

---

## Chapter 4: *Land and Facility Demand*

---

*A community-based level-of-service is used in this process to more accurately depict local values, interests and populations. It was developed based on the community process outlined in the beginning of this plan.*

The level of service standards for a park system can be measured in several ways. Population ratios of land acres per thousand people has been one of the most commonly used standards, but presents a limited evaluation of a park system. A broader approach to level of service standards should also consider the distribution of land and facilities in the community as well as the per capita value of the system, the availability of programs for all populations, demographics of the users, and the quality of the facilities, including maintenance.

Determining a level of service standard for park, recreation, and open space land and facilities can help a community plan and budget for the demands of a growing and changing population. This level of service standard can generally be estimated using population ratios, participation models, or, as was used in this plan, a community-based approach to develop level-of-service standards. Since all three approaches to level of service planning are commonly used, this plan summarizes each and discusses why the community-based approach was used. In all cases, the ratio of land per population is based on the complete system city wide, and can be broken down by the park classification of each individual type of facility. For example, the proposed level of service for neighborhood parks is 1.1 acre per thousand people out of an estimated total of 36 acres of parkland per thousand people city wide by the year 2022.

### **4.1 Population Ratio**

The demand for park, recreation and open space is often estimated using a ratio of a facility to a unit of population, such as 3.1 acres of athletic fields per 1,000 residents. The ratio method is relatively simple to compute and can be compared with national or local park, recreation and open space measurements.

The ratio method is frequently used to estimate land requirements. However, a number of factors may significantly influence the amount of land a community may wish to set aside for park, recreation and open space purposes. Such factors may include the presence of sensitive environments, scenic viewpoints, historical or cultural assets, trailheads, and other features.

This method cannot account for unique age, social or interest characteristics that may affect recreation activity preferences within a community. Nor can the method compensate for climate or environmental features that may cause seasonal or geographical variations in use or the proximity of these facilities to individual neighborhoods.

The most widely used park land and facility ratios have been formulated by the National Recreation & Park Association (NRPA) using standards that have been developed over time by major park and recreation departments across the country. The NRPA published a comprehensive list of ratios in 1985 that have subsequently been updated. Currently, however, the NRPA recognizes the limitations of this population ratio methodology and recommends a community-based ratio be developed to compensate for these limitations and to reflect the specific conditions and unique nature of each community. The NRPA ratios are presented for comparison purposes only.

#### **4.2 Participation Models**

Park, recreation and open space facility requirements can also be determined using participation models: refined, statistical variations of a questionnaire or survey that determines recreational behavior.

Participation models are usually compiled using activity diaries, where a person or household records their participation in specific recreational activities over a measurable period of time. The diary results are compiled to create a statistical profile that can be used to project the park, recreation and open space behavior of comparable persons, households or populations. Participation models can be very accurate predictors of an area's park and recreation facility requirements in terms that are specific and measurable. However, they can fail to determine qualitative issues of an area's demands in addition to a facility's quantitative requirements. For example, an area might provide a mile of walking trail to meet the demands of local residents, but the trail might not be provided in a quality, safe corridor or be accessible to all populations.

*A **Community-Based** approach is recommended to respond to the needs, values and goals specific to Bellingham.*

The Washington State Recreation and Conservation Office (RCO) used this methodology to develop land and facility standards from a survey of six age groups (male and female) for the northeast region of the state in the late 1980s and early 1990s. The estimates were developed for each activity demand for the peak season periods and were then converted into a ratio of facility unit per 1,000 residents to allow comparison with similar ratios developed by the NRPA.

As with the NRPA standard, this model has its own limitations. For example, it cannot account for variations in volume of use or quality of a facility that may be influenced by a variety of factors, such as seasonal uses or tourism. Because of this limitation, the state agency (RCO) also recommends a more community-based approach to determining a level-of-service in order to better represent local conditions.

### 4.3 Community-Based Approach

This plan used a community based approach to determine recommended park system level of service standards. Utilizing this approach allowed the citizens of Bellingham to influence the process through a series of public meetings, focus groups and surveys to evaluate the quality, accessibility, and quantity of the existing system. Land and facility requirements are expressed as a ratio of land or facility to the population (acres per 1,000 people), an overall system dollar value per capita, and the proximity of facilities to the population (service area). The process considers what the community expresses as their interests and needs for a park system. This is combined with an evaluation of demographic characteristics to ensure all populations are included in the overall park system. Proposed improvements were formulated based on community preferences.

The 2008 existing ratio of land to population level-of-service standard is a ratio of the existing park, recreation and open space lands in the system per 1,000 people using existing population estimates. The proposed improvements developed through the community-based process were then added to the existing facilities (accounting for quantity and quality needs) and divided by the projected population for the life of the plan, again expressed per 1,000 people.



For example, the existing supply of open space acres in a jurisdiction of 50,000 people with a proposed population of 100,000 people may be 200 acres, or an existing land ratio level-of-service standard of 2.0 acres per 1,000 people. The public may determine, however, that under present conditions the existing open space does not provide enough variety of experience or preserve enough land for wildlife. In this example, the public would like to add 200 more acres to the existing inventory in order to fulfill this need. With this proposed addition the overall supply would increase to 400 acres and the proposed land ratio level-of-service standard would be 4.0 acres per 1,000 people by the end of the planning period.



In addition to agencies within the service area, the school district within the planning area and other public agencies outside the planning area combine to provide a significant amount of additional land for park, recreation and open space interests. However, as these are either not under “public” agency control and/or not always available (in the case of the school district) or are outside the urban growth area and therefore not part of the city’s purview,

they are not included in the level-of-service calculation. Other major

recreational areas, such as the Mount Baker National Recreation Area, North Cascades National Park, and Mount Baker National Forest, also provide a variety of recreational opportunities on a more regional level.

#### **4.4 Future growth implications**

The Washington State Office of Financial Management (OFM) and the Bellingham Planning Department expect the population of Bellingham and the Urban Growth Area (UGA) will increase from 88,838 people in 2007 to an estimated 113,055 people by the year 2022, an increase of 24,227 people. This forecasted population will create significant requirements for all types of park, recreation and open space lands and facilities within the planning area. This also assumes that all current UGA areas will be incorporated into the city within the planning period.

#### **4.5 Level-of-Service (LOS)**

The existing 2008 park acres per thousand and total system cost per capita and the 2022 proposed acres per thousand and cost per capita for 4 different options within the Bellingham planning area were considered as shown below. The Steering Committee, Staff and Planning Commission all recommend adoption of the Base Plan Option which would provide an additional 639 acres of parkland by the year 2022.

The 2008 numbers were derived by quantifying the land and facility improvements for the existing park system. Proposed land and facility quantities were derived by applying average park sizes and facility improvements to the distribution of parks, open space, and trails identified through the community process. Public input on various recreational interests, quality of the park system, and the diversity of uses, was also considered in determining the types of facilities in the proposed park system. Specific recommendations such as the location of each proposed park or trail used to generate the base proposed level of service are described in greater detail in Chapter 6. The values are based on 2008 cost data developed from land sales information, land value data, bid documentation, and other local cost data. Both land and facility improvement costs are included.

The land ratio level-of-service standard is calculated by dividing the total city or UGA acres of land in each park classification by the respective population. The same calculation is used for existing or proposed (existing acres divided by existing population and proposed acres divided by proposed population). UGA Population includes both the city and UGA 2007 estimated populations. A complete inventory of existing land and facilities is included in Appendix B.

The value per capita of the City owned park system is the basis for the City's park impact fee calculation. Cost data used to develop these estimates are defined by each activity type (i.e. cost per acre of land, ballfield or playground) in the Existing Facilities Table in Appendix B. The total value of the existing system is calculated then divided by the existing population. This is done for city-owned facilities only, since that is the basis of the park impact fee. Likewise, the total value of the proposed recommendations is divided by the projected 2022 population to

determine the proposed value per capita level of service standard. While the proposed value is included in this plan, only the existing, city owned value is used in the park impact fee calculation. Refer to the City's Park Impact Fee Ordinance (BMC 19.04) for a more detailed description of how these figures relate to the park impact fee calculation.

The existing City land ratio level of service standard of 43.4 acres per thousand people is arrived at by dividing the total City owned acres of 3261.7 by the 2007 estimated city population of 75,220, divided by 1,000. This reduction from the 2002 land ratio standard of 47.49 acres per thousand is largely due to including only the 234.4 acres of watershed properties that are located within the UGA in the inventory of existing land instead of the 571.3 acres of watershed property used in the 2002 calculation. When the 2007 existing UGA population of 13,618 is added, along with Port and Whatcom County owned park lands located in the planning area, the UGA land ratio standard is 38.3 acres/1000. The 2002 PRO plan recommended extending the level of service acreage ratio that existed for City only residents into the Urban Growth Area, providing the same City level of service of 47.49 acres/1000 for people already living within the Urban Growth Area. The current plan recognizes residents of the unincorporated UGA are already using existing parks and are therefore included in calculating the existing land ratio of 38.3 acres/1000.

The recommended Base Plan Option table above shows that the city wide land ratio standard in the year 2022 is estimated to be 35.8 acres per thousand people if the projected population level of 113,055 is reached, all existing UGA areas are annexed, and all Base Plan Option recommendations are implemented. Over the 14 year planning period, residents should not experience a noticeable reduction in the park level of service. Although the overall land acreage ratio will decrease slightly, land that is acquired for park uses will provide a balance of passive and active recreational opportunities that is well distributed throughout the community. Generally, all residential areas of the city should be served with neighborhood parks and trails within walking distance (a 1/2 mile radius) and a community park within a 1 mile radius. However, special use sites and open space often reflect unique opportunities and environments and may not be equally distributed by neighborhood throughout the community. The current value per capita of the entire City owned park system, including both land and facilities, is \$5419 per person. By the year 2022 the value per person, in 2008 dollars, would be \$7135.

<hr/> <i>2008 Value City Only = \$ 5,419 /Capita</i>
<i>2022 Value All UGA = \$7135 /Capita Base PlanOption</i>
<hr/>

**4.6 Conclusions**

The proposed recommendations for the base option, if implemented, will gradually result in a slight reduction in the level of service standard for

**LEVEL-OF-SERVICE STANDARDS- PRIORITY PROJECTS OPTION  
CITY OF BELLINGHAM**

2007 CITY Population                      75,220  
 2007 UGA Population                      88,838  
 2022 UGA Population                      113,055

Ownership	Total Land (acres)	Neighborhood Park (acres)	Community Park (acres)	Special Use Site (acres)	Open Space/ Trails (acres)	Total Value/Capita Standard
<b>EXISTING PARK SYSTEM ACRES - CITY &amp; UGA</b>						
City of Bellingham	3027.3	78.2	1457.5	304.9	1186.6	\$ 5,419
City Watershed	234.4	0.0	0.0	0.0	234.4	\$ 281
Port of Bellingham (UGA)	10.7	0.0	10.7	0.0	0.0	n/a
Whatcom County (UGA)	131.6	6.7	0.0	1.5	123.4	n/a
<b>TOTAL EXISTING UGA</b>	<b>3404.0</b>	<b>84.9</b>	<b>1468.2</b>	<b>306.4</b>	<b>1544.4</b>	<b>n/a</b>

<b>PROPOSED PARK SYSTEM ADDITION ACRES - CITY &amp; UGA</b>						
City of Bellingham (UGA)	483.5	27.0	64.0	1.0	391.5	\$ 1,058
City Watershed (UGA)	0.0	0.0	0.0	0.0	0.0	n/a
Port of Bellingham (UGA)	0.0	0.0	0.0	0.0	0.0	n/a
Whatcom County (UGA)	0.0	0.0	0.0	0.0	0.0	n/a
<b>TOTAL PROPOSED ADDITIONS UGA</b>	<b>483.5</b>	<b>27.0</b>	<b>64.0</b>	<b>1.0</b>	<b>391.5</b>	<b>\$ 1,058</b>

<b>TOTAL PROPOSED UGA</b>	<b>3887.5</b>	<b>111.9</b>	<b>1532.2</b>	<b>307.4</b>	<b>1935.8</b>	<b>\$ 6,759</b>
---------------------------	---------------	--------------	---------------	--------------	---------------	-----------------

<b>ACRES / 1000 STANDARD - CITY &amp; UGA</b>						
2008 CITY Acres / 1000	43.4	1.0	19.4	4.1	18.9	\$ 5,701
2008 UGA Acres / 1000	38.3	1.0	16.5	3.4	17.4	n/a
2022 UGA Acres / 1000	34.4	1.0	13.6	2.7	17.1	\$ 6,759
NRPA Acres / 1000	34.5	2.0	8.0	n/a	6.0	

<b>SERVICE AREA STANDARD</b>						
Service Area Standard	n/a	1/2 mile	1 mile	n/a	1/2 mile	n/a

**LEVEL-OF-SERVICE STANDARDS - BASE PLAN OPTION  
CITY OF BELLINGHAM**

2007 CITY Population                      75,220  
 2007 UGA Population                      88,838  
 2022 UGA Population                      113,055

Ownership	Total Land (acres)	Neighborhood Park (acres)	Community Park (acres)	Special Use Site (acres)	Open Space/ Trails (acres)	Total Value/Capita Standard
<b>EXISTING PARK SYSTEM ACRES - CITY &amp; UGA</b>						
City of Bellingham	3027.3	78.2	1457.5	304.9	1186.6	\$ 5,419
City Watershed	234.4	0.0	0.0	0.0	234.4	\$ 281
Port of Bellingham (UGA)	10.7	0.0	10.7	0.0	0.0	n/a
Whatcom County (UGA)	131.6	6.7	0.0	1.5	123.4	n/a
<b>TOTAL EXISTING UGA</b>	<b>3404.0</b>	<b>84.9</b>	<b>1468.2</b>	<b>306.4</b>	<b>1544.4</b>	<b>n/a</b>

<b>PROPOSED PARK SYSTEM ADDITION ACRES - CITY &amp; UGA</b>						
City of Bellingham (UGA)	639.0	40.5	119.0	1.6	478.0	\$ 1,698
City Watershed (UGA)	0.0	0.0	0.0	0.0	0.0	n/a
Port of Bellingham (UGA)	0.0	0.0	0.0	0.0	0.0	n/a
Whatcom County (UGA)	0.0	0.0	0.0	0.0	0.0	n/a
<b>TOTAL PROPOSED ADDITIONS UGA</b>	<b>639.0</b>	<b>40.5</b>	<b>119.0</b>	<b>1.6</b>	<b>478.0</b>	<b>\$ 1,698</b>

<b>TOTAL PROPOSED UGA</b>	<b>4043.1</b>	<b>125.4</b>	<b>1587.2</b>	<b>308.0</b>	<b>2022.4</b>	<b>\$ 7,399</b>
---------------------------	---------------	--------------	---------------	--------------	---------------	-----------------

<b>ACRES / 1000 STANDARD - CITY &amp; UGA</b>						
2008 CITY Acres / 1000	43.4	1.0	19.4	4.1	18.9	\$ 5,701
2008 UGA Acres / 1000	38.3	1.0	16.5	3.4	17.4	n/a
2022 UGA Acres / 1000	35.8	1.1	14.0	2.7	17.9	\$ 7,399
NRPA Acres / 1000	34.5	2.0	8.0	n/a	6.0	

<b>SERVICE AREA STANDARD</b>						
Service Area Standard	n/a	1/2 mile	1 mile	n/a	1/2 mile	n/a

**LEVEL-OF-SERVICE STANDARDS - EXISTING UGA OPTION  
CITY OF BELLINGHAM**

2007 CITY Population                      75,220  
 2007 UGA Population                      88,838  
 2022 UGA Population                      113,055

Ownership	Total Land (acres)	Neighborhood Park (acres)	Community Park (acres)	Special Use Site (acres)	Open Space/ Trails (acres)	Total Value/Capita Standard
<b>EXISTING PARK SYSTEM ACRES - CITY &amp; UGA</b>						
City of Bellingham	3027.3	78.2	1457.5	304.9	1186.6	\$ 5,419
City Watershed	234.4	0.0	0.0	0.0	234.4	\$ 281
Port of Bellingham (UGA)	10.7	0.0	10.7	0.0	0.0	n/a
Whatcom County (UGA)	131.6	6.7	0.0	1.5	123.4	n/a
<b>TOTAL EXISTING UGA</b>	<b>3404.0</b>	<b>84.9</b>	<b>1468.2</b>	<b>306.4</b>	<b>1544.4</b>	<b>n/a</b>

<b>PROPOSED PARK SYSTEM ADDITION ACRES - CITY &amp; UGA</b>						
City of Bellingham (UGA)	929.0	95.0	159.0	1.6	673.4	\$ 1,990
City Watershed (UGA)	0.0	0.0	0.0	0.0	0.0	n/a
Port of Bellingham (UGA)	0.0	0.0	0.0	0.0	0.0	n/a
Whatcom County (UGA)	0.0	0.0	0.0	0.0	0.0	n/a
<b>TOTAL PROPOSED ADDITIONS UGA</b>	<b>929.0</b>	<b>95.0</b>	<b>159.0</b>	<b>1.6</b>	<b>673.4</b>	<b>\$ 1,990</b>

<b>TOTAL PROPOSED UGA</b>	<b>4333.0</b>	<b>179.9</b>	<b>1627.2</b>	<b>308.0</b>	<b>2217.8</b>	<b>\$ 7,691</b>
---------------------------	---------------	--------------	---------------	--------------	---------------	-----------------

<b>ACRES / 1000 STANDARD - CITY &amp; UGA</b>						
2008 CITY Acres / 1000	43.4	1.0	19.4	4.1	18.9	\$ 5,701
2008 UGA Acres / 1000	38.3	1.0	16.5	3.4	17.4	n/a
2022 UGA Acres / 1000	38.3	1.6	14.4	2.7	19.6	\$ 7,691
NRPA Acres / 1000	34.5	2.0	8.0	n/a	6.0	

<b>SERVICE AREA STANDARD</b>						
Service Area Standard	n/a	1/2 mile	1 mile	n/a	1/2 mile	n/a

**LEVEL-OF-SERVICE STANDARDS- EXISTING CITY OPTION  
CITY OF BELLINGHAM**

2007 CITY Population                      75,220  
 2007 UGA Population                      88,838  
 2022 UGA Population                      113,055

Ownership	Total Land (acres)	Neighborhood Park (acres)	Community Park (acres)	Special Use Site (acres)	Open Space/ Trails (acres)	Total Value/Capita Standard
<b>EXISTING PARK SYSTEM ACRES - CITY &amp; UGA</b>						
City of Bellingham	3027.3	78.2	1457.5	304.9	1186.6	\$ 5,419
City Watershed	234.4	0.0	0.0	0.0	234.4	\$ 281
Port of Bellingham (UGA)	10.7	0.0	10.7	0.0	0.0	n/a
Whatcom County (UGA)	131.6	6.7	0.0	1.5	123.4	n/a
<b>TOTAL EXISTING UGA</b>	<b>3404.0</b>	<b>84.9</b>	<b>1468.2</b>	<b>306.4</b>	<b>1544.4</b>	<b>n/a</b>

<b>PROPOSED PARK SYSTEM ADDITION ACRES - CITY &amp; UGA</b>						
City of Bellingham (UGA)	1503.8	120.0	159.0	1.6	1223.3	\$ 2,582
City Watershed (UGA)	0.0	0.0	0.0	0.0	0.0	n/a
Port of Bellingham (UGA)	0.0	0.0	0.0	0.0	0.0	n/a
Whatcom County (UGA)	0.0	0.0	0.0	0.0	0.0	n/a
<b>TOTAL PROPOSED ADDITIONS UGA</b>	<b>1503.8</b>	<b>120.0</b>	<b>159.0</b>	<b>1.6</b>	<b>1223.3</b>	<b>\$ 2,582</b>

<b>TOTAL PROPOSED UGA</b>	<b>4907.9</b>	<b>204.9</b>	<b>1627.2</b>	<b>308.0</b>	<b>2767.7</b>	<b>\$ 8,283</b>
---------------------------	---------------	--------------	---------------	--------------	---------------	-----------------

<b>ACRES / 1000 STANDARD - CITY &amp; UGA</b>						
2008 CITY Acres / 1000	43.4	1.0	19.4	4.1	18.9	\$ 5,701
2008 UGA Acres / 1000	38.3	1.0	16.5	3.4	17.4	n/a
2022 UGA Acres / 1000	43.4	1.8	14.4	2.7	24.5	\$ 8,283
NRPA Acres / 1000	34.5	2.0	8.0	n/a	6.0	

<b>SERVICE AREA STANDARD</b>						
Service Area Standard	n/a	1/2 mile	1 mile	n/a	1/2 mile	n/a

land acreage per 1000 people by the year 2022 partly due to annexation of existing UGA populations. Some acreage that in the previous plan was considered for open space acquisition will be protected under the City's adopted Critical Areas Ordinance. The value per capita is expected to increase, largely due to the demand for more developed trails. The distribution of parks and trails throughout the community will improve to provide neighborhood parks and trails within a ½ mile radius of all residential areas. Since this plan is updated every six years, the growth, cost and budget implications can be monitored and adjusted based on revised community preferences in the year 2014.

Bellingham can use the community input provided during these processes in combination with the population forecast to adequately plan for future growth. If the proposed level-of-service standard is not met, the city may experience a loss of public accessibility and preservation of more sensitive and appealing environmental sites, particularly within the developing urban growth areas. Not implementing the recommendations of this plan could preclude the purchase and development of close-in, suitable lands for active recreation, such as playgrounds, athletic fields, recreation centers, and other land intensive recreational facilities. This may result in crowding of existing recreational facilities, and reduce the availability of organized programs for youth, adults and/or other special need populations, requiring travel to other jurisdictions outside the planning area to meet the demand.

The attached table shows a comparison between the 2002 and 2008 existing and proposed land inventory and acres per 1000 population if the base plan option were implemented.

## 2008 PRO Plan Update

### Comparison 2002-2008 Existing and Proposed Land Inventory

	2002 Plan	2002 Modified*	2008 Plan (Medium-Low Option)	Difference
<b>Existing Acres</b>				
City Park Acres	2718.1	2718.1	3027.3	309.2
Watershed	571.3	234.4	234.4	0
Port of Bellingham	0	10.7	10.7	0
County Parks	0.00	131.60	131.60	0
<b>Total Acres Existing Inventory</b>	<b>3289.4</b>	<b>3094.8</b>	<b>3404</b>	<b>309.2</b>
<b>Proposed Acres</b>				
Open Space	1446.3	1446.3	220	-1226.3
Trails	249.9	249.9	258	8.1
Parks	195.2	195.2	159.5	-35.7
Special Use Facilities	180.3	180.3	1.6	-178.7
Support Facilities	8.2	8.2	0	-8.2
<b>Total Proposed Additions</b>	<b>2,079.90</b>	<b>2,079.90</b>	<b>639.1</b>	<b>-1440.8</b>
<b>Total Acres 2022</b>	<b>5,369.30</b>	<b>5,174.70</b>	<b>4,043.10</b>	<b>-1131.6</b>

### Acres/1000 comparison

#### Existing

City Population	69,260	69,260	75,220	5960
City Acres/1000	47.5	44.7	43.4	-1.28
City UGA Population	81,454	81,454	88,838	7384
City UGA Acres/1000	40.4	38.0	38.3	0.32

#### Proposed 2022

City UGA Population	113,055	113,055	113,055	0
City UGA acres/1000	47.5	45.8	35.8	-10.0

\*Uses consistent watershed, County and Port acres in 2002 and 2008