Sustainable Development Study – R-1 Zone: Executive Summary

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City of Woodinville

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Sustainable Development Study: R-1 Zone
Executive Summary

Issue

The City of Woodinville determined that a review of zoning densities needed to occur on lands currently classified as R-1, where the minimum size for new parcels is one unit per acre. Under current Woodinville Municipal codes, the R-1 zone density can be increased to R-4 only upon approval of a rezone. R-1 to R-4 in the Woodinville’s Comprehensive Plan is considered Low Density. This document is called the Sustainable Development Study and includes four individual studies: environmental, neighborhood character, transportation, and capital facilities. The study was initiated after a Moratorium was established to limit development until the results of the study were available. The Moratorium is anticipated to end in March 2007.

The residential zones in the city make-up approximately 60% of the city’s 3,500 acres, with the R-1 zone encompassing approximately 30% or 1,100 acres. One of seven major neighborhoods, the R-1 neighborhood is located on the northeastern uplands of the city (see Figure ES-1), and is referred to as the Leota and Wellington Neighborhoods. R-4, R-6, R-8, and five multifamily residential designations comprise the remainder of the city’s residential area.

Viewed in the abstract, R-1 zoning has been inconsistent with past decisions by the Central Puget Sound Growth Management Hearings Board (Board) regarding minimum urban densities, but recent Court and Board decisions indicate that such densities are not necessarily required in all urban areas as an absolute rule. The Board and related case law guide decisions where densities may be allowed other than those the Board considers “compact urban.” In addition, the GMA calls for ensuring “the vitality and character of established residential neighborhoods,” and past Board decisions have explicitly authorized lower urban densities when they provide added or necessary protection for critical areas that are large in scope, complex in structure and function, and of a high rank order. (These criteria are known as the “Litowitz test,” following the name of the plaintiff in the case where they were first identified1.) Factors used in supporting lower densities are the same as those evaluated in this Sustainable Development Study:

- Environmental – what levels of density can the land support and maintain and protect important critical areas?

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1 Litowitz v. Federal Way, CPSGMHB Case No. 96-3-005 (July 22, 1996).
City of Woodinville
Zoning Map
2006

Figure ES-1. Zoning Map
- Neighborhood Character – what areas of the R-1 zoned land have a distinct character that requires recognition through zoning?
- Transportation – how would growth at different densities affect transportation systems?
- Capital Facilities and Services – are infrastructure systems and public services capable of growth at different densities?

In addition to the above, the following are relevant contextual factors that must be evaluated when determining densities and are specifically discussed in the neighborhood character report of this study:

- The percentage of the overall land in the City where lesser densities may be permitted,
- Whether the City is meeting its assigned growth target, the City’s overall average density, what density and designations are applied to undeveloped/unplatted areas of the City, and whether, overall, the City’s planning record indicates that it is meeting its obligations under the Growth Management Act (GMA).

The Sustainable Development Study examines each individual factor, and then based on a range of these factors, provides zoning alternatives/options for consideration by City decision-makers. Four options are proposed in this study. Policy and code amendments will be prepared supporting the City’s preferred option. Such policy and code amendments could include adding environmental, design, road, and capital facility based development standards.

**Introduction and Background**

The City of Woodinville is one of thirty-nine cities in King County and is adjacent to Snohomish County’s boundary. In 2002, the City compared its demographics to King County as a whole and several Eastside and other nearby cities. Compared with Seattle, Mill Creek, Bothell, Kirkland, Redmond, Bellevue, and Issaquah, the City had the largest household size, the most population under age 19, the least growth between 1990 and 2000, and the smallest population. The City, since its inception has promoted the desire to maintain a “Northwest Woodland Character,” identifying that desire in numerous places, including its Comprehensive Plan goals, Land Use LU-1, Community Design Goal CD-2, and Environmental Goal ENV-6. Houses in the R-1 zone are mostly homes built in the 1960’s through the 1980’s on large lots, but in other R-zoned areas they are newer homes on smaller lots.

**Growth Management Act Goals**

The GMA established 13 goals for the comprehensive planning process. Per RCW 36.70A.020, the following goals are not listed in order of priority and shall be used exclusively for the purpose of guiding the development of comprehensive plans and development regulations:
- **Urban growth.** Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner.

- **Reduce sprawl.** Reduce the inappropriate conversion of undeveloped land into sprawling, low-density development.

- **Transportation.** Encourage efficient multi-modal transportation systems that are based on regional priorities and coordinated with county and city comprehensive plans.

- **Housing.** Encourage the availability of affordable housing to all economic segments of the population of this state, promote a variety of residential densities and housing types, and encourage preservation of existing housing stock.

- **Economic development.** Encourage economic development throughout the state that is consistent with adopted comprehensive plans; promote economic opportunity for all citizens of this state, especially for unemployed and for disadvantaged persons; promote the retention and expansion of existing businesses and recruitment of new businesses; recognize regional differences impacting economic development opportunities; and encourage growth in areas experiencing insufficient economic growth, all within the capacities of the state's natural resources, public services, and public facilities.

- **Property rights.** Private property shall not be taken for public use without just compensation having been made. The property rights of landowners shall be protected from arbitrary and discriminatory actions.

- **Permits.** Applications for both state and local government permits should be processed in a timely and fair manner to ensure predictability.

- **Natural resource industries.** Maintain and enhance natural resource-based industries, including productive timber, agricultural and fisheries industries. Encourage the conservation of productive forestlands and productive agricultural lands, and discourage incompatible uses.

- **Open space and recreation.** Retain open space, enhance recreational opportunities, conserve fish and wildlife habitat, increase access to natural resource lands and water, and develop parks and recreation facilities.

- **Environment.** Protect the environment and enhance the state's high quality of life, including air and water quality, and the availability of water.

- **Citizen participation and coordination.** Encourage the involvement of citizens in the planning process and ensure coordination between communities and jurisdictions to reconcile conflicts.

- **Public facilities and services.** Ensure that those public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.

- **Historic preservation.** Identify and encourage the preservation of lands, sites and structures that have historical or archaeological significance.
Of particular interest in the R-1 study are goals to reduce sprawl, protect the environment, and provide housing choices.

**Growth Management and Urban Densities**

In 1995, the Central Puget Sound Growth Management Hearings Board established a “general rule” of four net dwelling units per acre as a minimum density for urban areas under the GMA. Calling this standard a “bright line,” the Board stated:

> Any residential pattern at that density, or higher, is clearly compact urban development and satisfies the low end of the range required by the Act. Any larger urban lots will be subject to increased scrutiny by the Board to determine if the number, locations, configurations and rationale for such lot sizes complies with the goals and requirements of the Act, and the jurisdiction’s ability to meet its obligations to accept any allocated share of County-wide population. Any new residential land use pattern within a UGA [Urban Growth Area] that is less dense is not a compact urban development pattern, constitutes urban sprawl, and is prohibited.

The next year, the Central Board identified the criteria it would use to determine whether environmental factors could justify a lower density in urban areas:

> The Board holds that when environmentally sensitive systems are large in scope (e.g. a watershed or drainage sub-basin), their structure and functions are complex and their rank order value is high, a local government may also choose to afford a higher level of protection by means of land use plan designations lower than 4 du [dwelling units]/acre.

These criteria have come to be known as “the Litowitz test,” following the name of the plaintiff in the case. The criteria have not changed, nor have they been substantially clarified, under subsequent Growth Board decisions. This leaves many important details somewhat ambiguous. Watersheds and drainage sub-basins can be identified across a wide range of sizes, from a large river system like the Columbia River to an individual wetland or small stream. To some degree, the structure and functions of nearly all natural systems are complex. The meaning of “rank order value” is also unclear and depends on scale. A particular stream or wetland, for example, could rank of high importance within a small jurisdiction or small drainage basin but of much less importance when considered at larger geographic scales. Nevertheless, it is clear that critical areas that are not of high relative value within the larger natural systems in the surrounding vicinity or within an individual jurisdiction would be unlikely to pass the Litowitz test.

In a later case, *Fuhriman v. Bothell*, the Board acknowledged “a possible expansion of Litowitz analysis,” where lower densities might be allowed to protect critical areas that do not, strictly speaking, meet the Litowitz test. It noted that critical areas that are linked hydrologically could have “unique geologic or topographical features that would also require the additional level of protection of lower densities in those limited geologically hazardous landscapes.” Such areas might, for example, provide sources of cool water for streams and rivers, wildlife habitat, and other ecological features.
functions. The Board has never explicitly addressed whether it would support reduced densities solely to reduce the public safety threat of geologic hazards, which generally can be addressed through other means (e.g., setbacks, vegetation retention, appropriate stormwater management, and site-specific conditions on development).

Complicating this legal context further, in 2005 the Washington State Supreme Court held that the Growth Boards do not have the legal authority to set “bright line” rules that are not contained within the GMA. And, it suggested that local conditions, such as the existence of private covenants restricting density, could be taken into account by local governments in planning under the GMA. In March 2006, a King County Superior Court judge cited this Supreme Court ruling in voiding a Central Board decision against the City of Normandy Park, where the City had adopted a GMA plan which retained the existing zoning which is generally well below four units per acre. Judge Bruce Hilyer found that, both under the Supreme Court case and under his own independent reading of the GMA, Growth Boards do not have the authority to impose “bright line” rules of their own construction, heightened scrutiny tests, or uniform minimum residential densities. Judge Hilyer emphasized that, under the GMA, deference must be given to a local government’s decision regarding appropriate urban densities, based on local circumstances. The fact that the City’s plan met its growth allocations and that the City had no UGA appear to have been among key factors in the Normandy Park case.

Several parties have appealed and asked the Supreme Court to accept direct review of Judge Hilyer’s decision. Thus, it is not absolutely certain what criteria might be applied to judge the validity of Woodinville’s R-1 zoning, should it be challenged to the Central Board or the courts. It is worth noting, however, that the GMA provides for a “broad range of discretion” in local planning. The Act’s housing goal explicitly promotes “a variety of residential densities and housing types, and encourage[s] preservation of existing housing stock.” (RCW 36.70A.020(4)) The Act also calls for housing elements in local Comprehensive Plans that ensure “the vitality and character of established residential neighborhoods” (RCW 36.70A.070(2)).

While there may be less certainty about urban and rural densities, the GMA goals that must be balanced remain. By reviewing a range of important planning issues – environmental, neighborhood character, transportation, and capital facilities – the City intends to achieve a balance of GMA goals appropriate to local conditions in Woodinville.

**Growth Targets**

In addition to meeting GMA goals, the City must plan for its fair share of population growth in accordance with GMA provisions. Under the King County population allocation process performed under the GMA, the City of Woodinville is required to provide up to 1,869 new housing units by the year 2022. In an extensive public process, the City has strategically evaluated where and how it could locate its population growth with the goal of preserving its woodland community character. The City did this through creation of a Central Business District zone for the downtown, which allows a base density of 36 units per acre, up to a maximum of 48 units per acre. With development standards that
encourage high density housing and transit-oriented design, the City’s buildable land analysis shows that the City has sufficient capacity under its current zoning to accommodate at least 1,947 new housing units, 78 more than are needed to meet its 2022 population allocation (see Attachment B for more information). Therefore, during review of the R-1 zone, the primary concern is protecting critical areas without concern for the City’s ability to meet its growth forecast.

Public Participation

Another GMA goal involves ensuring public participation. To that end, a citizen’s advisory panel was appointed. In addition, the Planning Commission conducted meetings. As of February 20, 2007, the following meetings have been conducted:

**CAP Meetings**

- July 12, 2006: Discussion of Issues & Scope of Work; Develop Tentative Meeting Schedule
- July 19, 2006: Introduction of Subject Experts; Technical Expert Presentations; Stormwater, Hydrogeology, Limnology, Other
- August 2, 2006: Legal Issues; Technical Experts Continued; Data Needs; Critical Areas Definitions; Goals Discussion
- August 23, 2006: Goals Discussion; Data Needs; Critical Areas; Neighborhood Character
- September 6, 2006: Discussion Of One Sentence Purpose of Being a Member; Continuation of Goals Discussion
- September 14, 2006: Continuation Of Goals Discussion
- September 19, 2006: Continuation of Goals Discussion
- October 12, 2006: Environmental Studies Presentation, Consultants; Miscellaneous; Continuation of Goals Development; Transportation Issues Mailed
- November 15, 2006: Draft Environmental Report Presentation; CAP Final Goals and Policies Recommendation
- December 27, 2006: Draft Environmental Report Status; Housing-Neighborhood Character Study; Comp. Plan & Regulatory Amendment Strategies
- January 3, 2007: Draft Environmental Report Status; Housing-Neighborhood Character Study; Comp. Plan & Regulatory Amendment Strategies
- January 10, 2007: Open House Sustainable Development
- January 18, 2007: Open House Sustainable Development: Schedule Of Sustainable Development Project: Housing-Neighborhood Character Study: Other Reports of Project

**Planning Commission Meetings**

- June 7, 2006: Appointment of CAP Members
- August 16, 2006: Status Report On Environmental Studies
- September 20, 2006: Status Report On Sustainable Development
- November 15, 2006: Joint Meeting With CAP & Consultants Re: Environmental Report
- January 3, 2007: Comprehensive Plan, Zoning Code And Regulatory Amendment Proposal Discussion
- January 18, 2007: Open House Sustainable Development
- January 24, 2007: Joint Meeting with CAP and Consultants; Review Draft Sustainable Development Report
- January 31, 2007: Public Hearing
- February 14, 2007: Public Hearing and Deliberation

The City Council is conducting additional public meetings and hearings through March 2007. Please see [www.ci.woodinville.wa.us](http://www.ci.woodinville.wa.us) for more information.
Analysis

Table ES-1 outlines the reports prepared and used for this Study. Each report is summarized below and in Table ES-2. In addition, each report is provided as an attachment to this Executive Summary.

Table ES-1. Report Preparation Matrix

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Environmental

Two critical areas in the R-1 zone appear to meet the Litowitz test that allows for lower densities in urban areas to protect large scope, complex and high rank order critical areas – Cold Creek and Lake Leota. These two critical areas are linked: the Lake Leota basin is the primary headwaters for Cold Creek. The outlet stream of Lake Leota is, in fact, Cold Creek, but for the majority of time the lake does not flow out through this stream, but instead discharges into groundwater, which reaches Cold Creek through seeps and springs to the east of the R-1 zone. Cold Creek’s unusual reliance on groundwater is why it provides a steady flow of cold, clean water to the Bear Creek system downstream. Bear Creek is a large producer of naturally spawned salmon for a stream its size in western Washington, and, according to the Environmental Report, Cold Creek plays a very important role in that. The Lake Leota basin comprises approximately 40% of the entire R-1 zone (see Figure ES-2 for a map of drainage basins in the R-1 zone).

The Environmental Report (Attachment A) recommends that the Lake Leota basin is best suited for lower densities that preserve and protect Lake Leota and Cold Creek. For the most part, R-1 is expected to produce the best results. The report also mentions a number of other recommendations for the lake’s protection, including stormwater and channel improvements upstream, continuance of the current no-engine rule for boats, best management practices for lakeside property owners and others in the wider lake basin, improvements in monitoring, and changes in how the lake’s outlet is controlled. For the long-term, the Environmental Report recommends a lake management plan.

In the School Basin, which drains directly to Cold Creek and is immediately east of the Lake Leota Basin, the Environmental Report recommends extensive use of low-impact development regulations (LID) and improved mapping of streams and wetlands, to help protect the creek. The basin does not require the need for R-1 densities.

In the Upper Woodin Creek Basin in the southwestern portion of the R-1 zone, the Environmental Report identifies geologic hazard areas that require specific engineering and geotechnical protection. In addition and where appropriate, careful use of LID (which, if inappropriately constructed, could destabilize hazard areas) could provide beneficial effects. In the Golf Course Basin, and the Hillside Drainages Basin, which ultimately flow to Little Bear Creek, and in the Upper Woodin Creek Basin, the Environmental Report recommends tightlining stormwater in fuse-welded pipe (e.g. HDPE pipe) near geologic hazards to below areas of instability. The Environmental Report also includes a hydrogeologic modeling of a worst-case scenario to determine how the geologic hazards in both of these areas may be affected by stormwater infiltration and what setback would be required if the worst case actually existed. Such infiltration might provide benefits to Lake Leota but could increase potential threats to these hazards. The southwest portion of the Upper Woodin Creek basin has complex, steep terrain that would best be served by lesser density, but the upper flatter portion of the basin could allow for greater density. (See Figure ES-3 for a topography map based on LIDAR imaging; note that the red boundary identifies the areas of 15% slopes or greater.)
Figure ES-2. Woodinville Drainage Areas

Drainage areas
- Red: Hillside Drainages
- Yellow: School Basin
- Green: Lake Leota Basin
- Blue: Woodin Creek Basin
- Purple: Daniels Creek Basin
- Orange: Golf Course Basin

Legend:
- Orange diamond: R-1 boundary
- Light blue: Waterbodies

Scale: 1:13,500

Legend details:
- R-1 boundary
- Waterbodies
Based on environmental factors, the conclusions of this study differ for different areas of the R-1 zone, primarily because of complex patterns of surface water drainage and groundwater flow and the special needs to protect Leota Basin and Cold Creek that cannot be accomplished by the standard requirements of the city’s Critical Areas Ordinance. The data collected for this study has been used to determine a broader planning level analysis that identifies whether or not different zoning densities could improve the protection of important critical areas in the city. Taking into account that individual developments are required to protect on-site critical areas such as streams, wetlands, steep slopes, aquifer recharge areas, and others by complying with the Woodinville Municipal Code, Critical Areas Ordinance, Chapter 21.24, the conclusions of this study determined that Lake Leota and Cold Creek required additional protection through decreased densities. In summary, the Environmental Report finds that one particular basin encompassing much of the R-1 zone area, the Lake Leota Basin, meets the CPSGMHB Litowitz criteria allowing for additional environmental protection through zoning densities. Other implementing development regulation measures are recommended in other basins to protect environmental quality.

Neighborhood Character

Based on urban design principles, 12 theoretical neighborhoods were identified and evaluated for distinct neighborhood characteristics in the “Neighborhood Character in the R-1 Zone Report” found in Attachment B. These conceptual neighborhoods are identified on Figure ES-4 and below:

- **Northwest Wellington.** The neighborhood is heavily wooded, has excellent spatial order and building texture, cohesive circulation, and is visually cohesive in terms of buildings, block patterns, and streets that together crisply define neighborhood boundaries.

- **Southwest Wellington.** Accessibility and lot configuration largely define this neighborhood. External access is limited, which makes for an enclave-like place. The wooded setting adds immensely to a sense of place.

- **North Wellington.** With few exceptions, this neighborhood is defined by its location in a physiographic plain and by the degree of road connectivity. External accessibility also defines boundaries and encloses the neighborhood.

- **Central Wellington.** There is only one major access into this neighborhood, NE 195th Street. Other minor roads connect from different directions and are closed off or dead end. Central Wellington is somewhat more defined by adjacent neighborhoods than it is unto itself.

- **South Wellington.** This area is commonly accessed off of 156th Avenue NE. It contains many unimproved or private roads that are the result of short plat activity. Its boundaries, similar to those of Central Wellington, are easily defined by adjacent neighborhoods.

- **Northeast Wellington.** This is a neighborhood defined primarily by the constricted nature of access. There is only one way in and one way out via 168th Avenue NE. It is further isolated by school property occupying the major portion of its southern extremity.
Figure ES-4. Conceptual Subareas
North Leota. North Leota is characterized by its adjacency to Woodinville-Duvall Road and by its broad range of lot sizes. There is no connectivity in any sense of the term, but this neighborhood occupies the greatest extent of the Leota outwash plain niche.

Leota. This neighborhood is the best defined in the study area. Common views, common access, lot configuration enclosure, and wooded nature make this one of Woodinville’s most distinct places.

South Leota. This is a well-defined neighborhood, all on an even grade, facing northeast, shaded in the afternoon, wooded slope. Political boundaries and transportation network provide strong elements to boundary definition.

Laurel Plateau. Terrace-flat topography defines this neighborhood. Steep slopes and formal subdivision boundaries confine this area into one neighborhood.

Woodway-Laurel Hills. This neighborhood predominantly consists of two formal subdivisions that have similar street networks and topography. Ridge and slope topography characterize its common physiographic niche, and its richly manicured landscape amidst tall woods creates a common definitive sense of place.

Lower Woodway. This neighborhood located in the southwest fringe of the study area has common access off of NE 173rd Street. Steep slopes are common throughout. Its identity is defined by its adjacency to its neighbor and by its isolation because of topography and access limitations.

Each neighborhood was evaluated by methods of character identification that included visual surveys and overlay mapping iterations of human-made, physical, and environmental phenomena. See the Neighborhood Character Report (Attachment B) for details. This analysis was performed with the intent of identifying neighborhood character and validating its importance as a vital element in certain neighborhoods of Woodinville.

Based on the evaluation, the Neighborhood Character report identifies five neighborhoods with distinctive character that could be diminished if redevelopment occurred within them at different than existing densities, whether lower or higher:

- Northwest Wellington
- Southwest Wellington
- North Wellington
- Leota
- Woodway-Laurel Hills

These five neighborhoods were recommended to receive “neighborhood character recognition” through maintaining existing common density in the neighborhood. The neighborhood analysis concluded that neighborhood character has an important place along with environment, transportation, and capital facilities in the Woodinville R-1 Area.
Transportation

The R-1 study area was reviewed for transportation conditions; please see Attachment C. Results show the majority of the roadways within the R-1 zone were developed under King County prior to the City’s incorporation. With the exception of newer roads constructed under the City’s design requirements, the local streets in the R-1 zone do not meet the City’s road cross-section standards. Under the Fire Department Access standard, requiring a minimum paved width of 20 feet, only a few short sections of roadways do not meet this standard.

Future road improvements, for the arterial and collector classified roads, have been identified in the City’s long-range capital improvements program (CIP) and will be systematically reviewed and considered for improvements. It is likely improvements will be performed in several phases along each of these classifications of roadways and as need dictates and development warrants. On local streets, these are likely to occur under special projects (such as a special district for sidewalks) or under development mitigation.

The 156th Avenue NE corridor in the R-1 area was used to review operational projections for LOS at public road intersections. Using a very conservative traffic circulation model (with 50% of the existing R-1 zone redeveloping at a higher density, an annual growth of 2.5%, and assuming no road improvements) the analysis identified two intersections that would exceed the City’s adopted LOS E by 2028. At both locations, the LOS could be brought back into compliance with widening improvements within the existing public right-of-way. The analysis assumptions included the Institute of Transportation Engineers (ITE) Trip Generation manual, 7th edition. It is an international guideline used by traffic engineers and other professionals who are responsible for meeting mobility and safety needs.

For vehicle capacity, both the City’s “Low-Density” and “High-Density” road standards, provide the same vehicle trip capacity. If additional capacity were needed, due to physical restrictions within the roadway (such as the need to address a narrow road section), adequate right-of-way currently exists to allow for any needed improvement to address deficiencies.

Several local streets, and one minor arterial, have been identified with vertical sight distance conditions. These instances are under review by the City for possible mitigation measures. Road grades within the entire R-1 zone are all within the City’s acceptable standards (under 15%).

Pedestrian and bike facilities are very limited within the entire R-1 zone area. Only Woodinville-Duvall Road has designated shared pedestrian and bike facilities along both sides of the roadway. Most of the developments following incorporation of the City (in 1993) do provide pedestrian facilities. However, these make up a very small portion of the R-1 zone. Of the remaining streets, it is estimated that less than 20% have any type of pedestrian facility and travel by non-motorized means must utilize the edge of the pavement or shoulder area.

In summary, transportation conditions can be mitigated under different densities, and transportation is not a distinguishing factor in the R-1 study. However, one area in the southwest portion of the Upper
Woodin Creek Basin, with particularly difficult terrain for transportation improvements, may be a candidate for less density (pers. com. Mick Monken, Public Works Director, January 19, 2007).

**Capital Facilities**

A range of capital facilities and services are evaluated in the Capital Facilities report (see Attachment D). Results are similar for all R-1 zoned areas for police and fire services, schools, and water services. Differences are found in relation to sewer services as described below.

- **Police and Fire Services.** Projected increases in housing units due to zoning ranging from R-1 to R-4 would not affect response time for the police and fire service providers. Population and housing increases may require additional personnel and facilities (vehicles), but response time is not expected by increases in density, unless access is restricted.

- **Schools.** Student populations are currently in the decline and an excess capacity exists in the R-1 area; therefore, increasing density would not create an effect on schools.

- **Water.** Increases in R-1 area zoning to R-4 over buildable parcels, would result in an increase in demand for 4,312 gallons per day in the entire study area, considered by Water District officials to have no major impact to the current capacity of supply or facilities.

- **Sewer.** The western portion of the R-1 zone has gravity access to the existing sewer facilities and is physically better suited for R-4 zoning. The eastern area of the basin is more difficult to serve due to severe grade changes that would involve pump stations and major expenses. The Capital Facilities report indicates that the eastern portion is better suited for lower densities only as it relates to sewer until such time as sewer facility economics becomes feasible. Figure ES-5 identifies the “break” between the areas more easily sewered than those areas less easily sewered at the present time.

**Overlay of All Study Topics**

Based on each individual study topic, the following results were found:

- **Environmental:** Two critical areas in the R-1 zone appear to meet the Litowitz test that allows for lower densities in urban areas to protect large scope, complex and high rank order critical areas – Cold Creek and Lake Leota. These two critical areas are linked: the Lake Leota basin is the primary headwaters for Cold Creek. Applying these environmental study results alone, this would mean that R-1 zoning is an appropriate application in the Lake Leota Basin in addition to existing critical areas regulations. Other implementing development regulation measures are recommended in other basins to protect environmental quality. The Lake Leota basin appears on Figure ES-2 in green shading, and is also identified in Figure ES-6. A zoning option that focuses on the environmental results alone is presented later in this report – Figure ES-8 illustrates R-1 zoning for the Lake Leota Basin. See Attachment A for more information.
- **Neighborhood Character**: Based on the evaluation, the Neighborhood Character report identifies five neighborhoods with distinctive character that could be diminished if redevelopment occurred within them at different than existing densities, whether lower or higher: Northwest Wellington; Southwest Wellington; North Wellington; Leota; and Woodway-Laurel Hills. These five neighborhoods were recommended to receive “neighborhood character recognition” through maintaining existing common density in the neighborhood. These neighborhoods are identified on Figure ES-4 as well as highlighted on Figure ES-6. If considering the Neighborhood Character analysis by itself, the densities that would help maintain existing common density patterns vary in the five neighborhoods from R-1, R-2 and R-3. See Attachment B, Figure 19, for more information.

- **Transportation**: Transportation conditions can be mitigated under different densities, and transportation is not a distinguishing factor in the R-1 study. However, one area in the southwest portion of the Upper Woodin Creek Basin, with particularly difficult terrain for transportation improvements, may be a candidate for less density. Figure ES-6 illustrates the portion of the Upper Woodin Creek Basin where the slope system would likely inhibit more transportation improvements.

- **Capital Facilities**: Generally, public safety (police and fire services), school services, and water services can accommodate additional growth under R-1 or R-4 densities. The western portion of the R-1 zone has gravity access to the existing sewer facilities and is physically better suited for R-4 zoning. The eastern area of the basin is more difficult to serve due to severe grade changes that would involve pump stations and major expenses. The Capital Facilities report indicates that the eastern portion is better suited for lower densities only as it relates to sewer until such time as sewer facility economics becomes feasible. Figure ES-5 identifies the “break” between the areas more easily seweried than those areas less easily seweried at the present time. Figure ES-6 also shows sewer accessibility in conjunction with the other environmental, neighborhood, and transportation conclusions.

Figure ES-6 presents an overlay map showing environmental basins, neighborhood subareas identified as having high character, an area where future transportation improvements would be more difficult due to complex steep slopes, and areas where sewer service is more or less accessible. The zoning options presented below emphasize one or more of the four topics – environmental, neighborhood character, transportation, and capital facilities.
Figure ES-6. Composite Basin, Neighborhood Subarea, Transportation and Sewer Suitability Map
Table ES-2. Sustainable Development Report Summary Matrix

<table>
<thead>
<tr>
<th>Location/Boundary</th>
<th>Environmental</th>
<th>Neighborhood Character</th>
<th>Transportation</th>
<th>Capital Facilities</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lake Leota Basin</td>
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<td></td>
<td>Contains all or part of the following conceptual neighborhood sub-areas:</td>
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<td></td>
<td>- Northwest Wellington</td>
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<td>- Southwest Wellington</td>
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<td>- South Wellington</td>
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<td>- Lease</td>
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<td>- South Lesa</td>
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<td>- Woodlau-Laurel Hills</td>
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<td>Conclusions:</td>
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<tr>
<td></td>
<td>- R-1 zoning provides substantial, long-term environmental benefits not solely achieved by requirements of the Critical Areas Ordinance.</td>
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<td>- Even if increased density is necessary to provide sewer service, there would be a net environmental benefit directly surrounding the lake.</td>
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<td></td>
<td>- Require Low-Impact Development (LID) as part of stormwater regulations throughout basin. LID performs best at lower densities.</td>
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<td>Technical Findings:</td>
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<td>- Lake Leota and Cold Creek meet 1st water criteria; lake is part of Cold Creek headwaters which flows to Bear Creek, high spawning tributary in Western Washington.</td>
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<td>- Lake is at risk of accelerating eutrophication; which would lessen with increased development density.</td>
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<td></td>
<td>- Lake is growing shallower, becoming more polluted.</td>
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<td>- Trend/pore long-term risks to Cold Creek; Bear Creek system.</td>
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<td>- Goal minimize eroded sediments from stormwater entering lake.</td>
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<td>- Reducing net nutrient inputs by replacing septic systems directly adjacent/around lake with sewer would probably be positive even if accompanied by other impacts on water quality from increased density.</td>
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<td>- Septic systems should be upgraded to increase nutrient removal.</td>
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<td>- Limited Steep Slopes – per mapping</td>
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<td></td>
<td>- Wildlife – no protected species documented, many birds and mammals exist in an urban setting.</td>
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<tr>
<td>North of NE Woodinville-Duvall Road (System A):</td>
<td>Roads have asphalt pavement with some areas of gravel shoulders and a mixture of open ditch or open shoulder drainage. The layout is typically long block sections with some gentle curvatures. Only a very small portion of streets in this area have curb and gutter or sidewalk sections. Internal circulation is possible in the northwesterly and northeasterly neighborhoods. Some vertical sight distance conditions have been identified in this area in the northeasterly neighborhoods.</td>
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<td>North of NE Woodinville-Duvall Road (System C): The general characteristics of these roads are asphalt pavement with some areas of gravel shoulders along one side and a mixture of open ditch or open shoulder drainage. No streets were identified in this area to have curb and gutter of sidewalk sections. Internal circulation is fair. No sight distance concerns have been identified in this area.</td>
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<td>South of NE Woodinville-Duvall Road (System B):</td>
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<td>Interception Levels of Service 156th Ave NE:</td>
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<td>at NE 198th Street and NE 195th Street would exceed adopted levels of service. However, it is likely that the LOS can be improved by the addition of turn lanes on both the arterial and local roadways and/or by the installation of a traffic control device such as a 4-way stop. Both NE 199th and NE 198th have sufficient right-of-way to allow for the lane widening.</td>
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<td>The western edge of the Lake Leota Basin has gravity access to the existing sewer facilities and may be physically suitable for R-4 zoning.</td>
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<td>Even if increased density is necessary to provide sewer service, there would be a net environmental benefit directly surrounding the lake.</td>
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<td>Require Low-Impact Development (LID) as part of stormwater regulations throughout basin. LID performs best at lower densities.</td>
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<td>Septic systems should be upgraded to increase nutrient removal.</td>
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<td>Limited Steep Slopes – per mapping</td>
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<td>Wildlife – no protected species documented, many birds and mammals exist in an urban setting.</td>
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February 2007
### School Basin

**Conclusions:**
- R-1 zoning benefits Cold Creek, but with minimal effect on its most important attributes; maintaining low density in the part of R-1 Zone is not as important as in Lake Lesia Basin.
- R-4 could have negative impact without LID.
- Emphasis in this area is requiring LID through stormwater performance standards for new development. This provides greatest benefit at lower densities but, ironically, they may be more important at higher densities, where the potential impacts to downstream resources would be greater without such an effort.

**Technical Findings:**
- Surface water from basin drains to Cold Creek, provides relatively small contribution to Cold Creek flows.
- Groundwater drains west, bypassing Cold Creek.
- Stormwater impacts have little effect on contribution of cold, steady flow to Cold Creek.
- Cold Creek remains important system to protect in its own right, supporting five salmon species.
- Limited Swamp Spaces — per mapping
- Wildlife — no protected species documented, many birds and mammals exist in an urban setting.

### Daniels Creek Basin

**Conclusions:**
- R-1 zoning provides minor benefits to Daniels Creek, minimal benefits to Bear Creek system.
- LID would provide some benefit, but lower priority than elsewhere.

**Technical Findings:**
- Surface water from area is small part of Daniels Creek basin; groundwater drains to west.
- Cottage Lake attenuates impact of Daniels Creek Basin on rest of Bear Creek system.
- Limited Swamp Spaces — per mapping
- Wildlife — no protected species documented, many birds and mammals exist in an urban setting.

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### Table: Location/Boundary, Environmental, Neighborhood Character, Transportation, Capital Facilities, Summary

<table>
<thead>
<tr>
<th>Location/Boundary</th>
<th>Environmental</th>
<th>Neighborhood Character</th>
<th>Transportation</th>
<th>Capital Facilities</th>
<th>Summary</th>
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<tbody>
<tr>
<td>School Basin</td>
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<td>Contains all or part of the following conceptual neighborhood sub-areas:</td>
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<td>Northeast Wellington</td>
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<td>Central Wellington</td>
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<td>North Leota</td>
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<td>Identified for neighborhood character recognition through zoning measures</td>
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<td>Adescription of the sub-areas follows:</td>
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<td>North Wellnignton: With few exceptions, this neighborhood is defined by its location in a physiographic plain and by the degree of road connectivity. Internal accessibility also defines boundaries and encloses the neighborhood.</td>
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<td>Northeast Wellington: This is a neighborhood defined primarily by the contact that nature of access. There is only one way in and one way out via 164th Avenue NE. It is further isolated by school property occupying the major portion of its southern extremity.</td>
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<td>Central Wellington: There is only one major access into this neighborhood, NE 19th Street. Other minor roads connect from different directions and are closed off or dead ends. Central Wellington is somewhat more defined by adjacent neighborhoods than it is unto itself.</td>
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<td>North Leota: North Leota is characterized by its adjacency to Woodinville-Duvall Road and by its broad range of lot sizes. There is no connectivity in any sense of the term, but this neighborhood occupies the greatest extent of the Leota outwash plain niche.</td>
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</table>

**Conclusions:**
- North of NE Woodinville-Duvall Road (System A): Roads have asphalt pavement with some areas of gravel shoulders and a mixture of open ditch or open shoulder drainage. The layout is typically long block sections with some gentle curves. Only a very small portion of streets in this area has curb and gutter or sidewalk sections. Internal circulation is possible in the northwesterly neighborhoods including part of the School Basin area.

**Technical Findings:**
- Surface water from basin drains to Cold Creek; provides relatively small contribution to Cold Creek flows.
- Limited Steep Slopes — per mapping
- Wildlife — no protected species documented, many birds and mammals exist in an urban setting.

**Summary:**
- The basin is more difficult to sewer due to its location, which would involve pump stations at major expense. The area should remain at R-1, until such time as sewer facility economics becomes feasible.

---

**Technical Findings:**
- Stormwater impacts have little effect on contribution of cold, steady flow to Cold Creek.
- Cold Creek remains important system to protect in its own right, supporting five salmon species.
- Limited Swamp Spaces — per mapping
- Wildlife — no protected species documented, many birds and mammals exist in an urban setting.

**Summary:**
- R-4 possible with environmental mitigation such as stormwater management.
- R-2 appropriate for neighborhood character recognition in North Wellington; a range of R densities (2 to 4) identified in other sub-areas.
- Lower transportation network exists, but standards in place for development will address growth at any level including R-4. Neutral issue for zoning.
- Grade change and associated sewer cost limit higher densities at this time.

---

**Technical Findings:**
- Surface water from basin drains to Cold Creek, provides relatively small contribution to Cold Creek flows.
- Groundwater drains west, bypassing Cold Creek.
- Stormwater impacts have little effect on contribution of cold, steady flow to Cold Creek.
- Cold Creek remains important system to protect in its own right, supporting five salmon species.
- Limited Swamp Spaces — per mapping
- Wildlife — no protected species documented, many birds and mammals exist in an urban setting.

**Summary:**
- The basin is more difficult to sewer due to its location, which would involve pump stations at major expense. The area should remain at R-1, until such time as sewer facility economics becomes feasible.

---

**Technical Findings:**
- Surface water from basin drains to Cold Creek; provides relatively small contribution to Cold Creek flows.
- Limited Steep Slopes — per mapping
- Wildlife — no protected species documented, many birds and mammals exist in an urban setting.

**Summary:**
- R-4 possible with environmental mitigation.
- No conceptual neighborhood sub-areas identified for neighborhood character recognition, R-4 density possible.
- More limited access options, but internal circulation possible including R-4. Neutral issue for zoning.
- Grade change and associated sewer cost limit higher densities at this time.

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### Upper Woodin Creek Basin

#### Location/Boundary
- Contains all or part of the following conceptual neighborhood sub-areas:
  - Laurel Plateau
  - Woodway-Laurel Hills
  - Lower Woodway

#### Environmental
- South of NE Woodinville-Duvall Road (System CP): The general characteristics of these roads are asphalt pavement with some areas of paved shoulders along one side and a mixture of open ditch or open shoulder drainage. The terrain has gentle to moderate (Hill slope) grade changes. Some grades in this section appear to be at the 15% grade slope standard. The layout is typically long block sections with gentle to moderate curve sections. No streets were identified in this area to have curb and gutter or sidewalk sections. Internal circulation is fair. No sight distance concerns have been identified in this area.

#### Neighborhood Character
- The basin has gravity access to the existing sewer facilities and may be physically suitable for R-4 zoning.

#### Transportation
- South of NE Woodinville-Duvall Road (System AP): Roads have asphalt pavement with some areas of gravel shoulders and a mixture of open ditch or open shoulder drainage. The terrain has gentle to moderate (Hill slope) grade changes. Some grades in this section appear to be at the 15% grade slope standard. The layout is typically long block sections with gentle to moderate curve sections. No streets were identified in this area to have curb and gutter or sidewalk sections. Internal circulation is fair. No sight distance concerns have been identified in this area.

#### Capital Facilities
- The basin has gravity access to the existing sewer system facilities and may be physically suitable for R-4 zoning.

#### Summary
- R-4 possible with environmental mitigation.
- R-2 possible for neighborhood character recognition in Woodway-Laurel Hills, up to R-4 possible in other sub-areas.
- Except in southwest part of basin, lesser transportation network exists, but standards in place for development will address growth at any level including R-4. The southwest portion of basin, with particularly difficult terrain for transportation improvements, may be a candidate for less density.

### Hillside Drainages

#### Location/Boundary
- Contains all or part of the following conceptual neighborhood sub-areas:
  - Northwest Wellington
  - Southwest Wellington

#### Environmental
- Northwest Wellington: The neighborhood is heavily wooded, has excellent spatial order and building texture, cohesive circulation, and is visually cohesive in terms of buildings, block patterns, and streets that together quite clearly define neighborhood boundaries. Southwest Wellington: Accessibility and lot configuration largely define this neighborhood. External access is limited, which makes for an enclave-like place. The wooded setting adds immensely to a sense of place.

#### Neighborhood Character
- Majority has gravity access to the existing sewer system facilities and may be physically suitable for R-4 zoning.

#### Transportation
- Northwest and Southwest Wellington: The areas have asphalt pavement with some areas of paved shoulders and a mixture of open ditch or open shoulder drainage. The terrain has gentle to moderate (Hill slope) grade changes. Some grades in these areas appear to be at the 15% grade slope standard. The layout is typically long block sections with gentle to moderate curve sections. No streets were identified in these areas to have curb and gutter or sidewalk sections. Internal circulation is fair. No sight distance concerns have been identified in these areas.

#### Capital Facilities
- Majority has gravity access to the existing sewer system facilities and may be physically suitable for R-4 zoning.

#### Summary
- R-4 possible with environmental mitigation.
- R-1 and R-2 appropriate for neighborhood character recognition in Northwest and Southwest Wellington.
- Lesser transportation network exists, but standards in place for development will address growth at any level including R-4. Neutral issue for zoning.
- Basin has marginally able to be sewered at R-4 densities.
<table>
<thead>
<tr>
<th>Location/Boundary</th>
<th>Environmental</th>
<th>Neighborhood Character</th>
<th>Transportation</th>
<th>Capital Facilities</th>
<th>Summary</th>
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<tr>
<td>Golf Course Basin</td>
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<td>Conclusions:</td>
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<tr>
<td>• R-1 zoning provides some protection to geologic hazards; minor benefits to Little Bear Creek, helps minimize erosion in Golf Course Creek;</td>
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<td>• Stormwater management is key to protecting geologic hazard areas; fused-welded tightlines (e.g. HDPE pipe) for discharge of stormwater;</td>
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<td>• Infiltration near slopes would threaten geologic hazard areas;</td>
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<td>• Sewer service is needed for densities greater than R-1, to prevent slope instabilities and groundwater contamination;</td>
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<td>• LID, especially in headwaters of basin, could provide significant benefits to Golf Course creek; infiltration should be prohibited within 50' from top of slope, and within 50-500 feet should be thoroughly reviewed and supported by geotechnical reports and approved by the city.</td>
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<tr>
<td>Technical Findings</td>
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<tr>
<td>• Golf Course Basin is relatively small part of Little Bear Creek basin flows; HDPE tightlines would be adequate to protect slopes from adjacent stormwater;</td>
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<td>• HDPE tightlines would be adequate to protect slopes from adjacent stormwater;</td>
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<td>• Groundwater or perched water surcharge from increased infiltration or denser septic discharges would pose risk to geologic hazards.</td>
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<td>• Golf Course creek may be perenni; provides important source of water for wildlife in area.</td>
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<td>• Golf Course creek carries high sediment load from eroding ravine, which could be exacerbated by development in headwaters area without stormwater management focused on minimizing erosive discharges.</td>
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<td>Contains all or part of the following conceptual neighborhood sub-areas:</td>
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<td>• Northwest Wellington</td>
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<td>• A description of the sub-areas follows:</td>
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<tr>
<td>• Northwest Wellington: The neighborhood is heavily wooded, has excellent spatial order and building texture, cohesive circulation, and is visually cohesive in terms of buildings, block patterns, and streets that together clearly define neighborhood boundaries.</td>
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<tr>
<td>• North of NE Woodinville-Duvall Road (System A: Roads have asphalt pavement with some areas of gravel shoulders and a mixture of open ditch or open shoulder drainage. The layout is typically long block sections with some gentle curves. Only a very small portion of streets in this area has curb and gutter or sidewalk sections. Internal circulation is possible in the northwesterly neighborhoods. Some vertical sight distance conditions have been identified in this area in the northwesterly neighborhoods.</td>
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<td>• Area has gravity access to the existing sewer system facilities and may be physically suitable for R-4 zoning.</td>
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<td>• R-4 possible with environmental mitigation.</td>
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<td>• R-1 and R-2 appropriate for neighborhood character recognition in Northwest and Southeast Wellington.</td>
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<tr>
<td>• Lesser transportation network exists, but standards in place for development will address growth at any level including R-4. Neutral issue for zoning.</td>
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<td>• Basin has greater ability to be sewered at R-4 densities.</td>
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</table>
Police and Fire Services: projected increases in housing units due to zoning changes from R-1 to R-4 would not affect response time for the department. Population and housing increases may require additional personnel and facilities.

The majority of the roadways within the R-1 zone (vehicles), but response time is not usually affected by increases in density, unless were developed under King County development standards prior to the City's incorporation. With the exception of newer roads constructed under the City's design requirements, the local streets in the R-1 zone do not meet the City's road cross-section standards.

Future road improvements, for the arterial and collector classified roads, have been identified in the City's long range Capital Improvement Program and will be systematically reviewed and considered for improvements.

On local streets, improvements are likely to occur under special projects (such as a special district for sidewalks) or under development mitigation.

Two intersections on 158th Street would exceed the City's adopted LOS E by 2028 assuming R-4 development levels (conservative estimates). At both locations, the LOS can be brought back into compliance with widening improvements within the existing public right-of-way.

In regard to vehicle capacity, both the City's "Low Density" and "High Density" road cross-section standard provide the same vehicle trip capacity. If additional capacity were needed, due to physical restrictions within the roadway, such as the need to address a narrow road section, adequate right-of-way exists to allow for any needed improvement to address any deficiencies.

Several local streets, and one minor arterial have been identified with vertical sight distance condition. These are currently being taken under review by the City for possible mitigation measures.

Road grades within the entire R-1 zone are all within the City's acceptable standards (under 15%).

Pedestrian and bike facilities are very limited within the entire R-1 zone area. Only Woodinville-Duvall Road has designated shared pedestrian and bike facilities along both sides of the roadway. Most of the developments following incorporation of the City (in 1993) to provide pedestrian facilities. However, these make up a very small portion of the R-1 zone. Of the remaining streets, it is estimated that less than 2% have any type of pedestrian facility and travel by non-motorized means must use the edge of the pavement or shoulder area.
Density Options

Based on the environmental, neighborhood character, transportation, and capital facilities reports, a range of zoning options for the R-1 study area were prepared for Planning Commission, City Council, and public review:

- **R-1 Only** – Retains existing R-1 zoning for entire study area without the option for R-4 (or could have option R1(a): No Action with allowance for rezone to R-4);
- **R- Litowitz** (Based on current Growth Management Hearings Board Decisions) – Retain R-1 zoning only for the Lake Leota Basin. R-4 zoning surrounding Leota drainage basin;
- **R- Multiple Factors** – Combination of R-1, R-2 and R-4 zoning based upon the combination of the **Litowitz** test, neighborhood character analysis to ensure the vitality and character of existing residential areas, transportation and capital facilities; and
- **R-4 Only** – R-4 zoning for the entire study area.

Figures 7 through 10 present the options. A summary of the effects of each option is provided in Table ES-3. Each option considers the four study topics differently as described in the table.

After a Planning Commission public hearing on January 31 and February 14, 2007, the Planning Commission recommended that R-1 be retained in the study area and that development regulations be considered regarding infill development, including but not limited to, density transfers to downtown, and shadow platting to ensure the ability to develop to greater densities in the future if warranted. The City Council will consider the Planning Commission recommendations together with the above options at public meetings and a hearing as well.
Figure ES-7. Zoning Option 1
All R-1
Sustainable Development Project

Figure ES-8. Zoning Option 2
R-Litowitz
Figure ES-10. Zoning Option 4
All R-4
<table>
<thead>
<tr>
<th>OPTIONS</th>
<th>R-1 Only</th>
<th>R- Litowitz (Based on current Growth Management Hearings Board Decisions)</th>
<th>R- Multiple Factors</th>
<th>R-4 Only</th>
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</thead>
<tbody>
<tr>
<td>DESCRIPTION</td>
<td>Retains existing R-1 zoning for entire study area without the option for R-4. (or could have option R1(a): No Action with allowance for rezone to R-4)</td>
<td>Retain R-1 zoning only for the Lake Leota Basin. R-4 zoning surrounding Leota drainage basin.</td>
<td>Combination of R-1, R-2 and R-4 zoning based upon the combination of the Litowitz test, neighborhood character analysis to ensure the vitality and character of existing residential areas, transportation and capital facilities.</td>
<td>R-4 zoning for the entire study area</td>
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<tr>
<td>EFFECT OF OPTION</td>
<td>Environmental: Has the least impact on Cold Creek &amp; Lake Leota. Recognizes the most environmental critical element within the study area that meets Litowitz test (large in scope, complex structure and functions, and high rank order): Lake Leota and Cold Creek. Requires consideration of lower densities beyond Critical Areas regulations. Other critical areas in other basins – wetlands, geologic hazard areas, fish and wildlife habitat do not meet Litowitz criteria, but continue to be protected by Critical Areas regulations. Lake Leota Basin would be protected at R-1 density, with a relatively small exception in the upper basin. That area has high neighborhood character and already has an existing common density of R-2; therefore, the small area was identified for R-2.</td>
<td></td>
<td>Could have the most impact on Cold Creek &amp; Lake Leota. Engineering and critical areas regulatory requirements would mostly mitigate impacts to the environment in all other areas.</td>
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<tr>
<td>OPTIONS</td>
<td>R-1 Only</td>
<td>R- Litowitz (Based on current Growth Management Hearings Board Decisions)</td>
<td>R- Multiple Factors</td>
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<tr>
<td>Neighborhood Character*</td>
<td>No Change</td>
<td>In the Leota Basin, the current existing density is mostly R-1 to R-2. And the majority of the neighborhoods in the basin have lower neighborhood character commonality. Therefore, the Basin would remain nearly the same and therefore the neighborhood character the same. Outside the basin, R-4 could change the neighborhood character, because the high commonality areas would not be maintained.</td>
<td>The 5 high-order neighborhood character areas outside the Leota Basin were maintained under this option, with two exceptions: in the southwest portion of Woodway-Laurel Hills (some of the Woodin Creek Basin), where R-1 rather than R-2 would be most appropriate. Although the geologically hazardous area in the Woodin Creek basin is not identified as meeting the Litowitz criteria, there is a complex steep slope system, and associated constraints to future road improvements, making future development less feasible.</td>
<td>Does not recognize neighborhood character analysis.</td>
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<td>Transportation</td>
<td>No Change</td>
<td>Transportation operation impacts can be mitigated under different density scenarios with one exception in SW corner of the study area.</td>
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</tr>
<tr>
<td>Public Facilities</td>
<td>Police &amp; Fire Service: Zoning density changes from R-1 to R-4 would not affect response time for police and fire service providers. Public safety services are neutral factors for purposes of this review. Schools: Student populations are currently in the decline, R-1 could perpetuate the decline. Water Service: R-1 zoning would not impact water service. Sanitary Sewer Service: Sewers would not be required for R-1. In addition, the western portion of the R-1 area has gravity access.</td>
<td>Police &amp; Fire Service: Zoning density changes from R-1 to R-4 would not affect response time for police and fire service providers. Public safety services are neutral factors for purposes of this review. Schools: Student populations are currently in the decline and excess capacity exists. The R-4 zoning densities surrounding the Leota Basin could slow the decline in student population. Water Service: Buildout to R-1 in the basin and R-4 surrounding would not appreciably impact water.</td>
<td>Police &amp; Fire Service: Zoning density changes include a range of densities and would not affect response time for police and fire service providers. Public safety services are neutral factors for purposes of this review. Schools: Student populations are currently in the decline and excess capacity exists. Zoning densities could improve conditions Water Service: Buildout to R-4 would not appreciably impact water service. Sanitary Sewer Service: The western portion of the R-1 area has gravity access.</td>
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<td>OPTIONS</td>
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<td>Economic feasibility would likely have an effect on providing sewer in the eastern portion.</td>
<td>Sanitary Sewer Service: Sewers would not be required in the Leota Basin (see exception directly surrounding the Lake). Economic feasibility would likely have an effect on providing sewer in the R-4 area outside the Leota.</td>
<td>western portion of the R-1 area has gravity access to existing sanitary sewer facilities and is physically better suited for R-4 zoning. The eastern portion is better suited for lower densities only until such time that it becomes economically feasible to provide pump stations to this area. The eastern portion of the study area is identified for R-4 zoning because of the lack of environmental constraints and high order neighborhood character. Sewer service did not outweigh other factors. R-4 densities would be phased in when service is available.</td>
<td>gravity access to existing sanitary sewer facilities and is physically better suited for R-4 zoning. The eastern portion is better suited for lower densities only until such time that it becomes economically feasible to provide pump stations to this area. The eastern portion of the study area is identified for R-4 zoning due to this option’s focus as the upper density range approach. R-4 densities would be phased in when service is available.</td>
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Note: The existence of covenants may further support neighborhood character conclusions.