

Call to Order (Attendance, Agenda, Ethics)  
Review & Approve Minutes  
Kitsap Transit Update  
Springbrook Watershed Assessment Project & Draft Priority Actions  
Next Meeting Agenda Items  
New/Old Business  
Adjourn

---

**Call to Order (Attendance, Agenda, Ethics)**

Chair Maradel Gale called the meeting to order at 8:38 pm. Island Center Subarea Planning Steering Committee members in attendance were Donna Harui, Michael Loverich, Micah Strom, Scott Anderson, and Michael Killion Planning Commission, Tracy Collier, Lisa Neal, and Joe Dunstan Design Review Board were absent and excused. City Council member Sarah Blossom was in attendance. City staff in attendance were Michael Michael Engineering Manager, Gary Christensen Planning Director, Jennifer Sutton Senior Planner, and Administrative Specialist Carla Lundgren who recorded the meeting and prepared minutes.

**Review & Approve Minutes**

No minutes available to review & approve.

**Kitsap Transit Update: Ed Coviello, Transportation and Land Use Planner**

*(Discussion Only)*

**Springbrook Watershed Assessment Project and Draft Priority Actions**

Bainbridge Island Land Trust: Brenda Padgham, Conservation Director & Gina King, Conservation Project Lead *(See presentation material)*

**Discuss Agenda for Next Meeting: July 18, 2018**

- Continued presentations from resourceful community partners
- Discuss the feedback received from survey
- Review material gathered from the Open House

**New/Old Business**

The next regular scheduled meeting on July 4, 2018 is cancelled due to the Fourth of July holiday.

**Adjourn**

The meeting adjourned at 8:29 pm.

Approved by:



Maradel Gale, Chair



Carla Lundgren, Administrative Specialist





# Island Center Subarea Planning Process Steering Committee Meeting

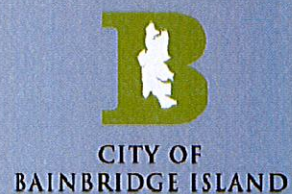
**June 20, 2018 6:30 – 8:30 PM**

**PLEASE PRINT**

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# SPRINGBROOK CREEK WATERSHED ASSESSMENT PROJECT



With assistance from: WDFW, WDOE, Suquamish Tribe

6/20/18 Island Center Planning Meeting





[Grants](#)

[Recreation](#)

[PRISM](#)

[Conservation](#)

[Salmon Recovery](#)

[Invasive Species](#)

[Project Search](#)

[Documents](#)

Recreation and Conservation  
Funding Board

Salmon Recovery Funding  
Board

[Members](#)

[Meetings](#)

[Mission and Strategic Plan](#)

[Funded Grants](#)

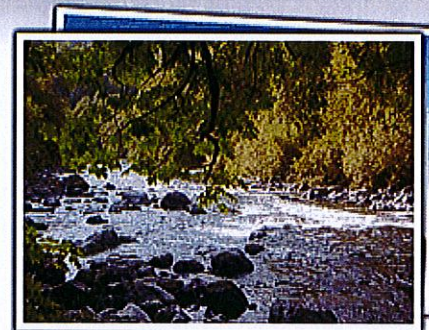
Invasive Species Council

Governor's Salmon Recovery  
Office

## Salmon Recovery Funding Board

In 1999, the Washington State Legislature created the Salmon Recovery Funding Board. The board provides [grants](#) to protect or restore salmon habitat and assist related activities.

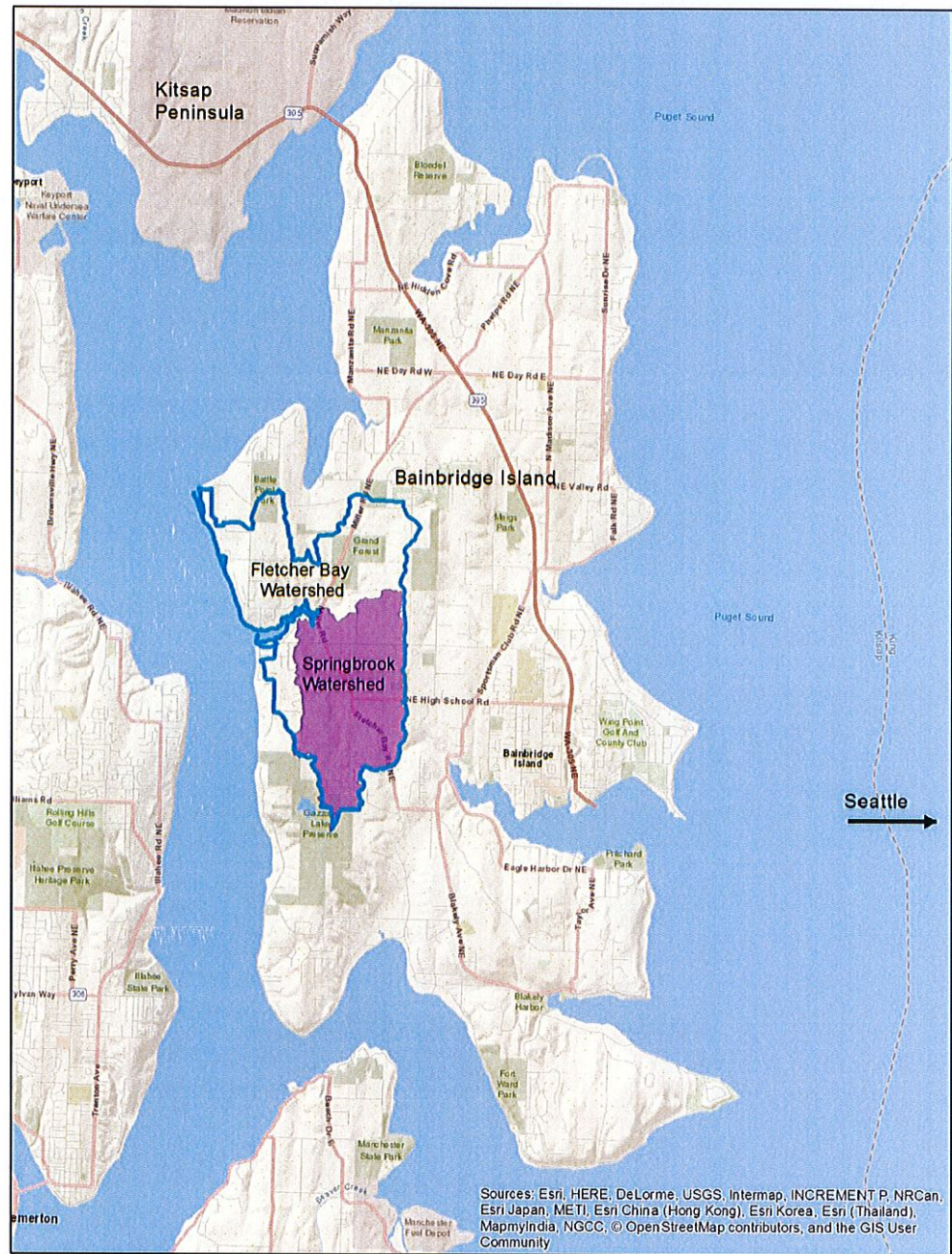
Composed of five citizens appointed by the Governor, and five state agency directors, the board brings together the experiences and viewpoints of citizens and the major state natural resource agencies.



- Springbrook Creek Evaluation and Feasibility Study: Project #14-1517
- Funded by Washington State Recreation and Conservation Office – Salmon Recovery Funding Board in 2014
- Final report due by August 1

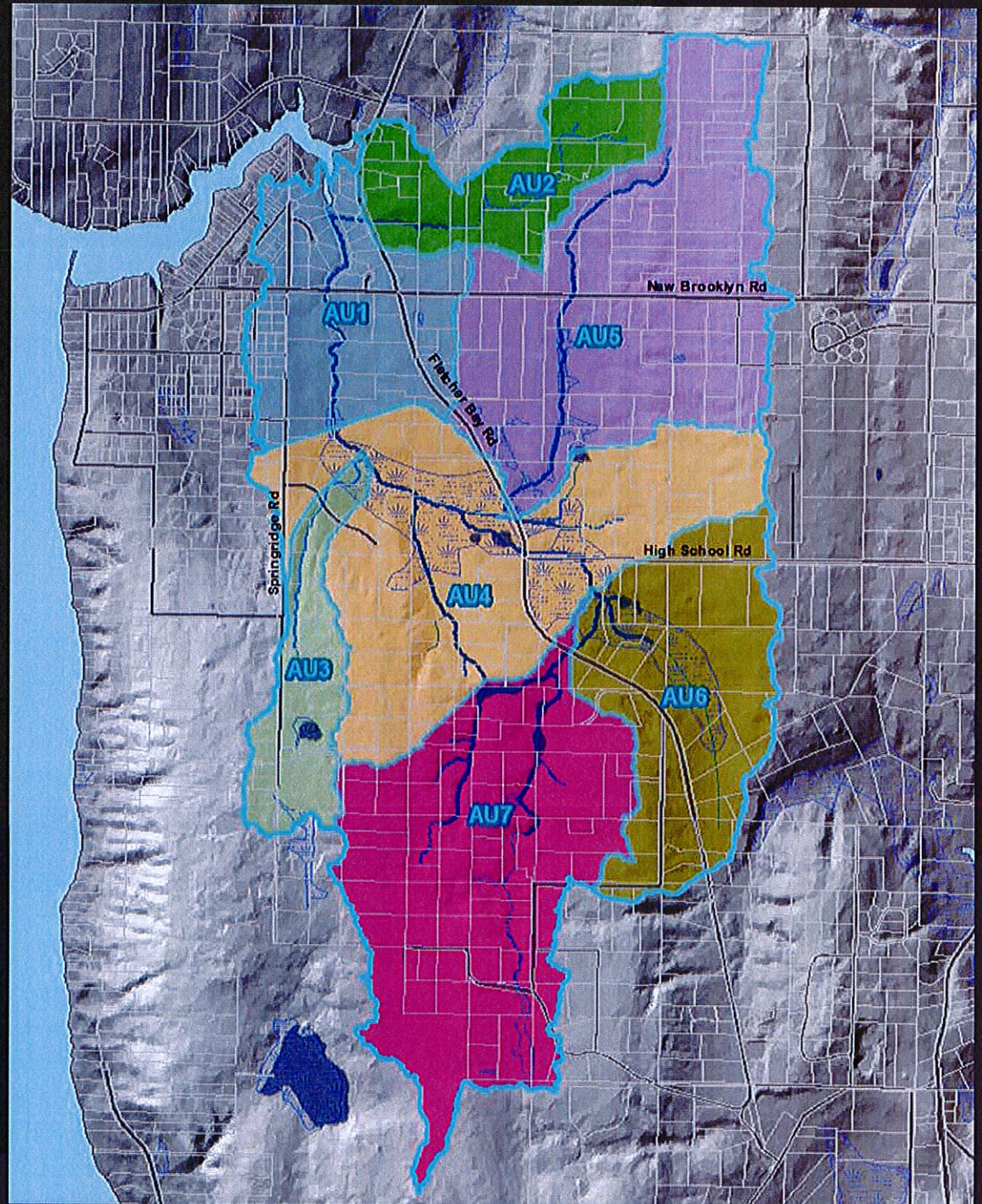


# Project Area





# Assessment Units





# Why this area?

- Fish resources - Springbrook Creek is a historic steelhead and fall chum salmon stream, with current observed use by cutthroat trout and coho salmon. The lower 0.4-mile section of the stream is one of only 2 stream reaches designated as Critical Habitat for Puget Sound steelhead on Bainbridge Island.
- Infrastructure/culvert repair needs
- Water quality concerns
- Landowner participation



# Project Purpose

- ④ Conduct an assessment of historical and present watershed conditions
- ④ Identify and prioritize potential protection and restoration projects addressing ecological health, habitat and fish passage limitations in the Springbrook Creek Watershed.
- ④ Produce a prioritized list of the most appropriate, feasible, and cost-effective solutions that will address constraints over time – and start working to find funding for those projects.
- ④ Produce conceptual designs for five high priority projects.
- ④ Produce a report that can be utilized by a number of other entities to guide activities within the watershed



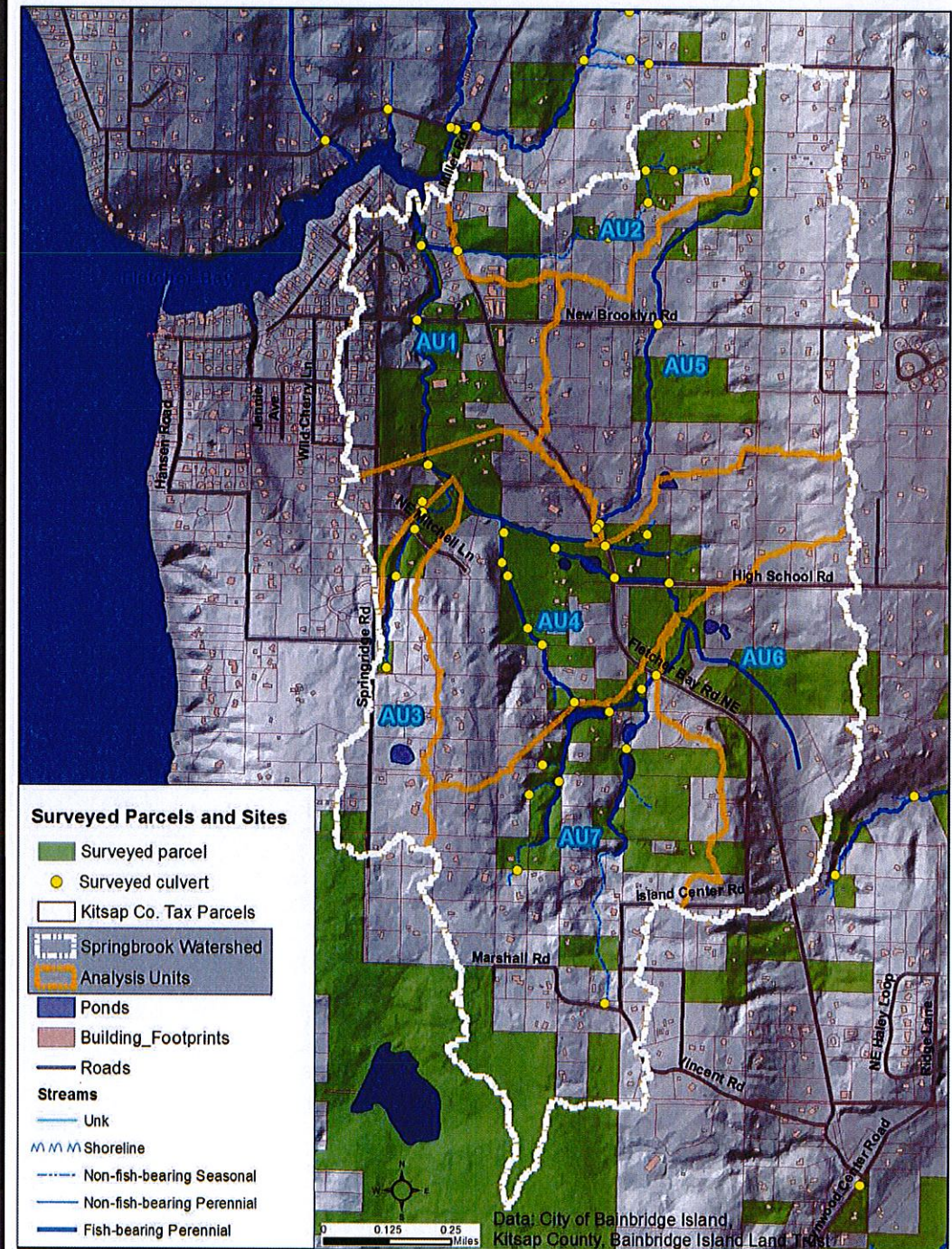
# What has taken place?

- Stream condition and associated riparian habitat assessment
- A lot of walking the watershed
- Water monitoring
- Salmon monitoring
- Discussions with landowners about historical and present use *and* prospective restoration and protection projects
- Examination of watershed characteristics
- Development of conceptual designs



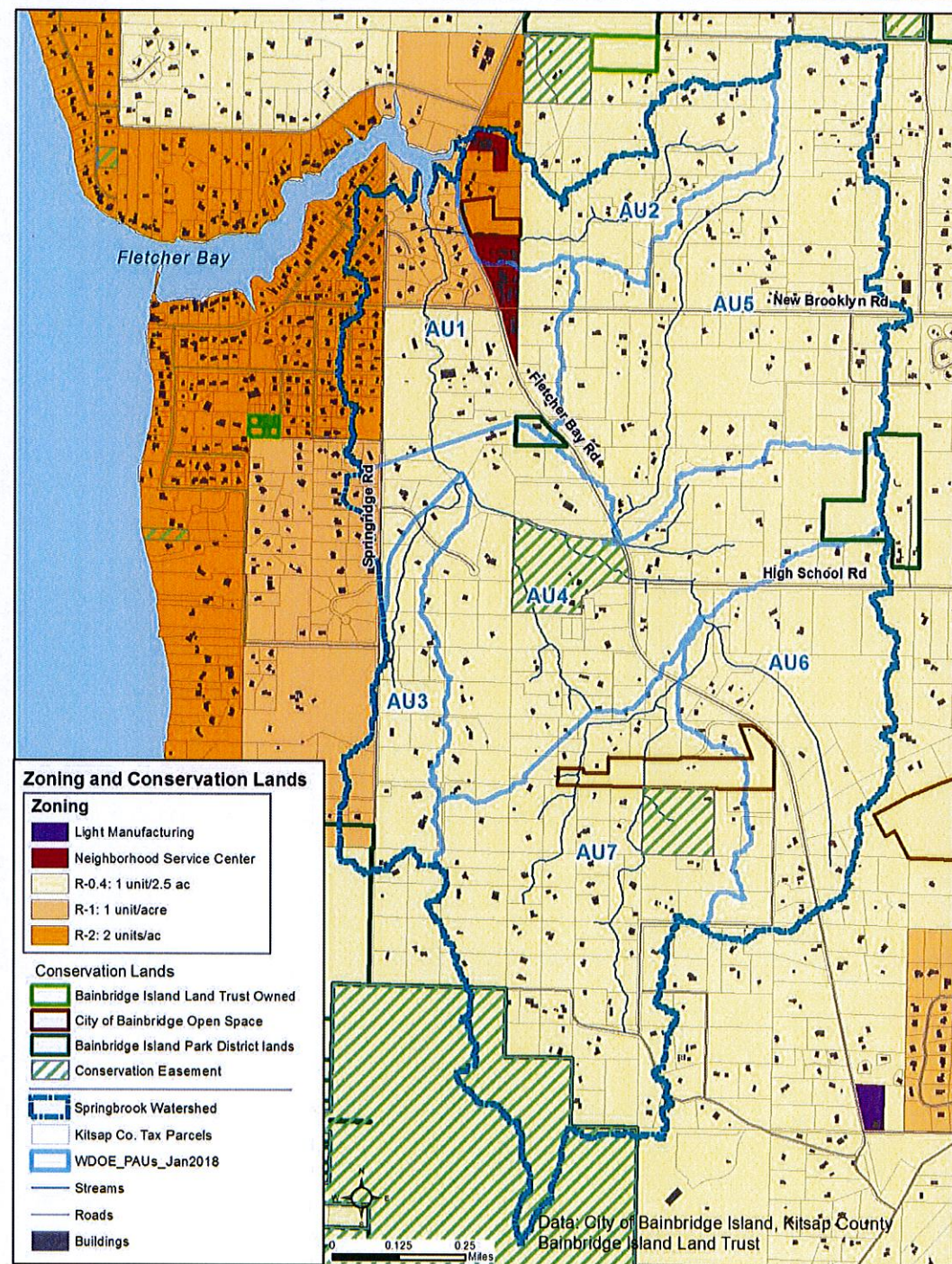
Properties where the stream and riparian (adjacent conditions) have been observed and assessed

- In 2014 WFC and BILT visited 40 properties in the Springbrook watershed
- In 2017 WFC, BILT, and COBI visited an additional 9 properties
- Nearly 50 landowners have provided access or have been involved in the assessment project



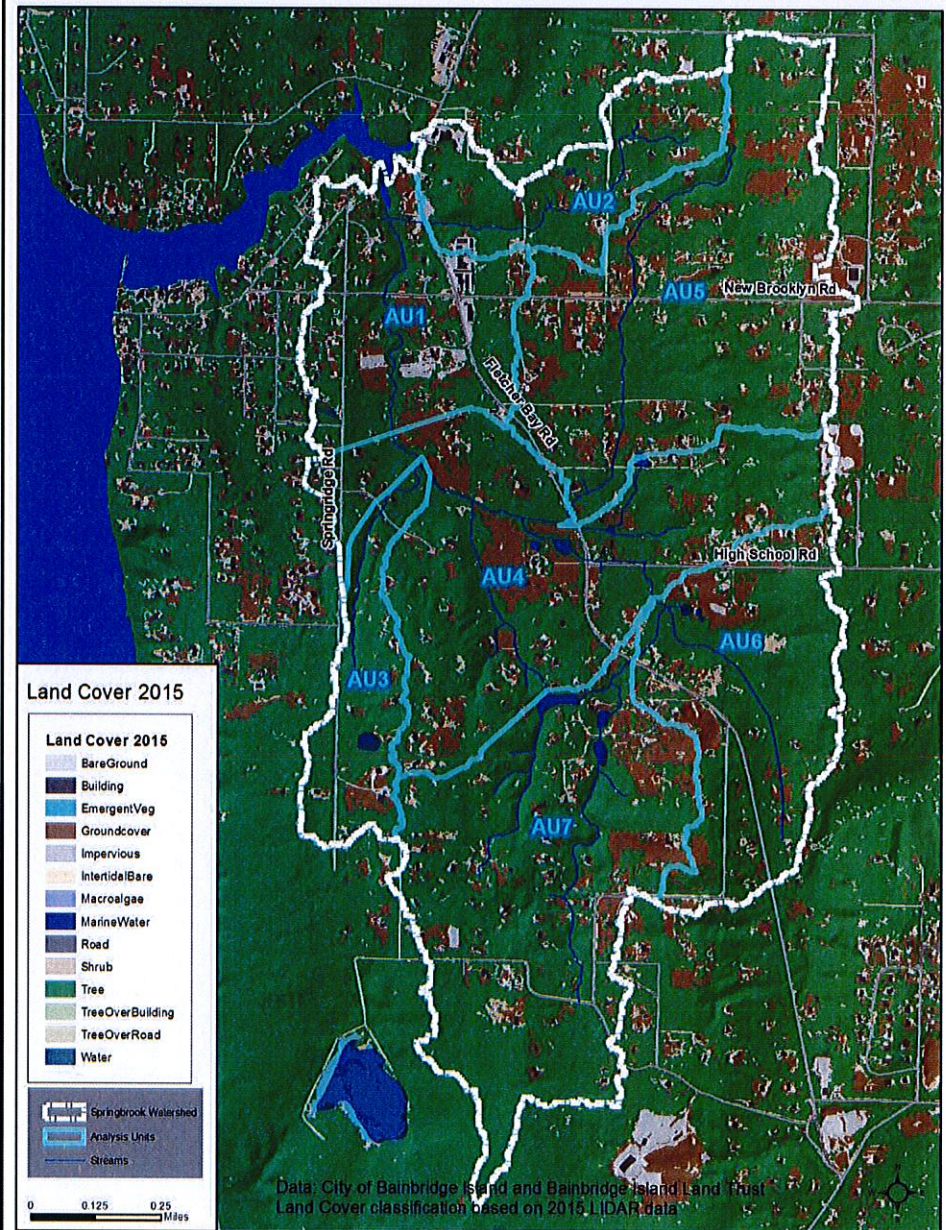
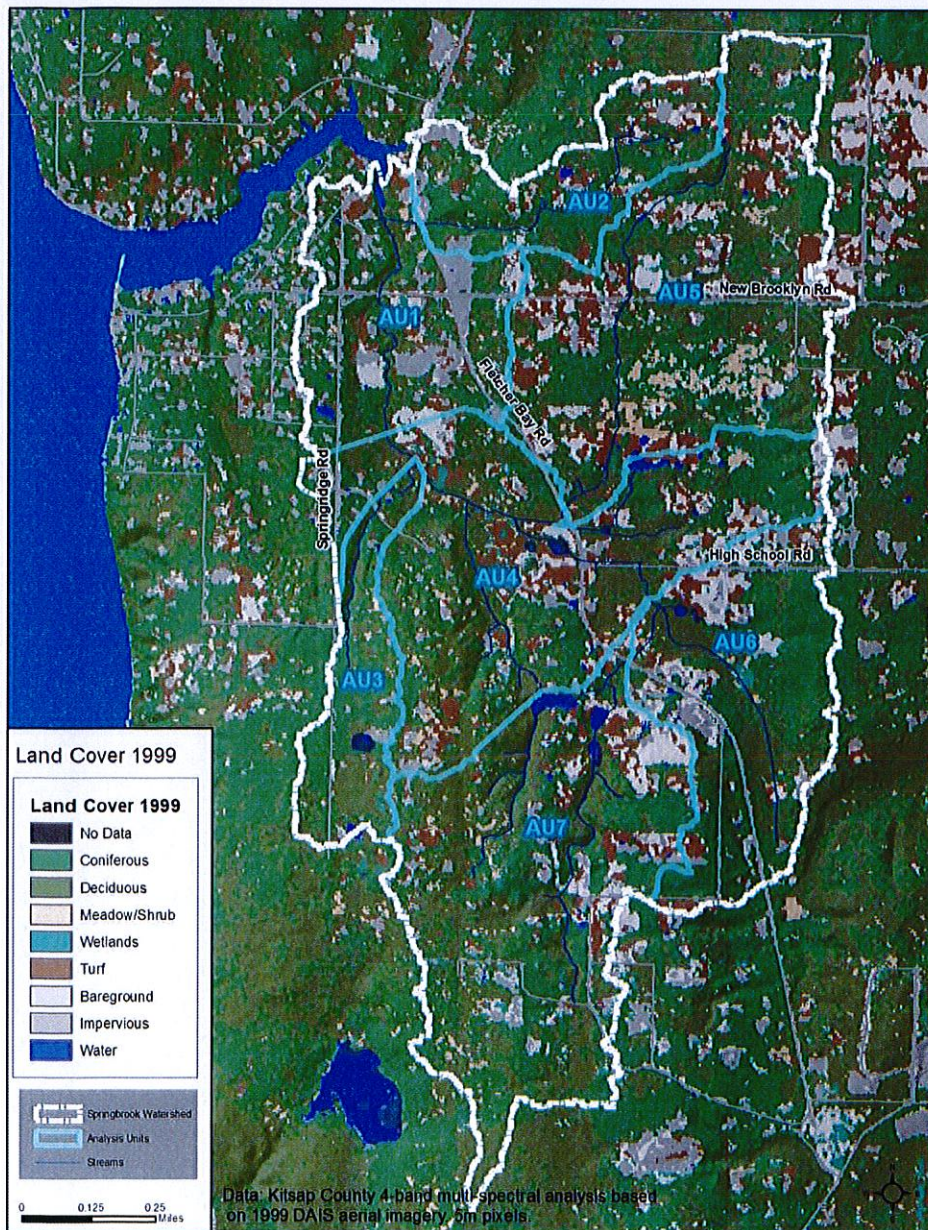


- Current Zoning and Land Use
- Bainbridge Island Land Trust and other conservation lands in Springbrook Creek Watershed



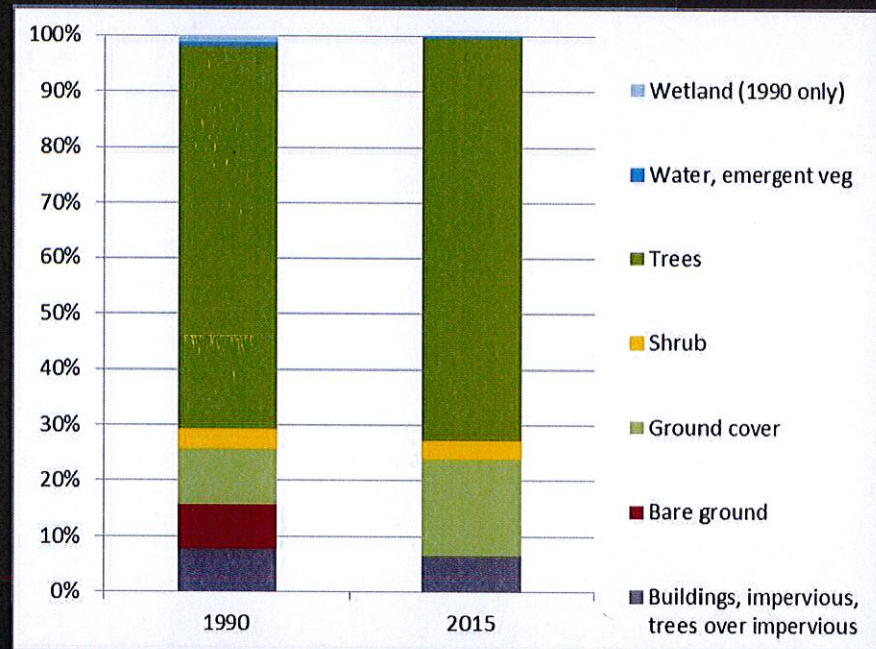


# Landcover



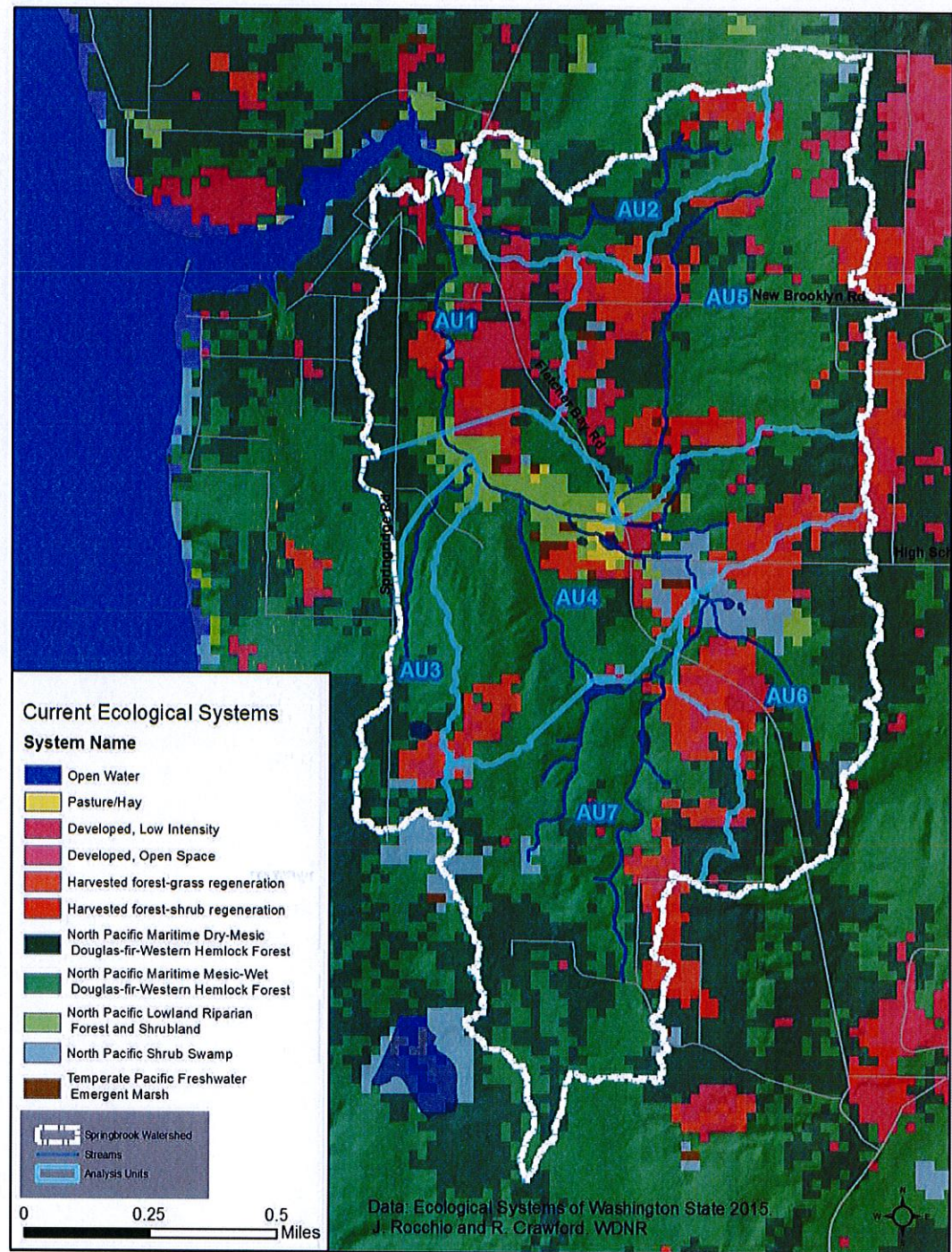


| Cover type                                                    | 1990  | 2015  |
|---------------------------------------------------------------|-------|-------|
| Buildings, impervious, trees over impervious                  | 7.9%  | 6.5%  |
| Bare ground                                                   | 7.8%  | 0.2%  |
| Ground cover                                                  | 10.1% | 17.3% |
| Shrub                                                         | 3.5%  | 3.2%  |
| Trees                                                         | 68.9% | 72.5% |
| Water, emergent veg                                           | 0.6%  | 0.3%  |
| Wetland (1990 only: 2015 wetlands were classed by vegetation) | 1.3%  | 0.0%  |



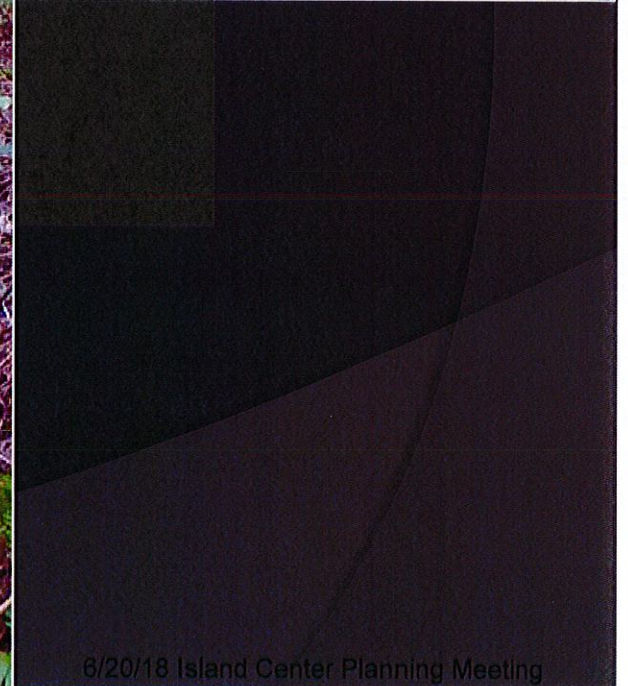


# Ecological Systems





## Healthy riparian habitat





## Degraded riparian habitat



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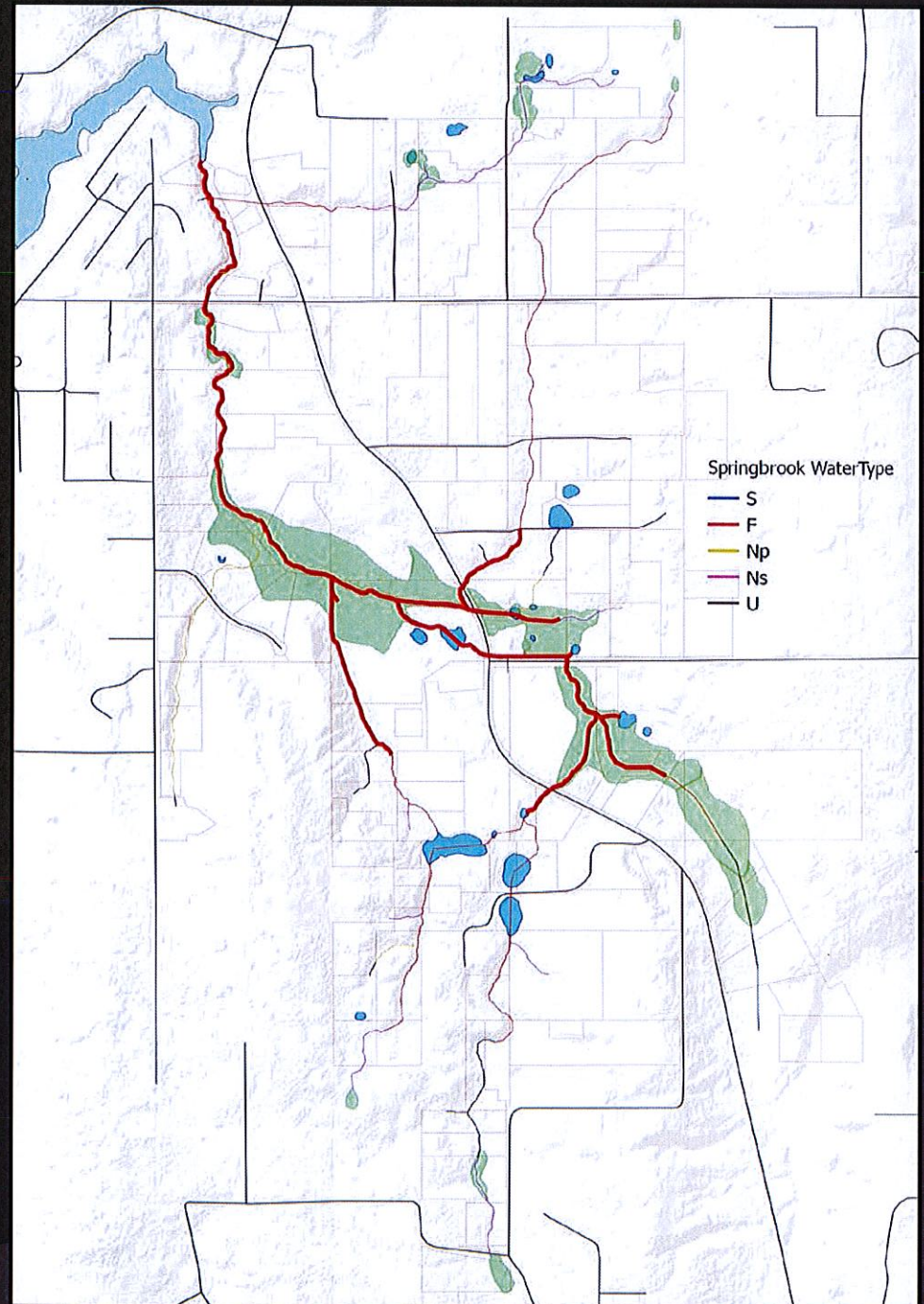


Springbrook Creek  
6.8 miles

Type F Habitat  
4.3 miles

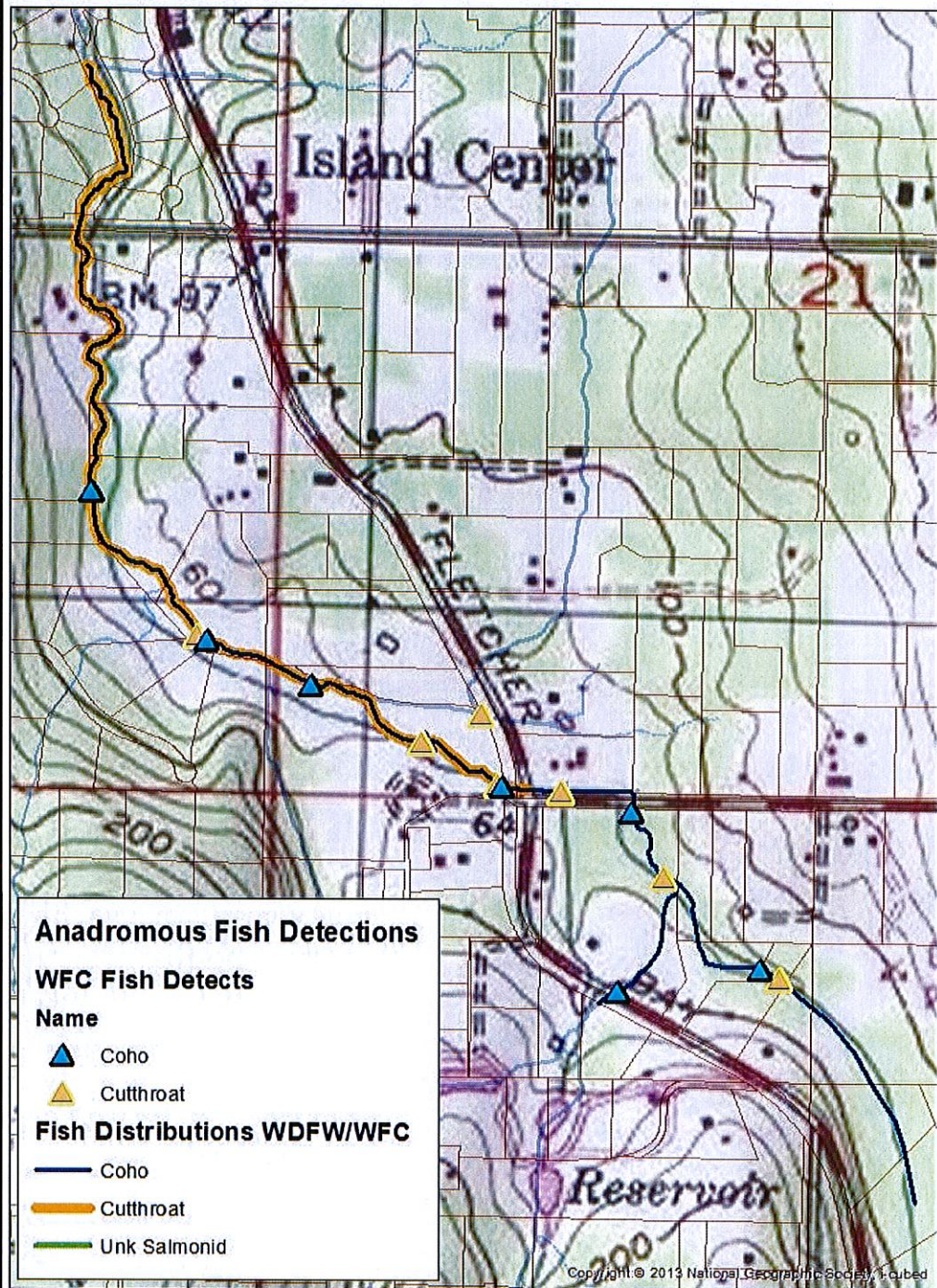
Current Extent of  
Anadromy  
2.6 miles

About 40% of the  
potential fish habitat  
is blocked by passage  
barriers





# Salmon Observations





## 24 Crossing Structures

9 city -15 private

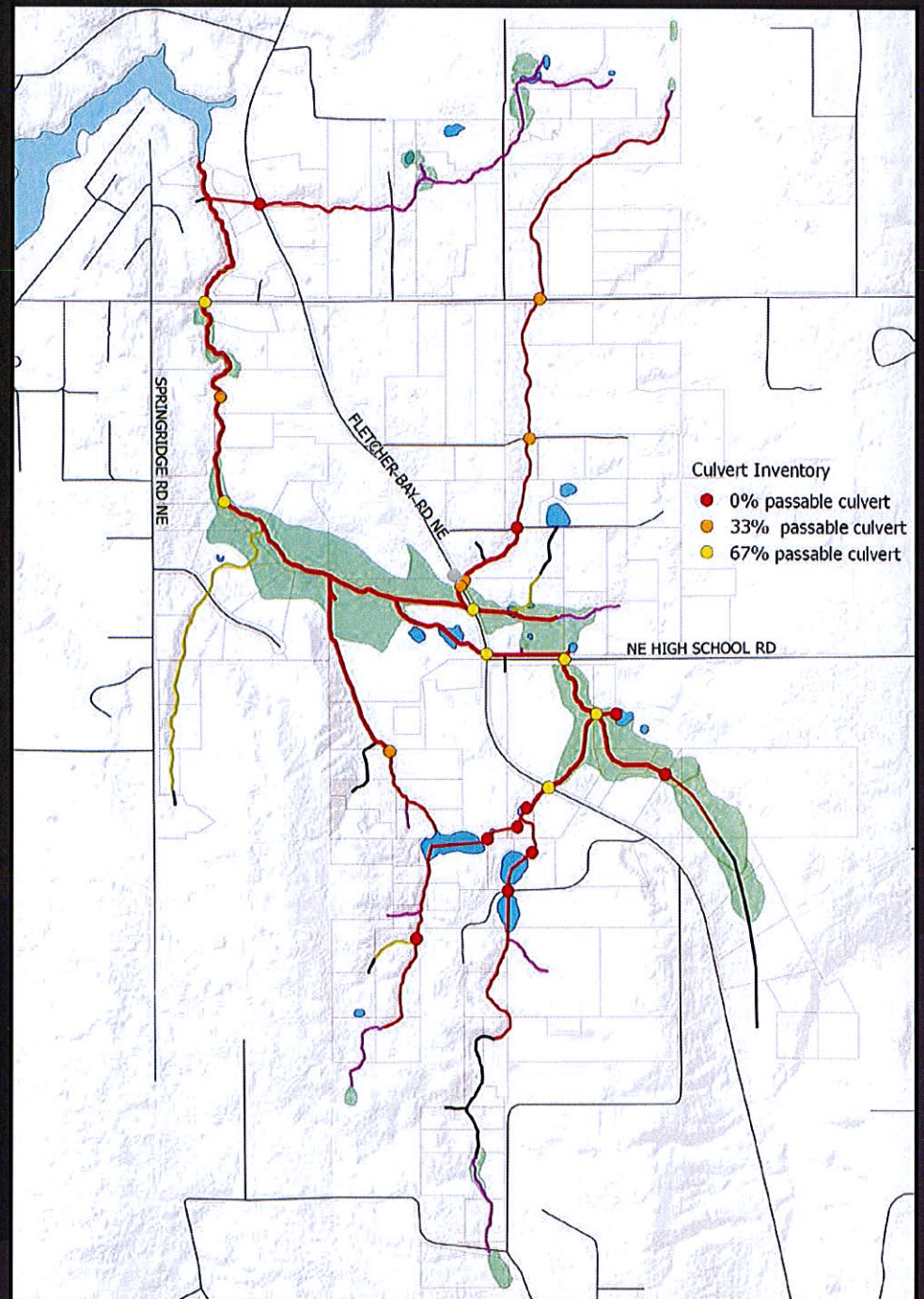
7- 67% *passable*

6 - 33% *passable*

10 - 0% *passable*

1 – *not assessed*  
(*overflow channel*)

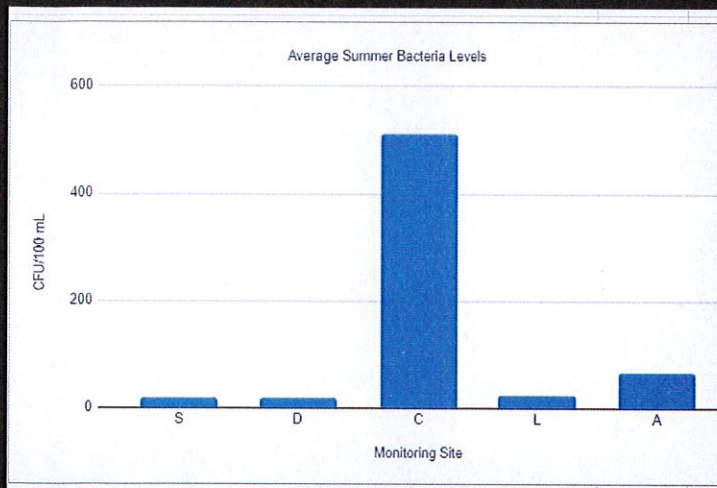
Within the 2.6 miles of  
fish habitat below full  
barriers, there are 10  
partial barrier culverts





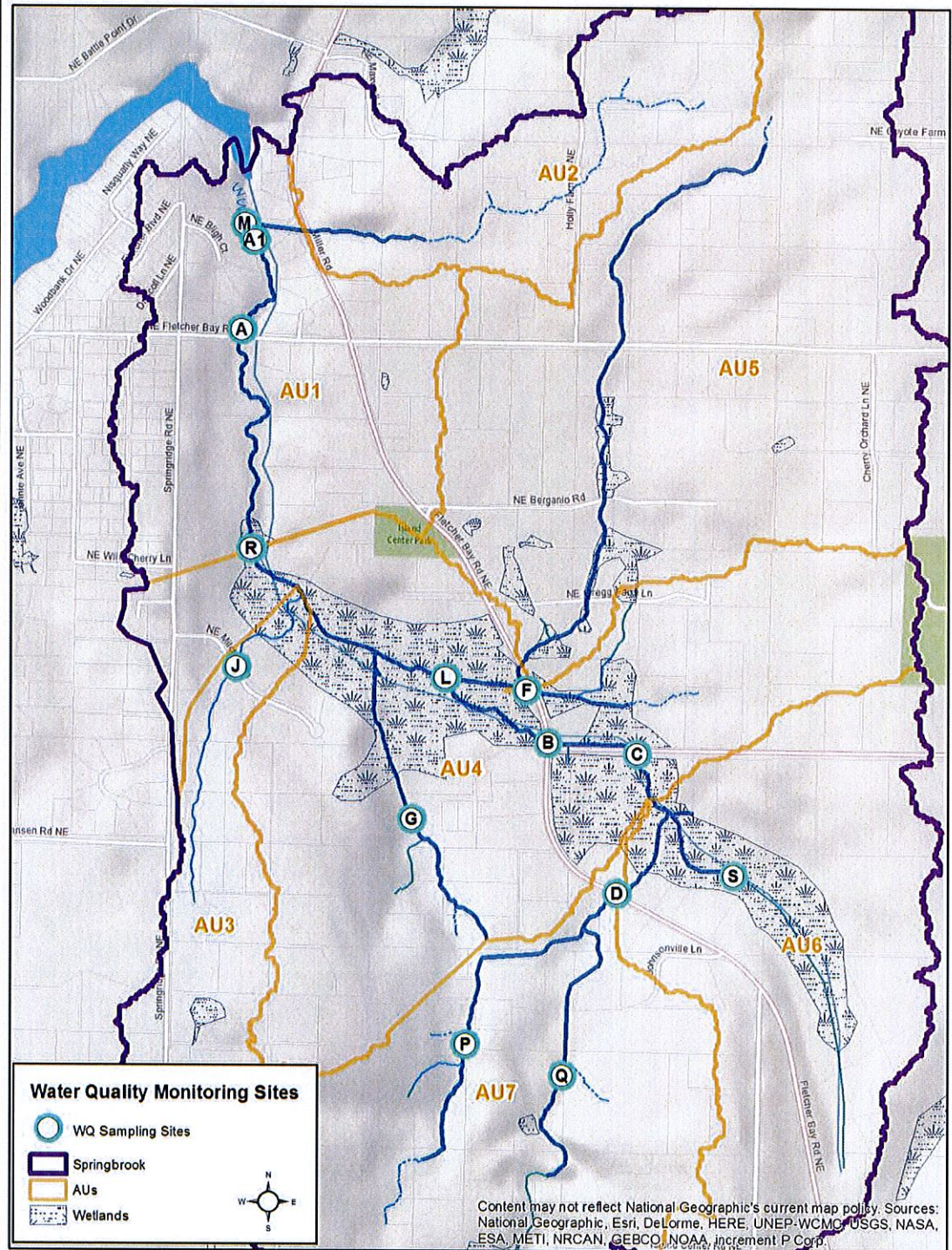
# Water Quality Monitoring

- Sites A & C exceeded standards for fecal coliform bacteria



- Stream temp exceeds standards in summer at all but S, especially at D and L
- Dissolved O<sub>2</sub> falls too low in summer, esp. at R

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# Possible causes of water quality problems

- Loss of shade: clearing of riparian vegetation leads to higher stream temps and lower dissolved oxygen
- Simplified in-stream habitat: diverse pools, runs, and riffles increase dissolved oxygen and keep streams cool
- Leaking septic systems are possible sources of fecal bacteria (but none have been found)



Washington  
Department of  
Ecology  
Springbrook Creek  
Watershed  
Characterization



Characterization Results for Springbrook Creek Watershed  
Bainbridge Island, Washington

June 13, 2018

Prepared for Bainbridge Island Trust, Wild Fish Conservancy and City of  
Bainbridge Island

By

Washington Department of Ecology

Stephen Stanley, Susan Grigsby and Colin Hume



Puget Sound Characterization decision support modeling system (Stanley et al. 2016): used GIS data for sub-watershed boundaries, hydrography, surficial geology, land cover, wetlands, and stream confinement from COBI and WFC.

- Models relative importance of sub-areas and relative degradation of features that regulate those processes
- Importance score and Degradation score are then combined in a Management Matrix

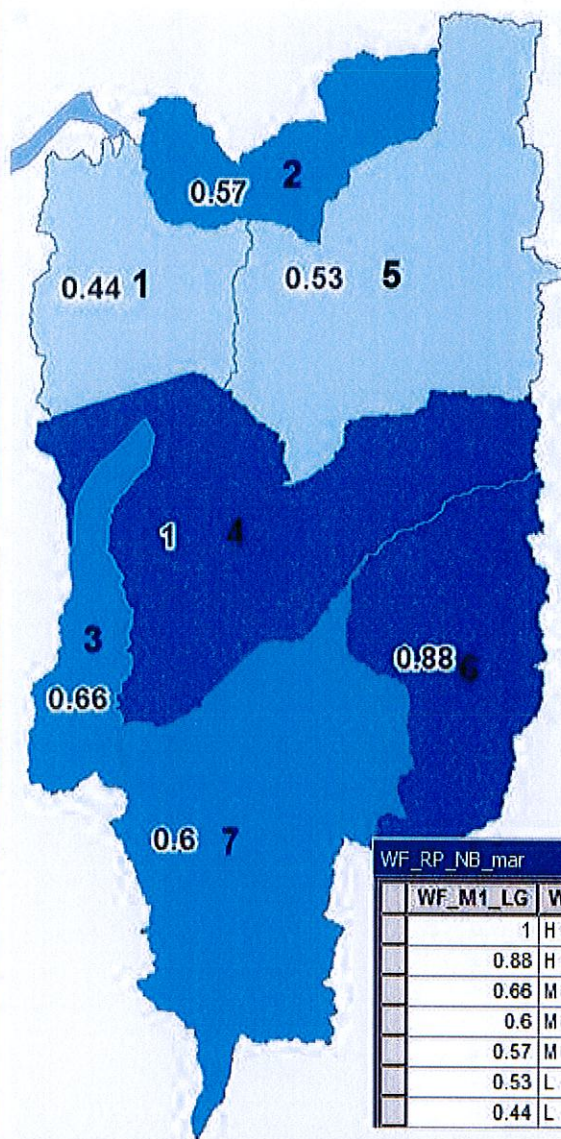
|                     |      |                                                                |                                                                |                                                               |
|---------------------|------|----------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------------|
| Level of Importance | High | <div>Highest Protection<br/>P1<br/><b>H, L</b></div>           | <div>Protection<br/>Restoration<br/>PR1<br/><b>H, M</b></div>  | <div>Highest Restoration<br/>R1<br/><b>H, H</b></div>         |
|                     |      | <div>Protection<br/>P2<br/><b>M, L</b></div>                   | <div>Protection<br/>Restoration<br/>PR2<br/><b>M, M</b></div>  | <div>Restoration<br/>R2<br/><b>M, H</b></div>                 |
|                     | Low  | <div>Protection/<br/>Conservation<br/>P3<br/><b>L, L</b></div> | <div>Protection/<br/>Restoration<br/>PR3<br/><b>L, M</b></div> | <div>Development/<br/>Restoration<br/>D<br/><b>L, H</b></div> |
|                     |      | Level of Degradation                                           |                                                                |                                                               |
|                     |      | Low High                                                       |                                                                |                                                               |

**Red Letter** = H, MH, M, or L  
for Importance Score

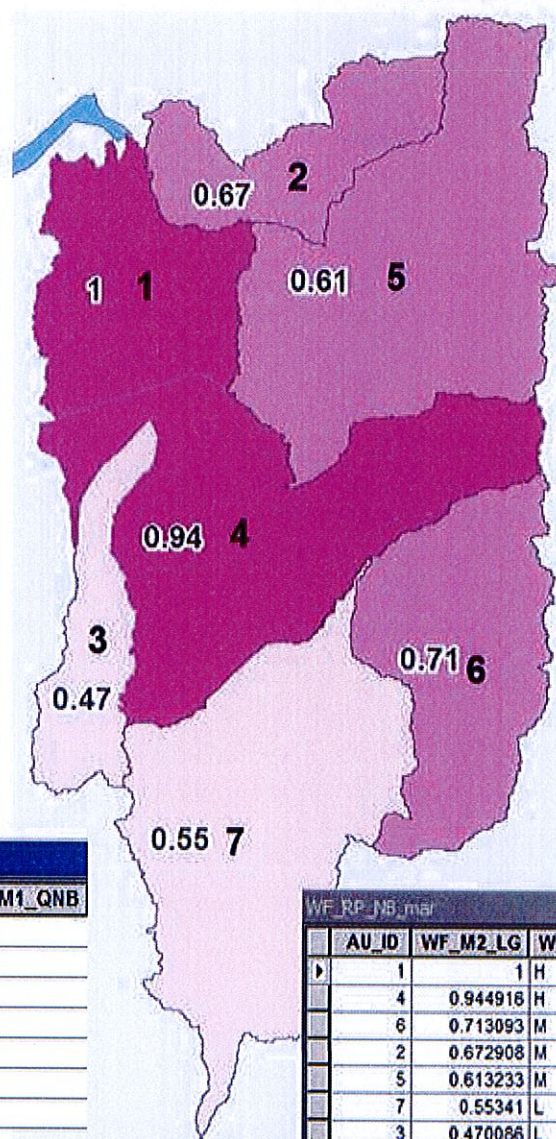
**Black Letter** = H, MH, M, or L  
for Degradation Score



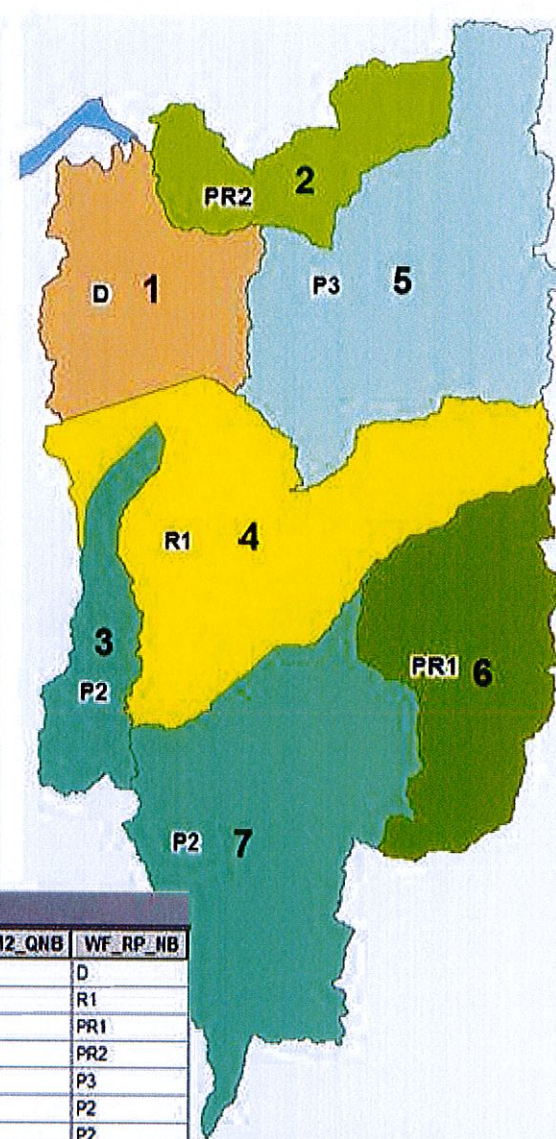
# Draft Results – Overall WF – Natural Breaks (H, M, L) – with BI streams, wetlands, LC – March 2018



| WF_RP_NB_mar |           |  |
|--------------|-----------|--|
| WF_M1_LG     | WF_M1_QNB |  |
| 1            | H         |  |
| 0.88         | H         |  |
| 0.66         | M         |  |
| 0.6          | M         |  |
| 0.57         | M         |  |
| 0.53         | L         |  |
| 0.44         | L         |  |



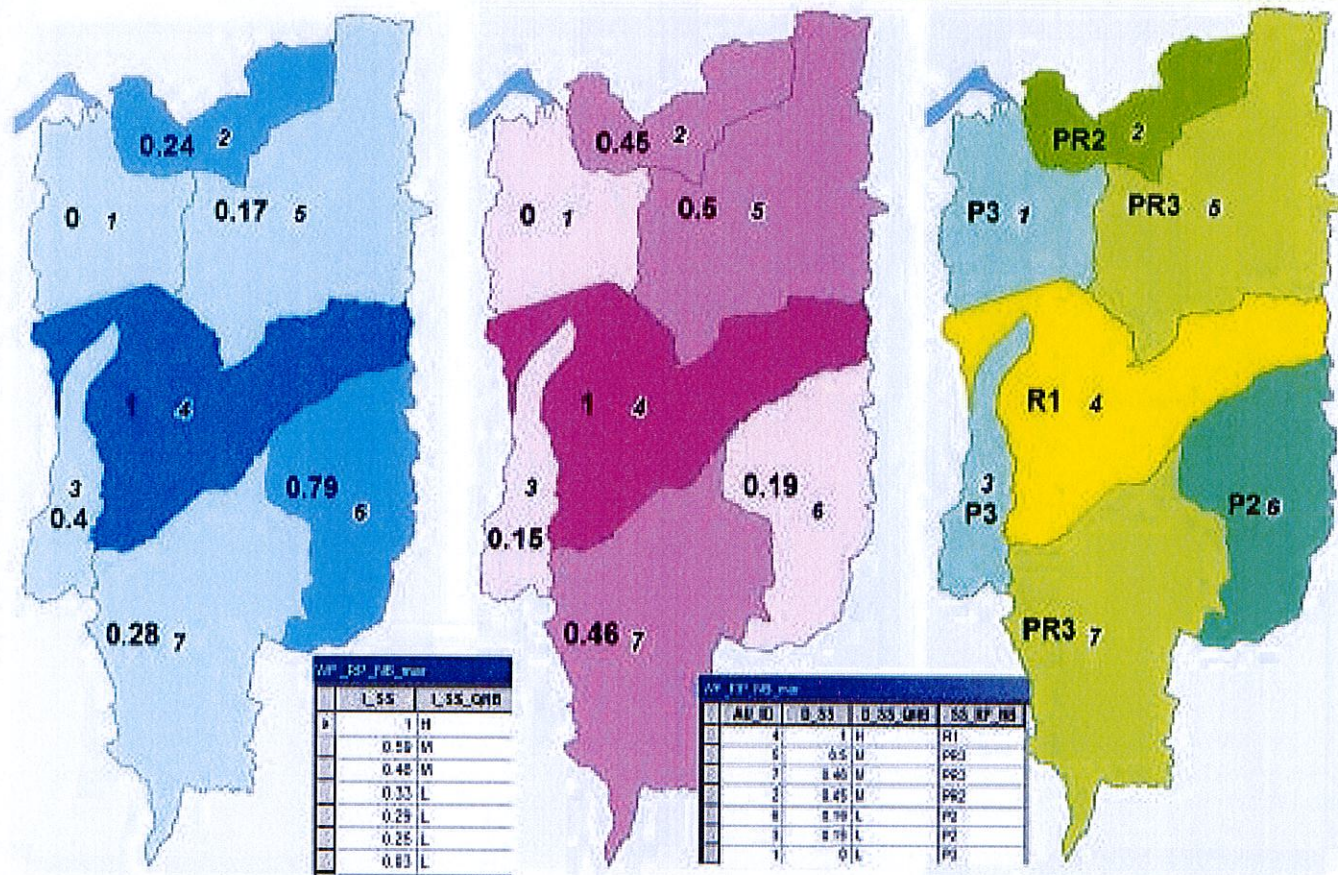
| WF_RP_NB_mar |          |           |          |
|--------------|----------|-----------|----------|
| AU_ID        | WF_M2_LG | WF_M2_QNB | WF_RP_NB |
| 1            | 1        | H         | D        |
| 4            | 0.944918 | H         | R1       |
| 6            | 0.713093 | M         | PR1      |
| 2            | 0.672908 | M         | PR2      |
| 5            | 0.613233 | M         | P3       |
| 7            | 0.55341  | L         | P2       |
| 3            | 0.470086 | L         | P2       |





Surface Storage largely driven by wetlands: Au4 most important then AU6

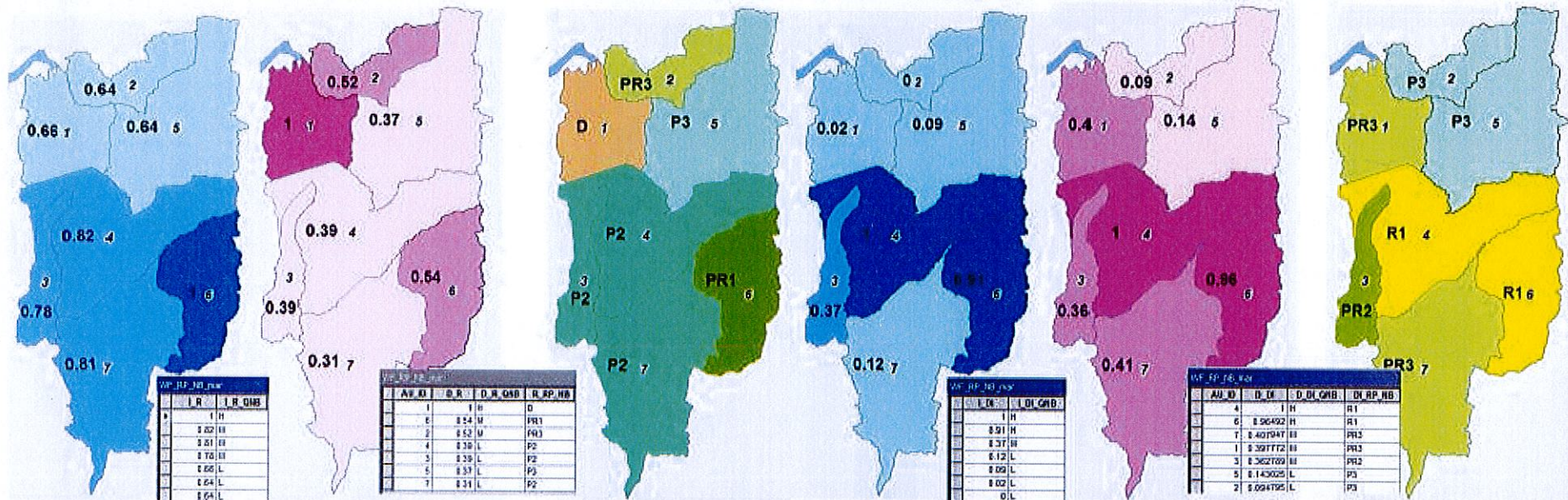
# **Draft Results – Surface Storage – Natural Breaks** (H, M, L) – with BI streams, wetlands, LC – March 2018





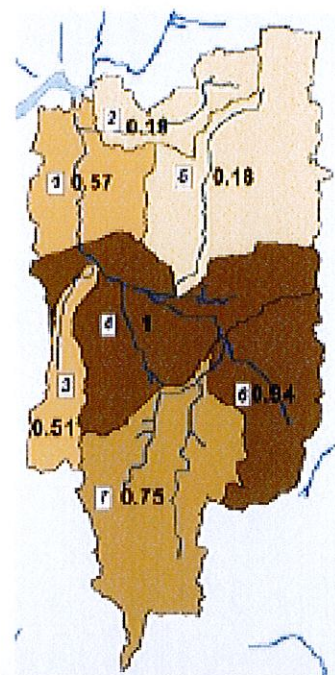
## Draft Results – **Recharge** – Natural Breaks (H, M, L) – with BI streams, wetlands, LC – March 2018

## Draft Results – **Discharge** – Natural Breaks (H, M, L) – with BI streams, wetlands, LC – March 2018





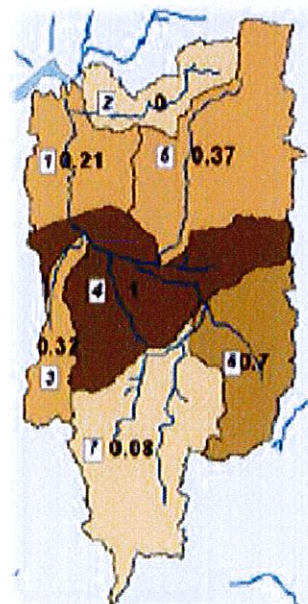
## Draft Results – Sediment Source – Natural Breaks



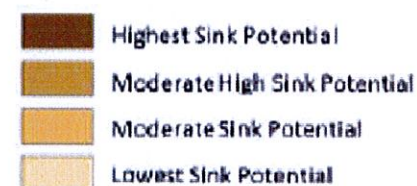
A "source" area has more features, e.g. steep slopes, erodible soils, that would likely allow more sediment input.



## Draft Results – Sediment Sink – Natural Breaks



A "sink" area has more features, e.g. wetlands, that would likely slow down or delay the movement of sediment through the watershed.





# Overall summary of WDOE Results

**Table 1 - Springbrook Creek Recommendations for Sub-basin Management (Use in Conjunction with Figures 4 & 8)**

| Sub-basin # | Overall Results | Storage | Re-charge | Dis-charge | Restora-tion Priority | Pro-tection Priority | Overall Condition of Sub-basin and Key Issues                                                                                                                                                                                                                                                                                                                                                                                          | Recommendations                                                                                                                                                                                                                                                                                                                                                    |
|-------------|-----------------|---------|-----------|------------|-----------------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1           | D               | P3      | D         | PR3        | 7                     | 6                    | Concrete groin system and culvert in lower reaches impede fish passage and affect stream fluvial dynamics. Some homes are too close to stream and have impacted riparian corridor by removing vegetation, introducing non-native vegetation and increasing erosion in creek banks.                                                                                                                                                     | Investigate funding sources for removing groin and culvert system with bio-engineered alternative that re-establishes natural processes and historic longitudinal profile and gradient. Seek riparian conservation easements for properties along creek.                                                                                                           |
| 2           | PR2             | PR2     | PR3       | P3         | 4                     | 4                    | Basin has moderate level of urban residential development.                                                                                                                                                                                                                                                                                                                                                                             | Seek riparian conservation easements for properties along creek                                                                                                                                                                                                                                                                                                    |
| 3           | P2              | P3      | P2        | PR2        | 5                     | 3                    | Basin is relatively intact with limited development                                                                                                                                                                                                                                                                                                                                                                                    | Seek riparian conservation easements for properties along creek                                                                                                                                                                                                                                                                                                    |
| 4           | R1              | R1      | P2        | R1         | 1                     | 1                    | Relatively widespread damage to storage & discharge processes in this sub-basin. Clearing of floodplain & wetland vegetation for rural residential farming operations and for access by owners to active stream channel. Most streams are diverted away from historic wetland areas. Clearing has encouraged growth of reed canary grass which is clogging stream channels. Existing areas of forested floodplain should be protected. | This sub-basin presents the greatest opportunity for biological lift in the system and requires relatively extensive restoration measures. It is key to successful restoration of the overall system. Work with home owners to obtain conservation easement for purpose of restoring riparian and floodplain vegetation & protecting intact slope discharge areas. |
| 5           | P3              | PR3     | P3        | P3         | 6                     | 6                    | Basin has lower importance but moderate level of development could affect integrity of watershed. Depressional wetlands present.                                                                                                                                                                                                                                                                                                       | Seek riparian and forest conservation easements to sustain native cover protect wetland/stream ecosystems                                                                                                                                                                                                                                                          |
| 6           | PR1             | P2      | PR1       | R1         | 2                     | 1                    | Basin is relatively intact and contains part of the large depressional wetland system in the adjacent sub-basin 4                                                                                                                                                                                                                                                                                                                      | Maintain & restore forest cover; restore natural cover in wetland system. Seek riparian & wetland conservation easements                                                                                                                                                                                                                                           |
| 7           | P2              | PR3     | P2        | PR3        | 3                     | 2                    | Erosion of outwash deposits in upper watershed & transport downstream. Solar heating of water in artificial ponds may contribute to stream temperature increase.                                                                                                                                                                                                                                                                       | Protect & maintain forest cover. Allow ponds to fill in and convert to shallow wetland systems which act as sediment trap & provide forested cover.                                                                                                                                                                                                                |



## Northern watershed: high concentration of impacts



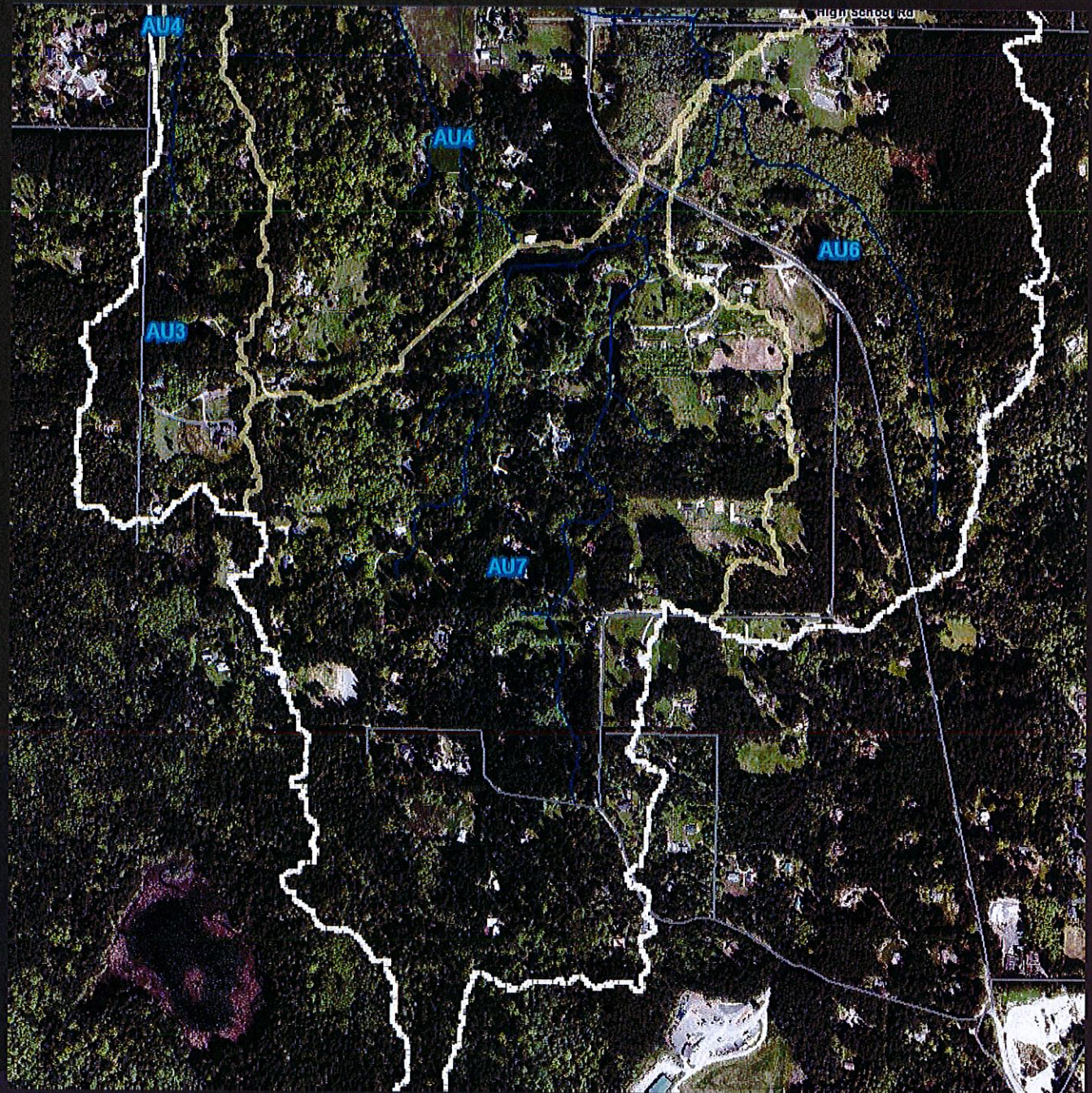


Middle watershed: Very high importance for watershed functions, lower alteration





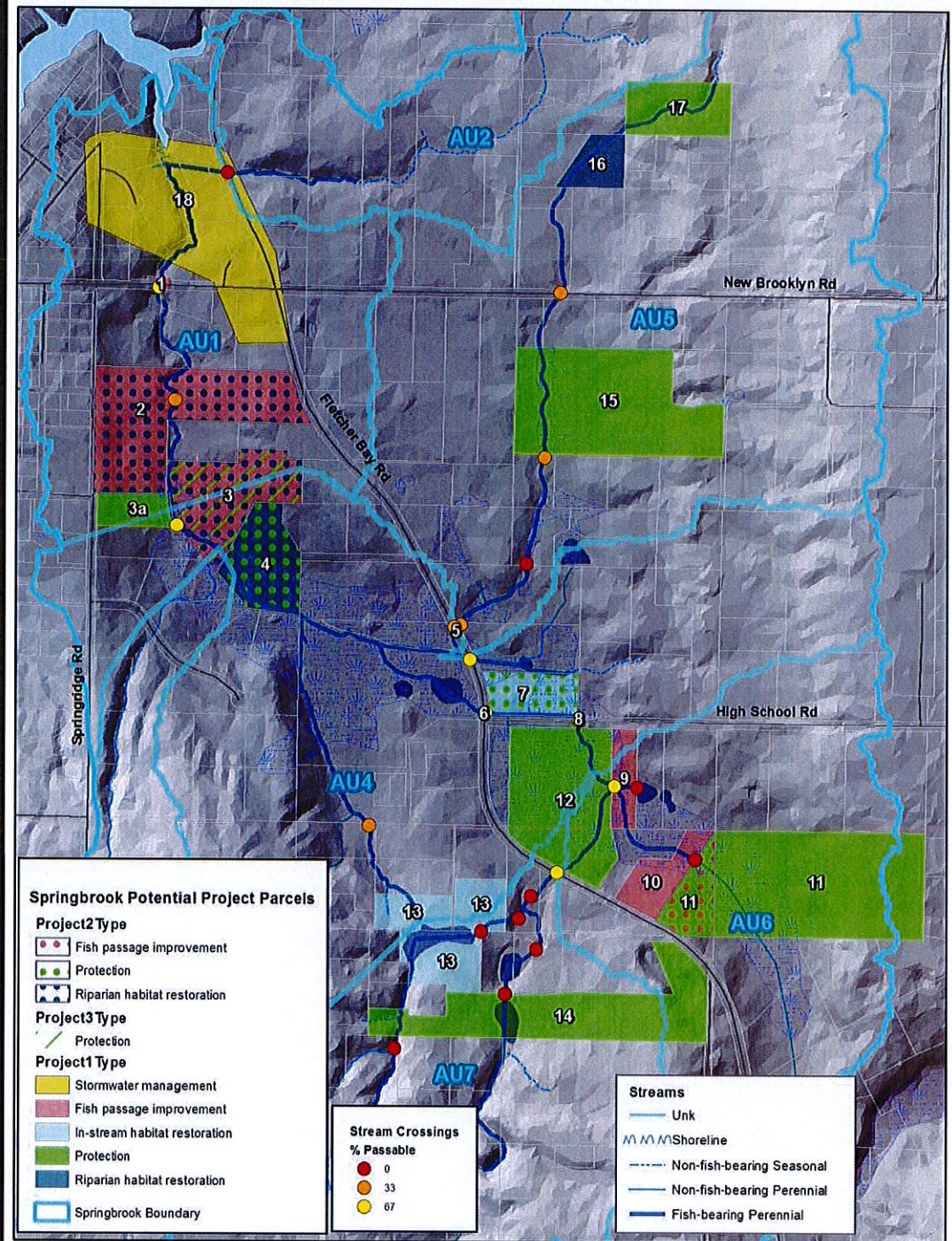
Southern/  
middle  
headwaters:  
low alteration





Currently the project team has identified at least 18 potential restoration and/or protection opportunities

- 6 culvert replacements
- 2 culvert removals
- 4 riparian enhancements
- 9 protection opportunities
- Cluster of stormwater improvements





# Table of Prospective Projects

My Drive - Google Drive x Draft Project List - Springbrook Creek x Final Report Springbrook Creek x

Secure | https://docs.google.com/spreadsheets/d/1HrvfAo1rs0tMvA4RplgOQe1NhXwqJIFbe\_rAWH8-6pU/edit#gid=0



Draft Project List - Springbrook Creek

File Edit View Insert Format Data Tools Add-ons Help All changes saved in Drive



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|   | F                           | G                                                             | S                  | T                   | U                  | V                      | W                  | X                  | Y                  | Z                      | AA                    | AB                 | AC                    | AD                                                    | AE                            | AF                            | AG                            | AH    | AI                                                                  |
|---|-----------------------------|---------------------------------------------------------------|--------------------|---------------------|--------------------|------------------------|--------------------|--------------------|--------------------|------------------------|-----------------------|--------------------|-----------------------|-------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------|-------|---------------------------------------------------------------------|
| 1 |                             |                                                               | Watershed Stressor | Watershed Stressor  | Watershed Stressor | Watershed Stressor     | Watershed Stressor | Watershed Stressor | Watershed Stressor | Watershed Stressor     | Watershed Stressor    | Watershed Stressor |                       | Other                                                 | COBI Water Quality Assessment | COBI Water Quality Assessment | COBI Water Quality Assessment | Other |                                                                     |
| 2 | Subarea (PAUs used by WDOE) | Title                                                         | Armor along stream | Riparian Conditions | Invasive Plants    | Constrained Floodplain | Temperature        | Sediment           | Fecal              | Pollution - Industrial | Public Infrastructure | Stormwater         | Landowner Willingness | Landowner Outreach/Education about living on a stream | Aquatic Life Conditions       | Aquatic Life Status           | Human Health Conditions       |       | Major Issues addressed                                              |
| 3 | 1                           | Fletcher Bay Culvert and Weir Replacement                     | XX                 | XX                  | X                  | XX                     |                    | XX                 |                    |                        | XX                    | XX                 | XX                    | XX                                                    | XXX                           | XX                            | XX                            |       | Fish Passage in watershed; restore natural flow, sediment transport |
| 4 | 1.2                         | Stormwater quality retrofits at Island Center area            |                    |                     |                    |                        |                    | XX                 | X                  | XX                     | X                     | XX                 |                       | XX                                                    | XXX                           | XX                            | XX                            |       | stormwater; sediment management                                     |
| 5 | 1                           | Eddy culvert replacement, armor removal, riparian restoration | XXX                | X                   | X                  | XX                     |                    | XX                 |                    |                        |                       |                    |                       | XXX                                                   | X                             | XXX                           | XX                            | XX    | Fish passage; highly constrained by riparian function               |
| 6 | 1.4                         | Rekow habitat restoration and protection                      |                    | XX                  | X                  | X                      | XXX                | X                  |                    |                        |                       |                    |                       | XX                                                    | XX                            | XXX                           | XXX                           | XXX   | Salmon Passage riparian function maintaining vegetation stream      |
| 7 | 1.4                         | Cohen habitat protection                                      |                    | X                   | X                  |                        |                    |                    |                    |                        |                       |                    |                       | XX                                                    |                               | XXX                           | XXX                           | XXX   | Habitat, riparian                                                   |

+

9 Sheet1

Ancillary to main obj.

Sum: 74



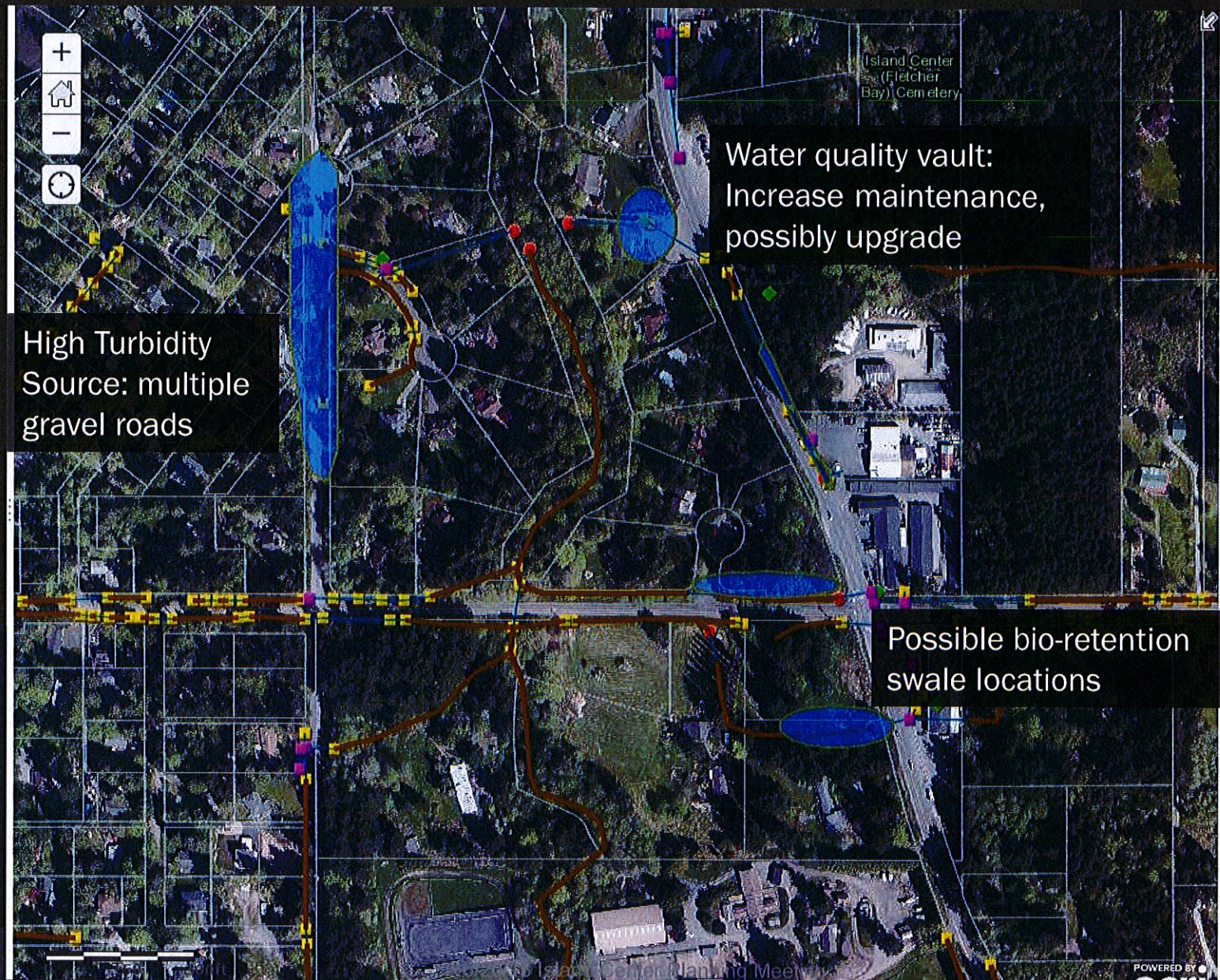


# Examples of Projects:



# Potential stormwater infrastructure improvement projects

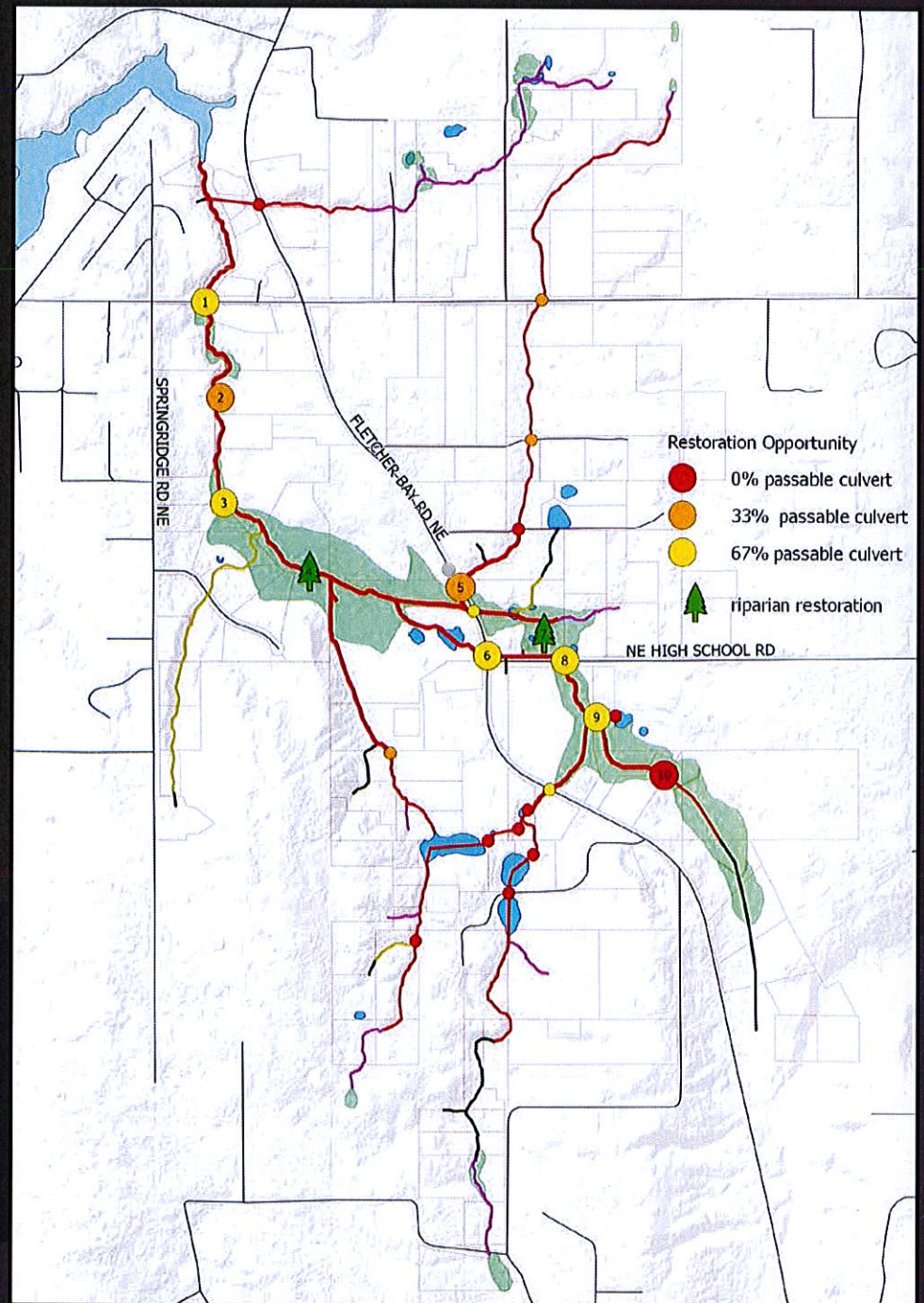
## Fletcher Bay Rd NE x Miller Rd NE x NE New Brooklyn Rd





## 8 priority fish passage improvement opportunities:

- 6 culvert replacements
- 2 culvert removals

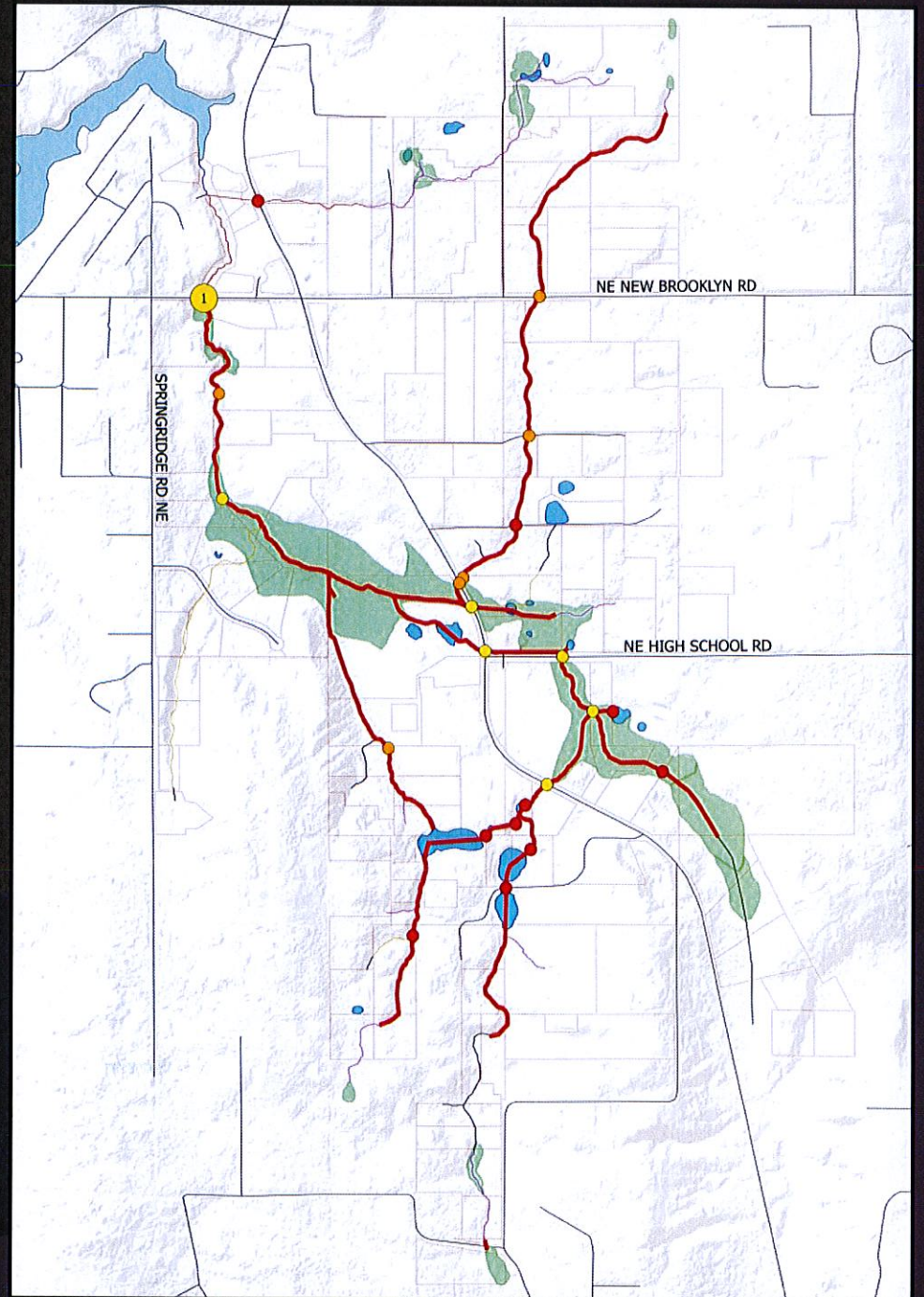




#1

# Fletcher Bay Rd. NE

3.6 miles  
of type F habitat above the crossing





33% passable for adult salmonids (vertical drop) - WFC 2017

0% passable for juvenile salmonids, brook lamprey, sculpins, and stickleback.  
Series of 8 weirs, (5 below the culvert, 3 above) the lower weir is failing.

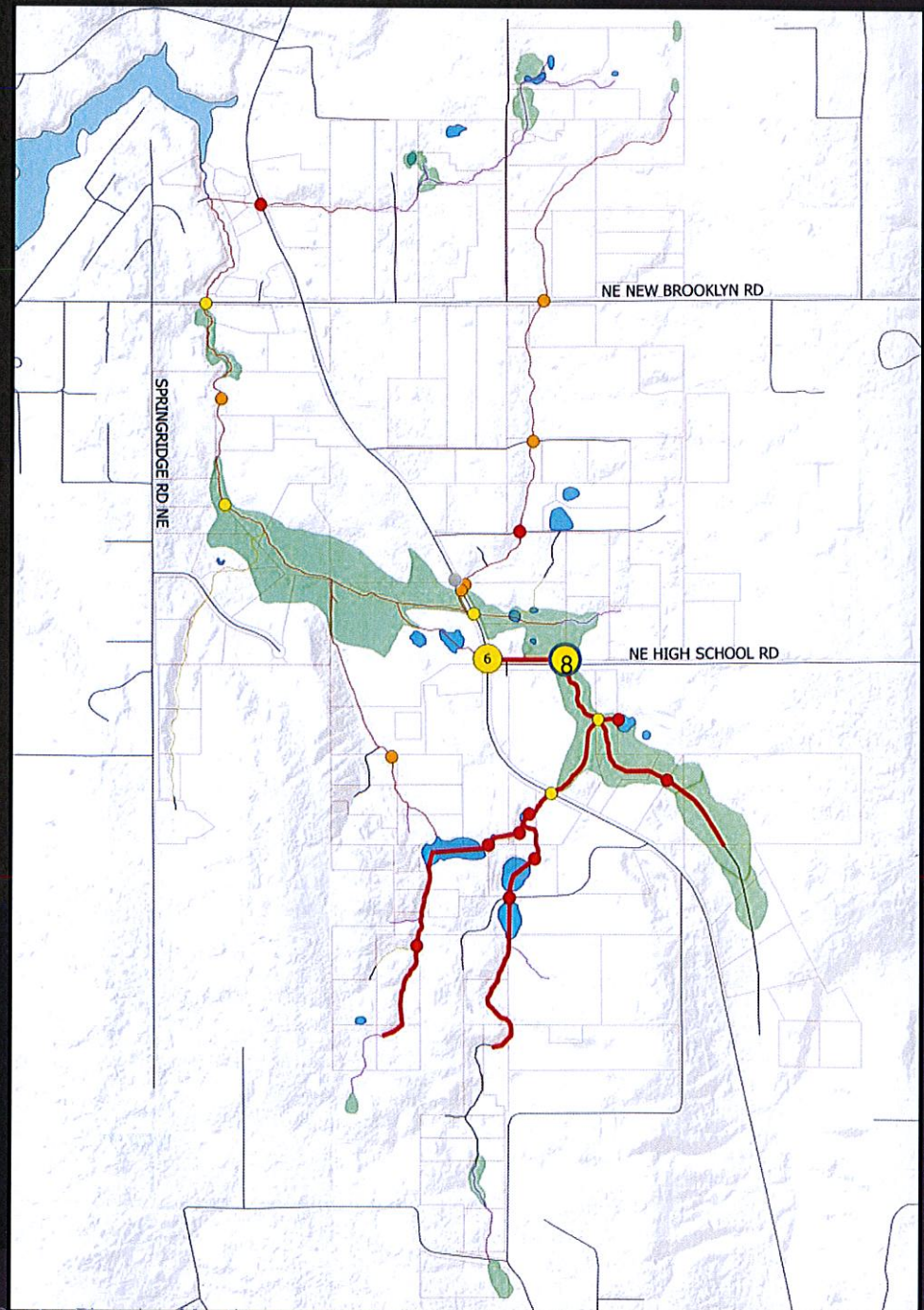




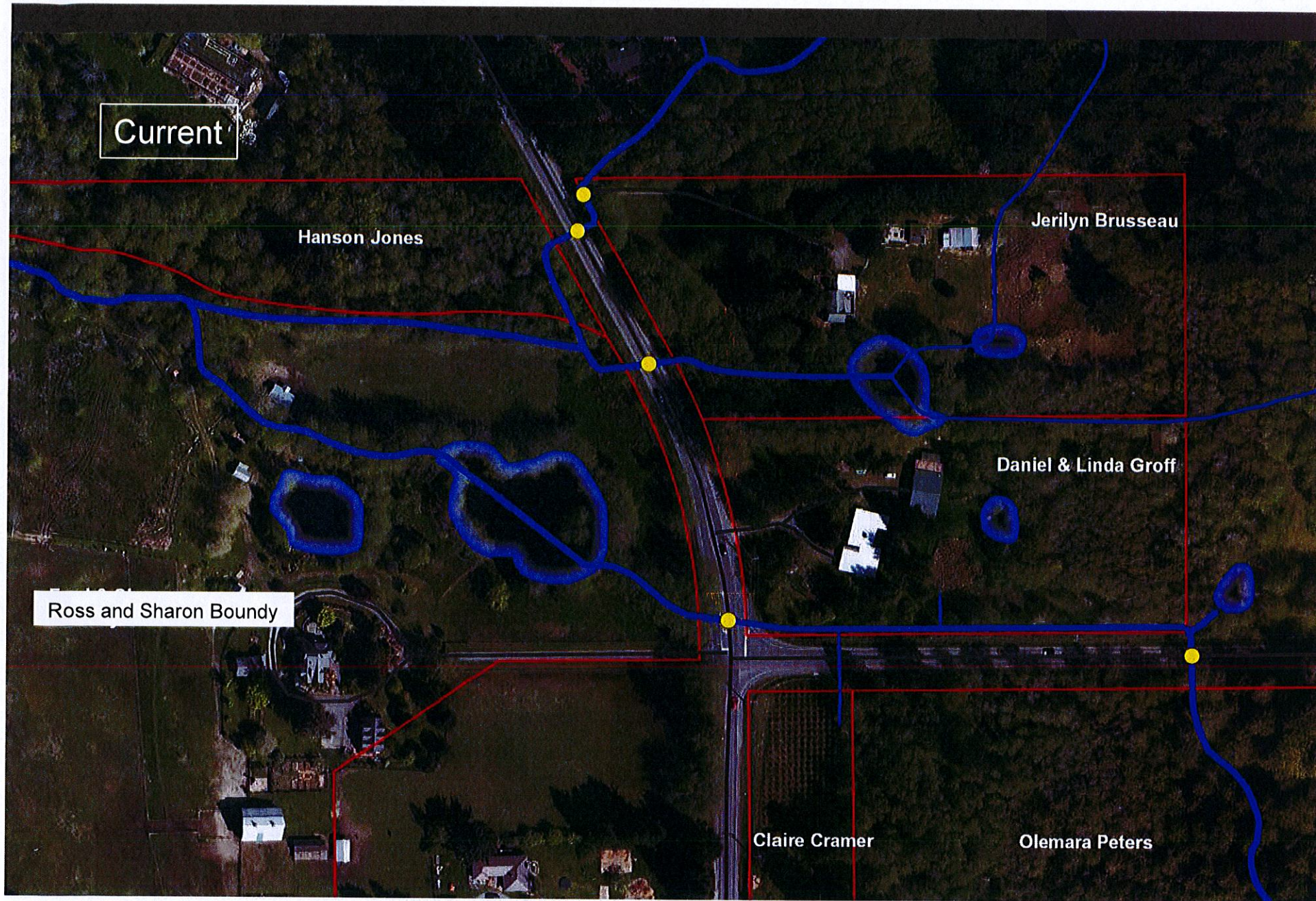
#6 & #7

Fletcher Bay Rd.  
NE

2.2 miles  
of type F habitat above the  
crossing







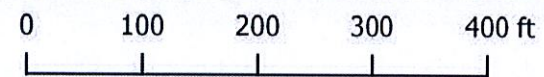
Existing Conditions



Partial Barrier Culvert



Springbrook Creek





67% passable  
(slope) – FPF 2008

Culvert rusting  
through at outlet

Channel ditched  
along NE High  
School Rd. above  
the crossing

Replace culvert



Coho and cutthroat trout netted  
at culvert outlet



67% passable  
(vertical drop) – WDFW  
2014

Channel ditched along  
NE High School Rd. below  
the crossing

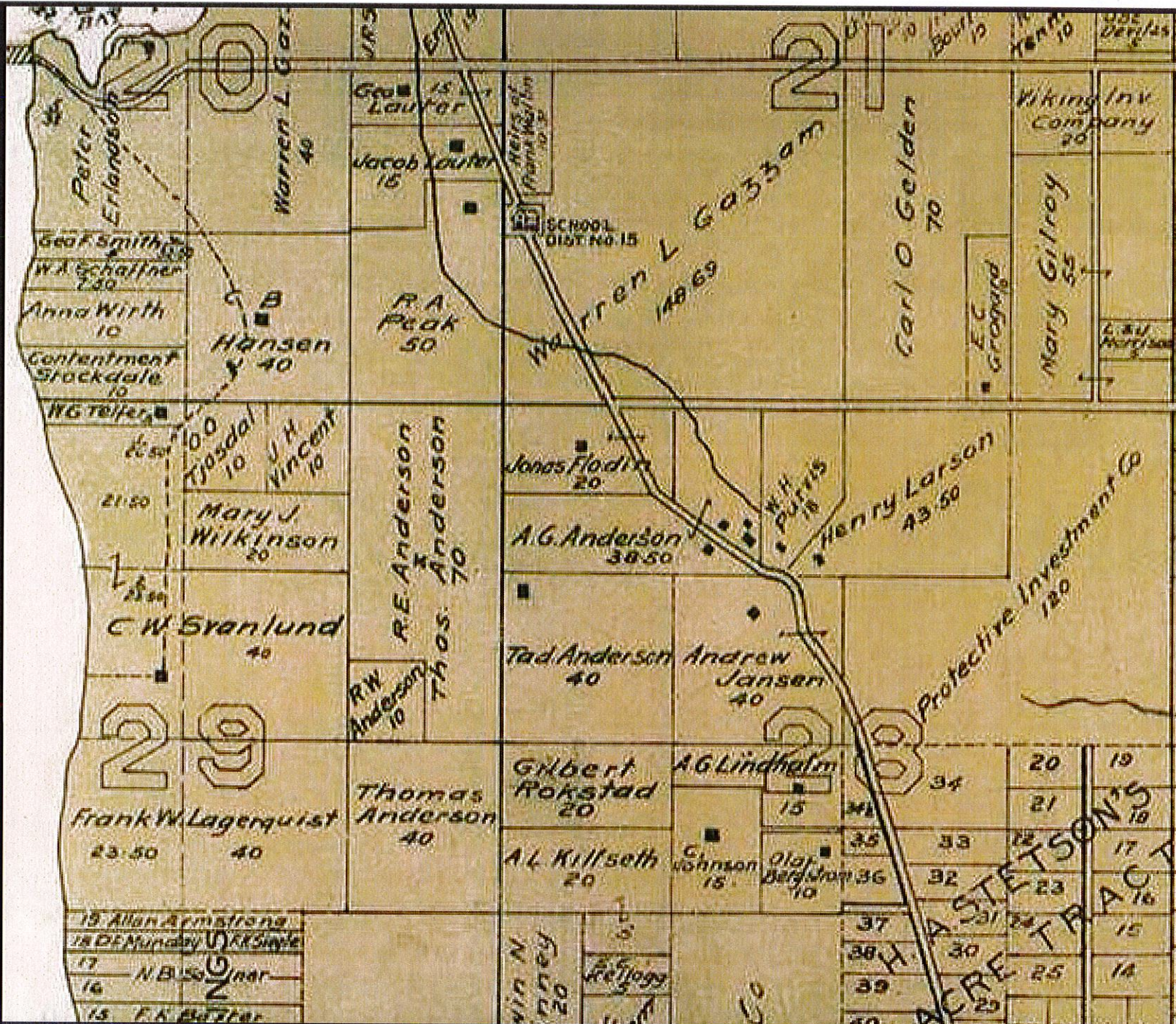
Replace culvert



Coho netted above the culvert

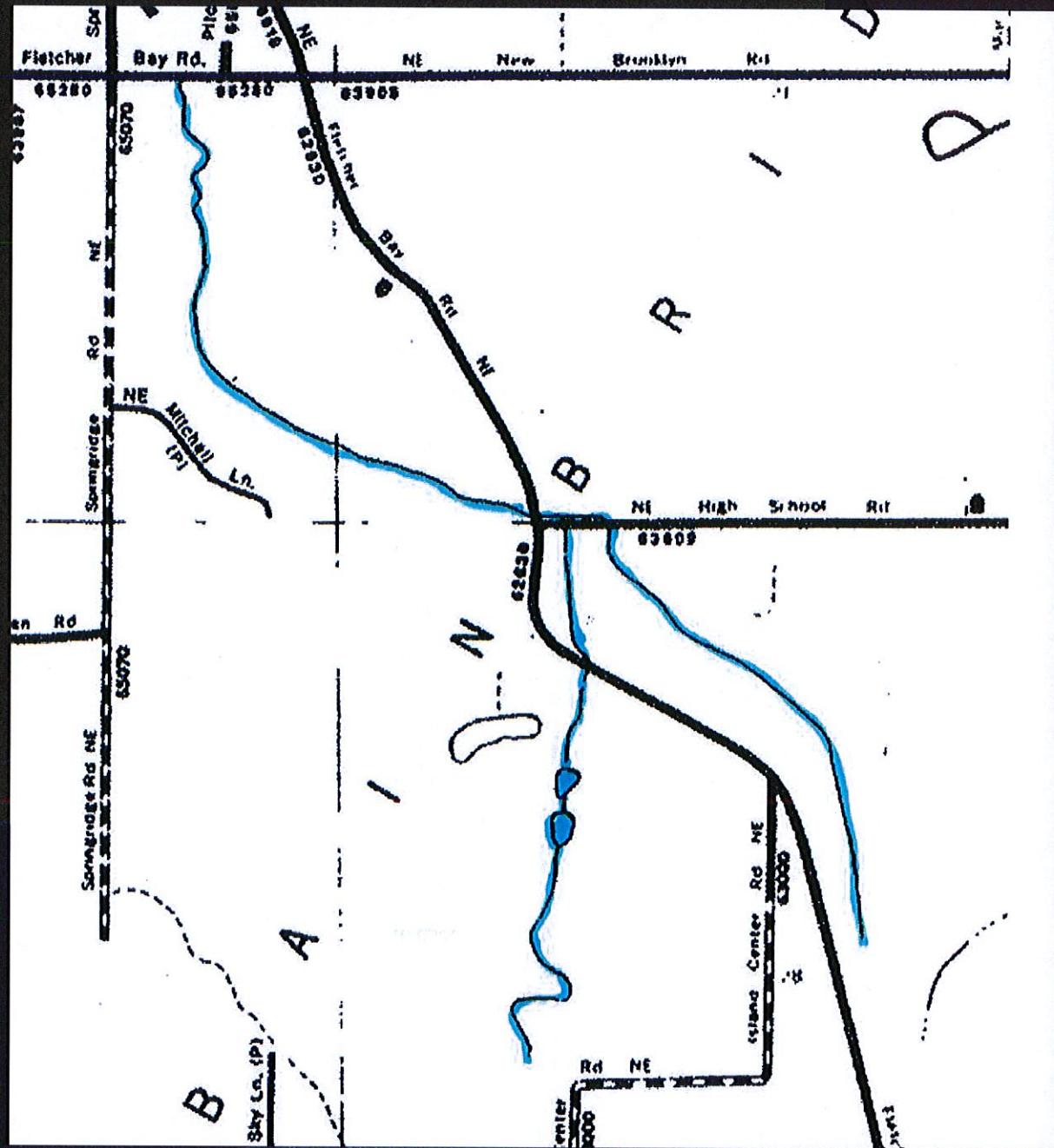


# 1909 Map

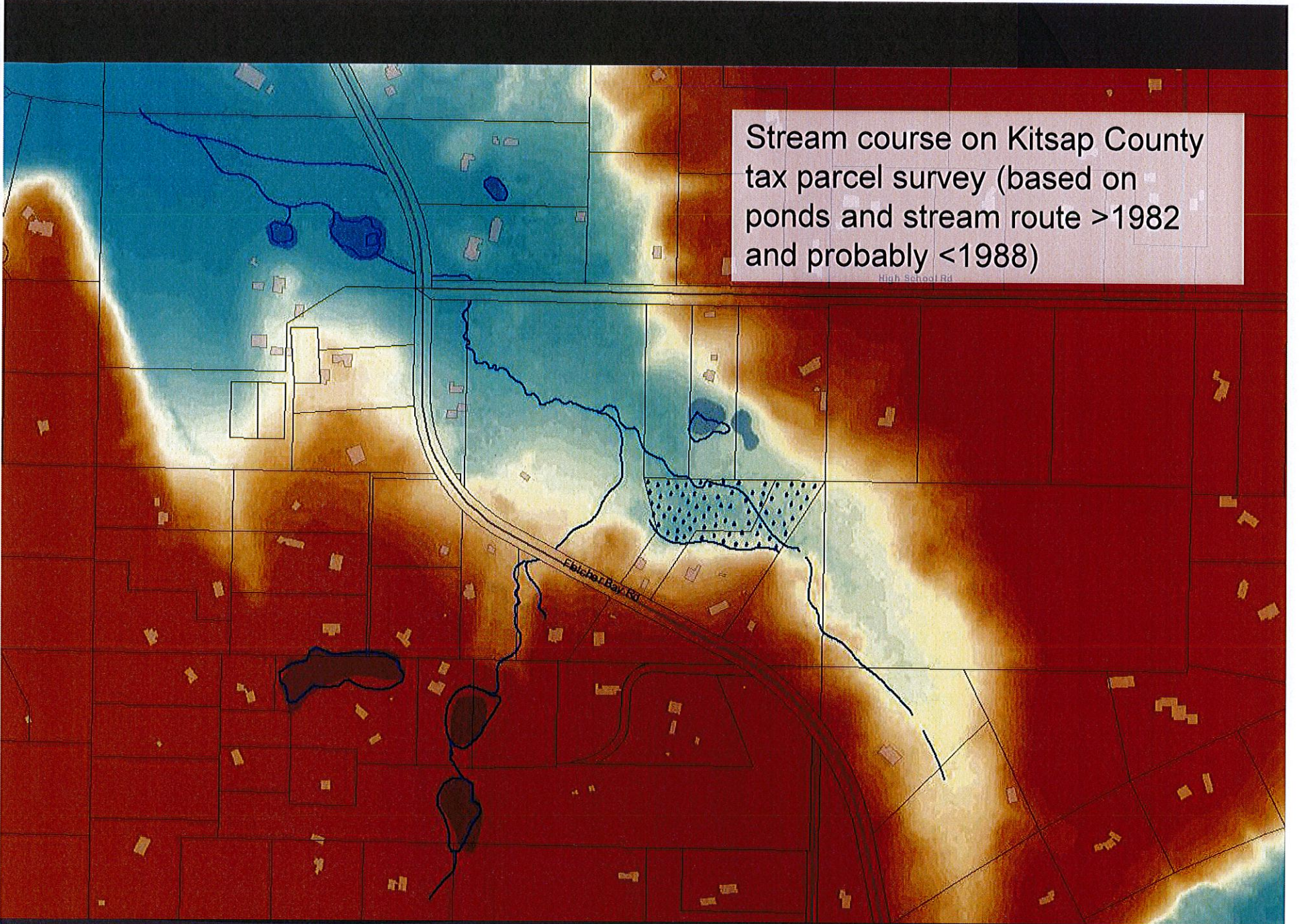




1988 Map







Stream course on Kitsap County  
tax parcel survey (based on  
ponds and stream route >1982  
and probably <1988)

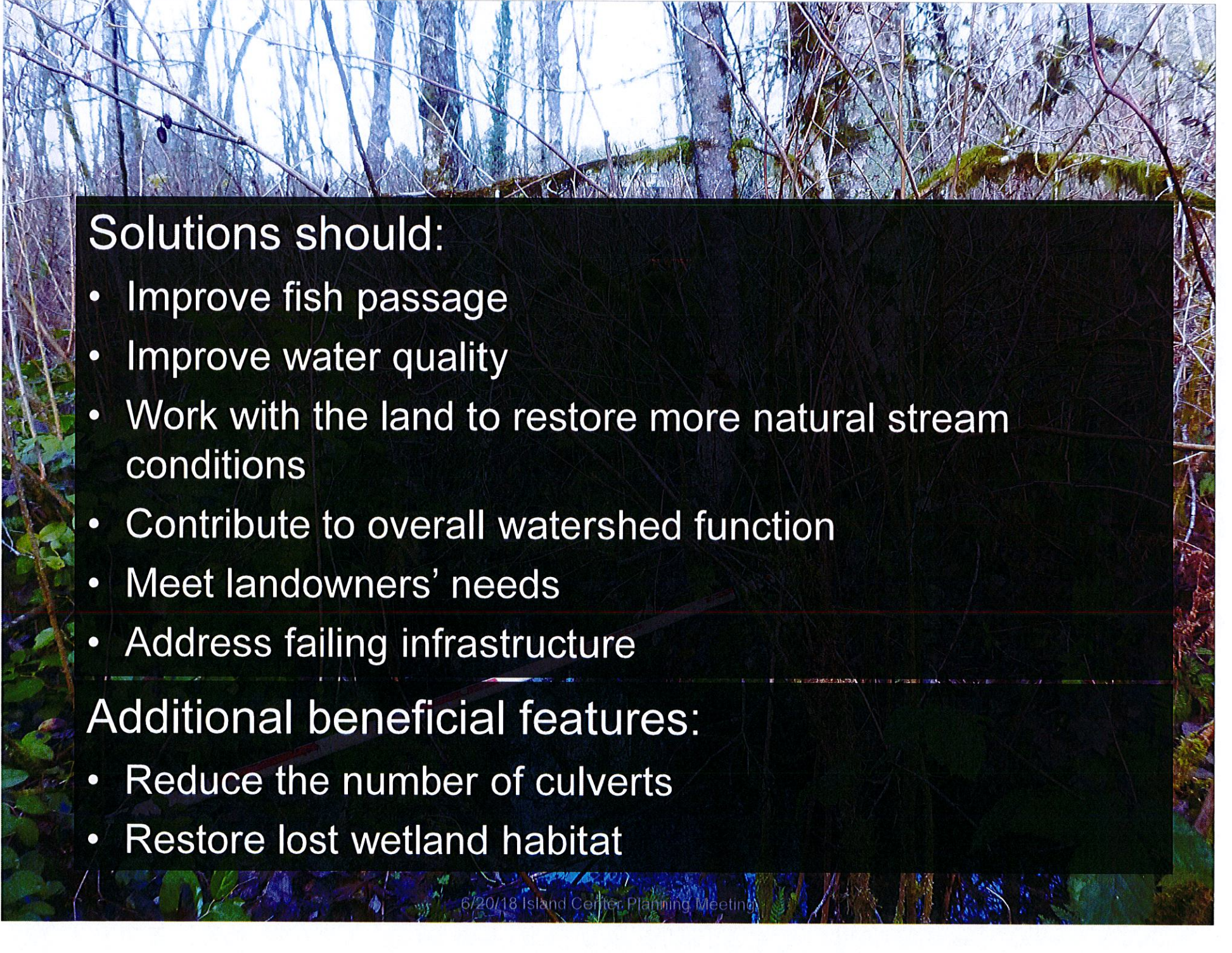


Kitsap Co tax parcel survey  
stream under current stream

High School Rd

Fletcher Bay Rd





## Solutions should:

- Improve fish passage
- Improve water quality
- Work with the land to restore more natural stream conditions
- Contribute to overall watershed function
- Meet landowners' needs
- Address failing infrastructure

## Additional beneficial features:

- Reduce the number of culverts
- Restore lost wetland habitat



# Riparian Vegetation and Stream Health

- Landowner Outreach
- Restoration potential





# Protection



6/20/18 Island Center Planning Meeting



# Questions?

