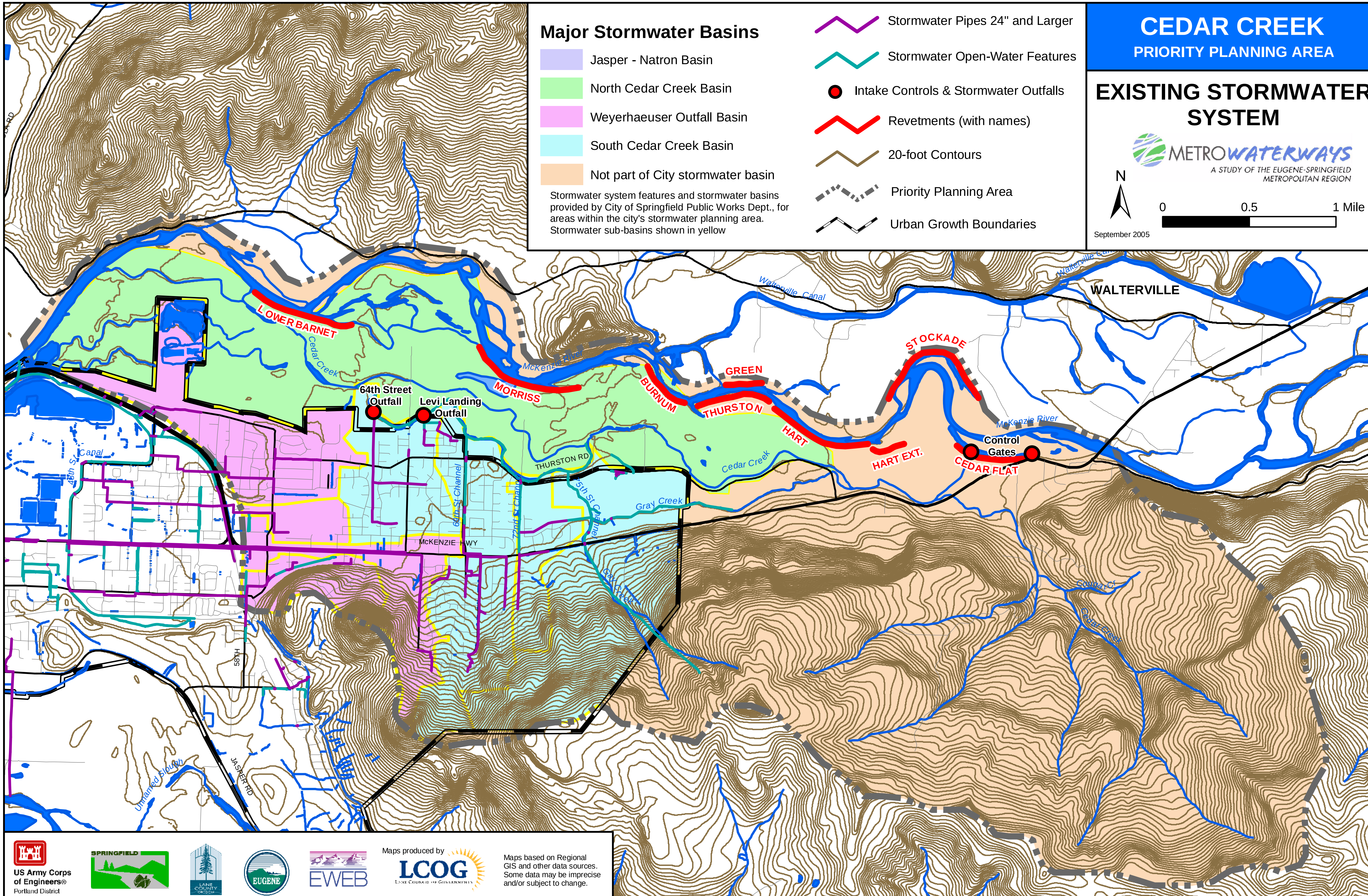
APPPENDIX A

ENVIRONMENTAL APPENDIX

CONTENTS



CEDAR CREEK
PRIORITY PLANNING AREA
EXISTING STORMWATER SYSTEM
METROWATERWAYS
A STUDY OF THE EUGENE-SPRINGFIELD METROPOLITAN REGION
N
0
0.5
1 Mile
September 2005
Major Stormwater Basins
Jasper - Natron Basin
North Cedar Creek Basin
Weyerhaeuser Outfall Basin
South Cedar Creek Basin
Not part of City stormwater basin
Stormwater system features and stormwater basins provided by City of Springfield Public Works Dept., for areas within the city's stormwater planning area. Stormwater sub-basins shown in yellow
Stormwater Pipes 24" and Larger
Stormwater Open-Water Features
Intake Controls & Stormwater Outfalls
Revetments (with names)
20-foot Contours
Priority Planning Area
Urban Growth Boundaries
WALTERVILLE
Walterville Canal
LOWER BARNET
Cedar Creek
McKenzie River
MORRISS
64th Street Outfall
Levi Landing Outfall
BURNUM
GREEN
THURSTON
HART
STOCKADE
HART EXT.
Control Gates
CEDAR FLAT
THURSTON RD
Gray Creek
McKENZIE HWY
69th St Channel
72nd St Channel
75th St Channel
48th St Canal
58TH
JASPER RD
Unnamed Slough
US Army Corps of Engineers® Portland District
SPRINGFIELD
LANE COUNTY
EUGENE
EWEB
Maps produced by
LCOG
Lane Council of Governments
Maps based on Regional GIS and other data sources. Some data may be imprecise and/or subject to change.

CEDAR CREEK
PRIORITY PLANNING AREA

SOIL PERMEABILITY

METROWATERWAYS
A STUDY OF THE EUGENE-SPRINGFIELD METROPOLITAN REGION

N

0 0.5 1 Mile

September 2005

PERMEABILITY

- Very Rapid
- Moderately Rapid
- Moderate
- Moderately Slow
- Slow
- Very Slow
- Variable (Fluvents)
- Pits and Water Bodies (no perm. data)

- Priority Planning Area
- Urban Growth Boundaries

WALTERVILLE

McKENZIE HWY

THURSTON RD

58TH

JASPER RD

Cedar Creek

McKenzie River

Walterville Canal

Gray Creek

Cougar Cr

Unnamed Slough

48th St Canal

69th St Channel

72nd St Channel

5th St Channel

Osborn Cr

US Army Corps of Engineers®
Portland District

SPRINGFIELD

LANE COUNTY OREGON

EUGENE

EWEB

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CEDAR CREEK
PRIORITY PLANNING AREA

RUNOFF POTENTIAL AND EXISTING WATER QUALITY CONDITIONS

METROWATERWAYS
A STUDY OF THE EUGENE-SPRINGFIELD METROPOLITAN REGION

N

0 0.5 1 Mile

September 2005

RUNOFF POTENTIAL

- Low (Hydrologic Group A)
- Moderately Low (Hydro Group B)
- Moderately High (Hydro Group C)
- High (Hydrologic Group D)
- No Soil Data (borrow pits/water bodies)

- Water Quality Monitoring Sites
- 303(d) Streams
- Priority Planning Area
- Urban Growth Boundaries

Note: Upper Willamette TMDL applies to the entire study area, including this PPA.

WALTERVILLE
Walterville Canal
McKenzie River
Cedar Creek
Gray Creek
Cougar Cr
Osborn C
THURSTON RD
McKENZIE HWY
69th St Channel
72nd St Channel
55th St Channel
48th St Canal
58TH
JASPER RD
Unnamed Slough

US Army Corps of Engineers®
Portland District

SPRINGFIELD
LANE COUNTY OREGON
EUGENE
EWEB

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CEDAR CREEK
PRIORITY PLANNING AREA

EXISTING LAND USE

METROWATERWAYS
A STUDY OF THE EUGENE-SPRINGFIELD METROPOLITAN REGION

N

0 0.5 1 Mile

September 2005

- Low-Density Residential
- Med-High-Density Residential
- Commercial
- Industrial and Utilities
- Churches and Cemeteries
- Government and Education
- Parks/Recreation/Open Space
- Rural Residential
- Agriculture
- Timber
- Other Undeveloped
- Streets and Walkways

Existing Land Use based on regional GIS as of June 2005.

- Priority Planning Area
- Urban Growth Boundaries

WALTERVILLE

Walterville Canal

McKenzie River

Cedar Creek

Gray Creek

Couga Ct

THURSTON RD

MCKENZIE HWY

58TH

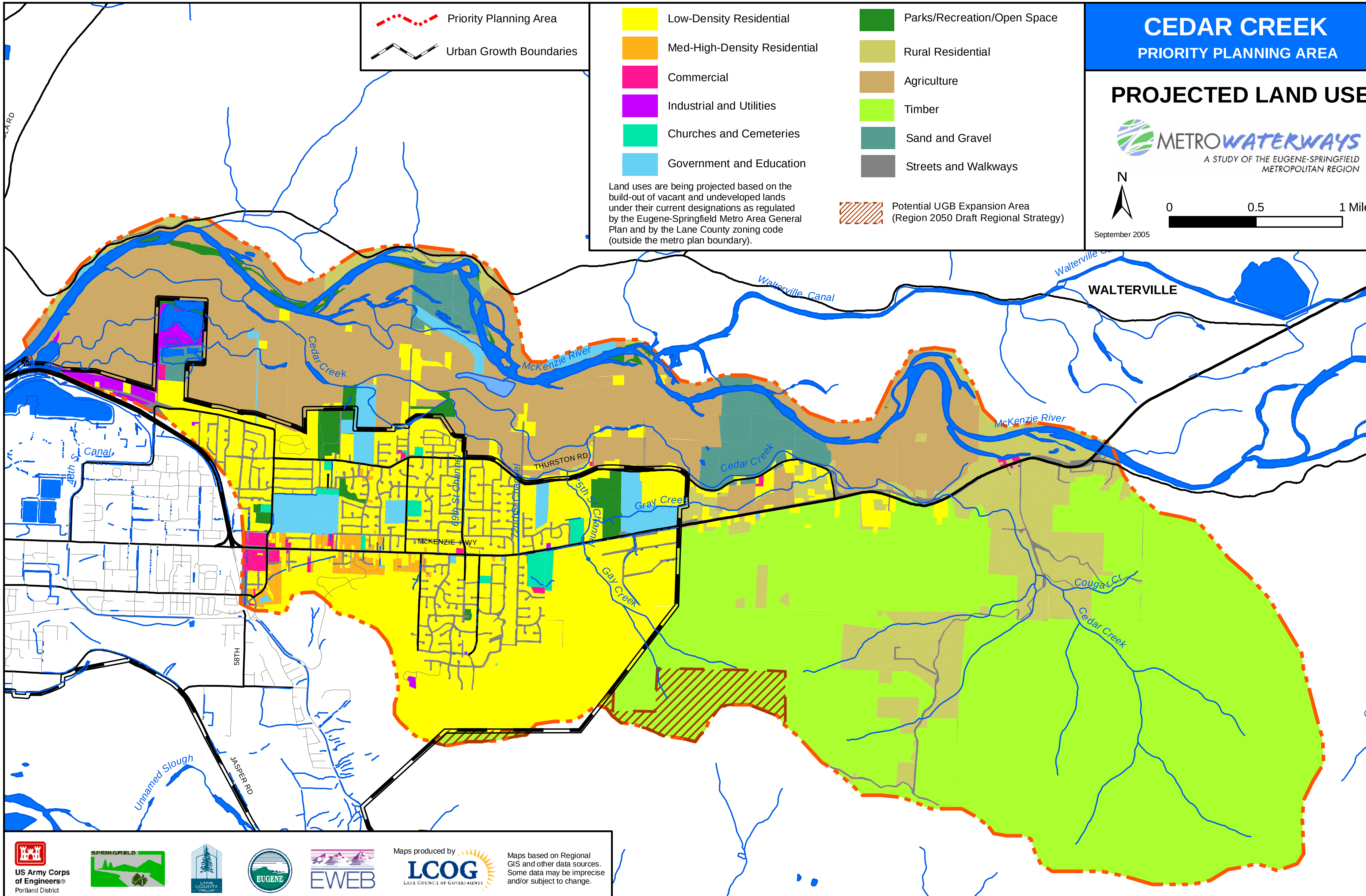
JASPER RD

Unnamed Slough

US Army Corps of Engineers
Portland District

Maps produced by LCOG Lane Council of Governments

Maps based on Regional GIS and other data sources. Some data may be imprecise and/or subject to change.


CEDAR CREEK
PRIORITY PLANNING AREA
PROJECTED LAND USE
METROWATERWAYS
A STUDY OF THE EUGENE-SPRINGFIELD METROPOLITAN REGION
N
0
0.5
1 Mile
September 2005
Priority Planning Area
Urban Growth Boundaries
Low-Density Residential
Med-High-Density Residential
Commercial
Industrial and Utilities
Churches and Cemeteries
Government and Education
Parks/Recreation/Open Space
Rural Residential
Agriculture
Timber
Sand and Gravel
Streets and Walkways
Land uses are being projected based on the build-out of vacant and undeveloped lands under their current designations as regulated by the Eugene-Springfield Metro Area General Plan and by the Lane County zoning code (outside the metro plan boundary).
Potential UGB Expansion Area (Region 2050 Draft Regional Strategy)
WALTERVILLE
Walterville Canal
McKenzie River
Cedar Creek
THURSTON RD
Gray Creek
MCKENZIE HWY
Gay Creek
Cougar Cr
Canal
58TH
JASPER RD
Unnamed Slough
US Army Corps of Engineers
Portland District
SPRINGFIELD
EUGENE
EWEB
Maps produced by
LCOG
Lane Council of Governments
Maps based on Regional GIS and other data sources. Some data may be imprecise and/or subject to change.

CEDAR CREEK
PRIORITY PLANNING AREA

EXISTING IMPERVIOUS

METROWATERWAYS
A STUDY OF THE EUGENE-SPRINGFIELD METROPOLITAN REGION

Percent Impervious by Stormwater Basin

- Less than 10%
- 10% - 20%
- 20% - 30%
- 30% - 40%
- 40% - 50%
- 50% - 60%
- 60% - 75%

Priority Planning Area

Urban Growth Boundaries

N

0 0.5 1 Mile

September 2005

WALTERVILLE

McKENZIE HWY

THURSTON RD

58TH

JASPER RD

69th St Canal

72nd St Canal

Walterville Canal

McKenzie River

Cedar Creek

Gray Creek

Unnamed Slough

US Army Corps of Engineers®
Portland District

SPRINGFIELD

LANE COUNTY OREGON

EUGENE

EWEB

Maps produced by LCOG Lane Council of Governments

Maps based on Regional GIS and other data sources. Some data may be imprecise and/or subject to change.

CEDAR CREEK
PRIORITY PLANNING AREA

PROJECTED IMPERVIOUS

METROWATERWAYS
A STUDY OF THE EUGENE-SPRINGFIELD METROPOLITAN REGION

Projected Percent Impervious by Stormwater Basin

- Less than 10%
- 10% - 20%
- 20% - 30%
- 30% - 40%
- 40% - 50%
- 50% - 60%
- 60% - 75%

Priority Planning Area

Urban Growth Boundaries

N

0 0.5 1 Mile

September 2005

WALTERVILLE

McKENZIE HWY

THURSTON RD

58TH

JASPER RD

Walterville Canal

McKenzie River

Cedar Creek

Gray Creek

Gay Creek

Unnamed Slough

Ostrom C

US Army Corps of Engineers®
Portland District

SPRINGFIELD

LANE COUNTY OREGON

EUGENE

EWEB

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Maps based on Regional GIS and other data sources. Some data may be imprecise and/or subject to change.

CEDAR CREEK
PRIORITY PLANNING CORRIDOR

EXISTING HABITAT TYPES (Ca. 2000)

METROWATERWAYS
A STUDY OF THE EUGENE-SPRINGFIELD METROPOLITAN REGION

Priority Planning Corridor

Urban Growth Boundaries

Publicly Owned Lands

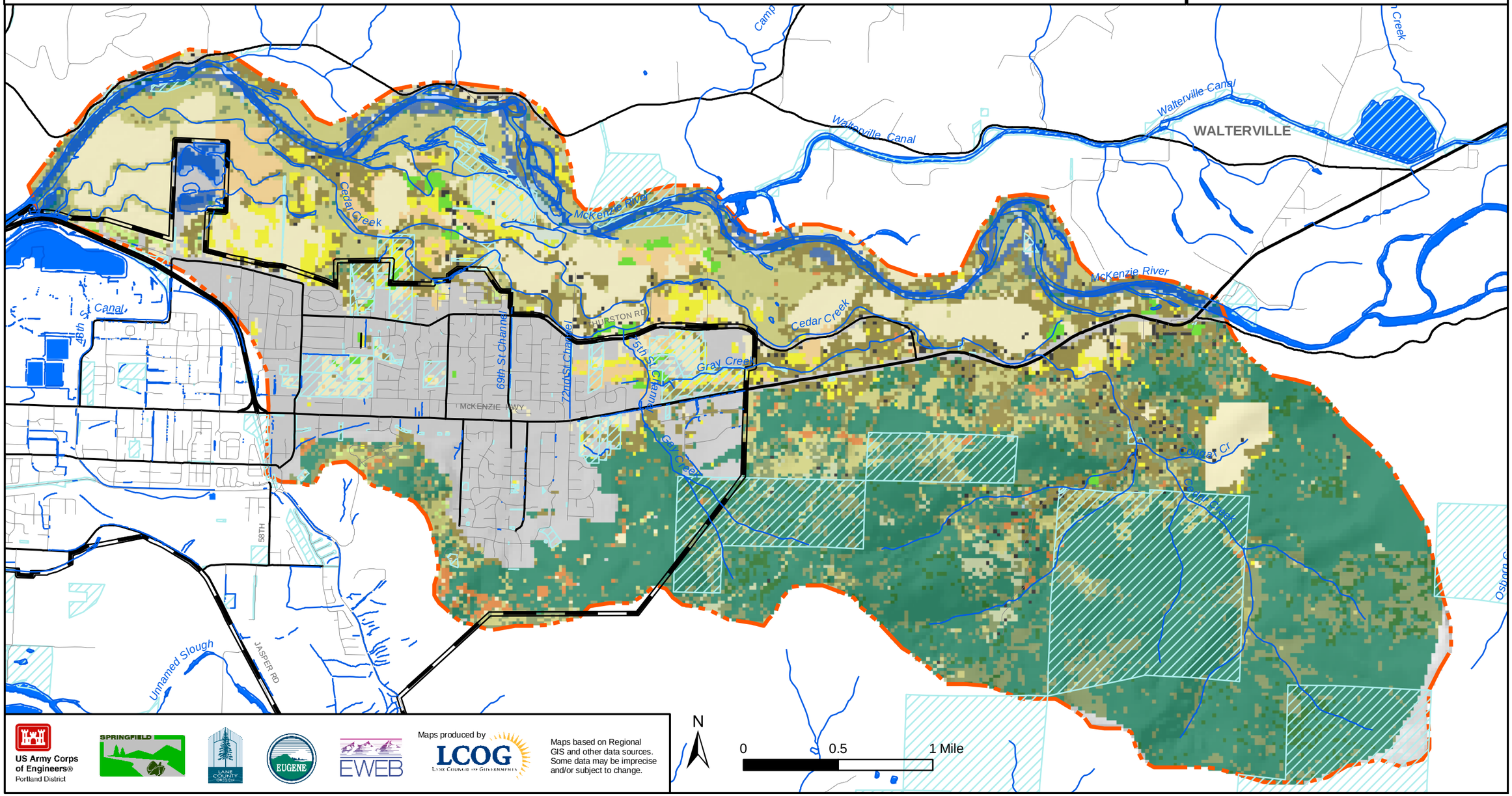
Source: "Land Use / Land Cover ca. 2000"
Pacific Northwest Ecosystem
Research Consortium
http://oregonstate.edu/Dept/pnw-erc/

September 2005

Generalized Land Cover ca. 2000

- Urban
- Rural non-vegetated unknown
- Rural structures
- Urban tree overstory
- Closed & semi-closed mixed conifer forest or woodlot < 200 years
- Closed forest, riparian, wetland, & upland hardwood
- Closed upland & riparian forest mixed conifer & hardwood
- Closed upland conifer forest > 200 years
- Upland woodland, shrubland, & herbaceous
- Savanna, oak & conifer
- Upland prairie mounded prairie, & mixed conifer-hardwood woodland
- Open upland forest mixed conifer & hardwood
- Pasture
- Agriculture
- Turfgrass
- Emergent wetlands
- Water

Note: This map shows contemporary land cover as developed by the Pacific Northwest Ecosystem Research Consortium described in part through categories used by the Oregon Natural Heritage Program in describing 1850 GLO vegetation. The crosswalk on which this map is based was developped by the aforementioned parties.



US Army Corps of Engineers®
Portland District

SPRINGFIELD
LANE COUNTY OREGON
EUGENE
EWEB

Maps produced by LCOG
Lane Council of Governments

Maps based on Regional GIS and other data sources. Some data may be imprecise and/or subject to change.

CEDAR CREEK
PRIORITY PLANNING CORRIDOR

PROJECTED HABITAT TYPES

METRO WATERWAYS
A STUDY OF THE EUGENE-SPRINGFIELD METROPOLITAN REGION

N

0 0.5 1 Mile

Priority Planning Corridor

Urban Growth Boundaries

Publicly Owned Lands

Rural Residential Lands

Source:
Pacific Northwest
Ecosystem Research Consortium
Land Use / Land Cover.
http://oregonstate.edu/Dept/pnw-erc/

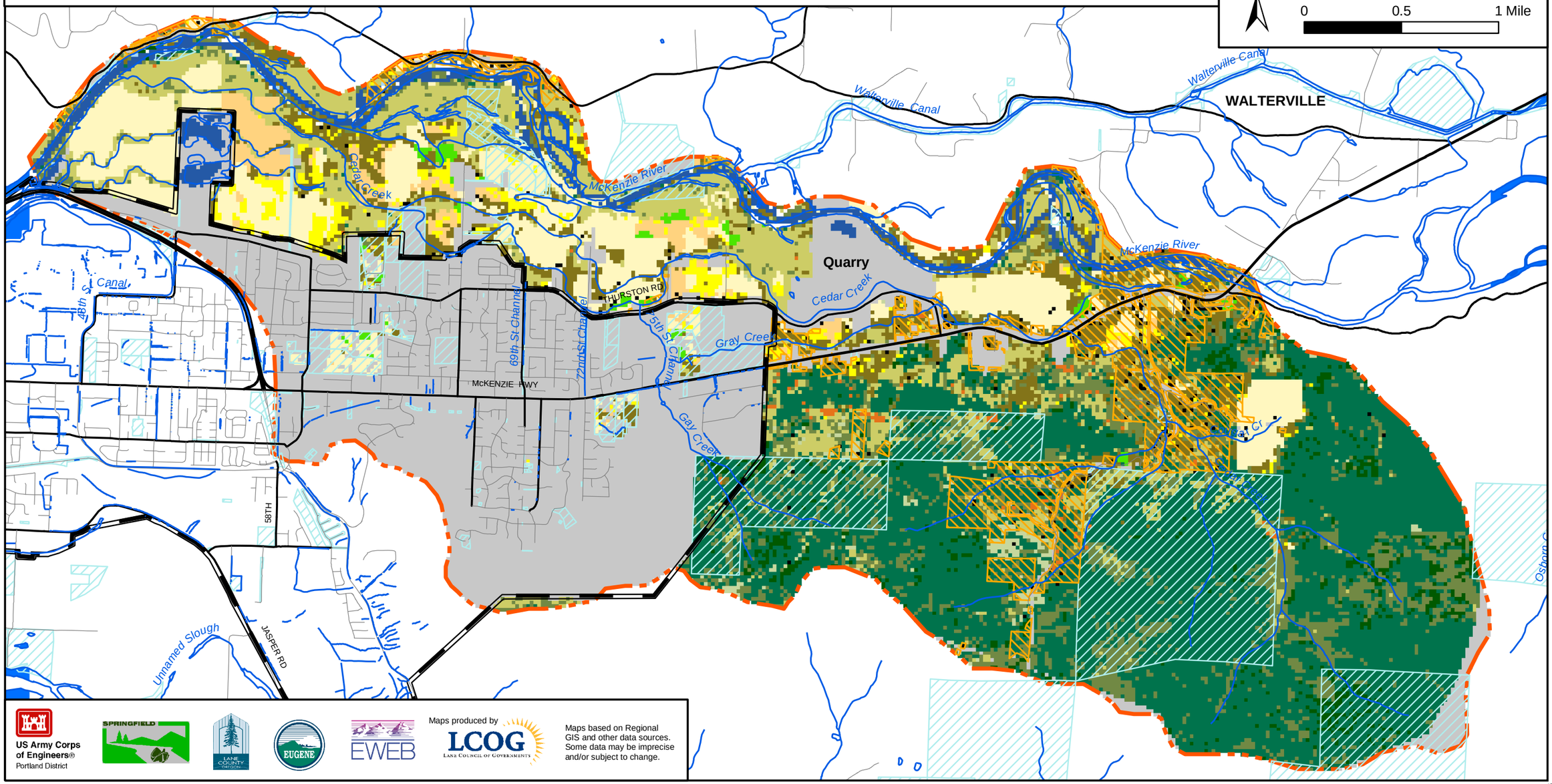
September 2005

Projected Generalized Land Cover

- Urban
- Rural non-vegetated unknown
- Rural structures
- Urban tree overstory
- Closed & semi-closed mixed conifer forest or woodlot < 200 years
- Closed forest, riparian, wetland, & upland hardwood
- Closed upland & riparian forest mixed conifer & hardwood
- Closed upland conifer forest > 200 years
- Upland woodland, shrubland, & herbaceous
- Savanna, oak & conifer
- Upland prairie mounded prairie, & mixed conifer-hardwood woodland
- Open upland forest mixed conifer & hardwood
- Pasture
- Agriculture
- Turfgrass
- Emergent wetlands
- Water

Note: This map shows contemporary land cover as developed by the Pacific Northwest Ecosystem Research Consortium described in part through categories used by the Oregon Natural Heritage Program in describing 1850 GLO vegetation. The crosswalk on which this map is based was developed by the aforementioned parties.

Projected Land Cover is based on the same projected plan land use categories as were used for impervious surface estimation.



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CEDAR CREEK
PRIORITY PLANNING AREA

EXISTING AQUATIC & RIPARIAN HABITATS

METROWATERWAYS
A STUDY OF THE EUGENE-SPRINGFIELD METROPOLITAN REGION

N

0 0.5 1 Mile

- Urban Growth Boundary
- Priority Planning Area
- National Wetland Inventory*
- Springfield Local Wetlands Inventory (2004)
- Fish Bearing Streams
- Lane County Goal 5 Riparian
- Natural Resources Special Study-Riparian
- 2004 LCOG-digitized Riparian Vegetation**

* NWI information shown outside the UGB only.
** Digitized from 2004 aerial photography

September 2005

WALTERVILLE
Camp Creek
Walterville Canal
McKenzie River
Cedar Creek
Gray Creek
48th St Canal
69th St Channel
72nd St Channel
5th St Channel
Gay Creek
Cougar Ct
Unnamed Slough
McKENZIE HWY
HURSTON RD
JASPER RD
S 18TH
Osborn Cr

US Army Corps of Engineers®
Portland District

Maps produced by LCOG Lane Council of Governments

Maps based on Regional GIS and other data sources. Some data may be imprecise and/or subject to change.

Cedar CREEK
PRIORITY PLANNING AREA

METROWATERWAYS

Existing and Proposed Parks, Recreation and Open Space Resources Map

September 2005

The McKenzie River and the Cedar Creek corridor to the north of Main Street were both identified in the *Rivers to Ridges* vision as a potential Blueway. A Blueway is defined as a waterway corridor with potential for enhancement.

Legend:

- Cedar Creek Planning Area
- 100-foot contour intervals
- Existing Parks and Open Space*
- Federal Owned Lands (BLM)
- Schools
- Urban Growth Boundary

*Includes Willamalane, McKenzie River Trust, and Lane Ownership

Springfield
Blueway
Big Island (MRT Easement)
Cedar Creek
Proposed Community Park
Ruff Park
Lively Park
Thurston MS
Thurston Rd.
58th St.
48th St.
River Bend ES
Main St.
William S. Fort Memorial Park
Thurston HS
Thurston Park
Ridgeview ES
69th Street Channel
72nd St. Channel
Thurston ES
piped
75th St. Ch.
Bob Artz Park
Undeveloped School District Property
Gray Creek
Main St.
Blueway
McKenzie River
Cedar Creek
Highway 126
Hendrick's Bridge Wayside (Lane Co.)
Possible McKenzie River Connections
Taylor Landing (BLM)
Bluebelle Park
Booth Kelly Haul Road
Planned Mountain Gate Park
Jesse Maine Memorial Park
Possible Trail Connection
Gray Creek
Gray Property
Potato Hill
Proposed Ridgetop Trail Corridor
Cedar Creek
Cougar Cr.
Jasper Rd.
Possible Connections to Booth Kelly Haul Road, Clearwater Park and Buford Recreation Area
South Thurston Hills
Clearwater Park
Middle Fork Willamette River
Proposed Connection to Buford Recreation Area
Buford Recreation Area (Lane Co.)
Proposed Eugene to Pacific Trail Connection
Jasper Park (Lane Co.)
0 1/2 1 Mile
Scale
North

Planned and Proposed Park and Open Space Resources:

- Neighborhood Park Acquisition
- Natural Area Park Acquisition
- Linear Park/Natural Area (with trail)

Note: Only planned or proposed park and open space resources that fall within the Cedar Creek planning area shown.

The open space concepts depicted on this map are based on the *Rivers to Ridges* vision (2003) and the *Willamalane Park and Recreation Comprehensive Plan*(2005) and is subject to change based on further analysis and land availability. This map is illustrative and should be used for planning purposes only.

CEDAR CREEK
PRIORITY PLANNING AREA

METROWATERWAYS

Waterway Assessments
Cedar Creek

January 2006

Springfield
Big Island (MRT Easement)
Cedar Creek
Creek
Ruff Park
Lively Park
Thurston MS
South Cedar Creek
Thurston Rd.
Thurston Park
Thurston HS
Ridgeview ES
River Bend ES
48th St.
58th St.
66th St.
69th St.
69th Street Channel
72nd St.
72nd St. Channel
Piped
75th St.
Main St.
Bluebelle Park
69th Pl.
Potato Hill
Jasper Rd.
Clearwater Park
Middle Fork Willamette River
126
Hart Revetment
McKenzie River
Control gates
Hendrick's Bridge Wayside (Lane Co.)
Cedar Creek
Gray Creek
Cougar Cr.
6.6* Headwater Streams

* Cedar Creek Headwater Streams (various locations) were not assessed individually, but scored based on average condition.

0 1/2 1 Mile
Scale
North

LEGEND

Channel Assessment Scores
- Poor 6 or less
- Fair 6.1-7.4
- Good 7.5 or greater

R2 6.2 Channel Reach Numbers with Overall Rating

Existing Revetment

- Cedar Creek Planning Area
- 100-foot contour intervals
- Existing Parks and Open Space*
- Federal Owned Lands (BLM)
- Schools
- Urban Growth Boundary

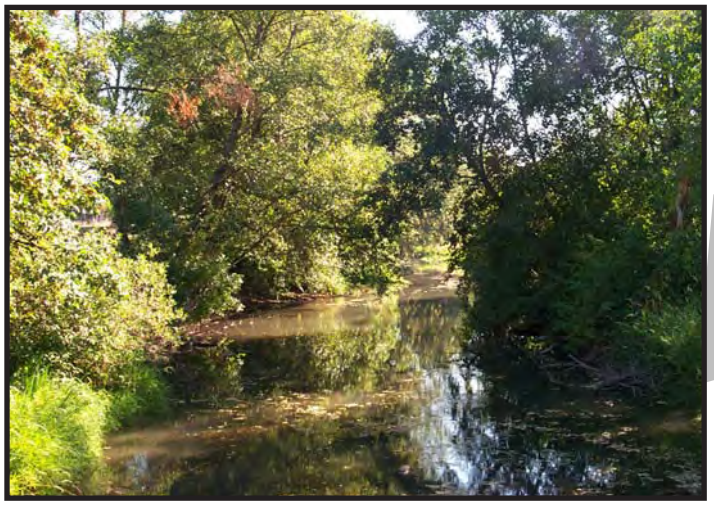
*Includes Willamalane, McKenzie River Trust, and Lane Ownership

This map depicts the Waterway Assessments that were conducted in July and August 2005 by the City of Springfield. Each waterway reach was evaluated based on 12 factors related to the waterway's physical condition, water quality, natural resources, and recreational attributes.

Cedar Creek Planning Area: Existing Conditions Photos

Cedar Creek Headwaters

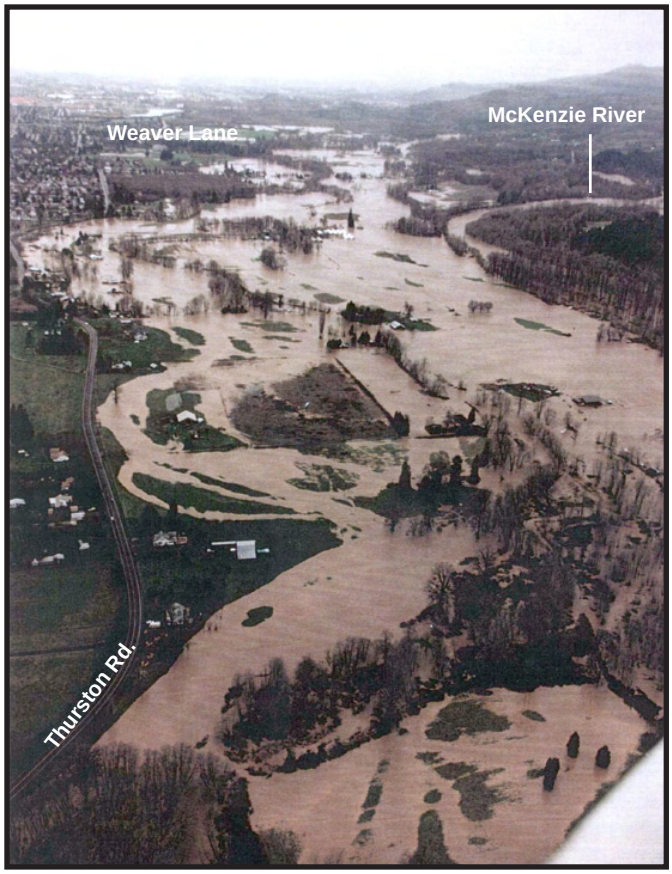
Cedar Creek intake structure (March 2006)



Cedar Creek main stem

Cedar Creek water control structure near intake

North Branch and South Branch of Cedar Creek with the McKenzie River is distance (looking north)



1996 Flood (McKenzie River/Cedar Creek floodplain)
- Looking West

1996 Flood (McKenzie River/Cedar Creek floodplain)
- Looking South

North Cedar Creek

South Cedar Creek

1996 Flood (McKenzie River/Cedar Creek floodplain)
- Looking West

Blue Water Ponds
and Keizer Slough

69th Street Channel

72nd Street Channel

Gray Creek at Bob Artz Park

Historic Resources

Historical Resources in Amazon and Cedar Creek Planning Areas

Amazon Creek Historical Resources and Parks and Open Space Map

The map shows all parcels within the city of Eugene that are listed on the National Register of Historic Places, or that are designated city landmarks. The two historic districts listed on the National Register are indicated. Those parcels on the map and listed below that are neither on the National Register nor a designated city landmark are in the City of Eugene's database of significant historical resources. Locations of the Lane County significant historic resources within the Amazon Creek Planning Area that are listed in the *Working Paper: Historical Resources Lane County Comprehensive Plan Revision* also are included on the map. City landmarks and city and county historical resources have the potential for being listed on the National Register.

The Area of Potential Effect is a ¼ mile radius from the main waterway and is used in determining possible environmental effects of project actions.

Amazon Creek Existing Historical Resources

Table A-6.1 City of Eugene Historic Sites within Amazon Creek Planning Area

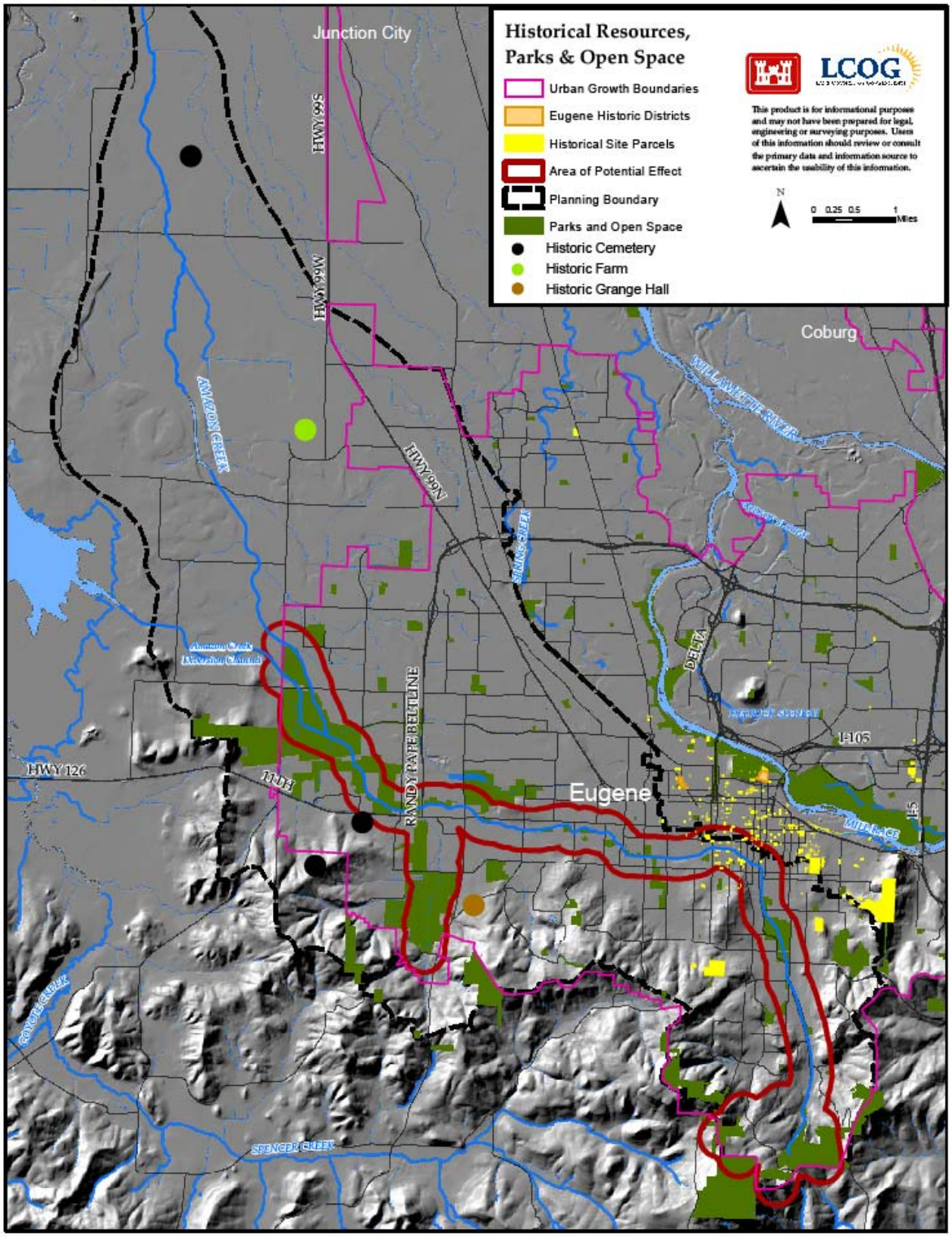
ADDRESS	NAME	NATIONAL REGISTER	CITY LANDMARK
814 Lorane Highway	Young-Pallett House Kjaer House		x
595 Crest Drive	Wayne Morse Farm	x	
26th and University	Hope Abbey Mausoleum	x	x
26th and University	Masonic Cemetery	x	x
2237 Spring Boulevard	Hampton/Church House		
447 W 22nd Ave	Kerns/Chase House		x
930 East 21st Avenue	James S. McMurray House		
2058 Olive Street	Archie Tirrell House		
2056 Lincoln Street	Frederick Smith House		
96 W 20th Avenue	Edgar Moore House		x
2050 Madison	Masterson House		x
2000x Fairmount Blvd	Hendricks Park		
1900 Olive Street	Columbia College Marker		
1740 Lawrence Street	Elliott-Barker House		
University of Oregon	Music Building		
60 West 17th Avenue	Elkins Residence		
1718 Lincoln Street	Marx-Schaefers Residence		
707 East 17th Avenue	Benjamin Franklin Dorris House	x	
1694 Washington Street	Wright House		
1659-1691 Olive Street	Peterson Row Houses		
485 West 17th Avenue	Weinstein Residence		
1654 Lincoln Street	Mickelson Residence		
1661 Washington Street	Himber Residence		
1660 Washington Street	Krey House		
244 East 16th Avenue	Christian/Patterson Rental	x	x
1605 Pearl Street	Patterson/Stratton Residence	x	
1626 Willamette Street	Veterans Memorial Building		
1601 Olive Street	Lane Tower		

1610 Olive Street	Hamaker Residence		
1611 Lincoln Street	A.V. Peters-Liston-Wintermeire House	x	x
1596 Olive Street	Barnes Rentals		
1585 Lincoln Street	White Residence		
University of Oregon	Education Building 1916		
18th and University - NWcorner	Eugene Pioneer Cemetery	x	x
1542 Washington Street	Robinson Residence		
1464 Lincoln St	Coombs-Davis House		
1475 Washington Street	Luckey-Gardner Residence		
1466 Washington Street	Lyons Residence		
1421 Lawrence Street	Erdman House		
1418 Olive Street	Parsons Residence		
1396 Charnelton Street	Bion Drake Rental		
1338 Charnelton Street	Cook Residence		
740 West 13th Avenue	Lane County Clerk's Building	x	x
1331 Washington Street	Larson Residence		
1312/1330/1338 Lincoln Street	Ball House Ensemble		x
590 West 13th Avenue	Skinner Residence		x
1308 Jefferson Street	G.W. Hunter Residence		
1280 Willamette Street	Kennell Ellis Building		x
227 West 15th Avenue	Ralph Newman Residence		
1272 Willamette Street	Florence Apartments		
601 West 13th Avenue	McNail-Riley House		
1240 Monroe Street	Johnson House		
650 West 12th Avenue	Lincoln School	x	
990 West 12th Avenue	Arthur A./Ella Maring House		
835 West 12th Avenue	Holcomb House		
1390 West 10th Avenue	Ranch House		
1006 Taylor Street	Chambers House	x	x

Table A-6.2 Lane County Comprehensive Plan Historical Resources within Amazon Creek Planning Area

Type of Site	Site #	Township-Section-Range	Site Name
Cemeteries	C-26	16-05-24	Caldwell
	C-44	18-04-05	Gates of Heaven
	C-83	17-04-33	Bethesda
Farms	F-16	17-04-05	Ray & Margorie Bond
Grange Halls	G-3	18-04-03	Four Oaks

Historical Resources--Amazon Creek Planning Area



Cedar Creek Historical Resources and Parks and Open Space Map

The map shows the properties within the city of Springfield that are listed on the National Register of Historic Places, and includes two historic districts, Washburne Historic District and Dorris Ranch. The list below includes properties on the National Register and those listed by the City of Springfield as City Landmarks.

Locations of the Lane County significant historic resources near the Cedar Creek Planning Area that are listed in the *Working Paper: Historical Resources Lane County Comprehensive Plan Revision* also are included on the map, with the exception of two properties that are more than 1 mile from the planning area boundary and are not within the map extent. The Thurston Grange Hall is the only historic property within ¼ mile radius of proposed project sites. It is a city landmark but not listed on the National Register. City landmarks and city and county historical resources have the potential for being listed on the National Register.

The Area of Potential Effect is a ¼ mile radius from the main waterway and is used in determining possible environmental effects of project actions.

Cedar Creek Historical Resources

Table A-6.3 Historical Resources within the Cedar Creek Planning Area

ADDRESS	NAME	NATIONAL REGISTER	CITY LANDMARK
6590 Thurston Road	Thurston Grange Hall		x

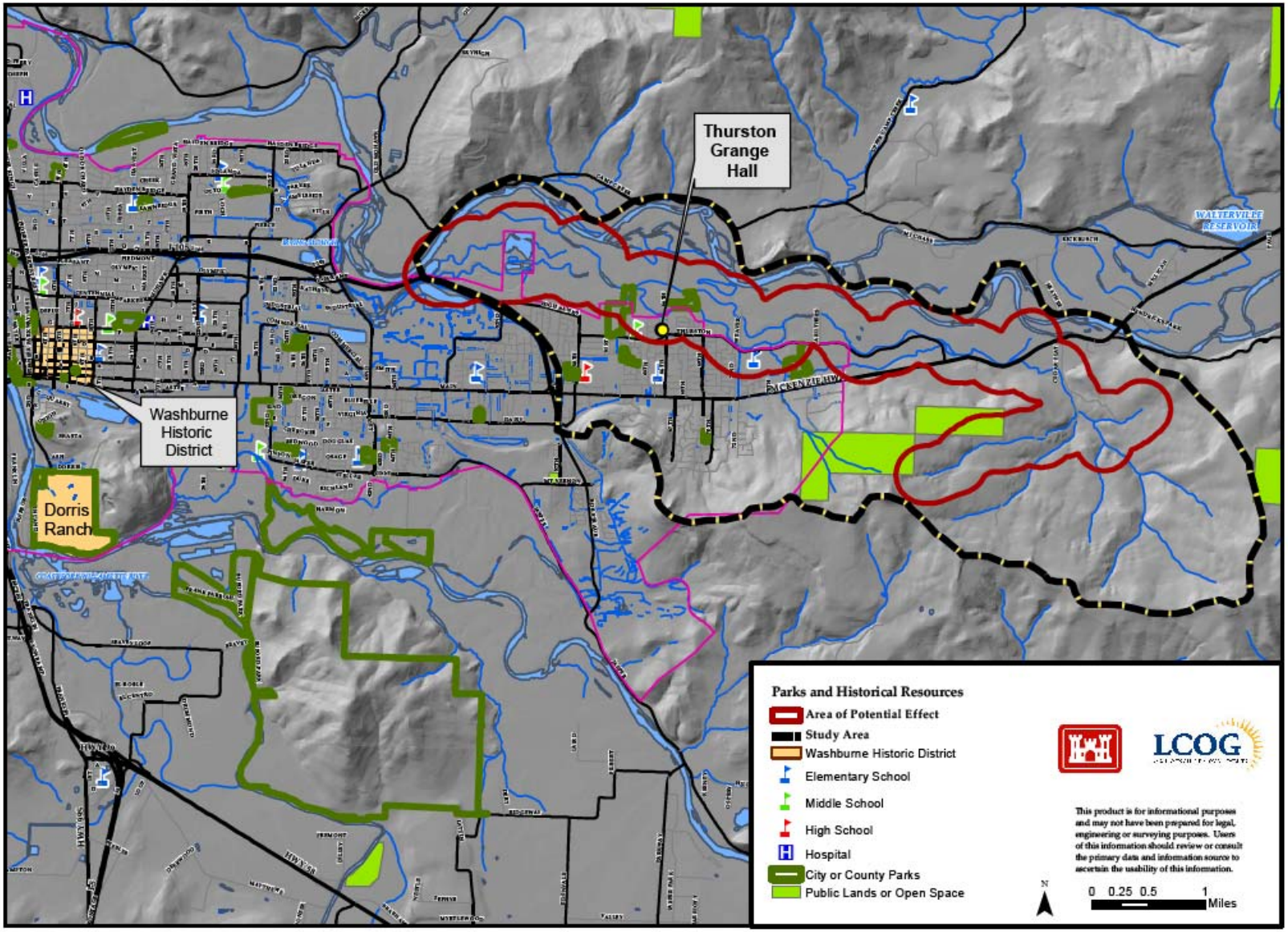
Table A-6.4 Historical Resources in the Springfield Area near the Cedar Creek Planning Area

ADDRESS	NAME	NATIONAL REGISTER	CITY LANDMARK
1260 Main Street	Brattain-Hadley House	x	x
590 Main Street	Pacific Power and Light Building	x	x
330 Main Street	Stevens & Perkins Building		x
342-246 Main Street	I.O.O.F. Building		x
890 Aspen Drive	Campbell House	x	
101 South A Street	Southern Pacific Railroad Depot	x	x
532 C Street	Ebbert Memorial United Methodist		x
606 D Street	McKlin House		x
846 F Street	Springfield General Hospital	x	x
S 2nd and Dorris Ave	Dorris Ranch	x	
214 Pioneer Parkway West	Stewart House		x
3362 Osage	Douglas House		x
33 city blocks	Washburne District	x	

Table A-6.5 Lane County Comprehensive Plan Historical Resources Within or Near Cedar Creek Plan Area

Type of Site	Site #	Township-Section-Range	Site Name
Cemetery	C-33	17-03-35	Springfield Memorial
Farm	F-31	17-25-35	Herbert Gray Century Farm
Grange Hall	G-23	17-02-34	Thurston Grange Hall

Historical Resources, Parks & Open Space -- Cedar Creek Planning Area



Environmental Justice

Environmental Justice/Title VI Populations
Amazon Creek and Cedar Creek Planning Areas

Metro Waterways Study Area Map - Depicts Population Density within the larger study area

Population data in all maps are from the 2000 US Census.

The Area of Potential Effect in both Amazon and Cedar Creek Planning Areas is a ¼ mile radius from the main waterway and is used in determining possible environmental effects of project actions.

Amazon Creek Planning Area Maps

- **5-1 Neighborhood Associations**. This map depicts the existing neighborhoods defined by the City of Eugene, along the Amazon Creek corridor.

- **5-2 Population Density**. This map shows population density by number of persons per square mile in the planning area, using the census blocks that are wholly or partially within the study area boundary.

- **5-3 Population Density for Age 65+ (Senior Population)**. This map shows population density of people aged 65 or older by number of persons per square mile in the planning area, using the census blocks that are wholly or partially within the study area boundary.

- **5-4 Percent Minority**. This map shows percent minority in the population by block group using the census blocks that are wholly or partially within the planning area boundary.

- **5-5 Percent Disabled**. This map shows percent disabled in the population by block group using the census blocks that are wholly or partially within the planning area boundary.

- **5-6 Percent Households in Poverty**. This map shows percent households in poverty in the population by block group using the census blocks that are wholly or partially within the planning area boundary and using the federal guidelines for definition of poverty level.

Cedar Creek Planning Area maps

- **5-7 Population Density**. This map shows population density by number of persons per square mile in the study area, using the census blocks that are wholly or partially within the planning area boundary.

- **5-8 Population Density for Age 65+ (Senior Population)**. This map shows population density of people aged 65 or older by number of persons per square mile in the study area, using the census blocks that are wholly or partially within the planning area boundary.

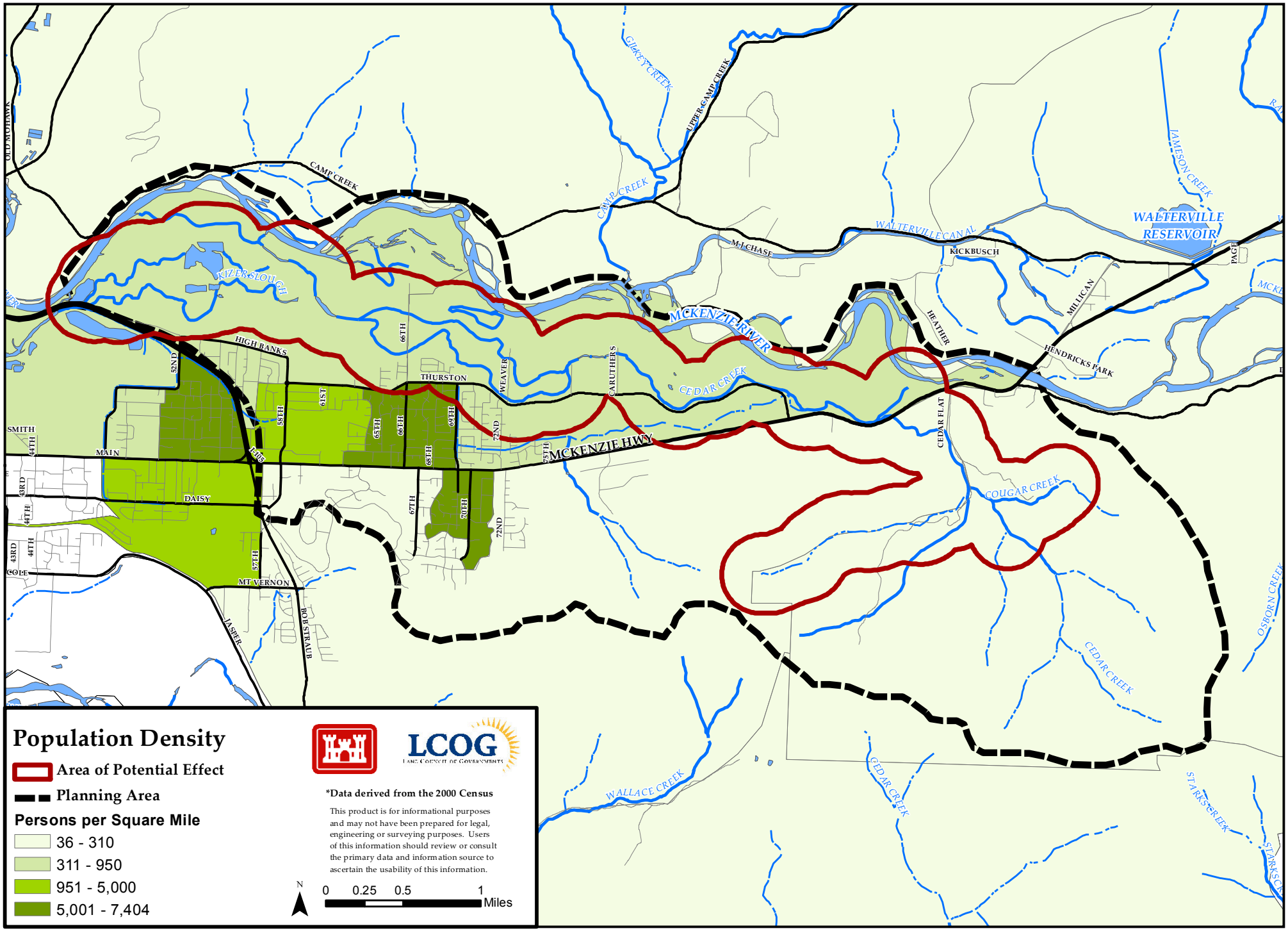
- **5-9 Percent Minority**. This map shows percent minority in the population by block group using the census blocks that are wholly or partially within the planning area boundary.

- **5-10 Percent Disabled**. This map shows percent disabled in the population by block group using the census blocks that are wholly or partially within the planning area boundary.

- **5-11 Percent Households in Poverty**. This map shows percent households in poverty in the population by block group using the census blocks that are wholly or partially within the planning area boundary and using the federal guidelines for definition of poverty level.

METROWATERWAYS
A STUDY OF THE EUGENE-SPRINGFIELD METROPOLITAN REGION

Cedar Creek Planning Area



Population Density

- Area of Potential Effect
- Planning Area

Persons per Square Mile

- 36 - 310
- 311 - 950
- 951 - 5,000
- 5,001 - 7,404

LCOG
Lane Council of Governments

*Data derived from the 2000 Census

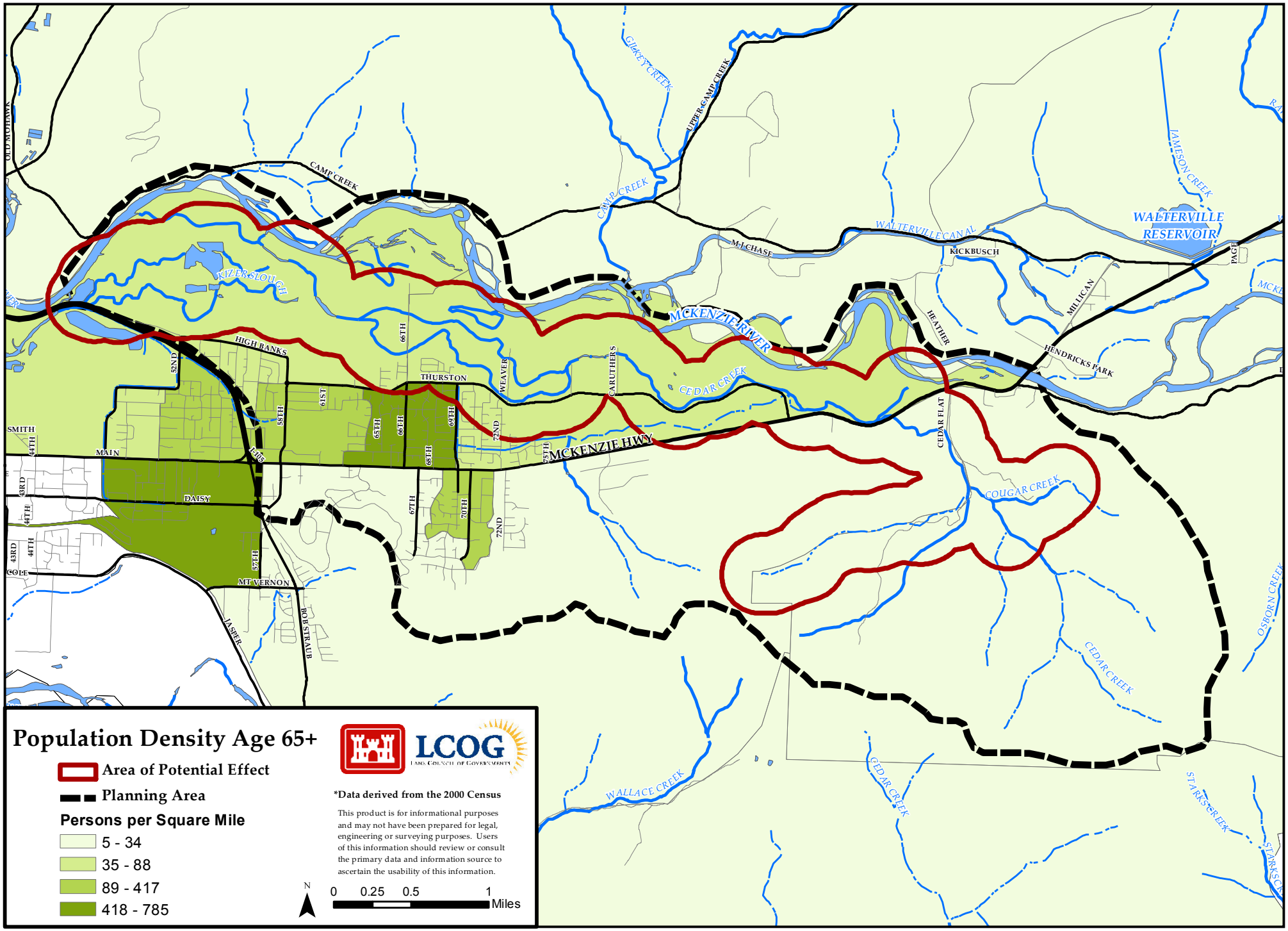
This product is for informational purposes and may not have been prepared for legal, engineering or surveying purposes. Users of this information should review or consult the primary data and information source to ascertain the usability of this information.

N

0 0.25 0.5 1 Miles

METROWATERWAYS
A STUDY OF THE EUGENE-SPRINGFIELD METROPOLITAN REGION

Cedar Creek Planning Area



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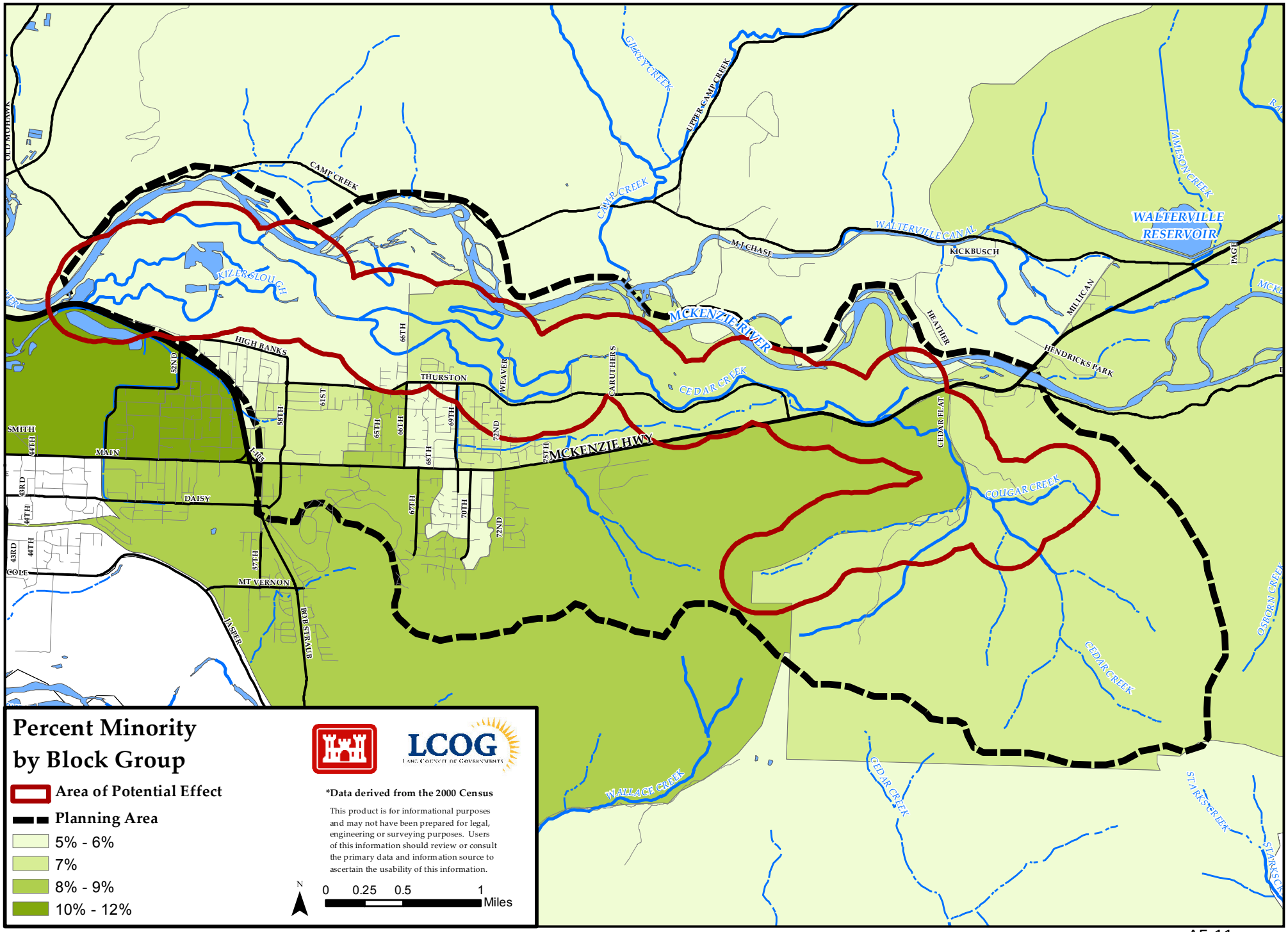

Percent Minority by Block Group

- Area of Potential Effect
- Planning Area
- 5% - 6%
- 7%
- 8% - 9%
- 10% - 12%

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Lane Council of Governments

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N

0 0.25 0.5 1 Miles

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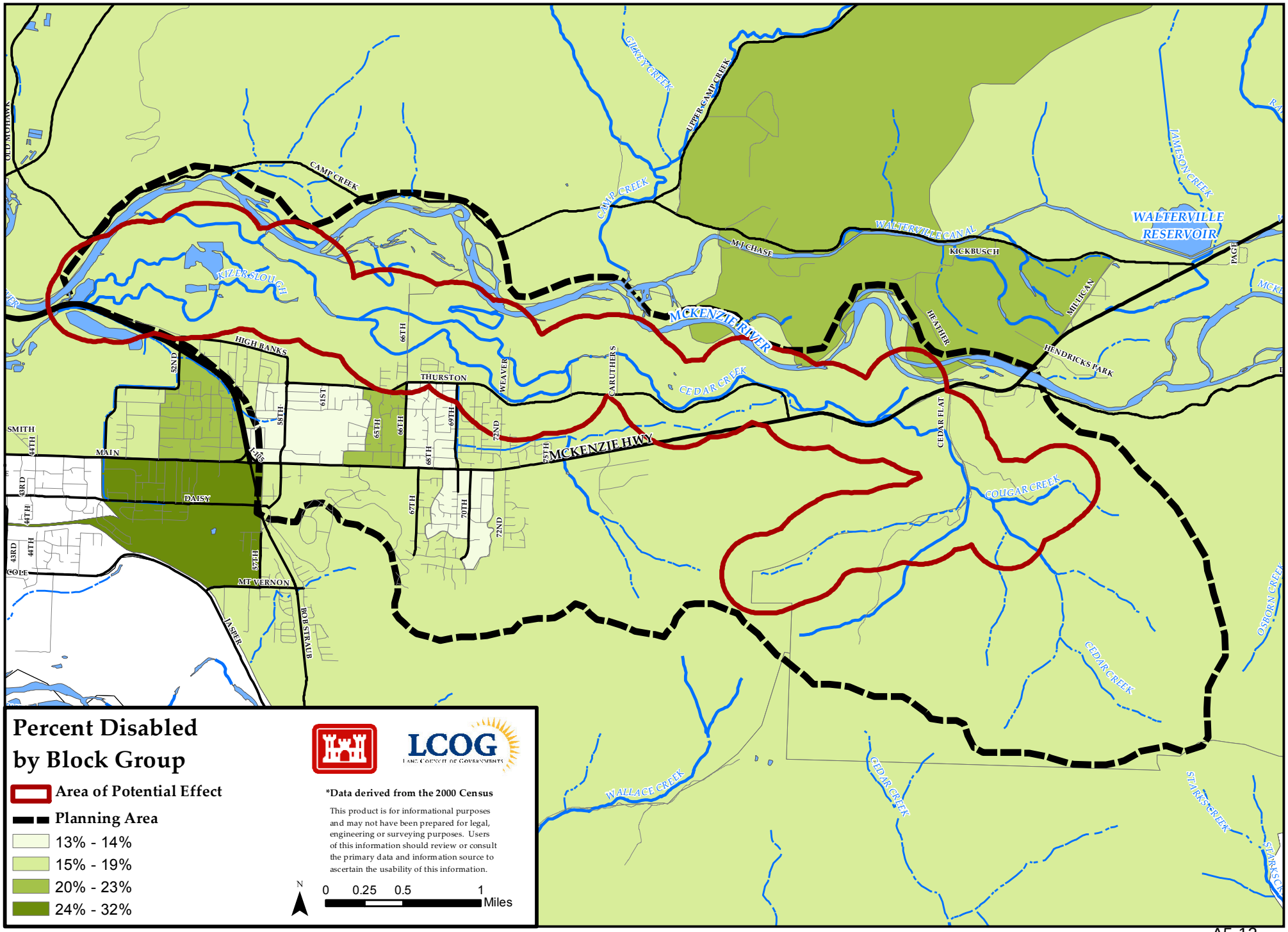
Cedar Creek Planning Area



Percent Disabled by Block Group

- Area of Potential Effect
- Planning Area
- 13% - 14%
- 15% - 19%
- 20% - 23%
- 24% - 32%

LCOG
Lane Council of Governments

*Data derived from the 2000 Census

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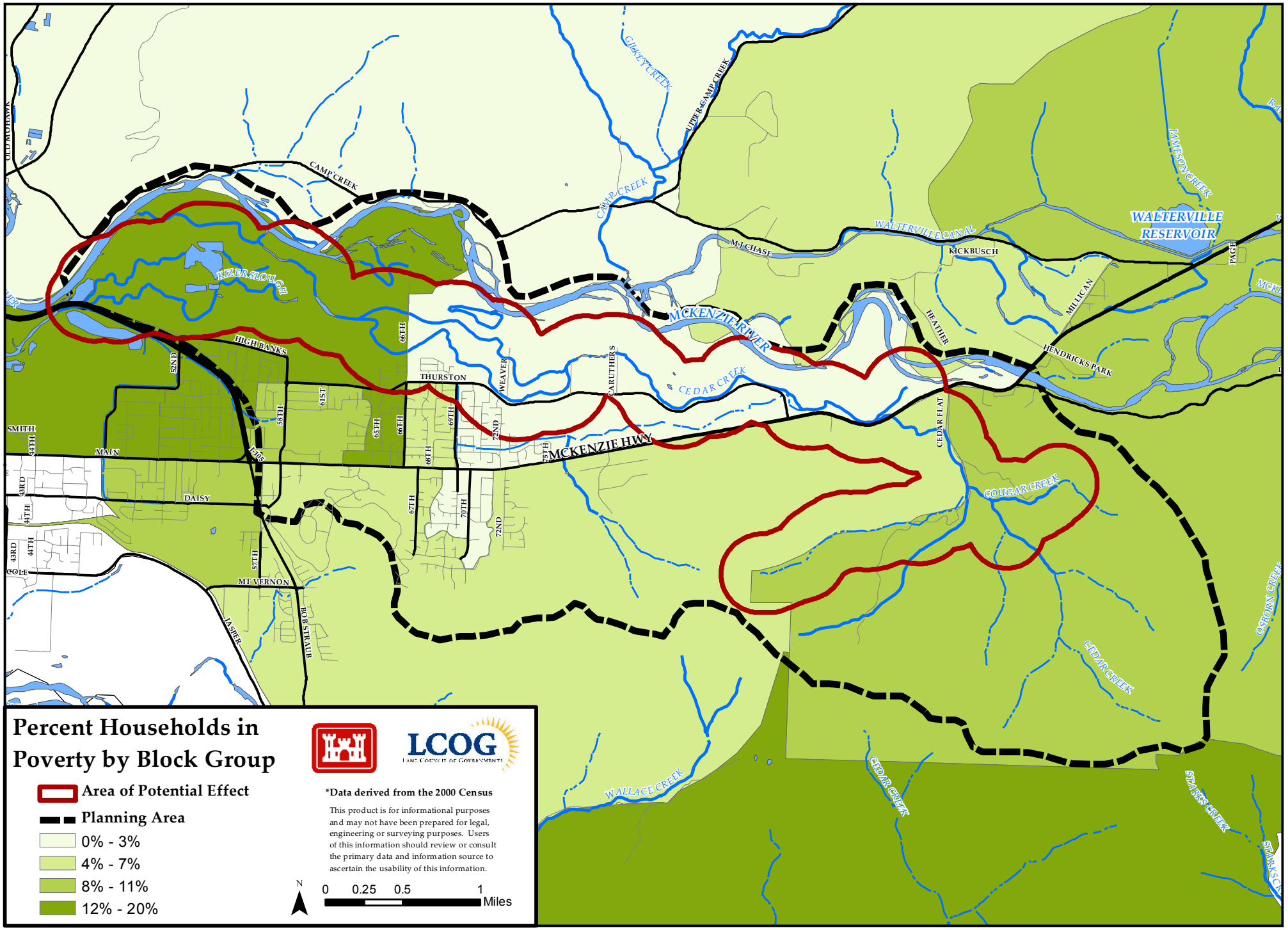
N

0 0.25 0.5 1 Miles

METROWATERWAYS
A STUDY OF THE EUGENE-SPRINGFIELD METROPOLITAN REGION

Cedar Creek Planning Area



Percent Households in Poverty by Block Group

- Area of Potential Effect
- Planning Area
- 0% - 3%
- 4% - 7%
- 8% - 11%
- 12% - 20%

LCOG
Lane Council of Governments

*Data derived from the 2000 Census

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N

0 0.25 0.5 1 Miles

Waterway Assessment Model

Technical Appendix A

Waterway Assessments

Cedar Creek Priority Planning Area









Prepared by the City of Springfield
and Lane Council of Governments
Draft, April 2007

METROWATERWAYS
A STUDY OF THE EUGENE-SPRINGFIELD METROPOLITAN REGION

Table of Contents

Introduction

The thirteen waterway assessments included in this report represent qualitative and quantitative evaluation of all major waterways within the Cedar Creek Priority Planning Area. The extents of the reaches were determined so that they closely matched the location of proposed enhancement alternatives being looked at under the Metro Waterways Study.

The assessments are based on a combination of on-the-ground data collected by the City of Springfield in summer 2006, supplemental field data collected for some waterway segments by Lane Council of Governments in March 2006, and other off-site analysis. The assessment methodology is an adaptation of several existing standard federal and state methodologies that were customized for local conditions and the needs of the Metro Waterways study. Each waterway assessment was evaluated under four categories, which included physical conditions; water quality treatment potential; natural resource values; and recreation values. Within each of these categories, specific aspects of channel health were rated on a scale of 1 to 10, with 1 being poor and 10 being excellent. These individual scores were compiled into an overall rating of stream health. Reaches could receive up to 160 points. The final scores, presented as total points as well as percentages, are an indication of the overall health and functionality of that reach. These scores allow comparison with other waterways in the Metro Waterways Study Area (such as Amazon Creek) as well as pre- and post-enhancement comparison.

Description of the Cedar Creek Planning Area

Cedar Creek is a tributary of the lower McKenzie River, which drains a watershed approximately eleven square miles in size. Cedar Creek and its tributaries can be divided in to three distinctive types of waterway based on physical characteristics.

The first consists of the main channel of Cedar Creek which flows through the flat bottomland parallel to the McKenzie River. This channel originates in the Cedar Flat area, where if flows through the floodplain of the Thurston area (East Springfield) before branching into the North and South Cedar Creeks. These two forks rejoin again briefly around the Willamalane Lively Swim Park, before entering the McKenzie River through several braided channels. This main channel covers approximately eight miles.

The second distinctive waterway type includes the headwaters of Cedar Creek, which are a collection of unnamed feeder creeks which flow out of the Thurston Hills to the south of the main channel. Cougar Creek and Gray Creek are the only named tributaries in this area, but a number of additional small tributaries are located here.

The third waterway type includes an assemblage of channels associated with the City of Springfield storm water system, most of which drain into South Cedar. There are a total of six minor outfalls and four major outfalls from the City's stormwater drainage system that flow directly into South Cedar Creek. The major outfalls are the 72nd Street Channel, the 69th Street Channel, the Levi Landing Subdivision outfall, and the 64th Street Outfall. Each of these major outfalls are significant drainage basins.

Cedar Creek Priority Planning Area: Channel Assessment Scoring Summary Table

Waterway	Reach	Physical Assessment					Water Quality Assessment					Natural Resources Assessment						Recreation Assessment						
		Physical	Bank Stability	Bed Stability	Sediment	Physical Total	Absorption/Filtration	Aeration	Temperature	Bank Integrity & Protection	Water Quality Subtotal	Riparian Width	Habitat Diversity	Invasive Plant	Aquatic habitat	Wildlife Corridor Function	Natural Resource Subtotal	Public Access	Existing facilities	Community Access	Recreation Facilities Subtotal	Total Score	% Total Points	Rank
Cedar Creek	Confluence - Lively Park	8	7	8	7	30	7	6	5	6	24	5	6	7	6	8	32	2	2	2	6	92	58%	2
N. Cedar Creek	Lively Park – 75th Street	8	7	7	8	30	5	4	4	4	17	4	7	5	3	5	24	4	3	3	10	81	51%	3
Cedar Creek	75th Street – Thurston Road	7	6	6	7	26	8	6	4	6	24	5	7	2	6	4	24	3	2	2	7	81	51%	3
Cedar Creek	Hwy 126 - Headwaters	6	5	6	8	25	8	8	7	6	29	5	9	3	6	7	30	2	4	3	9	93	58%	1
Gray Creek	75th Street - UGB	6	5	4	4	19	6	3	5	4	18	5	5	3	4	4	21	4	3	4	11	69	43%	4
Gray Creek	UGB – Thurston Road	2	6	4	3	15	4	2	4	5	15	4	6	3	4	5	22	1	1	1	3	55	34%	8
Gay Creek	Hwy 126 - Headwaters	4	4	3	4	15	7	4	7	3	21	4	3	7	6	6	26	2	3	2	7	69	43%	4
75th Street Channel	S. Cedar Creek – Hwy 126	2	6	4	4	16	4	3	4	4	15	4	3	2	3	3	15	2	2	3	7	53	33%	9
S. Cedar Creek	Lively Park – Mouth	7	6	5	6	24	6	4	4	5	19	4	6	8	5	4	27	3	3	4	10	80	50%	3
72nd Street Channel	S. Cedar Creek – End of Channel	4	6	4	5	19	3	5	6	3	17	3	2	4	2	1	12	8	4	5	17	65	41%	5
69th Street Channel	S. Cedar Creek – End of Channel	2	6	3	3	14	4	2	2	3	11	2	2	4	2	1	11	7	4	4	15	51	32%	10
Blue Water Ponds (and Associated Waterways)		4	3	4	6	17	6	4	4	5	19	5	5	3	4	5	22	1	1	1	3	61	38%	6
Control Gates	Existing Flow Control Gate - Intake	4	4	3	5	16	6	2	5	4	17	3	4	5	4	6	22	2	1	2	5	60	38%	7

CEDAR CREEK
PRIORITY PLANNING AREA

METROWATERWAYS

Waterway Assessments

October 2007

92 (30/40, 24/40, 32/50, 6/30)

61 (17/40, 19/40, 22/50, 3/30)

81 (30/40, 17/40, 24/50, 10/30)

80 (24/40, 19/40, 27/50, 10/30)

51 (14/40, 11/40, 11/50, 15/30)

65 (19/40, 17/40, 12/50, 17/30)

69 (15/40, 21/40, 26/50, 7/30)

53 (16/40, 15/40, 15/50, 7/30)

81 (26/40, 24/40, 24/50, 7/30)

55 (15/40, 15/40, 22/50, 3/30)

69 (19/40, 18/40, 21/50, 11/30)

60 (16/40, 17/40, 6/50, 5/30)

93 (25/40, 29/40, 30/50, 9/30)

Springfield

Big Island (MRT Easement)

Cedar Creek

South Cedar Creek

Ruff Park

Lively Park

Thurston MS

Thurston Rd.

Thurston Park

Thurston HS

Ridgeview ES

River Bend ES

48th St.

58th St.

66th St.

69th St.

69th Street Channel

69th Pl.

72nd St.

72nd St. Channel

piped

75th St. Ch.

Main St.

Bluebelle Park

Gray Creek

McKenzie River

Control gates

126

Hendrick's Bridge Wayside (Lane Co.)

Cedar Creek Headwater Streams*

Cougar Cr.

Potato Hill

Jasper Rd.

Clearwater Park

Middle Fork Willamette River

*Cedar Creek headwater streams (various locations) were not assessed individually, but scored based on average condition.

0 1/2 1 Mile

Scale

North

Channel Assessment Scores

- Poor: 0 to 63
- Fair: 64 to 84
- Good: >84
- Channel Reach

Assessment Score Breakout by Category

94 (17/40, 21/40, 32/50, 24/30)

Physical — Water Quality — Natural Resources — Recreation

LEGEND

- Existing Revetment
- Cedar Creek Planning Area
- Existing Parks and Open Space*
- Federally Owned Lands (BLM)
- Schools
- Urban Growth Boundary

*Includes Willamalane, McKenzie River Trust, and Lane Ownership

This map depicts the assessment of the existing conditions of waterways in the Cedar Creek basin and is based on field study conducted between July 2006 and May 2007. Each segment was evaluated based on 17 factors related to the waterway's physical coniditon, water quality, natural resources, and recreational attributes.

Waterway Name: **Cedar Creek** Date: 04/02/2007

Beginning At: **Confluence** Ending At: **Lively Park**

Waterway Scoring Summary

Cedar Creek: Confluence – Lively Park (R1 – R14)

Physical Assessment	Score	Possible Score	% of Total Pts
Physical Characteristics	8	10	
Channel Stability - BANKS	7	10	
Channel Stability -BEDS	8	10	
Sediment	7	10	
Physical Subtotal	***30***	***40***	***75%***
Water Quality Assessment			
Absorption and/or Filtration of Pollutants	7	10	
Aeration	6	10	
Shade/Temperature Moderation	5	10	
Channel Bank Integrity and Protection	6	10	
Water Quality Subtotal	***24***	***40***	***60%***
Natural Resource Assessment			
Riparian Width	5	10	
Habitat Diversity	6	10	
Percent Cover of Invasive Plant Species	7	10	
Aquatic Habitat Structure	6	10	
Wildlife Corridor Function	8	10	
Natural Resource Subtotal	***32***	***50***	***64%***
Recreation Facilities Assessment			
Public Access	2	10	
Existing Facilities	2	10	
Community Served Through Access	2	10	
Recreation Facilities Subtotal	***6***	***30***	***20%***
WATERWAY ASSESSMENT TOTAL SCORE	**92**	**160**	***58%***

Average from previous Assessment: **6.8 (Fair)**

PHYSICAL CONDITIONS

Channel Physical Characteristics: (Shape / Size)

RATING
8

Measure: Physical Characteristics will be measured against a natural healthy stream with balanced deposition and transport throughout a year. Channel type is a function of the Grade (steep grade straighter stream, flat grade, more sinuosity). Structural modifications should be an enhancement to the stream. While a channel may be an effective means to transport flows, it may be unable to accommodate other goals such as water quality, or habitat resource. Rate the reach for the ability to achieve multiple goals.

Natural Form Channel Type fits Grade, Minor or no modifications, capacity contained	Channel has some Natural form returning.	Closed or Lined channel No Natural features Creates ecological problems. Modifications are failing, needs attention. Flooding occurs.
10	5	1

Channel Stability:

RATING
7

Measure: Channel Stability - BANKS will be measured against a natural healthy stream with functional, stable banks. Vegetated with grasses, native shrubs and trees rate higher than invasive types due to their ability to root deeper and provide more strength. Natural stabilization will weigh higher than artificial methods such as concrete or rip rap lining. *Note bank profile from above.

Channel banks are in stable, well protected and vegetated condition.	Channel banks show sign of erosion, sloughing, cracking…	Channel banks seriously eroded; stream function impaired, needs immediate attention.
10	5	1

RATING
8

Measure: Channel Stability -BEDS will be measured against a natural healthy stream with functional, stable beds. Higher ratings will be given for natural formed beds with balanced deposition and transport. Lower ratings are given for incision, head cutting, or other eroding or flow preventive factors. *Note channel gradient from above.

Channel beds are stable provide deposition and transport	Channel bed shows signs of minor failures or erosion. Stream function is not altered	Channel bed seriously eroded and incised; stream function impaired, needs immediate attention.
10	5	1

Sediment:

RATING
7

Measure: Sediment can be an indicator of stability within the channel. Sediment source can be from outside the channel and potentially create stability problems. Rate known sediment values high when there is no indication of damming or starvation within the channel. Rate low when sediment deposition influences flows in a negative manner such as minimal sediment or over deposition creating damming.

Sediment quantities are stable. Provide balanced deposition and transport, creates good environmental conditions		Sediment values seem unbalanced. Stream function seems stable. Sediment problems during specific events.		Sediment volume is either heavy or non-existent. Bed and bank are altered because of extreme sediment conditions. Toxicity is present
10	7	5	3	1

Water Quality Function

Absorption and/or Filtration of Pollutants:

RATING
7

Measure: One measure of the water quality function of a channel segment is the ability to mitigate for toxics, heavy metals, hydrocarbons, and other suspended pollutants through absorption and filtration by aquatic vegetation. The more extensive the coverage of aquatic vegetation in the streambed that is in contact with stream flows during low flow conditions, the greater the amount of pollutants that will possibly be absorbed and/or filtered out. Channel segment is therefore rated on quantity and coverage of aquatic vegetation in streambed.

Streambed completely covered with aquatic vegetation in contact with water during low flow conditions.	>50% of streambed covered with aquatic vegetation in contact with water during low flow conditions	Isolated patches of aquatic vegetation in contact with water during low flow conditions	Streambed devoid of any aquatic vegetation
10	7	3	1

Aeration:

RATING
6

Measure: Low dissolved oxygen levels (DO) in local streams and flood channels during the summer and fall pose a serious threat to fish populations. DO levels in streams are influenced by many factors, only a few of which are associated with the physical or biological characteristics of the channel itself. One significant measure of the water quality function of a channel segment is whether it provides any source of aeration during low flow conditions. Riffles, splash pools, rock obstructions, drop structures and other features that introduce even minor turbulence during low flow conditions can help aerate the water and increase the DO levels. Channel segment is therefore rated on the number and type of features that introduce turbulence to stream flows.

Rocks and riffles in streambed >75% of channel length **and** multiple sources of other turbulence producing features	Rocks and riffles in streambed >33% of channel length **or** multiple sources of other turbulence producing features	Channel segment has at least one feature that produces significant turbulence during low flow conditions	Channel segment is devoid of any turbulence producing features
10	7	3	1

Shade/Temperature Moderation

RATING
5

Measure: Elevated water temperature is a significant water quality issue for our local waterways, especially in light of forthcoming TMDL temperature requirements for both the Willamette River and Amazon Creek. Stormwater runoff is in and of itself not considered a significant source of temperature pollution. Instead, it is the extent of solar exposure of the streambed which has the greatest thermal impact to in-stream flows. The extent and time-of-day of shade over the streambed is the primary measurement of the water quality function of a stream in terms of temperature moderation. Channel segment is therefore rated on the percent of shade covering the stream flows at midday.

Entire water area within channel segment is covered by shade at midday	<75% of water area within channel segment is covered by shade at midday	>25% of water area within channel segment is covered by shade at midday	No shade on water area at any time of day
10	7	3	1

Channel Bank Integrity and Protection

RATING
6

Measure: Turbidity resulting from stream bank erosion can be a significant water quality issue. Another measure of water quality function of a channel segment is how susceptible the banks are to the erosive forces of direct rainfall, high peak flows and overall flow volumes. The more rip rap, concrete or other solid material that armors the toe of the channel bank, the less soil is exposed to the erosive effects of rain and stream flows. Additionally, the more willows or other woody vegetation that are rooted at the toe and up the banks of a channel, the less likelihood there is of toe cutting and bank slumping. In each case, the water quality function is deemed to be higher where the likelihood of erosion and resulting turbidity is mitigated by armoring or woody vegetation. Channel segment is therefore rated on the type and extent of armoring or woody vegetation along the lower stream banks and at the toe of the channel banks.

No bare soil exposed to high flows, armoring or walled banks along both sides of entire channel segment	Woody vegetation along lower banks, rip rap armoring along toe of both banks	Grass slopes between high and low flow zones and either scattered woody vegetation along lower banks or else sporadic patches of toes armoring	Bare soil on banks, no toe armoring along either bank
10	7	3	1

Natural Resource Functions

Natural resource values are evaluated in this section. The value that a waterway provides to plants and wildlife are emphasized. Several natural resource elements are captured and four specific measures are used to provide a quantitative assessment of the natural resource values embodied in a given reach. The four quantitative assessments include: average riparian width, habitat diversity, percent cover of invasive plant species and aquatic habitat structure. These four components are not meant to be all inclusive of habitat values along a reach, but should serve as a surrogate to approximate important overarching attributes of the natural environment. Other important information captured in this assessment include most common invasive species, most common native species, presence of endangered or rare species or habitats, and migration corridor potential of the waterway.

Riparian Width

RATING
5

Measure: Average riparian width is used as a measure of terrestrial habitat size. Increasing habitat size relates to increased population sizes and increased biological diversity. Width is averaged along the entire reach and includes both banks of the waterway but is exclusive of the waterway itself.

Average width	>90 feet	81-90 feet	71-80 feet	61-70 feet	51-60 feet	41-50 feet	31-40 feet	21-30 feet	11-20 feet	0-10 feet
Score	10	9	8	7	6	5	4	3	2	1

Habitat diversity

RATING
6

Measure: A diversity of habitat types will support a broader array of species during a broader array of life stages. The number of different habitat types along a reach is used as a coarse measure of potential biological diversity. One point is given for each substantial habitat type. "Substantial" is a relative term but is meant to indicate that the habitat is serving in a functional capacity for wildlife. For example, a one foot wide linear strip of reed canary grass along the water's edge would **not** be counted as an "emergent habitat" as it would not likely provide "substantial" habitat value. However, a relatively small vernal pool within a wetland prairie would get a point as this special habitat will provide most of its potential functions despite being small. The following list of habitat types is used to evaluate a reach for a 100 foot width along the reach.

8 or more habitats present	5 habitats present	3 habitats present	2 habitats present	No listed habitats present.
10	7	5	3	1

Percent cover of invasive plant species

RATING
7

Measure: Estimated percent cover of invasive plant species is a measure of terrestrial habitat integrity. Invasive vegetation reduces the functional habitat value of the riparian area by reducing desirable food, shelter and nesting habitat for native wildlife species and out-competing native plant species. Cover is estimated for the entire waterway reach for a total width of 100 ft (including one or both sides of the creek exclusive of the waterway itself.

<10% estimated invasive cover	10-25% estimated invasive cover	25 -75% estimated invasive cover	75-90% estimated invasive cover	>90% estimated invasive cover
10	7	5	3	1

Aquatic habitat structure

RATING
6

Measure: Aquatic habitat diversity is related directly to the quality of the habitat structure and can serve as a measure of aquatic habitat quality and potential biological diversity. This assessment element measures availability of physical habitat for fish. The potential for the maintenance of a healthy fish community and its ability to recover from disturbance is dependent on the variety and abundance of suitable habitat and cover available. The following list includes many of the major potential structural components of this habitat type. Evaluate each reach to identify if the component is present or not and score appropriately.

Habitat structure components:

- ☐ *Logs/large woody debris*: Fallen trees or parts of trees that provide structure and attachment for aquatic macroinvertebrates & hiding places for fish.
- ☐ *Deep pools*: Areas characterized by a smooth undisturbed surface, generally slow current, deep enough to provide protective cover for fish (75 to 100% deeper than the prevailing system depth).
- ☐ *Overhanging vegetation*: Trees, shrubs, vines, or perennial herbaceous vegetation that hangs over and covers the system surface, providing shade and cover.
- ☐ *Boulders/cobble*: Boulders are rounded stones more than 10 inches in diameter or large slabs more than 10 inches in length. Cobbles are stones between 2.5 and 10 inches in diameter.
- ☐ *Undercut banks:* Eroded areas extending horizontally beneath the surface of the bank forming underwater pockets used by fish for hiding and protection.
- ☐ *Thick root mats*: Dense mats of roots and rootlets (generally from trees) at or beneath the water surface forming structure for invertebrate attachment and fish cover.
- ☐ *Dense macrophyte beds*: Beds of emergent, floating leaf, or sub-merged aquatic vegetation thick enough to provide invertebrate attachment and fish cover.
- ☐ *Riffles:* Area characterized by broken water surface, rocky or firm substrate, moderate or swift current, and relatively shallow depth (usually less than 18 inches).
- ☐ *Isolated/backwater pools*: Areas disconnected from the main channel or connected as a "blind" side channel, characterized by a lack of flow except in periods of high water.

>7 cover types available	6 to 7 cover types available	4 to 5 cover types available	2 to 3 cover types available	None to 1 cover type available
10	8	5	3	1

Connectivity

RATING
8

Measure: Waterways are often important migration corridors for wildlife moving within the watershed. This is particularly true of urban areas where most of the landscape is developed or fragmented. For this characteristic check one selection from each of the three categories below. Use this information to quantitatively assess the functionality of the reach for wildlife travel.

☐ Wide (>30 ft on one side) well-connected riparian corridor
☐ Narrow (<30 feet on both sides) well-connected riparian corridor

☐ Continuous along entire reach
☐ Slightly fragmented by road crossings or passable barriers
☐ Substantially fragmented by unvegetated development or impassible barriers

☐ Forested canopy along majority of the reach
☐ Shrub canopy along majority of the reach
☐ Unmanaged prairie or meadow along majority of reach
☐ Mowed turf or manicured shrub along majority reach.

Corridor is wide and unbroken. Diversity of habitat provides good cover for a wide range of animals.	Corridor is slightly fragmented or narrow but provides substantial protection for animal movement.	Corridor is highly fragmented and narrow. It is mostly developed with little cover for animal movement.
10	5	1

Recreation Functions

Recreation values are evaluated in this section. The value that a waterway provides to the community as a recreational resource is important to consider as projects will be better supported by the community if recreational issues are addressed.

Public Access

RATING
2

Measure: This measure quantifies the percentage of the reach that is currently legally accessible to the public through existing easements or ownership. One point is given for each 10% incremental linear area along the waterway that is accessible to the public under current conditions either through ownership or easement. This measure does not account for the existence of paths or other facilities but only legal access.

100% of reach is currently accessible	60-70% of reach is currently accessible	40-50% of reach is currently accessible	20-30% of reach is currently accessible	10% or less of reach is currently accessible
10	7	5	3	1

Existing Facilities

RATING
2

Measure: This measure describes the existence of facilities that accommodate recreation. The measure emphasizes trails and parking lots as the primary recreational features quantified.

Free public parking is available and there is access to a paved bike path along the entire reach.	There is access along the entire reach on a paved bike path.	There is access along the entire reach on a dirt, bark or gravel footpath that is maintained as such.	There is access along only part of the reach on an established and maintained path.	There are no facilities along this reach.
10	7	5	3	1

Community Served Through Access

RATING
2

Measure: This measure attempts to capture the value that recreational facilities provide to the public. Some facilities will be more accessible than others or serve broader recreation goals. The measure quantifies the level of access that is provided to the community.

Recreational facilities are accessible to and serve regional interests	Recreational facilities are accessible to and serve community interests	Recreational facilities are accessible to and serve neighborhood interests	Recreational facilities are not easily accessible but do serve limited local interests	Recreational facilities are not easily accessible or do not serve a valued public interest
10	7	5	3	1

Waterway Name: **North Cedar Creek** Date: 04/02/2007

Beginning At: **Lively park** Ending At: **75th Street**

Waterway Scoring Summary

North Cedar Creek: Lively Park – 75th Street(R15 – R21)

Physical Assessment	Score	Possible Score	% of Total Pts
Physical Characteristics	8	10	
Channel Stability - BANKS	7	10	
Channel Stability -BEDS	7	10	
Sediment	8	10	
Physical Subtotal	***30***	***40***	***75%***
Water Quality Assessment			
Absorption and/or Filtration of Pollutants	5	10	
Aeration	4	10	
Shade/Temperature Moderation	4	10	
Channel Bank Integrity and Protection	4	10	
Water Quality Subtotal	***17***	***40***	***43%***
Natural Resource Assessment			
Riparian Width	4	10	
Habitat Diversity	7	10	
Percent Cover of Invasive Plant Species	5	10	
Aquatic Habitat Structure	3	10	
Wildlife Corridor Function	5	10	
Natural Resource Subtotal	***24***	***50***	***48%***
Recreation Facilities Assessment			
Public Access	4	10	
Existing Facilities	3	10	
Community Served Through Access	3	10	
Recreation Facilities Subtotal	***10***	***30***	***33%***
WATERWAY ASSESSMENT TOTAL SCORE	**81**	**160**	***51%***

Average from previous Assessment: **7.0 (Fair)**

PHYSICAL CONDITIONS

Channel Physical Characteristics: (Shape / Size)

RATING
8

Measure: Physical Characteristics will be measured against a natural healthy stream with balanced deposition and transport throughout a year. Channel type is a function of the Grade (steep grade straighter stream, flat grade, more sinuosity). Structural modifications should be an enhancement to the stream. While a channel may be an effective means to transport flows, it may be unable to accommodate other goals such as water quality, or habitat resource. Rate the reach for the ability to achieve multiple goals.

Natural Form Channel Type fits Grade, Minor or no modifications, capacity contained	Channel has some Natural form returning.	Closed or Lined channel No Natural features Creates ecological problems. Modifications are failing, needs attention. Flooding occurs.
10	5	1

Channel Stability:

RATING
7

Measure: Channel Stability - BANKS will be measured against a natural healthy stream with functional, stable banks. Vegetated with grasses, native shrubs and trees rate higher than invasive types due to their ability to root deeper and provide more strength. Natural stabilization will weigh higher than artificial methods such as concrete or rip rap lining. *Note bank profile from above.

Channel banks are in stable, well protected and vegetated condition.	Channel banks show sign of erosion, sloughing, cracking…	Channel banks seriously eroded; stream function impaired, needs immediate attention.
10	5	1

RATING
7

Measure: Channel Stability -BEDS will be measured against a natural healthy stream with functional, stable beds. Higher ratings will be given for natural formed beds with balanced deposition and transport. Lower ratings are given for incision, head cutting, or other eroding or flow preventive factors. *Note channel gradient from above.

Channel beds are stable provide deposition and transport	Channel bed shows signs of minor failures or erosion. Stream function is not altered	Channel bed seriously eroded and incised; stream function impaired, needs immediate attention.
10	5	1

Sediment:

RATING
8

Measure: Sediment can be an indicator of stability within the channel. Sediment source can be from outside the channel and potentially create stability problems. Rate known sediment values high when there is no indication of damming or starvation within the channel. Rate low when sediment deposition influences flows in a negative manner such as minimal sediment or over deposition creating damming.

Sediment quantities are stable. Provide balanced deposition and transport, creates good environmental conditions		Sediment values seem unbalanced. Stream function seems stable. Sediment problems during specific events.		Sediment volume is either heavy or non-existent. Bed and bank are altered because of extreme sediment conditions. Toxicity is present
10	7	5	3	1

Water Quality Function

Absorption and/or Filtration of Pollutants:

RATING
5

Measure: One measure of the water quality function of a channel segment is the ability to mitigate for toxics, heavy metals, hydrocarbons, and other suspended pollutants through absorption and filtration by aquatic vegetation. The more extensive the coverage of aquatic vegetation in the streambed that is in contact with stream flows during low flow conditions, the greater the amount of pollutants that will possibly be absorbed and/or filtered out. Channel segment is therefore rated on quantity and coverage of aquatic vegetation in streambed.

Streambed completely covered with aquatic vegetation in contact with water during low flow conditions.	>50% of streambed covered with aquatic vegetation in contact with water during low flow conditions	Isolated patches of aquatic vegetation in contact with water during low flow conditions	Streambed devoid of any aquatic vegetation
10	7	3	1

Aeration:

RATING
4

Measure: Low dissolved oxygen levels (DO) in local streams and flood channels during the summer and fall pose a serious threat to fish populations. DO levels in streams are influenced by many factors, only a few of which are associated with the physical or biological characteristics of the channel itself. One significant measure of the water quality function of a channel segment is whether it provides any source of aeration during low flow conditions. Riffles, splash pools, rock obstructions, drop structures and other features that introduce even minor turbulence during low flow conditions can help aerate the water and increase the DO levels. Channel segment is therefore rated on the number and type of features that introduce turbulence to stream flows.

Rocks and riffles in streambed >75% of channel length **and** multiple sources of other turbulence producing features	Rocks and riffles in streambed >33% of channel length **or** multiple sources of other turbulence producing features	Channel segment has at least one feature that produces significant turbulence during low flow conditions	Channel segment is devoid of any turbulence producing features
10	7	3	1

Shade/Temperature Moderation

RATING
4

Measure: Elevated water temperature is a significant water quality issue for our local waterways, especially in light of forthcoming TMDL temperature requirements for both the Willamette River and Amazon Creek. Stormwater runoff is in and of itself not considered a significant source of temperature pollution. Instead, it is the extent of solar exposure of the streambed which has the greatest thermal impact to in-stream flows. The extent and time-of-day of shade over the streambed is the primary measurement of the water quality function of a stream in terms of temperature moderation. Channel segment is therefore rated on the percent of shade covering the stream flows at midday.

Entire water area within channel segment is covered by shade at midday	<75% of water area within channel segment is covered by shade at midday	>25% of water area within channel segment is covered by shade at midday	No shade on water area at any time of day
10	7	3	1

Channel Bank Integrity and Protection

RATING
4

Measure: Turbidity resulting from stream bank erosion can be a significant water quality issue. Another measure of water quality function of a channel segment is how susceptible the banks are to the erosive forces of direct rainfall, high peak flows and overall flow volumes. The more rip rap, concrete or other solid material that armors the toe of the channel bank, the less soil is exposed to the erosive effects of rain and stream flows. Additionally, the more willows or other woody vegetation that are rooted at the toe and up the banks of a channel, the less likelihood there is of toe cutting and bank slumping. In each case, the water quality function is deemed to be higher where the likelihood of erosion and resulting turbidity is mitigated by armoring or woody vegetation. Channel segment is therefore rated on the type and extent of armoring or woody vegetation along the lower stream banks and at the toe of the channel banks.

No bare soil exposed to high flows, armoring or walled banks along both sides of entire channel segment	Woody vegetation along lower banks, rip rap armoring along toe of both banks	Grass slopes between high and low flow zones and either scattered woody vegetation along lower banks or else sporadic patches of toes armoring	Bare soil on banks, no toe armoring along either bank
10	7	3	1

Natural Resource Functions

Natural resource values are evaluated in this section. The value that a waterway provides to plants and wildlife are emphasized. Several natural resource elements are captured and four specific measures are used to provide a quantitative assessment of the natural resource values embodied in a given reach. The four quantitative assessments include: average riparian width, habitat diversity, percent cover of invasive plant species and aquatic habitat structure. These four components are not meant to be all inclusive of habitat values along a reach, but should serve as a surrogate to approximate important overarching attributes of the natural environment. Other important information captured in this assessment include most common invasive species, most common native species, presence of endangered or rare species or habitats, and migration corridor potential of the waterway.

Riparian Width

RATING
4

Measure: Average riparian width is used as a measure of terrestrial habitat size. Increasing habitat size relates to increased population sizes and increased biological diversity. Width is averaged along the entire reach and includes both banks of the waterway but is exclusive of the waterway itself.

Average width	>90 feet	81-90 feet	71-80 feet	61-70 feet	51-60 feet	41-50 feet	31-40 feet	21-30 feet	11-20 feet	0-10 feet
Score	10	9	8	7	6	5	4	3	2	1

Habitat diversity

RATING
7

Measure: A diversity of habitat types will support a broader array of species during a broader array of life stages. The number of different habitat types along a reach is used as a coarse measure of potential biological diversity. One point is given for each substantial habitat type. "Substantial" is a relative term but is meant to indicate that the habitat is serving in a functional capacity for wildlife. For example, a one foot wide linear strip of reed canary grass along the water's edge would **not** be counted as an "emergent habitat" as it would not likely provide "substantial" habitat value. However, a relatively small vernal pool within a wetland prairie would get a point as this special habitat will provide most of its potential functions despite being small. The following list of habitat types is used to evaluate a reach for a 100 foot width along the reach.

8 or more habitats present	5 habitats present	3 habitats present	2 habitats present	No listed habitats present.
10	7	5	3	1

Percent cover of invasive plant species

RATING
5

Measure: Estimated percent cover of invasive plant species is a measure of terrestrial habitat integrity. Invasive vegetation reduces the functional habitat value of the riparian area by reducing desirable food, shelter and nesting habitat for native wildlife species and out-competing native plant species. Cover is estimated for the entire waterway reach for a total width of 100 ft (including one or both sides of the creek exclusive of the waterway itself.

<10% estimated invasive cover	10-25% estimated invasive cover	25 -75% estimated invasive cover	75-90% estimated invasive cover	>90% estimated invasive cover
10	7	5	3	1

Aquatic habitat structure

RATING
3

Measure: Aquatic habitat diversity is related directly to the quality of the habitat structure and can serve as a measure of aquatic habitat quality and potential biological diversity. This assessment element measures availability of physical habitat for fish. The potential for the maintenance of a healthy fish community and its ability to recover from disturbance is dependent on the variety and abundance of suitable habitat and cover available. The following list includes many of the major potential structural components of this habitat type. Evaluate each reach to identify if the component is present or not and score appropriately.

Habitat structure components:

- ☐ *Logs/large woody debris*: Fallen trees or parts of trees that provide structure and attachment for aquatic macroinvertebrates & hiding places for fish.
- ☐ *Deep pools*: Areas characterized by a smooth undisturbed surface, generally slow current, deep enough to provide protective cover for fish (75 to 100% deeper than the prevailing system depth).
- ☐ *Overhanging vegetation*: Trees, shrubs, vines, or perennial herbaceous vegetation that hangs over and covers the system surface, providing shade and cover.
- ☐ *Boulders/cobble*: Boulders are rounded stones more than 10 inches in diameter or large slabs more than 10 inches in length. Cobbles are stones between 2.5 and 10 inches in diameter.
- ☐ *Undercut banks:* Eroded areas extending horizontally beneath the surface of the bank forming underwater pockets used by fish for hiding and protection.
- ☐ *Thick root mats*: Dense mats of roots and rootlets (generally from trees) at or beneath the water surface forming structure for invertebrate attachment and fish cover.
- ☐ *Dense macrophyte beds*: Beds of emergent, floating leaf, or sub-merged aquatic vegetation thick enough to provide invertebrate attachment and fish cover.
- ☐ *Riffles:* Area characterized by broken water surface, rocky or firm substrate, moderate or swift current, and relatively shallow depth (usually less than 18 inches).
- ☐ *Isolated/backwater pools*: Areas disconnected from the main channel or connected as a "blind" side channel, characterized by a lack of flow except in periods of high water.

>7 cover types available	6 to 7 cover types available	4 to 5 cover types available	2 to 3 cover types available	None to 1 cover type available
10	8	5	3	1

Connectivity

RATING
5

Measure: Waterways are often important migration corridors for wildlife moving within the watershed. This is particularly true of urban areas where most of the landscape is developed or fragmented. For this characteristic check one selection from each of the three categories below. Use this information to quantitatively assess the functionality of the reach for wildlife travel.

☐ Wide (>30 ft on one side) well-connected riparian corridor
☐ Narrow (<30 feet on both sides) well-connected riparian corridor

☐ Continuous along entire reach
☐ Slightly fragmented by road crossings or passable barriers
☐ Substantially fragmented by unvegetated development or impassible barriers

☐ Forested canopy along majority of the reach
☐ Shrub canopy along majority of the reach
☐ Unmanaged prairie or meadow along majority of reach
☐ Mowed turf or manicured shrub along majority reach.

Corridor is wide and unbroken. Diversity of habitat provides good cover for a wide range of animals.	Corridor is slightly fragmented or narrow but provides substantial protection for animal movement.	Corridor is highly fragmented and narrow. It is mostly developed with little cover for animal movement.
10	5	1

Recreation Functions

Recreation values are evaluated in this section. The value that a waterway provides to the community as a recreational resource is important to consider as projects will be better supported by the community if recreational issues are addressed.

Public Access

RATING
4

Measure: This measure quantifies the percentage of the reach that is currently legally accessible to the public through existing easements or ownership. One point is given for each 10% incremental linear area along the waterway that is accessible to the public under current conditions either through ownership or easement. This measure does not account for the existence of paths or other facilities but only legal access.

100% of reach is currently accessible	60-70% of reach is currently accessible	40-50% of reach is currently accessible	20-30% of reach is currently accessible	10% or less of reach is currently accessible
10	7	5	3	1

Existing Facilities

RATING
3

Measure: This measure describes the existence of facilities that accommodate recreation. The measure emphasizes trails and parking lots as the primary recreational features quantified.

Free public parking is available and there is access to a paved bike path along the entire reach.	There is access along the entire reach on a paved bike path.	There is access along the entire reach on a dirt, bark or gravel footpath that is maintained as such.	There is access along only part of the reach on an established and maintained path.	There are no facilities along this reach.
10	7	5	3	1

Community Served Through Access

RATING
3

Measure: This measure attempts to capture the value that recreational facilities provide to the public. Some facilities will be more accessible than others or serve broader recreation goals. The measure quantifies the level of access that is provided to the community.

Recreational facilities are accessible to and serve regional interests	Recreational facilities are accessible to and serve community interests	Recreational facilities are accessible to and serve neighborhood interests	Recreational facilities are not easily accessible but do serve limited local interests	Recreational facilities are not easily accessible or do not serve a valued public interest
10	7	5	3	1

Waterway Name: **Cedar Creek** Date: 04/02/2007

Beginning At: **South Cedar Creek** Ending At: **Intake**

Waterway Scoring Summary

Cedar Creek: South Cedar Creek – Intake (R22 – R37)

Physical Assessment	Score	Possible Score	% of Total Pts
Physical Characteristics	7	10	
Channel Stability - BANKS	6	10	
Channel Stability -BEDS	6	10	
Sediment	7	10	
Physical Subtotal	***25***	***40***	***63%***
Water Quality Assessment			
Absorption and/or Filtration of Pollutants	8	10	
Aeration	6	10	
Shade/Temperature Moderation	4	10	
Channel Bank Integrity and Protection	6	10	
Water Quality Subtotal	***24***	***40***	***60%***
Natural Resource Assessment			
Riparian Width	5	10	
Habitat Diversity	7	10	
Percent Cover of Invasive Plant Species	2	10	
Aquatic Habitat Structure	6	10	
Wildlife Corridor Function	4	10	
Natural Resource Subtotal	***24***	***50***	***48%***
Recreation Facilities Assessment			
Public Access	3	10	
Existing Facilities	2	10	
Community Served Through Access	2	10	
Recreation Facilities Subtotal	***7***	***30***	***23%***
WATERWAY ASSESSMENT TOTAL SCORE	**80**	**160**	***50%***

Average from previous Assessment: **6.6 (Fair)**

PHYSICAL CONDITIONS

Channel Physical Characteristics: (Shape / Size)

RATING
7

Measure: Physical Characteristics will be measured against a natural healthy stream with balanced deposition and transport throughout a year. Channel type is a function of the Grade (steep grade straighter stream, flat grade, more sinuosity). Structural modifications should be an enhancement to the stream. While a channel may be an effective means to transport flows, it may be unable to accommodate other goals such as water quality, or habitat resource. Rate the reach for the ability to achieve multiple goals.

Natural Form Channel Type fits Grade, Minor or no modifications, capacity contained	Channel has some Natural form returning.	Closed or Lined channel No Natural features Creates ecological problems. Modifications are failing, needs attention. Flooding occurs.
10	5	1

Channel Stability:

RATING
6

Measure: Channel Stability - BANKS will be measured against a natural healthy stream with functional, stable banks. Vegetated with grasses, native shrubs and trees rate higher than invasive types due to their ability to root deeper and provide more strength. Natural stabilization will weigh higher than artificial methods such as concrete or rip rap lining. *Note bank profile from above.

Channel banks are in stable, well protected and vegetated condition.	Channel banks show sign of erosion, sloughing, cracking…	Channel banks seriously eroded; stream function impaired, needs immediate attention.
10	5	1

RATING
6

Measure: Channel Stability -BEDS will be measured against a natural healthy stream with functional, stable beds. Higher ratings will be given for natural formed beds with balanced deposition and transport. Lower ratings are given for incision, head cutting, or other eroding or flow preventive factors. *Note channel gradient from above.

Channel beds are stable provide deposition and transport	Channel bed shows signs of minor failures or erosion. Stream function is not altered	Channel bed seriously eroded and incised; stream function impaired, needs immediate attention.
10	5	1

Sediment:

RATING
7

Measure: Sediment can be an indicator of stability within the channel. Sediment source can be from outside the channel and potentially create stability problems. Rate known sediment values high when there is no indication of damming or starvation within the channel. Rate low when sediment deposition influences flows in a negative manner such as minimal sediment or over deposition creating damming.

Sediment quantities are stable. Provide balanced deposition and transport, creates good environmental conditions		Sediment values seem unbalanced. Stream function seems stable. Sediment problems during specific events.		Sediment volume is either heavy or non-existent. Bed and bank are altered because of extreme sediment conditions. Toxicity is present
10	7	5	3	1

Water Quality Function

Absorption and/or Filtration of Pollutants:

RATING
8

Measure: One measure of the water quality function of a channel segment is the ability to mitigate for toxics, heavy metals, hydrocarbons, and other suspended pollutants through absorption and filtration by aquatic vegetation. The more extensive the coverage of aquatic vegetation in the streambed that is in contact with stream flows during low flow conditions, the greater the amount of pollutants that will possibly be absorbed and/or filtered out. Channel segment is therefore rated on quantity and coverage of aquatic vegetation in streambed.

Streambed completely covered with aquatic vegetation in contact with water during low flow conditions.	>50% of streambed covered with aquatic vegetation in contact with water during low flow conditions	Isolated patches of aquatic vegetation in contact with water during low flow conditions	Streambed devoid of any aquatic vegetation
10	7	3	1

Aeration:

RATING
6

Measure: Low dissolved oxygen levels (DO) in local streams and flood channels during the summer and fall pose a serious threat to fish populations. DO levels in streams are influenced by many factors, only a few of which are associated with the physical or biological characteristics of the channel itself. One significant measure of the water quality function of a channel segment is whether it provides any source of aeration during low flow conditions. Riffles, splash pools, rock obstructions, drop structures and other features that introduce even minor turbulence during low flow conditions can help aerate the water and increase the DO levels. Channel segment is therefore rated on the number and type of features that introduce turbulence to stream flows.

Rocks and riffles in streambed >75% of channel length **and** multiple sources of other turbulence producing features	Rocks and riffles in streambed >33% of channel length **or** multiple sources of other turbulence producing features	Channel segment has at least one feature that produces significant turbulence during low flow conditions	Channel segment is devoid of any turbulence producing features
10	7	3	1

Shade/Temperature Moderation

RATING
4

Measure: Elevated water temperature is a significant water quality issue for our local waterways, especially in light of forthcoming TMDL temperature requirements for both the Willamette River and Amazon Creek. Stormwater runoff is in and of itself not considered a significant source of temperature pollution. Instead, it is the extent of solar exposure of the streambed which has the greatest thermal impact to in-stream flows. The extent and time-of-day of shade over the streambed is the primary measurement of the water quality function of a stream in terms of temperature moderation. Channel segment is therefore rated on the percent of shade covering the stream flows at midday.

Entire water area within channel segment is covered by shade at midday	<75% of water area within channel segment is covered by shade at midday	>25% of water area within channel segment is covered by shade at midday	No shade on water area at any time of day
10	7	3	1

Channel Bank Integrity and Protection

RATING
6

Measure: Turbidity resulting from stream bank erosion can be a significant water quality issue. Another measure of water quality function of a channel segment is how susceptible the banks are to the erosive forces of direct rainfall, high peak flows and overall flow volumes. The more rip rap, concrete or other solid material that armors the toe of the channel bank, the less soil is exposed to the erosive effects of rain and stream flows. Additionally, the more willows or other woody vegetation that are rooted at the toe and up the banks of a channel, the less likelihood there is of toe cutting and bank slumping. In each case, the water quality function is deemed to be higher where the likelihood of erosion and resulting turbidity is mitigated by armoring or woody vegetation. Channel segment is therefore rated on the type and extent of armoring or woody vegetation along the lower stream banks and at the toe of the channel banks.

No bare soil exposed to high flows, armoring or walled banks along both sides of entire channel segment	Woody vegetation along lower banks, rip rap armoring along toe of both banks	Grass slopes between high and low flow zones and either scattered woody vegetation along lower banks or else sporadic patches of toes armoring	Bare soil on banks, no toe armoring along either bank
10	7	3	1

Natural Resource Functions

Natural resource values are evaluated in this section. The value that a waterway provides to plants and wildlife are emphasized. Several natural resource elements are captured and four specific measures are used to provide a quantitative assessment of the natural resource values embodied in a given reach. The four quantitative assessments include: average riparian width, habitat diversity, percent cover of invasive plant species and aquatic habitat structure. These four components are not meant to be all inclusive of habitat values along a reach, but should serve as a surrogate to approximate important overarching attributes of the natural environment. Other important information captured in this assessment include most common invasive species, most common native species, presence of endangered or rare species or habitats, and migration corridor potential of the waterway.

Riparian Width

RATING
5

Measure: Average riparian width is used as a measure of terrestrial habitat size. Increasing habitat size relates to increased population sizes and increased biological diversity. Width is averaged along the entire reach and includes both banks of the waterway but is exclusive of the waterway itself.

Average width	>90 feet	81-90 feet	71-80 feet	61-70 feet	51-60 feet	41-50 feet	31-40 feet	21-30 feet	11-20 feet	0-10 feet
Score	10	9	8	7	6	5	4	3	2	1

Habitat diversity

RATING
7

Measure: A diversity of habitat types will support a broader array of species during a broader array of life stages. The number of different habitat types along a reach is used as a coarse measure of potential biological diversity. One point is given for each substantial habitat type. "Substantial" is a relative term but is meant to indicate that the habitat is serving in a functional capacity for wildlife. For example, a one foot wide linear strip of reed canary grass along the water's edge would **not** be counted as an "emergent habitat" as it would not likely provide "substantial" habitat value. However, a relatively small vernal pool within a wetland prairie would get a point as this special habitat will provide most of its potential functions despite being small. The following list of habitat types is used to evaluate a reach for a 100 foot width along the reach.

8 or more habitats present	5 habitats present	3 habitats present	2 habitats present	No listed habitats present.
10	7	5	3	1

Percent cover of invasive plant species

RATING
2

Measure: Estimated percent cover of invasive plant species is a measure of terrestrial habitat integrity. Invasive vegetation reduces the functional habitat value of the riparian area by reducing desirable food, shelter and nesting habitat for native wildlife species and out-competing native plant species. Cover is estimated for the entire waterway reach for a total width of 100 ft (including one or both sides of the creek exclusive of the waterway itself.

<10% estimated invasive cover	10-25% estimated invasive cover	25 -75% estimated invasive cover	75-90% estimated invasive cover	>90% estimated invasive cover
10	7	5	3	1

Aquatic habitat structure

RATING
6

Measure: Aquatic habitat diversity is related directly to the quality of the habitat structure and can serve as a measure of aquatic habitat quality and potential biological diversity. This assessment element measures availability of physical habitat for fish. The potential for the maintenance of a healthy fish community and its ability to recover from disturbance is dependent on the variety and abundance of suitable habitat and cover available. The following list includes many of the major potential structural components of this habitat type. Evaluate each reach to identify if the component is present or not and score appropriately.

Habitat structure components:

- ☐ *Logs/large woody debris*: Fallen trees or parts of trees that provide structure and attachment for aquatic macroinvertebrates & hiding places for fish.
- ☐ *Deep pools*: Areas characterized by a smooth undisturbed surface, generally slow current, deep enough to provide protective cover for fish (75 to 100% deeper than the prevailing system depth).
- ☐ *Overhanging vegetation*: Trees, shrubs, vines, or perennial herbaceous vegetation that hangs over and covers the system surface, providing shade and cover.
- ☐ *Boulders/cobble*: Boulders are rounded stones more than 10 inches in diameter or large slabs more than 10 inches in length. Cobbles are stones between 2.5 and 10 inches in diameter.
- ☐ *Undercut banks:* Eroded areas extending horizontally beneath the surface of the bank forming underwater pockets used by fish for hiding and protection.
- ☐ *Thick root mats*: Dense mats of roots and rootlets (generally from trees) at or beneath the water surface forming structure for invertebrate attachment and fish cover.
- ☐ *Dense macrophyte beds*: Beds of emergent, floating leaf, or sub-merged aquatic vegetation thick enough to provide invertebrate attachment and fish cover.
- ☐ *Riffles:* Area characterized by broken water surface, rocky or firm substrate, moderate or swift current, and relatively shallow depth (usually less than 18 inches).
- ☐ *Isolated/backwater pools*: Areas disconnected from the main channel or connected as a "blind" side channel, characterized by a lack of flow except in periods of high water.

>7 cover types available	6 to 7 cover types available	4 to 5 cover types available	2 to 3 cover types available	None to 1 cover type available
10	8	5	3	1

Connectivity

RATING
4

Measure: Waterways are often important migration corridors for wildlife moving within the watershed. This is particularly true of urban areas where most of the landscape is developed or fragmented. For this characteristic check one selection from each of the three categories below. Use this information to quantitatively assess the functionality of the reach for wildlife travel.

☐ Wide (>30 ft on one side) well-connected riparian corridor
☐ Narrow (<30 feet on both sides) well-connected riparian corridor

☐ Continuous along entire reach
☐ Slightly fragmented by road crossings or passable barriers
☐ Substantially fragmented by unvegetated development or impassible barriers

☐ Forested canopy along majority of the reach
☐ Shrub canopy along majority of the reach
☐ Unmanaged prairie or meadow along majority of reach
☐ Mowed turf or manicured shrub along majority reach.

Corridor is wide and unbroken. Diversity of habitat provides good cover for a wide range of animals.	Corridor is slightly fragmented or narrow but provides substantial protection for animal movement.	Corridor is highly fragmented and narrow. It is mostly developed with little cover for animal movement.
10	5	1

Recreation Functions

Recreation values are evaluated in this section. The value that a waterway provides to the community as a recreational resource is important to consider as projects will be better supported by the community if recreational issues are addressed.

Public Access

RATING
3

Measure: This measure quantifies the percentage of the reach that is currently legally accessible to the public through existing easements or ownership. One point is given for each 10% incremental linear area along the waterway that is accessible to the public under current conditions either through ownership or easement. This measure does not account for the existence of paths or other facilities but only legal access.

100% of reach is currently accessible	60-70% of reach is currently accessible	40-50% of reach is currently accessible	20-30% of reach is currently accessible	10% or less of reach is currently accessible
10	7	5	3	1

Existing Facilities

RATING
2

Measure: This measure describes the existence of facilities that accommodate recreation. The measure emphasizes trails and parking lots as the primary recreational features quantified.

Free public parking is available and there is access to a paved bike path along the entire reach.	There is access along the entire reach on a paved bike path.	There is access along the entire reach on a dirt, bark or gravel footpath that is maintained as such.	There is access along only part of the reach on an established and maintained path.	There are no facilities along this reach.
10	7	5	3	1

Community Served Through Access

RATING
2

Measure: This measure attempts to capture the value that recreational facilities provide to the public. Some facilities will be more accessible than others or serve broader recreation goals. The measure quantifies the level of access that is provided to the community.

Recreational facilities are accessible to and serve regional interests	Recreational facilities are accessible to and serve community interests	Recreational facilities are accessible to and serve neighborhood interests	Recreational facilities are not easily accessible but do serve limited local interests	Recreational facilities are not easily accessible or do not serve a valued public interest
10	7	5	3	1

Waterway Name: **Cedar Creek** Date: 04/02/2007

Beginning At: **Highway 126** Ending At: **Headwaters**

Waterway Scoring Summary

Cedar Creek: Hwy 126 – Headwaters (R38 – R41)

Physical Assessment	Score	Possible Score	% of Total Pts
Physical Characteristics	6	10	
Channel Stability - BANKS	5	10	
Channel Stability -BEDS	6	10	
Sediment	8	10	
Physical Subtotal	***25***	***40***	***63%***
Water Quality Assessment			
Absorption and/or Filtration of Pollutants	8	10	
Aeration	8	10	
Shade/Temperature Moderation	7	10	
Channel Bank Integrity and Protection	6	10	
Water Quality Subtotal	***29***	***40***	***73%***
Natural Resource Assessment			
Riparian Width	5	10	
Habitat Diversity	9	10	
Percent Cover of Invasive Plant Species	3	10	
Aquatic Habitat Structure	6	10	
Wildlife Corridor Function	7	10	
Natural Resource Subtotal	***30***	***50***	***60%***
Recreation Facilities Assessment			
Public Access	2	10	
Existing Facilities	4	10	
Community Served Through Access	3	10	
Recreation Facilities Subtotal	***9***	***30***	***30%***
WATERWAY ASSESSMENT TOTAL SCORE	**93**	**160**	***58%***

Average from previous Assessment: **6.7 (Fair)**

PHYSICAL CONDITIONS

Channel Physical Characteristics: (Shape / Size)

RATING
6

Measure: Physical Characteristics will be measured against a natural healthy stream with balanced deposition and transport throughout a year. Channel type is a function of the Grade (steep grade straighter stream, flat grade, more sinuosity). Structural modifications should be an enhancement to the stream. While a channel may be an effective means to transport flows, it may be unable to accommodate other goals such as water quality, or habitat resource. Rate the reach for the ability to achieve multiple goals.

Natural Form Channel Type fits Grade, Minor or no modifications, capacity contained	Channel has some Natural form returning.	Closed or Lined channel No Natural features Creates ecological problems. Modifications are failing, needs attention. Flooding occurs.
10	5	1

Channel Stability:

RATING
5

Measure: Channel Stability - BANKS will be measured against a natural healthy stream with functional, stable banks. Vegetated with grasses, native shrubs and trees rate higher than invasive types due to their ability to root deeper and provide more strength. Natural stabilization will weigh higher than artificial methods such as concrete or rip rap lining. *Note bank profile from above.

Channel banks are in stable, well protected and vegetated condition.	Channel banks show sign of erosion, sloughing, cracking…	Channel banks seriously eroded; stream function impaired, needs immediate attention.
10	5	1

RATING
6

Measure: Channel Stability -BEDS will be measured against a natural healthy stream with functional, stable beds. Higher ratings will be given for natural formed beds with balanced deposition and transport. Lower ratings are given for incision, head cutting, or other eroding or flow preventive factors. *Note channel gradient from above.

Channel beds are stable provide deposition and transport	Channel bed shows signs of minor failures or erosion. Stream function is not altered	Channel bed seriously eroded and incised; stream function impaired, needs immediate attention.
10	5	1

Sediment:

RATING
8

Measure: Sediment can be an indicator of stability within the channel. Sediment source can be from outside the channel and potentially create stability problems. Rate known sediment values high when there is no indication of damming or starvation within the channel. Rate low when sediment deposition influences flows in a negative manner such as minimal sediment or over deposition creating damming.

Sediment quantities are stable. Provide balanced deposition and transport, creates good environmental conditions		Sediment values seem unbalanced. Stream function seems stable. Sediment problems during specific events.		Sediment volume is either heavy or non-existent. Bed and bank are altered because of extreme sediment conditions. Toxicity is present
10	7	5	3	1

Water Quality Function

Absorption and/or Filtration of Pollutants:

RATING
8

Measure: One measure of the water quality function of a channel segment is the ability to mitigate for toxics, heavy metals, hydrocarbons, and other suspended pollutants through absorption and filtration by aquatic vegetation. The more extensive the coverage of aquatic vegetation in the streambed that is in contact with stream flows during low flow conditions, the greater the amount of pollutants that will possibly be absorbed and/or filtered out. Channel segment is therefore rated on quantity and coverage of aquatic vegetation in streambed.

Streambed completely covered with aquatic vegetation in contact with water during low flow conditions.	>50% of streambed covered with aquatic vegetation in contact with water during low flow conditions	Isolated patches of aquatic vegetation in contact with water during low flow conditions	Streambed devoid of any aquatic vegetation
10	7	3	1

Aeration:

RATING
8

Measure: Low dissolved oxygen levels (DO) in local streams and flood channels during the summer and fall pose a serious threat to fish populations. DO levels in streams are influenced by many factors, only a few of which are associated with the physical or biological characteristics of the channel itself. One significant measure of the water quality function of a channel segment is whether it provides any source of aeration during low flow conditions. Riffles, splash pools, rock obstructions, drop structures and other features that introduce even minor turbulence during low flow conditions can help aerate the water and increase the DO levels. Channel segment is therefore rated on the number and type of features that introduce turbulence to stream flows.

Rocks and riffles in streambed >75% of channel length **and** multiple sources of other turbulence producing features	Rocks and riffles in streambed >33% of channel length **or** multiple sources of other turbulence producing features	Channel segment has at least one feature that produces significant turbulence during low flow conditions	Channel segment is devoid of any turbulence producing features
10	7	3	1

Shade/Temperature Moderation

RATING
7

Measure: Elevated water temperature is a significant water quality issue for our local waterways, especially in light of forthcoming TMDL temperature requirements for both the Willamette River and Amazon Creek. Stormwater runoff is in and of itself not considered a significant source of temperature pollution. Instead, it is the extent of solar exposure of the streambed which has the greatest thermal impact to in-stream flows. The extent and time-of-day of shade over the streambed is the primary measurement of the water quality function of a stream in terms of temperature moderation. Channel segment is therefore rated on the percent of shade covering the stream flows at midday.

Entire water area within channel segment is covered by shade at midday	<75% of water area within channel segment is covered by shade at midday	>25% of water area within channel segment is covered by shade at midday	No shade on water area at any time of day
10	7	3	1

Channel Bank Integrity and Protection

RATING
6

Measure: Turbidity resulting from stream bank erosion can be a significant water quality issue. Another measure of water quality function of a channel segment is how susceptible the banks are to the erosive forces of direct rainfall, high peak flows and overall flow volumes. The more rip rap, concrete or other solid material that armors the toe of the channel bank, the less soil is exposed to the erosive effects of rain and stream flows. Additionally, the more willows or other woody vegetation that are rooted at the toe and up the banks of a channel, the less likelihood there is of toe cutting and bank slumping. In each case, the water quality function is deemed to be higher where the likelihood of erosion and resulting turbidity is mitigated by armoring or woody vegetation. Channel segment is therefore rated on the type and extent of armoring or woody vegetation along the lower stream banks and at the toe of the channel banks.

No bare soil exposed to high flows, armoring or walled banks along both sides of entire channel segment	Woody vegetation along lower banks, rip rap armoring along toe of both banks	Grass slopes between high and low flow zones and either scattered woody vegetation along lower banks or else sporadic patches of toes armoring	Bare soil on banks, no toe armoring along either bank
10	7	3	1

Natural Resource Functions

Natural resource values are evaluated in this section. The value that a waterway provides to plants and wildlife are emphasized. Several natural resource elements are captured and four specific measures are used to provide a quantitative assessment of the natural resource values embodied in a given reach. The four quantitative assessments include: average riparian width, habitat diversity, percent cover of invasive plant species and aquatic habitat structure. These four components are not meant to be all inclusive of habitat values along a reach, but should serve as a surrogate to approximate important overarching attributes of the natural environment. Other important information captured in this assessment include most common invasive species, most common native species, presence of endangered or rare species or habitats, and migration corridor potential of the waterway.

Riparian Width

RATING
5

Measure: Average riparian width is used as a measure of terrestrial habitat size. Increasing habitat size relates to increased population sizes and increased biological diversity. Width is averaged along the entire reach and includes both banks of the waterway but is exclusive of the waterway itself.

Average width	>90 feet	81-90 feet	71-80 feet	61-70 feet	51-60 feet	41-50 feet	31-40 feet	21-30 feet	11-20 feet	0-10 feet
Score	10	9	8	7	6	5	4	3	2	1

Habitat diversity

RATING
9

Measure: A diversity of habitat types will support a broader array of species during a broader array of life stages. The number of different habitat types along a reach is used as a coarse measure of potential biological diversity. One point is given for each substantial habitat type. "Substantial" is a relative term but is meant to indicate that the habitat is serving in a functional capacity for wildlife. For example, a one foot wide linear strip of reed canary grass along the water's edge would **not** be counted as an "emergent habitat" as it would not likely provide "substantial" habitat value. However, a relatively small vernal pool within a wetland prairie would get a point as this special habitat will provide most of its potential functions despite being small. The following list of habitat types is used to evaluate a reach for a 100 foot width along the reach.

8 or more habitats present	5 habitats present	3 habitats present	2 habitats present	No listed habitats present.
10	7	5	3	1

Percent cover of invasive plant species

RATING
3

Measure: Estimated percent cover of invasive plant species is a measure of terrestrial habitat integrity. Invasive vegetation reduces the functional habitat value of the riparian area by reducing desirable food, shelter and nesting habitat for native wildlife species and out-competing native plant species. Cover is estimated for the entire waterway reach for a total width of 100 ft (including one or both sides of the creek exclusive of the waterway itself.

<10% estimated invasive cover	10-25% estimated invasive cover	25 -75% estimated invasive cover	75-90% estimated invasive cover	>90% estimated invasive cover
10	7	5	3	1

Aquatic habitat structure

RATING
6

Measure: Aquatic habitat diversity is related directly to the quality of the habitat structure and can serve as a measure of aquatic habitat quality and potential biological diversity. This assessment element measures availability of physical habitat for fish. The potential for the maintenance of a healthy fish community and its ability to recover from disturbance is dependent on the variety and abundance of suitable habitat and cover available. The following list includes many of the major potential structural components of this habitat type. Evaluate each reach to identify if the component is present or not and score appropriately.

Habitat structure components:

- ☐ *Logs/large woody debris*: Fallen trees or parts of trees that provide structure and attachment for aquatic macroinvertebrates & hiding places for fish.
- ☐ *Deep pools*: Areas characterized by a smooth undisturbed surface, generally slow current, deep enough to provide protective cover for fish (75 to 100% deeper than the prevailing system depth).
- ☐ *Overhanging vegetation*: Trees, shrubs, vines, or perennial herbaceous vegetation that hangs over and covers the system surface, providing shade and cover.
- ☐ *Boulders/cobble*: Boulders are rounded stones more than 10 inches in diameter or large slabs more than 10 inches in length. Cobbles are stones between 2.5 and 10 inches in diameter.
- ☐ *Undercut banks:* Eroded areas extending horizontally beneath the surface of the bank forming underwater pockets used by fish for hiding and protection.
- ☐ *Thick root mats*: Dense mats of roots and rootlets (generally from trees) at or beneath the water surface forming structure for invertebrate attachment and fish cover.
- ☐ *Dense macrophyte beds*: Beds of emergent, floating leaf, or sub-merged aquatic vegetation thick enough to provide invertebrate attachment and fish cover.
- ☐ *Riffles:* Area characterized by broken water surface, rocky or firm substrate, moderate or swift current, and relatively shallow depth (usually less than 18 inches).
- ☐ *Isolated/backwater pools*: Areas disconnected from the main channel or connected as a "blind" side channel, characterized by a lack of flow except in periods of high water.

>7 cover types available	6 to 7 cover types available	4 to 5 cover types available	2 to 3 cover types available	None to 1 cover type available
10	8	5	3	1

Connectivity

RATING
7

Measure: Waterways are often important migration corridors for wildlife moving within the watershed. This is particularly true of urban areas where most of the landscape is developed or fragmented. For this characteristic check one selection from each of the three categories below. Use this information to quantitatively assess the functionality of the reach for wildlife travel.

☐ Wide (>30 ft on one side) well-connected riparian corridor
☐ Narrow (<30 feet on both sides) well-connected riparian corridor

☐ Continuous along entire reach
☐ Slightly fragmented by road crossings or passable barriers
☐ Substantially fragmented by unvegetated development or impassible barriers

☐ Forested canopy along majority of the reach
☐ Shrub canopy along majority of the reach
☐ Unmanaged prairie or meadow along majority of reach
☐ Mowed turf or manicured shrub along majority reach.

Corridor is wide and unbroken. Diversity of habitat provides good cover for a wide range of animals.	Corridor is slightly fragmented or narrow but provides substantial protection for animal movement.	Corridor is highly fragmented and narrow. It is mostly developed with little cover for animal movement.
10	5	1

Recreation Functions

Recreation values are evaluated in this section. The value that a waterway provides to the community as a recreational resource is important to consider as projects will be better supported by the community if recreational issues are addressed.

Public Access

RATING
2

Measure: This measure quantifies the percentage of the reach that is currently legally accessible to the public through existing easements or ownership. One point is given for each 10% incremental linear area along the waterway that is accessible to the public under current conditions either through ownership or easement. This measure does not account for the existence of paths or other facilities but only legal access.

100% of reach is currently accessible	60-70% of reach is currently accessible	40-50% of reach is currently accessible	20-30% of reach is currently accessible	10% or less of reach is currently accessible
10	7	5	3	1

Existing Facilities

RATING
4

Measure: This measure describes the existence of facilities that accommodate recreation. The measure emphasizes trails and parking lots as the primary recreational features quantified.

Free public parking is available and there is access to a paved bike path along the entire reach.	There is access along the entire reach on a paved bike path.	There is access along the entire reach on a dirt, bark or gravel footpath that is maintained as such.	There is access along only part of the reach on an established and maintained path.	There are no facilities along this reach.
10	7	5	3	1

Community Served Through Access

RATING
3

Measure: This measure attempts to capture the value that recreational facilities provide to the public. Some facilities will be more accessible than others or serve broader recreation goals. The measure quantifies the level of access that is provided to the community.

Recreational facilities are accessible to and serve regional interests	Recreational facilities are accessible to and serve community interests	Recreational facilities are accessible to and serve neighborhood interests	Recreational facilities are not easily accessible but do serve limited local interests	Recreational facilities are not easily accessible or do not serve a valued public interest
10	7	5	3	1

Waterway Name: **Gray Creek** Date: 04/02/2007

Beginning At: **75th Street** Ending At: **UGB**

Waterway Scoring Summary

Gray Creek: 75th Street – UGB (R1 – R4)

Physical Assessment	Score	Possible Score	% of Total Pts
Physical Characteristics	6	10	
Channel Stability - BANKS	5	10	
Channel Stability -BEDS	4	10	
Sediment	4	10	
Physical Subtotal	***19***	***40***	***48%***
Water Quality Assessment			
Absorption and/or Filtration of Pollutants	6	10	
Aeration	3	10	
Shade/Temperature Moderation	5	10	
Channel Bank Integrity and Protection	4	10	
Water Quality Subtotal	***18***	***40***	***45%***
Natural Resource Assessment			
Riparian Width	5	10	
Habitat Diversity	5	10	
Percent Cover of Invasive Plant Species	3	10	
Aquatic Habitat Structure	4	10	
Wildlife Corridor Function	4	10	
Natural Resource Subtotal	***21***	***50***	***42%***
Recreation Facilities Assessment			
Public Access	4	10	
Existing Facilities	3	10	
Community Served Through Access	4	10	
Recreation Facilities Subtotal	***11***	***30***	***37%***
WATERWAY ASSESSMENT TOTAL SCORE	**69**	**160**	***43%***

Average from previous Assessment: **6.5 (Fair)**

PHYSICAL CONDITIONS

Channel Physical Characteristics: (Shape / Size)

RATING
6

Measure: Physical Characteristics will be measured against a natural healthy stream with balanced deposition and transport throughout a year. Channel type is a function of the Grade (steep grade straighter stream, flat grade, more sinuosity). Structural modifications should be an enhancement to the stream. While a channel may be an effective means to transport flows, it may be unable to accommodate other goals such as water quality, or habitat resource. Rate the reach for the ability to achieve multiple goals.

Natural Form Channel Type fits Grade, Minor or no modifications, capacity contained	Channel has some Natural form returning.	Closed or Lined channel No Natural features Creates ecological problems. Modifications are failing, needs attention. Flooding occurs.
10	5	1

Channel Stability:

RATING
5

Measure: Channel Stability - BANKS will be measured against a natural healthy stream with functional, stable banks. Vegetated with grasses, native shrubs and trees rate higher than invasive types due to their ability to root deeper and provide more strength. Natural stabilization will weigh higher than artificial methods such as concrete or rip rap lining. *Note bank profile from above.

Channel banks are in stable, well protected and vegetated condition.	Channel banks show sign of erosion, sloughing, cracking…	Channel banks seriously eroded; stream function impaired, needs immediate attention.
10	5	1

RATING
4

Measure: Channel Stability -BEDS will be measured against a natural healthy stream with functional, stable beds. Higher ratings will be given for natural formed beds with balanced deposition and transport. Lower ratings are given for incision, head cutting, or other eroding or flow preventive factors. *Note channel gradient from above.

Channel beds are stable provide deposition and transport	Channel bed shows signs of minor failures or erosion. Stream function is not altered	Channel bed seriously eroded and incised; stream function impaired, needs immediate attention.
10	5	1

Sediment:

RATING
4

Measure: Sediment can be an indicator of stability within the channel. Sediment source can be from outside the channel and potentially create stability problems. Rate known sediment values high when there is no indication of damming or starvation within the channel. Rate low when sediment deposition influences flows in a negative manner such as minimal sediment or over deposition creating damming.

Sediment quantities are stable. Provide balanced deposition and transport, creates good environmental conditions		Sediment values seem unbalanced. Stream function seems stable. Sediment problems during specific events.		Sediment volume is either heavy or non-existent. Bed and bank are altered because of extreme sediment conditions. Toxicity is present
10	7	5	3	1

Water Quality Function

Absorption and/or Filtration of Pollutants:

RATING
6

Measure: One measure of the water quality function of a channel segment is the ability to mitigate for toxics, heavy metals, hydrocarbons, and other suspended pollutants through absorption and filtration by aquatic vegetation. The more extensive the coverage of aquatic vegetation in the streambed that is in contact with stream flows during low flow conditions, the greater the amount of pollutants that will possibly be absorbed and/or filtered out. Channel segment is therefore rated on quantity and coverage of aquatic vegetation in streambed.

Streambed completely covered with aquatic vegetation in contact with water during low flow conditions.	>50% of streambed covered with aquatic vegetation in contact with water during low flow conditions	Isolated patches of aquatic vegetation in contact with water during low flow conditions	Streambed devoid of any aquatic vegetation
10	7	3	1

Aeration:

RATING
3

Measure: Low dissolved oxygen levels (DO) in local streams and flood channels during the summer and fall pose a serious threat to fish populations. DO levels in streams are influenced by many factors, only a few of which are associated with the physical or biological characteristics of the channel itself. One significant measure of the water quality function of a channel segment is whether it provides any source of aeration during low flow conditions. Riffles, splash pools, rock obstructions, drop structures and other features that introduce even minor turbulence during low flow conditions can help aerate the water and increase the DO levels. Channel segment is therefore rated on the number and type of features that introduce turbulence to stream flows.

Rocks and riffles in streambed >75% of channel length **and** multiple sources of other turbulence producing features	Rocks and riffles in streambed >33% of channel length **or** multiple sources of other turbulence producing features	Channel segment has at least one feature that produces significant turbulence during low flow conditions	Channel segment is devoid of any turbulence producing features
10	7	3	1

Shade/Temperature Moderation

RATING
5

Measure: Elevated water temperature is a significant water quality issue for our local waterways, especially in light of forthcoming TMDL temperature requirements for both the Willamette River and Amazon Creek. Stormwater runoff is in and of itself not considered a significant source of temperature pollution. Instead, it is the extent of solar exposure of the streambed which has the greatest thermal impact to in-stream flows. The extent and time-of-day of shade over the streambed is the primary measurement of the water quality function of a stream in terms of temperature moderation. Channel segment is therefore rated on the percent of shade covering the stream flows at midday.

Entire water area within channel segment is covered by shade at midday	<75% of water area within channel segment is covered by shade at midday	>25% of water area within channel segment is covered by shade at midday	No shade on water area at any time of day
10	7	3	1

Channel Bank Integrity and Protection

RATING
4

Measure: Turbidity resulting from stream bank erosion can be a significant water quality issue. Another measure of water quality function of a channel segment is how susceptible the banks are to the erosive forces of direct rainfall, high peak flows and overall flow volumes. The more rip rap, concrete or other solid material that armors the toe of the channel bank, the less soil is exposed to the erosive effects of rain and stream flows. Additionally, the more willows or other woody vegetation that are rooted at the toe and up the banks of a channel, the less likelihood there is of toe cutting and bank slumping. In each case, the water quality function is deemed to be higher where the likelihood of erosion and resulting turbidity is mitigated by armoring or woody vegetation. Channel segment is therefore rated on the type and extent of armoring or woody vegetation along the lower stream banks and at the toe of the channel banks.

No bare soil exposed to high flows, armoring or walled banks along both sides of entire channel segment	Woody vegetation along lower banks, rip rap armoring along toe of both banks	Grass slopes between high and low flow zones and either scattered woody vegetation along lower banks or else sporadic patches of toes armoring	Bare soil on banks, no toe armoring along either bank
10	7	3	1

Natural Resource Functions

Natural resource values are evaluated in this section. The value that a waterway provides to plants and wildlife are emphasized. Several natural resource elements are captured and four specific measures are used to provide a quantitative assessment of the natural resource values embodied in a given reach. The four quantitative assessments include: average riparian width, habitat diversity, percent cover of invasive plant species and aquatic habitat structure. These four components are not meant to be all inclusive of habitat values along a reach, but should serve as a surrogate to approximate important overarching attributes of the natural environment. Other important information captured in this assessment include most common invasive species, most common native species, presence of endangered or rare species or habitats, and migration corridor potential of the waterway.

Riparian Width

RATING
5

Measure: Average riparian width is used as a measure of terrestrial habitat size. Increasing habitat size relates to increased population sizes and increased biological diversity. Width is averaged along the entire reach and includes both banks of the waterway but is exclusive of the waterway itself.

Average width	>90 feet	81-90 feet	71-80 feet	61-70 feet	51-60 feet	41-50 feet	31-40 feet	21-30 feet	11-20 feet	0-10 feet
Score	10	9	8	7	6	5	4	3	2	1

Habitat diversity

RATING
5

Measure: A diversity of habitat types will support a broader array of species during a broader array of life stages. The number of different habitat types along a reach is used as a coarse measure of potential biological diversity. One point is given for each substantial habitat type. "Substantial" is a relative term but is meant to indicate that the habitat is serving in a functional capacity for wildlife. For example, a one foot wide linear strip of reed canary grass along the water's edge would **not** be counted as an "emergent habitat" as it would not likely provide "substantial" habitat value. However, a relatively small vernal pool within a wetland prairie would get a point as this special habitat will provide most of its potential functions despite being small. The following list of habitat types is used to evaluate a reach for a 100 foot width along the reach.

8 or more habitats present	5 habitats present	3 habitats present	2 habitats present	No listed habitats present.
10	7	5	3	1

Percent cover of invasive plant species

RATING
3

Measure: Estimated percent cover of invasive plant species is a measure of terrestrial habitat integrity. Invasive vegetation reduces the functional habitat value of the riparian area by reducing desirable food, shelter and nesting habitat for native wildlife species and out-competing native plant species. Cover is estimated for the entire waterway reach for a total width of 100 ft (including one or both sides of the creek exclusive of the waterway itself.

<10% estimated invasive cover	10-25% estimated invasive cover	25 -75% estimated invasive cover	75-90% estimated invasive cover	>90% estimated invasive cover
10	7	5	3	1

Aquatic habitat structure

RATING
4

Measure: Aquatic habitat diversity is related directly to the quality of the habitat structure and can serve as a measure of aquatic habitat quality and potential biological diversity. This assessment element measures availability of physical habitat for fish. The potential for the maintenance of a healthy fish community and its ability to recover from disturbance is dependent on the variety and abundance of suitable habitat and cover available. The following list includes many of the major potential structural components of this habitat type. Evaluate each reach to identify if the component is present or not and score appropriately.

Habitat structure components:

- ☐ *Logs/large woody debris*: Fallen trees or parts of trees that provide structure and attachment for aquatic macroinvertebrates & hiding places for fish.
- ☐ *Deep pools*: Areas characterized by a smooth undisturbed surface, generally slow current, deep enough to provide protective cover for fish (75 to 100% deeper than the prevailing system depth).
- ☐ *Overhanging vegetation*: Trees, shrubs, vines, or perennial herbaceous vegetation that hangs over and covers the system surface, providing shade and cover.
- ☐ *Boulders/cobble*: Boulders are rounded stones more than 10 inches in diameter or large slabs more than 10 inches in length. Cobbles are stones between 2.5 and 10 inches in diameter.
- ☐ *Undercut banks:* Eroded areas extending horizontally beneath the surface of the bank forming underwater pockets used by fish for hiding and protection.
- ☐ *Thick root mats*: Dense mats of roots and rootlets (generally from trees) at or beneath the water surface forming structure for invertebrate attachment and fish cover.
- ☐ *Dense macrophyte beds*: Beds of emergent, floating leaf, or sub-merged aquatic vegetation thick enough to provide invertebrate attachment and fish cover.
- ☐ *Riffles:* Area characterized by broken water surface, rocky or firm substrate, moderate or swift current, and relatively shallow depth (usually less than 18 inches).
- ☐ *Isolated/backwater pools*: Areas disconnected from the main channel or connected as a "blind" side channel, characterized by a lack of flow except in periods of high water.

>7 cover types available	6 to 7 cover types available	4 to 5 cover types available	2 to 3 cover types available	None to 1 cover type available
10	8	5	3	1

Connectivity

RATING
4

Measure: Waterways are often important migration corridors for wildlife moving within the watershed. This is particularly true of urban areas where most of the landscape is developed or fragmented. For this characteristic check one selection from each of the three categories below. Use this information to quantitatively assess the functionality of the reach for wildlife travel.

☐ Wide (>30 ft on one side) well-connected riparian corridor
☐ Narrow (<30 feet on both sides) well-connected riparian corridor

☐ Continuous along entire reach
☐ Slightly fragmented by road crossings or passable barriers
☐ Substantially fragmented by unvegetated development or impassible barriers

☐ Forested canopy along majority of the reach
☐ Shrub canopy along majority of the reach
☐ Unmanaged prairie or meadow along majority of reach
☐ Mowed turf or manicured shrub along majority reach.

Corridor is wide and unbroken. Diversity of habitat provides good cover for a wide range of animals.	Corridor is slightly fragmented or narrow but provides substantial protection for animal movement.	Corridor is highly fragmented and narrow. It is mostly developed with little cover for animal movement.
10	5	1

Recreation Functions

Recreation values are evaluated in this section. The value that a waterway provides to the community as a recreational resource is important to consider as projects will be better supported by the community if recreational issues are addressed.

Public Access

RATING
4

Measure: This measure quantifies the percentage of the reach that is currently legally accessible to the public through existing easements or ownership. One point is given for each 10% incremental linear area along the waterway that is accessible to the public under current conditions either through ownership or easement. This measure does not account for the existence of paths or other facilities but only legal access.

100% of reach is currently accessible	60-70% of reach is currently accessible	40-50% of reach is currently accessible	20-30% of reach is currently accessible	10% or less of reach is currently accessible
10	7	5	3	1

Existing Facilities

RATING
3

Measure: This measure describes the existence of facilities that accommodate recreation. The measure emphasizes trails and parking lots as the primary recreational features quantified.

Free public parking is available and there is access to a paved bike path along the entire reach.	There is access along the entire reach on a paved bike path.	There is access along the entire reach on a dirt, bark or gravel footpath that is maintained as such.	There is access along only part of the reach on an established and maintained path.	There are no facilities along this reach.
10	7	5	3	1

Community Served Through Access

RATING
4

Measure: This measure attempts to capture the value that recreational facilities provide to the public. Some facilities will be more accessible than others or serve broader recreation goals. The measure quantifies the level of access that is provided to the community.

Recreational facilities are accessible to and serve regional interests	Recreational facilities are accessible to and serve community interests	Recreational facilities are accessible to and serve neighborhood interests	Recreational facilities are not easily accessible but do serve limited local interests	Recreational facilities are not easily accessible or do not serve a valued public interest
10	7	5	3	1

Waterway Name: **Gray Creek** Date: 04/02/2007

Beginning At: **UGB** Ending At: **Thurston Road**

Waterway Scoring Summary

Gray Creek: UGB – Thurston Road (R5 – R9)

Physical Assessment	Score	Possible Score	% of Total Pts
Physical Characteristics	2	10	
Channel Stability - BANKS	6	10	
Channel Stability -BEDS	4	10	
Sediment	3	10	
Physical Subtotal	***15***	***40***	***38%***
Water Quality Assessment			
Absorption and/or Filtration of Pollutants	4	10	
Aeration	2	10	
Shade/Temperature Moderation	4	10	
Channel Bank Integrity and Protection	5	10	
Water Quality Subtotal	***15***	***40***	***38%***
Natural Resource Assessment			
Riparian Width	4	10	
Habitat Diversity	6	10	
Percent Cover of Invasive Plant Species	3	10	
Aquatic Habitat Structure	4	10	
Wildlife Corridor Function	5	10	
Natural Resource Subtotal	***22***	***50***	***44%***
Recreation Facilities Assessment			
Public Access	1	10	
Existing Facilities	1	10	
Community Served Through Access	1	10	
Recreation Facilities Subtotal	***3***	***30***	***10%***
WATERWAY ASSESSMENT TOTAL SCORE	**55**	**160**	***34%***

Average from previous Assessment: **5.0 (Poor)**

PHYSICAL CONDITIONS

Channel Physical Characteristics: (Shape / Size)

RATING
2

Measure: Physical Characteristics will be measured against a natural healthy stream with balanced deposition and transport throughout a year. Channel type is a function of the Grade (steep grade straighter stream, flat grade, more sinuosity). Structural modifications should be an enhancement to the stream. While a channel may be an effective means to transport flows, it may be unable to accommodate other goals such as water quality, or habitat resource. Rate the reach for the ability to achieve multiple goals.

Natural Form Channel Type fits Grade, Minor or no modifications, capacity contained	Channel has some Natural form returning.	Closed or Lined channel No Natural features Creates ecological problems. Modifications are failing, needs attention. Flooding occurs.
10	5	1

Channel Stability:

RATING
6

Measure: Channel Stability - BANKS will be measured against a natural healthy stream with functional, stable banks. Vegetated with grasses, native shrubs and trees rate higher than invasive types due to their ability to root deeper and provide more strength. Natural stabilization will weigh higher than artificial methods such as concrete or rip rap lining. *Note bank profile from above.

Channel banks are in stable, well protected and vegetated condition.	Channel banks show sign of erosion, sloughing, cracking…	Channel banks seriously eroded; stream function impaired, needs immediate attention.
10	5	1

RATING
4

Measure: Channel Stability -BEDS will be measured against a natural healthy stream with functional, stable beds. Higher ratings will be given for natural formed beds with balanced deposition and transport. Lower ratings are given for incision, head cutting, or other eroding or flow preventive factors. *Note channel gradient from above.

Channel beds are stable provide deposition and transport	Channel bed shows signs of minor failures or erosion. Stream function is not altered	Channel bed seriously eroded and incised; stream function impaired, needs immediate attention.
10	5	1

Sediment:

RATING
3

Measure: Sediment can be an indicator of stability within the channel. Sediment source can be from outside the channel and potentially create stability problems. Rate known sediment values high when there is no indication of damming or starvation within the channel. Rate low when sediment deposition influences flows in a negative manner such as minimal sediment or over deposition creating damming.

Sediment quantities are stable. Provide balanced deposition and transport, creates good environmental conditions		Sediment values seem unbalanced. Stream function seems stable. Sediment problems during specific events.		Sediment volume is either heavy or non-existent. Bed and bank are altered because of extreme sediment conditions. Toxicity is present
10	7	5	3	1

Water Quality Function

Absorption and/or Filtration of Pollutants:

RATING
4

Measure: One measure of the water quality function of a channel segment is the ability to mitigate for toxics, heavy metals, hydrocarbons, and other suspended pollutants through absorption and filtration by aquatic vegetation. The more extensive the coverage of aquatic vegetation in the streambed that is in contact with stream flows during low flow conditions, the greater the amount of pollutants that will possibly be absorbed and/or filtered out. Channel segment is therefore rated on quantity and coverage of aquatic vegetation in streambed.

Streambed completely covered with aquatic vegetation in contact with water during low flow conditions.	>50% of streambed covered with aquatic vegetation in contact with water during low flow conditions	Isolated patches of aquatic vegetation in contact with water during low flow conditions	Streambed devoid of any aquatic vegetation
10	7	3	1

Aeration:

RATING
2

Measure: Low dissolved oxygen levels (DO) in local streams and flood channels during the summer and fall pose a serious threat to fish populations. DO levels in streams are influenced by many factors, only a few of which are associated with the physical or biological characteristics of the channel itself. One significant measure of the water quality function of a channel segment is whether it provides any source of aeration during low flow conditions. Riffles, splash pools, rock obstructions, drop structures and other features that introduce even minor turbulence during low flow conditions can help aerate the water and increase the DO levels. Channel segment is therefore rated on the number and type of features that introduce turbulence to stream flows.

Rocks and riffles in streambed >75% of channel length **and** multiple sources of other turbulence producing features	Rocks and riffles in streambed >33% of channel length **or** multiple sources of other turbulence producing features	Channel segment has at least one feature that produces significant turbulence during low flow conditions	Channel segment is devoid of any turbulence producing features
10	7	3	1

Shade/Temperature Moderation

RATING
4

Measure: Elevated water temperature is a significant water quality issue for our local waterways, especially in light of forthcoming TMDL temperature requirements for both the Willamette River and Amazon Creek. Stormwater runoff is in and of itself not considered a significant source of temperature pollution. Instead, it is the extent of solar exposure of the streambed which has the greatest thermal impact to in-stream flows. The extent and time-of-day of shade over the streambed is the primary measurement of the water quality function of a stream in terms of temperature moderation. Channel segment is therefore rated on the percent of shade covering the stream flows at midday.

Entire water area within channel segment is covered by shade at midday	<75% of water area within channel segment is covered by shade at midday	>25% of water area within channel segment is covered by shade at midday	No shade on water area at any time of day
10	7	3	1

Channel Bank Integrity and Protection

RATING
5

Measure: Turbidity resulting from stream bank erosion can be a significant water quality issue. Another measure of water quality function of a channel segment is how susceptible the banks are to the erosive forces of direct rainfall, high peak flows and overall flow volumes. The more rip rap, concrete or other solid material that armors the toe of the channel bank, the less soil is exposed to the erosive effects of rain and stream flows. Additionally, the more willows or other woody vegetation that are rooted at the toe and up the banks of a channel, the less likelihood there is of toe cutting and bank slumping. In each case, the water quality function is deemed to be higher where the likelihood of erosion and resulting turbidity is mitigated by armoring or woody vegetation. Channel segment is therefore rated on the type and extent of armoring or woody vegetation along the lower stream banks and at the toe of the channel banks.

No bare soil exposed to high flows, armoring or walled banks along both sides of entire channel segment	Woody vegetation along lower banks, rip rap armoring along toe of both banks	Grass slopes between high and low flow zones and either scattered woody vegetation along lower banks or else sporadic patches of toes armoring	Bare soil on banks, no toe armoring along either bank
10	7	3	1

Natural Resource Functions

Natural resource values are evaluated in this section. The value that a waterway provides to plants and wildlife are emphasized. Several natural resource elements are captured and four specific measures are used to provide a quantitative assessment of the natural resource values embodied in a given reach. The four quantitative assessments include: average riparian width, habitat diversity, percent cover of invasive plant species and aquatic habitat structure. These four components are not meant to be all inclusive of habitat values along a reach, but should serve as a surrogate to approximate important overarching attributes of the natural environment. Other important information captured in this assessment include most common invasive species, most common native species, presence of endangered or rare species or habitats, and migration corridor potential of the waterway.

Riparian Width

RATING
4

Measure: Average riparian width is used as a measure of terrestrial habitat size. Increasing habitat size relates to increased population sizes and increased biological diversity. Width is averaged along the entire reach and includes both banks of the waterway but is exclusive of the waterway itself.

Average width	>90 feet	81-90 feet	71-80 feet	61-70 feet	51-60 feet	41-50 feet	31-40 feet	21-30 feet	11-20 feet	0-10 feet
Score	10	9	8	7	6	5	4	3	2	1

Habitat diversity

RATING
6

Measure: A diversity of habitat types will support a broader array of species during a broader array of life stages. The number of different habitat types along a reach is used as a coarse measure of potential biological diversity. One point is given for each substantial habitat type. "Substantial" is a relative term but is meant to indicate that the habitat is serving in a functional capacity for wildlife. For example, a one foot wide linear strip of reed canary grass along the water's edge would **not** be counted as an "emergent habitat" as it would not likely provide "substantial" habitat value. However, a relatively small vernal pool within a wetland prairie would get a point as this special habitat will provide most of its potential functions despite being small. The following list of habitat types is used to evaluate a reach for a 100 foot width along the reach.

8 or more habitats present	5 habitats present	3 habitats present	2 habitats present	No listed habitats present.
10	7	5	3	1

Percent cover of invasive plant species

RATING
3

Measure: Estimated percent cover of invasive plant species is a measure of terrestrial habitat integrity. Invasive vegetation reduces the functional habitat value of the riparian area by reducing desirable food, shelter and nesting habitat for native wildlife species and out-competing native plant species. Cover is estimated for the entire waterway reach for a total width of 100 ft (including one or both sides of the creek exclusive of the waterway itself.

<10% estimated invasive cover	10-25% estimated invasive cover	25 -75% estimated invasive cover	75-90% estimated invasive cover	>90% estimated invasive cover
10	7	5	3	1

Aquatic habitat structure

RATING
4

Measure: Aquatic habitat diversity is related directly to the quality of the habitat structure and can serve as a measure of aquatic habitat quality and potential biological diversity. This assessment element measures availability of physical habitat for fish. The potential for the maintenance of a healthy fish community and its ability to recover from disturbance is dependent on the variety and abundance of suitable habitat and cover available. The following list includes many of the major potential structural components of this habitat type. Evaluate each reach to identify if the component is present or not and score appropriately.

Habitat structure components:

- ☐ *Logs/large woody debris*: Fallen trees or parts of trees that provide structure and attachment for aquatic macroinvertebrates & hiding places for fish.
- ☐ *Deep pools*: Areas characterized by a smooth undisturbed surface, generally slow current, deep enough to provide protective cover for fish (75 to 100% deeper than the prevailing system depth).
- ☐ *Overhanging vegetation*: Trees, shrubs, vines, or perennial herbaceous vegetation that hangs over and covers the system surface, providing shade and cover.
- ☐ *Boulders/cobble*: Boulders are rounded stones more than 10 inches in diameter or large slabs more than 10 inches in length. Cobbles are stones between 2.5 and 10 inches in diameter.
- ☐ *Undercut banks:* Eroded areas extending horizontally beneath the surface of the bank forming underwater pockets used by fish for hiding and protection.
- ☐ *Thick root mats*: Dense mats of roots and rootlets (generally from trees) at or beneath the water surface forming structure for invertebrate attachment and fish cover.
- ☐ *Dense macrophyte beds*: Beds of emergent, floating leaf, or sub-merged aquatic vegetation thick enough to provide invertebrate attachment and fish cover.
- ☐ *Riffles:* Area characterized by broken water surface, rocky or firm substrate, moderate or swift current, and relatively shallow depth (usually less than 18 inches).
- ☐ *Isolated/backwater pools*: Areas disconnected from the main channel or connected as a "blind" side channel, characterized by a lack of flow except in periods of high water.

>7 cover types available	6 to 7 cover types available	4 to 5 cover types available	2 to 3 cover types available	None to 1 cover type available
10	8	5	3	1

Connectivity

RATING
5

Measure: Waterways are often important migration corridors for wildlife moving within the watershed. This is particularly true of urban areas where most of the landscape is developed or fragmented. For this characteristic check one selection from each of the three categories below. Use this information to quantitatively assess the functionality of the reach for wildlife travel.

☐ Wide (>30 ft on one side) well-connected riparian corridor
☐ Narrow (<30 feet on both sides) well-connected riparian corridor

☐ Continuous along entire reach
☐ Slightly fragmented by road crossings or passable barriers
☐ Substantially fragmented by unvegetated development or impassible barriers

☐ Forested canopy along majority of the reach
☐ Shrub canopy along majority of the reach
☐ Unmanaged prairie or meadow along majority of reach
☐ Mowed turf or manicured shrub along majority reach.

Corridor is wide and unbroken. Diversity of habitat provides good cover for a wide range of animals.	Corridor is slightly fragmented or narrow but provides substantial protection for animal movement.	Corridor is highly fragmented and narrow. It is mostly developed with little cover for animal movement.
10	5	1

Recreation Functions

Recreation values are evaluated in this section. The value that a waterway provides to the community as a recreational resource is important to consider as projects will be better supported by the community if recreational issues are addressed.

Public Access

RATING
1

Measure: This measure quantifies the percentage of the reach that is currently legally accessible to the public through existing easements or ownership. One point is given for each 10% incremental linear area along the waterway that is accessible to the public under current conditions either through ownership or easement. This measure does not account for the existence of paths or other facilities but only legal access.

100% of reach is currently accessible	60-70% of reach is currently accessible	40-50% of reach is currently accessible	20-30% of reach is currently accessible	10% or less of reach is currently accessible
10	7	5	3	1

Existing Facilities

RATING
1

Measure: This measure describes the existence of facilities that accommodate recreation. The measure emphasizes trails and parking lots as the primary recreational features quantified.

Free public parking is available and there is access to a paved bike path along the entire reach.	There is access along the entire reach on a paved bike path.	There is access along the entire reach on a dirt, bark or gravel footpath that is maintained as such.	There is access along only part of the reach on an established and maintained path.	There are no facilities along this reach.
10	7	5	3	1

Community Served Through Access

RATING
1

Measure: This measure attempts to capture the value that recreational facilities provide to the public. Some facilities will be more accessible than others or serve broader recreation goals. The measure quantifies the level of access that is provided to the community.

Recreational facilities are accessible to and serve regional interests	Recreational facilities are accessible to and serve community interests	Recreational facilities are accessible to and serve neighborhood interests	Recreational facilities are not easily accessible but do serve limited local interests	Recreational facilities are not easily accessible or do not serve a valued public interest
10	7	5	3	1

Waterway Name: **Gay Creek** Date: 04/02/2007

Beginning At: **Main Street** Ending At: **Headwaters**

Waterway Scoring Summary

Gay Creek: Main Street – Headwaters (R6 – Headwaters)

Physical Assessment	Score	Possible Score	% of Total Pts
Physical Characteristics	4	10	
Channel Stability - BANKS	4	10	
Channel Stability -BEDS	3	10	
Sediment	4	10	
Physical Subtotal	***15***	***40***	***38%***
Water Quality Assessment			
Absorption and/or Filtration of Pollutants	7	10	
Aeration	4	10	
Shade/Temperature Moderation	7	10	
Channel Bank Integrity and Protection	3	10	
Water Quality Subtotal	***21***	***40***	***53%***
Natural Resource Assessment			
Riparian Width	4	10	
Habitat Diversity	3	10	
Percent Cover of Invasive Plant Species	7	10	
Aquatic Habitat Structure	6	10	
Wildlife Corridor Function	6	10	
Natural Resource Subtotal	***26***	***50***	***52%***
Recreation Facilities Assessment			
Public Access	2	10	
Existing Facilities	3	10	
Community Served Through Access	2	10	
Recreation Facilities Subtotal	***7***	***30***	***23%***
WATERWAY ASSESSMENT TOTAL SCORE	**69**	**160**	***43%***

Average from previous Assessment: **6.8 (Fair)**

PHYSICAL CONDITIONS

Channel Physical Characteristics: (Shape / Size)

RATING
4

Measure: Physical Characteristics will be measured against a natural healthy stream with balanced deposition and transport throughout a year. Channel type is a function of the Grade (steep grade straighter stream, flat grade, more sinuosity). Structural modifications should be an enhancement to the stream. While a channel may be an effective means to transport flows, it may be unable to accommodate other goals such as water quality, or habitat resource. Rate the reach for the ability to achieve multiple goals.

Natural Form Channel Type fits Grade, Minor or no modifications, capacity contained	Channel has some Natural form returning.	Closed or Lined channel No Natural features Creates ecological problems. Modifications are failing, needs attention. Flooding occurs.
10	5	1

Channel Stability:

RATING
3

Measure: Channel Stability - BANKS will be measured against a natural healthy stream with functional, stable banks. Vegetated with grasses, native shrubs and trees rate higher than invasive types due to their ability to root deeper and provide more strength. Natural stabilization will weigh higher than artificial methods such as concrete or rip rap lining. *Note bank profile from above.

Channel banks are in stable, well protected and vegetated condition.	Channel banks show sign of erosion, sloughing, cracking…	Channel banks seriously eroded; stream function impaired, needs immediate attention.
10	5	1

RATING
4

Measure: Channel Stability -BEDS will be measured against a natural healthy stream with functional, stable beds. Higher ratings will be given for natural formed beds with balanced deposition and transport. Lower ratings are given for incision, head cutting, or other eroding or flow preventive factors. *Note channel gradient from above.

Channel beds are stable provide deposition and transport	Channel bed shows signs of minor failures or erosion. Stream function is not altered	Channel bed seriously eroded and incised; stream function impaired, needs immediate attention.
10	5	1

Sediment:

RATING
4

Measure: Sediment can be an indicator of stability within the channel. Sediment source can be from outside the channel and potentially create stability problems. Rate known sediment values high when there is no indication of damming or starvation within the channel. Rate low when sediment deposition influences flows in a negative manner such as minimal sediment or over deposition creating damming.

Sediment quantities are stable. Provide balanced deposition and transport, creates good environmental conditions		Sediment values seem unbalanced. Stream function seems stable. Sediment problems during specific events.		Sediment volume is either heavy or non-existent. Bed and bank are altered because of extreme sediment conditions. Toxicity is present
10	7	5	3	1

Water Quality Function

Absorption and/or Filtration of Pollutants:

RATING
7

Measure: One measure of the water quality function of a channel segment is the ability to mitigate for toxics, heavy metals, hydrocarbons, and other suspended pollutants through absorption and filtration by aquatic vegetation. The more extensive the coverage of aquatic vegetation in the streambed that is in contact with stream flows during low flow conditions, the greater the amount of pollutants that will possibly be absorbed and/or filtered out. Channel segment is therefore rated on quantity and coverage of aquatic vegetation in streambed.

Streambed completely covered with aquatic vegetation in contact with water during low flow conditions.	>50% of streambed covered with aquatic vegetation in contact with water during low flow conditions	Isolated patches of aquatic vegetation in contact with water during low flow conditions	Streambed devoid of any aquatic vegetation
10	7	3	1

Aeration:

RATING
4

Measure: Low dissolved oxygen levels (DO) in local streams and flood channels during the summer and fall pose a serious threat to fish populations. DO levels in streams are influenced by many factors, only a few of which are associated with the physical or biological characteristics of the channel itself. One significant measure of the water quality function of a channel segment is whether it provides any source of aeration during low flow conditions. Riffles, splash pools, rock obstructions, drop structures and other features that introduce even minor turbulence during low flow conditions can help aerate the water and increase the DO levels. Channel segment is therefore rated on the number and type of features that introduce turbulence to stream flows.

Rocks and riffles in streambed >75% of channel length **and** multiple sources of other turbulence producing features	Rocks and riffles in streambed >33% of channel length **or** multiple sources of other turbulence producing features	Channel segment has at least one feature that produces significant turbulence during low flow conditions	Channel segment is devoid of any turbulence producing features
10	7	3	1

Shade/Temperature Moderation

RATING
7

Measure: Elevated water temperature is a significant water quality issue for our local waterways, especially in light of forthcoming TMDL temperature requirements for both the Willamette River and Amazon Creek. Stormwater runoff is in and of itself not considered a significant source of temperature pollution. Instead, it is the extent of solar exposure of the streambed which has the greatest thermal impact to in-stream flows. The extent and time-of-day of shade over the streambed is the primary measurement of the water quality function of a stream in terms of temperature moderation. Channel segment is therefore rated on the percent of shade covering the stream flows at midday.

Entire water area within channel segment is covered by shade at midday	<75% of water area within channel segment is covered by shade at midday	>25% of water area within channel segment is covered by shade at midday	No shade on water area at any time of day
10	7	3	1

Channel Bank Integrity and Protection

RATING
3

Measure: Turbidity resulting from stream bank erosion can be a significant water quality issue. Another measure of water quality function of a channel segment is how susceptible the banks are to the erosive forces of direct rainfall, high peak flows and overall flow volumes. The more rip rap, concrete or other solid material that armors the toe of the channel bank, the less soil is exposed to the erosive effects of rain and stream flows. Additionally, the more willows or other woody vegetation that are rooted at the toe and up the banks of a channel, the less likelihood there is of toe cutting and bank slumping. In each case, the water quality function is deemed to be higher where the likelihood of erosion and resulting turbidity is mitigated by armoring or woody vegetation. Channel segment is therefore rated on the type and extent of armoring or woody vegetation along the lower stream banks and at the toe of the channel banks.

No bare soil exposed to high flows, armoring or walled banks along both sides of entire channel segment	Woody vegetation along lower banks, rip rap armoring along toe of both banks	Grass slopes between high and low flow zones and either scattered woody vegetation along lower banks or else sporadic patches of toes armoring	Bare soil on banks, no toe armoring along either bank
10	7	3	1

Natural Resource Functions

Natural resource values are evaluated in this section. The value that a waterway provides to plants and wildlife are emphasized. Several natural resource elements are captured and four specific measures are used to provide a quantitative assessment of the natural resource values embodied in a given reach. The four quantitative assessments include: average riparian width, habitat diversity, percent cover of invasive plant species and aquatic habitat structure. These four components are not meant to be all inclusive of habitat values along a reach, but should serve as a surrogate to approximate important overarching attributes of the natural environment. Other important information captured in this assessment include most common invasive species, most common native species, presence of endangered or rare species or habitats, and migration corridor potential of the waterway.

Riparian Width

RATING
4

Measure: Average riparian width is used as a measure of terrestrial habitat size. Increasing habitat size relates to increased population sizes and increased biological diversity. Width is averaged along the entire reach and includes both banks of the waterway but is exclusive of the waterway itself.

Average width	>90 feet	81-90 feet	71-80 feet	61-70 feet	51-60 feet	41-50 feet	31-40 feet	21-30 feet	11-20 feet	0-10 feet
Score	10	9	8	7	6	5	4	3	2	1

Habitat diversity

RATING
3

Measure: A diversity of habitat types will support a broader array of species during a broader array of life stages. The number of different habitat types along a reach is used as a coarse measure of potential biological diversity. One point is given for each substantial habitat type. "Substantial" is a relative term but is meant to indicate that the habitat is serving in a functional capacity for wildlife. For example, a one foot wide linear strip of reed canary grass along the water's edge would **not** be counted as an "emergent habitat" as it would not likely provide "substantial" habitat value. However, a relatively small vernal pool within a wetland prairie would get a point as this special habitat will provide most of its potential functions despite being small. The following list of habitat types is used to evaluate a reach for a 100 foot width along the reach.

8 or more habitats present	5 habitats present	3 habitats present	2 habitats present	No listed habitats present.
10	7	5	3	1

Percent cover of invasive plant species

RATING
2

Measure: Estimated percent cover of invasive plant species is a measure of terrestrial habitat integrity. Invasive vegetation reduces the functional habitat value of the riparian area by reducing desirable food, shelter and nesting habitat for native wildlife species and out-competing native plant species. Cover is estimated for the entire waterway reach for a total width of 100 ft (including one or both sides of the creek exclusive of the waterway itself.

<10% estimated invasive cover	10-25% estimated invasive cover	25 -75% estimated invasive cover	75-90% estimated invasive cover	>90% estimated invasive cover
10	7	5	3	1

Aquatic habitat structure

RATING
6

Measure: Aquatic habitat diversity is related directly to the quality of the habitat structure and can serve as a measure of aquatic habitat quality and potential biological diversity. This assessment element measures availability of physical habitat for fish. The potential for the maintenance of a healthy fish community and its ability to recover from disturbance is dependent on the variety and abundance of suitable habitat and cover available. The following list includes many of the major potential structural components of this habitat type. Evaluate each reach to identify if the component is present or not and score appropriately.

Habitat structure components:

- ☐ *Logs/large woody debris*: Fallen trees or parts of trees that provide structure and attachment for aquatic macroinvertebrates & hiding places for fish.
- ☐ *Deep pools*: Areas characterized by a smooth undisturbed surface, generally slow current, deep enough to provide protective cover for fish (75 to 100% deeper than the prevailing system depth).
- ☐ *Overhanging vegetation*: Trees, shrubs, vines, or perennial herbaceous vegetation that hangs over and covers the system surface, providing shade and cover.
- ☐ *Boulders/cobble*: Boulders are rounded stones more than 10 inches in diameter or large slabs more than 10 inches in length. Cobbles are stones between 2.5 and 10 inches in diameter.
- ☐ *Undercut banks:* Eroded areas extending horizontally beneath the surface of the bank forming underwater pockets used by fish for hiding and protection.
- ☐ *Thick root mats*: Dense mats of roots and rootlets (generally from trees) at or beneath the water surface forming structure for invertebrate attachment and fish cover.
- ☐ *Dense macrophyte beds*: Beds of emergent, floating leaf, or sub-merged aquatic vegetation thick enough to provide invertebrate attachment and fish cover.
- ☐ *Riffles:* Area characterized by broken water surface, rocky or firm substrate, moderate or swift current, and relatively shallow depth (usually less than 18 inches).
- ☐ *Isolated/backwater pools*: Areas disconnected from the main channel or connected as a "blind" side channel, characterized by a lack of flow except in periods of high water.

>7 cover types available	6 to 7 cover types available	4 to 5 cover types available	2 to 3 cover types available	None to 1 cover type available
10	8	5	3	1

Connectivity

RATING
6

Measure: Waterways are often important migration corridors for wildlife moving within the watershed. This is particularly true of urban areas where most of the landscape is developed or fragmented. For this characteristic check one selection from each of the three categories below. Use this information to quantitatively assess the functionality of the reach for wildlife travel.

☐ Wide (>30 ft on one side) well-connected riparian corridor
☐ Narrow (<30 feet on both sides) well-connected riparian corridor

☐ Continuous along entire reach
☐ Slightly fragmented by road crossings or passable barriers
☐ Substantially fragmented by unvegetated development or impassible barriers

☐ Forested canopy along majority of the reach
☐ Shrub canopy along majority of the reach
☐ Unmanaged prairie or meadow along majority of reach
☐ Mowed turf or manicured shrub along majority reach.

Corridor is wide and unbroken. Diversity of habitat provides good cover for a wide range of animals.	Corridor is slightly fragmented or narrow but provides substantial protection for animal movement.	Corridor is highly fragmented and narrow. It is mostly developed with little cover for animal movement.
10	5	1

Recreation Functions

Recreation values are evaluated in this section. The value that a waterway provides to the community as a recreational resource is important to consider as projects will be better supported by the community if recreational issues are addressed.

Public Access

RATING
2

Measure: This measure quantifies the percentage of the reach that is currently legally accessible to the public through existing easements or ownership. One point is given for each 10% incremental linear area along the waterway that is accessible to the public under current conditions either through ownership or easement. This measure does not account for the existence of paths or other facilities but only legal access.

100% of reach is currently accessible	60-70% of reach is currently accessible	40-50% of reach is currently accessible	20-30% of reach is currently accessible	10% or less of reach is currently accessible
10	7	5	3	1

Existing Facilities

RATING
3

Measure: This measure describes the existence of facilities that accommodate recreation. The measure emphasizes trails and parking lots as the primary recreational features quantified.

Free public parking is available and there is access to a paved bike path along the entire reach.	There is access along the entire reach on a paved bike path.	There is access along the entire reach on a dirt, bark or gravel footpath that is maintained as such.	There is access along only part of the reach on an established and maintained path.	There are no facilities along this reach.
10	7	5	3	1

Community Served Through Access

RATING
2

Measure: This measure attempts to capture the value that recreational facilities provide to the public. Some facilities will be more accessible than others or serve broader recreation goals. The measure quantifies the level of access that is provided to the community.

Recreational facilities are accessible to and serve regional interests	Recreational facilities are accessible to and serve community interests	Recreational facilities are accessible to and serve neighborhood interests	Recreational facilities are not easily accessible but do serve limited local interests	Recreational facilities are not easily accessible or do not serve a valued public interest
10	7	5	3	1

Waterway Name: **75th Street Channel** Date: 04/02/2007

Beginning At: **South Cedar Creek** Ending At: **Main Street**

Waterway Scoring Summary

75th Street Channel: South Cedar Creek – Main Street (R1 – R5)

Physical Assessment	Score	Possible Score	% of Total Pts
Physical Characteristics	2	10	
Channel Stability - BANKS	6	10	
Channel Stability -BEDS	4	10	
Sediment	4	10	
Physical Subtotal	***16***	***40***	***40%***
Water Quality Assessment			
Absorption and/or Filtration of Pollutants	4	10	
Aeration	3	10	
Shade/Temperature Moderation	4	10	
Channel Bank Integrity and Protection	4	10	
Water Quality Subtotal	***15***	***40***	***38%***
Natural Resource Assessment			
Riparian Width	4	10	
Habitat Diversity	3	10	
Percent Cover of Invasive Plant Species	2	10	
Aquatic Habitat Structure	3	10	
Wildlife Corridor Function	3	10	
Natural Resource Subtotal	***15***	***50***	***30%***
Recreation Facilities Assessment			
Public Access	2	10	
Existing Facilities	2	10	
Community Served Through Access	3	10	
Recreation Facilities Subtotal	***7***	***30***	***23%***
WATERWAY ASSESSMENT TOTAL SCORE	**53**	**160**	***33%***

Average from previous Assessment: **6.3 (Fair)**

PHYSICAL CONDITIONS

Channel Physical Characteristics: (Shape / Size)

RATING
2

Measure: Physical Characteristics will be measured against a natural healthy stream with balanced deposition and transport throughout a year. Channel type is a function of the Grade (steep grade straighter stream, flat grade, more sinuosity). Structural modifications should be an enhancement to the stream. While a channel may be an effective means to transport flows, it may be unable to accommodate other goals such as water quality, or habitat resource. Rate the reach for the ability to achieve multiple goals.

Natural Form Channel Type fits Grade, Minor or no modifications, capacity contained	Channel has some Natural form returning.	Closed or Lined channel No Natural features Creates ecological problems. Modifications are failing, needs attention. Flooding occurs.
10	5	1

Channel Stability:

RATING
6

Measure: Channel Stability - BANKS will be measured against a natural healthy stream with functional, stable banks. Vegetated with grasses, native shrubs and trees rate higher than invasive types due to their ability to root deeper and provide more strength. Natural stabilization will weigh higher than artificial methods such as concrete or rip rap lining. *Note bank profile from above.

Channel banks are in stable, well protected and vegetated condition.	Channel banks show sign of erosion, sloughing, cracking…	Channel banks seriously eroded; stream function impaired, needs immediate attention.
10	5	1

RATING
4

Measure: Channel Stability -BEDS will be measured against a natural healthy stream with functional, stable beds. Higher ratings will be given for natural formed beds with balanced deposition and transport. Lower ratings are given for incision, head cutting, or other eroding or flow preventive factors. *Note channel gradient from above.

Channel beds are stable provide deposition and transport	Channel bed shows signs of minor failures or erosion. Stream function is not altered	Channel bed seriously eroded and incised; stream function impaired, needs immediate attention.
10	5	1

Sediment:

RATING
4

Measure: Sediment can be an indicator of stability within the channel. Sediment source can be from outside the channel and potentially create stability problems. Rate known sediment values high when there is no indication of damming or starvation within the channel. Rate low when sediment deposition influences flows in a negative manner such as minimal sediment or over deposition creating damming.

Sediment quantities are stable. Provide balanced deposition and transport, creates good environmental conditions		Sediment values seem unbalanced. Stream function seems stable. Sediment problems during specific events.		Sediment volume is either heavy or non-existent. Bed and bank are altered because of extreme sediment conditions. Toxicity is present
10	7	5	3	1

Water Quality Function

Absorption and/or Filtration of Pollutants:

RATING
4

Measure: One measure of the water quality function of a channel segment is the ability to mitigate for toxics, heavy metals, hydrocarbons, and other suspended pollutants through absorption and filtration by aquatic vegetation. The more extensive the coverage of aquatic vegetation in the streambed that is in contact with stream flows during low flow conditions, the greater the amount of pollutants that will possibly be absorbed and/or filtered out. Channel segment is therefore rated on quantity and coverage of aquatic vegetation in streambed.

Streambed completely covered with aquatic vegetation in contact with water during low flow conditions.	>50% of streambed covered with aquatic vegetation in contact with water during low flow conditions	Isolated patches of aquatic vegetation in contact with water during low flow conditions	Streambed devoid of any aquatic vegetation
10	7	3	1

Aeration:

RATING
3

Measure: Low dissolved oxygen levels (DO) in local streams and flood channels during the summer and fall pose a serious threat to fish populations. DO levels in streams are influenced by many factors, only a few of which are associated with the physical or biological characteristics of the channel itself. One significant measure of the water quality function of a channel segment is whether it provides any source of aeration during low flow conditions. Riffles, splash pools, rock obstructions, drop structures and other features that introduce even minor turbulence during low flow conditions can help aerate the water and increase the DO levels. Channel segment is therefore rated on the number and type of features that introduce turbulence to stream flows.

Rocks and riffles in streambed >75% of channel length **and** multiple sources of other turbulence producing features	Rocks and riffles in streambed >33% of channel length **or** multiple sources of other turbulence producing features	Channel segment has at least one feature that produces significant turbulence during low flow conditions	Channel segment is devoid of any turbulence producing features
10	7	3	1

Shade/Temperature Moderation

RATING
4

Measure: Elevated water temperature is a significant water quality issue for our local waterways, especially in light of forthcoming TMDL temperature requirements for both the Willamette River and Amazon Creek. Stormwater runoff is in and of itself not considered a significant source of temperature pollution. Instead, it is the extent of solar exposure of the streambed which has the greatest thermal impact to in-stream flows. The extent and time-of-day of shade over the streambed is the primary measurement of the water quality function of a stream in terms of temperature moderation. Channel segment is therefore rated on the percent of shade covering the stream flows at midday.

Entire water area within channel segment is covered by shade at midday	<75% of water area within channel segment is covered by shade at midday	>25% of water area within channel segment is covered by shade at midday	No shade on water area at any time of day
10	7	3	1

Channel Bank Integrity and Protection

RATING
4

Measure: Turbidity resulting from stream bank erosion can be a significant water quality issue. Another measure of water quality function of a channel segment is how susceptible the banks are to the erosive forces of direct rainfall, high peak flows and overall flow volumes. The more rip rap, concrete or other solid material that armors the toe of the channel bank, the less soil is exposed to the erosive effects of rain and stream flows. Additionally, the more willows or other woody vegetation that are rooted at the toe and up the banks of a channel, the less likelihood there is of toe cutting and bank slumping. In each case, the water quality function is deemed to be higher where the likelihood of erosion and resulting turbidity is mitigated by armoring or woody vegetation. Channel segment is therefore rated on the type and extent of armoring or woody vegetation along the lower stream banks and at the toe of the channel banks.

No bare soil exposed to high flows, armoring or walled banks along both sides of entire channel segment	Woody vegetation along lower banks, rip rap armoring along toe of both banks	Grass slopes between high and low flow zones and either scattered woody vegetation along lower banks or else sporadic patches of toes armoring	Bare soil on banks, no toe armoring along either bank
10	7	3	1

Natural Resource Functions

Natural resource values are evaluated in this section. The value that a waterway provides to plants and wildlife are emphasized. Several natural resource elements are captured and four specific measures are used to provide a quantitative assessment of the natural resource values embodied in a given reach. The four quantitative assessments include: average riparian width, habitat diversity, percent cover of invasive plant species and aquatic habitat structure. These four components are not meant to be all inclusive of habitat values along a reach, but should serve as a surrogate to approximate important overarching attributes of the natural environment. Other important information captured in this assessment include most common invasive species, most common native species, presence of endangered or rare species or habitats, and migration corridor potential of the waterway.

Riparian Width

RATING
4

Measure: Average riparian width is used as a measure of terrestrial habitat size. Increasing habitat size relates to increased population sizes and increased biological diversity. Width is averaged along the entire reach and includes both banks of the waterway but is exclusive of the waterway itself.

Average width	>90 feet	81-90 feet	71-80 feet	61-70 feet	51-60 feet	41-50 feet	31-40 feet	21-30 feet	11-20 feet	0-10 feet
Score	10	9	8	7	6	5	4	3	2	1

Habitat diversity

RATING
3

Measure: A diversity of habitat types will support a broader array of species during a broader array of life stages. The number of different habitat types along a reach is used as a coarse measure of potential biological diversity. One point is given for each substantial habitat type. "Substantial" is a relative term but is meant to indicate that the habitat is serving in a functional capacity for wildlife. For example, a one foot wide linear strip of reed canary grass along the water's edge would **not** be counted as an "emergent habitat" as it would not likely provide "substantial" habitat value. However, a relatively small vernal pool within a wetland prairie would get a point as this special habitat will provide most of its potential functions despite being small. The following list of habitat types is used to evaluate a reach for a 100 foot width along the reach.

8 or more habitats present	5 habitats present	3 habitats present	2 habitats present	No listed habitats present.
10	7	5	3	1

Percent cover of invasive plant species

RATING
2

Measure: Estimated percent cover of invasive plant species is a measure of terrestrial habitat integrity. Invasive vegetation reduces the functional habitat value of the riparian area by reducing desirable food, shelter and nesting habitat for native wildlife species and out-competing native plant species. Cover is estimated for the entire waterway reach for a total width of 100 ft (including one or both sides of the creek exclusive of the waterway itself.

<10% estimated invasive cover	10-25% estimated invasive cover	25 -75% estimated invasive cover	75-90% estimated invasive cover	>90% estimated invasive cover
10	7	5	3	1

Aquatic habitat structure

RATING
3

Measure: Aquatic habitat diversity is related directly to the quality of the habitat structure and can serve as a measure of aquatic habitat quality and potential biological diversity. This assessment element measures availability of physical habitat for fish. The potential for the maintenance of a healthy fish community and its ability to recover from disturbance is dependent on the variety and abundance of suitable habitat and cover available. The following list includes many of the major potential structural components of this habitat type. Evaluate each reach to identify if the component is present or not and score appropriately.

Habitat structure components:

- ☐ *Logs/large woody debris*: Fallen trees or parts of trees that provide structure and attachment for aquatic macroinvertebrates & hiding places for fish.
- ☐ *Deep pools*: Areas characterized by a smooth undisturbed surface, generally slow current, deep enough to provide protective cover for fish (75 to 100% deeper than the prevailing system depth).
- ☐ *Overhanging vegetation*: Trees, shrubs, vines, or perennial herbaceous vegetation that hangs over and covers the system surface, providing shade and cover.
- ☐ *Boulders/cobble*: Boulders are rounded stones more than 10 inches in diameter or large slabs more than 10 inches in length. Cobbles are stones between 2.5 and 10 inches in diameter.
- ☐ *Undercut banks:* Eroded areas extending horizontally beneath the surface of the bank forming underwater pockets used by fish for hiding and protection.
- ☐ *Thick root mats*: Dense mats of roots and rootlets (generally from trees) at or beneath the water surface forming structure for invertebrate attachment and fish cover.
- ☐ *Dense macrophyte beds*: Beds of emergent, floating leaf, or sub-merged aquatic vegetation thick enough to provide invertebrate attachment and fish cover.
- ☐ *Riffles:* Area characterized by broken water surface, rocky or firm substrate, moderate or swift current, and relatively shallow depth (usually less than 18 inches).
- ☐ *Isolated/backwater pools*: Areas disconnected from the main channel or connected as a "blind" side channel, characterized by a lack of flow except in periods of high water.

>7 cover types available	6 to 7 cover types available	4 to 5 cover types available	2 to 3 cover types available	None to 1 cover type available
10	8	5	3	1

Connectivity

RATING
3

Measure: Waterways are often important migration corridors for wildlife moving within the watershed. This is particularly true of urban areas where most of the landscape is developed or fragmented. For this characteristic check one selection from each of the three categories below. Use this information to quantitatively assess the functionality of the reach for wildlife travel.

☐ Wide (>30 ft on one side) well-connected riparian corridor
☐ Narrow (<30 feet on both sides) well-connected riparian corridor

☐ Continuous along entire reach
☐ Slightly fragmented by road crossings or passable barriers
☐ Substantially fragmented by unvegetated development or impassible barriers

☐ Forested canopy along majority of the reach
☐ Shrub canopy along majority of the reach
☐ Unmanaged prairie or meadow along majority of reach
☐ Mowed turf or manicured shrub along majority reach.

Corridor is wide and unbroken. Diversity of habitat provides good cover for a wide range of animals.	Corridor is slightly fragmented or narrow but provides substantial protection for animal movement.	Corridor is highly fragmented and narrow. It is mostly developed with little cover for animal movement.
10	5	1

Recreation Functions

Recreation values are evaluated in this section. The value that a waterway provides to the community as a recreational resource is important to consider as projects will be better supported by the community if recreational issues are addressed.

Public Access

RATING
2

Measure: This measure quantifies the percentage of the reach that is currently legally accessible to the public through existing easements or ownership. One point is given for each 10% incremental linear area along the waterway that is accessible to the public under current conditions either through ownership or easement. This measure does not account for the existence of paths or other facilities but only legal access.

100% of reach is currently accessible	60-70% of reach is currently accessible	40-50% of reach is currently accessible	20-30% of reach is currently accessible	10% or less of reach is currently accessible
10	7	5	3	1

Existing Facilities

RATING
2

Measure: This measure describes the existence of facilities that accommodate recreation. The measure emphasizes trails and parking lots as the primary recreational features quantified.

Free public parking is available and there is access to a paved bike path along the entire reach.	There is access along the entire reach on a paved bike path.	There is access along the entire reach on a dirt, bark or gravel footpath that is maintained as such.	There is access along only part of the reach on an established and maintained path.	There are no facilities along this reach.
10	7	5	3	1

Community Served Through Access

RATING
3

Measure: This measure attempts to capture the value that recreational facilities provide to the public. Some facilities will be more accessible than others or serve broader recreation goals. The measure quantifies the level of access that is provided to the community.

Recreational facilities are accessible to and serve regional interests	Recreational facilities are accessible to and serve community interests	Recreational facilities are accessible to and serve neighborhood interests	Recreational facilities are not easily accessible but do serve limited local interests	Recreational facilities are not easily accessible or do not serve a valued public interest
10	7	5	3	1

Waterway Name: **South Cedar Creek** Date: 04/02/2007

Beginning At: **Lively Park** Ending At: **Mouth**

Waterway Scoring Summary

South Cedar Creek: Lively Park - Mouth (R1 – R11)

Physical Assessment	Score	Possible Score	% of Total Pts
Physical Characteristics	7	10	
Channel Stability - BANKS	6	10	
Channel Stability -BEDS	5	10	
Sediment	6	10	
Physical Subtotal	***24***	***40***	***60%***
Water Quality Assessment			
Absorption and/or Filtration of Pollutants	6	10	
Aeration	4	10	
Shade/Temperature Moderation	4	10	
Channel Bank Integrity and Protection	5	10	
Water Quality Subtotal	***19***	***40***	***48%***
Natural Resource Assessment			
Riparian Width	4	10	
Habitat Diversity	6	10	
Percent Cover of Invasive Plant Species	8	10	
Aquatic Habitat Structure	5	10	
Wildlife Corridor Function	4	10	
Natural Resource Subtotal	***27***	***50***	***54%***
Recreation Facilities Assessment			
Public Access	3	10	
Existing Facilities	3	10	
Community Served Through Access	4	10	
Recreation Facilities Subtotal	***10***	***30***	***33%***
WATERWAY ASSESSMENT TOTAL SCORE	**80**	**160**	***50%***

Average from previous Assessment: **6.0 (Poor)**

PHYSICAL CONDITIONS

Channel Physical Characteristics: (Shape / Size)

RATING
7

Measure: Physical Characteristics will be measured against a natural healthy stream with balanced deposition and transport throughout a year. Channel type is a function of the Grade (steep grade straighter stream, flat grade, more sinuosity). Structural modifications should be an enhancement to the stream. While a channel may be an effective means to transport flows, it may be unable to accommodate other goals such as water quality, or habitat resource. Rate the reach for the ability to achieve multiple goals.

Natural Form Channel Type fits Grade, Minor or no modifications, capacity contained	Channel has some Natural form returning.	Closed or Lined channel No Natural features Creates ecological problems. Modifications are failing, needs attention. Flooding occurs.
10	5	1

Channel Stability:

RATING
6

Measure: Channel Stability - BANKS will be measured against a natural healthy stream with functional, stable banks. Vegetated with grasses, native shrubs and trees rate higher than invasive types due to their ability to root deeper and provide more strength. Natural stabilization will weigh higher than artificial methods such as concrete or rip rap lining. *Note bank profile from above.

Channel banks are in stable, well protected and vegetated condition.	Channel banks show sign of erosion, sloughing, cracking…	Channel banks seriously eroded; stream function impaired, needs immediate attention.
10	5	1

RATING
5

Measure: Channel Stability -BEDS will be measured against a natural healthy stream with functional, stable beds. Higher ratings will be given for natural formed beds with balanced deposition and transport. Lower ratings are given for incision, head cutting, or other eroding or flow preventive factors. *Note channel gradient from above.

Channel beds are stable provide deposition and transport	Channel bed shows signs of minor failures or erosion. Stream function is not altered	Channel bed seriously eroded and incised; stream function impaired, needs immediate attention.
10	5	1

Sediment:

RATING
6

Measure: Sediment can be an indicator of stability within the channel. Sediment source can be from outside the channel and potentially create stability problems. Rate known sediment values high when there is no indication of damming or starvation within the channel. Rate low when sediment deposition influences flows in a negative manner such as minimal sediment or over deposition creating damming.

Sediment quantities are stable. Provide balanced deposition and transport, creates good environmental conditions		Sediment values seem unbalanced. Stream function seems stable. Sediment problems during specific events.		Sediment volume is either heavy or non-existent. Bed and bank are altered because of extreme sediment conditions. Toxicity is present
10	7	5	3	1

Water Quality Function

Absorption and/or Filtration of Pollutants:

RATING
6

Measure: One measure of the water quality function of a channel segment is the ability to mitigate for toxics, heavy metals, hydrocarbons, and other suspended pollutants through absorption and filtration by aquatic vegetation. The more extensive the coverage of aquatic vegetation in the streambed that is in contact with stream flows during low flow conditions, the greater the amount of pollutants that will possibly be absorbed and/or filtered out. Channel segment is therefore rated on quantity and coverage of aquatic vegetation in streambed.

Streambed completely covered with aquatic vegetation in contact with water during low flow conditions.	>50% of streambed covered with aquatic vegetation in contact with water during low flow conditions	Isolated patches of aquatic vegetation in contact with water during low flow conditions	Streambed devoid of any aquatic vegetation
10	7	3	1

Aeration:

RATING
4

Measure: Low dissolved oxygen levels (DO) in local streams and flood channels during the summer and fall pose a serious threat to fish populations. DO levels in streams are influenced by many factors, only a few of which are associated with the physical or biological characteristics of the channel itself. One significant measure of the water quality function of a channel segment is whether it provides any source of aeration during low flow conditions. Riffles, splash pools, rock obstructions, drop structures and other features that introduce even minor turbulence during low flow conditions can help aerate the water and increase the DO levels. Channel segment is therefore rated on the number and type of features that introduce turbulence to stream flows.

Rocks and riffles in streambed >75% of channel length **and** multiple sources of other turbulence producing features	Rocks and riffles in streambed >33% of channel length **or** multiple sources of other turbulence producing features	Channel segment has at least one feature that produces significant turbulence during low flow conditions	Channel segment is devoid of any turbulence producing features
10	7	3	1

Shade/Temperature Moderation

RATING
4

Measure: Elevated water temperature is a significant water quality issue for our local waterways, especially in light of forthcoming TMDL temperature requirements for both the Willamette River and Amazon Creek. Stormwater runoff is in and of itself not considered a significant source of temperature pollution. Instead, it is the extent of solar exposure of the streambed which has the greatest thermal impact to in-stream flows. The extent and time-of-day of shade over the streambed is the primary measurement of the water quality function of a stream in terms of temperature moderation. Channel segment is therefore rated on the percent of shade covering the stream flows at midday.

Entire water area within channel segment is covered by shade at midday	<75% of water area within channel segment is covered by shade at midday	>25% of water area within channel segment is covered by shade at midday	No shade on water area at any time of day
10	7	3	1

Channel Bank Integrity and Protection

RATING
5

Measure: Turbidity resulting from stream bank erosion can be a significant water quality issue. Another measure of water quality function of a channel segment is how susceptible the banks are to the erosive forces of direct rainfall, high peak flows and overall flow volumes. The more rip rap, concrete or other solid material that armors the toe of the channel bank, the less soil is exposed to the erosive effects of rain and stream flows. Additionally, the more willows or other woody vegetation that are rooted at the toe and up the banks of a channel, the less likelihood there is of toe cutting and bank slumping. In each case, the water quality function is deemed to be higher where the likelihood of erosion and resulting turbidity is mitigated by armoring or woody vegetation. Channel segment is therefore rated on the type and extent of armoring or woody vegetation along the lower stream banks and at the toe of the channel banks.

No bare soil exposed to high flows, armoring or walled banks along both sides of entire channel segment	Woody vegetation along lower banks, rip rap armoring along toe of both banks	Grass slopes between high and low flow zones and either scattered woody vegetation along lower banks or else sporadic patches of toes armoring	Bare soil on banks, no toe armoring along either bank
10	7	3	1

Natural Resource Functions

Natural resource values are evaluated in this section. The value that a waterway provides to plants and wildlife are emphasized. Several natural resource elements are captured and four specific measures are used to provide a quantitative assessment of the natural resource values embodied in a given reach. The four quantitative assessments include: average riparian width, habitat diversity, percent cover of invasive plant species and aquatic habitat structure. These four components are not meant to be all inclusive of habitat values along a reach, but should serve as a surrogate to approximate important overarching attributes of the natural environment. Other important information captured in this assessment include most common invasive species, most common native species, presence of endangered or rare species or habitats, and migration corridor potential of the waterway.

Riparian Width

RATING
4

Measure: Average riparian width is used as a measure of terrestrial habitat size. Increasing habitat size relates to increased population sizes and increased biological diversity. Width is averaged along the entire reach and includes both banks of the waterway but is exclusive of the waterway itself.

Average width	>90 feet	81-90 feet	71-80 feet	61-70 feet	51-60 feet	41-50 feet	31-40 feet	21-30 feet	11-20 feet	0-10 feet
Score	10	9	8	7	6	5	4	3	2	1

Habitat diversity

RATING
6

Measure: A diversity of habitat types will support a broader array of species during a broader array of life stages. The number of different habitat types along a reach is used as a coarse measure of potential biological diversity. One point is given for each substantial habitat type. "Substantial" is a relative term but is meant to indicate that the habitat is serving in a functional capacity for wildlife. For example, a one foot wide linear strip of reed canary grass along the water's edge would **not** be counted as an "emergent habitat" as it would not likely provide "substantial" habitat value. However, a relatively small vernal pool within a wetland prairie would get a point as this special habitat will provide most of its potential functions despite being small. The following list of habitat types is used to evaluate a reach for a 100 foot width along the reach.

8 or more habitats present	5 habitats present	3 habitats present	2 habitats present	No listed habitats present.
10	7	5	3	1

Percent cover of invasive plant species

RATING
8

Measure: Estimated percent cover of invasive plant species is a measure of terrestrial habitat integrity. Invasive vegetation reduces the functional habitat value of the riparian area by reducing desirable food, shelter and nesting habitat for native wildlife species and out-competing native plant species. Cover is estimated for the entire waterway reach for a total width of 100 ft (including one or both sides of the creek exclusive of the waterway itself.

<10% estimated invasive cover	10-25% estimated invasive cover	25 -75% estimated invasive cover	75-90% estimated invasive cover	>90% estimated invasive cover
10	7	5	3	1

Aquatic habitat structure

RATING
5

Measure: Aquatic habitat diversity is related directly to the quality of the habitat structure and can serve as a measure of aquatic habitat quality and potential biological diversity. This assessment element measures availability of physical habitat for fish. The potential for the maintenance of a healthy fish community and its ability to recover from disturbance is dependent on the variety and abundance of suitable habitat and cover available. The following list includes many of the major potential structural components of this habitat type. Evaluate each reach to identify if the component is present or not and score appropriately.

Habitat structure components:

- ☐ *Logs/large woody debris*: Fallen trees or parts of trees that provide structure and attachment for aquatic macroinvertebrates & hiding places for fish.
- ☐ *Deep pools*: Areas characterized by a smooth undisturbed surface, generally slow current, deep enough to provide protective cover for fish (75 to 100% deeper than the prevailing system depth).
- ☐ *Overhanging vegetation*: Trees, shrubs, vines, or perennial herbaceous vegetation that hangs over and covers the system surface, providing shade and cover.
- ☐ *Boulders/cobble*: Boulders are rounded stones more than 10 inches in diameter or large slabs more than 10 inches in length. Cobbles are stones between 2.5 and 10 inches in diameter.
- ☐ *Undercut banks:* Eroded areas extending horizontally beneath the surface of the bank forming underwater pockets used by fish for hiding and protection.
- ☐ *Thick root mats*: Dense mats of roots and rootlets (generally from trees) at or beneath the water surface forming structure for invertebrate attachment and fish cover.
- ☐ *Dense macrophyte beds*: Beds of emergent, floating leaf, or sub-merged aquatic vegetation thick enough to provide invertebrate attachment and fish cover.
- ☐ *Riffles:* Area characterized by broken water surface, rocky or firm substrate, moderate or swift current, and relatively shallow depth (usually less than 18 inches).
- ☐ *Isolated/backwater pools*: Areas disconnected from the main channel or connected as a "blind" side channel, characterized by a lack of flow except in periods of high water.

>7 cover types available	6 to 7 cover types available	4 to 5 cover types available	2 to 3 cover types available	None to 1 cover type available
10	8	5	3	1

Connectivity

RATING
4

Measure: Waterways are often important migration corridors for wildlife moving within the watershed. This is particularly true of urban areas where most of the landscape is developed or fragmented. For this characteristic check one selection from each of the three categories below. Use this information to quantitatively assess the functionality of the reach for wildlife travel.

☐ Wide (>30 ft on one side) well-connected riparian corridor
☐ Narrow (<30 feet on both sides) well-connected riparian corridor

☐ Continuous along entire reach
☐ Slightly fragmented by road crossings or passable barriers
☐ Substantially fragmented by unvegetated development or impassible barriers

☐ Forested canopy along majority of the reach
☐ Shrub canopy along majority of the reach
☐ Unmanaged prairie or meadow along majority of reach
☐ Mowed turf or manicured shrub along majority reach.

Corridor is wide and unbroken. Diversity of habitat provides good cover for a wide range of animals.	Corridor is slightly fragmented or narrow but provides substantial protection for animal movement.	Corridor is highly fragmented and narrow. It is mostly developed with little cover for animal movement.
10	5	1

Recreation Functions

Recreation values are evaluated in this section. The value that a waterway provides to the community as a recreational resource is important to consider as projects will be better supported by the community if recreational issues are addressed.

Public Access

RATING
3

Measure: This measure quantifies the percentage of the reach that is currently legally accessible to the public through existing easements or ownership. One point is given for each 10% incremental linear area along the waterway that is accessible to the public under current conditions either through ownership or easement. This measure does not account for the existence of paths or other facilities but only legal access.

100% of reach is currently accessible	60-70% of reach is currently accessible	40-50% of reach is currently accessible	20-30% of reach is currently accessible	10% or less of reach is currently accessible
10	7	5	3	1

Existing Facilities

RATING
3

Measure: This measure describes the existence of facilities that accommodate recreation. The measure emphasizes trails and parking lots as the primary recreational features quantified.

Free public parking is available and there is access to a paved bike path along the entire reach.	There is access along the entire reach on a paved bike path.	There is access along the entire reach on a dirt, bark or gravel footpath that is maintained as such.	There is access along only part of the reach on an established and maintained path.	There are no facilities along this reach.
10	7	5	3	1

Community Served Through Access

RATING
4

Measure: This measure attempts to capture the value that recreational facilities provide to the public. Some facilities will be more accessible than others or serve broader recreation goals. The measure quantifies the level of access that is provided to the community.

Recreational facilities are accessible to and serve regional interests	Recreational facilities are accessible to and serve community interests	Recreational facilities are accessible to and serve neighborhood interests	Recreational facilities are not easily accessible but do serve limited local interests	Recreational facilities are not easily accessible or do not serve a valued public interest
10	7	5	3	1

Waterway Name: **72nd Street Channel** Date: 04/02/2007

Beginning At: **Confluence with S. Cedar Creek** Ending At: **End of Channel**

Waterway Scoring Summary

72nd Street Channel: Confluence with S. Cedar Creek – End of Channel (New)

Physical Characteristics	4	10	
Channel Stability - BANKS	6	10	
Channel Stability -BEDS	4	10	
Sediment	5	10	
Physical Subtotal	***19***	***40***	***48%***
Water Quality Assessment			
Absorption and/or Filtration of Pollutants	3	10	
Aeration	5	10	
Shade/Temperature Moderation	6	10	
Channel Bank Integrity and Protection	3	10	
Water Quality Subtotal	***17***	***40***	***43%***
Natural Resource Assessment			
Riparian Width	3	10	
Habitat Diversity	2	10	
Percent Cover of Invasive Plant Species	4	10	
Aquatic Habitat Structure	2	10	
Wildlife Corridor Function	1	10	
Natural Resource Subtotal	***12***	***50***	***24%***
Recreation Facilities Assessment			
Public Access	8	10	
Existing Facilities	4	10	
Community Served Through Access	5	10	
Recreation Facilities Subtotal	***17***	***30***	***57%***
WATERWAY ASSESSMENT TOTAL SCORE	**65**	**160**	***41%***

Average from previous Assessment: **N/A**

PHYSICAL CONDITIONS

Channel Physical Characteristics: (Shape / Size)

RATING
4

Measure: Physical Characteristics will be measured against a natural healthy stream with balanced deposition and transport throughout a year. Channel type is a function of the Grade (steep grade straighter stream, flat grade, more sinuosity). Structural modifications should be an enhancement to the stream. While a channel may be an effective means to transport flows, it may be unable to accommodate other goals such as water quality, or habitat resource. Rate the reach for the ability to achieve multiple goals.

Natural Form Channel Type fits Grade, Minor or no modifications, capacity contained	Channel has some Natural form returning.	Closed or Lined channel No Natural features Creates ecological problems. Modifications are failing, needs attention. Flooding occurs.
10	5	1

Channel Stability:

RATING
6

Measure: Channel Stability - BANKS will be measured against a natural healthy stream with functional, stable banks. Vegetated with grasses, native shrubs and trees rate higher than invasive types due to their ability to root deeper and provide more strength. Natural stabilization will weigh higher than artificial methods such as concrete or rip rap lining. *Note bank profile from above.

Channel banks are in stable, well protected and vegetated condition.	Channel banks show sign of erosion, sloughing, cracking…	Channel banks seriously eroded; stream function impaired, needs immediate attention.
10	5	1

RATING
4

Measure: Channel Stability -BEDS will be measured against a natural healthy stream with functional, stable beds. Higher ratings will be given for natural formed beds with balanced deposition and transport. Lower ratings are given for incision, head cutting, or other eroding or flow preventive factors. *Note channel gradient from above.

Channel beds are stable provide deposition and transport	Channel bed shows signs of minor failures or erosion. Stream function is not altered	Channel bed seriously eroded and incised; stream function impaired, needs immediate attention.
10	5	1

Sediment:

RATING
5

Measure: Sediment can be an indicator of stability within the channel. Sediment source can be from outside the channel and potentially create stability problems. Rate known sediment values high when there is no indication of damming or starvation within the channel. Rate low when sediment deposition influences flows in a negative manner such as minimal sediment or over deposition creating damming.

Sediment quantities are stable. Provide balanced deposition and transport, creates good environmental conditions		Sediment values seem unbalanced. Stream function seems stable. Sediment problems during specific events.		Sediment volume is either heavy or non-existent. Bed and bank are altered because of extreme sediment conditions. Toxicity is present
10	7	5	3	1

Water Quality Function

Absorption and/or Filtration of Pollutants:

RATING
3

Measure: One measure of the water quality function of a channel segment is the ability to mitigate for toxics, heavy metals, hydrocarbons, and other suspended pollutants through absorption and filtration by aquatic vegetation. The more extensive the coverage of aquatic vegetation in the streambed that is in contact with stream flows during low flow conditions, the greater the amount of pollutants that will possibly be absorbed and/or filtered out. Channel segment is therefore rated on quantity and coverage of aquatic vegetation in streambed.

Streambed completely covered with aquatic vegetation in contact with water during low flow conditions.	>50% of streambed covered with aquatic vegetation in contact with water during low flow conditions	Isolated patches of aquatic vegetation in contact with water during low flow conditions	Streambed devoid of any aquatic vegetation
10	7	3	1

Aeration:

RATING
5

Measure: Low dissolved oxygen levels (DO) in local streams and flood channels during the summer and fall pose a serious threat to fish populations. DO levels in streams are influenced by many factors, only a few of which are associated with the physical or biological characteristics of the channel itself. One significant measure of the water quality function of a channel segment is whether it provides any source of aeration during low flow conditions. Riffles, splash pools, rock obstructions, drop structures and other features that introduce even minor turbulence during low flow conditions can help aerate the water and increase the DO levels. Channel segment is therefore rated on the number and type of features that introduce turbulence to stream flows.

Rocks and riffles in streambed >75% of channel length **and** multiple sources of other turbulence producing features	Rocks and riffles in streambed >33% of channel length **or** multiple sources of other turbulence producing features	Channel segment has at least one feature that produces significant turbulence during low flow conditions	Channel segment is devoid of any turbulence producing features
10	7	3	1

Shade/Temperature Moderation

RATING
6

Measure: Elevated water temperature is a significant water quality issue for our local waterways, especially in light of forthcoming TMDL temperature requirements for both the Willamette River and Amazon Creek. Stormwater runoff is in and of itself not considered a significant source of temperature pollution. Instead, it is the extent of solar exposure of the streambed which has the greatest thermal impact to in-stream flows. The extent and time-of-day of shade over the streambed is the primary measurement of the water quality function of a stream in terms of temperature moderation. Channel segment is therefore rated on the percent of shade covering the stream flows at midday.

Entire water area within channel segment is covered by shade at midday	<75% of water area within channel segment is covered by shade at midday	>25% of water area within channel segment is covered by shade at midday	No shade on water area at any time of day
10	7	3	1

Channel Bank Integrity and Protection

RATING
3

Measure: Turbidity resulting from stream bank erosion can be a significant water quality issue. Another measure of water quality function of a channel segment is how susceptible the banks are to the erosive forces of direct rainfall, high peak flows and overall flow volumes. The more rip rap, concrete or other solid material that armors the toe of the channel bank, the less soil is exposed to the erosive effects of rain and stream flows. Additionally, the more willows or other woody vegetation that are rooted at the toe and up the banks of a channel, the less likelihood there is of toe cutting and bank slumping. In each case, the water quality function is deemed to be higher where the likelihood of erosion and resulting turbidity is mitigated by armoring or woody vegetation. Channel segment is therefore rated on the type and extent of armoring or woody vegetation along the lower stream banks and at the toe of the channel banks.

No bare soil exposed to high flows, armoring or walled banks along both sides of entire channel segment	Woody vegetation along lower banks, rip rap armoring along toe of both banks	Grass slopes between high and low flow zones and either scattered woody vegetation along lower banks or else sporadic patches of toes armoring	Bare soil on banks, no toe armoring along either bank
10	7	3	1

Natural Resource Functions

Natural resource values are evaluated in this section. The value that a waterway provides to plants and wildlife are emphasized. Several natural resource elements are captured and four specific measures are used to provide a quantitative assessment of the natural resource values embodied in a given reach. The four quantitative assessments include: average riparian width, habitat diversity, percent cover of invasive plant species and aquatic habitat structure. These four components are not meant to be all inclusive of habitat values along a reach, but should serve as a surrogate to approximate important overarching attributes of the natural environment. Other important information captured in this assessment include most common invasive species, most common native species, presence of endangered or rare species or habitats, and migration corridor potential of the waterway.

Riparian Width

RATING
3

Measure: Average riparian width is used as a measure of terrestrial habitat size. Increasing habitat size relates to increased population sizes and increased biological diversity. Width is averaged along the entire reach and includes both banks of the waterway but is exclusive of the waterway itself.

Average width	>90 feet	81-90 feet	71-80 feet	61-70 feet	51-60 feet	41-50 feet	31-40 feet	21-30 feet	11-20 feet	0-10 feet
Score	10	9	8	7	6	5	4	3	2	1

Habitat diversity

RATING
2

Measure: A diversity of habitat types will support a broader array of species during a broader array of life stages. The number of different habitat types along a reach is used as a coarse measure of potential biological diversity. One point is given for each substantial habitat type. "Substantial" is a relative term but is meant to indicate that the habitat is serving in a functional capacity for wildlife. For example, a one foot wide linear strip of reed canary grass along the water's edge would **not** be counted as an "emergent habitat" as it would not likely provide "substantial" habitat value. However, a relatively small vernal pool within a wetland prairie would get a point as this special habitat will provide most of its potential functions despite being small. The following list of habitat types is used to evaluate a reach for a 100 foot width along the reach.

8 or more habitats present	5 habitats present	3 habitats present	2 habitats present	No listed habitats present.
10	7	5	3	1

Percent cover of invasive plant species

RATING
4

Measure: Estimated percent cover of invasive plant species is a measure of terrestrial habitat integrity. Invasive vegetation reduces the functional habitat value of the riparian area by reducing desirable food, shelter and nesting habitat for native wildlife species and out-competing native plant species. Cover is estimated for the entire waterway reach for a total width of 100 ft (including one or both sides of the creek exclusive of the waterway itself.

<10% estimated invasive cover	10-25% estimated invasive cover	25 -75% estimated invasive cover	75-90% estimated invasive cover	>90% estimated invasive cover
10	7	5	3	1

Aquatic habitat structure

RATING
2

Measure: Aquatic habitat diversity is related directly to the quality of the habitat structure and can serve as a measure of aquatic habitat quality and potential biological diversity. This assessment element measures availability of physical habitat for fish. The potential for the maintenance of a healthy fish community and its ability to recover from disturbance is dependent on the variety and abundance of suitable habitat and cover available. The following list includes many of the major potential structural components of this habitat type. Evaluate each reach to identify if the component is present or not and score appropriately.

Habitat structure components:

- ☐ *Logs/large woody debris*: Fallen trees or parts of trees that provide structure and attachment for aquatic macroinvertebrates & hiding places for fish.
- ☐ *Deep pools*: Areas characterized by a smooth undisturbed surface, generally slow current, deep enough to provide protective cover for fish (75 to 100% deeper than the prevailing system depth).
- ☐ *Overhanging vegetation*: Trees, shrubs, vines, or perennial herbaceous vegetation that hangs over and covers the system surface, providing shade and cover.
- ☐ *Boulders/cobble*: Boulders are rounded stones more than 10 inches in diameter or large slabs more than 10 inches in length. Cobbles are stones between 2.5 and 10 inches in diameter.
- ☐ *Undercut banks:* Eroded areas extending horizontally beneath the surface of the bank forming underwater pockets used by fish for hiding and protection.
- ☐ *Thick root mats*: Dense mats of roots and rootlets (generally from trees) at or beneath the water surface forming structure for invertebrate attachment and fish cover.
- ☐ *Dense macrophyte beds*: Beds of emergent, floating leaf, or sub-merged aquatic vegetation thick enough to provide invertebrate attachment and fish cover.
- ☐ *Riffles:* Area characterized by broken water surface, rocky or firm substrate, moderate or swift current, and relatively shallow depth (usually less than 18 inches).
- ☐ *Isolated/backwater pools*: Areas disconnected from the main channel or connected as a "blind" side channel, characterized by a lack of flow except in periods of high water.

>7 cover types available	6 to 7 cover types available	4 to 5 cover types available	2 to 3 cover types available	None to 1 cover type available
10	8	5	3	1

Connectivity

RATING
1

Measure: Waterways are often important migration corridors for wildlife moving within the watershed. This is particularly true of urban areas where most of the landscape is developed or fragmented. For this characteristic check one selection from each of the three categories below. Use this information to quantitatively assess the functionality of the reach for wildlife travel.

☐ Wide (>30 ft on one side) well-connected riparian corridor
☐ Narrow (<30 feet on both sides) well-connected riparian corridor

☐ Continuous along entire reach
☐ Slightly fragmented by road crossings or passable barriers
☐ Substantially fragmented by unvegetated development or impassible barriers

☐ Forested canopy along majority of the reach
☐ Shrub canopy along majority of the reach
☐ Unmanaged prairie or meadow along majority of reach
☐ Mowed turf or manicured shrub along majority reach.

Corridor is wide and unbroken. Diversity of habitat provides good cover for a wide range of animals.	Corridor is slightly fragmented or narrow but provides substantial protection for animal movement.	Corridor is highly fragmented and narrow. It is mostly developed with little cover for animal movement.
10	5	1

Recreation Functions

Recreation values are evaluated in this section. The value that a waterway provides to the community as a recreational resource is important to consider as projects will be better supported by the community if recreational issues are addressed.

Public Access

RATING
8

Measure: This measure quantifies the percentage of the reach that is currently legally accessible to the public through existing easements or ownership. One point is given for each 10% incremental linear area along the waterway that is accessible to the public under current conditions either through ownership or easement. This measure does not account for the existence of paths or other facilities but only legal access.

100% of reach is currently accessible	60-70% of reach is currently accessible	40-50% of reach is currently accessible	20-30% of reach is currently accessible	10% or less of reach is currently accessible
10	7	5	3	1

Existing Facilities

RATING
4

Measure: This measure describes the existence of facilities that accommodate recreation. The measure emphasizes trails and parking lots as the primary recreational features quantified.

Free public parking is available and there is access to a paved bike path along the entire reach.	There is access along the entire reach on a paved bike path.	There is access along the entire reach on a dirt, bark or gravel footpath that is maintained as such.	There is access along only part of the reach on an established and maintained path.	There are no facilities along this reach.
10	7	5	3	1

Community Served Through Access

RATING
5

Measure: This measure attempts to capture the value that recreational facilities provide to the public. Some facilities will be more accessible than others or serve broader recreation goals. The measure quantifies the level of access that is provided to the community.

Recreational facilities are accessible to and serve regional interests	Recreational facilities are accessible to and serve community interests	Recreational facilities are accessible to and serve neighborhood interests	Recreational facilities are not easily accessible but do serve limited local interests	Recreational facilities are not easily accessible or do not serve a valued public interest
10	7	5	3	1

Waterway Name: **69th Street Channel** Date: 04/02/2007

Beginning At: **Confluence with S. Cedar Creek** Ending At: **End of Channel**

Waterway Scoring Summary

69th Street Channel: Confluence with S. Cedar creek – End of Channel (New)

Physical Assessment	Score	Possible Score	% of Total Pts
Physical Characteristics	2	10	
Channel Stability - BANKS	6	10	
Channel Stability -BEDS	3	10	
Sediment	3	10	
Physical Subtotal	***14***	***40***	***35%***
Water Quality Assessment			
Absorption and/or Filtration of Pollutants	4	10	
Aeration	2	10	
Shade/Temperature Moderation	2	10	
Channel Bank Integrity and Protection	3	10	
Water Quality Subtotal	***11***	***40***	***28%***
Natural Resource Assessment			
Riparian Width	2	10	
Habitat Diversity	2	10	
Percent Cover of Invasive Plant Species	4	10	
Aquatic Habitat Structure	2	10	
Wildlife Corridor Function	1	10	
Natural Resource Subtotal	***11***	***50***	***22%***
Recreation Facilities Assessment			
Public Access	7	10	
Existing Facilities	4	10	
Community Served Through Access	4	10	
Recreation Facilities Subtotal	***15***	***30***	***50%***
WATERWAY ASSESSMENT TOTAL SCORE	**51**	**160**	***32%***

Average from previous Assessment: **N/A**

PHYSICAL CONDITIONS

Channel Physical Characteristics: (Shape / Size)

RATING
2

Measure: Physical Characteristics will be measured against a natural healthy stream with balanced deposition and transport throughout a year. Channel type is a function of the Grade (steep grade straighter stream, flat grade, more sinuosity). Structural modifications should be an enhancement to the stream. While a channel may be an effective means to transport flows, it may be unable to accommodate other goals such as water quality, or habitat resource. Rate the reach for the ability to achieve multiple goals.

Natural Form Channel Type fits Grade, Minor or no modifications, capacity contained	Channel has some Natural form returning.	Closed or Lined channel No Natural features Creates ecological problems. Modifications are failing, needs attention. Flooding occurs.
10	5	1

Channel Stability:

RATING
6

Measure: Channel Stability - BANKS will be measured against a natural healthy stream with functional, stable banks. Vegetated with grasses, native shrubs and trees rate higher than invasive types due to their ability to root deeper and provide more strength. Natural stabilization will weigh higher than artificial methods such as concrete or rip rap lining. *Note bank profile from above.

Channel banks are in stable, well protected and vegetated condition.	Channel banks show sign of erosion, sloughing, cracking…	Channel banks seriously eroded; stream function impaired, needs immediate attention.
10	5	1

RATING
3

Measure: Channel Stability -BEDS will be measured against a natural healthy stream with functional, stable beds. Higher ratings will be given for natural formed beds with balanced deposition and transport. Lower ratings are given for incision, head cutting, or other eroding or flow preventive factors. *Note channel gradient from above.

Channel beds are stable provide deposition and transport	Channel bed shows signs of minor failures or erosion. Stream function is not altered	Channel bed seriously eroded and incised; stream function impaired, needs immediate attention.
10	5	1

Sediment:

RATING
3

Measure: Sediment can be an indicator of stability within the channel. Sediment source can be from outside the channel and potentially create stability problems. Rate known sediment values high when there is no indication of damming or starvation within the channel. Rate low when sediment deposition influences flows in a negative manner such as minimal sediment or over deposition creating damming.

Sediment quantities are stable. Provide balanced deposition and transport, creates good environmental conditions		Sediment values seem unbalanced. Stream function seems stable. Sediment problems during specific events.		Sediment volume is either heavy or non-existent. Bed and bank are altered because of extreme sediment conditions. Toxicity is present
10	7	5	3	1

Water Quality Function

Absorption and/or Filtration of Pollutants:

RATING
4

Measure: One measure of the water quality function of a channel segment is the ability to mitigate for toxics, heavy metals, hydrocarbons, and other suspended pollutants through absorption and filtration by aquatic vegetation. The more extensive the coverage of aquatic vegetation in the streambed that is in contact with stream flows during low flow conditions, the greater the amount of pollutants that will possibly be absorbed and/or filtered out. Channel segment is therefore rated on quantity and coverage of aquatic vegetation in streambed.

Streambed completely covered with aquatic vegetation in contact with water during low flow conditions.	>50% of streambed covered with aquatic vegetation in contact with water during low flow conditions	Isolated patches of aquatic vegetation in contact with water during low flow conditions	Streambed devoid of any aquatic vegetation
10	7	3	1

Aeration:

RATING
2

Measure: Low dissolved oxygen levels (DO) in local streams and flood channels during the summer and fall pose a serious threat to fish populations. DO levels in streams are influenced by many factors, only a few of which are associated with the physical or biological characteristics of the channel itself. One significant measure of the water quality function of a channel segment is whether it provides any source of aeration during low flow conditions. Riffles, splash pools, rock obstructions, drop structures and other features that introduce even minor turbulence during low flow conditions can help aerate the water and increase the DO levels. Channel segment is therefore rated on the number and type of features that introduce turbulence to stream flows.

Rocks and riffles in streambed >75% of channel length **and** multiple sources of other turbulence producing features	Rocks and riffles in streambed >33% of channel length **or** multiple sources of other turbulence producing features	Channel segment has at least one feature that produces significant turbulence during low flow conditions	Channel segment is devoid of any turbulence producing features
10	7	3	1

Shade/Temperature Moderation

RATING
2

Measure: Elevated water temperature is a significant water quality issue for our local waterways, especially in light of forthcoming TMDL temperature requirements for both the Willamette River and Amazon Creek. Stormwater runoff is in and of itself not considered a significant source of temperature pollution. Instead, it is the extent of solar exposure of the streambed which has the greatest thermal impact to in-stream flows. The extent and time-of-day of shade over the streambed is the primary measurement of the water quality function of a stream in terms of temperature moderation. Channel segment is therefore rated on the percent of shade covering the stream flows at midday.

Entire water area within channel segment is covered by shade at midday	<75% of water area within channel segment is covered by shade at midday	>25% of water area within channel segment is covered by shade at midday	No shade on water area at any time of day
10	7	3	1

Channel Bank Integrity and Protection

RATING
3

Measure: Turbidity resulting from stream bank erosion can be a significant water quality issue. Another measure of water quality function of a channel segment is how susceptible the banks are to the erosive forces of direct rainfall, high peak flows and overall flow volumes. The more rip rap, concrete or other solid material that armors the toe of the channel bank, the less soil is exposed to the erosive effects of rain and stream flows. Additionally, the more willows or other woody vegetation that are rooted at the toe and up the banks of a channel, the less likelihood there is of toe cutting and bank slumping. In each case, the water quality function is deemed to be higher where the likelihood of erosion and resulting turbidity is mitigated by armoring or woody vegetation. Channel segment is therefore rated on the type and extent of armoring or woody vegetation along the lower stream banks and at the toe of the channel banks.

No bare soil exposed to high flows, armoring or walled banks along both sides of entire channel segment	Woody vegetation along lower banks, rip rap armoring along toe of both banks	Grass slopes between high and low flow zones and either scattered woody vegetation along lower banks or else sporadic patches of toes armoring	Bare soil on banks, no toe armoring along either bank
10	7	3	1

Natural Resource Functions

Natural resource values are evaluated in this section. The value that a waterway provides to plants and wildlife are emphasized. Several natural resource elements are captured and four specific measures are used to provide a quantitative assessment of the natural resource values embodied in a given reach. The four quantitative assessments include: average riparian width, habitat diversity, percent cover of invasive plant species and aquatic habitat structure. These four components are not meant to be all inclusive of habitat values along a reach, but should serve as a surrogate to approximate important overarching attributes of the natural environment. Other important information captured in this assessment include most common invasive species, most common native species, presence of endangered or rare species or habitats, and migration corridor potential of the waterway.

Riparian Width

RATING
2

Measure: Average riparian width is used as a measure of terrestrial habitat size. Increasing habitat size relates to increased population sizes and increased biological diversity. Width is averaged along the entire reach and includes both banks of the waterway but is exclusive of the waterway itself.

Average width	>90 feet	81-90 feet	71-80 feet	61-70 feet	51-60 feet	41-50 feet	31-40 feet	21-30 feet	11-20 feet	0-10 feet
Score	10	9	8	7	6	5	4	3	2	1

Habitat diversity

RATING
2

Measure: A diversity of habitat types will support a broader array of species during a broader array of life stages. The number of different habitat types along a reach is used as a coarse measure of potential biological diversity. One point is given for each substantial habitat type. "Substantial" is a relative term but is meant to indicate that the habitat is serving in a functional capacity for wildlife. For example, a one foot wide linear strip of reed canary grass along the water's edge would **not** be counted as an "emergent habitat" as it would not likely provide "substantial" habitat value. However, a relatively small vernal pool within a wetland prairie would get a point as this special habitat will provide most of its potential functions despite being small. The following list of habitat types is used to evaluate a reach for a 100 foot width along the reach.

8 or more habitats present	5 habitats present	3 habitats present	2 habitats present	No listed habitats present.
10	7	5	3	1

Percent cover of invasive plant species

RATING
4

Measure: Estimated percent cover of invasive plant species is a measure of terrestrial habitat integrity. Invasive vegetation reduces the functional habitat value of the riparian area by reducing desirable food, shelter and nesting habitat for native wildlife species and out-competing native plant species. Cover is estimated for the entire waterway reach for a total width of 100 ft (including one or both sides of the creek exclusive of the waterway itself.

<10% estimated invasive cover	10-25% estimated invasive cover	25 -75% estimated invasive cover	75-90% estimated invasive cover	>90% estimated invasive cover
10	7	5	3	1

Aquatic habitat structure

RATING
2

Measure: Aquatic habitat diversity is related directly to the quality of the habitat structure and can serve as a measure of aquatic habitat quality and potential biological diversity. This assessment element measures availability of physical habitat for fish. The potential for the maintenance of a healthy fish community and its ability to recover from disturbance is dependent on the variety and abundance of suitable habitat and cover available. The following list includes many of the major potential structural components of this habitat type. Evaluate each reach to identify if the component is present or not and score appropriately.

Habitat structure components:

- ☐ *Logs/large woody debris*: Fallen trees or parts of trees that provide structure and attachment for aquatic macroinvertebrates & hiding places for fish.
- ☐ *Deep pools*: Areas characterized by a smooth undisturbed surface, generally slow current, deep enough to provide protective cover for fish (75 to 100% deeper than the prevailing system depth).
- ☐ *Overhanging vegetation*: Trees, shrubs, vines, or perennial herbaceous vegetation that hangs over and covers the system surface, providing shade and cover.
- ☐ *Boulders/cobble*: Boulders are rounded stones more than 10 inches in diameter or large slabs more than 10 inches in length. Cobbles are stones between 2.5 and 10 inches in diameter.
- ☐ *Undercut banks:* Eroded areas extending horizontally beneath the surface of the bank forming underwater pockets used by fish for hiding and protection.
- ☐ *Thick root mats*: Dense mats of roots and rootlets (generally from trees) at or beneath the water surface forming structure for invertebrate attachment and fish cover.
- ☐ *Dense macrophyte beds*: Beds of emergent, floating leaf, or sub-merged aquatic vegetation thick enough to provide invertebrate attachment and fish cover.
- ☐ *Riffles:* Area characterized by broken water surface, rocky or firm substrate, moderate or swift current, and relatively shallow depth (usually less than 18 inches).
- ☐ *Isolated/backwater pools*: Areas disconnected from the main channel or connected as a "blind" side channel, characterized by a lack of flow except in periods of high water.

>7 cover types available	6 to 7 cover types available	4 to 5 cover types available	2 to 3 cover types available	None to 1 cover type available
10	8	5	3	1

Connectivity

RATING
1

Measure: Waterways are often important migration corridors for wildlife moving within the watershed. This is particularly true of urban areas where most of the landscape is developed or fragmented. For this characteristic check one selection from each of the three categories below. Use this information to quantitatively assess the functionality of the reach for wildlife travel.

☐ Wide (>30 ft on one side) well-connected riparian corridor
☐ Narrow (<30 feet on both sides) well-connected riparian corridor

☐ Continuous along entire reach
☐ Slightly fragmented by road crossings or passable barriers
☐ Substantially fragmented by unvegetated development or impassible barriers

☐ Forested canopy along majority of the reach
☐ Shrub canopy along majority of the reach
☐ Unmanaged prairie or meadow along majority of reach
☐ Mowed turf or manicured shrub along majority reach.

Corridor is wide and unbroken. Diversity of habitat provides good cover for a wide range of animals.	Corridor is slightly fragmented or narrow but provides substantial protection for animal movement.	Corridor is highly fragmented and narrow. It is mostly developed with little cover for animal movement.
10	5	1

Recreation Functions

Recreation values are evaluated in this section. The value that a waterway provides to the community as a recreational resource is important to consider as projects will be better supported by the community if recreational issues are addressed.

Public Access

RATING
7

Measure: This measure quantifies the percentage of the reach that is currently legally accessible to the public through existing easements or ownership. One point is given for each 10% incremental linear area along the waterway that is accessible to the public under current conditions either through ownership or easement. This measure does not account for the existence of paths or other facilities but only legal access.

100% of reach is currently accessible	60-70% of reach is currently accessible	40-50% of reach is currently accessible	20-30% of reach is currently accessible	10% or less of reach is currently accessible
10	7	5	3	1

Existing Facilities

RATING
4

Measure: This measure describes the existence of facilities that accommodate recreation. The measure emphasizes trails and parking lots as the primary recreational features quantified.

Free public parking is available and there is access to a paved bike path along the entire reach.	There is access along the entire reach on a paved bike path.	There is access along the entire reach on a dirt, bark or gravel footpath that is maintained as such.	There is access along only part of the reach on an established and maintained path.	There are no facilities along this reach.
10	7	5	3	1

Community Served Through Access

RATING
4

Measure: This measure attempts to capture the value that recreational facilities provide to the public. Some facilities will be more accessible than others or serve broader recreation goals. The measure quantifies the level of access that is provided to the community.

Recreational facilities are accessible to and serve regional interests	Recreational facilities are accessible to and serve community interests	Recreational facilities are accessible to and serve neighborhood interests	Recreational facilities are not easily accessible but do serve limited local interests	Recreational facilities are not easily accessible or do not serve a valued public interest
10	7	5	3	1

Waterway Name: **Blue Water Ponds (and associated waterways)** Date: 04/02/2007

Beginning At: **Confluence with the McKenzie** Ending At: **End of waterways**

Waterway Scoring Summary

Blue Water Ponds (and associated waterways): Confluence with McKenzie – End of waterways (New)

Physical Assessment	Score	Possible Score	% of Total Pts
Physical Characteristics	4	10	
Channel Stability - BANKS	5	10	
Channel Stability -BEDS	4	10	
Sediment	6	10	
Physical Subtotal	***19***	***40***	***48%***
Water Quality Assessment			
Absorption and/or Filtration of Pollutants	6	10	
Aeration	4	10	
Shade/Temperature Moderation	4	10	
Channel Bank Integrity and Protection	5	10	
Water Quality Subtotal	***19***	***40***	***48%***
Natural Resource Assessment			
Riparian Width	5	10	
Habitat Diversity	5	10	
Percent Cover of Invasive Plant Species	3	10	
Aquatic Habitat Structure	4	10	
Wildlife Corridor Function	5	10	
Natural Resource Subtotal	***22***	***50***	***44%***
Recreation Facilities Assessment			
Public Access	1	10	
Existing Facilities	1	10	
Community Served Through Access	1	10	
Recreation Facilities Subtotal	***3***	***30***	***10%***
WATERWAY ASSESSMENT TOTAL SCORE	**63**	**160**	***39%***

Average from previous Assessment: **N/A**

PHYSICAL CONDITIONS

Channel Physical Characteristics: (Shape / Size)

RATING
4

Measure: Physical Characteristics will be measured against a natural healthy stream with balanced deposition and transport throughout a year. Channel type is a function of the Grade (steep grade straighter stream, flat grade, more sinuosity). Structural modifications should be an enhancement to the stream. While a channel may be an effective means to transport flows, it may be unable to accommodate other goals such as water quality, or habitat resource. Rate the reach for the ability to achieve multiple goals.

Natural Form Channel Type fits Grade, Minor or no modifications, capacity contained	Channel has some Natural form returning.	Closed or Lined channel No Natural features Creates ecological problems. Modifications are failing, needs attention. Flooding occurs.
10	5	1

Channel Stability:

RATING
5

Measure: Channel Stability - BANKS will be measured against a natural healthy stream with functional, stable banks. Vegetated with grasses, native shrubs and trees rate higher than invasive types due to their ability to root deeper and provide more strength. Natural stabilization will weigh higher than artificial methods such as concrete or rip rap lining. *Note bank profile from above.

Channel banks are in stable, well protected and vegetated condition.	Channel banks show sign of erosion, sloughing, cracking…	Channel banks seriously eroded; stream function impaired, needs immediate attention.
10	5	1

RATING
4

Measure: Channel Stability -BEDS will be measured against a natural healthy stream with functional, stable beds. Higher ratings will be given for natural formed beds with balanced deposition and transport. Lower ratings are given for incision, head cutting, or other eroding or flow preventive factors. *Note channel gradient from above.

Channel beds are stable provide deposition and transport	Channel bed shows signs of minor failures or erosion. Stream function is not altered	Channel bed seriously eroded and incised; stream function impaired, needs immediate attention.
10	5	1

Sediment:

RATING
6

Measure: Sediment can be an indicator of stability within the channel. Sediment source can be from outside the channel and potentially create stability problems. Rate known sediment values high when there is no indication of damming or starvation within the channel. Rate low when sediment deposition influences flows in a negative manner such as minimal sediment or over deposition creating damming.

Sediment quantities are stable. Provide balanced deposition and transport, creates good environmental conditions		Sediment values seem unbalanced. Stream function seems stable. Sediment problems during specific events.		Sediment volume is either heavy or non-existent. Bed and bank are altered because of extreme sediment conditions. Toxicity is present
10	7	5	3	1

Water Quality Function

Absorption and/or Filtration of Pollutants:

RATING
6

Measure: One measure of the water quality function of a channel segment is the ability to mitigate for toxics, heavy metals, hydrocarbons, and other suspended pollutants through absorption and filtration by aquatic vegetation. The more extensive the coverage of aquatic vegetation in the streambed that is in contact with stream flows during low flow conditions, the greater the amount of pollutants that will possibly be absorbed and/or filtered out. Channel segment is therefore rated on quantity and coverage of aquatic vegetation in streambed.

Streambed completely covered with aquatic vegetation in contact with water during low flow conditions.	>50% of streambed covered with aquatic vegetation in contact with water during low flow conditions	Isolated patches of aquatic vegetation in contact with water during low flow conditions	Streambed devoid of any aquatic vegetation
10	7	3	1

Aeration:

RATING
4

Measure: Low dissolved oxygen levels (DO) in local streams and flood channels during the summer and fall pose a serious threat to fish populations. DO levels in streams are influenced by many factors, only a few of which are associated with the physical or biological characteristics of the channel itself. One significant measure of the water quality function of a channel segment is whether it provides any source of aeration during low flow conditions. Riffles, splash pools, rock obstructions, drop structures and other features that introduce even minor turbulence during low flow conditions can help aerate the water and increase the DO levels. Channel segment is therefore rated on the number and type of features that introduce turbulence to stream flows.

Rocks and riffles in streambed >75% of channel length **and** multiple sources of other turbulence producing features	Rocks and riffles in streambed >33% of channel length **or** multiple sources of other turbulence producing features	Channel segment has at least one feature that produces significant turbulence during low flow conditions	Channel segment is devoid of any turbulence producing features
10	7	3	1

Shade/Temperature Moderation

RATING
4

Measure: Elevated water temperature is a significant water quality issue for our local waterways, especially in light of forthcoming TMDL temperature requirements for both the Willamette River and Amazon Creek. Stormwater runoff is in and of itself not considered a significant source of temperature pollution. Instead, it is the extent of solar exposure of the streambed which has the greatest thermal impact to in-stream flows. The extent and time-of-day of shade over the streambed is the primary measurement of the water quality function of a stream in terms of temperature moderation. Channel segment is therefore rated on the percent of shade covering the stream flows at midday.

Entire water area within channel segment is covered by shade at midday	<75% of water area within channel segment is covered by shade at midday	>25% of water area within channel segment is covered by shade at midday	No shade on water area at any time of day
10	7	3	1

Channel Bank Integrity and Protection

RATING
5

Measure: Turbidity resulting from stream bank erosion can be a significant water quality issue. Another measure of water quality function of a channel segment is how susceptible the banks are to the erosive forces of direct rainfall, high peak flows and overall flow volumes. The more rip rap, concrete or other solid material that armors the toe of the channel bank, the less soil is exposed to the erosive effects of rain and stream flows. Additionally, the more willows or other woody vegetation that are rooted at the toe and up the banks of a channel, the less likelihood there is of toe cutting and bank slumping. In each case, the water quality function is deemed to be higher where the likelihood of erosion and resulting turbidity is mitigated by armoring or woody vegetation. Channel segment is therefore rated on the type and extent of armoring or woody vegetation along the lower stream banks and at the toe of the channel banks.

No bare soil exposed to high flows, armoring or walled banks along both sides of entire channel segment	Woody vegetation along lower banks, rip rap armoring along toe of both banks	Grass slopes between high and low flow zones and either scattered woody vegetation along lower banks or else sporadic patches of toes armoring	Bare soil on banks, no toe armoring along either bank
10	7	3	1

Natural Resource Functions

Natural resource values are evaluated in this section. The value that a waterway provides to plants and wildlife are emphasized. Several natural resource elements are captured and four specific measures are used to provide a quantitative assessment of the natural resource values embodied in a given reach. The four quantitative assessments include: average riparian width, habitat diversity, percent cover of invasive plant species and aquatic habitat structure. These four components are not meant to be all inclusive of habitat values along a reach, but should serve as a surrogate to approximate important overarching attributes of the natural environment. Other important information captured in this assessment include most common invasive species, most common native species, presence of endangered or rare species or habitats, and migration corridor potential of the waterway.

Riparian Width

RATING
5

Measure: Average riparian width is used as a measure of terrestrial habitat size. Increasing habitat size relates to increased population sizes and increased biological diversity. Width is averaged along the entire reach and includes both banks of the waterway but is exclusive of the waterway itself.

Average width	>90 feet	81-90 feet	71-80 feet	61-70 feet	51-60 feet	41-50 feet	31-40 feet	21-30 feet	11-20 feet	0-10 feet
Score	10	9	8	7	6	5	4	3	2	1

Habitat diversity

RATING
5

Measure: A diversity of habitat types will support a broader array of species during a broader array of life stages. The number of different habitat types along a reach is used as a coarse measure of potential biological diversity. One point is given for each substantial habitat type. "Substantial" is a relative term but is meant to indicate that the habitat is serving in a functional capacity for wildlife. For example, a one foot wide linear strip of reed canary grass along the water's edge would **not** be counted as an "emergent habitat" as it would not likely provide "substantial" habitat value. However, a relatively small vernal pool within a wetland prairie would get a point as this special habitat will provide most of its potential functions despite being small. The following list of habitat types is used to evaluate a reach for a 100 foot width along the reach.

8 or more habitats present	5 habitats present	3 habitats present	2 habitats present	No listed habitats present.
10	7	5	3	1

Percent cover of invasive plant species

RATING
3

Measure: Estimated percent cover of invasive plant species is a measure of terrestrial habitat integrity. Invasive vegetation reduces the functional habitat value of the riparian area by reducing desirable food, shelter and nesting habitat for native wildlife species and out-competing native plant species. Cover is estimated for the entire waterway reach for a total width of 100 ft (including one or both sides of the creek exclusive of the waterway itself.

<10% estimated invasive cover	10-25% estimated invasive cover	25 -75% estimated invasive cover	75-90% estimated invasive cover	>90% estimated invasive cover
10	7	5	3	1

Aquatic habitat structure

RATING
4

Measure: Aquatic habitat diversity is related directly to the quality of the habitat structure and can serve as a measure of aquatic habitat quality and potential biological diversity. This assessment element measures availability of physical habitat for fish. The potential for the maintenance of a healthy fish community and its ability to recover from disturbance is dependent on the variety and abundance of suitable habitat and cover available. The following list includes many of the major potential structural components of this habitat type. Evaluate each reach to identify if the component is present or not and score appropriately.

Habitat structure components:

- ☐ *Logs/large woody debris*: Fallen trees or parts of trees that provide structure and attachment for aquatic macroinvertebrates & hiding places for fish.
- ☐ *Deep pools*: Areas characterized by a smooth undisturbed surface, generally slow current, deep enough to provide protective cover for fish (75 to 100% deeper than the prevailing system depth).
- ☐ *Overhanging vegetation*: Trees, shrubs, vines, or perennial herbaceous vegetation that hangs over and covers the system surface, providing shade and cover.
- ☐ *Boulders/cobble*: Boulders are rounded stones more than 10 inches in diameter or large slabs more than 10 inches in length. Cobbles are stones between 2.5 and 10 inches in diameter.
- ☐ *Undercut banks:* Eroded areas extending horizontally beneath the surface of the bank forming underwater pockets used by fish for hiding and protection.
- ☐ *Thick root mats*: Dense mats of roots and rootlets (generally from trees) at or beneath the water surface forming structure for invertebrate attachment and fish cover.
- ☐ *Dense macrophyte beds*: Beds of emergent, floating leaf, or sub-merged aquatic vegetation thick enough to provide invertebrate attachment and fish cover.
- ☐ *Riffles:* Area characterized by broken water surface, rocky or firm substrate, moderate or swift current, and relatively shallow depth (usually less than 18 inches).
- ☐ *Isolated/backwater pools*: Areas disconnected from the main channel or connected as a "blind" side channel, characterized by a lack of flow except in periods of high water.

>7 cover types available	6 to 7 cover types available	4 to 5 cover types available	2 to 3 cover types available	None to 1 cover type available
10	8	5	3	1

Connectivity

RATING
5

Measure: Waterways are often important migration corridors for wildlife moving within the watershed. This is particularly true of urban areas where most of the landscape is developed or fragmented. For this characteristic check one selection from each of the three categories below. Use this information to quantitatively assess the functionality of the reach for wildlife travel.

☐ Wide (>30 ft on one side) well-connected riparian corridor
☐ Narrow (<30 feet on both sides) well-connected riparian corridor

☐ Continuous along entire reach
☐ Slightly fragmented by road crossings or passable barriers
☐ Substantially fragmented by unvegetated development or impassible barriers

☐ Forested canopy along majority of the reach
☐ Shrub canopy along majority of the reach
☐ Unmanaged prairie or meadow along majority of reach
☐ Mowed turf or manicured shrub along majority reach.

Corridor is wide and unbroken. Diversity of habitat provides good cover for a wide range of animals.	Corridor is slightly fragmented or narrow but provides substantial protection for animal movement.	Corridor is highly fragmented and narrow. It is mostly developed with little cover for animal movement.
10	5	1

Recreation Functions

Recreation values are evaluated in this section. The value that a waterway provides to the community as a recreational resource is important to consider as projects will be better supported by the community if recreational issues are addressed.

Public Access

RATING
1

Measure: This measure quantifies the percentage of the reach that is currently legally accessible to the public through existing easements or ownership. One point is given for each 10% incremental linear area along the waterway that is accessible to the public under current conditions either through ownership or easement. This measure does not account for the existence of paths or other facilities but only legal access.

100% of reach is currently accessible	60-70% of reach is currently accessible	40-50% of reach is currently accessible	20-30% of reach is currently accessible	10% or less of reach is currently accessible
10	7	5	3	1

Existing Facilities

RATING
1

Measure: This measure describes the existence of facilities that accommodate recreation. The measure emphasizes trails and parking lots as the primary recreational features quantified.

Free public parking is available and there is access to a paved bike path along the entire reach.	There is access along the entire reach on a paved bike path.	There is access along the entire reach on a dirt, bark or gravel footpath that is maintained as such.	There is access along only part of the reach on an established and maintained path.	There are no facilities along this reach.
10	7	5	3	1

Community Served Through Access

RATING
1

Measure: This measure attempts to capture the value that recreational facilities provide to the public. Some facilities will be more accessible than others or serve broader recreation goals. The measure quantifies the level of access that is provided to the community.

Recreational facilities are accessible to and serve regional interests	Recreational facilities are accessible to and serve community interests	Recreational facilities are accessible to and serve neighborhood interests	Recreational facilities are not easily accessible but do serve limited local interests	Recreational facilities are not easily accessible or do not serve a valued public interest
10	7	5	3	1

Waterway Name: **Cedar Creek** Date: 04/02/2007

Beginning At: **Existing Flow Control Gate** Ending At: **Intake**

Waterway Scoring Summary

Cedar Creek: Existing Flow Control Gate – Intake (R1 & R2)

Physical Assessment	Score	Possible Score	% of Total Pts
Physical Characteristics	4	10	
Channel Stability - BANKS	4	10	
Channel Stability -BEDS	3	10	
Sediment	5	10	
Physical Subtotal	***16***	***40***	***40%***
Water Quality Assessment			
Absorption and/or Filtration of Pollutants	6	10	
Aeration	2	10	
Shade/Temperature Moderation	5	10	
Channel Bank Integrity and Protection	4	10	
Water Quality Subtotal	***17***	***40***	***43%***
Natural Resource Assessment			
Riparian Width	3	10	
Habitat Diversity	4	10	
Percent Cover of Invasive Plant Species	5	10	
Aquatic Habitat Structure	4	10	
Wildlife Corridor Function	6	10	
Natural Resource Subtotal	***22***	***50***	***44%***
Recreation Facilities Assessment			
Public Access	2	10	
Existing Facilities	1	10	
Community Served Through Access	2	10	
Recreation Facilities Subtotal	***5***	***30***	***17%***
WATERWAY ASSESSMENT TOTAL SCORE	**60**	**160**	***38%***

Average from previous Assessment: **5.7 (Poor)**

PHYSICAL CONDITIONS

Channel Physical Characteristics: (Shape / Size)

RATING
4

Measure: Physical Characteristics will be measured against a natural healthy stream with balanced deposition and transport throughout a year. Channel type is a function of the Grade (steep grade straighter stream, flat grade, more sinuosity). Structural modifications should be an enhancement to the stream. While a channel may be an effective means to transport flows, it may be unable to accommodate other goals such as water quality, or habitat resource. Rate the reach for the ability to achieve multiple goals.

Natural Form Channel Type fits Grade, Minor or no modifications, capacity contained	Channel has some Natural form returning.	Closed or Lined channel No Natural features Creates ecological problems. Modifications are failing, needs attention. Flooding occurs.
10	5	1

Channel Stability:

RATING
4

Measure: Channel Stability - BANKS will be measured against a natural healthy stream with functional, stable banks. Vegetated with grasses, native shrubs and trees rate higher than invasive types due to their ability to root deeper and provide more strength. Natural stabilization will weigh higher than artificial methods such as concrete or rip rap lining. *Note bank profile from above.

Channel banks are in stable, well protected and vegetated condition.	Channel banks show sign of erosion, sloughing, cracking…	Channel banks seriously eroded; stream function impaired, needs immediate attention.
10	5	1

RATING
3

Measure: Channel Stability -BEDS will be measured against a natural healthy stream with functional, stable beds. Higher ratings will be given for natural formed beds with balanced deposition and transport. Lower ratings are given for incision, head cutting, or other eroding or flow preventive factors. *Note channel gradient from above.

Channel beds are stable provide deposition and transport	Channel bed shows signs of minor failures or erosion. Stream function is not altered	Channel bed seriously eroded and incised; stream function impaired, needs immediate attention.
10	5	1

Sediment:

RATING
5

Measure: Sediment can be an indicator of stability within the channel. Sediment source can be from outside the channel and potentially create stability problems. Rate known sediment values high when there is no indication of damming or starvation within the channel. Rate low when sediment deposition influences flows in a negative manner such as minimal sediment or over deposition creating damming.

Sediment quantities are stable. Provide balanced deposition and transport, creates good environmental conditions		Sediment values seem unbalanced. Stream function seems stable. Sediment problems during specific events.		Sediment volume is either heavy or non-existent. Bed and bank are altered because of extreme sediment conditions. Toxicity is present
10	7	5	3	1

Water Quality Function

Absorption and/or Filtration of Pollutants:

RATING
6

Measure: One measure of the water quality function of a channel segment is the ability to mitigate for toxics, heavy metals, hydrocarbons, and other suspended pollutants through absorption and filtration by aquatic vegetation. The more extensive the coverage of aquatic vegetation in the streambed that is in contact with stream flows during low flow conditions, the greater the amount of pollutants that will possibly be absorbed and/or filtered out. Channel segment is therefore rated on quantity and coverage of aquatic vegetation in streambed.

Streambed completely covered with aquatic vegetation in contact with water during low flow conditions.	>50% of streambed covered with aquatic vegetation in contact with water during low flow conditions	Isolated patches of aquatic vegetation in contact with water during low flow conditions	Streambed devoid of any aquatic vegetation
10	7	3	1

Aeration:

RATING
2

Measure: Low dissolved oxygen levels (DO) in local streams and flood channels during the summer and fall pose a serious threat to fish populations. DO levels in streams are influenced by many factors, only a few of which are associated with the physical or biological characteristics of the channel itself. One significant measure of the water quality function of a channel segment is whether it provides any source of aeration during low flow conditions. Riffles, splash pools, rock obstructions, drop structures and other features that introduce even minor turbulence during low flow conditions can help aerate the water and increase the DO levels. Channel segment is therefore rated on the number and type of features that introduce turbulence to stream flows.

Rocks and riffles in streambed >75% of channel length **and** multiple sources of other turbulence producing features	Rocks and riffles in streambed >33% of channel length **or** multiple sources of other turbulence producing features	Channel segment has at least one feature that produces significant turbulence during low flow conditions	Channel segment is devoid of any turbulence producing features
10	7	3	1

Shade/Temperature Moderation

RATING
5

Measure: Elevated water temperature is a significant water quality issue for our local waterways, especially in light of forthcoming TMDL temperature requirements for both the Willamette River and Amazon Creek. Stormwater runoff is in and of itself not considered a significant source of temperature pollution. Instead, it is the extent of solar exposure of the streambed which has the greatest thermal impact to in-stream flows. The extent and time-of-day of shade over the streambed is the primary measurement of the water quality function of a stream in terms of temperature moderation. Channel segment is therefore rated on the percent of shade covering the stream flows at midday.

Entire water area within channel segment is covered by shade at midday	<75% of water area within channel segment is covered by shade at midday	>25% of water area within channel segment is covered by shade at midday	No shade on water area at any time of day
10	7	3	1

Channel Bank Integrity and Protection

RATING
4

Measure: Turbidity resulting from stream bank erosion can be a significant water quality issue. Another measure of water quality function of a channel segment is how susceptible the banks are to the erosive forces of direct rainfall, high peak flows and overall flow volumes. The more rip rap, concrete or other solid material that armors the toe of the channel bank, the less soil is exposed to the erosive effects of rain and stream flows. Additionally, the more willows or other woody vegetation that are rooted at the toe and up the banks of a channel, the less likelihood there is of toe cutting and bank slumping. In each case, the water quality function is deemed to be higher where the likelihood of erosion and resulting turbidity is mitigated by armoring or woody vegetation. Channel segment is therefore rated on the type and extent of armoring or woody vegetation along the lower stream banks and at the toe of the channel banks.

No bare soil exposed to high flows, armoring or walled banks along both sides of entire channel segment	Woody vegetation along lower banks, rip rap armoring along toe of both banks	Grass slopes between high and low flow zones and either scattered woody vegetation along lower banks or else sporadic patches of toes armoring	Bare soil on banks, no toe armoring along either bank
10	7	3	1

Natural Resource Functions

Natural resource values are evaluated in this section. The value that a waterway provides to plants and wildlife are emphasized. Several natural resource elements are captured and four specific measures are used to provide a quantitative assessment of the natural resource values embodied in a given reach. The four quantitative assessments include: average riparian width, habitat diversity, percent cover of invasive plant species and aquatic habitat structure. These four components are not meant to be all inclusive of habitat values along a reach, but should serve as a surrogate to approximate important overarching attributes of the natural environment. Other important information captured in this assessment include most common invasive species, most common native species, presence of endangered or rare species or habitats, and migration corridor potential of the waterway.

Riparian Width

RATING
3

Measure: Average riparian width is used as a measure of terrestrial habitat size. Increasing habitat size relates to increased population sizes and increased biological diversity. Width is averaged along the entire reach and includes both banks of the waterway but is exclusive of the waterway itself.

Average width	>90 feet	81-90 feet	71-80 feet	61-70 feet	51-60 feet	41-50 feet	31-40 feet	21-30 feet	11-20 feet	0-10 feet
Score	10	9	8	7	6	5	4	3	2	1

Habitat diversity

RATING
4

Measure: A diversity of habitat types will support a broader array of species during a broader array of life stages. The number of different habitat types along a reach is used as a coarse measure of potential biological diversity. One point is given for each substantial habitat type. "Substantial" is a relative term but is meant to indicate that the habitat is serving in a functional capacity for wildlife. For example, a one foot wide linear strip of reed canary grass along the water's edge would **not** be counted as an "emergent habitat" as it would not likely provide "substantial" habitat value. However, a relatively small vernal pool within a wetland prairie would get a point as this special habitat will provide most of its potential functions despite being small. The following list of habitat types is used to evaluate a reach for a 100 foot width along the reach.

8 or more habitats present	5 habitats present	3 habitats present	2 habitats present	No listed habitats present.
10	7	5	3	1

Percent cover of invasive plant species

RATING
5

Measure: Estimated percent cover of invasive plant species is a measure of terrestrial habitat integrity. Invasive vegetation reduces the functional habitat value of the riparian area by reducing desirable food, shelter and nesting habitat for native wildlife species and out-competing native plant species. Cover is estimated for the entire waterway reach for a total width of 100 ft (including one or both sides of the creek exclusive of the waterway itself.

<10% estimated invasive cover	10-25% estimated invasive cover	25 -75% estimated invasive cover	75-90% estimated invasive cover	>90% estimated invasive cover
10	7	5	3	1

Aquatic habitat structure

RATING
4

Measure: Aquatic habitat diversity is related directly to the quality of the habitat structure and can serve as a measure of aquatic habitat quality and potential biological diversity. This assessment element measures availability of physical habitat for fish. The potential for the maintenance of a healthy fish community and its ability to recover from disturbance is dependent on the variety and abundance of suitable habitat and cover available. The following list includes many of the major potential structural components of this habitat type. Evaluate each reach to identify if the component is present or not and score appropriately.

Habitat structure components:

- ☐ *Logs/large woody debris*: Fallen trees or parts of trees that provide structure and attachment for aquatic macroinvertebrates & hiding places for fish.
- ☐ *Deep pools*: Areas characterized by a smooth undisturbed surface, generally slow current, deep enough to provide protective cover for fish (75 to 100% deeper than the prevailing system depth).
- ☐ *Overhanging vegetation*: Trees, shrubs, vines, or perennial herbaceous vegetation that hangs over and covers the system surface, providing shade and cover.
- ☐ *Boulders/cobble*: Boulders are rounded stones more than 10 inches in diameter or large slabs more than 10 inches in length. Cobbles are stones between 2.5 and 10 inches in diameter.
- ☐ *Undercut banks:* Eroded areas extending horizontally beneath the surface of the bank forming underwater pockets used by fish for hiding and protection.
- ☐ *Thick root mats*: Dense mats of roots and rootlets (generally from trees) at or beneath the water surface forming structure for invertebrate attachment and fish cover.
- ☐ *Dense macrophyte beds*: Beds of emergent, floating leaf, or sub-merged aquatic vegetation thick enough to provide invertebrate attachment and fish cover.
- ☐ *Riffles:* Area characterized by broken water surface, rocky or firm substrate, moderate or swift current, and relatively shallow depth (usually less than 18 inches).
- ☐ *Isolated/backwater pools*: Areas disconnected from the main channel or connected as a "blind" side channel, characterized by a lack of flow except in periods of high water.

>7 cover types available	6 to 7 cover types available	4 to 5 cover types available	2 to 3 cover types available	None to 1 cover type available
10	8	5	3	1

Connectivity

RATING
6

Measure: Waterways are often important migration corridors for wildlife moving within the watershed. This is particularly true of urban areas where most of the landscape is developed or fragmented. For this characteristic check one selection from each of the three categories below. Use this information to quantitatively assess the functionality of the reach for wildlife travel.

☐ Wide (>30 ft on one side) well-connected riparian corridor
☐ Narrow (<30 feet on both sides) well-connected riparian corridor

☐ Continuous along entire reach
☐ Slightly fragmented by road crossings or passable barriers
☐ Substantially fragmented by unvegetated development or impassible barriers

☐ Forested canopy along majority of the reach
☐ Shrub canopy along majority of the reach
☐ Unmanaged prairie or meadow along majority of reach
☐ Mowed turf or manicured shrub along majority reach.

Corridor is wide and unbroken. Diversity of habitat provides good cover for a wide range of animals.	Corridor is slightly fragmented or narrow but provides substantial protection for animal movement.	Corridor is highly fragmented and narrow. It is mostly developed with little cover for animal movement.
10	5	1

Recreation Functions

Recreation values are evaluated in this section. The value that a waterway provides to the community as a recreational resource is important to consider as projects will be better supported by the community if recreational issues are addressed.

Public Access

RATING
2

Measure: This measure quantifies the percentage of the reach that is currently legally accessible to the public through existing easements or ownership. One point is given for each 10% incremental linear area along the waterway that is accessible to the public under current conditions either through ownership or easement. This measure does not account for the existence of paths or other facilities but only legal access.

100% of reach is currently accessible	60-70% of reach is currently accessible	40-50% of reach is currently accessible	20-30% of reach is currently accessible	10% or less of reach is currently accessible
10	7	5	3	1

Existing Facilities

RATING
1

Measure: This measure describes the existence of facilities that accommodate recreation. The measure emphasizes trails and parking lots as the primary recreational features quantified.

Free public parking is available and there is access to a paved bike path along the entire reach.	There is access along the entire reach on a paved bike path.	There is access along the entire reach on a dirt, bark or gravel footpath that is maintained as such.	There is access along only part of the reach on an established and maintained path.	There are no facilities along this reach.
10	7	5	3	1

Community Served Through Access

RATING
2

Measure: This measure attempts to capture the value that recreational facilities provide to the public. Some facilities will be more accessible than others or serve broader recreation goals. The measure quantifies the level of access that is provided to the community.

Recreational facilities are accessible to and serve regional interests	Recreational facilities are accessible to and serve community interests	Recreational facilities are accessible to and serve neighborhood interests	Recreational facilities are not easily accessible but do serve limited local interests	Recreational facilities are not easily accessible or do not serve a valued public interest
10	7	5	3	1

ATTACHMENT 2

Existing & Restored Environmental Benefits
Amazon Creek and Cedar Creek Planning Areas

The waterway assessment model was developed collaboratively by a team of natural resource specialists from two local sponsors, the City of Eugene and the City of Springfield, along with assistance from the Lane Council of Governments and the Portland District of the U.S. Army Corps of Engineers. The model is an adaptation of existing waterway assessment tools that the two cities had been using to evaluate the waterway conditions, which enabled a considerable amount of pre-existing data to be utilized. The model was customized specifically for the Metro Waterways Study so that it would better assess outputs related specifically to the study goals and the unique conditions associated with waterways found in the Eugene-Springfield area and the southern Willamette Valley. The *Waterway Assessment Model* was used to evaluate the existing condition of all waterways and individual reaches within the Amazon Creek and Cedar Creek planning areas based on 2006 and 2007 existing conditions. This enabled the study team to determine which of the waterway segments were in relatively good condition and which waterways were in a degraded condition and would be evaluated for possible restoration under the study. Restoration options were then developed for each of the degraded waterway reaches through an extensive multi-jurisdictional design process. The assessment model was then re-applied to each of the waterway reaches where restoration measures were proposed to measure the change in environmental outputs. This assumed that the restoration options would be fully implemented as proposed. This evaluation allowed the project team to compare and modify the proposed restoration options for the various reaches. The reach options were then combined in various ways to produce varying output levels. This resulted in five alternatives restoration plans for Amazon Creek and four alternatives restoration plans for Cedar Creek, which were then evaluated against the quantitative and qualitative criteria outline in the feasibility report.

The Amazon Creek and Cedar Creek waterway assessments used a combination of field data collected in 2006 and 2007 and other off-site analyses. Each waterway assessment was evaluated under four categories, which included 1) physical conditions, 2) water quality treatment potential, 3) natural resource values, and 4) recreation values. Within each of these categories, specific aspects of channel health were rated on a scale of 1 to 10, with 1 being poor and 10 being excellent. These individual scores were compiled into an overall rating of stream health. Reaches could receive up to 160 points. The final scores, presented as total points as well as percentages, are an indication of the overall health and functionality of that reach. These scores allow pre- and post-enhancement comparison. For the purposes of evaluating restoration benefits against project costs, the recreation category was not included.

<u>Physical Conditions</u>

The first category, physical conditions, evaluated four attributes: physical characteristics; bank channel stability; bed channel stability; and sediment. Physical characteristics included categories for cross section shape, bank profile, channel type, channel gradient, and channel modifications. Bank channel stability was rated on a scale from 1 to 10, the lowest rating being serious erosion, stream functions impaired, in need of immediate work and the highest rating indicating stable, well protected and vegetated conditions. Bed channel stability was rated on a 1 to 10 scale with the lowest rating being serious erosion and incision, impaired stream functions, in need of immediate work. The bank and bed channel stability rating chart also

recorded soil type for each. The evaluation of sediment was based on the 1 to 10 scale with specific notations for sediments sources, sediment size, and known sediment problems.

Water Quality

The second category, water quality, included four attributes: absorption and/or filtration of pollutants; aeration; shade/temperature moderation; and channel bank integrity and protection. The first attribute, pollutant mitigation, rated the channel segment on quantity and coverage of aquatic vegetation in the streambed, based on the fact that the more extensive the coverage of aquatic vegetation in the streambed that is in contact with stream flows during low flow conditions, the greater the amount of pollutants that will possibly be absorbed and/or filtered out. The second attribute, aeration, measured turbulence-creating features such as riffles, splash pools, drop structures, rocks in streambed, weirs or dams, large woody debris, and direct inflow from piped outfall. The third attribute, temperature moderation, measured the extent and time of day of shade over the streambed to account for the extent of solar exposure of the streambed which has the greatest thermal impact to in-stream flows. The third attribute, channel bank integrity and protection, measured bank and toe protection in terms of amount and type of vegetation along toes and banks, and rip-rap along toes and rock or concrete lining of banks.

Natural Resources

The third category, natural resources, considered five attributes: riparian width, habitat diversity, percent cover of invasive plant species, aquatic habitat structure, and wildlife corridor function. The methodology includes the caveat that these attributes were not meant to be all inclusive of habitat values along a reach, but served as a surrogate to approximate important overarching attributes of the natural environment. Other important information captured in the assessment included most common invasive species, most common native species, presence of endangered or rare species or habitats, and migration corridor potential of the waterway. The first attribute, riparian width, was used as a measure of terrestrial habitat size relating to increased population sizes and increased biological diversity. The rating scale used 10 foot increments to measure average width along each reach. The second attribute, habitat diversity, was based on the assumption that a diversity of habitat types will support a broader array of species during a broader array of life stages. Ten different terrestrial and aquatic habitat types were counted, ranging from upland closed canopy forest, various wetland types, to fast and slow water aquatic habitats. The waterways were evaluated for habitats in a 100-foot width along the reaches. The third attribute, invasive plant species, estimated percent cover of invasive plants as a measure of terrestrial habitat integrity, since invasive vegetation reduces the functional habitat value of the riparian area by reducing desirable food, shelter and nesting habitat for native wildlife and outcompeting native plants. Cover was estimated along each reach for a total width of 100 feet exclusive of the creek itself. The fourth attribute, aquatic habitat structure, measured availability of physical habitat for fish. Aquatic habitat diversity is related directly to quality of habitat structure and can serve as a measure of aquatic habitat quality and potential diversity. Specific elements measured included large woody debris, pools, overhanging vegetation, boulders/cobble, undercut banks, thick root mats, dense macrophyte beds, riffles, and isolated backwater pools. The fifth attribute, wildlife corridor function, rated width, degree of physical barriers, and degree/type of vegetation along majority of reach.

The following tables show detailed scores for each of the environmental benefit categories and provides a summary of total scores. Scores were then converted to output units by multiplying the total scores by the acres within each reach. Each Planning Area contains two tables, one where benefits are computed in “points” and the other where benefits are computed “index” units.

Cedar Creek Planning Area - Habitat Point Scores for Existing & Restored Conditions (Updated Feb 2012)

Reach			Physical Condtions (40 points possible)					Water Resources (40 points possible)					Natural Resources (50 points possible)							Total Score (130 points possible)	Acres	Habitat Output Units
Number	Reach Option	Waterway	Channel Shape	Bank Stability	Bed Stability	Sediment	Total	Pollutant Removal	Aeration	Shade/Water Temperature	Channel Protection	Total	ESA Status	Riparian Width	Habitat Diversity	Percent Invasive Plants	Aquatic Habitat Structure	Wildlife Corridor Function	Total			
Reach 1	Existing Conditions		4.0	4.0	3.0	5.0	16.0	6.0	2.0	5.0	4.0	17.0	X	3.0	4.0	5.0	4.0	6.0	22.0	55.0	11.0	605.0
	1A	Cedar Creek	5.0	8.0	5.0	5.0	23.0	6.0	2.0	5.0	9.0	22.0	X	3.0	4.0	5.0	4.0	6.0	22.0	67.0	13.0	871.0
	1B	Cedar Creek	5.0	8.0	5.0	5.0	23.0	6.0	2.0	5.0	9.0	22.0	X	3.0	4.0	5.0	4.0	6.0	22.0	67.0	11.0	737.0
	1C	Cedar Creek	9.0	8.0	8.0	8.0	33.0	8.0	6.0	7.0	9.0	30.0	X	5.0	5.0	7.0	7.0	8.0	32.0	95.0	20.0	1,900.0
	1D	Cedar Creek	5.0	8.0	5.0	5.0	23.0	6.0	2.0	5.0	8.0	21.0	X	3.0	4.0	5.0	4.0	6.0	22.0	66.0	14.0	924.0
	1E	Cedar Creek	10.0	9.0	10.0	8.0	37.0	8.0	6.0	6.0	10.0	30.0	X	7.0	5.0	7.0	10.0	8.0	37.0	104.0	20.0	2,080.0
Reach 2	Existing Condtions		4.2	5.8	4.0	4.4	18.4	4.6	3.4	4.2	3.8	16.0		4.6	3.6	4.4	3.4	3.6	17.2	51.6	69.0	3,560.4
	2A	Gray Cr, 75th St Channel, South Cedar Cr, 72nd St Channel, 69th St Channel	4.4	6.2	4.0	4.6	19.2	5.8	3.4	7.8	5.6	22.6	X	6.6	4.2	6.6	4.0	5.2	26.6	68.4	69.0	4,719.6
	2B	Gray Cr, 75th St Channel, South Cedar Cr, 72nd St Channel, 69th St Channel	6.4	7.2	5.2	6.4	25.2	7.4	4.6	8.8	7.4	28.2	X	7.6	5.6	7.8	5.4	7.4	33.8	87.2	82.0	7,150.4
	2C	Gray Cr, 75th St Channel, South Cedar Cr, 72nd St Channel, 69th St Channel	6.4	7.2	5.2	6.4	25.2	7.4	4.6	8.8	7.4	28.2	X	7.6	5.6	7.8	5.4	7.4	33.8	87.2	85.0	7,412.0
Reach 3	Existing Conditions		4.0	3.0	4.0	6.0	17.0	6.0	4.0	4.0	5.0	19.0		5.0	5.0	3.0	4.0	5.0	22.0	58.0	48.0	2,784.0
	3A	Lower Cedar Cr; Blue Water Ponds; Keizer Slough	6.0	7.0	5.0	8.0	26.0	8.0	6.0	8.0	5.0	27.0	X	8.0	6.0	7.0	7.0	8.0	36.0	89.0	48.0	4,272.0
	3B	Lower Cedar Cr; Blue Water Ponds; Keizer Slough	8.0	9.0	6.0	8.0	31.0	10.0	6.0	8.0	5.0	29.0	X	10.0	8.0	9.0	10.0	10.0	47.0	107.0	114.0	12,198.0

Cedar Creek Planning Area - Habitat Index Scores for Existing & Restored Conditions (Updated Feb 2012)

Reach			Physical Condtions (40 points possible)					Water Resources (40 points possible)					Natural Resources (50 points possible)							Total Enviromental Score (1 Point Possible)	Acres	Habitat Output Units
Number	Reach Option	Waterway	Channel Shape	Bank Stability	Bed Stability	Sediment	Total	Pollutant Removal	Aeration	Shade - Water Temperature	Channel Protection	Total	ESA Status	Riparian Width	Habitat Diversity	Percent Invasive Plants	Aquatic Habitat Structure	Wildlife Corridor Function	Total			
Reach 1	Existing Conditions		0.40	0.40	0.30	0.50	0.40	0.60	0.20	0.50	0.40	0.43	X	0.30	0.40	0.50	0.40	0.60	0.44	0.42	11.00	4.64
	1A	Cedar Creek	0.50	0.80	0.50	0.50	0.58	0.60	0.20	0.50	0.90	0.55	X	0.30	0.40	0.50	0.40	0.60	0.44	0.52	13.00	6.78
	1B	Cedar Creek	0.50	0.80	0.50	0.50	0.58	0.60	0.20	0.50	0.90	0.55	X	0.30	0.40	0.50	0.40	0.60	0.44	0.52	11.00	5.74
	1C	Cedar Creek	0.90	0.80	0.80	0.80	0.83	0.80	0.60	0.70	0.90	0.75	X	0.50	0.50	0.70	0.70	0.80	0.64	0.74	20.00	14.77
	1D	Cedar Creek	0.50	0.80	0.50	0.50	0.58	0.60	0.20	0.50	0.80	0.53	X	0.30	0.40	0.50	0.40	0.60	0.44	0.51	14.00	7.19
	1E	Cedar Creek	1.00	0.90	1.00	0.80	0.93	0.80	0.60	0.60	1.00	0.75	X	0.70	0.50	0.70	1.00	0.80	0.74	0.81	20.00	16.10
Reach 2	Existing Condtions		0.42	0.58	0.40	0.44	0.46	0.46	0.34	0.42	0.38	0.40		0.46	0.36	0.44	0.34	0.36	0.39	0.42	69.00	28.80
	2A	Gray Cr, 75th St Channel, South Cedar Cr, 72nd St Channel, 69th St Channel	0.44	0.62	0.40	0.46	0.48	0.58	0.34	0.78	0.56	0.57	X	0.66	0.42	0.66	0.40	0.52	0.53	0.53	69.00	36.27
	2B	Gray Cr, 75th St Channel, South Cedar Cr, 72nd St Channel, 69th St Channel	0.64	0.72	0.52	0.64	0.63	0.74	0.46	0.88	0.74	0.71	X	0.76	0.56	0.78	0.54	0.74	0.68	0.67	82.00	54.97
	2C	Gray Cr, 75th St Channel, South Cedar Cr, 72nd St Channel, 69th St Channel	0.64	0.72	0.52	0.64	0.63	0.74	0.46	0.88	0.74	0.71	X	0.76	0.56	0.78	0.54	0.74	0.68	0.67	85.00	56.98
Reach 3	Existing Conditions		0.40	0.30	0.40	0.60	0.43	0.60	0.40	0.40	0.50	0.48		0.50	0.50	0.30	0.40	0.50	0.44	0.45	48.00	21.44
	3A	Lower Cedar Cr; Blue Water Ponds; Keizer Slough	0.60	0.70	0.50	0.80	0.65	0.80	0.60	0.80	0.50	0.68	X	0.80	0.60	0.70	0.70	0.80	0.72	0.68	48.00	32.72
	3B	Lower Cedar Cr; Blue Water Ponds; Keizer Slough	0.80	0.90	0.60	0.80	0.78	1.00	0.60	0.80	0.50	0.73	X	1.00	0.80	0.90	1.00	1.00	0.94	0.81	114.00	92.72

Appendix A
HTRW Investigations

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Blue Water Ponds
52nd St & Highbanks Rd
Springfield, OR 97478

Inquiry Number: 3791793.5
November 25, 2013

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

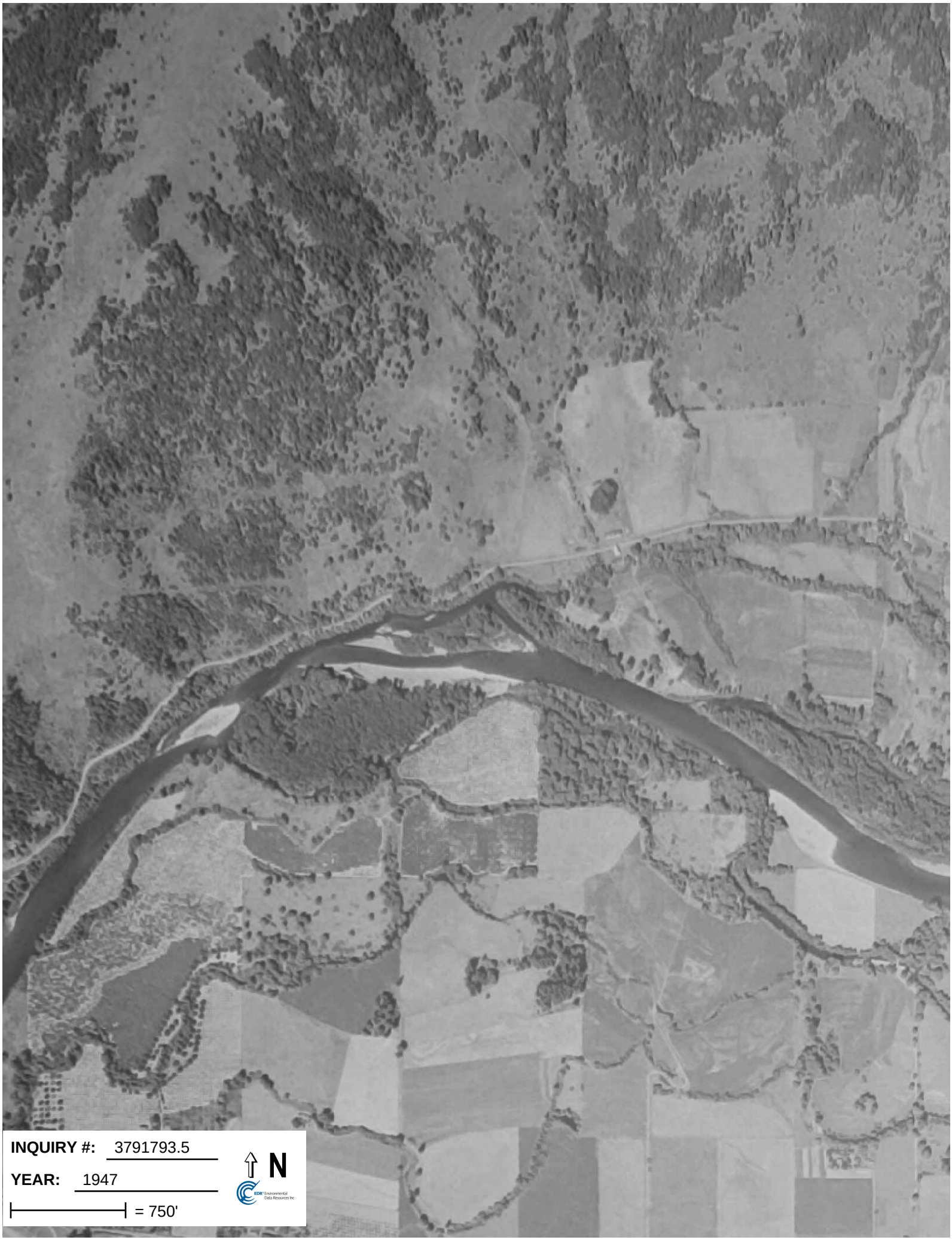
Aerial Photography November 25, 2013

Target Property:

52nd St & Highbanks Rd

Springfield, OR 97478

Year	***Scale***	***Details***	***Source***
1947	Aerial Photograph. Scale: 1"=750'	Panel #: 44122-A8, Springfield, OR;/Flight Date: August 31, 1947	EDR
1949	Aerial Photograph. Scale: 1"=750'	Panel #: 44122-A8, Springfield, OR;/Flight Date: October 30, 1949	EDR
1953	Aerial Photograph. Scale: 1"=500'	Panel #: 44122-A8, Springfield, OR;/Flight Date: January 01, 1953	EDR
1965	Aerial Photograph. Scale: 1"=500'	Panel #: 44122-A8, Springfield, OR;/Flight Date: January 01, 1965	EDR
1976	Aerial Photograph. Scale: 1"=1000'	Panel #: 44122-A8, Springfield, OR;/Flight Date: July 01, 1976	EDR
1980	Aerial Photograph. Scale: 1"=1000'	Panel #: 44122-A8, Springfield, OR;/Flight Date: June 30, 1980	EDR
1982	Aerial Photograph. Scale: 1"=500'	Panel #: 44122-A8, Springfield, OR;/Flight Date: September 08, 1982	EDR
1994	Aerial Photograph. Scale: 1"=500'	Panel #: 44122-A8, Springfield, OR;/Flight Date: May 24, 1994	EDR
1994	Aerial Photograph. Scale: 1"=500'	Panel #: 44122-A8, Springfield, OR;/DOQQ - acquisition dates: May 24, 1994	EDR
2005	Aerial Photograph. Scale: 1"=500'	Panel #: 44122-A8, Springfield, OR;/Flight Year: 2005	EDR
2006	Aerial Photograph. Scale: 1"=500'	Panel #: 44122-A8, Springfield, OR;/Flight Year: 2006	EDR
2009	Aerial Photograph. Scale: 1"=500'	Panel #: 44122-A8, Springfield, OR;/Flight Year: 2009	EDR
2011	Aerial Photograph. Scale: 1"=500'	Panel #: 44122-A8, Springfield, OR;/Flight Year: 2011	EDR
2012	Aerial Photograph. Scale: 1"=500'	Panel #: 44122-A8, Springfield, OR;/Flight Year: 2012	EDR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YEAR: 1947
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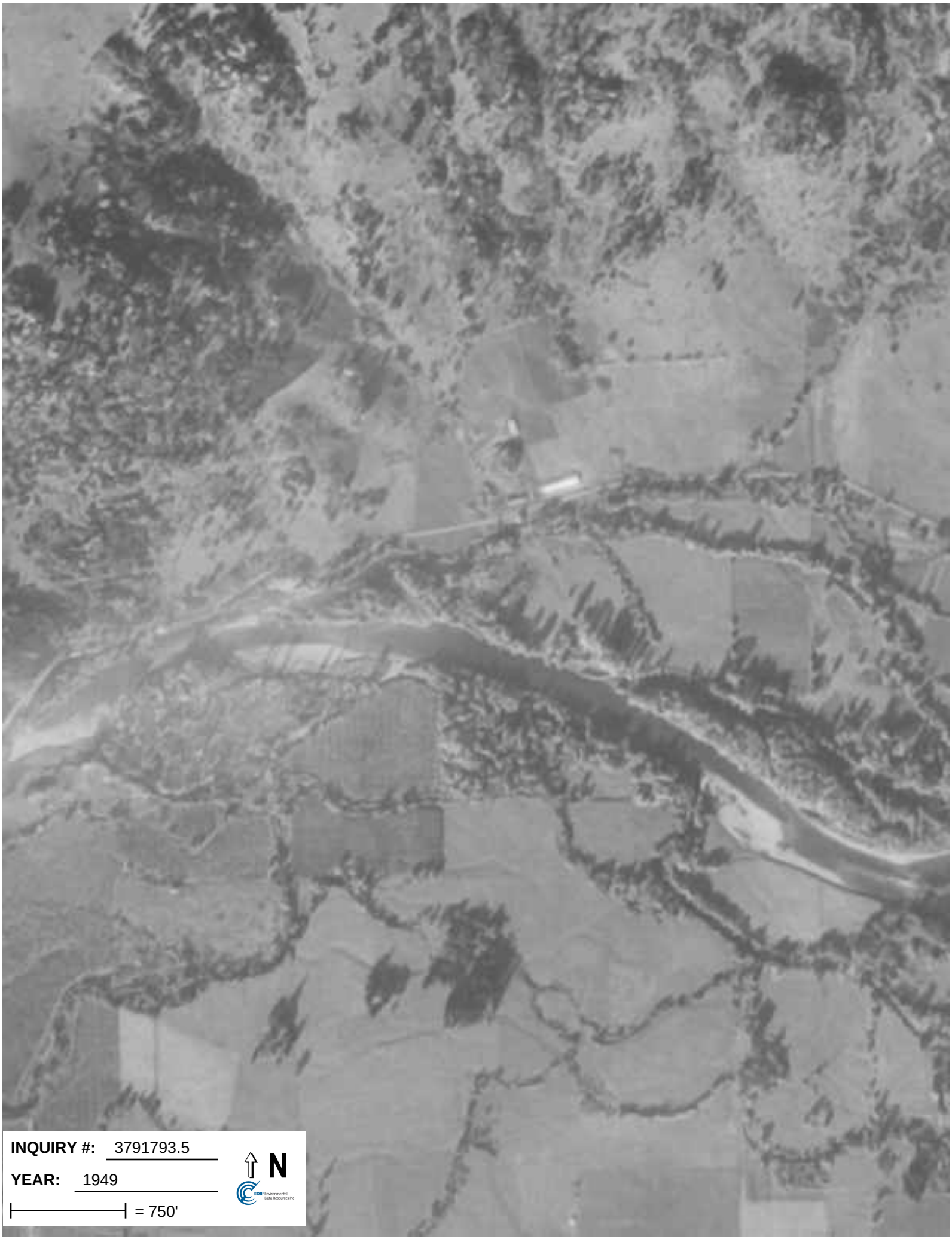

INQUIRY #: 3791793.5
YEAR: 1949
= 750'
N
EDR Environmental Data Resources Inc


INQUIRY #: 3791793.5
YEAR: 1953
= 500'
N


INQUIRY #: 3791793.5
YEAR: 1965
= 500'
N


INQUIRY #: 3791793.5
YEAR: 1976
= 1000'
N
EDR Environmental Data Resources Inc


INQUIRY #: 3791793.5
YEAR: 1980
= 1000'
N


INQUIRY #: 3791793.5
YEAR: 1982
= 500'
N

INQUIRY #: 3791793.5

YEAR: 1994

= 500'

N


INQUIRY #: 3791793.5
YEAR: 1994
= 500'
N
EDR Environmental Data Resources Inc


INQUIRY #: 3791793.5
YEAR: 2005
= 500'
N

Blue Water Ponds
52nd St & Highbanks Rd
Springfield, OR 97478

Inquiry Number: 3791793.2s
November 21, 2013

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

52ND ST & HIGHBANKS RD
SPRINGFIELD, OR 97478

COORDINATES

Latitude (North):	44.0714000 - 44° 4' 17.04''
Longitude (West):	122.9372000 - 122° 56' 13.92''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	505029.0
UTM Y (Meters):	4879589.0
Elevation:	483 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	44122-A8 SPRINGFIELD, OR
Most Recent Revision:	1986

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year:	2012
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL---------- National Priority List

EXECUTIVE SUMMARY

Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ---------- Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ---------- CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls
LUCIS ---------- Land Use Control Information System

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent CERCLIS

OR CRL ---------- Confirmed Release List and Inventory
ECSI ---------- Environmental Cleanup Site Information System

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---------- Solid Waste Facilities List

State and tribal leaking storage tank lists

LUST ---------- Leaking Underground Storage Tank Database
INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST ---------- Underground Storage Tank Database

EXECUTIVE SUMMARY

AST ---------- Aboveground Storage Tanks
INDIAN UST ---------- Underground Storage Tanks on Indian Land
FEMA UST ---------- Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

ENG CONTROLS ---------- Engineering Controls Recorded at ESCI Sites
INST CONTROL ---------- Institutional Controls Recorded at ESCI Sites

State and tribal voluntary cleanup sites

INDIAN VCP ---------- Voluntary Cleanup Priority Listing
VCP ---------- Voluntary Cleanup Program Sites

State and tribal Brownfields sites

BROWNFIELDS ---------- Brownfields Projects

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI ---------- Open Dump Inventory
DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
HIST LF ---------- Old Closed SW Disposal Sites
SWRCY ---------- Recycling Facility Location Listing
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ---------- Clandestine Drug Labs
AOCONCERN ---------- Columbia Slough
CDL ---------- Uninhabitable Drug Lab Properties
US HIST CDL ---------- National Clandestine Laboratory Register

Local Land Records

LIENS 2 ---------- CERCLA Lien Information

Records of Emergency Release Reports

HMIRS ---------- Hazardous Materials Information Reporting System
SPILLS ---------- Spill Database
OR HAZMAT ---------- Hazmat/Incidents
SPILLS 90 ---------- SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR ---------- RCRA - Non Generators
DOT OPS ---------- Incident and Accident Data

DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
US MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
RMP	Risk Management Plans
UIC	Underground Injection Control Program Database
MANIFEST	Manifest Information
DRYCLEANERS	Drycleaning Facilities
NPDES	Wastewater Permits Database
AIRS	Oregon Title V Facility Listing
HSIS	Hazardous Substance Information Survey
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
PRP	Potentially Responsible Parties
US FIN ASSUR	Financial Assurance Information
2020 COR ACTION	2020 Corrective Action Program List
LEAD SMELTERS	Lead Smelter Sites
EPA WATCH LIST	EPA WATCH LIST
US AIRS	Aerometric Information Retrieval System Facility Subsystem
PCB TRANSFORMER	PCB Transformer Registration Database
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
COAL ASH	Coal Ash Disposal Sites Listing
Financial Assurance	Financial Assurance Information Listing

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR US Hist Auto Stat	EDR Exclusive Historic Gas Stations
EDR US Hist Cleaners	EDR Exclusive Historic Dry Cleaners

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

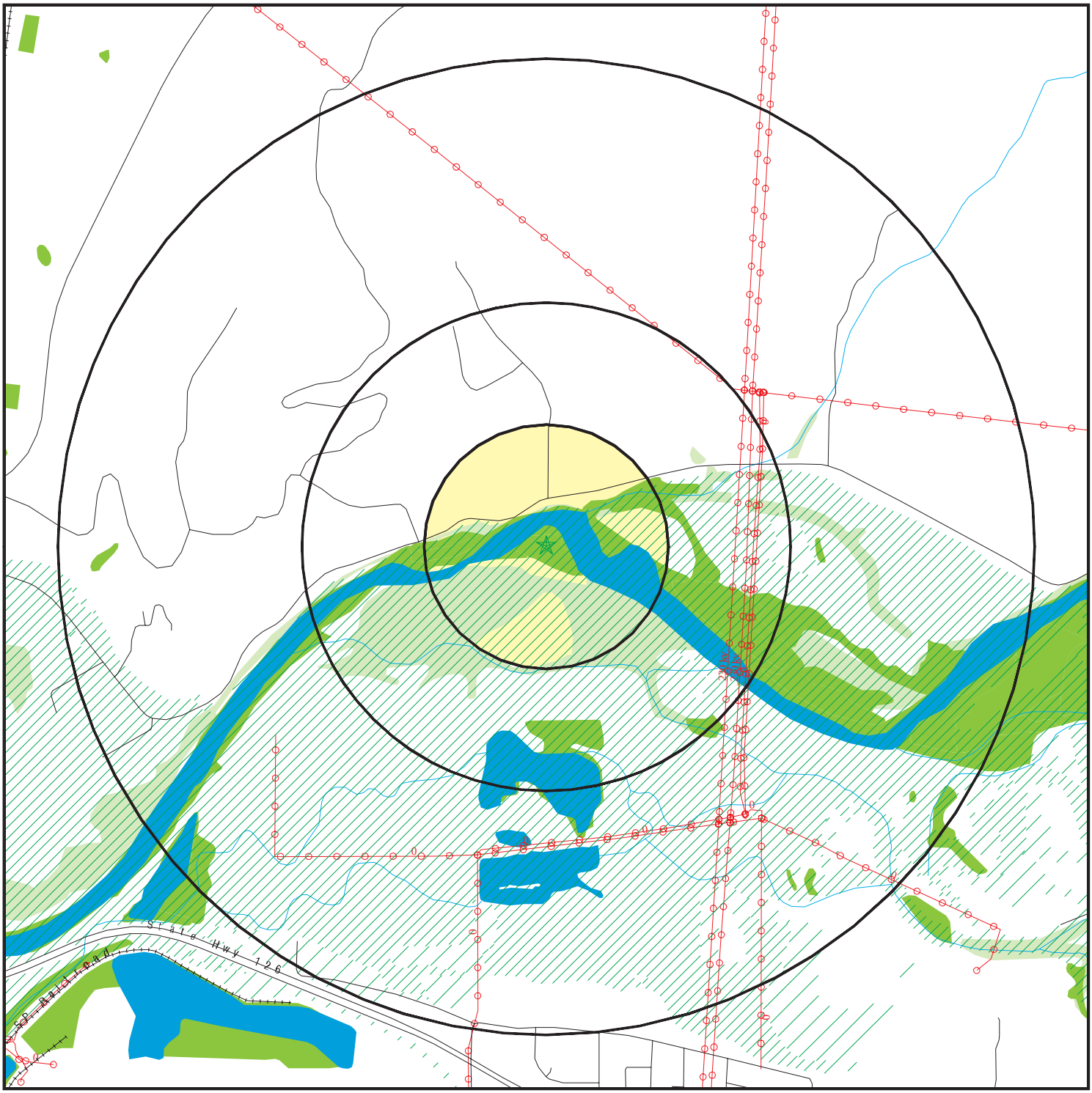
Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 4 records.

Site Name	Database(s)
SPRINGFIELD AREA GROUNDWATER CONTA	FINDS, ECSI
SPRINGFIELD AIRPORT (ABANDONED)	BROWNFIELDS, ECSI
WOOD STAVE LINE - SPRINGFIELD	FINDS, VCP, ECSI
RAINBOW WATER DISTRICT	HSIS

OVERVIEW MAP - 3791793.2s



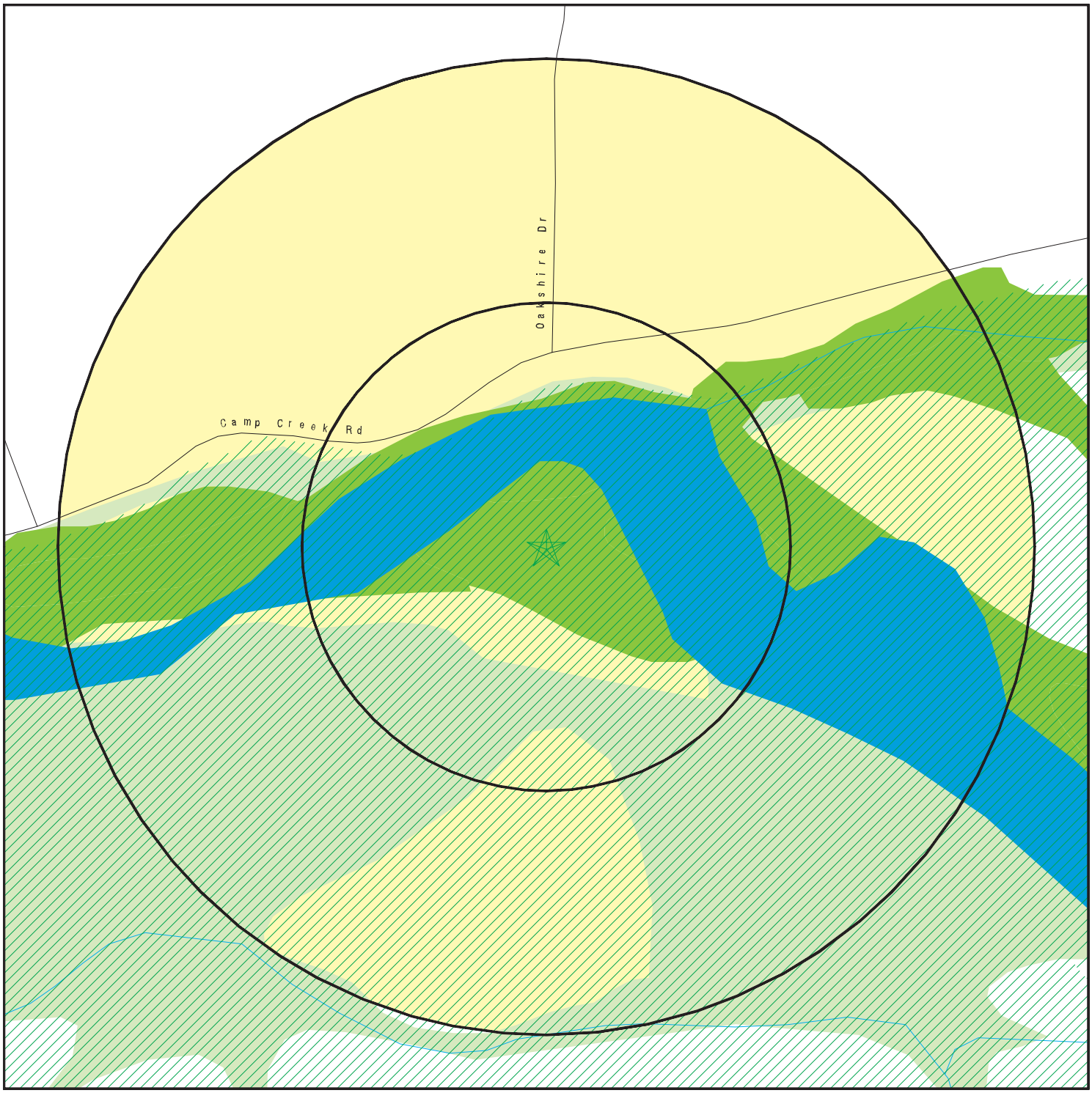
0 1/4 1/2 1 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Blue Water Ponds	CLIENT: US Army Corps of Engineers
ADDRESS: 52nd St & Highbanks Rd Springfield OR 97478	CONTACT: Alison Burcham
LAT/LONG: 44.0714 / 122.9372	INQUIRY #: 3791793.2s DATE: November 21, 2013 1:15 am

DETAIL MAP - 3791793.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Blue Water Ponds	CLIENT:	US Army Corps of Engineers
ADDRESS:	52nd St & Highbanks Rd Springfield OR 97478	CONTACT:	Alison Burcham
		INQUIRY #:	3791793.2s
LAT/LONG:	44.0714 / 122.9372	DATE:	November 21, 2013 1:15 am

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
OR CRL	1.000		0	0	0	0	NR	0
ECSI	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
ENG CONTROLS	0.500		0	0	0	NR	NR	0
INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
HIST LF	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
AOCONCERN	1.000		0	0	0	0	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
OR HAZMAT	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
MANIFEST	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
HSIS	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
COAL ASH	0.500		0	0	0	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		0	0	NR	NR	NR	0
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number

NO SITES FOUND

Count: 4 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
SPRINGFIELD	1007147940	SPRINGFIELD AREA GROUNDWATER CONTA	17S/2W/S30	97477	FINDS, ECSI
SPRINGFIELD	S111254243	RAINBOW WATER DISTRICT	1550 N 42ND ST	97478	HSIS
SPRINGFIELD	S106236342	SPRINGFIELD AIRPORT (ABANDONED)	SW CORNER OF 28TH & OLYMPIC ST	97478	BROWNFIELDS, ECSI
SPRINGFIELD	1006858566	WOOD STAVE LINE - SPRINGFIELD	DOWNTOWN SPRINGFIELD	97477	FINDS, VCP, ECSI

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/09/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 62

Source: EPA
Telephone: N/A
Last EDR Contact: 11/11/2013
Next Scheduled EDR Contact: 01/20/2014
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/09/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 62

Source: EPA
Telephone: N/A
Last EDR Contact: 11/11/2013
Next Scheduled EDR Contact: 01/20/2014
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/09/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 62

Source: EPA
Telephone: N/A
Last EDR Contact: 11/11/2013
Next Scheduled EDR Contact: 01/20/2014
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/29/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 72

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 11/11/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 10/09/2012
Date Made Active in Reports: 12/20/2012
Number of Days to Update: 72

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 10/11/2013
Next Scheduled EDR Contact: 01/20/2014
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/29/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 72

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 11/11/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/02/2013
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 10/02/2013
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 10/02/2013
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 10/02/2013
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 10/02/2013
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 104

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 09/10/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 104

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 09/10/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 08/20/2013
Date Data Arrived at EDR: 08/23/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 70

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 11/18/2013
Next Scheduled EDR Contact: 03/03/2014
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/17/2013
Date Made Active in Reports: 02/15/2013
Number of Days to Update: 29

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 10/01/2013
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

CRL: Confirmed Release List and Inventory

All facilities with a confirmed release.

Date of Government Version: 08/19/2013
Date Data Arrived at EDR: 08/22/2013
Date Made Active in Reports: 11/06/2013
Number of Days to Update: 76

Source: Department of Environmental Quality
Telephone: 503-229-6170
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

ECSI: Environmental Cleanup Site Information System

Sites that are or may be contaminated and may require cleanup.

Date of Government Version: 10/01/2013
Date Data Arrived at EDR: 10/24/2013
Date Made Active in Reports: 11/06/2013
Number of Days to Update: 13

Source: Department of Environmental Quality
Telephone: 503-229-6629
Last EDR Contact: 10/24/2013
Next Scheduled EDR Contact: 02/03/2014
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Solid Waste Facilities List

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/28/2013
Date Made Active in Reports: 11/04/2013
Number of Days to Update: 68

Source: Department of Environmental Quality
Telephone: 503-229-6299
Last EDR Contact: 08/23/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Semi-Annually

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 07/01/2013
Date Data Arrived at EDR: 08/22/2013
Date Made Active in Reports: 11/04/2013
Number of Days to Update: 74

Source: Department of Environmental Quality
Telephone: 503-229-5790
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 07/29/2013
Date Data Arrived at EDR: 07/30/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 94

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Quarterly

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 08/20/2013
Date Data Arrived at EDR: 08/23/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 70
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 11/01/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 91
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Semi-Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 08/27/2013
Date Data Arrived at EDR: 08/27/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 66
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 07/01/2013
Date Data Arrived at EDR: 08/22/2013
Date Made Active in Reports: 11/04/2013
Number of Days to Update: 74
Source: Department of Environmental Quality
Telephone: 503-229-5815
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

AST: Aboveground Storage Tanks
Aboveground storage tank locations reported to the Office of State Fire Marshal.

Date of Government Version: 07/23/2013
Date Data Arrived at EDR: 10/17/2013
Date Made Active in Reports: 11/06/2013
Number of Days to Update: 20

Source: Office of State Fire Marshal
Telephone: 503-378-3473
Last EDR Contact: 10/17/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 09/28/2012
Date Data Arrived at EDR: 11/07/2012
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 156

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 11/01/2014
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 91

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 08/20/2013
Date Data Arrived at EDR: 08/23/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 70

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011
Date Data Arrived at EDR: 05/11/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 34

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 43

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 07/29/2013
Date Data Arrived at EDR: 08/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 92

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 02/06/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 65

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/21/2013
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 45

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 10/17/2013
Next Scheduled EDR Contact: 01/27/2014
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

ENG CONTROLS: Engineering Controls Recorded at ESCI Sites

Engineering controls are physical measures selected or approved by the Director for the purpose of preventing or minimizing exposure to hazardous substances. Engineering controls may include, but are not limited to, fencing, capping, horizontal or vertical barriers, hydraulic controls, and alternative water supplies.

Date of Government Version: 10/01/2013
Date Data Arrived at EDR: 10/24/2013
Date Made Active in Reports: 11/06/2013
Number of Days to Update: 13

Source: Department of Environmental Quality
Telephone: 503-229-5193
Last EDR Contact: 10/24/2013
Next Scheduled EDR Contact: 02/03/2014
Data Release Frequency: Quarterly

INST CONTROL: Institutional Controls Recorded at ESCI Sites

An institutional control is a legal or administrative tool or action taken to reduce the potential for exposure to hazardous substances. Institutional controls may include, but are not limited to, use restrictions, environmental monitoring requirements, and site access and security measures.

Date of Government Version: 10/01/2013
Date Data Arrived at EDR: 10/24/2013
Date Made Active in Reports: 11/06/2013
Number of Days to Update: 13

Source: Department of Environmental Quality
Telephone: 503-229-5193
Last EDR Contact: 10/24/2013
Next Scheduled EDR Contact: 02/03/2014
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/28/2012
Date Data Arrived at EDR: 10/02/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 14
Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 10/01/2013
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27
Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCS: Voluntary Cleanup Program Sites
Responsible parties have entered into an agreement with DEQ to voluntarily address contamination associated with their property.

Date of Government Version: 07/22/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 09/06/2013
Number of Days to Update: 42
Source: DEQ
Telephone: 503-229-5256
Last EDR Contact: 11/07/2013
Next Scheduled EDR Contact: 01/20/2014
Data Release Frequency: Quarterly

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Projects
Brownfields investigations and/or cleanups that have been conducted in Oregon.

Date of Government Version: 08/19/2013
Date Data Arrived at EDR: 08/22/2013
Date Made Active in Reports: 11/06/2013
Number of Days to Update: 76
Source: Department of Environmental Quality
Telephone: 503-229-6801
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Semi-Annually

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/24/2013
Date Data Arrived at EDR: 06/25/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 45
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/24/2013
Next Scheduled EDR Contact: 01/08/2014
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137
Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39
Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST LF: Old Closed SW Disposal Sites
A list of solid waste disposal sites that have been closed for a long while.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 07/08/2003
Date Made Active in Reports: 07/18/2003
Number of Days to Update: 10
Source: Department of Environmental Quality
Telephone: 503-229-5409
Last EDR Contact: 07/08/2003
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWRCY: Recycling Facility Location Listing
A listing of recycling facility locations.

Date of Government Version: 09/03/2013
Date Data Arrived at EDR: 09/05/2013
Date Made Active in Reports: 11/04/2013
Number of Days to Update: 60
Source: Department of Environmental Quality
Telephone: 503-229-5353
Last EDR Contact: 09/05/2013
Next Scheduled EDR Contact: 12/16/2013
Data Release Frequency: Quarterly

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52
Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 11/04/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 08/06/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 22
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 09/04/2013
Next Scheduled EDR Contact: 12/16/2013
Data Release Frequency: Quarterly

AOC COL: Columbia Slough
Columbia Slough waterway boundaries.

Date of Government Version: 08/10/2005
Date Data Arrived at EDR: 05/17/2006
Date Made Active in Reports: 06/16/2006
Number of Days to Update: 30

Source: City of Portland Environmental Services
Telephone: 503-823-5310
Last EDR Contact: 03/13/2007
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

AOC MU: East Multnomah County Area
Approximate extent of TSA VOC plume February , 2002

Date of Government Version: N/A
Date Data Arrived at EDR: 10/07/2002
Date Made Active in Reports: 10/22/2002
Number of Days to Update: 15

Source: City of Portland Environmental Services
Telephone: 503-823-5310
Last EDR Contact: 03/13/2007
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CDL 2: Clandestine Drug Lab Site Listing
A listing of clandestine drug lab site locations included in the Incident database.

Date of Government Version: 08/01/2012
Date Data Arrived at EDR: 08/03/2012
Date Made Active in Reports: 09/11/2012
Number of Days to Update: 39

Source: Oregon State Police
Telephone: 503-373-1540
Last EDR Contact: 11/08/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Varies

CDL: Uninhabitable Drug Lab Properties
The properties listed on these county pages have been declared by a law enforcement agency to be unfit for use due to meth lab and/or storage activities. The properties are considered uninhabitable until cleaned up by a state certified decontamination contractor and a certificate of fitness is issued by the Oregon Health Division.

Date of Government Version: 07/22/2013
Date Data Arrived at EDR: 08/15/2013
Date Made Active in Reports: 09/03/2013
Number of Days to Update: 19

Source: Department of Consumer & Business Services
Telephone: 503-378-4133
Last EDR Contact: 11/11/2013
Next Scheduled EDR Contact: 02/24/2014
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 04/25/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 11/13/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 55

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 10/01/2013
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Annually

SPILLS: Spill Data

Oil and hazardous material spills reported to the Environmental Response Program.

Date of Government Version: 10/01/2013
Date Data Arrived at EDR: 10/16/2013
Date Made Active in Reports: 11/04/2013
Number of Days to Update: 19

Source: Department of Environmental Quality
Telephone: 503-229-5815
Last EDR Contact: 10/07/2013
Next Scheduled EDR Contact: 01/20/2014
Data Release Frequency: Semi-Annually

HAZMAT: Hazmat/Incidents

Hazardous material incidents reported to the State Fire Marshal by emergency responders. The hazardous material may or may not have been released.

Date of Government Version: 07/16/2013
Date Data Arrived at EDR: 08/07/2013
Date Made Active in Reports: 09/03/2013
Number of Days to Update: 27

Source: State Fire Marshal's Office
Telephone: 503-373-1540
Last EDR Contact: 11/08/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Semi-Annually

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 10/02/2013
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 11/06/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/18/2013
Next Scheduled EDR Contact: 01/27/2014
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 15

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/10/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/30/2013
Date Data Arrived at EDR: 08/07/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 57

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/30/2013
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 06/11/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 143

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/13/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/28/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 09/05/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 28

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 09/05/2013
Next Scheduled EDR Contact: 12/16/2013
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/30/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/24/2013
Next Scheduled EDR Contact: 01/08/2014
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011
Date Data Arrived at EDR: 11/10/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 10/09/2014
Next Scheduled EDR Contact: 01/27/2014
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2013
Date Data Arrived at EDR: 07/17/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 107

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/18/2013
Next Scheduled EDR Contact: 01/27/2014
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/22/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 91

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 09/10/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 09/30/2013
Date Data Arrived at EDR: 10/09/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 23

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 10/09/2013
Next Scheduled EDR Contact: 01/20/2014
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 03/08/2013
Date Data Arrived at EDR: 03/21/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 111

Source: EPA
Telephone: (206) 553-1200
Last EDR Contact: 09/11/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 05/08/2012
Date Data Arrived at EDR: 05/25/2012
Date Made Active in Reports: 07/10/2012
Number of Days to Update: 46

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 10/28/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 08/26/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Biennially

UIC: Underground Injection Control Program Database

DEQ's Underground Injection Control Program is authorized by the Environmental Protection Agency (EPA) to regulate all underground injection in Oregon to protect groundwater resources.

Date of Government Version: 09/05/2013
Date Data Arrived at EDR: 09/06/2013
Date Made Active in Reports: 11/04/2013
Number of Days to Update: 59

Source: Department of Environmental Quality
Telephone: 503-229-5945
Last EDR Contact: 09/30/2013
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Varies

OR MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 11/30/2012
Date Made Active in Reports: 01/08/2013
Number of Days to Update: 39

Source: Department of Environmental Quality
Telephone: N/A
Last EDR Contact: 11/08/2013
Next Scheduled EDR Contact: 02/24/2014
Data Release Frequency: Annually

DRYCLEANERS: Drycleaning Facilities

A listing of registered drycleaning facilities in Oregon.

Date of Government Version: 08/02/2013
Date Data Arrived at EDR: 08/07/2013
Date Made Active in Reports: 09/03/2013
Number of Days to Update: 27

Source: Department of Environmental Quality
Telephone: 503-229-6783
Last EDR Contact: 11/04/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Varies

NPDES: Wastewater Permits Database

A listing of permitted wastewater facilities.

Date of Government Version: 04/18/2013
Date Data Arrived at EDR: 04/18/2013
Date Made Active in Reports: 05/21/2013
Number of Days to Update: 33

Source: Department of Environmental Quality
Telephone: 503-229-5657
Last EDR Contact: 11/11/2013
Next Scheduled EDR Contact: 02/24/2014
Data Release Frequency: Quarterly

AIRS: Oregon Title V Facility Listing

A listing of Title V facility source and emissions information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 03/08/2013
Date Made Active in Reports: 04/09/2013
Number of Days to Update: 32

Source: Department of Environmental Quality
Telephone: 503-229-6459
Last EDR Contact: 09/03/2013
Next Scheduled EDR Contact: 12/16/2013
Data Release Frequency: Varies

HSIS: Hazardous Substance Information Survey

Companies in Oregon submitting the Hazardous Substance Information Survey and either reporting or not reporting hazardous substances.

Date of Government Version: 07/23/2013
Date Data Arrived at EDR: 10/17/2013
Date Made Active in Reports: 11/06/2013
Number of Days to Update: 20

Source: State Fire Marshal's Office
Telephone: 503-373-1540
Last EDR Contact: 10/17/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Semi-Annually

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/18/2013
Next Scheduled EDR Contact: 01/27/2014
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 11/18/2013
Next Scheduled EDR Contact: 02/03/2014
Data Release Frequency: Varies

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 06/30/2013
Date Data Arrived at EDR: 08/13/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 11/15/2013
Next Scheduled EDR Contact: 02/24/2014
Data Release Frequency: Quarterly

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/04/2013
Date Data Arrived at EDR: 03/15/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 11/18/2013
Next Scheduled EDR Contact: 03/03/2014
Data Release Frequency: Quarterly

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/18/2013
Next Scheduled EDR Contact: 01/27/2014
Data Release Frequency: N/A

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 11/01/2013
Next Scheduled EDR Contact: 02/11/2014
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 10/15/2013
Next Scheduled EDR Contact: 01/27/2014
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
Financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/28/2013
Date Made Active in Reports: 11/04/2013
Number of Days to Update: 68
Source: Department of Environmental Quality
Telephone: 503-229-5521
Last EDR Contact: 08/23/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 09/13/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Varies

COAL ASH: Coal Ash Disposal Sites Listing
A listing of coal ash disposal sites.

Date of Government Version: 06/01/2011
Date Data Arrived at EDR: 06/02/2011
Date Made Active in Reports: 06/30/2011
Number of Days to Update: 28
Source: Department of Environmental Quality
Telephone: 541-298-7255
Last EDR Contact: 09/10/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial assurance information for hazardous waste facilities.

Date of Government Version: 09/06/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 11/04/2013
Number of Days to Update: 54
Source: Department of Environmental Quality
Telephone: 541-633-2011
Last EDR Contact: 08/23/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 01/29/2013
Date Data Arrived at EDR: 02/14/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 13
Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 09/24/2013
Next Scheduled EDR Contact: 01/20/2014
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 11/15/2013
Next Scheduled EDR Contact: 02/24/2014
Data Release Frequency: Varies

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 04/15/2013
Date Data Arrived at EDR: 07/03/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 72

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 10/04/2013
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Quarterly

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/30/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 09/30/2013
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/30/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 09/30/2013
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Annually

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Proprietary Historic Dry Cleaners - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Auto Stat: EDR Proprietary Historic Gas Stations - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 11/01/2013
Date Data Arrived at EDR: 11/07/2013
Date Made Active in Reports: 11/18/2013
Number of Days to Update: 11

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 11/07/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 08/09/2013
Date Made Active in Reports: 09/27/2013
Number of Days to Update: 49

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/16/2013
Next Scheduled EDR Contact: 12/30/2013
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Child Care Listings
Source: Employment Department
Telephone: 503-947-1420

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory Data
Source: Oregon Geospatial Enterprise Office
Telephone: 503-378-2166

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

BLUE WATER PONDS
52ND ST & HIGHBANKS RD
SPRINGFIELD, OR 97478

TARGET PROPERTY COORDINATES

Latitude (North):	44.0714 - 44° 4' 17.04''
Longitude (West):	122.9372 - 122° 56' 13.92''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	505029.0
UTM Y (Meters):	4879589.0
Elevation:	483 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	44122-A8 SPRINGFIELD, OR
Most Recent Revision:	1986

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

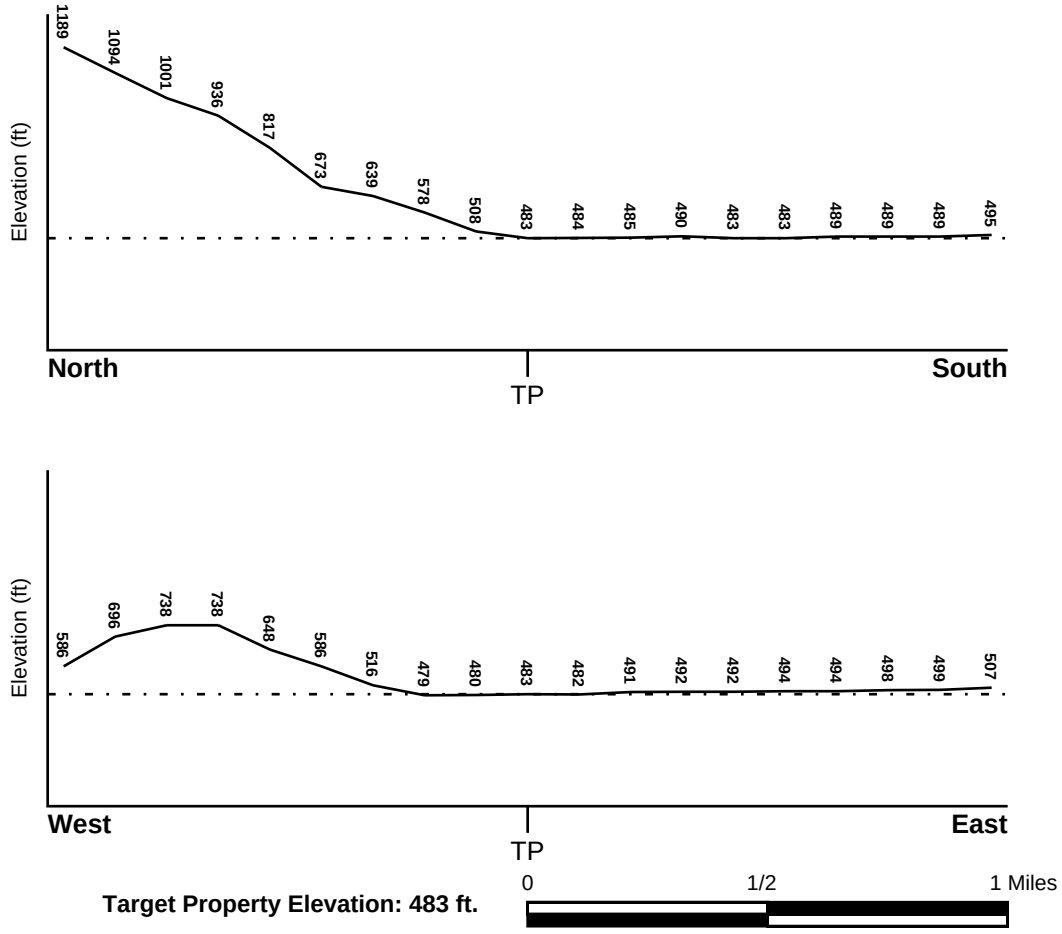
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General South

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 483 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
LANE, OR	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 41039C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
SPRINGFIELD	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

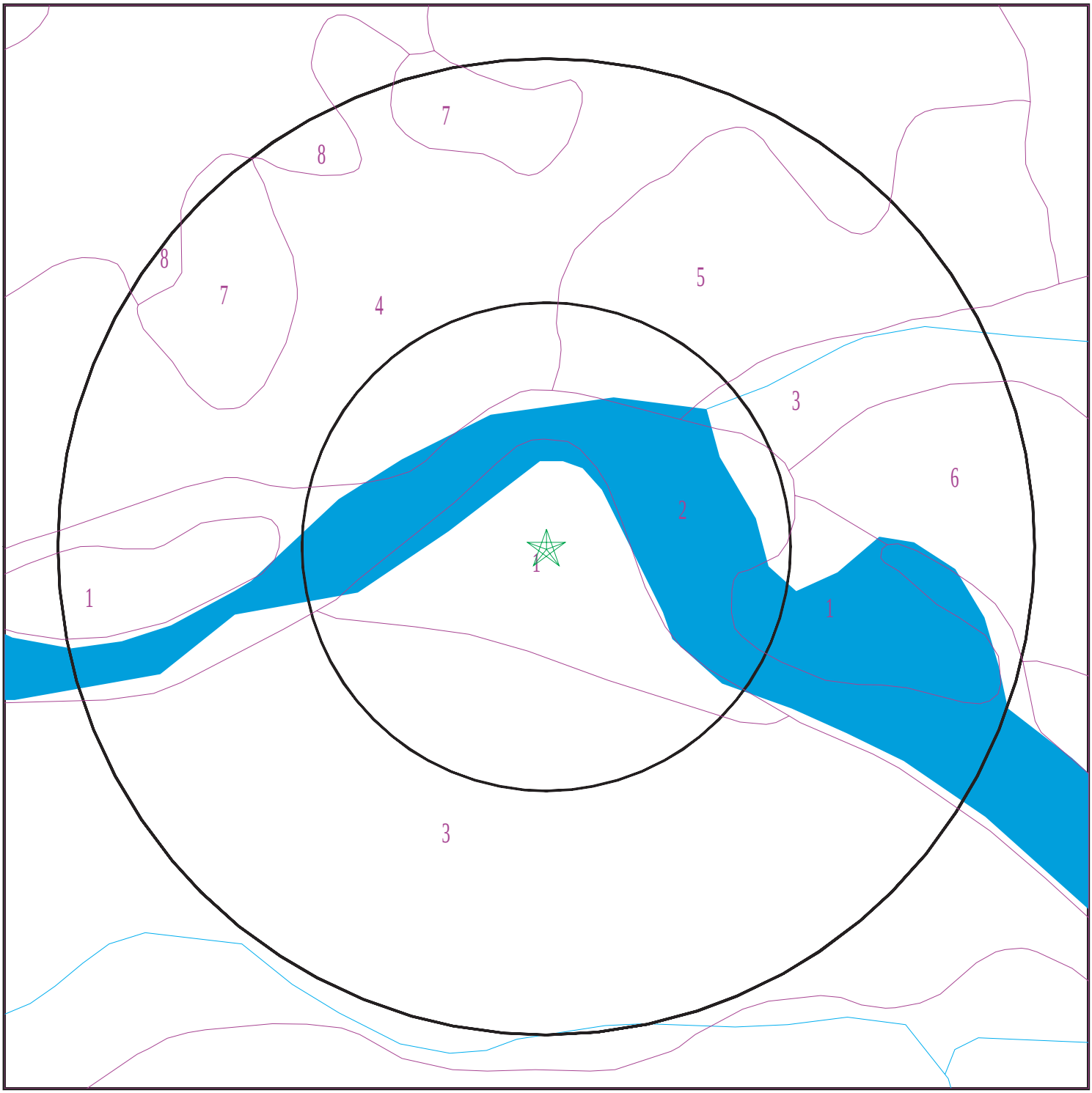
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 3791793.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Blue Water Ponds	CLIENT:	US Army Corps of Engineers
ADDRESS:	52nd St & Highbanks Rd Springfield OR 97478	CONTACT:	Alison Burcham
LAT/LONG:	44.0714 / 122.9372	INQUIRY #:	3791793.2s
		DATE:	November 21, 2013 1:16 am

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Riverwash

Soil Surface Texture: stratified gravel to sand

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 31 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	59 inches	stratified gravel to sand	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 2

Soil Component Name: Water

Soil Surface Texture: stratified gravel to sand

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:
Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 3

Soil Component Name: Fluvents

Soil Surface Texture: stratified gravel to sand

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 4

Soil Component Name: Dixonville

Soil Surface Texture: silty clay loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 46 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 6.5 Min: 5.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	14 inches	25 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 6.5 Min: 5.6
3	25 inches	35 inches	weathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 5

Soil Component Name: Dixonville

Soil Surface Texture: silty clay loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 46 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	14 inches	25 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 6.5 Min: 5.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	25 inches	35 inches	weathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 6

Soil Component Name: Newberg

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 5.6
2	14 inches	64 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 5.6

Soil Map ID: 7

Soil Component Name: Panther

Soil Surface Texture: silty clay loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 15 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 6.5 Min: 5.6
2	9 inches	42 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 6.5 Min: 3.5
3	42 inches	51 inches	weathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 8

Soil Component Name: Philomath

Soil Surface Texture: cobbly silty clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	cobbly silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	5 inches	14 inches	cobbly silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 5.6
3	14 inches	24 inches	weathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

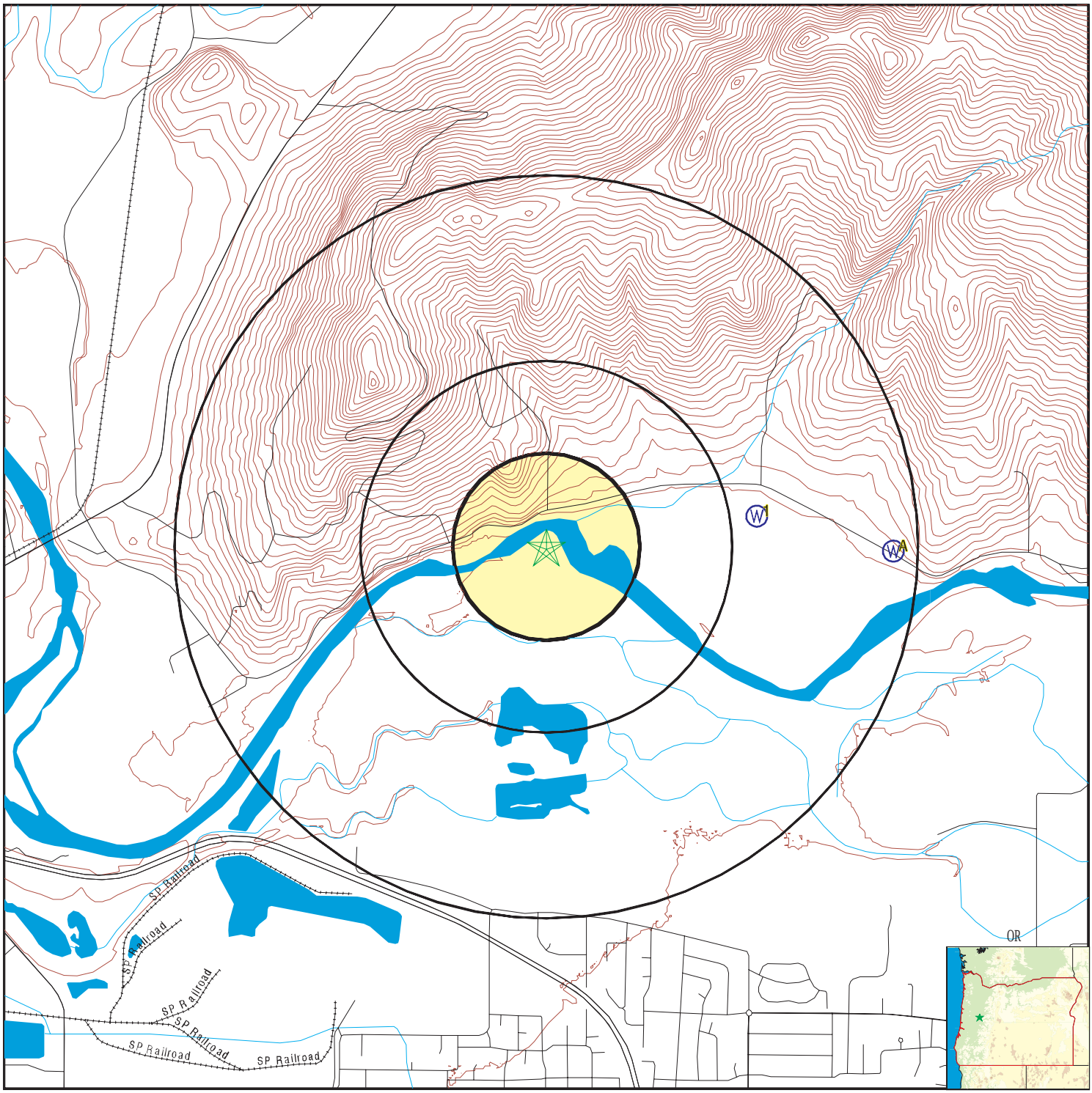
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	ORW400000002013	1/2 - 1 Mile East
A2	ORI400000003992	1/2 - 1 Mile East
A3	ORI400000003991	1/2 - 1 Mile East
A4	ORI400000003989	1/2 - 1 Mile East
A5	ORI400000003990	1/2 - 1 Mile East

PHYSICAL SETTING SOURCE MAP - 3791793.2s



County Boundary
Major Roads
Contour Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

Groundwater Flow Direction
GI Indeterminate Groundwater Flow at Location
GV Groundwater Flow Varies at Location

N

SITE NAME:	Blue Water Ponds	CLIENT:	US Army Corps of Engineers
ADDRESS:	52nd St & Highbanks Rd Springfield OR 97478	CONTACT:	Alison Burcham
		INQUIRY #:	3791793.2s
LAT/LONG:	44.0714 / 122.9372	DATE:	November 21, 2013 1:16 am

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
1 **East** **1/2 - 1 Mile** **Higher**	**OR WELLS**	**ORW400000002013**

Logid:	LANE 10591	Lstupdate:	Not Reported
Establby:	KARL WOZNIAK	Xysource:	UNKNOWN
Horizerr:	9999	Sourceorg:	USGS
Sourceowrd:	WILLGW		
Welltag:	0		
Sownum:	0	Obswell:	9
Recwell:	9	Obsflagall:	Not Reported
Lsdelev:	490	Site id:	ORW400000002013

	Database	EDR ID Number
A2 **East** **1/2 - 1 Mile** **Higher**	**OR WELLS**	**ORI400000003992**

Well inspe:	36345		
Physical l:	Not Reported	Inspection:	07/12/2004
Startcard :	Not Reported	Wl county :	Not Reported
Wl nbr:	Not Reported	Startcard1:	Not Reported
Well tag n:	Not Reported	No log:	0
Property o:	Not Reported	Inspecti 1:	Not Reported
Special st:	0	Title:	Not Reported
Inspecti 2:	Not Reported	Witnesses:	Not Reported
Name owner:	BRAINARD, WARREN		
Street:	Not Reported	City:	Not Reported
State:	Not Reported	Zip:	Not Reported
Phone home:	Not Reported	Phone comp:	Not Reported
Gps on wel:	0	Distance t:	Not Reported
Bearing to:	Not Reported	Drilling m:	Not Reported
Use of wel:	Not Reported	Drilling 1:	0
Rough log :	0	Inspected :	Not Reported
Well tag r:	Not Reported		
Monitoring:	Not Reported	Monitori 1:	0
Protective:	0	Well locke:	0
Consultant:	0	Water in v:	0
Seal test :	Not Reported	Samples ta:	0
Casing dia:	Not Reported	Csg above :	Not Reported
Csg gauge:	Not Reported	Borehole d:	Not Reported
Dedicated :	0	Access por:	0
Access p 1:	Not Reported	Measuring :	Not Reported
Measuring1:	0	Depth belo:	Not Reported
Depth be 1:	Not Reported	Tape hold:	Not Reported
Tape missi:	Not Reported	Tape cut:	Not Reported
Water leve:	Not Reported	Water le 1:	Not Reported
Cascading :	0	Pump type:	Not Reported
Pump make:	Not Reported	Pump hp:	Not Reported
Flowmeter :	Not Reported	Flowmeter1:	Not Reported
Flowmete 1:	Not Reported	Flowmete 2:	Not Reported
Associated:	Not Reported	Nbr of hou:	Not Reported
Deficiency:	Not Reported		
Inspecti 3:	RIG GONE; TAG ATTACHED; STILL NO WELL LOG		
Work new:	0	Work deepe:	0
Work conve:	0	Work alter:	-1
Work aband:	0	Work exist:	0
Work other:	Not Reported	Drill rota:	0

Drill ro 1:	0	Drill cabl:	0
Drill ca 1:	0	Drill reve:	0
Drill re 1:	0	Drill auge:	0
Drill push:	0	Drill hand:	0
Drill holl:	0	Drill soni:	0
Drill othe:	Not Reported	Use domest:	0
Use irriga:	0	Use commun:	0
Use indust:	0	Use livest:	0
Use dewate:	0	Use monito:	0
Use therma:	0	Use inject:	0
Use piezom:	0	Use observ:	0
Use recove:	0	Use other:	Not Reported
Bentonite :	0	Conductivi:	Not Reported
Conducti 1:	Not Reported		
Measuremen:	Not Reported		
Well tag 1:	Not Reported	Bonded lic:	Not Reported
Unbonded l:	Not Reported	Bonded dri:	Not Reported
Unbonded d:	Not Reported	County cod:	LANE
Tax lot:	Not Reported		
Township:	17		
Township c:	S		
Range:	2		
Range char:	W		
Sctn:	22		
Qtr40:	SE	Qtr160:	SW
Latitude d:	44.07123		
Longitude :	122.91843		
Gps horizo:	Not Reported		
Year const:	2004		
Date const:	Not Reported	Date con 1:	Not Reported
Deficienci:	Y	Previous i:	-1
Inspected1:	KRB	Wm region:	NW
Well tag a:	BANDED		
Well tag 2:	Not Reported	Depth:	Not Reported
Static wat:	Not Reported	Status of :	CMP
Location r:	Not Reported		
Site visit:	0	Type of lo:	Not Reported
Casing cap:	SS	Pictures t:	0
Street of :	Not Reported		
Street of1:	36485 CAMP CREEK RD, SPRINGFIELD		
Last updt :	07/12/2004	Last updt1:	byrdkr
Rec creati:	06/01/2009	Rec crea 1:	OWRD\migrate
Newlat:	44.07123		
Newlong:	-122.91843		
Site id:	ORI400000003992		

A3
East
1/2 - 1 Mile
Higher

OR WELLS **ORI400000003991**

Well inspe:	35751		
Physical l:	Not Reported	Inspection:	05/28/2004
Startcard :	Not Reported	Wl county :	Not Reported
Wl nbr:	Not Reported	Startcard1:	Not Reported
Well tag n:	Not Reported	No log:	0
Property o:	Not Reported	Inspecti 1:	Not Reported
Special st:	0	Title:	Not Reported
Inspecti 2:	Not Reported	Witnesses:	Not Reported
Name owner:	BRAINARD, WARREN		
Street:	Not Reported	City:	Not Reported

State:	Not Reported	Zip:	Not Reported
Phone home:	Not Reported	Phone comp:	Not Reported
Gps on wel:	0	Distance t:	Not Reported
Bearing to:	Not Reported	Drilling m:	Not Reported
Use of wel:	Not Reported	Drilling 1:	0
Rough log :	0	Inspected :	Not Reported
Well tag r:	Not Reported		
Monitoring:	Not Reported	Monitori 1:	0
Protective:	0	Well locke:	0
Consultant:	0	Water in v:	0
Seal test :	Not Reported	Samples ta:	0
Casing dia:	Not Reported	Csg above :	Not Reported
Csg gauge:	Not Reported	Borehole d:	Not Reported
Dedicated :	0	Access por:	0
Access p 1:	Not Reported	Measuring :	Not Reported
Measuring1:	0	Depth belo:	Not Reported
Depth be 1:	Not Reported	Tape hold:	Not Reported
Tape missi:	Not Reported	Tape cut:	Not Reported
Water leve:	Not Reported	Water le 1:	Not Reported
Cascading :	0	Pump type:	Not Reported
Pump make:	Not Reported	Pump hp:	Not Reported
Flowmeter :	Not Reported	Flowmeter1:	Not Reported
Flowmete 1:	Not Reported	Flowmete 2:	Not Reported
Associated:	Not Reported	Nbr of hou:	Not Reported
Deficiency:	Not Reported		
Inspecti 3:	RIG GONE; STILL NO TAG		
Work new:	0	Work deepe:	0
Work conve:	0	Work alter:	-1
Work aband:	0	Work exist:	0
Work other:	Not Reported	Drill rota:	0
Drill ro 1:	0	Drill cabl:	0
Drill ca 1:	0	Drill reve:	0
Drill re 1:	0	Drill auge:	0
Drill push:	0	Drill hand:	0
Drill holl:	0	Drill soni:	0
Drill othe:	Not Reported	Use domest:	0
Use irriga:	0	Use commun:	0
Use indust:	0	Use livest:	0
Use dewate:	0	Use monito:	0
Use therma:	0	Use inject:	0
Use piezom:	0	Use observ:	0
Use recove:	0	Use other:	Not Reported
Bentonite :	0	Conductivi:	Not Reported
Conducti 1:	Not Reported		
Measuremen:	Not Reported		
Well tag 1:	Not Reported	Bonded lic:	Not Reported
Unbonded l:	Not Reported	Bonded dri:	Not Reported
Unbonded d:	Not Reported	County cod:	LANE
Tax lot:	Not Reported		
Township:	17		
Township c:	S		
Range:	2		
Range char:	W		
Sctn:	22		
Qtr40:	SE	Qtr160:	SW
Latitude d:	44.07123		
Longitude :	122.91843		
Gps horizo:	Not Reported		
Year const:	2004		
Date const:	Not Reported	Date con 1:	Not Reported

Deficienci:	Y	Previous i:	-1
Inspected1:	KRB	Wm region:	NW
Well tag a:	NONE YET		
Well tag 2:	Not Reported	Depth:	Not Reported
Static wat:	Not Reported	Status of :	CMP
Location r:	Not Reported		
Site visit:	0	Type of lo:	Not Reported
Casing cap:	SS	Pictures t:	0
Street of :	Not Reported		
Street of1:	36485 CAMP CREEK RD, SPRINGFIELD		
Last updt :	05/28/2004	Last updt1:	byrdkr
Rec creati:	06/01/2009	Rec crea 1:	OWRD\migrate
Newlat:	44.07123		
Newlong:	-122.91843		
Site id:	ORI400000003991		

A4
East
1/2 - 1 Mile
Higher

OR WELLS **ORI400000003989**

Well inspe:	35217		
Physical l:	Not Reported	Inspection:	03/23/2004
Startcard :	Not Reported	Wl county :	Not Reported
Wl nbr:	Not Reported	Startcard1:	Not Reported
Well tag n:	Not Reported	No log:	0
Property o:	Not Reported	Inspecti 1:	Not Reported
Special st:	0	Title:	Not Reported
Inspecti 2:	Not Reported	Witnesses:	Not Reported
Name owner:	BRAINARD, WARREN		
Street:	Not Reported	City:	Not Reported
State:	Not Reported	Zip:	Not Reported
Phone home:	Not Reported	Phone comp:	Not Reported
Gps on wel:	0	Distance t:	Not Reported
Bearing to:	Not Reported	Drilling m:	Not Reported
Use of wel:	Not Reported	Drilling 1:	0
Rough log :	0	Inspected :	Not Reported
Well tag r:	Not Reported		
Monitoring:	Not Reported	Monitori 1:	0
Protective:	0	Well locke:	0
Consultant:	0	Water in v:	0
Seal test :	Not Reported	Samples ta:	0
Casing dia:	Not Reported	Csg above :	Not Reported
Csg gauge:	Not Reported	Borehole d:	Not Reported
Dedicated :	0	Access por:	0
Access p 1:	Not Reported	Measuring :	Not Reported
Measuring1:	0	Depth belo:	Not Reported
Depth be 1:	Not Reported	Tape hold:	Not Reported
Tape missi:	Not Reported	Tape cut:	Not Reported
Water leve:	Not Reported	Water le 1:	Not Reported
Cascading :	0	Pump type:	Not Reported
Pump make:	Not Reported	Pump hp:	Not Reported
Flowmeter :	Not Reported	Flowmeter1:	Not Reported
Flowmete 1:	Not Reported	Flowmete 2:	Not Reported
Associated:	Not Reported	Nbr of hou:	Not Reported
Deficiency:	Not Reported		
Inspecti 3:	RIG SET UP ON HOLE		
Work new:	0	Work deepe:	0
Work conve:	0	Work alter:	-1
Work aband:	0	Work exist:	0
Work other:	Not Reported	Drill rota:	0

Drill ro 1:	0	Drill cabl:	0
Drill ca 1:	0	Drill reve:	0
Drill re 1:	0	Drill auge:	0
Drill push:	0	Drill hand:	0
Drill holl:	0	Drill soni:	0
Drill othe:	Not Reported	Use domest:	0
Use irriga:	0	Use commun:	0
Use indust:	0	Use livest:	0
Use dewate:	0	Use monito:	0
Use therma:	0	Use inject:	0
Use piezom:	0	Use observ:	0
Use recove:	0	Use other:	Not Reported
Bentonite :	0	Conductivi:	Not Reported
Conducti 1:	Not Reported		
Measuremen:	Not Reported		
Well tag 1:	Not Reported	Bonded lic:	Not Reported
Unbonded l:	Not Reported	Bonded dri:	Not Reported
Unbonded d:	Not Reported	County cod:	LANE
Tax lot:	Not Reported		
Township:	17		
Township c:	S		
Range:	2		
Range char:	W		
Sctn:	22		
Qtr40:	SE	Qtr160:	SW
Latitude d:	44.07123		
Longitude :	122.91843		
Gps horizo:	Not Reported		
Year const:	2004		
Date const:	Not Reported	Date con 1:	Not Reported
Deficienci:	U	Previous i:	0
Inspected1:	KRB	Wm region:	NW
Well tag a:	NONE YET		
Well tag 2:	Not Reported	Depth:	Not Reported
Static wat:	Not Reported	Status of :	CMP
Location r:	Not Reported		
Site visit:	0	Type of lo:	Not Reported
Casing cap:	Not Reported	Pictures t:	0
Street of :	Not Reported		
Street of1:	36485 CAMP CREEK RD, SPRINGFIELD		
Last updt :	03/23/2004	Last updt1:	byrdkr
Rec creati:	06/01/2009	Rec crea 1:	OWRD\migrate
Newlat:	44.07123		
Newlong:	-122.91843		
Site id:	ORI400000003989		

A5
East
1/2 - 1 Mile
Higher

OR WELLS **ORI400000003990**

Well inspe:	35334		
Physical l:	Not Reported	Inspection:	04/09/2004
Startcard :	Not Reported	Wl county :	Not Reported
Wl nbr:	Not Reported	Startcard1:	Not Reported
Well tag n:	Not Reported	No log:	0
Property o:	Not Reported	Inspecti 1:	Not Reported
Special st:	0	Title:	Not Reported
Inspecti 2:	Not Reported	Witnesses:	Not Reported
Name owner:	BRAINARD, WARREN		
Street:	Not Reported	City:	Not Reported

State:	Not Reported	Zip:	Not Reported
Phone home:	Not Reported	Phone comp:	Not Reported
Gps on wel:	0	Distance t:	Not Reported
Bearing to:	Not Reported	Drilling m:	Not Reported
Use of wel:	Not Reported	Drilling 1:	0
Rough log :	0	Inspected :	Not Reported
Well tag r:	Not Reported		
Monitoring:	Not Reported	Monitori 1:	0
Protective:	0	Well locke:	0
Consultant:	0	Water in v:	0
Seal test :	Not Reported	Samples ta:	0
Casing dia:	Not Reported	Csg above :	Not Reported
Csg gauge:	Not Reported	Borehole d:	Not Reported
Dedicated :	0	Access por:	0
Access p 1:	Not Reported	Measuring :	Not Reported
Measuring1:	0	Depth belo:	Not Reported
Depth be 1:	Not Reported	Tape hold:	Not Reported
Tape missi:	Not Reported	Tape cut:	Not Reported
Water leve:	Not Reported	Water le 1:	Not Reported
Cascading :	0	Pump type:	Not Reported
Pump make:	Not Reported	Pump hp:	Not Reported
Flowmeter :	Not Reported	Flowmeter1:	Not Reported
Flowmete 1:	Not Reported	Flowmete 2:	Not Reported
Associated:	Not Reported	Nbr of hou:	Not Reported
Deficiency:	Not Reported		
Inspecti 3:	RIG GONE		
Work new:	0	Work deepe:	0
Work conve:	0	Work alter:	-1
Work aband:	0	Work exist:	0
Work other:	Not Reported	Drill rota:	0
Drill ro 1:	0	Drill cabl:	0
Drill ca 1:	0	Drill reve:	0
Drill re 1:	0	Drill auge:	0
Drill push:	0	Drill hand:	0
Drill holl:	0	Drill soni:	0
Drill othe:	Not Reported	Use domest:	0
Use irriga:	0	Use commun:	0
Use indust:	0	Use livest:	0
Use dewate:	0	Use monito:	0
Use therma:	0	Use inject:	0
Use piezom:	0	Use observ:	0
Use recove:	0	Use other:	Not Reported
Bentonite :	0	Conductivi:	Not Reported
Conducti 1:	Not Reported		
Measuremen:	Not Reported		
Well tag 1:	Not Reported	Bonded lic:	Not Reported
Unbonded l:	Not Reported	Bonded dri:	Not Reported
Unbonded d:	Not Reported	County cod:	LANE
Tax lot:	Not Reported		
Township:	17		
Township c:	S		
Range:	2		
Range char:	W		
Sctn:	22		
Qtr40:	SE	Qtr160:	SW
Latitude d:	44.07123		
Longitude :	122.91843		
Gps horizo:	Not Reported		
Year const:	2004		
Date const:	Not Reported	Date con 1:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Deficienci:	Y	Previous i:	-1
Inspected1:	KRB	Wm region:	NW
Well tag a:	NONE YET		
Well tag 2:	Not Reported	Depth:	Not Reported
Static wat:	Not Reported	Status of :	CMP
Location r:	Not Reported		
Site visit:	0	Type of lo:	Not Reported
Casing cap:	SS	Pictures t:	0
Street of :	Not Reported		
Street of1:	36485 CAMP CREEK RD, SPRINGFIELD		
Last updt :	04/09/2004	Last updt1:	byrdkr
Rec creati:	06/01/2009	Rec crea 1:	OWRD\migrate
Newlat:	44.07123		
Newlong:	-122.91843		
Site id:	ORI400000003990		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: OR Radon

Radon Test Results

Zipcode	Num Tests	Maximum	Minimum	Average	# > 4 pCi/L
97478	3	1.3	0.3	0.7	0

Federal EPA Radon Zone for LANE County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for LANE COUNTY, OR

Number of sites tested: 19

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area	0.850 pCi/L	100%	0%	0%
Basement	1.360 pCi/L	88%	12%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory Data
Source: Oregon Geospatial Enterprise Office
Telephone: 503-378-2166

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Data
Source: Department of Water Resources
Telephone: 503-986-0843

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Locations
Source: Department of Geology and Mineral Industries
Telephone: 971-673-1540
A listing of oil and gas well locations in the state.

RADON

State Database: OR Radon
Source: Oregon Health Services
Telephone: 503-731-4272
Radon Levels in Orgeon

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION


INQUIRY #: 3791793.5
YEAR: 2011
= 500'
N


INQUIRY #: 3791793.5
YEAR: 2012
= 500'
N

Blue Water Ponds
52nd St & Highbanks Rd
Springfield, OR 97478

Inquiry Number: 3791793.4
November 20, 2013

EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

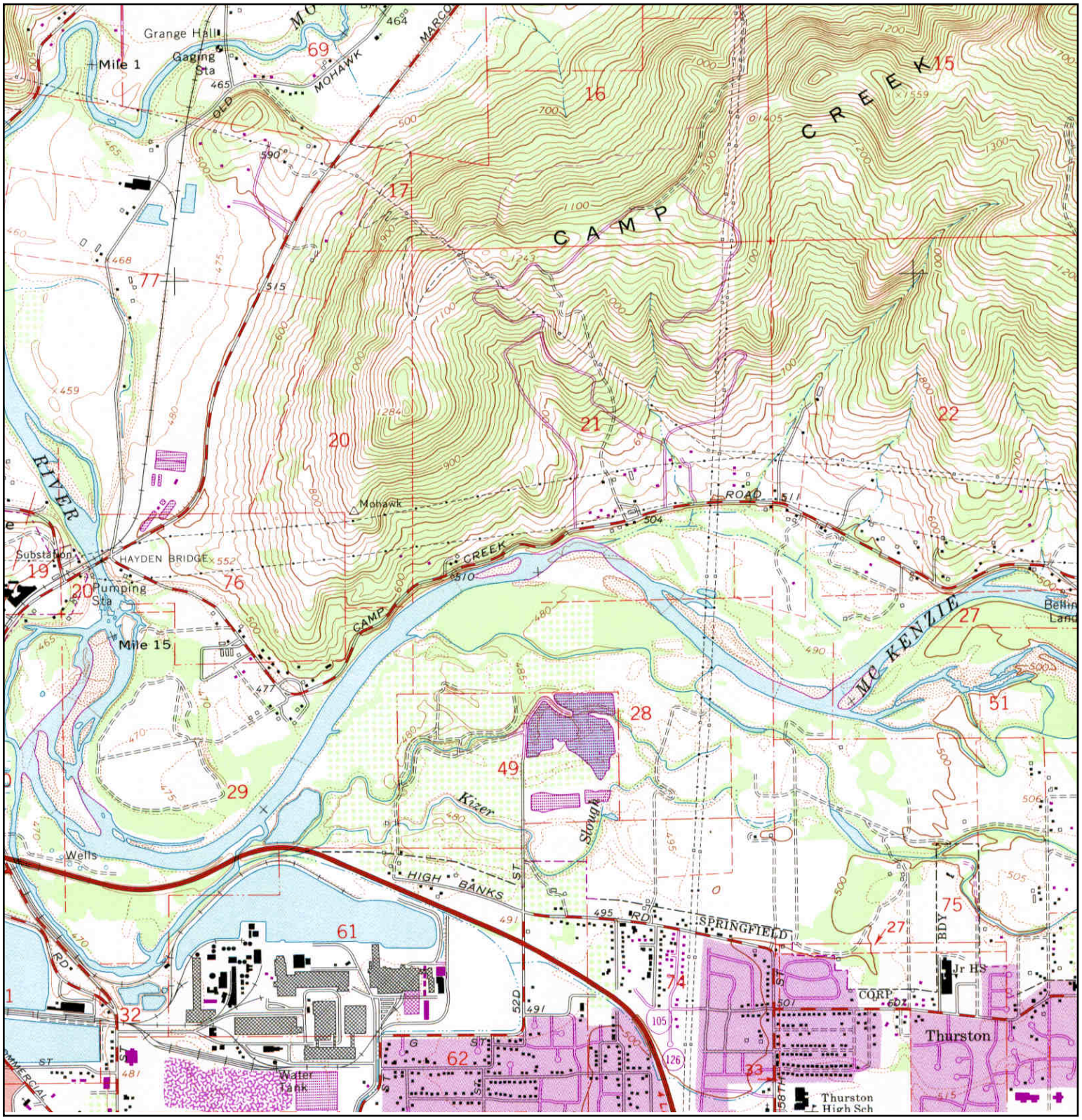
Historical Topographic Map

N	TARGET QUAD NAME: MARCOLA MAP YEAR: 1950 PROVISIONAL SERIES: 15 SCALE: 1:62500	SITE NAME: Blue Water Ponds ADDRESS: 52nd St & Highbanks Rd Springfield, OR 97478 LAT/LONG: 44.0714 / -122.9372	CLIENT: US Army Corps of Engineers CONTACT: Alison Burcham INQUIRY#: 3791793.4 RESEARCH DATE: 11/20/2013

Historical Topographic Map

N	TARGET QUAD NAME: SPRINGFIELD MAP YEAR: 1967 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Blue Water Ponds ADDRESS: 52nd St & Highbanks Rd Springfield, OR 97478 LAT/LONG: 44.0714 / -122.9372	CLIENT: US Army Corps of Engineers CONTACT: Alison Burcham INQUIRY#: 3791793.4 RESEARCH DATE: 11/20/2013

Historical Topographic Map



N	TARGET QUAD NAME: SPRINGFIELD MAP YEAR: 1986 PHOTOREVISED FROM :1967 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Blue Water Ponds ADDRESS: 52nd St & Highbanks Rd Springfield, OR 97478 LAT/LONG: 44.0714 / -122.9372	CLIENT: US Army Corps of Engineers CONTACT: Alison Burcham INQUIRY#: 3791793.4 RESEARCH DATE: 11/20/2013