International Forestry
C O N S U L T A N T S , I N C .

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MUKILTEO URBAN FOREST ASSESSMENT

EXECUTIVE SUMMARY

The trees or more specifically the urban forests of Mukilteo are an integral part of the community. They provide many values to the community, such as providing opportunities for recreation, primarily hiking and nature viewing, aesthetic values, supporting critical fish and wildlife habitat, absorbing and cleaning storm water runoff and stabilizing steep slopes. The urban forests of Mukilteo contribute greatly to the character of the City, to its health, its beauty and its structure. They need care and consideration within the concept of community living.

To that end, the City of Mukilteo applied for and was awarded a 2010 Community Forestry Assistance Grant through the United States Forest Service Urban and Community Forestry Assistance Program. Grant funds were sought to aid in completing an urban forest assessment and corresponding GIS mapping for City owned open space areas. The City of Mukilteo contracted with International Forestry Consultants, Inc. to complete these tasks.

The purpose of this report is to compile information needed to update Chapter 3 (Land Management) of the 2009 Habitat Management Plan. An Urban Forest Management Plan will be added to this Chapter in the future. The benefits of implementing an urban forest management plan include increasing forest canopy coverage over the long-term, improving forest health and late succession species composition, and increasing the engagement of the citizenry in urban forest restoration projects.

This report contains specific urban forest summary data for all City owned parcels. Priority areas for the urban forest health assessment included the eight major forested ravine systems:

> Big Gulch
> Japanese Gulch
> Lower Chennault Ravine
> Olympic View Ravine
> Picnic Point Ravine
> Upper Chennault
> Naketa Beach Ravine
> Possession View Property

Secondary areas assessed included other City owned parks and open space areas. These include Ninety-Second Street Park, Goat Trail Park, Harbour Pointe Village Park, Elliot Pointe Park, Mary Lou Morrow Park, and the Loveland Avenue Parcel.

I. Urban Forest Assessment Methodology

The tree-iage matrix was used to assess urban forest condition. This matrix uses tree canopy and tree species composition, and invasive species cover as its main parameters. The model assumes that without disturbance, most of Mukilteo's upland natural forested areas would be dominated by evergreen coniferous trees, such as Douglas-fir, western red cedar and western hemlock. These high-quality forest stands, lacking invasive species, represent a typical Pacific Northwest forest, which is the reference for our analysis.

The purpose of this data collection method is to use the matrix system to determine a priority rating for restoration work for each parcel, based on the quality of the over-story tree composition and the risk of invasive cover within. This system helps determine which types or Habitat Management Units (HMU) should be given restorative attention first according to their values.

Preceding field data collection, each open space parcel was typed into individual land cover types or HMU's using orthophoto interpretation. Each parcel was separated into the following types: Forest (FOR), Natural (NAT), Water (WAT), Hardscape (HS), or Landscaped (LS). Descriptions for these types can be found in the addendum under Forest Landscape Assessment Tool (FLAT) definitions. These preliminary HMU's were digitally mapped using GIS. Each separate HMU within a parcel was given a unique number to be used for field verification and data tracking. Hard copy maps of the digitized HMU's and a field GPS machine was used for parcel locating and field verification of typing.

In the field, HMU land cover codes and boundary lines were verified and edited. Forested and Natural HMU's are delineated based on over-story tree species composition, under-story vegetation, tree stocking levels and tree age classes. While in the field, each HMU was surveyed for species, stocking and size class of dominant and secondary tree species, understory tree species and stocking, native ground cover vegetation, and the prevalence of invasive species. See FLAT definitions for a summary of all field data collected.
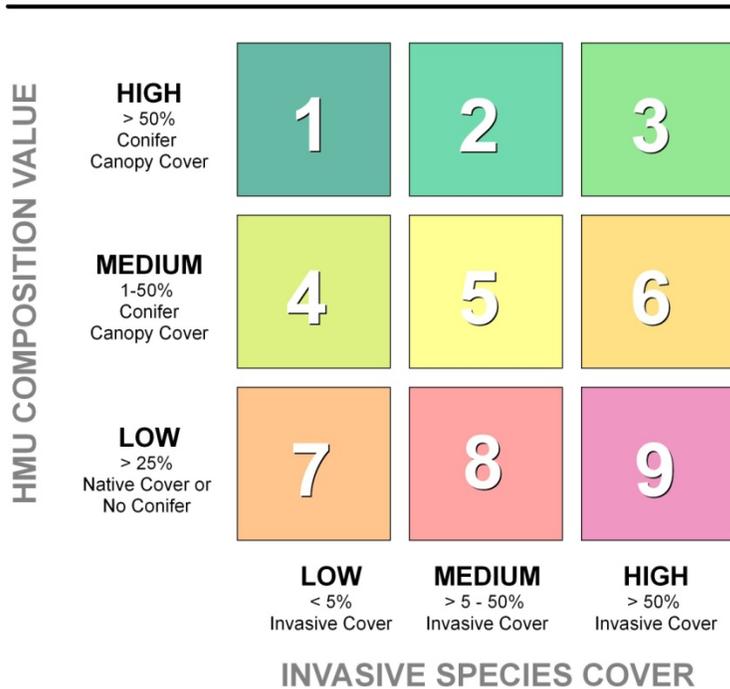
For the tree-iage analysis, each HMU was first assigned a value (High, Medium, or Low) for current tree composition, based on percent native tree canopy cover, and percent of canopy cover made up by coniferous species.

- High: HMUs with more than 25% native tree canopy cover, of which coniferous species make up more than 50% of the total canopy.
- Medium: HMUs with more than 25% native tree canopy cover, in which coniferous species make up between 1 and 50% of the total canopy.
- Low: HMUs with less than 25% native tree canopy cover OR no coniferous species.

The second component of the tree-iage analysis was to assign each HMU one of the following invasive cover-threat values:

- High: HMUs with more than 50% invasive species cover.
- Medium: HMUs with between 5% and 50% invasive species cover.
- Low: HMUs with less than 5% invasive species cover.

Tree-iage Categories

HMU COMPOSITION VALUE		LOW < 5% Invasive Cover	MEDIUM > 5 - 50% Invasive Cover	HIGH > 50% Invasive Cover
	HIGH > 50% Conifer Canopy Cover	1	2	3
	MEDIUM 1-50% Conifer Canopy Cover	4	5	6
	LOW > 25% Native Cover or No Conifer	7	8	9

INVASIVE SPECIES COVER

Tree-iage mapping is useful for interpreting a broad overview of the forested cover as it relates to coniferous forest versus deciduous forest cover and the threat of invasive species in the understory. It is important to note, however, that it is limited in its applicability to quantify the condition of the forest and the desired future condition at the smaller site level. That information will need to be collected on a site-by-site basis as restoration work continues. The tree-iage method is a broad approach to assessing forest condition over large tracts in little time, and is used to create an analysis of tree composition and invasive threat. While an HMU may be categorized according to the average conditions present, small pockets within that HMU may differ from the average across the stand.

Keeping in mind the purpose of the tree-iage analysis, this assessment will help to prioritize areas throughout the city for the next several years. The data gathered will also serve as baseline conditions from which the effectiveness of restoration efforts and the long-term health of Mukilteo's natural areas can be assessed in the future.

The urban forests of Mukilteo are quite similar in species composition, stocking and age. These are second growth forests, ranging from between 60 and 90 years of age. Species composition is primarily comprised of red alder, big leaf maple, Douglas-fir, and western red cedar. Lesser components of western hemlock, black cottonwood, bitter cherry and cascara can be found scattered across the urban forest. Overall, the most dominant species are red alder and big leaf maple.

Red alder
Red alder is a fast growing pioneer species and rarely exceeds 80 years of age, even in most favorable growing conditions. Longevity is more in the order of around 60 years. Red alder is not shade tolerant, meaning that it needs lots of sun exposure to remain vigorous. As it reaches or exceeds maturity, it begins to die back from the top downwards. Upper crown components will die and break out of the tree.

The red alder is in natural decline over much of the urban forest. This is primarily due to age, resulting in natural mortality spirals. Declining red alder was observed in almost all of the assessed areas.

Big leaf maple
Big leaf maple is a mid-succession species and can live up to around 200 years of age. Under natural conditions, it outlives the red alder but not the coniferous species. In the forest, it usually grows with a fairly straight trunk and a high crown of branches in the upper canopy. Trees regenerated from cut stumps (stump sprouts) develop as large clumps or clusters. Big leaf maple provides valuable wildlife habitat and mast for small mammals and bird species. They have prolific root systems and therefore are an important species for maintaining slope stability and erosion control.

The big leaf maple is in fair to good condition overall. No serious indicators of premature decline were observed. Declining trees were observed in some areas, but overall the species is of good vigor. Premature decline of big leaf maple is usually associated with disease, primarily Hypoxylon and root disease (*Armillaria*) or man-caused changes to their growing environment.

Douglas-fir
Douglas-fir was the third most dominant species found during the assessment. Douglas-fir is a late succession species and can grow to 800 years or more in favorable environments. It is a native coniferous species. Prior to the European settlement of the Puget Sound Region, Douglas-fir was the dominant tree species. 150 years ago, the majority of the assessed forests were likely Douglas-fir dominated. Tree growth and vigor varies by soil type, soil moisture, slope and aspect. Growth is better on less exposed, moister slopes. Mature specimens have very large diameters and can attain heights of more than 200'.

The Douglas-fir is in good condition for the most part. Given their longevity rates, these are considered young to semi-mature. Premature decline of Douglas-fir is usually associated with

root disease. The presence of the disease, Laminated Root Rot is common in the Puget Sound Region. The Douglas-fir in one small area of the Lower Chennault Ravine appears to be infected with root disease. Overall, the presence of root disease is minor at this time.

Western red cedar

Western red cedar is a significant component in many of the urban forest areas assessed. It is also a native and late succession species, like Douglas-fir, and can survive for hundreds of years in favorable environments.

No concerning factors were observed in the cedar. It appears healthy, vigorous and in good condition. The species is shade tolerant, and is the main understory tree in the areas assessed.

Native Vegetation

Native under-story vegetation is also very similar in composition across Mukilteo's urban forest. Salmonberry is primarily the dominant species, followed by sword fern. Other native shrub species that are prevalent include red elderberry, creeping blackberry, red huckleberry, salal and Oregon grape. The salmonberry is more prevalent in deciduous forests, along with red elderberry, whereas the sword fern is more associated with coniferous forests, along with salal, Oregon grape, red huckleberry and creeping blackberry.

Invasive Species

Invasive species cover is minor in most areas, specifically in the ravine areas. These non-native invasive species and/or noxious weeds are primarily found on HMU edges where there has been development or some other type of disturbance. A few of the smaller park and open space areas have higher concentrations of invasive species, mainly because they are surrounded by development or other disturbance.

The dominant invasive species is Himalayan blackberry, followed by English ivy and bishop weed or snow on the mountain. Other minor invasive species encountered include reed canary grass, Canada thistle, creeping buttercup, morning glory, herb Robert, Scots broom and English holly. Bohemian knotweed and common tansy were observed at one location.

III. Urban Forest Assessment Findings – Priority Areas

Japanese Gulch

The Japanese gulch area is comprised of four separate parcels, which were delineated into seven HMU's. Forest cover is comprised of mixed deciduous and coniferous species, predominantly deciduous species of red alder and big leaf maple. Much of the red alder is over-mature and is in natural decline. These timber stands likely originated 80 to 90 years ago after a timber harvest.

Significant restoration work has occurred in HMU #4 and HMU #7 in recent years. This involved the planting of native shrubs and trees. An interpretive trail was constructed through HMU #4 by community volunteer groups.

Priority areas for restoration work include HMU's 1, 2 and 5. HMU #1 has a dense infestation of English ivy in the north and south portions, which needs attention. HMU #2 is comprised mainly of declining red alder with a dense understory of salmonberry. The establishment of western red cedar seedlings in the understory is necessary to offset deciduous canopy loss. If no action is taken, this HMU is likely to become a salmonberry patch.

HMU #5 has a high population of invasive species, primarily because a large percentage of the area has been disturbed in the past. Invasive species observed include reed canary grass, Himalayan blackberry, creeping buttercup, Scots broom and common tansy. Tree cover is primarily comprised of red alder saplings, which are not expected to remain viable for the long term.

Big Gulch

Big Gulch is the largest forested area assessed on the project. It was delineated into 17 Habitat Management Units (HMU). They are comprised of second growth forest, approximately 60 to 70 years of age. HMU's were delineated based on conifer presence mainly, since tree stocking and tree size classes are very similar. Overall tree species composition from most dominant to least prevalent includes red alder, big leaf maple, Douglas-fir, western red cedar and western hemlock.

Invasive species presence is minor in the Big Gulch area. These are confined to outer edges where HMU boundaries border development or roads. Himalayan blackberry was observed on most edges.

Several HMU's are Tree-iage category 7, comprised predominantly of over-mature red alder. These would be priority areas for tree planting to increase the number of native conifers over the long term.

Significant pipeline work has been recently completed in the Big Gulch ravine. Disturbed areas have been completely restored by means of native tree and shrub plantings, coarse woody debris placement and mulching.

Olympic View Ravine

This area is comprised of mixed species forest, approximately 70 years of age. The invasive species threat is minor, and confined to edges adjacent to development. Most of the HMU is bounded by private forestland.

Access into this area is difficult. Slopes are moderate to excessively steep. Restoration efforts should focus on establishing conifer trees on accessible upper slopes for long term slope stability and to increase conifer canopy cover.

Naketa Beach Ravine

This area is comprised of mixed species forest, approximately 70 years of age. The invasive species threat is minor, and confined to the boundary near 84th Street. Neighbors are dumping yard waste in this area, contributing to spread of invasive and noxious weeds. An infestation of bishop weed was observed off of 84th. This is a very invasive ground cover and very difficult to eradicate.

This area is not a priority area for restoration work. This is a very steep and narrow ravine with limited access. It is bounded by private forestland on all sides. More signage is needed along 84th Street to abate yard waste dumping and the spread of noxious weeds.

Upper Chennault Ravine

This area is mainly comprised of mixed species forest, with large areas that are heavy to deciduous species, mainly red alder. Invasive species cover is moderate, primarily because a large percentage of the HMU is adjacent to development. Invasive species observed include Himalayan blackberry, herb Robert, reed canary grass, bishop weed, morning glory and creeping buttercup.

Restoration efforts should focus on eradicating invasive species on the edges and increasing the number of conifer species in the understory to offset the loss of canopy cover as the red alder naturally dies out.

Lower Chennault Ravine

This area was delineated into four HMU's, based on species composition. HMU, s #2 and #3 are comprised primarily of Douglas-fir, while #1 and #4 are mixed with a heavier component of deciduous species. Two small areas within HMU's #1 and #2 appear to be infected with root disease. This is evident by small pockets of dead or dying trees, which can be seen from Harbour Heights Road.

The invasive species threat is low. Species are confined to edges adjacent to development. Himalayan blackberry and herb robert are most dominant. Neighbors are dumping yard waste into HMU #3, off of 112th Street, contributing to the spread of invasive species. Signs are needed in this location to deter future dumping. An English ivy infestation was observed behind a residence off of St Andrews where the greenbelt gets very narrow.

Restoration efforts should focus on HMU's #1 and #4 to increase the number of conifer trees. The two areas mentioned above with declining Douglas-fir should be periodically monitored to assess for hazard conditions. Western red cedar, which is resistant to laminated root rot, should be planted in these areas to eventually fill the canopy as some of the Douglas-fir succumbs to root disease.

Picnic Point Ravine

This area was delineated into three HMU's based on species composition. Forest stand age is similar, estimated at 70 years. HMU #1 is comprised of predominantly Douglas-fir. HMU #2 is primarily comprised of mature and over-mature red alder, much of which is in natural decline. HMU #3 is of mixed species. Most of this area can be accessed via a trail off of 43rd Street that follows the creek.

Invasive species presence is minor. These are confined to outer edges where HMU boundaries border development or roads. Himalayan blackberry was observed on most edges.

Restoration efforts should focus on increasing the conifer presence in HMU #2 through tree planting of western red cedar.

Possession View Property

The forested area was delineated into two HMU's based on species composition. HMU #1 is deciduous forest, comprised of red alder, willow and big leaf maple. This is a wet type with gentle slopes. Portions are probably inundated during winter months. HMU #2 is mixed forest on steeper slopes. Access in to HMU #2 is limited.

Invasive species presence is minor. These are confined to outer edges where HMU boundaries border development. Himalayan blackberry was observed on most edges.

Restoration efforts should focus on increasing the conifer presence in HMU #1 through tree planting of western red cedar and other wet type species, such as grand fir and Sitka spruce.

Ninety-Second Street Park

The forested area of this parcel was delineated into three HMU's. HMU #1 is mixed forest, comprised of mature red alder and semi-mature Douglas-fir. HMU #4 is also mixed forest, with a larger component of deciduous trees, primarily red alder, big leaf maple and willow. The eastern portion is wet and comprised primarily of willow. HMU #5 is predominantly coniferous, comprised of Douglas-fir, western red cedar and western hemlock.

Invasive species cover is low in HMU's #1 and #5, and moderate in #4. The dominant species is Himalayan blackberry, which is dense in portions of HMU #4. There is also a dense patch of blackberry in the northeast section of HMU #5.

The priority for restoration work is in HMU #4. Restoration efforts should focus on eradicating the Himalayan blackberry and increasing the conifer presence through tree planting.

Goat Trail Park

The forested or natural areas at this site were delineated into two HMU's. HMU #1 is mixed coniferous and deciduous forest with a moderate component of invasive species. HMU #3 has very little tree cover and a high component of invasives. Invasive species observed at the site include Himalayan blackberry, English ivy, Scots broom, holly and reed canary grass.

This is an excellent site to get neighbors involved in a restoration project. The red alder at the site is over-mature and in natural decline. Tree planting is needed to replace the canopy that will be lost by the dying red alder. Douglas-fir should be planted in HMU #3, where more sunlight is available, and western red cedar in the understory of HMU #1.

Harbour Pointe Village Park

The forested or natural areas at this site were delineated into three HMU's. HMU #1 is comprised primarily of semi-mature to mature coniferous species. HMU #2 is a wet type, comprised of deciduous forest, primarily red alder and willow. HMU #4 is a wetland, comprised of pacific crabapple and willow. Invasive species at the site are minor and confined to HMU edges. Invasive species observed include Himalayan blackberry, Scots broom, creeping buttercup and thistles.

Many trees bordering the wetland (HMU#4) are in distress and exhibiting signs of decline. This may be attributable to a rising water table. Several western hemlock trees are dying and will need to be removed in the near future to abate hazard conditions. There is also a concern with the western white pine, which is infected with blister rust and in decline. In addition, there is a

small grouping of Douglas-fir in HMU #1, south of the wetland that is in decline. These may be infected with root disease. Action will be needed in the near future to remove these hazard trees. Restoration efforts should focus on increasing the conifer presence in HMU #2 through tree planting of western red cedar and other wet type species, such as grand fir and Sitka spruce.

Elliot Pointe Park

This area is comprised of a small patch (0.16 acres) of semi-mature Douglas-fir in fair condition. The trees have small crowns, and recent branch dieback is evident. Periodic monitoring every couple of years is warranted to assess tree conditions and hazard risk. Neighbors are dumping yard waste at the site which can be detrimental to tree health and increases invasive species threat. Signage is needed to abate future dumping.

There is a moderate component of invasive species at the site, primarily English ivy and Himalayan blackberry and a small component of holly. Restoration efforts should focus on eradicating invasive species and restoring native ground covers.

Mary Lou Morrow Park

This small site is in poor condition. Tree species composition is mixed. Red alder and western red cedar are of low vigor. Invasive species cover is high, and includes a dense infestation of bishop weed. The parcel is surrounded by development.

Restoration efforts should focus on eradicating invasive species and restoring native trees and shrubs.

Loveland Avenue Parcel

This small site is also in very poor condition. This site has been neglected for some time. Tree species composition is mixed and of low stocking. Invasive species cover is high, and includes a dense infestation of Himalayan blackberry over most of the area and a Bohemian knotweed infestation along 2nd Street.

Restoration efforts should focus on eradicating invasive species and restoring native trees and shrubs.

V. Discussion of Findings

A large percentage of Mukilteo's urban forest is dominated by native deciduous trees, primarily the pioneer species red alder. As stated above, this alder is mature and is in various stages of natural decline. The second most common species is big leaf maple, a mid-succession species which can live up to around 200 years of age in favorable environments.

Current species composition is the result of past logging practice, where conifer trees were extracted and were not replanted. The deciduous species colonized the disturbed soils created by the logging. Under the process of succession, eventually coniferous species, such as Douglas-fir, western red cedar, western hemlock and grand fir would be expected to reestablish the site over a long range period of 100 to 200 years, as the deciduous species naturally die out.

Unfortunately as the alder dies out, openings are created in the forests which are consumed by understory vegetation, primarily dense layers of salmonberry. In addition, invasive species that have become established on the edges of the urban forest begin to spread more rapidly with the increased volume of sunlight to the forest floor. Both of these responses to alder mortality prevent conifer trees from naturally regenerating and result in the reduction of canopy cover.

Currently, native conifers are not reestablishing themselves within the deciduous dominated forests. Very little natural regeneration of coniferous trees was identified during the assessment. Western red cedar regeneration was noted in many areas but there numbers are not sufficient to effectively offset the continual loss of deciduous tree cover.

At this time, the presence of invasive or noxious weed species is minor in the priority areas. However, all ravine areas have some invasive or noxious weed species that have become established on the urban forest edge. The invasive species cover in the secondary areas is more abundant, because of adjacent development, disturbance and parcel fragmentation.

The largest threat to the urban forest is from invasive ground cover species, like English ivy and bishop weed (snow on the mountain). These invasive ground covers form a dense mat on the forest floor, preventing the regeneration and the establishment of native trees, ferns, shrubs and forbs. Once established, these shade tolerant invasive species are extremely difficult to eradicate. HMU #1 in Japanese Gulch has a major ivy infestation, where the ivy has climbed up the trunks of trees and is contributing to crown failures and tree mortality of deciduous species.

Control of these invasive groundcover species at the source is imperative to reducing their negative impact on the urban forest. Educating the property owners who reside adjacent to the urban forest is crucial to its long term viability. Neighbors need to be made aware of the negative impacts to the urban forest, such as yard waste dumping and planting noxious weeds on their property, like ivy, other invasive ground covers, cherry laurel, and others.

VI. Summary/Recommendations

In order to effectively maintain Mukilteo's urban forest in a viable condition, action is needed now to speed up forest succession rates. A major tree planting effort over the next decade is warranted to protect the integrity of Mukilteo's urban forests. The main objective of this tree planting effort is to offset the loss of deciduous canopy cover into the future by establishing the next generation of trees in the understory. Without intervening, these red alder dominated forests would evolve into areas with little tree canopy cover and dense populations of shrub species, primarily salmonberry.

Restoration work would simply involve planting conifer seedlings throughout the understory of deciduous dominated urban forested areas. Priority areas would be HMU's with a low tree composition value (7, 8, and 9). Secondary areas would be medium tree composition value (4, 5 and 6).

Tree planting should occur during the fall (late October through November) and early spring (late February through March). If trees are planted at the correct times, nature will supply their required nutrients and no manual maintenance will be necessary. Trees planted during summer months will require regular maintenance (watering) for successful establishment.

Douglas-fir and western red cedar dominated these forested slopes at the turn of the last century. These should be the two primary restoration tree species. In openings in the canopy where sunlight is available to the forest floor, Douglas-fir shall be restored. Under the filtered canopy of alder and maple, western red cedar, which is shade tolerant, shall be planted. A lesser component of western hemlock and grand fir should also be mixed in to increase species diversity.

In addition to tree planting, actions to reduce invasive species populations on the urban forest edge is important. This effort should incorporate educating the adjacent property owners about invasive and noxious weeds and their negative impact on the urban forest ecosystem. Reducing the amount of yard waste that is dumped into the urban forest is critical in controlling invasive species, which is their primary source of establishment. Existing yard waste should be removed and properly disposed of. Any non-native plants that have taken root associated with dumped yard waste should also be removed.

The smaller park and open space areas are going to require more intense restoration measures to eradicate invasive species and establish native trees. Areas like Ninety-Second Street Park, Goat Trail Park, Mary Lou Morrow Park, and the Loveland Avenue Parcel have serious infestations of invasive species. Restoring these areas will require a considerable effort.

The Green City Partnership Program can help the City of Mukilteo meet their planning goals for long-term sustainability of the community's urban forest. The final section of this report describes this program. This program will help to further analyze the field data and begin to implement the appropriate restoration measures.

VII. Cascade Land Conservancy's Green City Partnerships Program

Cascade Land Conservancy's Green City Partnerships Program consists of a series of public-private partnerships between the CLC, local government agencies, businesses, organizations, and citizens to develop civic-based stewardship programs for urban forests and open spaces within cities. Green City Partnerships build a comprehensive vision for urban forest restoration and long-term care by identifying present conditions, assessing current capacity, and providing a full account of the resources required to realize this vision in a 20-year strategic plan of action for each city. The long-term strategy embodied in these plans then becomes the driving force to engage community groups and build a network of support to achieve city-wide forest and natural area restoration goals.

Each Green City Partnerships has three goals:

* Connect people to nature and improve the quality of life in cities by restoring urban forests and other urban open spaces;
* Galvanize an informed, involved, and active community around urban forest restoration and stewardship; and
* Improve urban forest health, and enhance urban forest long-term sustainability, by removing invasive plants and maintaining functional native forest communities.

The Green City Partnership model is demonstrating success in Seattle, Kirkland, Tacoma, Redmond, and Kent. As additional cities join the network of existing Green City Partnerships, there is great opportunity to coordinate management of our forested parks and open spaces throughout the region, as well as build on the experience of existing programs. A successful partnership allows these forests to function as part of a larger, more ecologically viable landscape and ensures lasting sustainability.

Our Services: The Green City Partnerships program recognizes that success can only be achieved if we are explicit about the volunteer, staffing, and other resources needed to address the major restoration and maintenance challenges in each city. By taking a broader and longer-term view of solutions, and building a network among cities to share best management practices and capacity, the Green City Partnerships program offers a variety of services, including:

* Establishing a baseline ecological condition of forested areas;
* Coordinating a community and civic capacity assessment;
* Creating restoration and long-term management plans;
* Engaging the community in a coordinated effort of restoration and management;
* Building a local forest stewards network;
* Developing training programs, best management practices, and forest stewardship guides and publications; and
* Collaborating with an established network of Green City Partnerships.

For more information, please visit: http://www.cascadeland.org/stewardship/green-cities or contact Ara Erickson, Green Cities Director, at arae@cascadeland.org.