KETCHIKAN GATEWAY BOROUGH
OFFICIAL COMPREHENSIVE BOROUGH TREE PLAN

INTRODUCTION

In 2009, the Alaska Department of Natural Resources Community Forestry Program provided grant funding to assist the Ketchikan Gateway Borough (KGB) to begin a public tree inventory and develop a management plan to guide the management of the community trees. The KGB also provided staff and funds to match the grant and support the project.

Tree Benefits

Few elements of the grey infrastructure of urban places can be said to boost property values, support retail activity, improve municipal health, protect water quality, reduce stormwater runoff, counter climate change, provide wildlife habitat, and ensure roadway safety-all at once. Communities looking for these benefits may be surprised to find a solution right in their own backyards, along their streets, and in their parks. The green infrastructure of trees, along with parks and open space, provide a wealth of benefits to Ketchikan.

The impact that trees make on our communities is tremendous and although we can quantify some of their benefits, we cannot always quantify the social and psychological values. But we know they exist. People in communities mourn the loss of trees from storms or from other problems. People often rally around planting, protecting, and ensuring that trees are a part of their neighborhoods and communities.

Additional benefits of urban trees include:

Increased property values
Social and psychological benefits
Crime reduction
Increased aesthetics
Enhances business in downtown business districts
Human health benefits
Wildlife habitat
Moderates water temperatures
Creates micro-climates for humans along urban streets

Environmental, economic and social urban forest services and values are well documented in scientific and technical journals. A summary of key values and benefits, and some supporting sources, is provided below.

Trees provide benefits associated with physical, mental and social human health (Dwyer et al 1992; Ulrich and Parsons 1992; Sorte 1995; Grahn and Stigsdotter 2003; Kuo 2003).

Trees help to conserve energy by indirectly mitigating climatic effects through providing evaporative cooling, windbreak and shading functions, thus reducing human dependence on power generation (Pouyat and McDonnell 1991; McPherson and Simpson 1994; Nowak 1994;).

Trees improve air quality by producing oxygen, absorbing pollutants and sequestering carbon (Rowntree and Nowak 1991; Nowak 1992; McPherson et al 1999; American Forests 2007).

Trees contribute to water quality and quantity improvement through storm water control, attenuation of peak flows, maintenance of base flow, erosion control and rainfall interception (Bernatzky 1983; Xiao et al 1998; Floyd 2002; American Forests 2007).

Urban forests cool watercourses and mitigate noise and dust (Walton 1998)

Trees provide habitat and food sources for wildlife such as fish, birds, insects, and small mammals (Tilghman 1987; Friesen et al. 1995).

Urban forests create an appealing consumer environment in business districts (e.g., Wolf 2003, 2005).

Trees increase property values (Behe et. al. 2005; Wolf, 2007;)

Average annual net benefits values per tree by size

Small	Medium	Large
$1 - $8	$19 - $25	$48 - $53

Source: Society of American Foresters: Western Forester, January 2007

Trees in urban areas are valued differently than their rural counterparts. The street and park trees of the KGB represent a considerable economic, social, recreational, and environmental asset to the community. Trees and forests are of vital importance to the environmental, social, and economic well-being of the KGB. The KGB's community forest provides numerous benefits that are both tangible and intangible.

Inventory Benefits

A street or park tree inventory provides information for the planning, design, planting, maintenance, and removal of trees. It provides useful information to justify starting and managing a tree program and funding an existing program. An inventory of a community's

public trees and planting spaces is a prerequisite for making sound decisions. A community that operates a tree program without an inventory may question the need for one. Previous decisions may have been based on tradition rather than an accurate assessment. A tree inventory can quantify the answers to many important questions. For example, an inventory can provide the location of risk trees, the number of trees located within the public right-of-way, the value of street and park trees, and the number of available planting sites. In addition, an inventory can help identify insect or disease problems, pruning needs, and work and budget priorities.

Management Plan Benefits

Traditional forestry is the management of trees or stands of trees for timber production and other values including wildlife, water quality, and ecological health. Community forestry is the management of trees and other forest resources in urban ecosystems for the environmental, economic, social, health, and aesthetic benefits trees provide society.

Municipal tree plans provide policy and standards for implementing and managing tree programs. The principal purpose of a community tree plan is to guide the management and maintenance of a community tree program, including tree removal, pruning, planting, funding, volunteer opportunities, and other important work. Tree plans should be consistent with other municipal planning strategies and usually include a vision statement, goals, objectives, and strategies.

The KGB, in partnership with the State of Alaska Community Forestry program has taken the proactive step of creating this Official Comprehensive Borough Tree Plan for the Ketchikan Gateway Borough.TREE PLAN. The Tree Plan was systematically developed by a review of existing KGB documents, specifications and standards, tree inventory data; through interviews with key staff and interested citizens, field observations, and by applying national arboriculture standards and best management practices. Field observations of trees along streets, in parks and in the downtown corridor were conducted. This is a customized Tree Plan for the KGB based on local conditions, resources, and priorities.

The KGB tree plan will help the members of the tree board, borough staff, and other concerned citizens understand the current condition of the community forest and shape its future. Good tree management involves setting goals and objectives and developing specific management strategies to meet them. Implementations of the Tree Plan objectives are the foundation of an effective tree management program. It contains goals and objectives that will guide the KGB in its actions and decisions affecting public trees.

The Tree Planwill help raise citizen awareness of the benefits of a healthy, diverse and well-managed KGB forest. A strong management plan will serve as tool to be used for garnering public support, cooperation, funds, and help the community sustain its trees for future generations.

The objectives of the KGB tree plan include:

Effective administration
Annual analysis and removal of risk trees
Proper tree selection and purchase
Proper tree planting
Proper tree maintenance
Adequate funding
Community education, participation, and collaboration

COMMUNITY FOREST MANAGEMENT PLANNING

In natural forests trees in all stages of growth and decay are important to the functioning of the ecosystem, and even when left alone a forest will convey many benefits to humans. The same cannot be said of city and park trees. The term "City Trees" includes trees subjected to tough urban conditions including street and park trees and those planted along boulevards, in medians, in parking lots, in tree vaults, and other KGB open spaces. Their health and vitality are compromised primarily through limited soil volume, compacted soils, restricted root space, reflective heat, and other city infrastructure.

Other KGB activities such as mowing, leaf collection, vehicle and pedestrian traffic, vandalism, and pollutants submit community trees to additional stresses. Intense citizen use necessitates pruning and prompt removal of high-risk trees to maintain high safety standards. A sustainable KGB forest requires careful management in order to maximize the benefits of green infrastructure while addressing the direct and indirect human influences on the trees.

PROGRAM PLANNING

Strategic plans define long-term and short-term goals for the agency's KGB forestry program. Management plans define how individual goals are achieved through action plans and timelines. Each goal must have an achievable and discernable outcome. The outcomes are the policy that the agency wishes to have representing their program. Both types of plans can define the overall program management goals of the agency.

Annual Operating Plans

Annual operating plans (AOP) will direct the day-to-day operations and can be used to project budget requirements for all aspects of maintaining the KGB forest. The annual plan will include plans for planting, pruning, removals, inspections, plant health care and maintenance of the inventory. Initially, the annual plan will need to address priorities derived from the inventory, but eventually will be focused on proactive management objectives. The preparation of AOPs is the responsibility of the KGB.

KGB Forestry Tree Board

The tree board is established in section 35.40 of borough code. The tree board purpose and duties are defined in the same section. The tree board is a very useful resource for busy borough staff working to develop and implement a management plan since it provides additional opinions from individuals who are interested in, and typically knowledgeable about, the subject at hand, and also helps maintain relationships with groups and individuals that may be able to assist with implementation.

The primary role behind an advisory tree board for the borough's Tree Plan, and the related annual work plan, would be to periodically (e.g., once a year) review the plans, and to track the status of the various recommendations. Tree boards can gain support for a tree program by involving the public in various important endeavors.

- ✓ Developing a community tree plan.
- ✓ Developing an annual work plan and budget for tree care.
- ✓ Designing tree plantings.
- ✓ Holding public hearings.
- ✓ Soliciting funds, including grants and donations.
- ✓ Developing or reviewing a street tree ordinance.
- ✓ Organizing and coordinating Arbor Day celebrations, other events, and education
- ✓ programs.

MANAGING TREE RISK AND REDUCING MUNICIPAL LIABILITY

The liability associated with trees can best be avoided by clearly assigning the responsibilities for tree inspection and care and then documenting that this responsibility is regularly met. Municipalities and other property owners are expected to conduct annual work, including yearly tree inspections, removal, pruning, and other maintenance.

Some communities attempt to divert all liability of street trees to adjacent property owners while retaining regulatory authority over anything done to the trees. While this may reduce municipal costs, it does not entirely eliminate municipal liability for tree or branch failure. Because a municipality is responsible for a safe right-of-way, it is the opinion of some solicitors that a municipality cannot "hide" behind a street tree ordinance that makes it the duty of a homeowner to keep the right-of-way safe. At most, the property owner shares liability with the local government. Other communities choose to do nothing regarding their community trees, perhaps not realizing that inaction may not be a successful defense against negligence. The following strategies written into the tree plan or tree risk management plan can help reduce exposure to liability and strengthen a court case:

- ✓ A tree inventory will be completed and maintained. Dates of inspection, condition of inventoried trees, and pruning and other maintenance needs will be recorded.
- ✓ Annual inspections of community trees should be completed and accurate inspection records should be kept.

- ✓ Hazardous tree branches should be removed as they become known.
- ✓ Borough personnel are encouraged to be trained in safe arboriculture procedures, first aid, and safe equipment use.
- ✓ Visual clearance for intersections, traffic signs, and signals shall be maintained.
- ✓ Requests by Borough departments, property owners, and others should be responded to promptly.
- ✓ Implement a priority based risk tree removal action plan.
- ✓ Implement a cyclic pruning program.

The municipal government has a legal duty to exercise reasonable care to protect the public from foreseeable risks. KGB managers, administrators, staff and elected officials must demonstrate reasonable care to minimize the risk associated with trees in public areas. It is imperative for all KGB departments to follow established risk management policies.

Risk Tree Abatement

Risk tree abatement of high risk trees includes inspection and evaluation of the trees, pruning and new tree plantings. To manage risk effectively communities must address difficult questions. While fear of liability may ultimately be the force driving the formation of risk management policy, professional assessment and correction of hazardous situations should be its foundation. The KGB has collected most of its municipal tree inventory and tree maintenance requirements with TreeWorks.

Tree risk inspections should be performed by personnel trained in tree risk assessment.

The borough should develop specific guidelines for when and under what conditions trees may be removed. An International Society of Arboriculture, (ISA) publication entitled “A Photographic Guide to the Evaluation of Hazard Tree in Urban Areas” by Matheny and Clark is a source of information for risk management guidelines. The rating system used in the Pacific Northwest, PNW-ISA TRACE course provides a numeric scale for rating tree risk.

The borough may wish to follow the criteria listed below for tree removals. The four situations in which tree removal are appropriate are

- ✓ if the tree is dead
- ✓ if the tree is irreversibly affected by disease or insects (particularly insect infestations such as spruce aphid) or in significant decline
- ✓ if the tree or tree parts represents a risk to fail
- ✓ or if there is unavoidable conflict between tree(s) and construction.

Trees exhibiting high-risk external features such as death; cracks; splits; trunk, root or crown decay; included bark and other weak branch unions; poor tree architecture; and major crown dieback should be mitigated before the tree or parts of the tree fail.

The primary management priority for the KGB in the short term is the reduction of high risk trees in public areas.

MAINTENANCE

Pruning plans are essential, not only to ensure healthy, aesthetically pleasing trees but also to increase public safety and to decrease public or private liability. A variety of requirements can inform pruning plans, some more desirable than others. Common factors that determine pruning priorities are residential or business requests and emergency pruning. This kind of "reactive management" is most common in jurisdictions where no planning exists. Scheduling pruning based on these factors may actually increase liability for damages because many hazards remain unidentified until a failure occurs.

Tree Pruning

Tree health can be greatly increased by regular pruning, especially when the tree is young. Immature trees that are not pruned can develop many structural problems such as weak branch structure, crossing branches, and co-dominant leaders. If corrected early, the tree can develop a strong support structure with a healthy canopy. This in turn will reduce the necessity of more expensive and often intrusive corrective pruning during the normal life of the tree. If tree condition is improved at a young age and maintained during the tree's life, there will be less need for a reactive approach to pruning.

Currently, in the KGB tree issues are dealt with on a reactive basis. For the most part, crews respond to departmental or citizen requests that KGB trees be pruned due to safety concerns. As this is not the most efficient or effective way to maintain tree health, we recommend the KGB shift towards a more proactive approach to enhance the health of the KGB forest, including both street trees and those located in parks. To develop an effective tree pruning program, KGB needs to build capacity to be able to prune all KGB public trees in a systematic manner as well as responding to emergency pruning and safety concerns in good time. Emergency response must be coordinated with other KGB emergency response planning.

Pruning treatments should follow the best management practices established by the ISA, ANSI Z133.1 and ANSI A300 standards.. Borough Public Works staff is encouraged to seek training from qualified experts regarding best management practices in pruning.

Proper pruning adds value to the landscape and is one of the few active management techniques that helps a landscape appreciate in value while minimizing liability concerns. Proper pruning, with an understanding of tree biology, can maintain good tree health and structure while enhancing the aesthetic and economic value the community forest creates for Ketchikan.

Mature Tree Care

The benefits and values of trees are maximized when trees reach maturity and become established in their growing location. To maintain this high level of benefits for a longer period, the KGB should commit to providing regular scheduled maintenance to its mature trees and prepare for other, non-routine arboricultural treatments as needed. A comprehensive mature tree care program primarily centers on routine or preventive pruning, and the ability to provide fertilization, irrigation, insect and disease control, and cabling and bracing when necessary.

A regular pruning cycle is a critical component of an effective community forestry program. Regular pruning of the KGB's trees will improve the condition rating of a large number of trees, reduce the potential for storm damage to trees, reduce the risk associated with community trees and demonstrates proactive management of the KGB's tree resources.

Young Tree Pruning Program

There are newly planted or young trees in Ketchikan. More new trees will be added as high-risk trees are removed and to diversify the existing tree population. It is critical then to understand the proper maintenance techniques required to ensure the longest and safest service life of these trees. The major components of a young tree care program are pruning, mulching, and watering.

Tree Inspections

Tree inspection is a systematic process of assessing the tree or parts for potential to fail and injure or for potential maintenance needs. The KGB should answer these questions regarding tree inspections.

Who is performing the inspections?
Who is qualified to perform the inspections?
What is to be inspected and in what area?
What is the frequency of inspection?
When should the inspections occur?

Inspections are the first line of defense in proactive risk management and maintenance programs. The KGB can prioritize tree inspections and corrective actions needed based on a process that divides the borough into zones; establish inspection methods and schedules according to the zones; and implement corrective actions in a reasonable and timely manner. The evaluation cycle or inspection interval may be annually or two per year, one during the summer to include leaves and one during the dormant season. Mature trees and species with known failure histories may need to be inspected more frequently. Occurrence of tree or branch failures between inspections will indicate the adequacy of the interval between inspections. Additional inspections should be made following storm events.

The KGB will benefit and reduce the possibility of structural defects being missed by using a certified tree risk assessor for tree inspections. Inspections should follow consistent protocol

established by the arboriculture industry and described in this management plan; the problems should be documented and appropriate arboriculture recommendations made or future monitoring as necessary.

Pruning and Maintenance of Trees Near Utility Lines

The Borough encourages the utility companies to adopt practices that promote or retain tree health, vigor and result in better aesthetics. Practices such as tree topping may be detrimental to the overall health and vigor of the tree, and alternative methods of pruning or tree removal are encouraged.

PLANTING

An annual planting program will maintain a healthy and sustainable community forest. A comprehensive planting plan that identifies the planting needs throughout the KGB should be developed. The plan will provide a systematic means and criteria for consistent direction to determine types and frequencies of tree plantings. The plan should include available planting spaces, recommended species, planting specifications and maintenance requirements for new trees. The ultimate mature size of trees should be considered when selecting species planted near buildings, utilities, monuments and active recreation areas. Trees can impact these built features both positively and negatively through shading, dropping flowers or fruits and framing. The key to maintaining a healthy, sustainable community forest is the implementation of regular, annual tree plantings, regardless of grant money or catastrophic events. A large number of trees do not need be planted, but a consistent annual addition of trees to the community forest is critical to maintain a perpetual canopy. The annual quantity of trees to plant is directly dependent on the quantity of trees the KGB can maintain.

Tree Planting Practices

In order to increase longevity of tree life, and decrease the potential of poor tree health and danger trees, these practices are encouraged.

In general, the tree-planting holes should be relatively shallow (typically slightly less deep than the measurement between the root collar and the bottom of the root plate) and quite wide (three to five times the diameter of the root system). Care should be taken so that the root collars of the new trees are at the same level or slightly higher than the surrounding soil grade.

In most situations, it is not recommended to add soil amendments to the planting holes, as this can lead to differences between texture and structure of soils inside the planting holes and the surrounding soil. Such differences can lead to either water being wicked away from or accumulating in the planting holes.

Tree staking or guying should be the exception and not the rule. Tree staking hardware should only be installed when necessary to keep trees from leaning (e.g., windy sites) or to prevent

damage from pedestrians and/or vandals. Stakes should only be attached to trees with a loose, flexible material, and all staking material must be removed as soon as the root system anchors the tree.

Bare rooting, or the removal of field soil or container substrate, at planting and transplanting has many advantages that can address the above mentioned structural root depth and defective root system problems. Bare rooting also has advantages relative to other production, harvesting, shipping, and planting and transplanting components.

Diversification

The 2009 inventory of selected street and park trees included over 200 trees. Trees in parks (City Park, Alder Park, and Whale Park) and trees in the public right-of-way were included in the data collection. There are more than 20 different species found in the tree population of KGB.

This appears to be a diverse population but species distribution figures indicate the population is dominated by a few species. Over 60 percent of the tree species are represented by four species. The four species are red alder, mountain ash, western hemlock, and sitka spruce.

Species diversity in new plantings should be a primary concern. The dangers (e.g., disease and insects) of planting monocultures have proven to be devastating throughout the United States. The goal should be to maintain species diversity throughout the KGB. A common guideline for maintaining species diversity in urban settings is the 10-20-30 rule. That is, no one species should make up more than 10 percent of the trees in a population, no more than 20 percent of any one genus, and no more than 30 percent of one family in the total tree population (Santamour, 1990). When planning the expansion of the community forest, the KGB should use this ratio as a guiding principle.

The KGB should emphasize a diversity of species in the planting program. Many species should be avoided that have high maintenance costs, invasive characteristics, high storm damage potential or a history of failure.

PUBLIC OUTREACH

Support from elected officials and the citizens are critical to implement and maintain an effective comprehensive KGB forest management program. The citizens own both the public and private community forests, and without greater political support and increased citizen understanding and commitment, KGB forest management in Ketchikan may not reach its full potential.

With hundreds of visitors using Ketchikan’s downtown district and parks at the height of the summer season, there are many opportunities to involve the community in the management of Ketchikan’s trees. The parks are full of trees, not in the best condition, but trees are one reason why people use and enjoy Ketchikan parks.

Building a connection between citizens and street and park trees is the foundation for long-term stewardship and sustaining the community forest.

EDUCATION

Education is one of the best tools available to keep staff and citizens of Ketchikan informed of the benefits of trees and the proper care of trees. The citizens of Ketchikan have a strong sense of community and take an active interest in KGB programs and projects. The community forest is linked to the people of the KGB. Education and personal involvement of as many community members as possible is critical to the success of a sustainable community forest. Education about proper tree care and participation in the community tree program can translate into more tree benefits for the KGB and a willingness to support the tree program in the future. There are a variety of professionals in the region that can offer technical advice, literature, workshops and other assistance for the KGB.

Training

It is important that staff be properly trained in the duties that are assigned. The care and maintenance of trees is no exception. Arboriculture and tree care maintenance and operations are very specialized fields of work. Many years of education and training are required to perform competently and safely in the field and without harm to the trees.
Annual training is strongly encouraged to keep staff updated on the latest safety methods and practices in the arboriculture industry. Staff training is essential for working safe, efficient, following the best management practices of the arboriculture industry, and for advancing KGB's forestry program into the future.

This plan encourages taking advantage of free and low cost training and consultation from qualified experts in the fields of arboriculture (tree health).

MANAGEMENT INFORMATION

The partial inventory and management plan is a starting point for continued active management of the working forest resource of Ketchikan. The comprehensive nature of this management plan is intended to serve as a baseline for future data collection and management plans. By carefully documenting changes in the forest structure (plantings, removals, pruning operations, incidents of vandalism, etc.) the borough will be able to assess the success of the program over time. To assist in the future implementation of the TREE PLAN and development of the KGB forestry program, a complete inventory of public trees is needed. The KGB has started collection of a borough-wide inventory of public trees using TreeWorks™, an ArcGIS tree management software.

Tree Inventory

Fundamental to a tree management program is the inventory. Tree inventories are the foundation of an effective tree management program. Tree inventories help vegetation managers identify current and potential problems and plan for budgets, removals, pruning, planting and other maintenance requirements. A tree inventory is a means by which a vegetation manager can acquire and retain pertinent information about the condition and value of KGB's tree resources. The inventory data supplies objective and quantitative information that can be used to document estimates for funding, personnel and equipment. The tree inventory moves the KGB forestry program into proactive management.

A complete assessment of the tree population is necessary to obtain accurate, functional data necessary to manage the KGB forestry program.

Completing the tree inventory and using TreeWorks™ to prioritize maintenance establishes a systematic tree maintenance program which actually reduces costs. This is primarily because systematic maintenance in general leads to healthier trees that require less expensive maintenance over the long run than unhealthy, high-risk trees. A computerized tree inventory aids in reducing the subjectivity of tree management decisions and stimulates proactive responses.

ORDINANCE REVIEW

The Borough Assembly adopted a tree ordinance - Ordinance No. 1527 – on July 6, 2009, and the tree ordinance is now part of the Borough Code of Ordinances in Chapter 35.40. The tree ordinance established the Tree Board and sets out its purposes and duties as follows:

35.40.010. Purpose and duties.

(a) It is the purpose of this ordinance to promote and protect the public health, safety, and general welfare by providing public education and guidelines of the planting, maintenance, and removal of publicly owned trees, shrubs, and other plants within the Ketchikan Gateway Borough.

(b) The tree board may:

(1) Study, investigate, council and develop and/or update annually, and administer a written plan for the care, preservation, pruning, planting, replanting, removal or disposition of trees and shrubs in parks, along streets and in other public areas. Such plan will be presented annually to the Borough Assembly and upon their acceptance and approval shall constitute the Official Comprehensive Borough Tree Plan for the Ketchikan Gateway Borough.

(2) Review the Borough Code of Ordinances and from time to time make recommendations for changes to those ordinances.

(3) Develop guidelines for street landscaping subject to the approval of the Planning Commission.

(4) When requested by the Planning Commission, shall consider, investigate, make finding, report and recommend upon any special matter of question coming within the scope of its work.

(c) Recommendations to the planning commission, platting board, or administrative official as authorized above shall be made by a majority vote of the total authorized membership of the board.

DOWNTOWN TREES

Trees in small city business districts influence retail and shopping behavior in positive ways. The results of several studies suggest that trees are good for business. Shoppers prefer trees and consider trees an important amenity. They spend more, shop longer, and are willing to pay more for goods in business districts with mature, healthy trees.

One of the biggest challenges for arborists, urban foresters, borough planners, landscape architects, soil specialists, engineers, and public works staff is to provide sufficient soil space for root growth and tree health, in a situation where space is at a premium. As the trend in urban forestry has been to downsize the urban forest and plant smaller trees, it is important to note that this plan encourages planting of a healthy, diverse mix of large and small trees in the downtown areas.

OPERATIONAL REVIEW

KGB's goal is to have a larger, healthy, diverse, and functional KGB forest and thriving residential and business communities. The dynamics of balancing KGB forest management and other KGB infrastructure needs, responsibilities, and assets are diverse and complex and suggest a dedicated, interdisciplinary, flexible approach and organization.

Budget

The lack of dedicated and adequate financial resources for tree management and maintenance precludes making significant improvements to the community trees. Currently, there is no line item or designated regular funding for tree planting, preventive tree maintenance, tree removals, increased staff and support personnel, or equipment.

Existing public funds for urban forest management are provided from public works funds for various maintenance tasks, are usually expended on park trees, and are often expended only on an emergency basis, by limited citizen requests, for individual capital projects, or for limited

aspects of public tree management, such as park tree maintenance. There is no management authority over dedicated funds for comprehensive KGB forest management activities, nor control and input on the expenditures made by other departments.

The following suggestions can be used when developing annual budget plans. The percentages, which are samples from established programs, should be modified for the particular needs of a community's street or park trees.

- ✓ About 20 percent of the budget should be allocated for tree removal. If there are trees that need to be removed, this should be made a budget priority.
- ✓ About 40 percent should be allocated for tree maintenance activities such as pruning, watering young trees, mulching, or controlling insects and diseases.
- ✓ Public safety and caring for existing trees should take priority over planting new trees. Too many communities make the mistake of planting new trees while neglecting older, more valuable trees. Only about 20 percent of the annual budget of an established program should be allocated for new tree plantings.
- ✓ Administrative activities are an integral part of every tree program and should receive about 20 percent of the budget. When starting a program, much more of the budget should be dedicated to obtaining authorization, gaining legislative and public support, and educating the public.

Projected Multi-Year Maintenance Budgets.

The National Arbor Day Foundation (NADF) suggests $2.00 per capita for urban forestry funding criteria to meet minimum TREE CITY USA standards. The funding criterion includes many activities that do not involve tree maintenance. KGB has a population of approximately 13,000 residents. The urban forestry budget based on TREE CITY USA standards is approximately $26,000.00. It is important to allocate limited funds to tree maintenance activities.

One thing many municipalities have in common is a limited budget. Traditionally, the budgets for public trees and parks are the first to be cut when money becomes tight. Many municipalities simply cannot afford a community tree program. As a result, creativity and energy are needed to find funds to support public trees and landscapes. Below are some strategies to ensure funding for KGB forestry programs:

- ✓ An annual report, work plan, and budget will be used to inform elected officials of the tree board's work and funding needs.
- ✓ An annual meeting will be held to discuss the tree board's work and funding needs.
- ✓ News articles and releases will be used to explain worthy activities, including planting, tree removals, pruning, and funding needs.
- ✓ A "memorial or heritage tree" program will be used to raise money for tree planting on streets and in parks.

- ✓ Local civic organizations and businesses will be contacted annually to discuss their participation and support of commission activities.
- ✓ Community, family, and corporate foundations will be identified and considered for support of commission activities.
- ✓ State and other government grants will be identified and considered for support of commission activities.
- ✓ Emphasize the solutions to community problems that trees offer such as stormwater abatement.

Examples of alternative funding sources:

Grants
Government
Private
Fees/Backcharges: Charge the department for your services, or the department that has more funds for the work done. Provide solutions to other departments' problems and charge for it.
Inter-governmental charges: Maintenance fee recovery for road bond projects or right-of-way projects.
Captial Improvement Funds: Trees as infrastructure cited in ordinances (Austin and Houston, Texas)
Direct Charges
Mitigation Payments: You damage or destroy trees, you pay for it. Use ISA appraisal formulae to recover costs of damage or destruction of public property (trees).
Special Events
Festivals
Tree Run/Walk
Christmas Tree Recycling
Business Grand Openings and Building Dedications
Birthday Milestones: First, 40^{th}, 50^{th}, etc.
Arboretum Plantings and Dedications
Community Entrance Tree Planting
Church Planting Projects
Civic Group Planting Projects
Sales, Merchandising & Promotions
Historical Tree Merchandise
Trail of Trees/Tree Books
Tree Give-A-Ways
Firewood/Lumber/Nuts/Fruits and Other Tree Products
Memorial, Anniversary, and Tribute Trees
Sweepstakes/Contests
Donations
Individuals
Utility Bill Donations
Donation Cans at Events

Trust In Agency Funds
Tourism Industry
Business Sponsorships
Event Sponsors
Carbon Credits
In-Kind By Citizens (NeighborWoods program.

Policy

Borough Code Chapter 35.40 Tree Board, sets forth the policy for public tree care in the Borough.

PROGRAM ACTIONS

Actions and recommendations required to work toward the management goals that are prioritized and undertaken by the KGB staff working in concert with the tree board, contractors and citizens of Ketchikan.

Short-Term Action Items

There are four program management elements that must be addressed on an annual basis: Risk Tree Abatement, Proper Tree Maintenance, Tree Planting, and Program Administration. Although each of these programs is essential to the maintenance of the community forest, an annual operating plan should be established to determine where budget dollars will be spent. KGB staff and the tree board have established public safety, responsible management of existing trees and tree planting as highest priorities.

Long-Term Action Items

Long-range planning mainly concerns program enhancement and involves the completion of recommendations in the management plan. There are five program management elements that must be addressed to sustain the community's tree program and trees: Community Forestry Management Plan Adoption and Implementation, Increase Funds Spent on Community Trees, Community Outreach and Education, Tree Ordinance Revision, and Downtown Tree Design and Planting.

CONCLUSION

Community Forestry Consultants, Inc. has completed its assignment of evaluating and making recommendations regarding the community forest of Ketchikan. This management plan provides the KGB with the framework to implement the best management practices for the community forest. The management and maintenance needs for a successful KGB urban forestry program have been determined from the best management practices available in the urban forestry and arboriculture industry.

Timely action needs to be taken to prevent tree failures, preserve tree resources and maintain the trees of Ketchikan. Trees are valuable assets to the community. The healthier the trees are in the community the more the borough's livability is improved. To realize these benefits, tree planting, pruning and removing; increased education, preservation and volunteerism is needed. The focus goes beyond the individual tree to trees throughout the borough…..to the working community forest.

The recommendations will help conserve Ketchikan's tree resource and sustain the tree canopy for future generations. Although this commitment will come with costs, the long-term benefits are significantly greater and will result in a sustainable asset for the citizens of Ketchikan today and tomorrow.

REFERENCES

The following list of references is provided by the Tree Board for the purposes of resources to be consulted for proper tree care and maintenance:

Society of Municipal Arborists (SMA), www.urban-forestry.com
International Society of Arboriculture (ISA), www.isa-arbor.com
American Society of Consulting Arborists (ASCA), www.asca-consultants.org
Alaska Community Forestry Council, www.forestry.alaska.gov/community
National Arbor Day Foundation (NADF), www.arborday.org
Alaska Co-operative Extension, www.uaf.edu/ces
Alliance for Community Trees (ACTrees), www.actrees.org
American Forests Resource Council (AFRC), www.amforests.org
Sustainable Urban Forests Coalition, www.urbanforestcoalition.com
USDA Urban and Community Forestry, www.fs.usda.gov/main/R10/home
Plant Amnesty, www.plantamnesty.org
Pacific Northwest Chapter ISA, www.pnwisa.org