



Chapter Five

PARKS, OPEN SPACE AND TRAILS

**Lawson Hills
Master Planned Development**

OVERVIEW

The preservation and enhancement of existing natural systems is one of the primary guiding principles in the City's Comprehensive Plan and is a main part of the principle framework for the development of neighborhoods of Lawson Hills. The parks and open space system builds upon this foundation of natural systems to create community gathering spaces, provide recreational and educational opportunities, contribute to the high quality of life of residents living in Black Diamond, perform the role of infrastructure by capturing and cleaning storm water, and contribute to the distinct identity and character of each neighborhood. These are multi-tasking landscapes that perform multiple functions and fill multiple roles simultaneously and thereby achieving the highest possible value for the community, as envisioned in the City's Comprehensive Plan.

The parks and open space system consists of a series of inter-connected parks and trails typologies ranging from small intimate pocket parks to medium-sized community parks to linkages to larger regional facilities at Lake Sawyer. They are programmed with a variety of uses throughout all seasons of the year. The parks and trails typologies are distributed throughout Lawson Hills in order to provide ease of access and close proximity to all residents. No home is more than a quarter-mile walking distance from a park, natural open space area or trail. The character of each park is based on the character of the surrounding natural open space and/or the character of an individual neighborhood. They are a combination of the natural and the manicured - the informal and the formal - the active and the passive - depending upon their location and functions. The landscape planting palette is primarily derived from indigenous or regional plant species in order to fit the climate and character of the area.

The trails network consists of a combination of hard and soft-surfaced trails that link major destinations within Lawson Hills such as the school and parks and provide links to destinations beyond the community boundaries such as downtown Black Diamond and the Green River corridor. The network forms a series of loops of differing lengths. The loops provide alternative routes and allow choices between short, medium and long distances for recreation and exercise. The trails run through various parks and open space conditions and their design reflects these differing conditions. Within the neighborhoods, the trails reflect their more urban context in surfacing and furnishings while in natural areas, they are more natural and informal. The trails provide for a range of users groups including bikers, runners, pedestrians, and possibly equestrian.

LEVEL OF SERVICE STANDARDS

The parks and open space system in Lawson Hills exceeds the total acreage of pocket parks, neighborhood parks, and community parks required by the 2008 Black Diamond Parks, Recreation, and Open Space Plan. While there is not a park that meets the size standards of a neighborhood park, the plan includes a total of nine pocket parks which exceeds the requirement by six parks. Given the neighborhood configurations and site conditions, it is desirable to plan the additional pocket parks and distribute them across the site rather than locate the acreage in one neighborhood park location. In addition, a large community park called Lookout Park is about 2 acres in size and meets the community park standard. Additional pocket parks may be added to the community as individual neighborhoods are designed and platted. While no regional parks facilities are required at Lawson Hills, joint use of play fields and other recreational facilities at the elementary school will serve many of the active recreational needs of the community. In addition to the parks, there are large areas of the community dedicated to preservation of natural open space and more than 4 miles of multi-use trails. The exact locations and configurations of the parks are conceptual in nature and may be modified as neighborhoods are designed and platted.

Table 5-1
Level of Service Standards

LAWSON HILLS LEVEL OF SERVICE		Level of Service Standards	Individual Park Area Requirements (acres)	Recommended Total Acreage at Lawson Hills	Recommended # of Parks at Lawson Hills	Parks per the Plan (# or Acres)
Size in acres:	371	* Based on information from the City of Black Diamond (WA) Parks, Recreation, and Open Space Plan (December 23, 2008)				
Dwelling units	1,250					
Projected Population*:	3,288					
Pocket park		None	0.5	0	0	9
Neighborhood Park		75% of population within 1/2 mile	1	1.00	2	0
Community Park		90% of population within 1.5 mile	1-5	0.00	1	1
Trail/Greenway		75% of population within 0.5 mile	N/A	N/A	N/A	
Open Space		10% of City Area (10% of site)	37.1	37.1		138 ac.
School Park		Variable	N/A	N/A	N/A	1

* Assumes 2.63 persons per household

PARKS AND OPEN SPACE PROGRAMMING

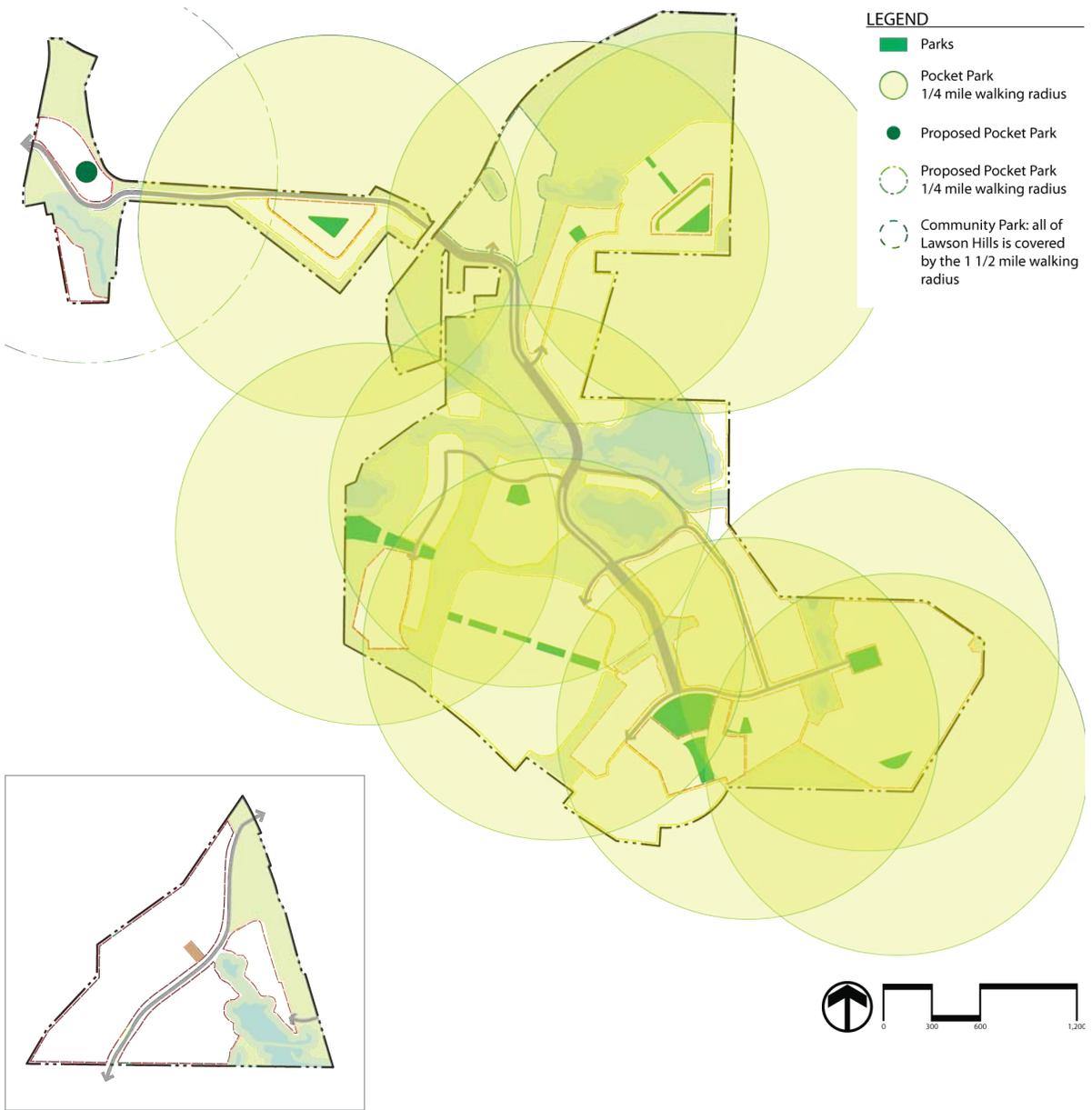
The parks, open space and trails system at Lawson Hills has been carefully designed to provide for the social and cultural needs of the community throughout the year. In addition, activities and spaces that contribute to the local economy, provide inspiration through public art and design, and preserve or enhance environmental systems have also been provided. The parks, open space and trails system

will provide a range of activities throughout the day and throughout the year. Each park type has a role to fill in providing this extensive range of activities. The Programming Recommendations Matrix (Figure xx) provides a list of anticipated activities and the appropriate park locations for those activities while illustrating when the activities may occur throughout the seasons of the year.



WALKING DISTANCES

The parks and open space system is distributed across Lawson Hills in order to provide easy and convenient access to all residents. No home at Lawson Hills is more than ¼ mile walking distance from a park, natural open space area or trail alignment. This public network serves to engage residents with the natural world and to encourage walking for health and recreation. Each park typology has a different service radius. Pocket parks serve residents within a ¼ mile walking distance and serve the needs of the people living with that circumference. Community parks service a 1.5 mile radius. All parks are accessible to residents and guests along the trails network or at the end of the sidewalks that parallel each street.



PARKS AND OPEN SPACE TYPOLOGIES

The Community Park - The community park serves as the recreational and social focus of Lawson Hills. Recreational activities that serve community-wide needs include basketball, volleyball, tennis, playgrounds and informal play fields and are used by all residents of the community.

Pocket Parks – Pocket parks are typically .5 acres or less in size and serve the informal needs of the immediately-adjacent residents. They provide very small, intimate gathering places and include tot-lots, seating areas or simply small gathering places for children to play. Pocket parks are located and sized to fit the unique characteristics of the neighborhood design.

Common Greens – Common greens are semi-public, pedestrian-oriented passageways located primarily to serve as a front door connection for a limited number of homes. They are intended for the use of the residents of the homes that face directly onto them and act as a collective front yard for them. They also serve as connectors between streets and serve as local pathways through the neighborhood. Common greens open onto neighborhood streets or directly onto residential boulevards. Common greens are counted as pocket parks in the Level of Service matrix.

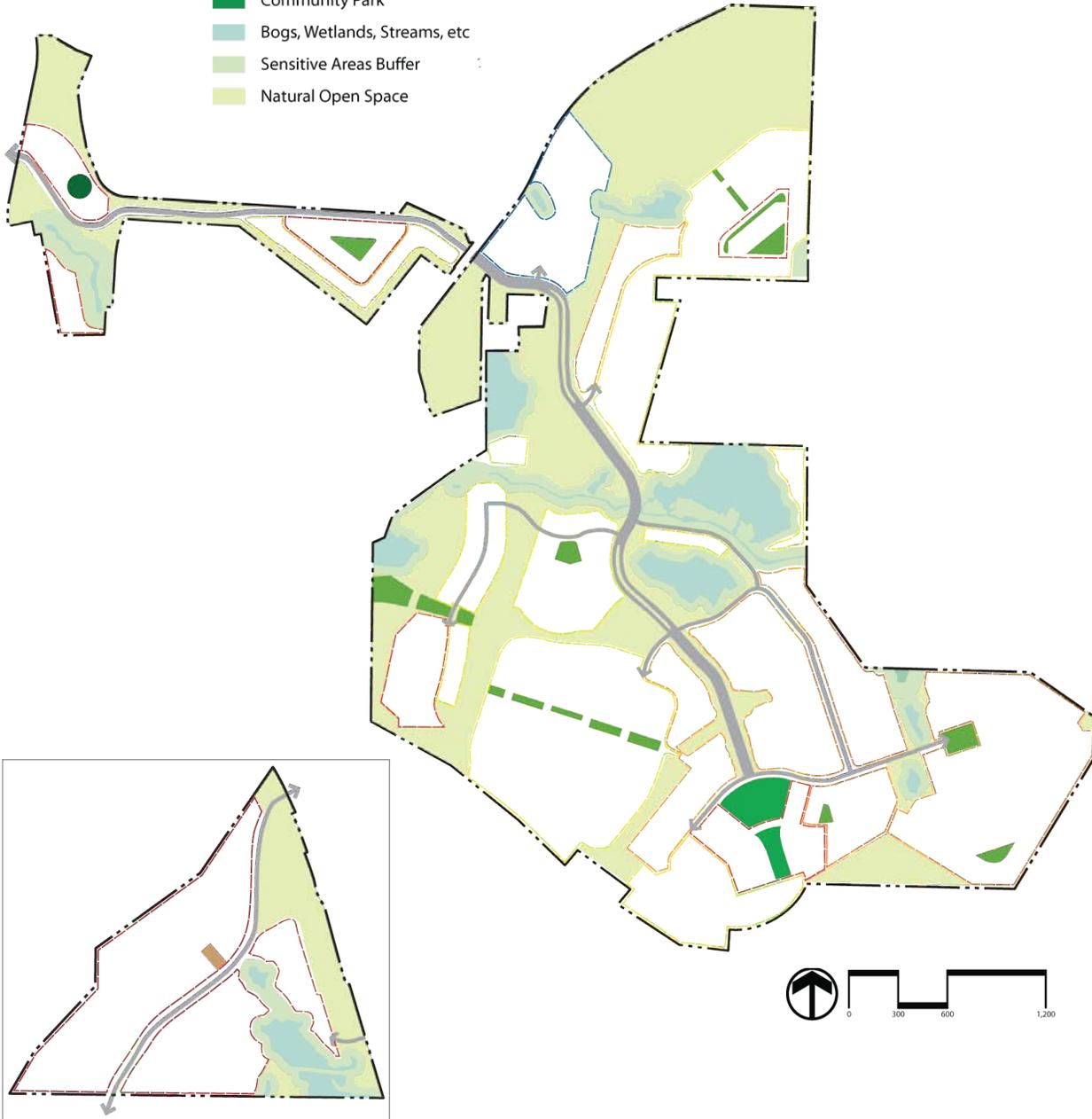
The School Park – The school park serves to supplement the parks and open space programming at Lawson Hills through the inclusion of large play fields for soccer and/or football. Interpretive and demonstration gardens may support environmental education programming found throughout the community and trails network.

Natural Open Space – The natural open space system, in the form of wetlands, bogs and their surrounding buffer areas, are a major key to the long-term environmental sustainability in Lawson Hills. These spaces are protected from intrusive human uses and take advantage of natural systems to capture and clean storm water for the community. They provide wildlife movement corridors and important habitat. In some instances, they will support local environmental education initiatives from the schools. Stewardship of the natural environment begins with understanding this beautiful resource and educating residents and guests on its proper use and protection.

Plaza – Plazas serve as focal points of a small urban scale. They accommodate passive uses and are flexible spaces that are comfortable for intimate conversations or solitary people-watching but can also accommodate larger gatherings such as small art festivals, sidewalk sales, and other community celebrations.

LEGEND

- Plaza
- Pocket Park
- Proposed Pocket Park
- Community Park
- Bogs, Wetlands, Streams, etc
- Sensitive Areas Buffer
- Natural Open Space



Open Space Typologies

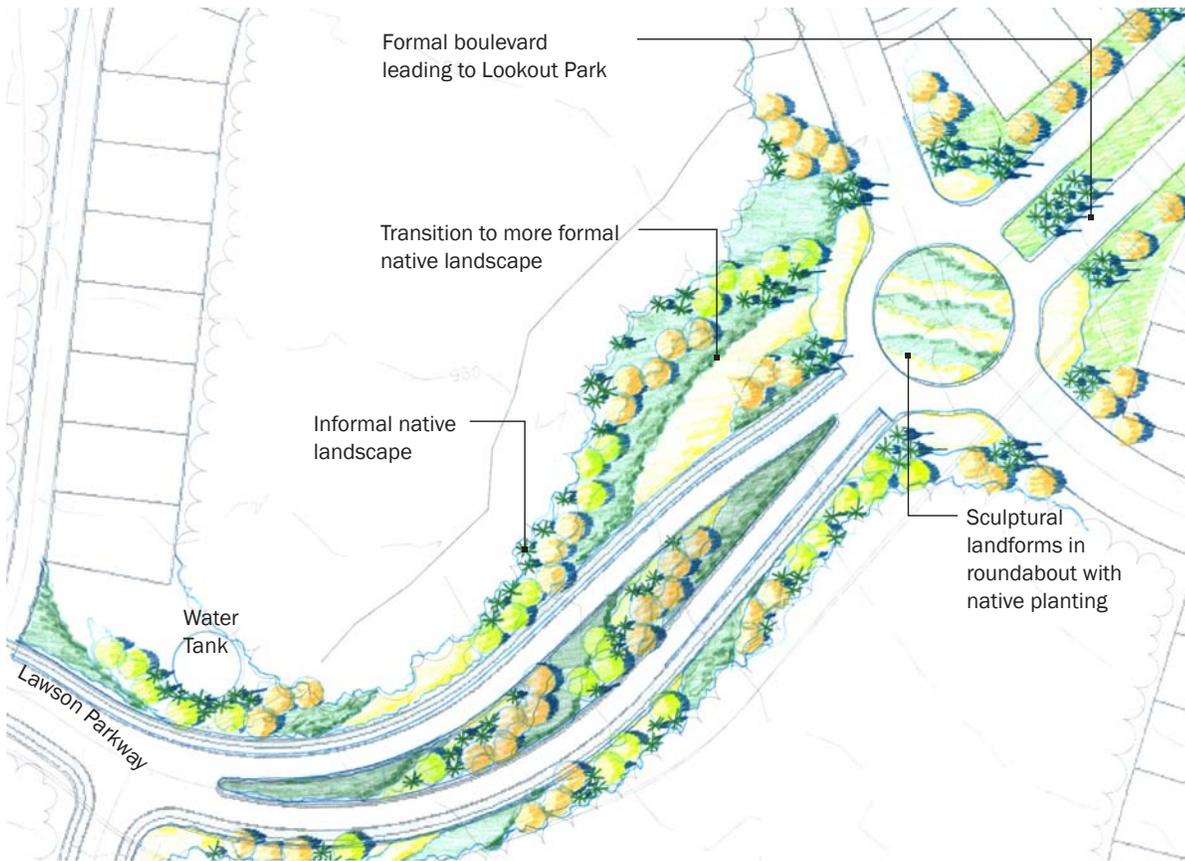
CONCEPT SKETCHES

The park concept sketches included in this document are intended to illustrate the general character, activities and functions of differing parks typologies. These are concepts that will be refined and adapted to actual site conditions during neighborhood design and platting.

Lawson Parkway – Lawson Parkway is the main community connector street at Lawson Hills. It winds its way through the community, up the hill and terminates at Lookout Park. As it passes through the community, its character changes to match its surroundings. At a couple of points along its alignment, the road splits both horizontally and vertically in order to more closely follow the contours of the land. In these locations, the streetscape in the right-of-way and the median area is informal and natural in order to integrate it with the surrounding natural landscape. As it exits the natural areas and enters a neighborhood, the character shifts to a more formal configuration and spacing that reinforces the boulevard experience leading to Lookout Community Park. This formal configuration also serves to frame Mt. Rainier at the end of the street.



Lawson Parkway Concept Sketch



 NOT TO SCALE

Lookout Park –Lookout Park is located at the top of the hill at the terminus of Lawson Parkway. Its longitudinal axis is aligned to the summit of Mount Rainer. The park acts to preserve and frame the view of the mountain from Lawson Parkway and from within the park itself. The park is organized around this axis in order to emphasize the view. At the crest of the hill, trellis structures flank a central plaza space that provides for community gatherings and events. On either side of the central plaza and trellis structures are located activity spaces that could include a playground for children or court games like bocce for adults. Down the slope towards Lawson Parkway lies an informal play field that can accommodate pick-up games of soccer, lawn volleyball and whiffle ball or provide space for sunbathing and picnicking. Tennis courts could be located on this level of the park as well. Homes frame the park on either side. On the opposite side of the park, the park narrows into a common green as it descends from the central plaza. Cutting gardens of annual and perennial flowers are located in the wider area at the top. Other uses could include community garden plots surrounded by picket fences or hedgerows filling out the rest of the park space. These gardens would be productive landscapes that provide flowers and food but also social landscapes that encourage community interaction and cooperation.



Lookout Park Concept Sketch

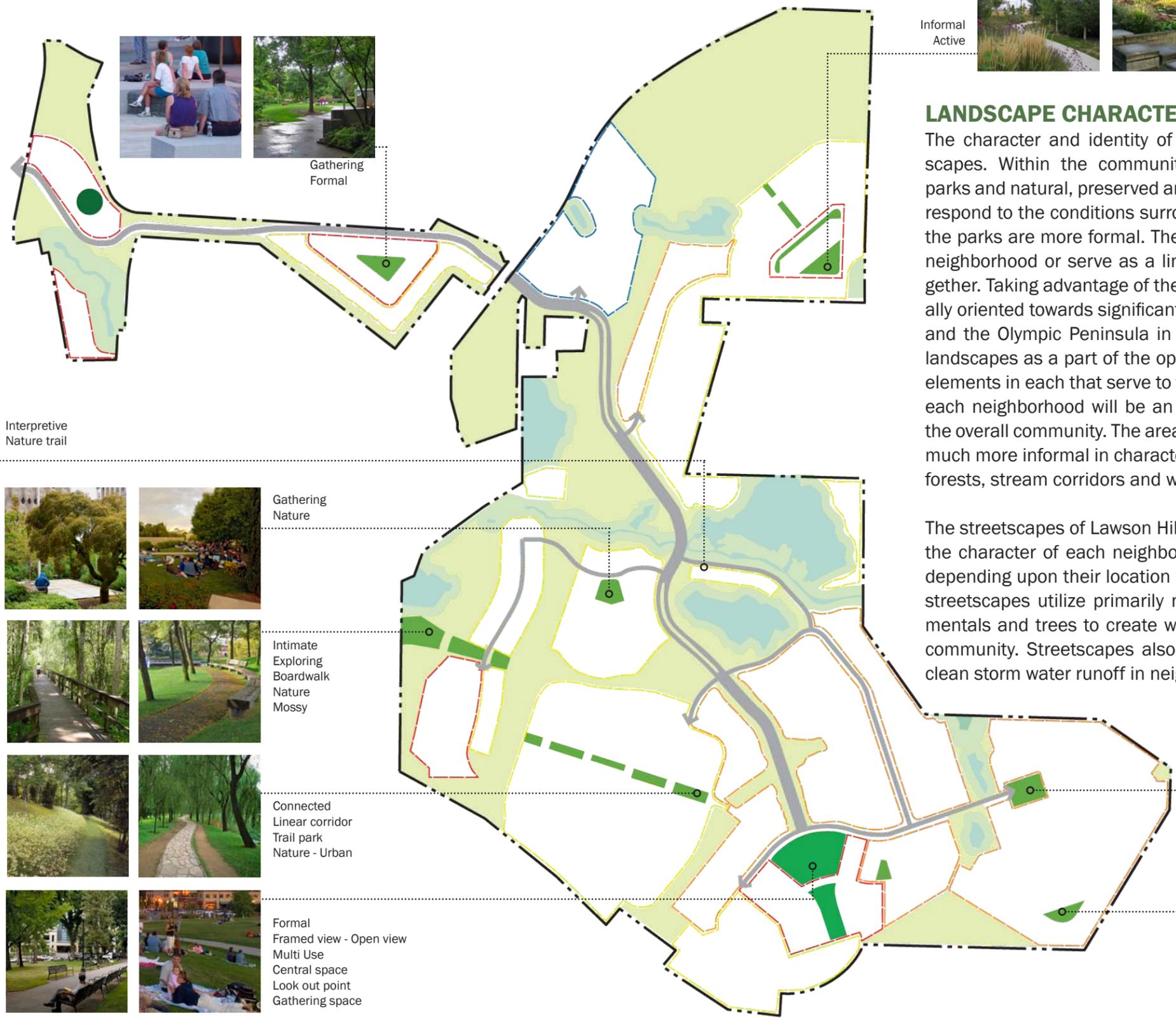


Informal Active

LANDSCAPE CHARACTER

The character and identity of Lawson Hills is shaped by its landscapes. Within the community, there are geometric, manicured parks and natural, preserved and enhanced open spaces. These correspond to the conditions surrounding them. Within neighborhoods, the parks are more formal. They may serve as the focal point of the neighborhood or serve as a linear green space that ties blocks together. Taking advantage of the topography, these spaces are generally oriented towards significant off-site views such as Mount Rainier and the Olympic Peninsula in order to “borrow” those spectacular landscapes as a part of the open space system. There are common elements in each that serve to tie the whole community together but each neighborhood will be an identifiable and distinct district with the overall community. The areas surrounding the neighborhoods are much more informal in character and reflect the natural surrounding forests, stream corridors and wetlands areas.

The streetscapes of Lawson Hills also play a vital role in establishing the character of each neighborhood. The streetscapes will change depending upon their location within the community. In general, the streetscapes utilize primarily native plants supplemented by ornamentals and trees to create water-wise landscapes throughout the community. Streetscapes also use plant materials to capture and clean storm water runoff in neighborhoods where it can be applied.



Gathering Formal



Interpretive Nature trail



Gathering Nature



Intimate Exploring Boardwalk Nature Mossy



Connected Linear corridor Trail park Nature - Urban



Formal Framed view - Open view Multi Use Central space Look out point Gathering space



Active



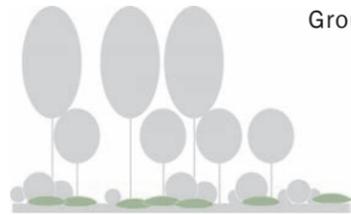
Passive Nature

LANDSCAPE PLANT PALETTE

The landscape plant palette for Lawson Hills is comprised primarily of plants native to the region or adapted to the climatic conditions of this location. These plants will be supplemented with other ornamentals where needed but the intent of the landscape is to fit it as closely to the regional climatic conditions as much as possible. The native upland plant palette is illustrated below. It is a combination

of trees, shrubs, groundcovers and grasses. Wetlands and Bog plants are used throughout the community in the landscape areas that capture and clean storm water, in low areas where the water table is near the surface, and in areas within wetlands and bog buffers that have been disturbed such as road crossings and trail alignments.

Canopy	Abies grandis Grand Fir	Acer macrophyllum Bigleaf Maple	Alnus rubra Red Alder	Arbutus menziesii Madrona	Fraxinus latifolia Oregon Ash
	 Picea sitchensis Sitka Spruce	 Populus balsamifera Black Cottonwood	 Pseudotsuga menziesii Douglas Fir	 Thuja plicata Western Redcedar	 Tsuga heterophylla Western Hemlock
Understory	 Acer Circinatum Vine Maple	 Acer glabrum Douglas Maple	 Crataegus douglasii Black Hawthorn	 Cornus nuttallii Pacific Dogwood	 Prunus emarginata Bitter Cherry
	 Rhamnus purshiana Cascara	 Salix lasiandra Pacific Willow	 Taxus brevifolia Yew		
Shrubs	 Amelanchier alnifolia Serviceberry	 Andromeda polifolia Bog Rosemary	 Cornus sericea Red-osier Dogwood	 Corylus cornuta var. californica Beaked Hazelnut	 Gaultheria shallon Salal
	 Holodiscus discolor Oceanspray	 Kalmia microphylla Bog Laurel	 Mahonia aquifolium Tall Oregon Grape	 Mahonia nervosa Low Oregon Grape	 Myrica californica Pacific Wax Mrytle
	 Oelmaria cerasiformis Indian Plum	 Oplopanax horridus Devil's Club	 Philadelphus lewisii Mock Orange	 Physocarpus capitatus Pacific Ninebark	 Rhododendron macrophyllum Pacific Rhododendron
	 Ribes lacustre Black Gooseberry	 Ribes sanguineum Red-flowering Currant	 Rosa gymnocarpa Bald Hip Rose	 Rosa nutkana Nootka Rose	 Rubus parviflorus Thimbleberry
	 Rubus spectabilis Salmonberry	 Sambucus caerulea Blue Elderberry	 Sambucus racemosa Red Elderberry	 Spiraea densiflora Subalpine Spirea	 Spiraea douglasii Hardhack; Spirea
	 Symphoricarpos albus Snowberry	 Vaccinium ovatum Evergreen Huckleberry	 Vaccinium parvifolium Red Huckleberry		



Groundcover



Achillea millefolium
Yarrow



Aruncus sylvestris
Goat's Beard



Clarkia amoena
Farewell-to-Spring



Fragaria virginiana
Wild Strawberry



Maianthemum dilatatum
False Lily of the Valley



Sidalcea hendersonii
Checker Mallow



Vancouveria hexandra
Inside-out Flower

Grass-like



Carex deweyana
Dewey's Sedge



Festuca idahoensis
Idaho Fescue

Vines



Lonicera ciliosa
Orange Honeysuckle



Achlys triphylla
Vanilla Leaf



Asarum caudatum
Wild Ginger



Cornus unalaschkensis
Bunchberry



Grindelia stricta
Coastal Gumweed



Mimulus guttatus
Yellow Monkey Flower



Smilacina racemosa
False Solomon's-seal



Viola glabella
Stream Violet



Carex lyngbyei
Lyngbye's Sedge



Lonicera hispidula
Hairy Honeysuckle



Adiantum aleuticum
Maidenhair Fern



Athyrium filix-femina
Lady Fern



Dicentra formosa
Bleeding Heart



Heuchera micrantha
var. *mircantha*
Sm. Flower Alumroot



Polystichum munitum
Sword Fern



Stachys cooleyae
Cooley's Hedge Nettle



Carex obnupta
Slough Sedge



Rubus ursinus
Blackberry



Arctostaphylos uva-ursi
Kinnikinnik



Blechnum spicant
Deer Fern



Fragaria chiloensis
Beach Strawberry



Linnaea borealis
Twinflower



Sedum divergens
Spreading Stonecrop



Tolmiea menziesii
Piggyback Plant



Deschampsia cespitosa
Tufted-hair Grass



Scirpus microcarpus
Small-fruited Bulrush



Armeria maritima
Thrift; Sea Pink



Camassia quamash
Common Camas



Fragaria vesca
Woodland Strawberry



Lysichiton americanus
Swamp Lantern



Sedum spathulifolium
Broad-leafed Stonecrop



Trillium ovatum
Trillium



Elymus mollis
Dunegrass



Typha latifolia
Cattail

PARKS, OPEN SPACE AND TRAILS

BOG AND WETLAND PLANT MATERIALS

5

Trees



Alnus rubra
Red Alder



Fraxinus latifolia
Oregon Ash



Picea sitchensis
Sitka Spruce



Pinus contorta
var. *contorta*
Shore Pine



Populus balsamifera
Black Cottonwood



Rhamnus purshiana
Cascara



Salix lasiandra
Pacific Willow



Thuja plicata
Western Redcedar



Tsuga heterophylla
Western Hemlock

Shrubs



Andromeda polifolia
Bog Rosemary



Cornus sericea
Red-osier Dogwood



Kalmia microphylla
Bog Laurel



Oplopanax horridus
Devil's Club



Physocarpus capitatus
Pacific Ninebark



Ribes lacustre
Black Gooseberry



Rosa nutkana
Nootka Rose



Sambucus racemosa
Red Elderberry



Spiraea douglasii
Hardhack; Spirea

Groundcover



Adiantum aleuticum
Maidenhair Fern



Athyrium filix-femina
Lady Fern



Blechnum spicant
Deer Fern



Grindelia stricta
Coastal Gumweed



Lysichiton americanus
Swamp Lantern



Mimulus guttatus
Yellow Monkey Flower



Sidalcea hendersonii
Checker Mallow



Stachys cooleyae
Cooley's Hedge Nettle

Grass-like



Carex deweyana
Dewey's Sedge



Carex lyngbyei
Lyngbye's Sedge



Carex obnupta
Slough Sedge



Elymus mollis
Dunegrass



Juncus ensifolius
Daggered-leaf Rush



Scirpus acutus
Hardstem Bulrush



Scirpus microcarpus
Small-fruited Bulrush



Typha latifolia
Cattail

OWNERSHIP AND MAINTENANCE OF PARKS, RECREATION, OPEN SPACE AND TRAILS

Sensitive Areas and Buffers

Ownership and maintenance of sensitive areas and buffers shall be consistent with the requirements of the City of Black Diamond Sensitive Area Ordinance, BDMC Chapter 19.10, which allows sensitive area tracts to be held in undivided ownership by all lots within the development, dedicated to the City of Black Diamond or other governmental entity, or conveyed to a non-profit land trust.

Non-Sensitive Area Park, Open Space and Trails

All non-sensitive area park, trail and open space areas will be owned and maintained by the Home Owner's Association (HOA) or Master Developer.

RECREATION AND USEABLE OPEN SPACE STANDARDS

A. All Dwelling Units shall be located within $\frac{1}{4}$ mile of a Park. If an existing Park is not located within $\frac{1}{4}$ mile of a proposed Development, then the Development shall provide a new Park at a rate of 100 square feet per Dwelling Unit to be served by the Park.

B. Parks shall be designed to serve the unique characteristics of the neighborhood that they serve.

C. The recreation and useable Open Space requirement shall be fulfilled on Development parcels or non-sensitive Open Space within $\frac{1}{4}$ mile of the Dwelling Units proposed to be served.

D. Unless otherwise noted on Table 5.2, Recreational Facilities constructed by the Master Developer, may be located: (1) on joint use school sites, (2) within off-site regional parks or (3) within the Villages MPD in community parks, community center or neighborhood parks. The recreational facilities may be provided in combination with one another and other informal space or each facility may be provided as a standalone amenity.

E. The Master Developer shall have the option, at the Master Developer's discretion, of providing a lump sum payment in lieu of constructing recreational facilities. The amount of the payment that may be provided in lieu of construction is set forth in table 9-5. In the event the Master Developer elects to make a lump sum payment the City shall use the funds for the sole purpose of constructing the recreational facility and such construction shall be completed within five years.

F. The Master Developer's obligation to provide recreational facilities as set forth in table 5-2 is based on the Level of Service standards set forth in the City's Park and Open Space Plan. To determine the number of recreational facilities required the number of housing units was multiplied by the following population generation rates: 2.7 persons per household for single-family housing units and 1.85 persons per household for multi-family housing units. In the event the total number of housing units constructed in the Villages MPD is less than the 930 single family units and 320 multi-family units the recreational facilities requirements shall be adjusted accordingly.

TABLE 5.2 RECREATION FACILITIES

Facility Type	Level of Service	Required Facilities	Timing of Facilities	Optional off-site construction or Fee-in-Lieu
Basketball Court	1:2000	2	Must provide a minimum of one (1) half-court basketball facility prior to each 600th single-family housing unit receiving Certificate of Occupancy.	The Master Developer may elect to pay a fee-in lieu of constructing the required Basketball Courts. The Fee shall be \$35,000 per Basketball Court and shall be paid prior to each 600th single-family housing unit receiving a certificate of occupancy.
Soccer Field	1:2000	2	Must provide a minimum of one (1) soccer field prior to each 600th single-family housing unit receiving a Certificate of Occupancy.	The Master Developer may elect to pay a fee-in lieu of constructing the required soccer fields. The fee shall be \$100,000 per soccer field and shall be paid prior to each 600th single family housing unit receiving a Certificate of occupancy.
Tennis Court	1:2000	2	Must provide a minimum of one (1) tennis-court prior to each 600th single family housing unit receiving Certificate of Occupancy.	The Master Developer may elect to pay a fee-in lieu of construction for up to 3 of the tennis courts. The fee shall be \$35,000 per tennis court and shall be paid prior to each 600th single family home receiving a certificate of occupancy.
Play Area	1:2000	2	Must provide a minimum of 1 Play Area prior to each 800th unit receiving Certificate of Occupancy. Play Areas will primarily be located in community parks, community center or neighborhood parks but may also be located on school sites.	The Master Developer may elect to construct or pay a fee-in-lieu for at least one of the Play Areas off-site within the Lake Sawyer regional park or other such land of a value up to \$100,000.

Facility Type	Level of Service	Required Facilities	Timing of Facilities	Optional off-site construction or Fee-in-Lieu
Youth Baseball / Adult Softball field	1:2000	2	Must provide a minimum of 1 Youth Baseball / Adult Softball field prior to each 800th unit receiving Certificate of Occupancy.	The Master Developer may elect to construct or pay a fee of \$100,000 per Youth Baseball / Adult Softball field not otherwise provided. Construction or fee shall be prior to each 800th occupancy.
Trails	N/A	N/A	The MPD contemplates several miles of differing trail types. The Master Developer shall receive credit towards any of the required recreational facilities at a rate of \$25,000 per each mile or fraction of trail constructed and open to the public up to a maximum credit of \$300,000.	
Other Recreational Facilities	N/A	N/A	The Master Developer shall retain the right to request recreational credit for other types of recreation provided against the required facilities (such as a designated mountain biking area).	

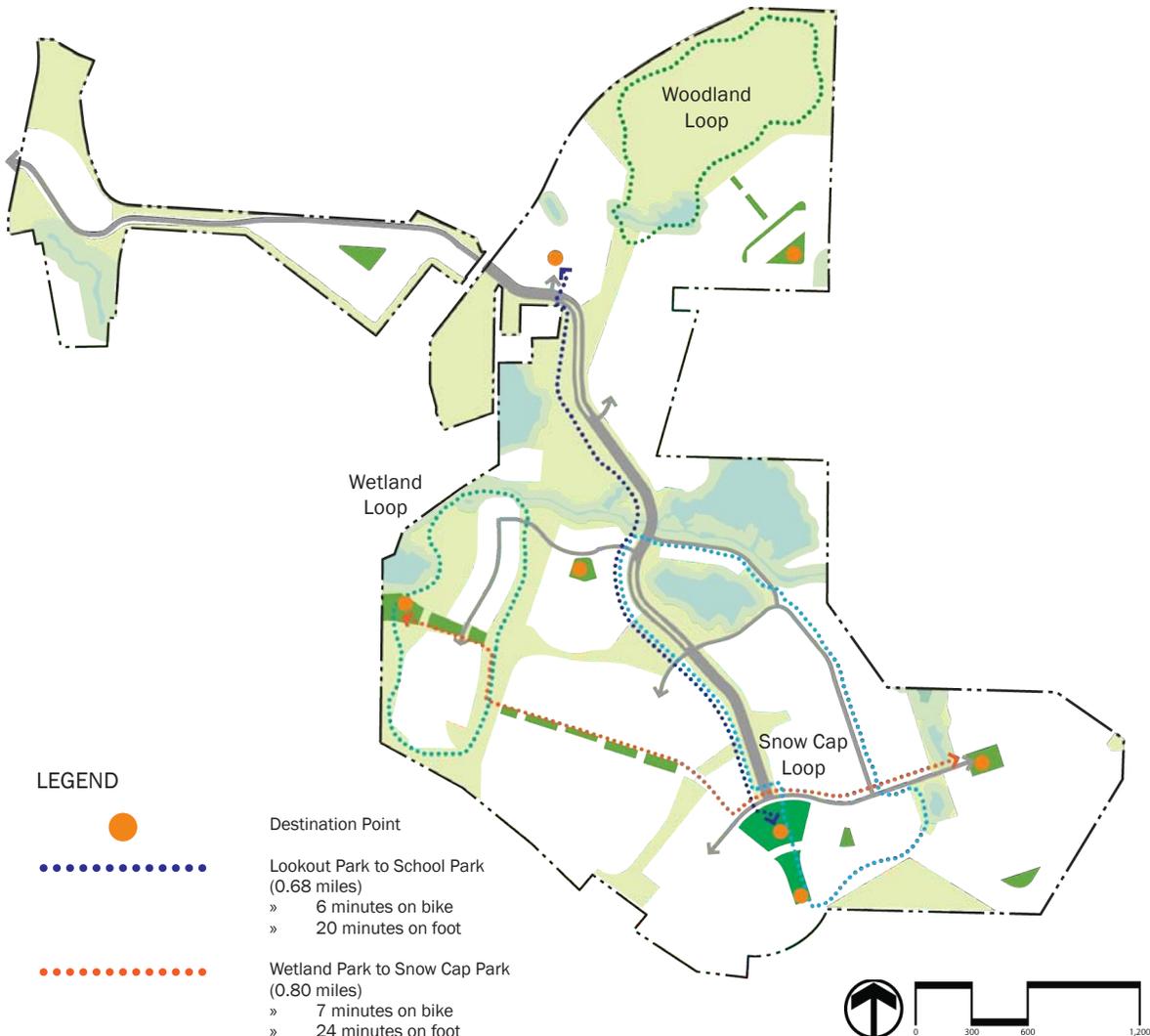
TRAILS NETWORK

The trails network at Lawson Hills is designed to connect major destinations within the community and to link to the regional trail network to provide access to significant regional destinations such as downtown Black Diamond, and the Green River. Trails, sidewalks and pathways are one of the most desired and popular open space features in new communities because they contribute to a healthy lifestyle, promote alternatives to automobile travel and create a high quality of life for residents. The trails network provides safe and convenient access to parks, natural open spaces, adjoining neighborhoods, schools and regional destinations. The trails network is comprised of a series of loops that provide differing surfaces and accommodate differing modes of transportation.



TRAIL LOOPS

Creating multiple looping routes within the community is an important objective of the trails network. Loops provide route choices to destinations, offer differing experiences along their alignments and allow users to fit a route to the time they have available and their recreational needs. They can choose short loops if time is a premium or they can choose longer routes to extend exercise or exploration. Each loop offers an experience different from other locations in the community. Users can customize their experiences to their desires by choosing specific loops.



LEGEND

-  Destination Point
-  Lookout Park to School Park (0.68 miles)
 - » 6 minutes on bike
 - » 20 minutes on foot
-  Wetland Park to Snow Cap Park (0.80 miles)
 - » 7 minutes on bike
 - » 24 minutes on foot
-  Woodland Loop (0.88 miles)
 - » 7.5 minutes on bike
 - » 26.5 minutes on foot
-  Wetland Loop (0.94 miles)
 - » 8 minutes on bike
 - » 28 minutes on foot
-  Snow Cap Loop (1.25 miles)
 - » 11 minutes on bike
 - » 37.5 minutes on foot

Total trail mileage: ~ 4.5 miles

TYOLOGIES

Trail users have differing needs depending on their skill levels and their purposes for using the trail system. To accommodate a full range of trail users, the trails network combines on-road and off-road trails and provides a variety of paved and unpaved surfaces. The trail network includes sidewalks in most street rights-of-way, on-street bike lanes/routes, off-road multi-use trails (paved or unpaved), and hiking trails and possibly equestrian paths that link to regional destinations. Access to sensitive wetland areas is controlled and protected with appropriate trail alignments and surface materials. Boardwalks and soft-surface trails are used in these locations and can support wildlife observation and outdoor educational opportunities.



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TRAIL STANDARDS

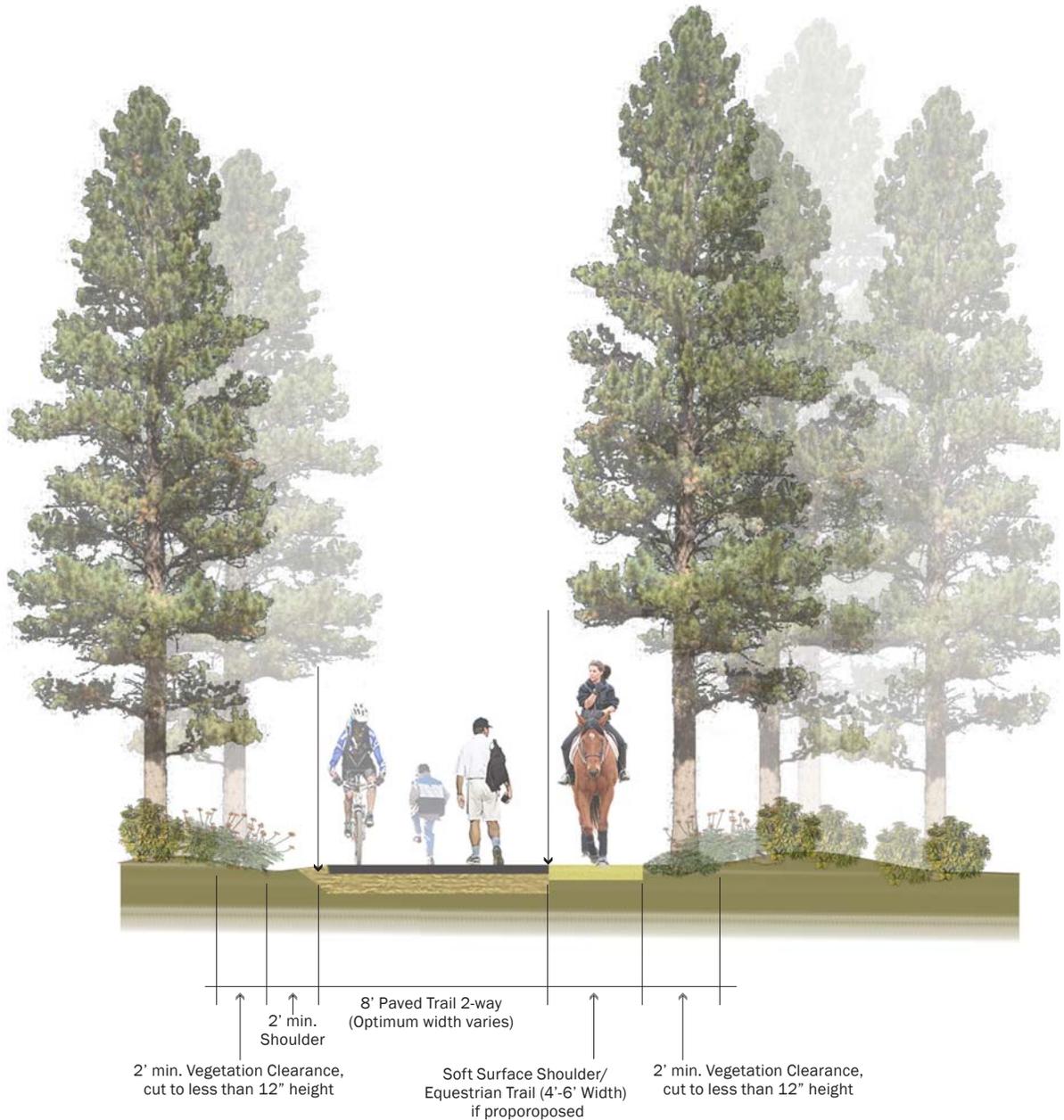
Each trail typology has an associated set of trail standards for widths, surfaces and other design requirements. The standards matrix below outlines the design standards for the proposed trails at Lawson Hills.

Recommended Trail Standards						
Use	Layout	Length	Clearing Width	Clearing Height	Tread Width	Trail Surface
ADA	Loop trails with cutoffs make trails feasible for a variety of different abilities.		Refer to the Americans with Disabilities Act for specific details			
Hiking	Loop system works well to provide variation in distances for day users. Vary landscape type and user experience.	<ul style="list-style-type: none"> Day use: 1/4 -5 miles (1/2 day) 5-15 miles (full day) Backpacking: 25 or more miles 	<ul style="list-style-type: none"> Light use: 4-6 feet (one-way traffic) Heavy use: 8-12 feet (two-way traffic) 	8 feet	<ul style="list-style-type: none"> Light use: 2-3 feet (one-way traffic) Heavy use: 4-8 feet (two-way traffic) 	<ul style="list-style-type: none"> Light use: Natural surface with gravel in wet areas Heavy use: Natural if possible, woodchips or gravel
Bicycling	Single direction trails favored. Loop or linear destination trail.	<ul style="list-style-type: none"> Avg. speed: 8-20 mph. Min. length is 1 mile, most bicyclists cover 10-20 in a single day, experienced riders up to 50 miles. Day use: 5-10 miles (1/2 day), 10-20 miles (full day) 	<ul style="list-style-type: none"> Mountain bicycle: 6-8 feet Touring bicycle: 8 feet (one way traffic), 10-14 feet (two-way traffic) 	8-10 feet	<ul style="list-style-type: none"> Mountain bicycle: 2-3 feet Touring bicycle: 4-6 feet (one way traffic), 8 feet (two-way traffic) 	<ul style="list-style-type: none"> Mountain bicycle: Natural surface. Touring bicycle: 2" asphalt surface with a 3-4" base of compacted gravel.
Multi-Use	Design varies depending on context: greenway or river trail, paved urban trail, rail-to-trail, or roadside separated pathway.	Varies	14-26 feet	<ul style="list-style-type: none"> Pedestrian/ Bicycle: 8 feet Equestrian add 4-6 feet 	<ul style="list-style-type: none"> Pedestrian/ Bicycle: 6-12 feet If narrower nature pathway, provide passing areas. 	Can be combination of paved and natural surface depending on bike/jogging use. Soft surface optimal for hiking and mountain bicycle.

Turning Radius	% Grade	Sight Distance	Compatible Uses	Incompatible Uses	Facilities
Not critical, avoid sharp-angled turns if possible to prevent short-cut trails from occurring.	Desired: 0 - 5% Max: 15% sustained, 40% shorter than 50 yards	Not critical except with multi-use or intersections.	Equestrian (low use), accessibility trails.		Parking area, picnic area, resting areas, overlooks, water, info board, signs.
Wide, gentle curves are ideal, tight turns require run outs and warning signs. • Mountain bicycle: 4 feet (min), 8 feet + (desired)	Switchbacks with barriers and run outs can be utilized on steep slopes. Intersections with motorized roadways should be located on level grades. • Desired: 0-3% • Max: 5-10% (sustained), 15% (<50 yards) • Outslope: 2-4% max	100 feet or more critical at motorized road crossings and two-way trails. • Desired: 100 feet • Min: 50 feet	Summer: Hiking and accessibility trails.	Equestrian	Parking area, bicycle racks, information board, signs.
Varies	• Desired: 1-10% • Max: 10% (sustained), 20% (<50 yards)	50-100 feet	• Summer: Hiking, equestrian and accessibility trails. Biking may be incorporated if there is sufficient trail width.	Summer: ATV, Equestrian	Parking area with space for trailers, picnic area, water, bicycle racks, shelters or rest stops, rest rooms, info board, signs.

MULTI-USE TRAIL SECTION CONCEPT

The trail concepts shown depict typical cross-sections for both hard and soft-surfaces trails and illustrate the dimensional standards contained in the standards matrix. These trails accommodate a variety of users including hikers, runners, bicyclists, and possibly equestrians. The typical cross-sections may vary in certain locations in order to fit existing natural conditions and site constraints.



SOFT-SURFACE TRAIL SECTION CONCEPT

