In-Bank Diffusers		
Typical In-Bank Diffusers Installation	Poor	Excellent

- Engineering Criteria
  - Relative Cost
  - Ease of Operation
  - Timing and Reliability
  - Ease of Construction
  - Capacity
  - Water Quality Impact
  - Visual Impact
- Fish Criteria
  - Dissolved Oxygen
  - Temperature
  - Erosion
  - Predator Habitat
  - Bank Habitat
  - Channel Dynamics
  - Construction

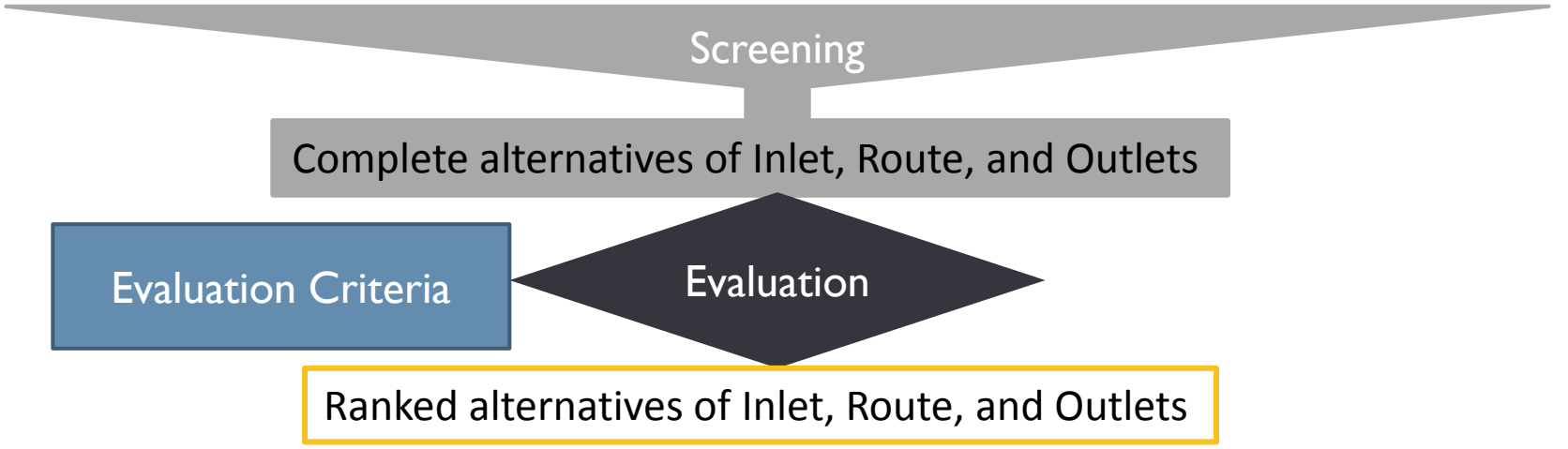
Outlet Locations*



*2 other locations on Russian River near Geyserville

Screening and Evaluation Process

Inlet Options	Pipeline Routes	Outlet Options
Headbox at Stilling Basin	Northern	Dry Creek
Tie to Existing Control Structure	Central	Russian River



Evaluation Criteria

Inlet Facility	Pipeline Route	Outlet Facility
	Engineering	
Reliability	Reliability	Reliability
Constructability	Constructability	Constructability
Permitting	Permitting	Permitting
Operations	Operations	Operations
Right of Way Acquisition	Right of Way Acquisition	Right of Way Acquisition
Liquefaction Potential	Liquefaction Potential	Liquefaction Potential
	Hydropower Potential	River Channel Stability
	Special Crossings	Accessibility
	Environmental	
Wetlands	Wetlands	Wetlands
Habitats and Sensitive Species	Habitats and Sensitive Species	Habitats and Sensitive Species
Hazardous materials	Hazardous materials	Hazardous materials
Cultural Resources	Cultural Resources	Cultural Resources
	Impact to trees (roots)	Water Quality/Fisheries

Preferred Alternative

- Inlet – Headbox at Existing Stilling Basin
  - Cost is significantly less than Integrated Facility
- Pipeline Alignment – Dry Creek Road with Microtunnels
  - Constructability and Tree Loss
  - Right of Way Acquisition
  - Less Riparian Disruption
- Outlet Location – Adjacent to Highway 101 Bridge at the Russian River
  - River Channel Stability
  - Operations

Opinion of Estimated Costs

Item	Cost ($ Millions)*
Inlet	2.58
Pipeline	61.54
Outlet	4.09
Construction Markups	38.72
Construction Cost	106.84
Environmental	3.55
ROW	1.22
Subtotal	111.61
Engineering (10%)	10.68
Construction Legal (5%)	5.34
Construction Admin (8%)	8.55
Owner Admin (5%)	5.34
Total Project Cost	141.52

*Cost is based on construction of a 72-inch bypass pipeline and associated facilities.

Project Status Update

PRESENTATION




Feasibility Study for Dry Creek Bypass Pipeline Project

Sonoma County Water Agency

HDR

In collaboration with

Kennedy Jenks

May 2010