



Urban and Community Forest Management Plan City of West Fargo, North Dakota



Prepared by Chad Zander—Program Coordinator
West Fargo Public Works Department
March 2015

TABLE OF CONTENTS

Table of Contents.....	2
Introduction.....	3
History and Geography.....	4
Climate and Soils.....	5
Tree Inventory.....	6
Communities/Subdivisions.....	7
Tree Planting.....	8
Tree Types.....	9
Condition Assessment.....	10
Management Needs.....	11
Disease and Insects.....	12
Budget and Staffing.....	13
Corridors and Greenspace.....	14
Standards.....	15
Short Term Action Items.....	16
Long Term Action Items.....	17
Equipment.....	18
Public Relations and Education.....	19
Residential Chipping Program.....	20
Emergency Storm Response Plan.....	21
Attachments	

INTRODUCTION

The City of West Fargo is currently in the process of developing and growing its Forestry Program. As part of that development, an urban and community forest plan is needed to help in guiding the program. Laid out in the plan are some of the keys items that will be assessed and implemented as the program moves forward. The plan is designed to be a guide and can/will be edited and adjusted as things progress.

The urban forest in the City of West Fargo represents a considerable economic and environmental asset to the community. An urban and community forestry plan will allow for prioritization, scheduling, and budgeting for the City. Improved tree health and survival will result in long term benefits and reduce public liability by elimination of hazardous conditions.

Urban and community forestry is an emerging field and has come a long way from the way it was handled when our community was first started. With the advances in arboriculture and the natural sciences in the past several decades, we can now do things that were not possible when the City was formed. With new tree varieties more suited for our climate and more advanced research being done every day, the opportunity arises for the City of West Fargo to have a healthy and diverse urban forest.

Technology has played a huge role in the recent years and will continue to in the future. With programs like GIS and I-Tree, technology is being used more and more every day in the forestry field. Integrating this technology into the program will help the department work more efficiently and effectively.

A healthy urban forest can dramatically improve the livability of a community. Tree lined streets and canopied parks are not only inviting, but are natural providers of important aspects of the quality of life. We rely on them to clean our air, provide dynamic buffers, reduce noise, conserve our soil, and add visual quality of our community.

“The mission of the West Fargo Forestry Department is to promote and maintain a safe and healthy urban forest that enhances the visual appeal and environmental quality of the City of West Fargo. The West Fargo Forestry Department accomplishes this mission through public education to make the citizens aware of the great importance of tree planting and maintenance.”

HISTORY & GEOGRAPHY

The City of West Fargo is located along the Sheyenne River in Eastern North Dakota, in a region known as the Red River Valley. The City borders Fargo to the east, Horace to the south, and has the Sheyenne Diversion bordering the west end. Currently the City has a population of around 30,000 with a projected build out population of 45,000. “A City on the Grow” has been the motto of the City for the past decade while the City has seen unprecedented growth. The City of West Fargo is a family oriented community with active school and park districts.

The history of the urban forest however is not as impressive. The few species that were planted, as the City originated, were primarily monoculture and very susceptible to disease and insects. The primary street trees that were planted were ash, elms and oaks, because very few species could be grown in the cold climate of the northern plains at the time.

The City of West Fargo is broken up into several different areas, depending on the age of the subdivision or community. The older parts of town have large mature trees, while the newer and developing areas have very young and immature trees. Some of the oldest, largest and most prevalent trees are along the Sheyenne River corridor that cuts through town. This corridor runs the entire length of the town from south to the north.

A couple other things also change from subdivision to subdivision, and that is the planning and engineering aspects of a community. Older parts of town are laid out in a grid and primarily only have City owned trees in the boulevards. The newer subdivisions have center medians, roundabouts, bump-outs, bike path corridors as well as boulevard trees. All of which provide the opportunity to plant more trees then previously, but it also adds to the work required by City staff to maintain them.



CLIMATE AND SOILS

The City of West Fargo is located in Zone 4 of the USDA zone hardiness map (see image 1). This creates some challenges for the department as it restricts the use of some readily available and popular trees. The zone uses a -20° through -30° average annual low to help in picking trees suitable for the climate.

The area also averages about 22.6 inches of precipitation during the year, some of which falls during the winter and is often unusable by vegetation. The severe summer and winter winds can also be problematic to newly planted trees and older declining trees. The primary wind direction during the winter is the northwest and during the summer, south winds prevail (see image 2).

The soils in the City of West Fargo are also a driving factor in the selection of tree species that grow here. The City is primarily composed of Fargo Silty Clay, which is a level, deep, poorly drained soil on glacial lake plains. Typically, the surface layer is black silty clay about 10 inches thick. The subsoil is silty clay about 12 inches thick, with a dark gray color. The next layer, which extends to a depth of 30 inches, is dark grayish brown silty clay. The soil is slowly permeable and runoff is very slow. The soils around the City are also alkaline. They have a high pH and poor soil structure. In addition to the clay soils in the area, there are also some small areas (primarily along the river) that are more of a silty loam and have better drainage, providing a much better growing environment for trees.

See Attachment 1 for soils map

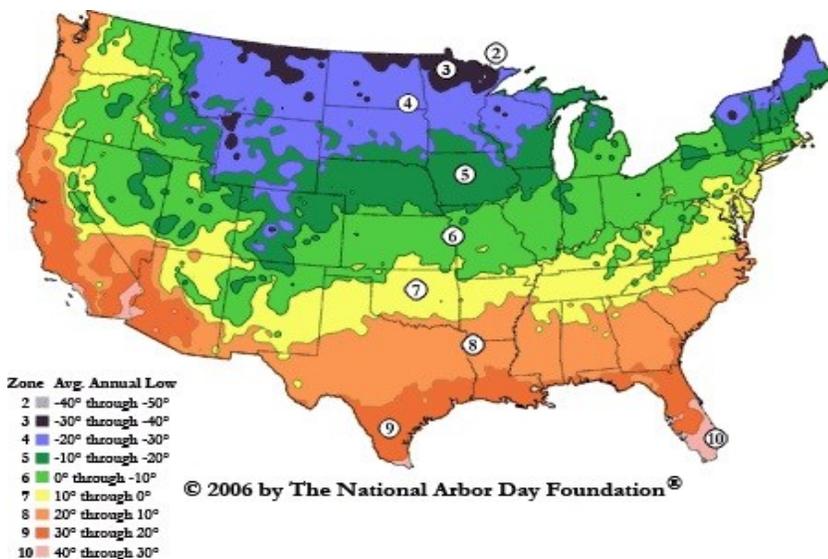


Image 1

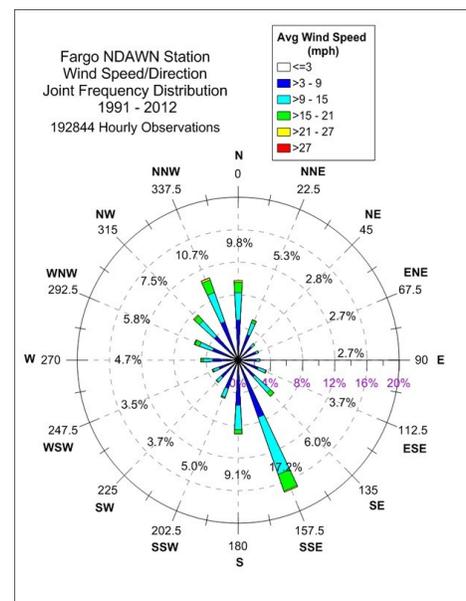
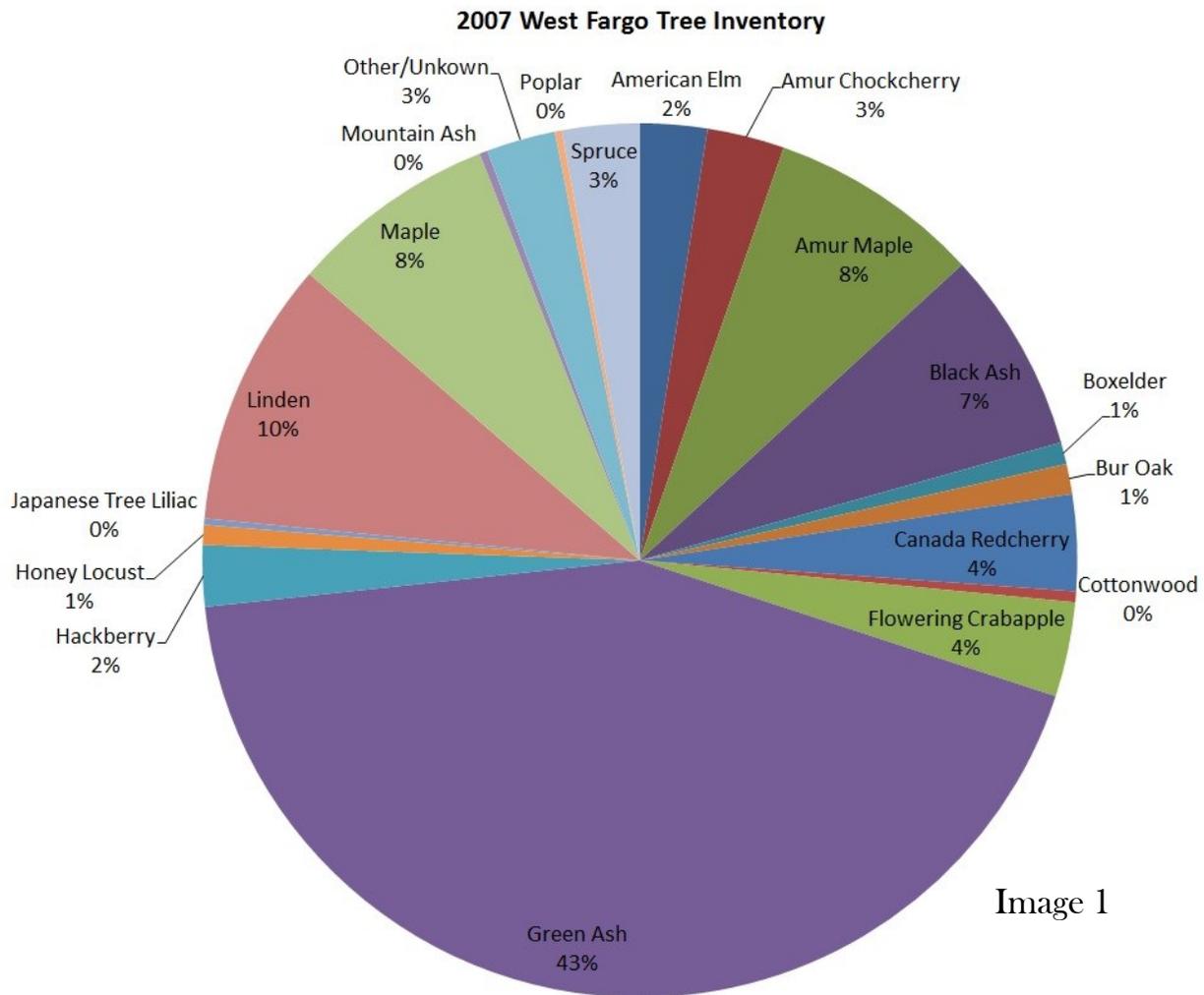


Image 2

TREE INVENTORY

West Fargo last conducted a complete street tree inventory in 2007. The results showed the overwhelming amount of Green Ash and a very low percentage of other species. This inventory showed that the City of West Fargo has to try and diversify its urban forest in all the newer developments, as well as start replacing older Ash trees with different species. The charts below show percentage of species and total number. (see Image 1 and 2) The inventory collected data on a total of 10,566 street trees.



	American Elm	Amur Chockcherry	Amur Maple	Black Ash	Boxelder	Bur Oak	Canada Redcherry	Cottonwood	Flowering Crabapple	Green Ash	Hackberry	Honey Locust	Japanese Tree Liliac	Linden	Maple	Mountain Ash	Other/Unkown	Poplar	Spruce
Number	262	302	828	790	85	118	376	42	370	4572	239	78	24	1040	809	32	270	27	302

Image 2

SUBDIVISIONS

For the purposes of this plan, the City is divided up into subdivisions. These divisions will be addressed individually for their urban forestry needs. (see image 1)

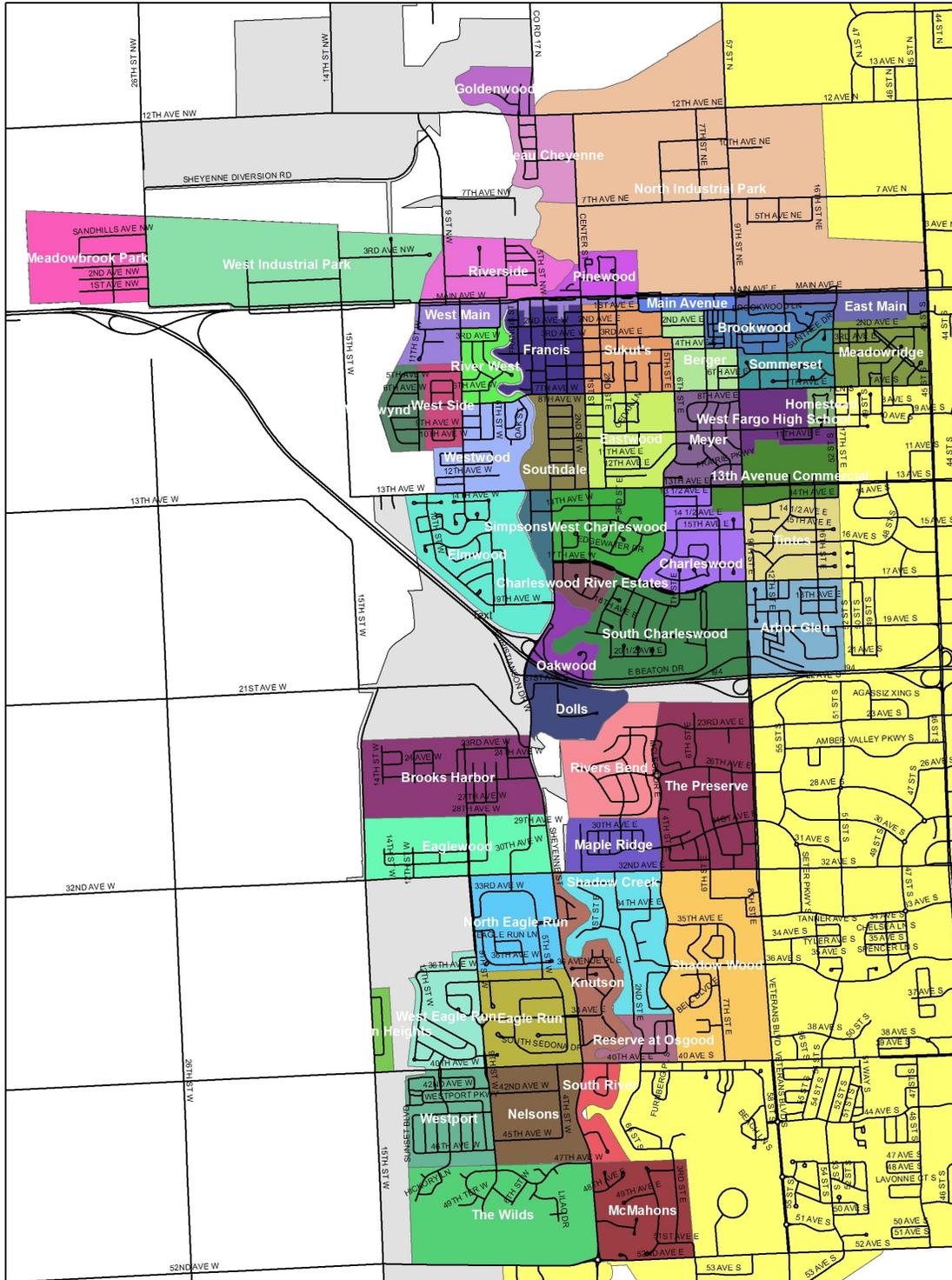


Image 1

TREE PLANTING

With the City of West Fargo’s growth and new subdivisions, going in every year, the City consistently has new trees to take care of. Each year, any new street that is installed has the opportunity for new street trees. This includes any City maintained areas such as roundabouts, medians, lift stations and bike path areas. As part of this process the City of West Fargo Forestry department reviews engineering plans. These plans are then checked for spacing, species and overall layout.

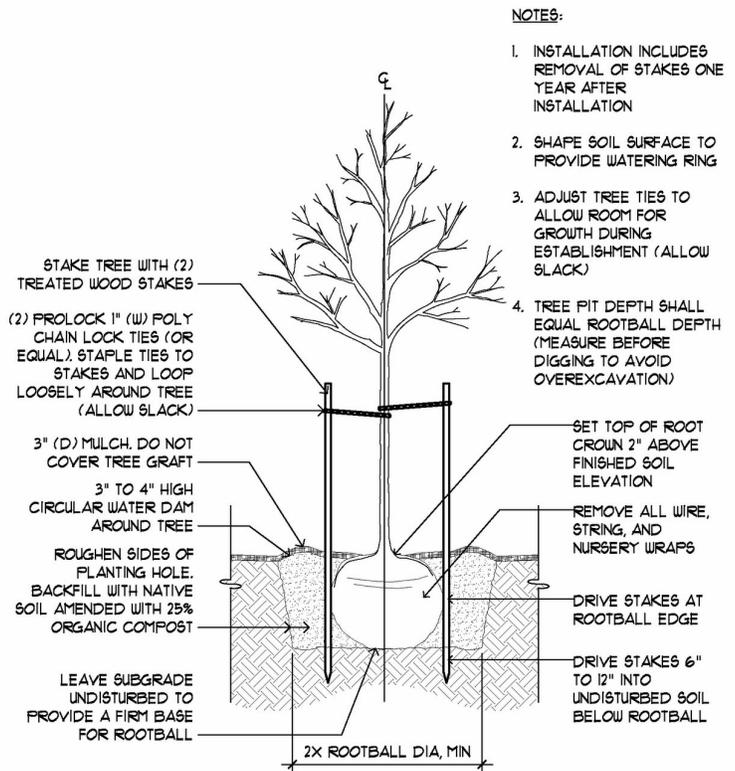
The City has, each year, an opportunity to receive grant money from state services. These grants may include forestry grants, transportation enhancement grants or others. These grants are and will be used to help “fill in the gaps” of areas around town that have few or no trees, or an overall improvement to an existing area.

Also included in the budget is a line item for tree plantings. This item is used by the forestry department to install trees throughout the City. The amount of this item has varied over the years, and can be better utilized when the forestry department plants its own trees, instead of contracting them out.

Other Requirements

- Size: diameter no less than 1 1/4”
- Spacing: 12’ from driveways, 40’ from intersections and 25’ from other trees.
- Sidewalks must have 8’ height clearance
- Streets and alleys must have a 14’ height clearance

The City follows ISA standards and specification for tree planting.



9 DETL - TREE PLANTING, TYP
1/2" = 1'-0"

TREE TYPES

The City of West Fargo has a limited number of trees that can be planted due to the hardiness zone and soil type. Over the years, the City has developed a planting permit with a list of trees that the City has identified will grow well in our area. The list is updated regularly as new varieties arise. These are the only allowable species that the forestry department will allow residents to plant in the boulevard. See list below:

- Honey Locust (thornless only)
- Hackberry
- Thornless Hawthorne
- Amur Chokecherry
- Lindens (any variety)
- Oak (Prairie Stature, Bur, Swamp)
- Flowering Crabapple (any fruitless varieties)
or Red Splendor and Radiant only
- DED resistant Elms
(Accolade, Cathedral, or Discovery)
- Ironwood
- Prairie Gem Pair
- Maple (any variety)
- Japanese Tree Lilac
- Amur Maple (tree form only)
- European or American Mountain Ash
- Kentucky Coffeetree
- Corktree
- Prairie Horizon Alder

Other species, approved for this area, can be planted on private property at the owners discretion. Other requirements may be required from other City departments.

CONDITION ASSESSMENT

A condition assessment is defined as a process where a qualified group of trained forestry professionals performing an analysis of the condition of trees that may vary in terms of age, shape, growth, and overall health . The condition assessment will be done in each subdivision, see page 7. The condition assessment is one of the key items that determine where the forestry department will be focusing its work. The results of each assessment will be compared to others to determine their priority.

The assessment will give a numeric value to each subdivision, classifying its overall forestry health. The tree will be given a rating of 1 through 5, with a 5 being the most work needed. Each subdivision will be averaged for the trees located in it. This will give one overall rating that can then be used to prioritize service areas.

The condition assessment will be done via a windshield survey, which will provide a brief snapshot of the subdivision. This will be more efficient and should take less time than a manual assessment. **See Attachment 2**

Condition Assessment

<u>Points</u>	<u>Rating</u>	<u>Condition</u>
1	Excellent	No work needed, tree can be left as is
2	Good	Minor pruning street and sidewalk
3	Fair	Minor pruning and minor disease (black knot)
4	Deficient	Major pruning
5	Poor	Damaged and/or diseased, poor health, possible removal

MANAGEMENT NEEDS

The urban forest in the City of West Fargo is unique in that there are really two different urban forests. The older section of town has greater needs and requires more work. The newer sections of town have smaller trees, less maintenance, but requires more planting and staking. Overall, there needs to be a balance between trimming and caring for older trees, and planting and watering of younger trees. Below are the management needs for both mature trees and newly planted trees.

Mature Trees

1. **Pruning:** Trees that have low hanging branches, clearance issues with sidewalks, streets and alleys. Possible crown reduction
2. **Diagnosis:** Trees that have disease or health issues. Private and public trees. Can be possible candidates for replacement or treatment.
3. **Removal:** Trees that are hazardous to the public, safety hazards. Monoculture areas, replaced after decline due to age, diversity.
4. **Treatment:** Trees that have a disease that can be controlled by treatment.

Young Trees

1. **Proper Planting:** Trees installed by private contractors are monitored at the time of planting to ensure proper planting. Preventing death, girdling, or other health problems in the future. Right tree for the right place. Proper staking, mulch and depth.
2. **Watering:** Providing newly planted trees with proper amount of water.
3. **Monitoring:** Checking newly planted trees for health issues, checking warranties. Managing corridors and green spaces.
4. **Staking:** Providing residents with the proper spacing and location of boulevard trees.

DISEASE AND INSECTS

Diseases and insect infestation can have severe and deadly effect on an urban forest. The areas most susceptible are those with little variety or monoculture areas. These areas allow the transfer of diseases and/or insects from a neighboring tree of the same species. The older areas in West Fargo are more susceptible to this, as they have only a few primary street trees, Ash and Elm. Listed below are those of concern.

Dutch Elm Disease or DED

Dutch elm disease is one of the most destructive shade tree diseases in North America. The disease affects American Elms (and other elms) killing the individual branches and eventually the entire tree within one to several years. The disease is most often carried by the elm bark beetle. At the time of the last inventory, West Fargo had 262 elms on the boulevard. These elms need to be monitored for the disease, as well as those elms on private property, per city ordinance. Response plan currently in place.

Emerald Ash Borer or EAB

The emerald ash borer is a green beetle native to Asia and Eastern Russia. It is an invasive species in North America. The emerald ash borer presents a very severe danger to the urban forest of West Fargo, as Ash make up about 50% of the boulevard trees and a greater amount of those on private property. The Sheyenne River corridor is also composed of a huge number of ash trees. None of the insects has been found in North Dakota to date, but cases in Minnesota and Wisconsin have worsened. A response plan will be developed in preparation.

Asian Long-horned Beetle or ALB

The Asian long-horned beetle is a species native to eastern China, Japan, and Korea. This species has now been accidentally introduced into North America. The beetle effects maples, elms, ash and others as it spreads. After a tree has been occupied by generations of the beetles, larval feeding can disrupt the tree's vascular tissues, encourage fungal growth, and cause structural weakness, any of which might kill the tree. A response plan will be developed in preparation.

Other disease and insect issues may arise that require advanced planning and/or treatment. These plans will be developed as the need arises.

Budget

Public tree management is often viewed as a luxury and not an important enough item for a large budget, compared to police, fire, and water/sewer departments. However, the urban forest can provide some aesthetics, energy, and health benefits often unnoticed by most of the general public.

The level of funding that is allocated for resources can determine an urban forestry program's viability and sustainability. With sufficient financial resources to secure services, equipment, management and staff, an urban forestry program can fulfill its mission, respond to change and challenges, and best serve the public.

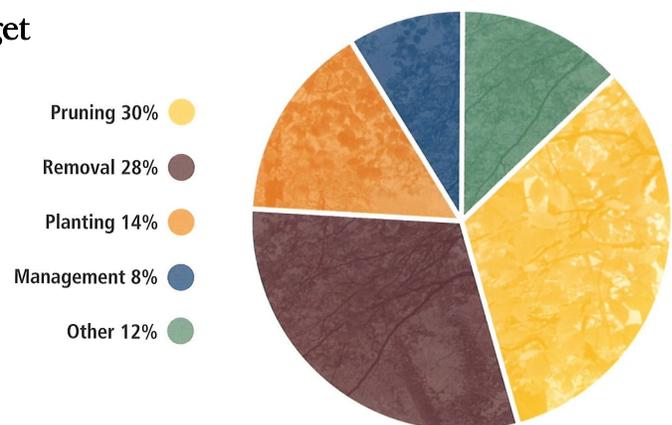
The National Arbor Day Foundation requires that a community forestry program be supported by an annual budget of at least \$2 per capita as one qualification for its Tree City USA program. A common generalization is that a more realistic average is \$5 per capita. The City of West Fargo's goal for the forestry department is to provide a "Routine Management Approach". This level of service addresses most emergency and request-driven work, but also has the resources to begin routine tree maintenance and scheduled planting programs. The West Fargo Forestry budget is adjusted each year to provide such service. Below is the Average National Urban Forest Budget Allocation.

See Attachment 3 for the 2015 Forestry Budget

Staffing

Generally, an urban forestry program has both supervision and operational employees who are supported by administrative employees within the public works department. The ISA and USDA Forest Service recommends 4 employees for a community with a population between 25,000 to 50,000.

Currently the City of West Fargo Forestry Department includes; 1 Program Coordinator, 1 Forester, 1 Arborist and 10 seasonal part time employees.



The City of West Fargo Public Works Department maintains all city owned pieces of property including trees and vegetation on them. The properties include items such as lift stations, ponds, bike paths and street corridors. These properties all have opportunities to help improve the urban forest of West Fargo.

Lift Stations

The City has 109 total lift stations, wells and towers to maintain. Each site has some form of tree and/or shrubs to be cared for or has the opportunity for them to be planted. Trees and vegetation on these sites is important, not only as a screen, but also to provide some aesthetics to areas they are in.

Goal: Improve and/or add trees and landscaping to each lift station, well and tower

Ponds

The City owns and maintains a total of 35 dry or wet retention ponds within city limits. Most of these ponds currently have, or the potential too have, large areas of greenspace, parks and trees around them. The City can use this as additional places to improve diversity and showcase some varieties (ex. Sheyenne Arboretum).

Goal: Improve greenspace around ponds

Bikepaths

The City owns and maintains approximately 30 miles of bikepath throughout the city. Large sections of the bikepath system have parks and/or greenspace along them. Most of the trees are installed, as part of the city projects, just needs maintenance. Any open space along them can be considered an opportunity to plant new trees.

Goal: Maintain existing trees along paths and greenspace, improve some areas

Street Corridors

The City of West Fargo maintains a large amount of right-of-way space, roundabouts and medians throughout the city. These corridors have a large number of trees planted along them, or in their medians. These trees are at higher risk for damage, due to traffic accidents and wintertime salts.

Goal: Maintain all existing trees, improve some areas

STANDARDS

ANSI A300 Standards

ANSI A300 standards are the generally accepted industry standards for tree care practices. They are voluntary industry consensus standards developed by TCIA (Tree Care Industry Association) and written by a committee called Accredited Standards Committee A300. Their mission is to develop consensus performance standards based on current research and sound practice for writing specifications to manage trees, shrubs, and other woody plants.

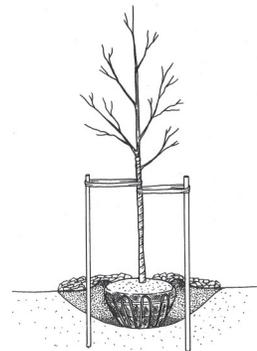
These standards will be the guiding support for the City of West Fargo's Forestry Program

The standards are divided into parts:

- Part 1: Pruning
- Part 2: Soil Management
- Part 3: Supplemental Support Systems
- Part 4: Lightning Protection Systems
- Part 5: Management
- Part 6: Planting and Transplanting
- Part 7: Integrated Vegetation Management
- Part 8: Root Management Standard
- Part 9: Tree Risk Assessment

Best Management Practices

TREE PLANTING



Special companion publication to the ANSI A300 Part 6: Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Transplanting)

Example: ANSI A300 Part 6 Planting and Transplanting

Landscape Tree Appraisal

A Landscape Tree Appraisal is a way of determining the value of a tree in a community. One of the most widely used and accepted landscape tree appraisal methods was developed by Purdue University Cooperative Extension Service. The “Trunk Formula Method” takes into account various aspects of the tree, location and species to determine a monetary value for the tree.

$$\text{Value} = \text{Basic Tree Cost} \times \text{Species Rating \%} \times \text{Condition Rating \%} \times \text{Location Rating \%}$$

See Attachment 4 for complete Trunk Formula Method

SHORT TERM ACTION ITEMS

The City of West Fargo will implement a series of short term action items that will address the immediate needs of the urban forest. These items include:

1. Remove hazard trees on public right-of-ways
2. Trim trees to clear signs, street lights, traffic signals, pedestrian and vehicular traffic and buildings
3. Perform systematic trimming of trees containing hazardous defects
4. Plant new street trees in areas containing none
5. Establish a routine systematic trimming cycle for all trees along the City of West Fargo's right-of-ways
6. Monitor trees on an annual basis for structural and disease problems
7. Improve species diversity in new plantings
8. Implement Dutch Elm Disease Plan
9. Implement the Emergency Storm Response Plan
10. Stake new tree locations in residential areas for proper planting (tree permit)
11. Monitor and care for newly planted trees on city projects
12. Work with the Planning and Zoning Department to help implement their landscape standards reviews on new commercial sites
13. Work with residents to diagnose and provide recommendations for trees with disease, growth problems, insects and other issues on private property
14. Implement public education program and Arbor Day celebration
15. Update tree inventory
16. Develop a residential tree chipping program
17. Develop a Emerald Ash Borer Response Plan

LONG TERM ACTION ITEMS

The City of West Fargo will implement a series of long term action items that will address the long term needs of the urban forest. These items include:

1. Identify potential partners for urban and community forestry program
2. Improve the urban forest diversity
3. Increase public education and involvement in the planning, care and maintenance of the urban forest
4. Increase the fiscal budget as the urban forest grows and requires more attention
5. Increase the number of trees planted on public and private lands
6. Update the tree inventory annually
7. Provide training to in house personnel on all phases of urban tree care
8. Develop working partnerships with local and regional utilities, to improve organization and effectiveness of operations
9. Develop long term maintenance plan for all plantings and landscape amenities on West Fargo property and right-of-way
10. Update Urban and Community Forest Master Plan

EQUIPMENT

The equipment provided and utilized can improve efficiency and safety for the forestry workers. Property safety gear and training on that gear is provided by the City of West Fargo. All equipment that is used, workers are certified on and all proper procedures are followed.

Current Forestry Equipment

- 2 Pickup Trucks
- 1 Watering/Spraying Truck
- 1 Aerial Lift Truck
- 1 Hydroseeder
- 1 Toolcat and Attachments
- 1 Wood Chipper
- 1 ATV with Sprayer

Other Forestry Equipment

- 4 Pickup Trucks (Seasonal)
- 6 Zero Turn Mowers
- Multiple Large Mowers
- Multiple Tractors
- Multiple Trailers
- Mini Excavator

Some other pieces of equipment that would benefit the forestry department include:

- Stump Grinder
- Tree Spade (Currently have access to Park Departments)

Urban forest managers across the country have found that public education is the true key to reaching the goals of an urban forestry program. The West Fargo Public Works Department will be able to effectively achieve urban forest management goals by educating citizens, elected officials, and other community groups.

Some of the current public relation activities:

- Participate in Tree City USA
- Annual Arbor Day Celebration
- National Night Out Event
- Partnership with West Fargo Schools
- Partnership with NDSU Extension
- Partnership with ND Forest Service
- Partnership with West Fargo Parks
- Forestry Website
- Annual Workshops
- International Society of Arboriculture (ISA) Memberships
- North Dakota Urban and Community Forestry Association (NDUCF) Memberships

Some of the goals for the program:

- Increase Public Education on Website
- Develop Brochures for Residential Tree Planting
- Develop Brochures for Residential Tree Maintenance and Pruning
- Improve Attendance at Workshops and Events
- Increase Forestry Awareness of Disease and Insects
- Improved Contact with Residents

Updated 5/20/20

CURBSIDE BRUSH PICKUP

The City of West Fargo has a grapple truck for the purpose of curbside brush pickup. Below are the guidelines to ensure all brush gets collected:

- The Curbside Brush Pickup Program runs from May 1 to Oct. 31.
- All brush must be out by 7 a.m. on your garbage day.
- All brush must be in one pile cut to 4 feet and less than 10 inches in diameter.
- All piles must be at least 10 feet away from any tree, hydrant, streetlight, mailbox, utility box or anything in the boulevard that would impede the grapple from collecting the brush.
- Do not place brush piles on a sprinkler head, water shut off or underground utility.
- It is the resident's responsibility to clean up the site after brush collection.
- Roots and stumps cannot be collected by the grapple truck.
 - Bring these items to the Transfer Station at no cost at 1620 Main Ave W, West Fargo between 7:30 a.m. to 3:30 p.m. Monday through Friday, or 9 a.m. to 1 p.m. Saturday.
- Do not bundle or tie brush and/or branches together.
- Do not put brush in boxes, bags or garbage cans. The brush pile must be directly on the ground.
- The City of West Fargo will not collect any brush generated by a commercial tree service or private company.
- The brush pile must be placed on the resident's front boulevard.
- Excessively large piles will be picked up depending on availability.
- City generated mulch may be picked up for free at the Transfer Station during business hours.



When catastrophic disasters, such as, floods, tornadoes, ice storms, and straight-line winds hit, they can have devastating effects on an urban forest. Trees and vegetation can account for approximately 30 percent of the debris.

Part of the Public Works Department, the Forestry Department would have an important role of any natural disaster clean up. The department will work with police, fire, street, sanitation, and sewer/water departments to ensure proper procedures and safety during and after an event.

Some of the cleanup tasks include collecting and disposing of debris, broken and/or hanging limbs, uprooted trees, blocked roadways, power outages and hanging lines, and personal/public property damage. Most of these activities can be done more efficiently and safely with the help of forestry workers.

Response Plan Items

- Tree inventory: provide locations and species of existing trees
- Support for emergency workers: clear snow emergency routes (trees and debris) for access throughout the entire city for police, fire and ambulance services
- Continued cooperation with city emergency management officials
- Train and instruct city workers on proper chainsaw procedures
- Train and instruct city workers on safety equipment/procedures
- Utilize sanitation, street, sewer and water department equipment
- Collect contractors list for additional needed help