City of Richland

# Final Supplemental Environmental Impact Statement for

# Badger Mountain Subarea Plan

Richland

August 23, 2010

# Preface

The primary purpose of a Supplemental Environmental Impact Statement is to ensure that the State Environmental Policy Act (SEPA) goals are an integral part of the ongoing projects and actions of state and local government. This Final Supplemental Environmental Impact Statement (FSEIS) addresses the issues raised in the comments received in response to the Draft Supplemental Environmental impact Statement (DSEIS) for the Badger Mountain Subarea Plan.

Previous review of the Badger Mountain Subarea by the Richland Planning Commission occurred in workshops to review draft plans on February 11, 2009, June 10, 2009, January 13, 2010, February 24, 2010, May 12, 2010 and June 9, 2010. The Planning Commission held legally advertised hearings on May 26, 2010 and June 23, 2010 and the City Council held a legally advertised hearing on July 20, 2010.

The DSEIS was issued by the City of Richland on July 15, 2010; the written comment deadline was August 16, 2010. No written comments were received. However, the Richland Fire Marshall provided verbal comment that life safety features of the development would be enhanced by including an in-home sprinkler system designed to meet the requirements for fire protection systems as defined by the National Fire Protection Association (NFPA) Standard 13D for single-family and duplex homes. Inclusion of this provision eliminates the previously identified mitigation measure of constructing a fire-lane connection between Dallas and Reata Road.

The FSEIS is published to include the updated Fact Sheet and the revised DSEIS which includes revised text based on the comments of the Richland Fire Marshall.

# Notice of Availability

July 15, 2010
Draft Supplemental Environmental Impact Statement (DSEIS)
Badger Mountain Subarea Plan

Lead Agency: City of Richland

Proponent: City of Richland

Description: The City of Richland is proposing to amend the Richland Comprehensive Plan to adopt a long-range plan for an area within the Richland Urban Growth Area referred to as the Badger Mountain Subarea. Once adopted, the Badger Mountain Subarea Plan will establish the vision, land uses and policies and implementation strategies to guide future growth in the Badger Mountain Subarea.

The DSEIS evaluates a No Action Alternative and a Preferred Alternative for guiding growth within the Badger Mountain Subarea. The No Action Alternative describes the impact of future growth in the area based on existing development approvals and existing land uses. The Preferred Alternative, as illustrated by the Badger Mountain Subarea Plan, would identify a vision for orderly and efficient development of the Badger Mountain Subarea, and includes direction for land use, transportation, utilities and public services. It is intended to be practical in economic terms and visionary in terms of its ability to address emerging issues such as sustainability.

This DSEIS is being issued as a supplement to the Badger Mountain Golf & Country Club Planned Development DEIS (October 1999) and FEIS (July 2000). The DSEIS discloses the potential impacts of the No Action and Preferred Alternative on elements of the environment that have the potential to be significantly affected by the proposed Badger Mountain Subarea Plan.

The DSEIS will be available for review and copying at the Richland Development Services Department at 505 Swift Blvd., Richland, WA, or online at http://www.ci.richland.wa.us/richland/planning.

**Agencies, affected tribes, and the general public are invited to comment on the DSEIS. COMMENTS SHOULD BE SUBMITTED IN WRITING BY LETTER OR EMAIL NO LATER THAN August 16, 2010.**

Rick Simon, Manager
Development Services Department
City of Richland
505 Swift Blvd.
Richland, WA 99352
rsimon@ci.richland.wa.us

## Table of Contents

# Fact Sheet

**Title:** Badger Mountain Subarea Plan

**Proposed Action:**

The Proposed Action by City of Richland includes the following:

1. Adoption of a subarea plan for the Badger Mountain Subarea to guide future development.

2. Adoption of an ordinance designating the western 1,480 acres of the Badger Mountain Subarea, known as Badger Mountain South, as a planned action for the purposes of future permit review and SEPA compliance, pursuant to RCW 43.21C.031 and WAC 197-11-164.

3. Amendment of the City of Richland Comprehensive Land Use Map and Zoning Map.

4. Amendment to the City of Richland zoning code to include provisions for implementation of the Badger Mountain Subarea Plan.

5. Annexation of all or portions of the Badger Mountain Subarea into the City of Richland.

**Proponent:** City of Richland

**Lead Agency:** City of Richland Development Services

**Responsible Official:**

Rick Simon, Manager
Development Services Department
City of Richland
505 Swift Blvd.
Richland, WA 99352
rsimon@ci.richland.wa.us

**Contact Person:**

Rick Simon, Manager
Development Services Department
City of Richland
505 Swift Blvd.
Richland, WA 99352
rsimon@ci.richland.wa.us

**Approvals or Permits Required:**

The subarea plan will require public hearings, the recommendation of the Planning Commission and the approval and adoption by the City Council. The planned action ordinance

will require adoption by the City Council. In the future, the property will be annexed into the City of Richland and other permits related to the development of the property within the subarea may also be issued under this EIS, including permits for grading, utility development, subdivision approval and building permits.

**Authors/Principal Contributors:**

VSI Law Group, PLLC
3600 Port of Tacoma Road, Suite 311
Tacoma, WA 98424

Johnson Braund Design Group, Inc.
15200 - 52nd Avenue South, Suite 200
Seattle, WA 98188

PacWest Engineering, PC
10209 Bridgeport Way SW, Suite C-1
Lakewood, WA 98499

Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

**DEIS Date of Issue:** July 15, 2010

**Comments Due:** August 16, 2010

**Public Hearings**: Richland Planning Commission: May 26, 2010 and June 23, 2010
Richland City Council: July 20, 2010

**Date of Issue of Final SEIS:** August 20, 2010

**Documents Incorporated by Reference:**

1. Badger Mountain Subarea Plan (April 2010).
2. Badger Mountain Subarea Plan--Transportation Element (April 2010).
3. Badger Mountain Subarea Plan—Water Element (April 2010).
4. Badger Mountain Subarea Plan--Stormwater Element (April 2010).
5. Badger Mountain Subarea Plan—Sanitary Sewer Element (April 2010).
6. Badger Mountain Golf & Country Club Planned Development DEIS (October 1999)
7. Badger Mountain Golf & Country Club Planned Development FEIS (July 2000)

Documents 1-7 are available for review at the Richland Development Services Department or available online at http://www.ci.richland.wa.us/richland/planning.

**Cost per Copy:** Cost of reproduction.

# 1 Introduction

## 1.1 Summary of Proposal

The Badger Mountain Subarea Plan (the "Subarea Plan" or the "Plan") is an appendix to the City of Richland Comprehensive Plan and is designed to identify the City of Richland's future growth opportunities presented in the 2,013-acre area located south and east of the Badger Mountain Centennial Preserve and north of I-82. The Plan sets out a vision for orderly and efficient development and includes direction for land use, transportation, utilities and public services, in accordance with the provisions of the City of Richland Comprehensive Plan, and other adopted plans and policies. It is intended to be practical in economic terms and visionary in terms of its ability to address emerging issues such as sustainability -- while being flexible to respond to future market conditions. It is intended to provide an overall understanding and rationale for the quality and character of the uses, the proposed level of service and infrastructure needed. It addresses land uses, traffic circulation, housing, parks and recreation and public facilities. Some facets of the Plan are prescriptive while others provide guidance to encourage creative responses to emerging issues.

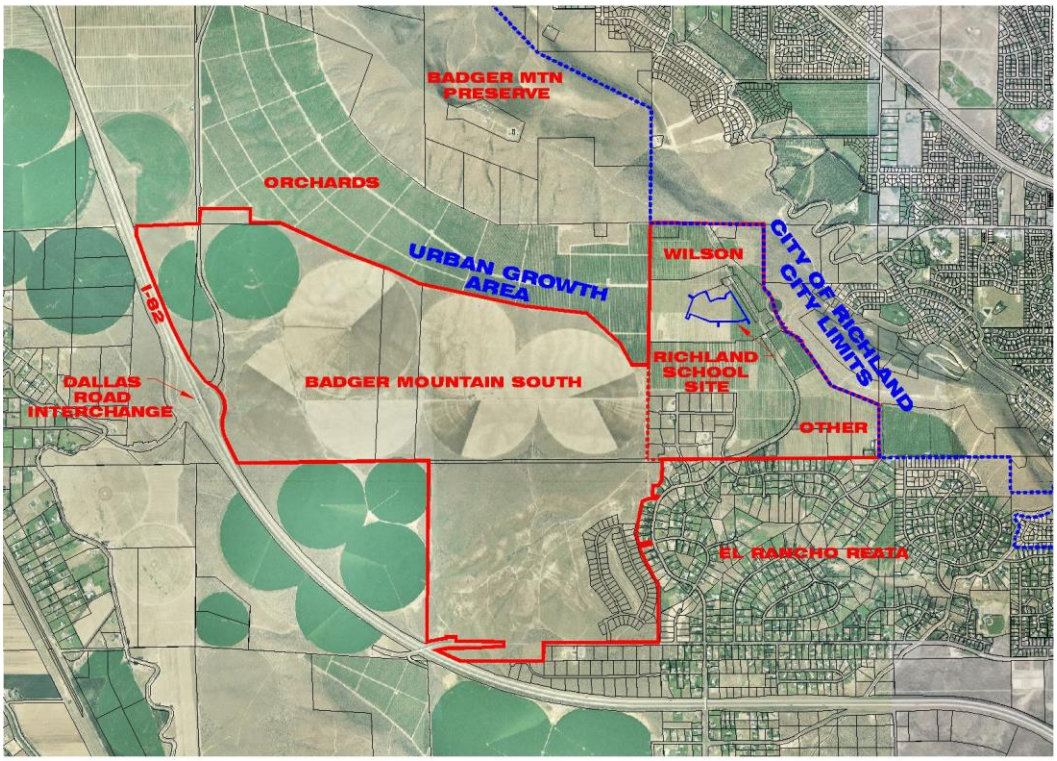
A subarea plan is one way the city can implement its goals and policies for a specific geographic area. It functions as a supplement to the city's Comprehensive Land Use Plan and it is intended to provide guidance for growth and development in this area of the city over the next 20 years. In this case, the Badger Mountain Subarea is unique in that the majority of the undeveloped portions of the site are largely in single ownership, with much of the other undeveloped portions of the site controlled by a second major landholder. The Subarea Plan contains both a detailed master plan for the western 1,480 acres, which is referred to in this plan as Badger Mountain South, and a land use plan for the remaining 533 acres of the subarea. The Badger Mountain Subarea was identified by Benton County, in conjunction with the City of Richland, as part of the city's Urban Growth Area (UGA) in 2006. This means that urban expansion will occur here, in conjunction with the construction of the necessary and appropriately sized urban infrastructure.

While the Badger Mountain Subarea has capacity to absorb growth and development for the city, timing for the creation of new neighborhoods and the type and amount of areas built for commercial activity will be influenced by the state, regional and local economy, by the level of accessibility, by the extension of public services and by other external factors. The Subarea Plan is intended to forecast and plan for the growth of the city while being responsive to these decision factors and to the fluctuations in demand of the land market over time.

## 1.2 Location

The Badger Mountain Subarea is located south and east of Badger Mountain, lying east of I-82 and north of Reata Road. It lies about eight miles southwest from downtown Richland. The Dallas Road I-82 interchange intersects the site north to south in the western part of the subarea. The Tri-Cities Regional Airport in Pasco is about 16 miles from the subarea; a distance easily traveled by freeways and local roads, and provides excellent access and connection for future residents and businesses.

**Map 1: Badger Mountain Subarea Plan Boundaries**




Source: Badger Mountain Subarea Plan

The portion of the Badger Mountain Subarea outside of Badger Mountain South will be referred to collectively herein as the Wilson/Other Property.

## 1.3 Supplemental DEIS

The State Environmental Policy Act (SEPA) requires local governments to evaluate the environmental impacts that may result from actions a jurisdiction reviews or initiates. Because the adoption of policy language and the land use and zoning map amendments are not directly related to a proposed development application, adoption of the Badger Mountain Subarea Plan is considered a "non-project action." Similar to development proposals, non-project actions also require review under SEPA, although with less detail. Projects or non-project actions that are expected to have significant impacts to the environment require an analysis of these impacts in the form of an environmental impact statement (EIS). Non-project actions intending to utilize the "planned action" process also require an EIS. The purpose of an EIS is to provide an impartial documentation of the potential significant environmental impacts and reasonable alternatives and mitigation measures that avoid or minimize adverse impacts.

The environmental impacts of future development of Badger Mountain South were analyzed in the Badger Mountain Golf & Country Club Planned Development DEIS (October 1999) and FEIS (July 2000). The Badger Mountain Subarea Plan provides for different land uses, densities, and policies, that if adopted, will change the potential impact development will have on the environment within the subarea. This Draft Supplemental EIS (DSEIS) is being prepared as a supplement to Badger Mountain Golf & Country Club Planned Development DEIS (October 1999) and FEIS (July 2000). The DSEIS reviews two alternatives, the Preferred Alternative and the No-Action Alternative. The DSEIS relies on analysis addressed in the earlier EIS, and does not repeat analysis of impacts that were addressed in the earlier EIS (WAC 197-11-620). The DSEIS identifies new possible environmental impacts that have not been addressed in the prior SEPA documents.

Badger Mountain Golf & Country Club Planned Development DEIS (October 1999) and FEIS (July 2000) are available for review at the Richland Development Services Department.

## 1.4 Planned Action

In 1995, the SEPA Rules were amended to help cities and counties combine SEPA and GMA processes and analyses, including issuing combined SEPA/GMA documents (WAC 197-11-210 through 235). These amendments support conducting environmental review at the planning stage so that impacts and mitigation can be analyzed system-wide, rather than on a project-by-project basis. Specifically, the legislature authorized a new category of project action in SEPA called a "planned action." Designating specific types of projects as planned action projects shifts environmental review of a proposal from the time a permit application is made to an earlier phase in the planning process. According to WAC 197-11-164, a Planned Action is defined as a site-specific project action located within an Urban Growth Area. Qualifying projects are those that are consistent with and implement a Subarea Plan and whose significant environmental impacts have been adequately addressed in an EIS prepared for the subarea.

The City of Richland proposes to adopt a Planned Action Ordinance as part of the Badger Mountain Subarea implementation process, for the western 1,480 acres of the Badger Mountain Subarea, known as Badger Mountain South. The intent of the Planned Action is to provide a more streamlined environmental review process for future site-specific development projects within Badger Mountain South. When an implementing project is proposed, the city must verify that the proposal is the type of project contemplated in the Planned Action Ordinance and that it is consistent with the Subarea Plan. The city must also determine that the probable significant adverse environmental impacts of the proposed project have been adequately addressed in the DSEIS and all adopted environmental documents within the FSEIS. The city, however, may require additional environmental review and mitigation if significant adverse environmental impacts were not adequately addressed in the Planned Action DSEIS or if the proposed project does not qualify as a Planned Action. The city intends that early environmental review provided by the DSEIS will give more certainty to future permit applicants in Badger Mountain South with respect to what will be required, and to the public with respect to how the environmental impacts will be addressed. Planned Actions have been a successful tool to reduce risk and cost for potential development while also protecting the environment.

# 2. Description of Alternatives

## 2.1 Introduction.

The alternatives addressed in this DSEIS include the Preferred Alternative and the No Action Alternative. Under the Preferred Alternative, the city would adopt the Badger Mountain Subarea Plan which identifies guiding principles, development goals and policies, and implementation strategies to guide future growth and development in the Badger Mountain Subarea. The city is currently working with a consultant team on developing regulatory standards using a form-based code approach that will guide future development within the Badger Mountain South portion of the subarea. In conjunction with the Preferred Alternative, the city will adopt a Planned Action Ordinance for the Badger Mountain South portion of the subarea, to facilitate future project-level environmental review. Under the No Action Alternative, future growth and development within the subarea would occur according to preexisting development rights and current land uses.

## 2.2 Preferred Alternative

Under the Preferred Alternative, the city would adopt the Badger Mountain Subarea Plan, which sets out a vision for orderly and efficient development of 2,013-acre subarea and includes direction for land uses, traffic circulation, housing, parks and recreation and public facilities in accordance with the provisions of the City of Richland Comprehensive Plan, and other adopted plans and policies. It is intended to be practical in economic terms and visionary in terms of its ability to address emerging issues such as sustainability -- while being flexible to respond to future market conditions.

As described in the Subarea Plan, the Badger Mountain Subarea is intended to be developed to protect existing residential land uses, conserve and protect natural systems, and provide quality and choice in housing, shopping, employment, education, transportation, and recreation. The Subarea Plan proposes a healthy balance of market-driven, private sector uses along with a range of public facilities, open space, parks and trail uses. It anticipates the future by identifying and promoting uses, activities and institutions that will accommodate and attract new jobs to the City of Richland.

## 2.3 No Action Alternative

Under the No Action Alternative, future growth and development within the subarea would occur according to preexisting development rights and current land uses. The No Action Alternative is intended primarily as a bench mark for evaluating the impacts of the No Action Alternative. Because the Badger Mountain Subarea is currently within the Richland Urban Growth Area, the State Growth Management Act does not allow the long-term continuation of low-density rural land uses. The No Action Alternative assumes for the purposes of analysis only, that properties with vested land use approvals would develop in accordance with the current approval, and other current land uses would remain unchanged.

## 2.4 Comparison of Alternatives

**Table 1: Badger Mountain Subarea Land Use Summary by Alternatives**

| Land Use by Type | Preferred Alternative Gross Acreage[1] (estimated acres) | Percentage | No Action Alternative Gross Acreage[2] (estimated acres) | Percentage |
|---|---|---|---|---|
| All Residential | 1,324 acres | 66% | 917 acres | 46% |
| Low-density[3] | (451 acres) | (34%) | (873 acres) | (95%) |
| Medium-density[4] | (718 acres) | (54%) | (0 acres) | (0%) |
| High-density[5] | (155 acres) | (12%) | (44 acres) | (5%) |
| *Est. Total Housing Units* | *6,247 units* | - | *2,114 units* | - |
| Commercial/Office/Retail/ Destination Retail | 225 acres[6] | 11% | 58 acres | 3% |
| Open space, parks, trails schools and other public buildings | 464 acres[7] | 23% | 410 acres | 20% |
| Urban Reserve | 0 | 0% | 628 acres | 31% |
| Total All Uses | 2,013 acres | 100% | 2,013 acres | 100% |

Source: Badger Mountain Subarea Plan and Badger Mountain Golf & Country Club Planned Development DEIS

# 3. Summary of Environmental Impacts

The following list summarizes potential impacts identified during the development of the Subarea Plan. Possible measures to mitigate these potential impacts are proposed under Section 4. The potential impacts are the same for each alternative, though the decree of impact may differ. With the

[1] "Gross Acreage" figure includes future ROW; actual acreage will be refined during the site plan and subdivision process.
[2] "Gross Acreage" figure includes future ROW; actual acreage will be refined during the site plan and subdivision process.
[3] Low-density development ranges between 0-5 DU/acre.
[4] Medium-density ranges between 5.1-10DU/acre.
[5] High-density of 10.1+DU/acre found only in Badger Mountain South.
[6] Includes 200 acres in Badger Mountain South and 25 acres in all other undeveloped properties.
[7] Includes 444 acres in Badger Mountain South, 15 acres owned by Richland School District and 20 acres in all other undeveloped properties.

implementation of mitigation measures, no unavoidable significant adverse environmental impacts are anticipated.

| **Element of Environment** | **Potential Environmental Impacts** |
|---|---|
| Earth | Potential erosion and soil instability during construction. |
| Air Quality | Impacts due to fugitive dust during construction, and from increased traffic volumes. |
| Surface Water | Increased run-off from additional impervious surface and increased pollutants in the run-off from roads, parking areas and landscaping. |
| Land Use | Potential impacts to surrounding land uses by increased traffic, and noise and dust from construction activities. |
| Transportation | Increase in traffic volumes, and reduction in LOS for some existing intersections, particularly the Dallas Rd and I-82 interchange. |
| Public Services and Utilities | Development of the subarea will impact existing utility providers by increasing demand, and increasing burden on existing systems. Substantial capital improvements will be required to provide sanitary sewer and potable water service to the subarea. Provision of law enforcement and life safety services will require additional staffing and equipment, and potentially a new fire station at full build-out. |

# 4. Affected Environment, Environmental Impacts and Mitigation Measures

This section identifies the affected environment, analyzes the environmental impacts and, where applicable, recommends mitigation measures to reduce or eliminate identified impacts. Elements of the environment not deemed to be significantly impacted by the proposal, or that were already addressed in the Badger Mountain Golf & Country Club Planned Development DEIS (October 1999) or FEIS (July 2000), are not included.

## 4.1 Earth

### 4.1.1 Affected Environment

A detailed analysis of the affected environment is provided in the Badger Mountain Golf & Country Club Planned Development DEIS (October 1999), pages 3-1 to 3-4.

### 4.1.2 Environmental Impacts

A detailed analysis of potential environmental impacts is provided in the Badger Mountain Golf & Country Club Planned Development DEIS (October 1999), pages 3-4 to 3-6. Under the No Action Alternative, the overall potential for erosion and stability impacts during construction would be less than the Preferred Alternative due to the reduced density and intensity of development.

### 4.1.3 Mitigation Measures

Under either alternative the following mitigation measures should be employed to mitigate potential erosion and stability impacts:

1. Implement erosion control measures per City of Richland requirements.
2. Provide vegetative cover on exposed soils as soon as practicable following clearing and grading.
3. Water exposed areas during construction in accordance will local air-quality agency requirements.
4. Compact soils at densities appropriate for planned land uses.

### 4.1.4 Unavoidable Significant Adverse Impacts

No unavoidable significant adverse impacts are expected.

## 4.2 Air Quality

### 4.2.1 Affected Environment

A detailed analysis of the affected environment is provided in the Badger Mountain Golf & Country Club Planned Development DEIS (October 1999), page 3-8.

### 4.2.2 Environmental Impacts

A detailed analysis of potential environmental impacts is provided in the Badger Mountain Golf & Country Club Planned Development DEIS (October 1999), pages 3-8 to 3-9. Under the No Action Alternative, air quality impacts would be similar to the Preferred Alternative, except less traffic would contribute to lower carbon monoxide concentrations along local roads. Also, less clearing and grading would reduce potential for wind erosion and associated particulate pollutants. A greater amount of land in agricultural uses would slightly increase the potential for wind erosion and localized odors.

Implementation of the Preferred Alternative will encourage future development having a compact urban form and a mix of uses, and improve bicycle and pedestrian facilities. The Preferred Alternative encourages sustainable development practices and supports smart growth which entails promoting non-motorized transportation alternatives.

### 4.2.3 Mitigation Measures

Under either alternative, a dust control plan should be developed prior to construction and construction activities should comply with applicable Benton County Clean Air Authority's Fugitive Dust standards.

### 4.2.4 Unavoidable Significant Adverse Impacts

No unavoidable significant adverse impacts are expected.

## 4.3 Surface Water

A detailed analysis of surface water is provided in the Badger Mountain Subarea Plan—Stormwater (April 2010).

### 4.3.1 Affected Environment

The Badger Mountain Subarea is located on the southern foothills of Badger Mountain and is relatively flat with most slopes ranging from approximately 2 to 10 percent. There are a few areas with slopes that range between 10 and 20 percent. The subarea predominately slopes in two different directions with a flatter plateau just west of the subarea's center. Elevations range from 890 to 740 on the west side of the plateau with a natural drainage feature sloping to the southwest. Also, there is higher 840 elevation on the northwest corner of the subarea sloping towards this drainage feature.

Elevations range from 900 to 780 on the east side of the plateau with a natural drainage feature sloping towards the east. Along the south side of this feature the subarea is higher sloping towards the north. These drainage features are typically dry due to the minimal amount of precipitation that falls in the area, but were formed by the runoff that they received from Badger Mountain. The Additional UGA Area slopes to the southeast except for a portion that slopes to the northeast. Slopes range approximately 10 percent except for a small portion in the range of 20 percent.

The subarea lies within eight surface drainage basins. Three drain toward the southwest to a culvert near the I-82/Dallas Road interchange, and four drain toward the east into a gully which traverses the El Rancho Reata development. Estimated mean annual precipitation in the subarea is between 8 and 9 inches, and runoff likely averages less than 0.5 inch annually. Runoff is limited to relatively infrequent periods of intense rainfall or during periods of rapid snowmelt.

### 4.3.2 Environmental Impacts

The impacts of development under either the Preferred Alternative or the No Action Alternative include increased run-off from additional impervious surface and increased pollutants in the run-off from roads, parking areas, and landscaping. Although the Preferred Alternative would have increased density and intensity of land use, compared to the No Action Alternative, it will incorporate use of Low Impact Development (LID) techniques as a solution for stormwater management on development sites that are located in a pothole sub-basin, are underlain by a critical aquifer recharge area, or within a designated open space area. LID is a stormwater management and land development strategy applied at the parcel and subdivision scale that emphasizes conservation and use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely mimic predevelopment hydrologic functions. Most LID techniques infiltrate, filter, store, evaporate, and/or detain runoff as close to its original source as possible. The use of LID techniques benefits the local creeks, streams, rivers, and lakes and may be in addition to, or in lieu of traditional stormwater management solutions. Other sites where LID techniques are not appropriate will implement a range of stormwater quality BMPs will be implemented in the Preferred Alternative including wet ponds, sand filters, oil-water separators and bio-swales to protect the groundwater table.

With the use of LID techniques, stormwater quality BMPs and the emphasis on sustainability, the Preferred Alternative may contribute less run-off from the additional impervious surface and less auto-related pollutants than the No Action Alternative.

### 4.3.3 Mitigation Measures

Future development under both alternatives will require stormwater treatment and disposal in accordance with city standards.

The Preferred Alternative uses procedures described by the Department of Ecology's Stormwater Management Manual for Eastern Washington for Hydrologic and Hydrology design. This manual establishes the minimum requirements for modeling small and large drainage basins. The manual outlines stormwater quantity, quality, and erosion control BMPs that have been adopted as the standard of practice in the City of Richland and Eastern Washington. The storm water management plan for the Preferred Alternative is described in the Badger Mountain Subarea Plan—Stormwater (April 2010).

### 4.3.4 Unavoidable Significant Adverse Impacts

No unavoidable significant adverse impacts are expected.

## 4.4 Land Use

This section describes existing conditions on the Badger Mountain Subarea for land use, summarizes the proposed land uses set forth in the Subarea Plan and explores potential impacts. The information is taken from the Subarea Plan. Detailed analysis of land use in the No Action Alternative is not provided. Land uses in the No Action Alternative are set forth in **Table 1** above.

### 4.4.1 Affected Environment

#### 4.4.1.1 Existing Conditions

The properties within the subarea are primarily undeveloped with a moderately rolling topography and a gradual northern slope to the Badger Mountain saddle where they meet the City of Richland's current corporate boundary. Elevations generally range from 700' in the westerly, southwest corner of the site near Dallas Road, to 850' on the south side along east Reata Road, then to 1050' in the northeast corner of the UGA.

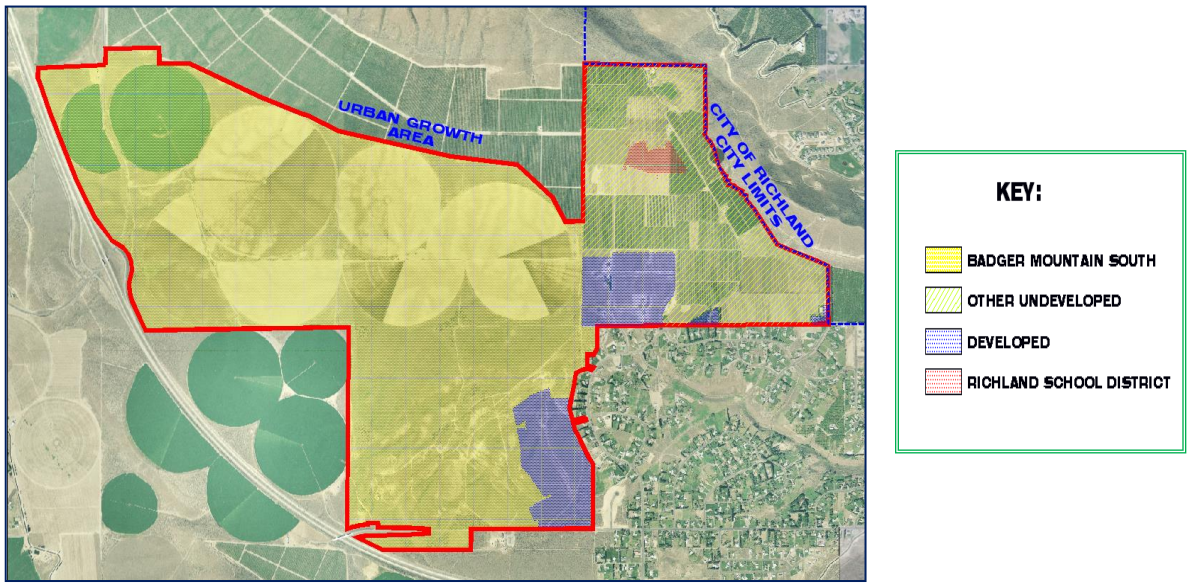
Much of the Subarea is visible from vehicles travelling along I-82. Panoramic views are generally available in the higher elevations of the Subarea along the south facing hillside towards the high ridges in the distance. The soils in the Badger Mountain Subarea are primarily silt loam of variable thickness and present no barriers to development. Some existing natural drainage channels are evident in the topography generally running to the southeast and southwest, although they are typically dry due to low precipitation conditions. Except for water service, the majority of the undeveloped portions of the site are generally unserved by utilities and other urban infrastructure.

While much of the vacant land is either planted with agricultural crops or covered in grassy vegetation, a large portion of the site, known as Badger Mountain South, previously had received Benton County's approval for a large, low-density residential and golf course development, with associated commercial uses. Phase 1-A of the previously approved development, located in the southeast portion of the site and called the Reata Ridge Subdivision, was developed with 78 residential lots that are now being marketed for sale. While no houses have yet been built within this subdivision, for planning purposes it is considered developed property. The Badger Mountain Subarea Plan proposes a different vision for the remainder of the Badger Mountain South area.

The other developed portions of the Subarea are located north and east and contain moderate slopes to the north. One area, called the Badger Mountain Plateau Subdivision, contains 23 single-family residences on two-acre lots. In December 2009 Benton County reviewed and approved a preliminary plat for 58 single-family lots called the Hidden Hills Subdivision, located east of the Badger Mountain Plateau Subdivision. The developed areas of the planning area are served with private septic systems, roadways and utilities, and border existing development outside of the UGA to the south and east. No additional development is expected to occur within these developed portions of the Subarea.

Undeveloped properties are those owned by large and small property owners and which are now planted in orchards or in other agricultural uses, or otherwise vacant. Also included within the undeveloped area category is a 15 acre parcel owned by the Richland School District which was previously acquired for future development as an elementary school.

**Map 2: Developed and Undeveloped Parcels**




Source: Badger Mountain Subarea Plan

#### 4.4.1.2 Subarea Land Use Plan

Development in the Badger Mountain Subarea is intended to provide a healthy balance of market driven, private sector uses with a wide range of public uses. The Land Use portion of the Plan is fundamental to creating a platform for a vibrant, economically strong, environmentally responsible, and attractive area that captures future growth. Its main focus is establishing areas where people will live, where they will work and where public spaces, parks and natural areas will be located. **Table 2** below provides an overall summary of the land uses with acreages within the Subarea and **Map 3** shows this in graphic form. The Subarea contains a variety of opportunities to develop housing and commercial uses as well as locations for educational uses, parks, civic spaces and other uses that complement Richland's urban character and strengthens and diversifies its economic base.

**Table 2: Badger Mountain Subarea Land Use Summary**

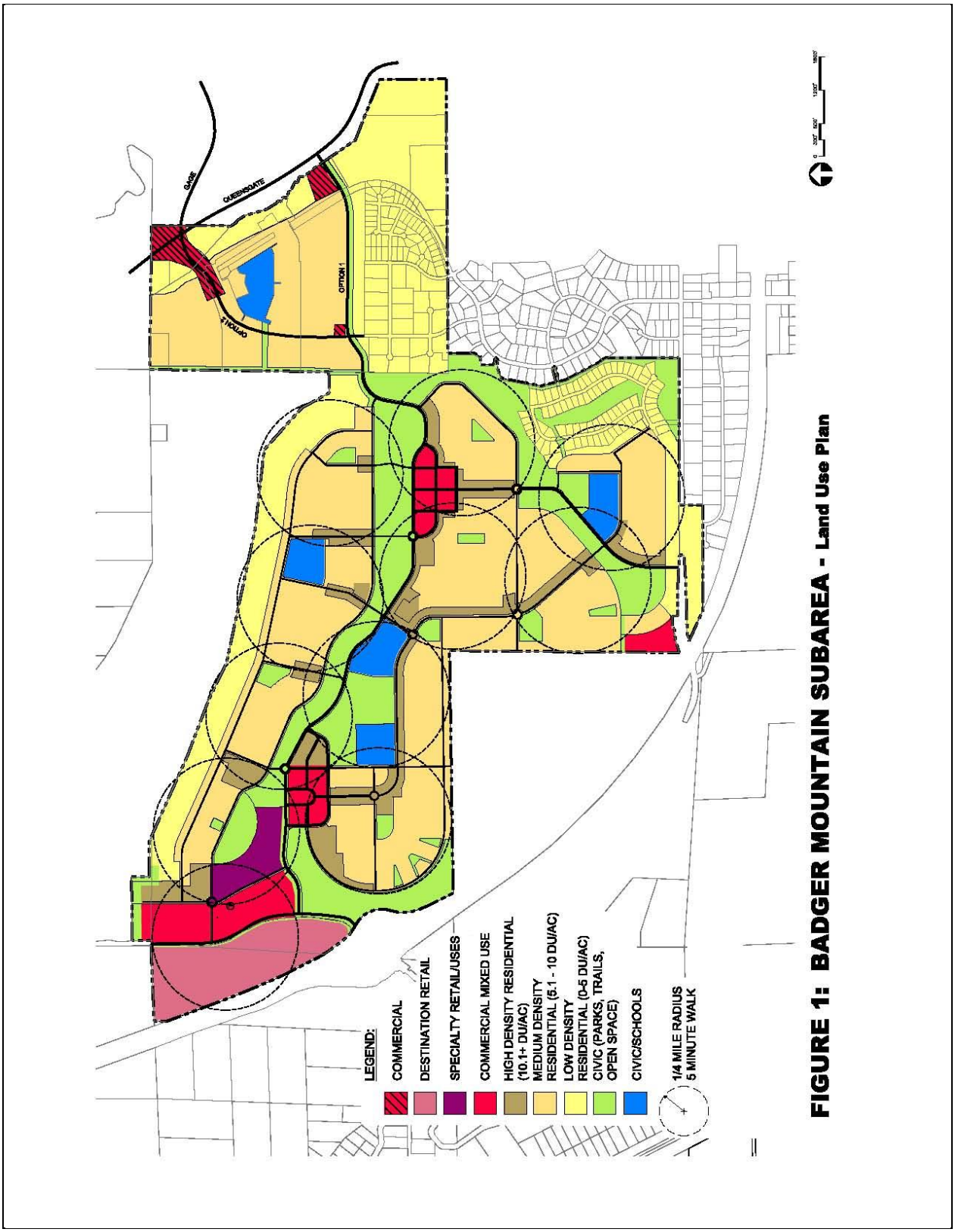
| Land Use by Type | Gross Acreage[8] (estimated acres) | Percentage of Total | Estimated Number of All Housing Units[9] |
|---|---|---|---|
| All Residential | 1,324 acres | 66% | 6,247 units |
| Low-density[10] | 451 acres | (34% of residential) | 571 units |
| Medium-density[11] | 718 acres | (54% of residential) | 3,676 units |
| High-density[12] | 155 acres | (12% of residential) | 2,000 units |
| Commercial/Office/Retail/ Destination Retail[13] | 225 acres | 11% | NA |
| Open space, parks, trails schools and other public buildings[14] | 464 acres | 23% | NA |
| Total | 2,013 acres | 100% | NA |

Source: Badger Mountain Subarea Plan

Today within the Badger Mountain Subarea, 75 percent of the land area is controlled by a single ownership group; that area is called Badger Mountain South. The previous development concept for the Badger Mountain South area was approved by the Benton County Board of Commissioners in 2001; it contained a suburban-style, low-density residential development with golf course and commercial uses near Dallas Road. That original development concept is no longer proposed. In its place, and included within the Subarea Plan, is a project that more closely reflects the historic urban qualities found in the City of Richland, with an added focus to foster sustainable development including the principles of complementary mix of uses, a connected street system providing transportation choice, and compact building design, all with the goal of creating great neighborhoods. These development concepts apply to Badger Mountain South while the city's traditional land use regulations apply to the remainder of the subarea. Undeveloped areas located within the subarea but outside of Badger Mountain South are proposed to develop primarily as low and medium-density single family residential land uses with some commercial uses.

[8] "Gross Acreage" figure includes future ROW; actual acreage will be refined during the site plan and subdivision process.
[9] "All Housing Units" category includes an estimate of new units as well as those all ready existing within the Subarea; actual number of new units will be determined during subdivision process.
[10] Low-density development ranges between 0-5 DU/acre.
[11] Medium-density ranges between 5.1-10DU/acre.
[12] High-density of 10.1+DU/acre found only in Badger Mountain South.
[13] Includes 200 acres in Badger Mountain South and 25 acres in all other undeveloped properties.
[14] Includes 444 acres in Badger Mountain South, 15 acres owned by Richland School District and 20 acres in all other undeveloped properties.

**Map 3: Badger Mountain Subarea Land Use Plan**



#### 4.4.1.3 Population Projections

Population growth in the Badger Mountain Subarea will respond to national, statewide and regional population and economic trends. With the national economy in its current state, most communities in Washington are expected to grow slower for the next few years.[15] However, the City of Richland's economic outlook is strong and the city can expect additional job growth and housing demand particularly in light of 2009 federal financial commitments of nearly $2 billion through the American Recovery and Reinvestment Act to fund Hanford cleanup activities.

The Washington State Office of Financial Management (OFM) calculates population projections and assigns them to each county. Benton County apportions its allocated projected population to each jurisdiction in the county. The City of Richland was assigned 28 percent of the total expected population growth in the county. The Benton County Comprehensive Plan, using OFM's high projection allocation, identifies that Richland's population by 2030 will be 69,540 persons, or 22,530 more people than included in the city's 2009 OFM population estimate.

During the expected 20 year planning period, the Badger Mountain Subarea will capture a major portion of Richland's expected population growth and will reflect the age demographics of the city as a whole.

**Table 3: Badger Mountain Subarea Population at Build Out**

| Total Number of New Housing Units | Percent of Occupied Housing Units[16] | Average Household Size[17] | Estimated Population |
|---|---|---|---|
| 6,247 | 94.5 | 2.49 | 14,670 |

[15] See OFM's "Washington Population Growth Continues to Slow," June 29, 2009.
[16] U.S. Census Bureau, Census 2000, Profile of General Demographic Characteristics for the City of Richland.
[17] Latest OFM Data.

**Table 4: City, County and State Age of Population (2000 Census)**

| Age | City | Benton County | State |
|---|---|---|---|
| Birth to 17 years | 27% | 30% | 26% |
| 18 to 44 years | 35% | 37% | 40% |
| 45 to 64 years | 25% | 23% | 23% |
| 65 and older | 13% | 10% | 11% |
| Median Age | 38 | 34 | 39 |

#### 4.4.1.4 School Population Projections

The Badger Mountain Subarea includes properties that lie within three school districts, the Kiona-Benton School District, the Richland School District and Kennewick School District, see **Map 4** below. Because no residential development is planned within the Kiona-Benton School District, the following discussion about schools and projections of numbers of school children that could be generated from residential development here is focused on the remaining two districts.

School-aged children will be among the new residents of the Badger Mountain Subarea as it is expected that about 66 percent of the gross land area will become housing. When a housing development is geared to younger families it will have a greater impact on schools than one whose target market is older or retired persons. The housing price point, type of neighborhood, and type of structure will all influence whether or not families with children, those with children of specific ages, or those without children will be attracted to live in any particular housing unit.

Average enrolments for the two school districts based on school types are assumed as follows: elementary schools average 532 students; middle schools average 814 students; and high schools average 1,639 students. By projecting enrollments using the average numbers of students enrolled today in elementary and middle schools, it is anticipated that over time, there will be sufficient numbers of school children living within the Badger Mountain Subarea to impact school capacity in both the Richland and Kennewick School Districts for elementary-aged children; see Table 5 below. Within the area of the Richland School District, middle school-aged children will also be of sufficient numbers to impact the district's middle school facilities. It is not anticipated that either school district will see significant numbers of high school-aged children living within the subarea.

## Table 5: Badger Mountain Subarea Projected School Population

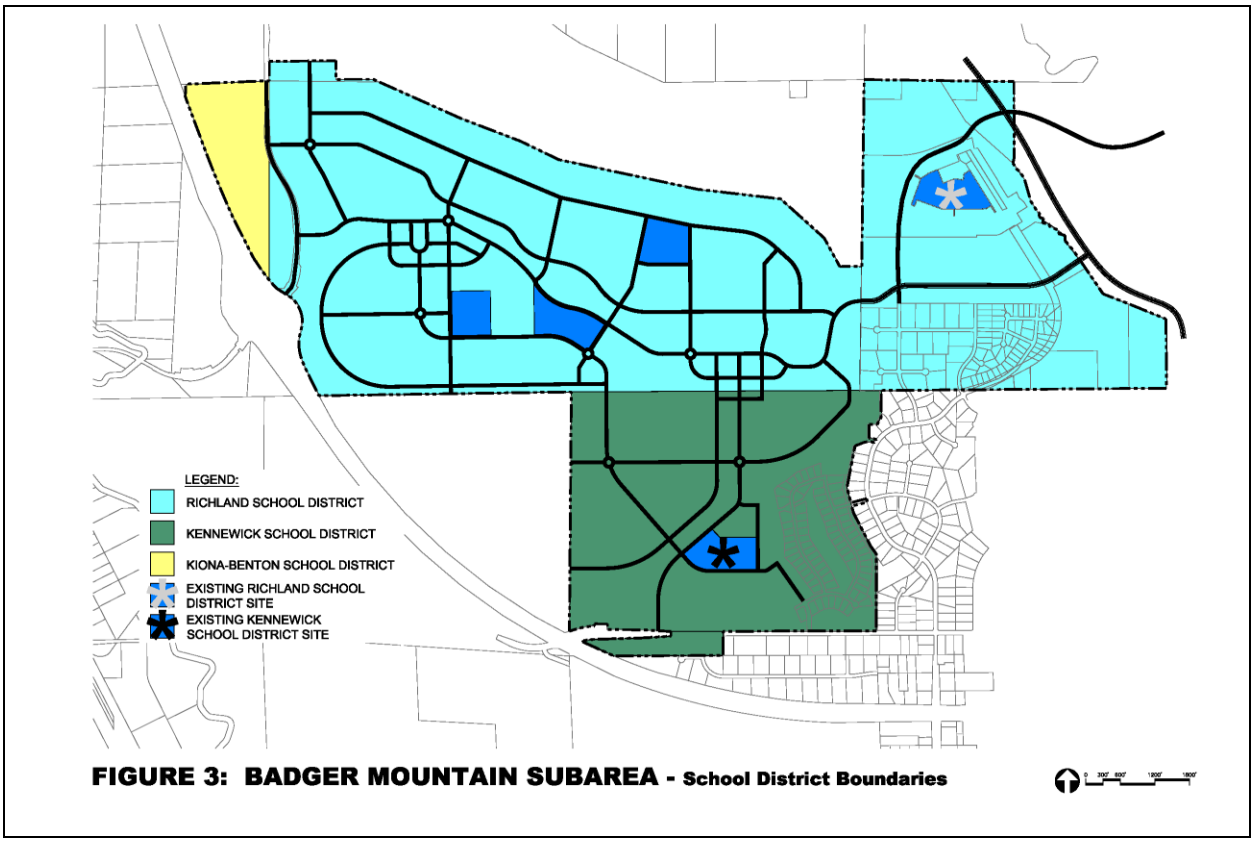
| Cumulative Numbers of School Children Generated by Housing Type by Development Year[18] | 2015 | | 2020 | | 2025 | | 2030 | |
|---|---|---|---|---|---|---|---|---|
| | RSD[19] | KSD[20] | RSD | KSD | RSD | KSD | RSD | KSD |
| Single-family Elementary | NA | 176 | NA | 351 | NA | 527 | NA | 703 |
| Multi-family Elementary | NA | 35 | NA | 70 | NA | 105 | NA | 140 |
| **Total Elementary Population** | **414** | **211** | **829** | **421** | **1243** | **632** | **1658** | **843** |
| Single-family Middle School | NA | 79 | NA | 176 | NA | 264 | NA | 351 |
| Multi-family Middle School | NA | 16 | NA | 35 | NA | 53 | NA | 70 |
| **Total Middle School Population** | **207** | **95** | **414** | **211** | **622** | **317** | **829** | **421** |
| Single-family High School | NA | 122 | NA | 272 | NA | 407 | NA | 543 |
| Multi-family High School | NA | 24 | NA | 54 | NA | 81 | NA | 108 |
| **Total High School Population** | **320** | **147** | **641** | **326** | **961** | **489** | **1281** | **651** |

The Richland School District owns a 15 acre parcel located in the northeast of the subarea and, since the Subarea Plan was prepared, the Kennewick School District now owns a 14 acre parcel located in the southern half of the subarea. An additional three sites were identified for future school facilities in the area of Badger Mountain South. Both the proposed school sites and the existing school district properties are identified in **Map 4.**

School sites which fall within the Badger Mountain South area were placed within neighborhoods and adjacent to other public facilities, like trails and parks, to promote a walkable facility and to support the overall development concept for Badger Mountain South of creating a "walkable and sustainable community." Whether or not any of the proposed sites become the actual locations for future school facilities within the subarea will be determined as the project builds out over time and the district determines its need for additional school capacity system-wide. If identified sites within the area of Badger Mountain South do not become school locations, these areas will develop with housing.

[18] Includes an occupancy rate of 94.5%.
[19] RSD means Richland School District; RSD distributes the total number of enrolled students as a percentage over all school grades – elementary, middle school and high school .
[20] KSD means Kennewick School District; KSD identified a student generation factor of 1.5 for single family and .75 for multi-family units.

**Map 4: Badger Mountain Subarea School District Boundaries**




Source: Badger Mountain Subarea Plan, revised

### 4.4.2 Environmental Impacts

It is estimated that the Badger Mountain Subarea will add 14,670 residents by 2030. See **Table 3** above. Under the formula used in Table 3, the No Action Alternative would add 4,974 residents during the same period. Under either alternative, surrounding land uses will be impacted by the increase in traffic. The traffic impacts are more fully analyzed in the Badger Mountain Subarea Plan--Transportation (April 2010). Construction impacts to surrounding land uses would include fugitive dust generation and noise generated by construction equipment.

Under the Preferred Alternative, the areas along the east, west, and south borders of Badger Mountain South are designated as open space or low density (0-5 du/acre) residential, providing a protective transition and buffer area for the adjoining rural uses located outside the UGA boundaries.

### 4.4.3 Mitigation Measures

Mitigation measures for traffic related impacts are addressed in Section 4.5 below. Construction related impacts can be mitigated by compliance with existing city noise regulations. Demands for public park, recreation facilities and trails, as identified in the land use plan, shall be met partly through the provision

of privately built and maintained parks, facilities and open spaces and partially by the City. Specifically, the City will develop and maintain a six acre neighborhood park in the South Orchard neighborhood and a thirty acre park site in the West Village neighborhood. This land shall be conveyed to the City at no cost to the City; provided that the developer shall receive credit against any City imposed impact fees or other City charges. Park mitigation fees collected from within the Badger Mountain Subarea Planning area shall be used to fund construction of the City park facilities.

### 4.4.4 Unavoidable Significant Adverse Impacts

No unavoidable significant adverse impacts are expected.

## 4.5 Transportation

The Badger Mountain Subarea Plan--Transportation Element (April 2010), provides a detailed discussion of traffic impacts resulting from development of the Badger Mountain Subarea, and discusses the methodology used in projecting roadway and intersection capacities.

The transportation system in the Badger Mountain Subarea is expected to accommodate traffic, pedestrians and bicyclists. The street system should be attractive and will be an important component to the final outcome of the neighborhoods in Badger Mountain South being walkable and sustainable. Streets in the subarea are expected to contribute to the quality of life and offer opportunities for multi-modal transportation options.

### 4.5.1 Affected Environment

Existing traffic volumes were recorded and analyzed at eleven major intersections that may be affected by development of the subarea. The analysis of the existing conditions at these intersections found that most of the intersections and approaches operate with an existing Level of Service A or Level of Service B. Specific results are outlined in **Table 5: Existing Level of Service,** below.

**Table 5: Existing Level of Service**

| *Intersection* | *Control* | *Approach* | *LOS* | *Delay (seconds per vehicle)* |
|---|---|---|---|---|
| **(1) Dallas Rd & I-82 (SB)** | Stop | Southbound | A | 9.3 |
| | | Westbound | A | 3.8 |
| **(2) Dallas Rd & I-82 (NB)** | Stop | Northbound | A | 9.5 |
| | | Eastbound | A | 3.4 |
| **(3) Queensgate & Keene** | Signal | Eastbound | C | 33.7 |
| | | Westbound | C | 29.6 |
| | | Southbound | C | 30.0 |
| | | Overall | C | 30.9 |
| **(4) Queensgate & I-182 (EB)** | Signal | Eastbound | C | 22.1 |
| | | Northbound | A | 6.1 |
| | | Southbound | B | 10.7 |
| | | Overall | A | 9.9 |
| **(5) Queensgate & I-182 (WB)** | Stop | Northbound | A | 2.3 |
| **(6) Queensgate & Duportail** | Signal | Eastbound | B | 19.6 |
| | | Westbound | B | 18.7 |
| | | Northbound | A | 3.2 |
| | | Southbound | B | 14.5 |
| | | Overall | B | 13.7 |
| **(7) Keene & Bombing Range** | Roundabout | Eastbound | B | 12.1 |
| | | Northbound | B | 14.2 |
| | | Westbound | A | 8.2 |
| | | Southbound | B | 14.7 |
| | | Overall | B | 12.8 |
| **(8) Leslie & Gage** | Signal | Eastbound | C | 21.0 |
| | | Westbound | C | 26.7 |
| | | Northbound | B | 19.3 |
| | | Southbound | B | 19.1 |
| | | Overall | C | 22.2 |
| **(9) Badger & Leslie** | All-Way Stop | Eastbound | C | 21.7 |
| | | Westbound | C | 16.3 |
| | | Northbound | D | 27.2 |
| | | Southbound | C | 17.5 |
| | | Overall | C | 21.9 |
| **(10) Badger & I-82 (WB)** | Stop | Westbound | B | 14.5 |
| | | Southbound LT | A | 8.1 |
| **(11) Badger & I-82 (EB)** | Stop | Westbound | B | 11.3 |
| | | Southbound LT | A | 8.0 |

### 4.5.2 Environmental Impacts

The analysis of future conditions assumes that primary access to the subarea is to be via Dallas Road and the existing I-82 ramps. As the subarea continues to develop, additional connections to Reata Road will provide additional access. A connection to the future extension of Queensgate Drive would also be provided by full build out of the Badger Mountain Subarea.

The number of trips at full build out of the subarea was projected by using Land Use Codes found in the ITE Trip Generation Manual. Additionally, a significant amount of the future traffic volumes are expected to remain internal to the subarea. Trips between the retail/commercial sites and the

residential areas would not add trips to the external intersections. An internal capture rate of 17 percent was utilized in the analysis.

The analysis of future conditions assumes that the build out of the Badger Mountain Subarea will be phased with the first phase expected to be built in roughly 5 years (year 2015) while the full build out of the subarea will take 20 years. Phase 1, for traffic impact analyses, are the improvements that will be needed to be made in order to accommodate the first 1000 PM peak hour trips.

The eleven intersections considered in **Table 5** were analyzed for future conditions both with and without the addition of traffic generated from the Badger Mountain Subarea; this analysis is displayed in **Table 6: Future 2015 Level of Service**. The future conditions without Badger Mountain traffic is similar to the existing conditions except that there are additional intersections operating at reduced level of service with low to moderate delays. The future conditions with Preferred Alternative Badger Mountain 2015 traffic indicate that the addition of Phase 1 Badger Mountain traffic would require several mitigations in order to ensure adequate flow on the roadway network surrounding the site. Specific results of the analysis are outlined in **Table 6**.

**Table 6: Future 2015 Level of Service**

| *Intersection* | *Control* | *Geometry* | *Without Project* | | *With Project* | |
|---|---|---|---|---|---|---|
| | | | *LOS* | *Delay (seconds per vehicle)* | *LOS* | *Delay (seconds per vehicle)* |
| **(1) Dallas and I-82 (SB)** | Stop | Southbound | A | 9.5 | F | 137.4 |
| | | Westbound | A | 3.9 | A | 6.3 |
| **(2) Dallas and I-82 (NB)** | Stop | Northbound | A | 9.7 | C | 20.7 |
| | | Eastbound | A | 3.4 | A | 1.1 |
| **(3) Queensgate and Keene** | Signal | Eastbound | D | 38.2 | D | 35.5 |
| | | Westbound | C | 34.5 | D | 37.4 |
| | | Southbound | D | 29.3 | D | 40.6 |
| | | Overall | D | 37.5 | D | 38.2 |
| **(4) Queensgate and I-182 (EB)** | Signal | Eastbound | C | 25.5 | C | 29.7 |
| | | Northbound | A | 6.1 | A | 6.7 |
| | | Southbound | B | 18.0 | C | 20.7 |
| | | Overall | B | 14.6 | B | 16.8 |
| **(5) Queensgate and I-182 (WB)** | Stop | Northbound | A | 2.6 | A | 3.1 |
| **(6) Queensgate and Duportail** | Signal | Eastbound | B | 19.5 | B | 19.7 |
| | | Westbound | C | 25.0 | C | 26.7 |
| | | Northbound | A | 3.3 | A | 3.3 |
| | | Southbound | B | 15.4 | B | 15.7 |
| | | Overall | B | 17.1 | B | 18.2 |
| **(7) Keene and Bombing** | Round-about | Eastbound | B | 12.8 | B | 13.4 |
| | | Northbound | B | 16.0 | B | 17.3 |
| | | Westbound | A | 8.2 | A | 8.5 |
| | | Southbound | B | 15.1 | B | 15.6 |
| | | Overall | B | 13.5 | B | 14.2 |
| **(8) Leslie and Gage** | Signal | Eastbound | D | 29.2 | D | 31.1 |
| | | Westbound | C | 18.9 | C | 19.7 |
| | | Northbound | E | 41.2 | F | 62.8 |
| | | Southbound | C | 21.8 | D | 29.2 |
| | | Overall | D | 30.4 | E | 41.0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **(9) Badger and Leslie** | All-Way Stop | Eastbound | D | 29.2 | D | 31.1 |
| | | Westbound | C | 18.9 | C | 19.7 |
| | | Northbound | E | 41.2 | F | 62.8 |
| | | Southbound | C | 21.8 | D | 29.2 |
| | | Overall | D | 30.4 | E | 41.0 |
| **(10) Badger and I-82 (WB)** | Stop | Westbound | C | 16.6 | C | 24.4 |
| | | Southbound LT | A | 8.3 | A | 3.3 |
| **(11) Badger and I-82 (EB)** | Stop | Westbound | B | 11.9 | B | 12.4 |
| | | Southbound LT | A | 8.1 | A | 8.1 |
| **(12) Dallas and Badger Mountain** | Signal | Eastbound | - | - | A | 4.3 |
| | | Westbound | - | - | C | 33.4 |
| | | Northbound | - | - | B | 10.5 |
| | | Southbound | - | - | C | 20.8 |
| | | Overall | - | - | B | 18.1 |

Under the No Action Alternative, it is estimated that additional traffic would decrease LOS standards to unacceptable levels at the I-82 ramps at Dallas Road and the Reata Road/Leslie Road intersection. *See* Badger Mountain Golf & Country Club Planned Development DEIS (October 1999).

### 4.5.3 Mitigation Measures

**Preferred Alternative**

A. Mitigation measures to accommodate the addition of Phase 1 Badger Mountain South traffic are listed below:

*Dallas Road*

Phase 1 of the Badger Mountain Subarea is expected to add roughly 900 trips to Dallas Road just north of the I-82 ramps during the PM peak hour, and over 9,400 daily trips. While Dallas is currently a high speed, low-volume road with significant excess capacity, the additional volumes would require the roadway to be widened to a four-lane cross section between the site and the I-82 NB ramp intersection. Dallas Road north of the site should be adequate as a two-lane section.

*Mitigation Trigger:*

Lanes will be added when Dallas Road intersections require them due to LOS deficiencies.

*Dallas Road and Project Access*

While the access configurations are not known at this time, some preliminary analysis indicates that a major project access could require dual left turn lanes for the westbound approach. Dallas Road would require left turn lanes at project entrances, and right turn lanes would be advisable.

*Mitigation Trigger:*

Further analysis will occur at the 1,000 p.m. peak trip level and every 500 p.m. peak trip level thereafter. Specific site improvements will occur to meet the City of Richland's adopted LOS.

*Dallas Road and I-82 SB Ramps*

This intersection would see heavy delays for the left turn from the off ramp onto Dallas Road. MUTCD Warrant 3 is met for the PM peak hour. Recommended mitigation for this intersection is widening on Dallas Road for a left turn lane for the westbound to southbound turn onto the on ramp. In addition,

the southbound off-ramp approach should be widened for a separate left turn lane. Finally, the intersection should be signalized.

*Mitigation Trigger:*

Improvements made when 60% of Phase 1 or 7.5% of full build out. At 75% of Phase 1 or 9.5% of full build out, a signal should be installed.

*Dallas Road and I-82 NB Ramps*

While this intersection would meet MUTCD Warrant 3 for the PM peak hour, delays at this location would not be as severe as at the I-82 SB ramp intersection. Recommended improvements include a free right turn lane for the I-82 NB off ramp approach (this movement becoming the additional travel lane required on Dallas between I-82 and the project as listed above), and a free right turn drop lane for the turn from Dallas onto the NB on ramp. Finally, the eastbound Dallas approach should be widened for a left turn lane for the eastbound left turn onto the on ramp. This would be a continuation of the left turn lane widening for the SB ramp intersection (continuous 3-lane section for Dallas between the two ramp intersections, assuming adequate space is available under the I-82 overpass). This intersection should be monitored for signal warrants as the project develops.

*Mitigation Trigger:*

Improvements constructed at 60% of Phase 1 or at 7.5% of full build out.

*Dallas Road and Badger Mountain Parkway*

At the start of Phase 1, this intersection should have additional left turn lanes and right turn pockets on Dallas Road. The intersection could operate adequately with stop control for Badger Mountain Parkway at roughly up to 60% of Phase 1 volumes, or 7.5% of full build out. At higher volumes, a signal should be considered to mitigate delays. At full build out this intersection should be widened with separate lanes for all turning movements, and dual left turn lanes for the westbound approach.

*Mitigation Trigger:*

At the start of Phase 1, this intersection should have additional left turn lanes and right turn pockets. The intersection could operate adequately with stop control for Badger Mountain Parkway at up to 60% of Phase 1 volumes or 7.5% of full build out. At higher volumes a signal should be considered to mitigate delays. At full build out this intersection should be widened with separate lanes for all turning movements, and dual left turn lanes for the westbound approach.

*Queensgate Drive & I-182 EB Ramps*

This intersection should perform adequately with project traffic assuming WSDOT improvements are in place.

*Leslie Road & Badger Road*

This intersection is to be reconstructed from its current all-way stop configuration to a roundabout, as listed in the City of Richland TIP. Performance at this intersection is expected to be adequate at LOS B.

B. Mitigation beyond Phase1 of Badger Mountain South

Analysis of on-site mitigation improvements will be tied to each new 500 peak p.m. trips generated within in Badger Mountain South and as follows:

*Badger Mountain Parkway*
Badger Mountain Parkway will be completed at a rate that will cause full completion to occur on or before 50% development of the entire Badger Mountain South site, i.e., 10% of site development will trigger 20% of parkway to be completed.

*Market Street*
Market Street will be completed on or before 50% build out of the East Market neighborhood.

*Orchard Green Parkway*
Orchard Green Parkway will be completed on or before 50% build out of the South Orchard neighborhood.

*Local and Collector Streets*
Improvements within Badger Mountain South will be made on a project-specific basis to serve the project and foster connectivity within and among neighborhoods, and to meet City of Richland fire and safety standards.

For off-site improvements beyond Phase 1, a Traffic Impact Analysis (TIA) will be provided to the city by the master developer at every point when 500 p.m. peak hour trips are generated from the Badger Mountain South development. The analysis shall be made using the city's traffic impact formulas for general applicability throughout the city that are in effect at the time the need for the TIA is triggered. The master developer will pay its fair share of improvements listed in the Six-Year Transportation Improvement Program and the Capital Facilities Plan that are affected by the 500 p.m. peak hour trips. The fair share payment shall be paid within 30 days after the city's acceptance of the TIA.

**No Action Alternative**

Potential mitigation measures to accommodate the addition of traffic under the No Action Alternative are listed below (source: Badger Mountain Golf & Country Club Planned Development DEIS (October 1999):

1. Site accesses from Badger Mountain Boulevard to Dallas Road and Reata Road could be constructed with separate left turn capability to ensure safe traffic operations.
2. Construct traffic signals, if warrants are achieved at Dallas road/northbound I-82 off-ramp, Dallas Road/southbound I-82 off-ramp, and Leslie Road/Reata Road.
3. Widen the shoulder of Reata Road from the site to Leslie Road, consistent with AASHTO geometric standards, to accommodate projected volumes.

### 4.5.4 Unavoidable Significant Adverse Impacts

With the implementation of the recommended mitigation measures, no unavoidable significant adverse impacts are expected. The analysis of future conditions for the Preferred Alternative, including Badger

Mountain 2015 traffic, and assuming the mitigations recommended above are completed, is summarized in the following **Table 7.**

**Table 7: Future 2015 LOS with Project & Recommended Mitigation Improvements**

| *Intersection* | *Control* | *Approach* | *LOS* | *Delay (seconds per vehicle)* |
|---|---|---|---|---|
| **(1) Dallas Rd & I-82 (SB)** | Stop | Southbound | D | 28.6 |
| **60% Phase 1, no improvements** | | Westbound | A | 5.6 |
| **(1) Dallas Rd & I-82 (SB)** | Stop | Southbound | D | 27.1 |
| **60% Phase 1, no improvements** | | Westbound LT | A | 7.8 |
| **(1) Dallas Rd & I-82 (SB)** | Signal | Southbound | A | 7.2 |
| | | Eastbound | A | 6.6 |
| | | Westbound | B | 13.2 |
| | | Overall | A | 9.4 |
| **(2) Dallas Rd & I-82 (NB)** | Stop | Northbound | C | 15.2 |
| | | Eastbound LT | A | 8.7 |
| **(4) Queensgate & I-182 (EB)** | Signal | Eastbound | C | 31.5 |
| | | Northbound | A | 2.2 |
| | | Southbound | C | 22.2 |
| | | Overall | B | 15.2 |
| **(9) Badger & Leslie** | Round About | Eastbound | B | 14.2 |
| | | Northbound | B | 11.6 |
| | | Westbound | B | 16.3 |
| | | Southbound | B | 11.5 |
| | | Overall | B | 12.7 |
| **(12) Dallas & Badger Mtn Pkwy** | Stop | Eastbound | A | 9.6 |
| **60% Phase 1, lanes added** | | Westbound | C | 21.4 |
| | | Northbound LT | A | 7.6 |
| | | Southbound LT | A | 8.1 |
| **(12) Dallas & Badger Mtn Pkwy** | Signal | Eastbound | A | 4.3 |
| | | Westbound | C | 33.4 |
| | | Northbound | B | 10.5 |
| | | Southbound | C | 20.8 |
| | | Overall | B | 18.1 |

# 4.6 Public Services and Utilities

## 4.6.1 Affected Environment

### 4.6.1.1 Potable Water

The Badger Mountain Subarea is located within the Retail Service Area for the Badger Mountain Irrigation District (BMID). Neighboring the BMID to the north is the City of Richland Water Service Area.

The Badger Mountain Subarea Plan—Water Element (April 2010), provides a detailed discussion of system capacity, future water demands in Badger Mountain Subarea, and capital improvement necessary to meet demand.

### 4.6.1.2 Sanitary Sewer

The Badger Mountain Subarea lacks any sanitary sewer infrastructure. The City of Richland's existing sewer system consists of gravity sewers, lift stations, and force mains that convey wastewater to the City's Wastewater Treatment Facility (WWTF). The existing sewage conveyance system consists of over 220 miles of pipes ranging in size from 2-inch diameter to 54-inch diameter. The Wastewater Treatment Facility was built in 1985 and is a 12-million gallons per day complete-mix activated sludge plant. The WWTF's capacity is 8.9 MGD (average day), 11.4 MGD (design flow), 24.0 MGD (peak flow). The average day flow recorded at the WWTF is 6.2 MGD. The City of Richland General Sewer Plan Update indicates that as the population served by the WWTF increases, there is built-in design flexibility allowing for the construction of additional facilities which will double the treatment capacity of the plant to 24 MGD.

The Badger Mountain Subarea Plan—Sanitary Sewer Element (April 2010), provides a detailed discussion of system capacity, future sewer demands in Badger Mountain Subarea, and capital improvement for connections to city sewer system necessary to meet demand.

### 4.6.1.3 Police

Upon annexation of the subarea, law enforcement services will be provided by the City of Richland. Due to the current low level of development and population in the Badger Mountain Subarea, demand for law enforcement services is low.

### 4.6.1.4 Life Safety Services

Currently this area is served by Benton County Rural Fire District No. 1.

### 4.6.1.5 Electrical Services

Currently this area is served by Benton PUD which has a 110 KVA line to the area. The city has worked with Benton PUD to address service territories. In 2015, the city will be responsible for serving all new electrical loads in the subarea. At that time the city can purchase the existing electrical infrastructure from Benton PUD, although the PUD has indicated that they do not plan to sell the entire pre-2015 electrical infrastructure. As development proceeds upon annexation, there will be several options for how to proceed with providing electrical service because of this split service responsibility until 2015.

## 4.6.2 Environmental Impacts

### 4.6.2.1 Potable Water

The total number of new ERUs for the Preferred Alternative assumed for sizing of waterlines within the subarea is summarized in the following **Table 8.**

*Table 8 – Badger Mountain Subarea ERU's*

| Area | Single Family Residences | Multi-Family Units | Commercial (acres) | Schools (acres) | ERU's |
|---|---|---|---|---|---|
| Badger Mountain South | 3,000 | 2,000 | 78.3 | 53.2 | 7,300 |
| Wilson/Other Property | 1,128 | 0 | 18.2 | 14.5 | 1,755 |
| Undeveloped Property Outside of the UGA | 1,268 | 0 | 0.0 | 0.0 | 1,268 |
| **Total – (Badger Mountain Subarea + Adjacent Undeveloped Property)** | **5,396** | **2,000** | **96.5** | **67.7** | **10,323** |

Under the No Action Alternative, there would be 629 single family and 238 multifamily residences in Badger Mountain South, so the total number of new ERUs needed would be reduced accordingly.

The Badger Mountain Irrigation District's adopted Level of Service for domestic water is 257 gpd/ERU. The City of Richland's adopted Level of Service is 300 gpd/ERU. The analysis in the Subarea Plan--Water Element utilized the demand standards from the City of Richland as it was the highest and provides the most-conservative results. Hydraulic modeling was completed to analyze the proposed water system. The results indicate that the system will operate to meet the peak day demands, while maintaining sufficient system pressures and not exceeding maximum pipe velocities. Additionally, a fire flow analysis was completed for the improvements.

Based on initial discussions, domestic water will be supplied to the subarea by the BMID which will construct reservoirs within the City of Richland service area. The City will become a wholesale water supplier to the BMID which will then provide the water supply to serve the whole of the subarea. When complete, the water system will be dedicated to the BMID for operation and maintenance as part of the overall system.

### 4.6.2.2 Sanitary Sewer

The Badger Mountain Subarea is comprised of three primary sewer basins—Badger Mountain West, Badger Mountain East, and Wilson/Other Basin B. The Badger Mountain West Basin is projected to consist of 853 on-site single-family residences, 1,130 on-site multi-family units, and 686 off-site single-

family residences at build out of the Preferred Alternative. The Badger Mountain West Basin also contains a large amount of commercial areas. The projected flows produced by the Badger Mountain West basin are 1.565 million gallons per day.

The Badger Mountain East Basin is projected to consist of 3,124 on-site single-family residences, 870 on-site multi-family residences, and 582 off-site single family residences at build out of the Preferred Alternative. The Badger Mountain East Basin also contains commercial areas and a large amount of school properties. The projected flows produced by the Badger Mountain East Basin are 2.510 million gallons per day.

The Wilson/Other Basin B is projected to consist of 151 single-family residences, along with commercial and school areas. The projected flows produced by the Wilson/Other Basin B Basin are .150 million gallons per day.

A peaking factor of 2.8 has been applied to the average day flows as per the City's criteria for future system planning as included in the General Sewer Plan Update.

**Table 9 – Badger Mountain Flow Projections for Preferred Alternative**

| Basin | Peak Flows (Mgal per day) |
|---|---|
| **Badger Mountain West** | 1.565 |
| **Badger Mountain East** | 2.510 |
| **Wilson/Other Basin B** | .150 |
| **Total Badger Mountain Subarea** | 4.225 |

Under the No Action Alternative, Badger Mountain East and West would total 629 on-site single family residences and 238 on-site multifamily residences. Projected flows for those residences are estimated to be .250 Mgal per day; *see* Badger Mountain Golf & Country Club Planned Development DEIS (October 1999). Other flows would be the same in both alternatives.

#### 4.6.2.3 Police

Development of the Badger Mountain Subarea under either alternative will have an impact on the city's Police Services as households are established and commercial activity areas grow. The city has identified in its Capital Facilities Element of the Comprehensive Plan as Goal 1 that it "…*will provide cost-effective and concurrent levels of public safety services designed to maintain quality of life."*

The Comprehensive Plan has identified Police Services LOS as 1.36 commissioned officers per 1000 population and a 1 to 5 minute average response time for high priority calls.

#### 4.6.2.4 Life Safety Services

Development of the Badger Mountain Subarea under either alternative will have an impact on the city's Life Safety or Fire and Emergency Services. If the City of Richland assumes life safety services for the subarea, a new station may be required, as identified in the ordinance approving the revised Urban Growth Area Boundary. According to the City of Richland Comprehensive Plan, a threshold of 500 hundred homes outside a 4-minute drive time from an existing Richland Fire and Emergency Services Facility will trigger a process to identify funding mechanism to construct and staff a new facility. The Comprehensive Plan also states the city's current LOS for fire protection and emergency medical service is measured in terms of response times, that is, from time of dispatch to time on scene. The desired goal is to achieve a 5-minute response time for 90 percent of all calls. The actual response time measured during the 2002-2003 study period and captured in the Comprehensive Plan is 8.03 minutes for all call types.

#### 4.6.2.5 Electrical Services

Development of the Badger Mountain Subarea under either alternative will have an impact on energy services. The City of Richland's Energy Services Department currently has about 23,000 customers. These customers use approximately 202,500 KVA out of a total capacity of 316,000 KVA. Until the specific power requirements of the new commercial customers are determined, it is not possible to accurately predict total power demand for the Badger Mountain Subarea at build out. However, the addition of approximately 5,564 new residential units would likely be enough load to require a new single bank substation with some support from one or more adjacent substations. The city has two substations north of the Badger Mountain Subarea from which the city could extend lines. Given that only about 64 percent of the available power capacity has currently been utilized by the total customer base of the city, it can be determined that sufficient capacity exists to serve this area.

### 4.6.3 Mitigation Measures—Capital Improvements

#### 4.6.3.1 Potable Water

Service to the subarea under the Preferred Alternative will be accomplished through a series of capital improvements. The Badger Mountain Subarea Plan--Water Element proposes two reservoirs. The West Badger Mountain reservoir will tie-in to the existing system at the new Tapteal 4 Pump Station located north along Dallas Road, just over the freeway. It is anticipated that this pump station will be constructed by the Indian Hills development, prior to any construction occurring within the Badger Mountain Subarea. The East Badger Mountain reservoir will tie-into the existing system at the end of Meadow Hills Drive. This reservoir will also require construction of a new pump station in order to supply water to the BMID Zone 3 Pressure zone. The proposed reservoirs have been preliminarily sized at 1.0 Mgal each in accordance with the City of Richland's water system plan.

The preliminary sizing indicates that 45'-diameter, 36'-high reservoirs will adequately meet the needs of the development.

Service to the subarea will require both on-site and off-site water system improvements. A brief description of the proposed improvements is as follows:

- Approximately 1.0 Mgal Water reservoir located on the west side of Badger Mountain which ties into the existing Tapteal 4 Pump Station (Indian Hills)[21]
- Approximately 1.0 Mgal Water reservoir located on the east side of Badger Mountain
- New Tapteal 4 Pump Station located near the end of Meadow Hills Drive
- Approximately 2,300 lineal feet of 20" water mains
- Approximately 37,000 lineal feet of 16" water mains
- Approximately 37,000 lineal feet of 12" water mains
- Approximately 6 Pressure Reducing Valves (PRV's) to maintain separation between BMID Zone 1 and BMID Zone 3

Improvements will be constructed in phases as development progresses. All proposed improvements will be designed and constructed in accordance with either the BMID standards or the City of Richland standards, whichever is more restrictive.

Within the area of Badger Mountain South, additional techniques will be used to reduce water consumption overall. First, incorporating the use of xeriscaping techniques including the use of native and other drought tolerant plants that have adapted to dry conditions and require less water once established. Second, residential and commercial structures will include low-flow and water-efficient appliances. Developers of commercial structures will be encouraged to consider the use of "green roofs" or "cool roofs" on their buildings. In the Badger Mountain South area, all private homeowners associations will be provided education materials for their membership that provides water conservation methods for the typical household.

#### 4.6.3.2 Sanitary Sewer

The construction of the Badger Mountain Subarea under the Preferred Alternative will require 10 different capital improvements to the City of Richland's current sewer system. The need for these improvements is triggered by the addition of new customers to the sewer system. Each project as identified below is triggered by a different number of equivalent residential units (ERU's) from the Badger Mountain Subarea. One ERU is defined as 200 gallons per day. Capital improvement projects were identified for all offsite improvements and for all on-site improvements resulting in a sewer pipe diameter of 10" or larger. Following are the capital improvements:

1. On-site improvements include 3,000 lineal feet of new 15" sewer that conveys flows from the West Vineyard and West Village Basins to the Badger West Lift Station. Off-site improvements include 15,000 lineal feet of new 10" forcemain (or equivalent) to convey flows from the Badger West Lift Station to the west end of Strawberry Roane Lane in the County Ridge Subdivision.

2. On-site improvements include the Badger East Lift Station, approximately 6,900 lineal feet of 8" forcemain (or equivalent), and 4,200 lineal feet of new 10", 15", and 18" sewers.

[21] It is anticipated that the construction of the Tapteal 4 Reservoir and Pump Station by the Indian Hills development will be completed prior to any Badger Mountain subarea improvements.

3. On-site improvements include 2,600 lineal feet of new 10” sewer and 1,900 lineal feet of new 12” sewer that convey flows from Wilson/Other Basin A, East Garden Basin, East Market Basin, and South Orchard Basin towards the Badger East Lift Station.

4. On-site improvements include 3,300 lineal feet of new 10” sewer that conveys flows from Wilson/Other Basin A towards the Badger East Lift Station.

5. Off-site improvements include 3,000 lineal feet of new 8” sewers to serve the Wilson/Other Basin B.

6. Off-site improvements include the upsizing of 2,450 lineal feet of existing 8” sewers to 12”, 18”, and 21” sewers.

7. Off-site improvements include the upsizing of 1,850 lineal feet of existing 8” sewers to 15”, 18”, and 21” sewers.
8. Off-site improvements include the upsizing of 3,600 lineal feet of existing 12” sewers to 15”, 18”, 21”, and 24” sewers

9. Off-site improvements include the upsizing of 3,700 lineal feet of existing 8” sewers to 12”, 15”, 18”, & 21” sewers.

10. Off-site improvements include the upsizing of 1,000 lineal feet of existing 15” and 21” sewers to 18”, 24”, & 27” sewers.

A detailed description of system improvements is included in the Badger Mountain Subarea Plan—Sanitary Sewer (April 2010).

#### 4.6.2.3 Police

It is anticipated that the City will be able to provide law enforcement services to the subarea under either alternative with the addition of staff and equipment, but without the need for new facilities in the area.

#### 4.6.3.4 Life Safety Services

Transportation improvements within the subarea under the Preferred Alternative will promote more efficient fire and emergency service response times by the city’s existing facilities, maximizing the service area per station and the number of properties served. Providing more efficient services by existing facilities is also more efficient for taxpayers as costs for operating a fire station are fixed and are mostly operating costs. In cities that have analyzed the degree to which a connected street network impacts Fire Station service areas, higher connectivity or street grids as found in traditional neighborhood development patterns, and as proposed in Badger Mountain South, allows larger service areas that can distribute fixed operating costs over a greater number of households.

A fire station facility would require up to two acres of land and would be best located on an arterial or collector. Under current city policy, lands will be set aside for public acquisition in developing areas should sites be determined to be necessary for public facilities.

Within Badger Mountain South there will be at least two avenues of access to each residential structure to allow life-safety access and accommodate a preferred narrow street profile. In addition, all single-family and duplex homes constructed will be provided with an in-home sprinkler system designed to meet the requirements for fire protection systems as defined by the National Fire Protection Association (NFPA) Standard 13D.

Upon the city's determination that a new fire facility is needed, a two-acre site for a new fire station facility will be dedicated in Badger Mountain South.

#### 4.6.3.5 Electrical Services

To ensure that future customers from the Badger Mountain Subarea to the City of Richland Energy Services Department are well-served with sufficient power to supply residential and commercial facilities, a site up to two-acres in size and located in the Northwest corner of the subarea, and adjacent to I-82, will be dedicated to the city upon request.

Within the Badger Mountain South development, specific direction is provided in the Badger Mountain South Land Use and Development Regulations to promote energy conservation in all aspects of development and life cycle operation and to promote production and use of renewable energy; these specific measures include:

1. Achieve Energy Star certification applicable for the year of construction.
2. Include passive and/or active means of allowing for both solar gain where used for passive solar heating as well as shading protection from unwanted solar gain.
3. Include building space, conduits and roof support for future addition of solar hot water and PV systems on every building.
4. Meet ANSI/ASHRAE/IESNA standards for all exterior lighting (Dark Sky Standards).
5. Within residential structures, reduce energy demand for domestic hot water through the installation of either a solar hot water system or an on-demand hot water system.

### 4.6.4 Unavoidable Significant Adverse Impacts

No unavoidable significant adverse impacts are expected.

## 5.1 Carbon Footprint

### 5.1.1 Affected Environment

The existing land uses in the Badger Mountain Subarea are primarily agricultural however there are also existing single-family residences on large lots and newly created subdivisions of a similar pattern.

### 5.1.2 Environmental Impacts

The Badger Mountain Subarea, by definition, will have urban growth, as that is what urban growth areas are for under the Growth Management Act. Although the topic of global warming is still being debated, and the impacts of carbon emissions on the environment are still being discussed, there will be increased carbon emissions over the existing agricultural uses resulting from urban development within the Badger Mountain Subarea.

### 5.1.3 Mitigation Measures

Badger Mountain South master plan community will significantly mitigate impacts by maintaining large areas of open space, introducing thousands of trees into the developed area in order to provide shade, carbon dioxide processing, and release of oxygen into the environment. Badger Mountain South is designed to reflect Smart growth and sustainability principles including the following: compact design that supports transit use, mixed uses to facilitate the internal capture of new vehicle trips, over 20 miles of multiple types of trails that encourage alternate transportation use and create a walkable community, establishing a range of housing types to facilitate opportunities and increased choice, a traditional street grid allowing connectivity within and between neighborhoods, and preservation of over 400 acres of connected open space.

The use of sustainable technologies and the most up-to-date standards for environmentally responsible development are incorporated into the regulations being included in the new form-based code by which the Badger Mountain South community will develop.

Specific measures:

1. Reduce VMT and direct and indirect emissions from reduced parking facilities by developing densities to support transit, walking and bicycling.
2. Reduce onsite fuel combustion emissions and purchased electricity consumption, materials used, and direct construction emissions by minimizing the building footprint through the introduction of compact building design and mixed uses.
3. Reduce onsite fuel combustion emissions and purchased electricity plus enhance carbon sink through the planting of new street trees and establishing new greenways, and through the requirement for solar-readiness.
4. Reduce water consumption through the use of water conserving fixtures that exceed building code requirements and planting of drought-tolerant landscaping.
5. Reduce fugitive emissions and indirect emissions through the use of low-VOC paints and building materials.
6. Reduce sprawl and direct and indirect VMT by directing growth into a walkable and sustainable community.
7. Approve a master plan for the Badger Mountain South community that is based on the principles of walkability and sustainability.