Jamestown Forestry Department

Vernon Quam has been the Jamestown City Forester since 2001. Mr. Quam has professional affiliations as member of the International Society of Arboriculture, The Society of Municipal Arborists, The Minnesota Society of Arboriculture, The North Dakota Urban & Community Forestry Association and North Dakota State Horticultural Society. The Forestry Department activities include three stages of the forest's life.
The young tree at planting, tree maintenance while growing and tree removal of dead and dying trees.

The Forestry Department has the proud distinction of 30 years designated as a Tree City USA by the National Arbor Day Foundation. There are four standards for a city to gain such a distinction:

1) The City must have a Tree Board that represents the community and its forestry needs as an advisory to the City Forester.

2) The City must have an Ordinance which addresses the planting and care of trees.

3) The City's Forestry Program must have an Annual Budget of at Least $2 per capita.

4) The City must hold an Annual Arbor Day Observation and Proclamation.

In addition to meeting the Tree City USA requirements, the City of Jamestown has received a Tree Growth Award every year for the last 11 years and recognizes environmental improvement and a higher level of tree care in the community as evidenced by additions or significant improvements to the tree program during each year of recognition. Jamestown was designated as a Sterling Tree City USA in 2009 for ten completion of 10 years of achieving the Tree Growth Award.

Street Tree Inventory

Between 2002 and 2005, street trees were inventoried by the City Forester to determine the species make-up of Jamestown's City Forest and to determine a management strategy for the future. The last inventory prior to the 2005 Inventory was completed in 1985. This inventory counted only trees between the sidewalk and curb. The 2005 inventory tabulated trees between the sidewalk and curb and trees in front and side yards that impact nearby sidewalks and streets. It also counts potential tree planting spaces.

From this information

Common Name	**Scientific Name**	**Number**	**% of Whole**
Green ash	*Fraxinus pennsylvanica*	3,178	30%
American elm	*Ulmus Americana*	1,621	17%
Colorado spruce	*Picea pungens*	929	8%
Silver maple	*Acer sacharinum*	667	6%
American linden	*Tilia Americana*	450	5%
Flowering crabapple	*Malus x species*	423	4%
Siberian elm	*Ulmus pumila*	408	4%
Boxelder	*Acer negundo*	397	4%
Cottonwood/Poplars and Willows	*Populus species and Salix species*	339	4%
Birch	*Betula species*	252	3%
Pine	*Pinus species*	236	3%

57 Other species		1,672	12%
Totals	5.8 trees/ city block	10,564	100%
Total Tree Planting Spaces	2.7 Available spaces / city block	4,831	

1. TREE PESTS

Tree pests are any organism or environmental condition that injures a tree and causes concern for its growth or survival. Tree pests can be organisms such as bacteria or fungi disease causing a dieback in trees or insects that feed or carry disease organisms to the beaver and deer that feed causing girdling of the tree's trunk or branch injury.

The Jamestown forestry personnel will make home visits or office visits with samples of injury for identification purposes and recommended actions of control measures.

There are several tree pests that require control on a city wide basis including Dutch elm disease, bronze birch borer and Emerald ash borer which is predicted as a future pest.

A. Dutch elm Disease(DED) is a fungus disease that is carried by a beetle. The Native elm bark beetle (*Hylurgopinus rufipes)* is approximately 1/8 inch long, gray colored body and covered with micro scopic hair. This beetle overwinters just into the bark at near ground level. Depending upon the snow level, subzero temperatures and the length of cold temperatures will determine the number of beetles that will survive the winter. In the spring (mid to late April) will fly and feed on the twigs and branches of elm trees. They feed at the krotches of twigs or areas where the bark is thin or in weakened areas.

If the elm bark beetle is carring spores of the DED fungus (*Ophiostoma ulmi)* they can be deposited at the wound area. The spores then germinate as a seed and grows down the vascular tissues or tubes of the branch. The vascular tissues are important in carring water up the trees to the leaves and

manufactured food from the leaves to other parts of the tree. If the fungus gets access to this water way it will spread downward and the tree tries to close its move down. Unsuccessfully in most elm trees a wilt of the leaves occur that follow down the branch to the main branches and eventually the whole tree. Once it gets to the base of the tree near the roots the fungus is allowed to grow around the trunk and the entire tree will start to show wilting foliage. The wilted leaves turn yellow and drop off while some hang onto the branch. Those hanging on will turn brown.

Initially the wilting is not noticeable until a significant number of leaves drop occurs to the point that it resembles fall in the middle of summer. At this stage a branch sample can be taken and bark peeled back where staining can be seen in long continuous streaks in the white wood or solid browning around the entire branch.

It is imperative that tree removal is completed as quickly as possible and the wood with the bark intact hauled to the city landfill. The elm bark beetle female will lay eggs in a brood under the bark between the bark and wood. The eggs hatch and young larvae burrow tunnels perpendicular to the mother's tunnel forming a herring bone pattern or gallery. If this gallery is in a diseased standing tree or in firewood logs, the fungus grows into these tunnels and forms spores that are sticky and are collected on the hairs of the beetle before it emerges. The young beetles emerge from the log or tree and fly to the neighbor's healthy elm and starts feeding in the upper branches.

This is why any elm firewood, American or Siberian with the bark intact must be hauled to the City Landfill by City Ordinance. This does not mean out to my friends farm outside the City Limits. If anyone is caught hauling elm wood within the City is subject to confiscation and a fine.

The second way DED spreads within our community is through the root systems or through a root graft that forms between elm trees. This is a survival method for trees growing in limited growing conditions such as a boulevard. The roots grow together and form a bond like a graft made on an apple tree. Trees with plenty of moisture share it with other trees on sites with less water. The problem becomes when one tree is infected with DED then it too is shared with the other healthy trees. This is visible when one by one a tree line street eventually loses trees until there is a separation between the roots.

Control of DED spread via root grafts can be implemented by trenching around the infected tree. This works well in a large yard or park situation but is difficult on a boulevard with sidewalks, curb, driveways, etc.

Quick removal in both cases is the best answer. The Jamestown City Ordinance requires trees to be removed within 30 days of its identification. The tree is identified by an orange spray dot on the side of the tree facing the house. There are 5 licensed arborists in the City of Jamestown and you care encouraged to call several for an idea of costs. If one contract can not get to you right away there are also other contractors available. Removal may be vital to saving the rest of the trees in your yard.

B. Emerald Ash Borer(EAB) is a beetle that lays its eggs within the fissures or cracks of the bark on ash trees predominantly native ashes to North America with preference in order to white ash (*Fraxinus americana*), black ash (*F. nigra*), and green ash (*F. pennsylvanica*). All three species are present in Jamestown yards with green ash occurring in the highest numbers and estimated between 30-40% of make-up of the urban forest.

After the beetles eggs hatch the larvae borer down through the bark to the area between the bark and wood. It is here that the larvae makes a distinctly serpentine tunnel varying from a few inches to almost a foot in length. The width of their meanderings can be less than an inch to 3-4 inches. The tunnels start very small and as the larvae grows the tunnels become wider to up to about ½ inch wide. As adults the will borer out of the bark through distinct D shaped holes. The adult beetle is flat on the top and rounded on its lower portion, thus the D shape holes. These can be important in identification although there are other borers that form similar D shaped holes but are not destructive.

The EA Borer works alone but increases in numbers quickly and can dessimate a 10 inch tree in 2-3 years time. The borers work from the top branches of the tree and move downward, so the first symptoms will be a dieback in the tree's canopy. By the time you are able to see D- shaped holes in the tree's trunk it may be on its last legs.

There are several insecticides that are currently under test and being sold as a short term cure be very cautious about these chemicals uptake by the tree is variable. The cost of many of these treatments are expensive and the results are questionable. Until the insect pest has been identified within the

state, it is of no value to consider treatment as these chemicals only provide one year control it that. Call the City Forester for updated information and advice on whether it is an advantage to treat your tree.

C. Bronze Birch Borer is a close relative to the emerald ash borer but it is host specific to birch trees. Its preferences are the Weeping European birch (Betula pendula), paper birch (Betula papyrifera) and river birch (Betula nigra). Birches make up 1-3% of the estimated tree population within Jamestown. The birches are very attractive trees with the white bark and the weeping branches of the European birch are an added attraction. Unfortunately they are the most susceptible and with age the trees are weakened and attacked by the borer.

They attack the upper branches and the larvae borer around the branch and cuts off the vascular system to the upper parts of the tree causing a dieback in the canopy. The borer moves down the branches to the trunk and as with EAB it is almost too late to treat the tree.

There are several insecticide treatments that can be used but they can be expensive and offer little hope. Call the City Forester for updated information and advice on whether it is an advantage to treat your tree.

Birch trees planted on the prairie have to put up with harsher conditions than their native sites. Birch like moisture but also require good drainage. The are native in sandy soils that have regular rainfall but do not become water logged like clay soils can become.

The root system also has problems with uptake of micronutrients from our prairie soils. The soil ph can vary from 6.5-8.0 and sodium(Na) is presence and tends to tie up the micronutrients needed by birch trees. One of the most effective way with dealing with this problem is applying soil sulfur (90%). The canopy spread of the tree must be measured to determine the treatment area. The tree is measured from dripline to dripline, north to south. Then measure east to west and multiple the two figures for the canopy spread. If a tree is 10 ft x 10 ft = 100 feet. Spread about 5 lbs. with a lawn spreader over the surface under the tree's canopy. Then water in immediately with a sprinkler. Call the City Forester for updated information and advice on whether it is an advantage to treat your tree.

2. Tree Maintenance

It is the responsibility of homeowners to maintain and care for trees planted on their boulevard. This includes pruning branches over the street and sidewalks. The branch requirement over residential streets is 12 feet which branches in commercial areas of town are required to be pruned to a height of 13 feet. Tree branches over sidewalks are to be maintained to a height of 8 feet over the middle of the sidewalk. Tree branches that interfere with the visibility of traffic signs and lights must be prune to provide adequate clearance and visibility to a distance of 100 feet for moving traffic.

Any tree branches or shrub growth into the alley right-of-ways must be pruned for clearance and safety of public workers and private citizens that use these public ways. The right of way is approximately 20 feet wide or 10 feet from the agreed center line.

Shrubs are not allowed on city boulevards near corners or in areas that may develop a traffic visibility problem.

B. Arborist License

The City of Jamestown requires any person to obtain an Arborist License for tree work where tree branches of any size are removed or handled above chest height for the exchange of money. The Arborist License requires proof of liability insurance, a bond from the City, adequate Work Force Safety insurance and certification of training via ISA Certified Arborist Program or like certification. If the applicant does not have such certification, they study and take a test of knowledge from the City Forester. After the first year of License there is a requirement of 10 continuing education training each year to renew the license. This includes attending educational seminars that are held locally or by the North Dakota Urban & Forestry Association or other educational studies as designated by the City Forester. Proof and records of these activities must be provided and approved by the City Forester.

Why should you as a homeowner use a Licensed Arborist. Some homeowners will feel they can remove the tree themselves. Use reason before taking this challenge on your own. While it may seem like a simple task to remove a tree it is one of the most dangerous forms of employment with out training. Many people are killed or seriously injured in which they

end up with long term handicaps that cost more than having a professional to the job.

3. Tree Planting

A. Tree Planting Permits are required for any tree planted on the boulevard. This requires a conversation with the City Forester as to the desired tree species and whether it is allowable on the narrow right-of-way zone. After a permit has been requested, the City Forester will inspect the site, measure to see it there is room for the tree(s) and stake the best planting sites with setbacks from driveways, fire plugs, light posts and other above ground utilities. Under highline wires only small sized trees will be allowed to prevent future interference with growth in the wires and potential topping.

B. Check List for Selecting the Right Tree

The tree recommended in this listing are species and cultivated varieties (also, called cultivars) have proven winter hardy, adaptable to local soil conditions and have special characteristics that are beneficial to the aesthetics and maintenance of the urban environment over a long time period.

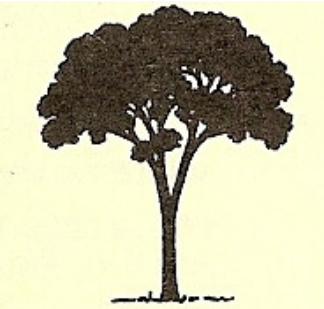
1. No trees should be planted on boulevards less than 4 feet wide. Narrow boulevards provide limited growing space and conflicts with servicing existing utilities.
2. Look up for overhead power and cable lines. Only smaller trees should be used on these sites(marked with an *)
3. If there is open exposure to the sun on south and west sides of your house, you may want to select trees to shade and reduce cooling costs.
4. If there is open exposure to wind on the north and west sides of your house, you may want to select trees that will reduce wind and collect snow and reduce heating costs.
5. Select more ornamental trees to increase the aesthetic and property value.
6. There are certain tree species that are prohibited from city boulevards including: American and Siberian elms, all species of Willows, Poplars, Evergreens such as Spruces, Pines and Junipers, and trees or shrubs that sucker easily and become a traffic problems.

3. Check List before Digging the Hole

1. Contact the City Forester for a Planting Permit on the boulevard. There is no charge for the permit and he will stake out the placement of the trees and provide information on how to plant the tree.

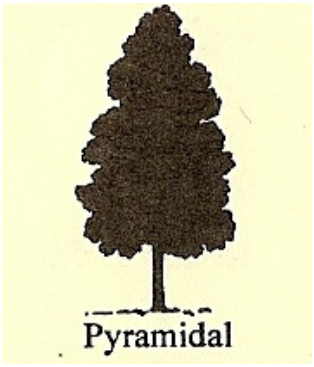
2. Locate all underground utility wires by using the North Dakota One Call number 1-800-795-0555. Allow 48 hours for all locates.

3. Use the planting information on the back of your planting permit for proper site preparation and planting.


Spreading Umbrella

	Tree Species	Height	Width	Outstanding Characteristics
	Common hackberry	50-60’	45-50’	Stucco-like bark
	Black walnut	35-50’	30-50’	Aromatic fruit
	Kentucky coffee	50-60’	40-50’	Double-compound leaves, pod fruit
	Prairie Expedition American elm	40-50’	40-50’	DED resistant
	Japanese elm	35-50’	25-35’	DED resistant
	‘Discovery’ Japanese elm	35-40’	35-40’	DED resistant
	‘Cathedral’ hybrid elm	40-50’	40-50’	Spreading Vase shape
	‘Triumph’ hybrid elm	40-50’	35-40’	Upright Vase shape
	‘Vanguard’ hybrid elm	40-50’	40-50’	Rounded Vase shape
	‘Northern Acclaim’ Honeylocust	30-50’	3040’	Thornless, Compound leaves, pods
*	Japanese tree lilac	20-25’	20-25’	Creamy white flowers

	Tree Species	Height	Width	Outstanding Characteristics
	'Frontyard' American linden	50-60'	35-40'	Aromatic flowers, spreading canopy
	Swamp white oak	50-60'	40-45'	Dark glossy leaves
	Butternut	40-50'	35-40	Smooth bark, fruit
	'Mancana' Manchurian ash	30-50'	25-35'	Tailored globe crown
	Ohio buckeye	20-40'	20-40'	Red-yellow fall color, fruit
	'Autumn Splendor'	20-40'	20-40'	Red-orange fall color
	'Homestead'	20-40'	20-40'	Red-orange fall color
	'Prairie Torch	20-40'	20-40'	Red-orange fall color



	Tree Species	Height	Width	Outstanding Characteristics

	‘Prairie Spire’ green ash	50-60’	20-30’	Conical growth form
	American linden	50-60’	30-45’	White Aromatic flowers
	Redmond linden	40-60’	25-30’	Retains Pyramidal growth habit into maturity
	Dropmore Hybrid linden	40-50’	25-30’	White Aromatic flowers
	Little-leaf linden	35-45’	30-35’	Aromatic flowers, compact growth
	‘Shamrock’ little-leaf linden	40-50’	25-30’	Aromatic flowers, conical growth
	‘Glenleven’ linden	40-50’	30-35’	Aromatic flowers

	Tree Species	Height	Width	Outstanding Characteristics
*	‘Embers’ Amur maple	15-20’	10-15’	red-yellow fall color
*	‘McDermond’ Ussurian or Harbin Pear	20-25’	15-20’	white flowers, glossy leaves
*	‘Prairie Gem’ Ussurian or Harbin Pear	15-25’	15-20’	candelabra branching, white flowers, glossy leaves
*	‘Selkirk’ Flowering Crabapple	15-20’	25-30’	pink flwrs, Red fruit
*	‘Spring Snow’ Flwr. Crabapple	25-30’	15-20’	white flwrs, No fruit
*	‘Madonna’ flwr.	15-18’	10’	double, white flwrs,

	Crabapple			gold -red fruit
*	'Indian Magic' flwr. Crabapple	15-20'	15-20'	pink flowers, red-yellow fruit
*	'Red Barron' flwr. Crab	12-15'	5-6'	Dark red flowers and fruit
*	'Harvest Gold' flwr. Crab	20'	15'	White flowers, golden fruit
*	'Red Splendor' flwr. Crab.	20-25'	15-20'	pink flowers, red fruit
*	'Thunderchild', and 'Royalty' flwr. Crab.	15-20'	15-20'	red-purple leaves, dark red fruit
*	Snowbird hawthorn	12-15'	15-20'	double white flowers
*	Toba hawthorn	12-15'	10-12'	white-pink flowers
*	Thornless Cockspur hawthorn	15-20'	15-20'	white flowers, red fall color
*	Crimson Cloud hawthorn	10-15'	10-15'	red flowers, red fruit
*	Amur chokecherry	20-30'	25-30'	white flowers, copper bark
*	'Prairie Radiance' Winterberry Euonymus	18-24'	15-18'	reddish fall color

upright
oval

	Tree Species	Height	Width	Outstanding Characteristics
	Bur oak	50-60'	50-60'	Wildlife food

	Mongolian oak	30-45’	30-40’	Red fall color, bronze leaves hang on over winter
	Prairie Stature Hybrid Oak	50-60’	30-40’	Red fall color, bronze leaves hang on over winter
	Ironwood	30-50’	25’	Gold fall color, attractive hop-like seed pods
	American Sentry Linden	40’	25-30’	Upright narrow, Fragrant flowers in June
	Boulevard Linden	60’	30’	Upright narrow, Fragrant flowers in June
	‘Harvest Gold’ Mongolian linden	30-40’	25-30’	Exfoliating bark, disease resistant
	‘Greenspire’ littleleaf linden	35-40’	30-35’	Dark green leaves
	Ironwood	30-40’	20-25’	Golden fall color, hops-like seed pods
	Wild Black cherry	45-50’	25-35’	Red-gray exfoliating bark, fruit
*	Pin cherry	30-35’	25-35’	White flowers, fruit
*	‘Prairie Gem’ pear	18-25’	15-20’	White flowers, shiny leaves
*	‘Ivory Silk’ tree lilac	20-25’	10-15’	Creamy white flowers sympodial branching
*	Tatarian maple	20-25’	15-20’	Red-yellow fall color
*	‘Hot Wings’ maple	20-25’	18-20’	Red seed wings, yellow –red fall color
	‘Norlin’ little-leaf linden	35-45’	25-30’	Aromatic flowers, compact growth
	Emerald Lustre Norway maple	50-60’	50-60’	Dark green foliage, yellow fall color
*	‘Cardinal Royal’ European Mt-ash	20-30’	15-20’	Red-orange fruit
*	Oakleaf Mt-ash	20-25’	15-20’	Oak like leaves, fruit
*	Showy Mt-ash	25-30’	20-25’	Disease resistant
*	Russian Mt-ash	20-25’	20-25’	White flowers, Orange berries

*	Greene's Mt-ash	20-25'	20-25'	White flowers, Orange berries

4. Tree Care Education

A. Tree Pruning Training is a cooperative training with the Adult Educational Outreach of The James Valley Multi-District Career & Technology Center. Taught by Vern Quam, City Forester in the Spring and Fall. There are usually to sessions with one evening for two ours on the basics of pruning, the wheres, the whys and the hows. Then the two sessions combine for a Saturday morning session of 3 hours with a hands on demonstration and experience. To register contact the The James Valley Center at 252-8841

B. First Detector Training is a cooperative training with the Stutsman County Extension Agent, NDSU Extension Service-Diagnostic Lab and Jamestown City Forester. This training is 4 hours classroom training to prepare participants in identifying tree pests and the reporting procedure of new pests such as EAB within the Jamestown-Stutsman County Area. There is no charge for this training. Contact Lance Brower, Stutsman County Extension Service office at 252-9030.

C. Home & Garden Show Presentations are presented by Vernon Quam, City Forester on timely topics on Container Gardening, Landscaping, Emerald Ash Borer or other pests or topics affecting the Urban Forest. The Home & Garden Show is sponsored by the Jamestown Area Chamber of Commerce and Beautification Committee in March or April.

D. News articles and releases are printed in the Jamestown Sun throughout the year on a timely basis on various topics and events related to the Urban Forest, tree care and planting.