| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Table 3.2.** Summary of Existing Watershed, Fish Use, and Water Quality Conditions for Class II Streams. | | | | | | | | | | | | | | | | |
| | **Clise** | **Colin** | **Country** | **High School** | **Idylwood** | **Mackey** | **Monticello** | **Perrigo** | **Peters** | **Sears** | **Seidel** | **Tosh** | **Tyler's** | **Valley Estates** | **Villa Marina** | **Willows** |
| **Land Cover** | | | | | | | | | | | | | | | | |
| % Forest [a] | 32% | 100% | 22% | 20% | 16% | 90% | 17% | 26% | 9% | < 1% | 99% | 15% | 11% | 8% | 15% | 28% |
| % Pasture [b] | 0% | 0% | 14% | 10% | 1% | 9% | 17% | 23% | 1% | < 1% | 1% | 6% | 11% | 7% | 0% | 14% |
| % Landscape [c] | 41% | 0% | 42% | 43% | 51% | 1% | 42% | 29% | 48% | 15% | 0% | 39% | 43% | 50% | 21% | 32% |
| % Effective Impervious Surface [d] | 26% | 0% | 22% | 27% | 32% | 0% | 23% | 22% | 42% | 84% | 0% | 39% | 35% | 35% | 64% | 26% |
| **Land Use [e]** | | | | | | | | | | | | | | | | |
| % Commercial | 0% | 0% | 0% | 11% | 2% | 0% | 4% | 3% | 5% | 75% | 0% | 15% | 17% | 8% | 64% | 15% |
| % Industrial | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 8% | 0% | 0% | 0% | 0% | 0% | 0% | 8% |
| % Roads [f] | 15% | 0% | 14% | 14% | 20% | 0% | 14% | 7% | 17% | 22% | 0% | 10% | 14% | 19% | 11% | 6% |
| % Single-Family Residential [g] | 48% | 0% | 42% | 62% | 59% | 0% | 63% | 24% | 46% | 1% | 0% | 38% | 43% | 62% | 5% | 36% |
| % Multifamily Residential [h] | 0% | 0% | 10% | 0% | 1% | 0% | 2% | 24% | 15% | 2% | 0% | 23% | 1% | 0% | 14% | 0% |
| % Parks and undeveloped land [i] | 36% | 100% | 33% | 12% | 19% | 100% | 17% | 42% | 8% | < 1% | 100% | 13% | 26% | 11% | 6% | 35% |
| **Physical Parameters** | | | | | | | | | | | | | | | | |
| Watershed Area (Acres inside City Limits) [j] | 73 | 90 | 212 | 635 | 152 | 172 | 264 | 503 | 1,007 | 364 | 615 | 276 | 167 | 172 | 365 | 453 |
| Total Watershed Area (Acres inside and outside of City Limits) [k] | 78 | 1,990 | 212 | 1,686 | 426 | 1,138 | 345 | 509 | 1,045 | 10,870 | 1,188 | 299 | 168 | 172 | 589 | 453 |
| Total Stream Length In City (feet) [l] | 4,815 | 2,260 | 7,210 | 14,650 | 4,330 | 10,230 | 6,125 | 5,455 | 21,325 | 0 | 22,220 | 10,370 | 2,990 | 3,135 | 3,920 | 13,040 |
| Class II Stream Length In City (feet) [l] | 1,260 | 2,260 | 5,000 | 8,505 | 3,920 | 4,920 | 3,170 | 4,280 | 12,250 | 0 | 13,260 | 7,215 | 2,020 | 2,010 | 2,470 | 9,835 |
| Total Stream Length (feet) [m] | 5,388 | 29,265 | 7,210 | 34,346 | 8,067 | 27,040 | 9,878 | 5,455 | 21,325 | 1,877 | 31,121 | 10,370 | 3,417 | 3,135 | 5,257 | 13,040 |
| Class II Stream Length (feet) [m] | 1,808 | 25,228 | 5,000 | 23,763 | 4,732 | 17,897 | 6,005 | 4,280 | 12,250 | 1,877 | 19,540 | 7,215 | 2,449 | 2,010 | 2,470 | 9,835 |
| **Fish Use** | | | | | | | | | | | | | | | | |
| Significant Salmonid Use (y/n) [n] | Yes | Yes | No | Yes | No | Yes | Yes | No | No | NS | Yes | Yes | No | No | No | No |
| Chinook Salmon (Washington Trout 2004 and 2005) | No | NS | No | No | No | NS | No | No | No | NS | No | No | No | No | No | No |
| Coho Use (Washington Trout 2004 and 2005) | Yes | NS | No | No | No | NS | Yes | No | Yes | NS | Yes | Yes | Yes | No | No | Yes |
| Other Salmonid Use (Observed by Redmond Staff) | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes |
| **Habitat** | | | | | | | | | | | | | | | | |
| Large Woody Debris / 100 LF [o] | 7.7 | 15 | 2.5 | 4.4 | 9.2 | 15 | 4.4 | 0.7 | 3.6 | NA | 15 | 3.2 | 1.6 | 1.4 | 3.3 | 3.8 |
| Tree Canopy % Cover in Buffers [p] | 80 | 97 | 69 | 67 | 56 | 82 | 46 | 36 | 57 | NA | 83 | 69 | 55 | 68 | 53 | 59 |
| 300-foot Buffer % Vegetated [q] | 71% | 99% | 42% | 57% | 15% | 84% | 49% | 21% | 27% | NA | 97% | 43% | 29% | 43% | 12% | 53% |
| 100-foot Buffer % Vegetated [q] | 80% | 100% | 59% | 78% | 46% | 89% | 70% | 22% | 55% | NA | 97% | 74% | 56% | 80% | 34% | 69% |
| **Water Quality** | | | | | | | | | | | | | | | | |
| Benthic Index of Biotic Integrity (B-IBI) [r] | 28/Fair | 28/Fair | 20/Poor | 24/Poor | 20/Poor | 38/Good | 36/Fair | 32/Fair | 20/Poor | No Data | 32/Fair | 19/Poor | 20/Poor | 18/Poor | 19/Poor | 22/Poor |
| Known Water Quality Impairments [s] | Yes | No Data | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No Data | No Data | Yes | Yes | Yes | Yes | Yes |
| High Temperature | No | No Data | No | No | Yes | Yes | Yes | Yes | No | No Data | No Data | No | Yes | No | Yes | Yes |
| Low Dissolved Oxygen | No | No Data | No | No | Yes | Yes | No | No | No | No Data | No Data | No | No | No | Yes | Yes |
| High Fecal Coliform Bacteria Concentration | Yes | No Data | Yes | Yes | Yes | No | Yes | No | Yes | No Data | No Data | Yes | No | Yes | Yes | Yes |

| | Clise | Colin | Country | High School | Idlywood | Mackey | Monticello | Perrigo | Peters | Sears | Seidel | Tosh | Tyler's | Valley Estates | Villa Marina | Willows |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Stormwater Influence** | | | | | | | | | | | | | | | | |
| % Effective Impervious Surfaces [t] | 26% | 0% | 22% | 27% | 32% | 0% | 23% | 22% | 42% | 84% | 0% | 39% | 35% | 35% | 64% | 26% |
| % High AADT Right-of-way [u] | 1.5% | 0.0% | 2.2% | 1.7% | 0.6% | 0.0% | 1.8% | 1.4% | 2.8% | 5% | 0.0% | **1.4%** | 0.0% | 1.2% | 2.8% | 1.0% |
| % Watershed Inside Redmond Needing Flow Control Retrofit [v] | 36% | 100% | 38% | 24% | 18% | 96% | 30% | 57% | 36% | 5% | 99% | 26% | 29% | 93% | 24% | 53% |
| % Watershed Inside Redmond Needing Basic WQ Treatment Retrofit [w] | 33% | 100% | 45% | 62% | 20% | 99% | 73% | 61% | 29% | 30% | 100% | 26% | 85% | 20% | 43% | 67% |
| # of Outfalls and Ditches [x] | 4 | 0 | 12 | 11 | 11 | 0 | 11 | 16 | 23 | 0 | 6 | 6 | 6 | 5 | 9 | 4 |
| # of Outfalls and Ditches/1,000 LF [y] | 4.0 | 0.0 | 3.0 | 1.6 | 2.8 | 0.0 | 3.8 | 4.9 | 3.8 | 0.0 | 1.2 | 3.0 | 3.0 | 4.9 | 1.1 | 4.0 |
| # of Culvert Crossings/1,000 LF Class II [z] | 0.8 | 0.0 | 1.6 | 1.2 | 0.8 | 0.2 | 0.9 | 1.9 | 1.1 | NA | 0.0 | 0.4 | 1.0 | 1.0 | 1.2 | 1.2 |
| # of Mapped Ditch Outfalls (or Pipes Smaller Than 12") Potentially Draining From Pollution Generating Surfaces within City Limits | 1 | 0 | 3 | 3 | 0 | 0 | 1 | 5 | 23 | 0 | 3 | 0 | 0 | 7 | 2 | 1 |

AADT = Annual average daily traffic LF = Linear feet

NA = Not applicable NS = Not surveyed

[a]  Forested areas were delineated using aerial photography by NHC (2006), and updated based on 2010 aerials by City of Redmond.

[b]  Pasture areas were delineated using aerial photography by NHC (2006), and updated based on 2010 aerials by City of Redmond.

[c]  Landscape is the area in developed watersheds that is not effective impervious. Developed areas (all areas not pasture or forest) were identified as effective impervious or landscaped based on literature values for each land use.

[d]  Effective Impervious is the area in developed watersheds that is impervious and directly connected to the storm drain system. Developed areas (all areas not pasture or forest) were identified as effective impervious or landscaped based on literature values for each land use.

[e]  Land use designations are parcel based and calculated by summing different land use types into the categories presented from a maintained City of Redmond Land Use GIS database. Function and structure code combinations were used for each land use type.

[f]  Roads include the right-of-way parcel, private, and public roads.

[g]  Single-family is further differentiated by development density. To determine the split between effective impervious and landscape, four categories of single-family were developed based on parcel size.

[h]  Multifamily includes condos and apartments. Commercial first story with dwelling units above are included in commercial area calculation.

[i]  Undeveloped land includes areas that are forest and pasture as well as other areas that are not developed.

[j]  Includes stormwater conveyance and topographic based watershed.

[k]  Total acres of stream area in and outside city limits. King County data was used outside city limits.

[l]  Limited to the city limits.

[m]  Not limited to the city limits; includes streams in other jurisdictions.

[n]  Observed significant salmonid use is greater than 50 fish per 100 linear feet of channel, taken from Washington Trout stream surveys (2004 and 2005) and Redmond staff observations.

[o]  Large Woody Debris - wood at least 10 inches in diameter and 10 feet long, in or over bankful channel counted by field crews. Weighted average of LWD density over walked channel length. Values for Colin, Mackey, and Seidel are estimated.

[p]  Tree canopy including trees a minimum 10-foot diameter canopy within regulatory buffers (for open channel stream reaches within the city limits). Digitized from 2007 aerial photos.

[q]  Higher values –equate to more vegetation. All vegetation excluding landscaped and mowed or plowed land is included - trees, shrubs, and unmowed grasses. Limited to city limits.

[r]  Benthic Index of Biotic Integrity (B-IBI) scores provide a quantitative method for determining and comparing the biological condition of streams using macroinvertebrate assemblages as indicators. B-IBI score shown is the median value of all samples taken from the applicable stream. 10-25=poor, 26-37=fair, 38-45=good, 46-50=excellent.

[s]  Waterbody is identified on the Ecology 303(d) list as a category 5 or category 4B (see *Chapter 2: Regulatory Drivers*) due to impairment from the indicated water quality parameter.

[t]  Same value as presented in land use section (presented here for easy reference).

[u]  Redmond traffic count data used to select right-of-ways where AADT is 7,500 or greater.

[v]  Percentage was calculated using the entire watershed area within Redmond minus areas that are currently forested, flow control exempt, or areas contributing runoff to a flow control facility designed to attenuate flows to match forested hydrology from 1/2 the 2-year through the 50-year storm event.

[w]  Percentage was calculated using the entire watershed area within Redmond minus areas that currently contribute runoff to a basic treatment facility or are currently forest or pasture.

[x]  Number of mapped stormwater outfalls or ditches draining pollution generating surfaces that discharge to a stream, for all stream classes within the city limits.

[y]  Outfalls and ditches draining pollution generating surfaces per 1,000 LF on all stream classes within the city limits.

[z]  Mapped culvert crossings (street, driveway, or utility) per 1,000 LF on mapped Class II stream channels in each watershed within the city limits. Does not include trail bridges, long storm pipes, pipe outfalls, or piped sections of stream headwaters (even if mapped in culvert layer).    Multiple parallel culverts are counted as one crossing.