



# **One & Five-Year Tree Plan**

**Jason Allen**

**Parks Superintendent**

## **Executive Summary**

The City of La Vista, Nebraska is a thriving municipality that combines beautiful neighborhoods, parks, and recreational opportunities to create an attractive community in which to live, work, and play. The economic health of the City relates to the ability of its municipal government to supply its citizens and visitors with the efficient services, safe public spaces, and properly maintained infrastructure. Trees are an integral asset within La Vista and with the proper care and planning will continue to appreciate in value.

Trees provide significant economic, functional, and structural benefits to the community that helps to improve the quality of life within the City. When properly maintained, trees return overall benefits and value to the community far in excess of the time and money invested in them for planting, pruning, protection and removal.

The City performed a study in 2011 on all of the park, trail and right of way trees. The City will begin to evaluate the current conditions and update the inventory to establish an effective planning and management program for this valuable resource. Since the parks receive many visitors throughout the year, it is important to conduct inspections of these trees to ensure they are structurally sound. This document will review steps involved to evaluate current conditions as well as explore future management options for La Vista's park, trail and right of way trees.

## **Importance of the Urban Forest**

Trees are a significant component of La Vista's urban environment. The public trees are an integral part of the City's infrastructure, no less so than so than streets, utilities, buildings, and sidewalks. Unlike other infrastructure components, the tree population, when properly cared for, will actually increase in value as the trees mature over time.



Central Park

Trees return overall benefits and value to the community far in excess of the time and money invested in them for planting, pruning, protection, and removal. Their shade and beauty contribute to the City's quality of life and soften the hard appearance of man-made structures and streets, moderating harsh urban conditions. Trees help stabilize soils by controlling wind and water erosion, they also provide shade that can help reduce energy costs. Trees reduce noise levels, cleanse air of pollutants, produce oxygen, and absorb carbon dioxide. Additionally, they provide significant economic benefits by increasing real estate values, improving the setting in which to conduct business activities and enhancing the aesthetic appeal of the City.

The City has recognized these benefits and realized the need to protect this investment by implementing a comprehensive urban forest management program for its trees. An urban forest management program begins with a tree inventory that outlines important information and attributes about the City's trees. Information obtained from the park tree inventory will be used to compose the Tree Management Plan.

## **Statement of Purpose**

The purpose of the Tree Management Plan is to provide a five-year plan of action for the inventoried tree population throughout the City. The inventory and assessment draw immediate attention to problems and provides the basis for designing a long-term management plan. The management plan provides guidelines for the future, which allows for effective use of tree care funds, and allows for more accurate budget projections.

## **Scope**

This document provides a comprehensive action plan for La Vista's inventoried park tree population. This plan includes a previous analysis of the inventoried tree population, their individual maintenance recommendations, as well as long-range management recommendation for the entire tree population. It discusses the findings of the tree inventory performed by the Nebraska Forest Service along with our Arborist and staff. The scope of this discussion includes:

- A systematic approach of the city's current state
- A selection of goals to be accomplished with the Tree Management Plan
- A summary and analysis of the tree inventory
- A description of tree species
- An analysis of the general conditions of the inventoried trees
- Recommendations for specific maintenance needs for each tree including the pruning and removal of trees to reduce potential safety risks, as well as developing an annual pruning program
- Any budget modifications needed to accommodate the Tree Management Plan

## Process

In order to start developing a plan, there is some information that needs to be laid out before that process begins. Asking the following questions, the city can deliver that information and begin planning.

- What do we have?
- What do we want to achieve?
- How do we get there?

To assess the sustainability of the City's urban forest specific indicators were separated into three categories-The Trees, The Community and The Management.

These indicators are used to identify areas of improvement and evaluate performance levels across multiple levels of urban forest management. They serve as a gauge of the current state as well as how to plan future progress. The following diagram shows what will be evaluated under these indicators.

The Trees	The Community	The Management
Tree Inventory Numbers	Neighborhood Involvement	Tree Inventory
Size and age distribution	Green Industry Involvement	Equitable Distribution
Conditions of Inventory	Utility Engagement	Management Plan
Species Diversity	Public Awareness	Risk Management Program
	City Department/ Agency Involvement	Planting Program
		Funding
		City Staffing and Equipment

### Indicators of Sustainable Urban Forest: The Trees

Indicators of a Sustainable Urban Forest	City of La Vista Today	Suggested Objective
Tree Inventory Numbers	Inventory completed in 2011 and needs to be updated to current conditions	Establish an accurate and complete tree inventory that contains species and tree count
Size and Age Distribution	Data was completed in 2011 and needs to be updated	Establish a genetically diverse population of trees across the entire city. Tree population should contain no more than 30% of any family. Sizes should be classified by diameter: 0-8",9-17"18-24", over 24"
Conditions of Inventory	Data was completed in 2011 and needs to be updated	Establish a detailed understanding of tree condition and potential risk
Species Diversity	Data was completed in 2011 and needs to be updated	A genetically diverse population use native species where possible and practical as well as not contain more than 30% of one family

The four indicators above focus on the trees themselves as a part of the Urban Forest. The City had an inventory assessment completed in 2011. The inventory represents the conditions in 2011 and needs to be updated throughout the City. The lack of an updated tree inventory means there is not sufficient information on the condition of the public trees (size/age, condition, species diversity). This information is the basis on which many of the decisions about public tree management are made. By updating the inventory a sustainable and effective tree management plan can be created. Currently the city is operating on a reactive tree care plan not a proactive one.

The diversity of species, size distribution, and proper placement of trees through the city are predictors of the future tree canopy. Poor species selection, planting practices, and inadequate growing space translates to short-lived, high-maintenance trees. Species diversity also involves planting native trees where appropriate and avoiding planting known invasive trees identified by state and federal government.

A lack of accurate information makes it difficult to make solid data-driven management decisions. The City of La Vista is missing information on several of the indicators in the tree category. Obtaining this missing information will allow the city to better prepare an accurate tree management plan moving forward.

## Indicators of a Sustainable Urban Forest: The Community

Indicators of a Sustainable Urban Forest	City of La Vista Today	Suggested Objective
Neighborhood Involvement	Some groups are engaged, but no unified goals are set	Citizens understand, cooperate, and participate at the neighborhood level
Green Industry Involvement	Some involvement is in place, but those are not truly identified with programs in place	Industry partners understand citywide goals and objectives to capitalize on local experience
Utility Engagement	Utilities have engaged in the city's Urban Forestry efforts and projects	Utilities are aware and cooperate to advance citywide urban forest goals and objectives
Public Awareness	Trees are generally recognized as important and beneficial, but some are seen as a nuisance and a problem	The general public understands the benefits of trees and advocates for the role and importance of trees in the Urban Forest

The four indicators above focus on the Community and the people involved in managing an Urban Forest. Many groups have a stake in the success of the City's urban forest. The full resources of these groups have not been fully maximized for the success of the City's tree management plan. The

management plan will need to bring these individuals and agencies together to work towards a unified vision.

The City has multiple departments that influence the urban forest, but the coordination between those departments lacks that vision. The Utility companies and Green industry have been used in the past, although without a clear City management plan it has been on an as needed basis.

The general public can view trees as a good or bad thing. The bad is usually attributed to the lack of education on the benefits of trees in their environment. The good do not get mentioned much because the public takes these for granted. Overcoming these perceptions and staying in front of them will help the public promote the City's vision of an Urban Forest.

The City of La Vista is at a moderate level of performance when based on engagement, education, and cooperation. With a unified vision and cooperation, an affective partnership with the community can be a great asset.

### Indicators of a Sustainable Urban Forest: The Management

Indicators of a Sustainable Urban Forest	City of La Vista Today	Suggested Objective
Tree Inventory	Data from 2011 has not been updated and is inaccurate and now outdated	Comprehensive, GIS-based, current inventory of all public trees to guide management. Processes are in place to keep data current and available for use.
Equitable Distribution	The tree canopy and management is not equitable across the whole City and neighborhoods	Ensure that the benefits of tree canopy are available to all, especially for those most affected by these benefits.
Management Plan	No formal written plan exists. The City's public tree management program is largely reactive.	Existence of a comprehensive urban forest program plan to achieve city-wide goals. Re-evaluation is every 5 years
Risk Management Program	Request-based, reactive system and condition of publicly owned trees is unclear	All publicly owned trees are managed for public safety by way of maintaining the inventory, conducting inspections and eliminating hazards.
Planting Program	Tree planting is replacement based and no plan is in place on an annual basis	Tree planting is driven by tree inventory goals, equity consideration and other priorities according to the plan. Tree planting and establishment is outlined in the management plan

City Staffing and Equipment	A complete team with a certified arborist and professional support staff. Vehicles and equipment are sufficient to complete required work.	Adequate staff and access to the equipment and vehicles to implement the management plan.
Funding	Funding is for reactive work and small scale planting. Grants are used to help supplement costs.	Appropriate funding in place to fully implement a comprehensive urban forest management plan

The above seven indicators are for the management approach to the trees in the City's urban forest. The City has a tree inventory, some tree protection practices and a certified arborist on staff. However, the inventory data is out of date and not utilized, tree protection practices need to become policies and our arborist needs a vision and a plan. The tree maintenance program needs to be created so that it reflects immediate pruning, removal and planting needs based on the updated tree inventory analysis.

Funding for the City's urban forest program need to be identified and created based on the management plan created. The lack of dependable inventory data makes funding the tree management plan extremely difficult. An inventory is the foundation of a City's tree management plan, risk management program, tree maintenance program, and planting program. Without comprehensive data on the condition of the City's public trees, the City is exposed to a risk of liability and the protection of public safety is weak.

Equity issues need to be addressed using the current and updated tree inventory. Identifying the gaps between areas that are receiving the benefits from a higher canopy and those areas that are not is a key component to establishing a balanced equity through the City.

A tree ordinance is in place. The ordinance includes some tree preservation and protection but needs to be updated to ensure it coincides with the City's tree management plan.

The need for the trees and the benefits they provide is clear, once the City of La Vista's urban forest has been fully assessed. The City can take the next step and look ahead and identify the vision for the future.



Arbor Day Celebration

## Goals

The Tree Management Plan intends to achieve the following goals:

- To gain an overall understanding of the inventoried park tree population in terms of species, diversity and health
- To update and analyze the 2011 tree inventory
- Establish a clear vision of the future of the City's tree population
- Evaluate the data so a plan of equity and canopy distribution is met
- Develop a plan for Risk Management protocol
- Establish a yearly planting program
- Establish cyclical tree pruning and maintenance program
- Use inventory data to develop a tree removal and replacement plan
- Use Tree Inventory Management Software in cooperation with the Nebraska Forest Service for the daily maintenance of the City's tree inventory
- Establish a yearly tree training program for our licensed Arborist as well as supporting staff
- Facilitate and grow partnerships with local and regional groups and companies to help carry out the City's Tree Management Plan
- Continue to build a strong public educational and social media program to achieve urban forest preservation and growth



## **City of La Vista's 5 Year Management Plan**

The following activities will be detailed out and will summarize the Five-Year Urban Forest Management Plan for the City. The activities coincide with the goals laid out in the beginning of this document.

- Tree Inventory Update
- Risk Management (Severe and High-Risk Recommendations)
- Routine Pruning Program
- Young Tree Training Program
- Tree Planting Program
- Five Year Program with budget
- Public relations
- Training and Support

### **Tree Inventory Update Plan**

#### **Year 1:**

- Work with the Nebraska Forest Service to help facilitate the update of the City's tree inventory
- Understand and learn the Tree Plotter software to be used when updating the inventory
- Organize and begin the update of the tree inventory

#### **Year 2:**

- Finish the update of the tree inventory in Tree Plotter

#### **Years 3-5:**

- Move to a routing update of the inventory using the Tree Plotter software

### **Risk Management Plan**

#### **Year 1:**

- Continue with the management of the trees as the City has done, using visual cues and citizen requests to handle severe or high-risk trees
- As inventory gets updated, organize data to identify severe and high-risk trees

#### **Year 2:**

- Complete the risk assessment and develop a management plan for year 2-5

#### **Year 3:**

- Complete all severe and high-risk maintenance recommendations from the risk analysis

#### **Year 4-5:**

- Continue to update the Risk analysis and stay on top of any severe and high-risk trees that may evolve

**Pruning Program:**

Routine pruning is an activity that should take place on a cyclical basis for the tree population after all the severe and high-risk tree activities have been completed. Through the routine pruning program notes can be made on certain trees so that the City can make decisions on damaged or declining trees. The pruning program will be broken into to routine pruning and the young tree training program. The young tree training program will target 50-75 trees per year, while the routine program will target 150 trees per year.

**Year 1:**

- Begin young tree training program on newly and immature trees as the tree inventory is being updated, pruning 50 trees

**Year 2:**

- Continue on the young tree training program while all severe and high-risk pruning is being completed, pruning 50 trees

**Year 3:**

- Implement the routing pruning program that includes cyclical maintenance for the tree population. Set a goal of 150 trees a year to be pruned based on a plan working from one end of the city to the other

**Year 4-5:**

- Continue young and routine pruning programs as new plantings are added

**Tree Planting Program:****Year 1:**

- Develop an annual tree planting plan based on needs of the City and future projects
- Replace trees as removals are done as the site and conditions require

**Year 2-5:**

- Implement annual tree planting plan with the goal of working toward a balanced ratio of young and mature trees

## **Public Relations:**

### **Year 1:**

- Present the Five-Year Tree Management Plan to the City Council and Park and Rec Board
- Work with Park Committee and Communications Director to establish some goals for communicating with the public
- Continue with Arbor Day Celebration
- Adopt the Commemorative Tree Program
- Continue to apply for Tree City USA

### **Year 2-5:**

- Continue with public communications
- Continue with Arbor Day Celebration
- Continue to apply for Tree City USA
- Yearly update to Council and Park and Rec Board on status of Tree Plan

## **Training and Support:**

### **Year 1-5:**

- Continue training and support of staff arborist including seminars and education NTA Conference, PGMS, Tree Workshops, NAA
- Tree Plotter software
- Review equipment and resources and update accordingly

## **Evaluating and Updating This Plan**

This Plan intends to provide the City of La Vista with management guidelines for the next five years. In order to measure the effectiveness of the plan, an evaluation method should be followed. Specific accomplishments are measured in comparison to the plan's goals and recommendations. These include:

- Evaluate the number of trees pruned annually to match the goal of the five-year program
- Annually compare the number of trees planted to the desired number of plantings and number of removals per year
- Annually evaluate the species of trees being planted to ensure species diversity
- Annually assess urban forestry education and training programs and determine what programs are successful and need to be continued
- Update overall plan with the individual plans and details as they are generated

The annual evaluation of the progress of the above components of the program for La Vista to make the appropriate adjustments in the areas that are not meeting the stated goals.

## Summary and Conclusions

La Vista's tree population adds to the beauty and quality of life for the citizens who live and visit the community. The City's overall condition was good in 2011 but should strive to improve and update the condition of the urban forest. As the trees get older, they become unable to handle the stresses of an urban environment. These stresses will succumb the trees to decline if a proper management plan is not in place. This document has presented and reinforced the following goals for which the 5 Year Management Plan will be outlined.

- Understand the inventoried public tree population and how it is composed. Use Tree Plotter software to organize and manage the data. Species diversity is a key component to the overall diversity of the future. This will help avoid potential catastrophic tree losses due to disease or insect infestations.
- Evaluate the condition of the inventoried tree population. Site conditions and local climate will influence the general health of the tree population. Controlling the decline, removal, and replacement of the tree population is the ultimate goal of the public tree management process.
- Identify trees that are a severe or high-risk. Understanding the risk rating of a tree is very important part of tree management. This system allows managers to prioritize work and attend to the trees that need immediate attention. Our tree arborist will be able to utilize and continue the City's risk assessments moving forward.
- Initiate and establish a tree pruning and removal program that helps eliminate the severe and high-risk trees in the future. Using the risk assessment data, a program will be established to develop a pruning program that focuses on the low risk trees to keep them from becoming a higher risk later in the tree's life.
- Establish a Routine Pruning program for all established trees in the city. Once all of the severe and high-risk trees are pruned, the city will initiate a routine program. This program will focus on all the trees in the City on a cyclical basis.
- Establish a young tree training program for all newly planted and immature trees. A program will be developed to train all young trees on a 3-year rotation. Training these young trees will help structural problems and potential hazards in the future.
- Continue a strong public educational program that promotes the value of the trees and tree care. Social media, Arbor Day and articles in city publications are the ways to help support this program.
- Update and review the City's tree ordinance. Every 5 years the City should review and update the ordinance to make sure the City's tree resources are protected and tree related problems do not occur. Review with staff on the enforcement and details of the tree ordinance.

# The City of La Vista's Tree Inventory

## Summary

The urban forest in La Vista is a complex system of trees which all have individual conditions and maintenance needs. Understanding this system is important for proper decision-making regarding species selection and tree care practices. The City was inventoried in August 2011 in cooperation with the Nebraska Forest Service. The information from that inventory will provide a basis of data to begin the process of planning and management. The information collected during that report include:

- Species Composition and Diversity
- Size Class Distribution
- General Health and Condition
- Tree Maintenance Recommendations
- Tree Inventory Concerns

Analyzing this information can forecast trends, anticipate maintenance, facilitate budgeting, and develop long range planning.

The 2011 report identified certain characteristics that include species, Diameter at Breast Height (DBH), condition and location. These characteristics are important in identifying the composition, health and age of the city's urban forest. The following sections will detail these characteristics as they were in 2011 and provide a guide to update those in the Tree Management Plan.

## Species Composition and Diversity

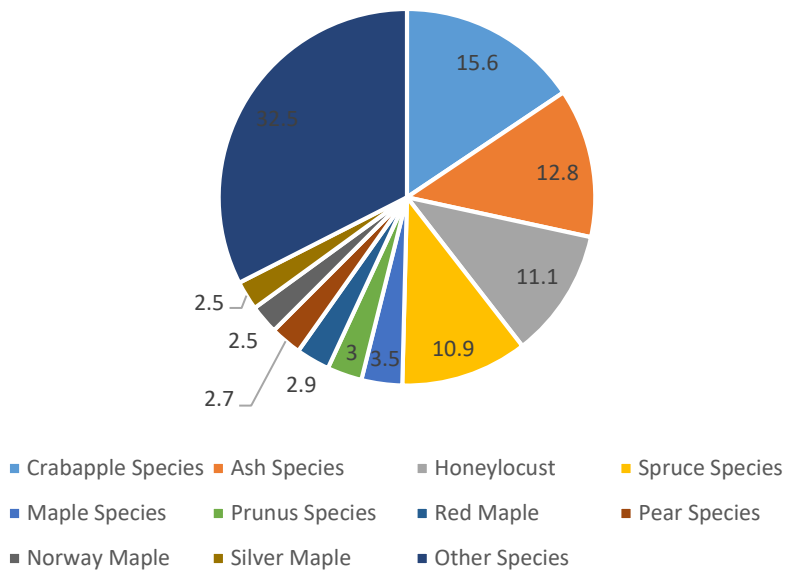
The City of La Vista's tree inventory includes 2840 trees represented by 61 different species. The top ten species inventoried were crabapple, ash, honeylocust, spruce, maple, prunus, red maple, pear, Norway maple and silver maple species. Of these species' crabapple, honeylocust, ash and spruce species were very near 10% of the total urban forest. As a rule, no single species should represent more than 10% of the community's tree resource. These four species represent 50% of all the trees in the community. When tree species exceed the 10% threshold it increases the potential impact of insect and disease issues. The table below illustrates the species type and number of those species in the community.

Species	Number of trees	Percentage
Deciduous Large	Total of Trees in Inventory	Total Percentage of Inventory
Maple Species	98	3%
Red Maple	83	2.9%
Silver Maple	71	2.5%
Northern Hackberry	61	2.1%
Eastern Cottonwood	60	2.1%
American Basswood	60	2.1%
Northern Red Oak	33	1.1%

Sugar Maple	29	1%
American Sycamore	16	.05%
Walnut Species	15	.05%
Pin Oak	15	.05%
Elm Species	13	<.05%
Kentucky Coffee Tree	12	<.05%
American Elm	11	<.05%
Bur Oak	9	<.05%
English Oak	9	<.05%
Northern Catalpa	6	<.05%
White Oak	6	<.05%
Shingle Oak	3	<.05%
Tree of Heaven	2	<.05%
Poplar Species	2	<.05%
Quaking Aspen	2	<.05%
Chinkapin Oak	2	<.05%
Sweetgum	1	<.05%
Tulip Tree	1	<.05%
<b>Deciduous Medium</b>		
Ash	363	12.7%
Honeylocust	316	11.1%
Norway Maple	72	2.5%
Swamp White Oak	70	2.5%
Siberian Elm	61	2.1%
River Birch	43	1.5%
Littleleaf linden	34	1.1%
Willow Species	12	<.05%
Boxelder	10	<.05%
Ginkgo	5	<.05%
Sawtooth Oak	4	<.05%
Broadleaf Deciduous Med	3	<.05%
Birch species	1	<.05%
<b>Deciduous Small</b>		
Crabapple	442	15.5%
Prunus Species	86	3%
Pear Species	78	2.7%
Mulberry	46	1.6%
Hawthorn species	15	<.05%
Serviceberry species	12	<.05%
Eastern Redbud	9	<.05%
Broadleaf Deciduous Small	5	<.05%
Russian Olive	2	<.05%
Goldenrain tree	1	<.05%
Mountain ash	1	<.05%
<b>Broadleaf Evergreen large</b>		
Southern Magnolia	3	<.05%

Spruce Species	309	10.8%
Eastern White Pine	66	2.3%
Scotch Pine	58	2%
Fir Species	18	.06%
Ponderosa Pine	18	.06%
Bald Cypress	5	<.05%
Northern White Cedar	3	<.05%
Conifer Evergreen large	1	<.05%
Austrian pine	35	<.05%
Pine Species	4	<.05%
Juniper Species	9	<.05%
Total Trees	2840	

Distribution of Public Trees in the City



## Species Size Class Distribution

All tree species have different lifespans and mature at different rates. One tool for measuring a tree's age is using the diameter at breast height method (DBH). The DBH of a tree cannot assume the actual age of a tree, but general classifications of size can be derived by measuring the DBH. Each individual tree can be placed in a size class, which can help describe general characteristics of the City's tree population. The breakdown of the 2011 diameter and size classification is in the table below.

<b>Species</b>	<b>0-3</b>	<b>3-6</b>	<b>6-12</b>	<b>12-18</b>	<b>18-24</b>	<b>24-30</b>	<b>30-36</b>	<b>36-42</b>	<b>&gt;42</b>
Maple Species	27	32	37	2					
Red Maple	18	52	11	2					
Silver Maple	4	7	13	11	11	13	7	4	1
Northern Hackberry	18	17	23	1	1				1
Eastern Cottonwood	1		1	7	9	14	14	8	6
American Basswood	8	10	30	10	2				
Northern Red Oak	9	5	17	2					
Sugar Maple	12	9	8						
American Sycamore	4	4	4	1	1		1	1	
Walnut Species	0	0	7	4	3		1		
Pin Oak	2	2	7	4	3		1		
Elm Species	11	1	1						
Kentucky Coffee Tree	3	2	6			1			
American Elm		1	2	4	1	3			
Bur Oak	3	3	3						
English Oak			8	1					
Northern Catalpa	1		2	1	2				
White Oak		2	4						
Shingle Oak		2	1						
Tree of Heaven			1	1					
Poplar Species					2				
Quaking Aspen		2							
Chinkapin Oak	1		1						
Sweetgum				1					
Tulip Tree					1				
Ash	58	135	127	26	13	4			
Honeylocust	26	110	155	18	6	1			
Norway Maple	15	25	28	4					
<b>Species</b>	<b>0-3</b>	<b>3-6</b>	<b>6-12</b>	<b>12-18</b>	<b>18-24</b>	<b>24-30</b>	<b>30-36</b>	<b>36-42</b>	<b>&gt;42</b>
Swamp White Oak	33	23	14						
Siberian Elm		5	13	18	14	10	1		



River Birch	3	17	21	1	1				
Littleleaf linden		9	15	6	3	1			
Willow Species			2	1	2	6			
Boxelder			2		4	1	2	1	
Ginkgo	1	3	1						
Sawtooth Oak		4							
Broadleaf Deciduous Med	1		2						
Birch species		1							
Crabapple	149	208	70	12	1	2			
Prunus Species	54	15	8	5	2	1	1		
Pear Species	8	19	45	5		1			
Mulberry		5	15	13	8	2	3		
Hawthorn species	4	11							
Serviceberry species	9	1	2						
Eastern Redbud	4	4	1						
Broadleaf Deciduous Small	5								
Russian Olive			1	1					
Goldenrain tree			1						
Mountain ash			1						
Southern Magnolia	2	1							
Spruce Species	111	71	102	22	3				
Eastern White Pine	10	32	22	2					
Scotch Pine	2	9	40	6	1				
Fir Species	6	1	9	2					
Ponderosa Pine	0	1	3	11	3				
Bald Cypress	3	2							
Northern White Cedar	3								
Conifer Evergreen large		1							
Austrian pine	1	1	16	15	2				
Pine Species		4							
Juniper Species			4	5					

The ideal industry standard for the distribution of tree ages should be 40:50:10. This is reflecting the percentage of trees in each size group and representing a uniform range of trees from young, to mature, to over-mature. The City of La Vista's ratio as of the 2011 inventory was 52:43:5, which reflects a young urban forest resource. Approximately 53% of all trees are less than 6 inches in diameter, 42% are between 7 and 24 inches in diameter and 5% over 24 inches. These percentages represent a recent tree

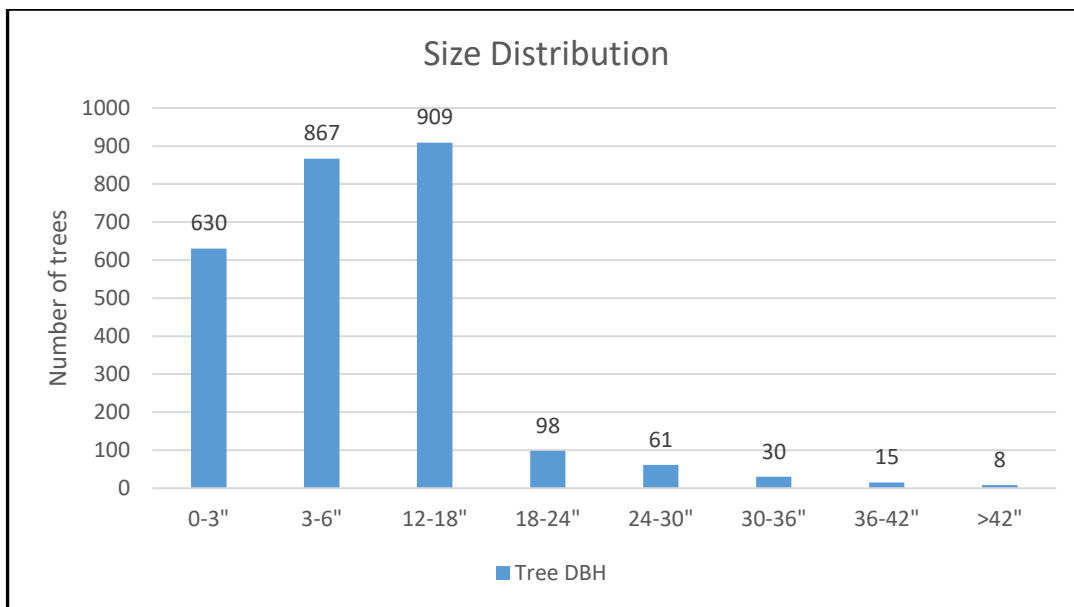
planting effort over the past few decades and should be continued to help balance the age distribution across the City.

As of the 2011 study the number of small (young) trees is 52%, which is higher than the 40% of industry standard. Of that 52%, 20% of the young trees are ash a crabapple. The ash trees still may succumb to the Emerald Ash Borer before they reach maturity. If those ash trees succumb to EAB, then replacing them may not be the best thing to help reduce that number to the ideal 40%. The young trees should be properly pruned to encourage good growth habits and minimize future maintenance. By maintaining the population of small sized trees, this ensures a healthy urban forest to replace older, larger trees.

Approximately 43% of the tree inventory is medium-sized (mature) trees with a DBH of 7-24 inches. As of 2011 the percentage of these trees falls just below the 50% industry standard. Properly caring for the young trees ensures the chances of allowing this class to reach the 50%.

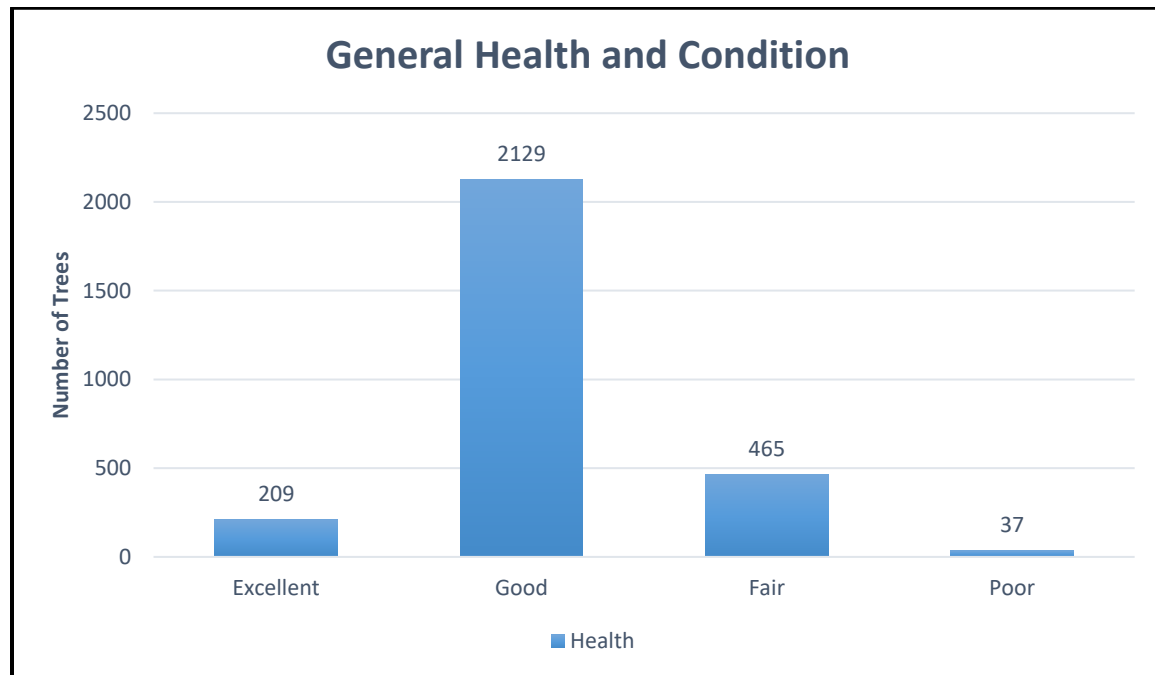
Large trees (over-mature) that are greater than a DBH of 24 inches are only 5% of the City's tree inventory. The inventory had 98 trees that are in the 18-24 inch range, as the inventory is updated, some of these trees may have grown into the 24 inches and greater. This will help raise that 5% to closer to the 10% that is industry standard. These large trees are the most important and provide the greatest amount of benefits in the urban forest.

Future planning for trees to be planted in the City will require careful consideration of species selection. The species composition of the small size class should be composed of both large-growing and long-lived species. Achieving species diversity among all size classes will help maximize planting space and promotes aesthetic benefits such as spring flowers and fall colors. The greater care a tree receives the greater potential for that tree to reach maturity, stay healthy, and be a benefit to the City.



## General Health and Condition

The health of tree is evaluated using several factors, including root characteristics, the trunk, branch structure, the canopy, foliage and pests. Using these factors, the assessment that was done in 2011 provided the following data:



In the inventory that was assessed, trees were categorized based on four overall conditions. These conditions are:

- Excellent- Healthy, vigorous tree. No apparent signs of insect, disease, or mechanical injury. Little or no corrective work is required and the form is representative of the species.
- Good- Average condition and vigor for the area. May be in need of some corrective pruning or repair. May lack desirable form characteristics of species.
- Fair- General state of decline. May show severe insect, disease, or mechanical damage, but death is not imminent. May require major repair in renovation.
- Poor- No chance of correcting a declining condition, death imminent.

Overall, the trees in La Vista were in good shape as of the inventory in 2011, with only 18% of the trees being in fair or poor condition. Updating and reevaluating the trees in the City will be a major part of the Tree Management Plan moving forward. Healthy trees provide more benefits, reduce clean up and maintenance costs, and resist forest health threats better than trees in questionable condition.

## **Risk Management Analysis**

A key part to the City's tree inventory and management plan is evaluating the risk level of each tree. Risk is defined as how the trees structure, location, size and environment affect how the tree fits in the city and community. There was not a risk analysis completed when the tree inventory was completed in 2011, so an analysis will need to be done as inventory is updated. The plan will be to evaluate each tree giving them a rating based on the factors listed earlier. Once those ratings are complete a risk level will be given to each tree as follows:

- None- no risk at all
- Low
- High
- Severe

Understanding the risk of the trees and how they rate will allow the staff to accurately determine and analyze acceptable and unacceptable amounts of risk. This assessment and risk rating will be used to make budget decisions based on removal and maintenance evaluations. The Severe and high risk trees identified will become first priority in budgeting and planning as the City looks to obtain a high level of safety for the citizens of La Vista.

## **Maintenance Recommendations**

Recommendations will be made based on the updated analysis of the inventoried tree population. The City will use the Tree Plotter software to update and analyze the inventory. The recommendations will help develop realistic management goals. Implementation of the recommendations will allow the city to address the high-risk maintenance issues first. The inventory will be divided into five separate categories which are removal, large tree maintenance, small tree maintenance, young tree training, stump removal. The data from this analysis will be combined with the risk management analysis to prioritize the maintenance plan moving forward.

As mentioned above the severe and high-risk trees should be the concentration early on. Identifying the Severe and high-risk removals and prunes should be completed by year 2 of the 5 year management plan. After the severe and high-risk work is complete the focus should be on the low risk tree maintenance. This will begin the Five year routine pruning program and the three year young tree training program. This will include structural pruning that is essential to help prevent our low risk trees from becoming severe or high risk.

Other factors will be evaluated with the Risk management analysis, these will include the following:

- Tree Trunks- analyzing growth habit and damage
- Visual Observations- Decay, Poor rooting, mechanical damage, etc.
- Utilities- How the tree is located due to utility changes
- Further inspection- Bringing in an expert to diagnose a problem

By including these factors, the City will have a comprehensive assessment of the current inventory for the future planning of the Tree Management Plan.

The Tree Plotter software is a web based software that will allow the city to inventory and manage in real time. The current inventory is already loaded into the software that the Nebraska Forest Service completed in 2011. The City will be able to access this software and update the inventory.