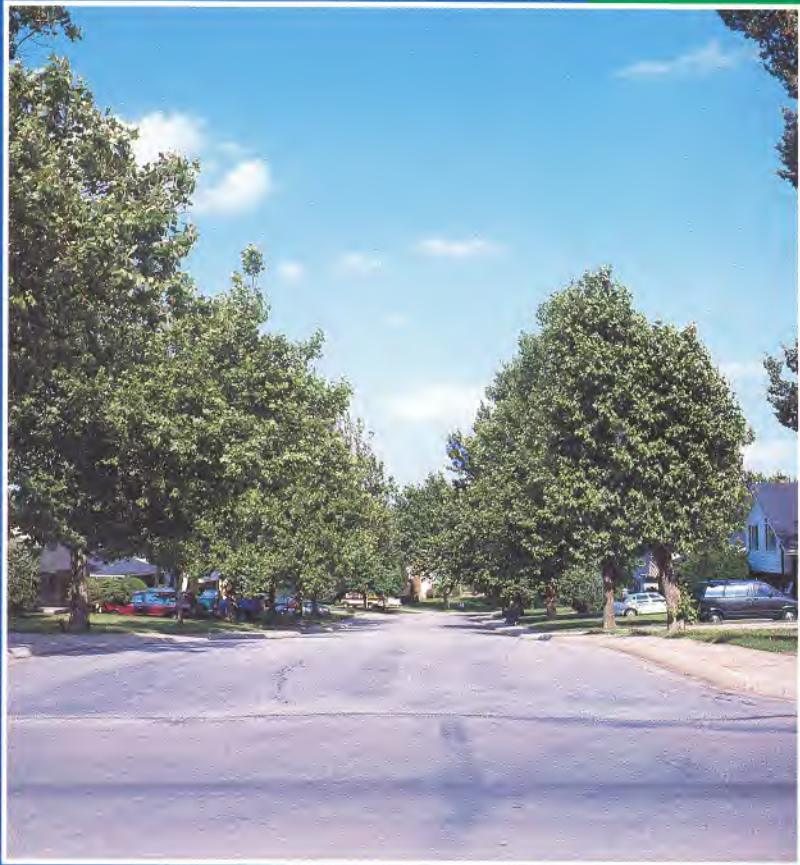


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NWPC

# Benefits of Urban Trees



*Urban  
And  
Community  
Forestry:  
Improving  
Our  
Quality  
Of  
Life*





DERBY COMMUNITY FOUNDATION  
P.O. BOX 544 DERBY, KANSAS 67037

(316) 788-3421

Derby has become a part of a national program called America the Beautiful, an initiative to reforest the country. Six Derby residents have been meeting on a regular basis for the past year to plan the development and implementation of an **Urban Forest** in our community.

Why is this important?

- Derby will become a model for the country. No other city has developed a program to reforest its entire community.
- Derby will realize exceptional benefits. These are described in this brochure.
- This program will be completed with private donations only. No local tax dollars will be used.
- A grant has been made by the US Forest Service which covers most of the start-up costs in this first year. This allows maximum use of individual and corporate contributions for purchasing, planting and maintaining trees.
- Everyone in the community benefits.

This brochure describes the benefits of **Urban Forests** as well as the goals and objectives of our local project. We are sure that you will be excited about the benefits of this project for you, your property and our community.

To accomplish the project we have formed the Derby Community Foundation. The mission and objectives of the Foundation are listed on the inside back cover. The **Urban Forest** project is the first of many projects the Foundation plans to be involved with as we look to the future development of our community.

Charles W. Hubbard  
Chairman  
Derby Community Foundation

TRUSTEES: ELIZABETH BAKER, BRYCE CARR, CHARLES W. HUBBARD,  
DR. MARK HUTTON, DICK LOOSEN, SUSAN SWANEY

## AN URBAN FOREST FOR DERBY

**U**rban Forest is a new concept for most of us. An Urban Forest is the right number of the right species of trees planted in the right place at a defined location. It is the intentional planning and capitalizing on the benefits trees provide a city.

Cities plan for infrastructure development. Street, water, sewer, and school systems all improve the quality of life in a community. The goal of Urban Forestry is to establish trees as an essential component of that infrastructure.

Derby will be the First to:

- Develop a total community Urban Forest and serve as a national model.
- Fund the project with private sources.
- Structure the project as a public/private partnership. Private Enterprise - Nonprofit Foundation - Local Organizations and Agencies.
- Plant 10,000 trees as one project within a set time frame.







## WHY DERBY WHAT VALUE FOR US?

**T**he **Benefits** are:

- **Economic**
  - Higher residential/commercial property values.
  - Shoppers stay longer and buy more.
- **Environment**
  - Clean air, water and soil.
  - Natural wildlife habitat.
  - Aesthetic improvement.
- **Energy**
  - Reduces energy usage.
- **Social**
  - People feel better.
  - Stress levels decrease.
  - Faster recovery from illness.
  - Social interaction, reduces isolation and loneliness.

For Additional Information: 316-788-7581

## HOW WILL THE DERBY URBAN FOREST PROJECT BE ACCOMPLISHED?

The Foundation is nonprofit. All contributions are tax deductible. Six Derby residents make up the Board of Trustees. They have been meeting regularly for the past year to do the initial planning to launch this project.

With Natural Treesource, Inc., a local company whose business is the development of Urban Forests, the Foundation will work with all organizations, agencies, companies and individuals to plan and implement the project. This includes:

- The Design and Planting Plans. This will include location, number needed, and species.
- Secure the Funding. Two grants have been received. Each requires local matching funds.
- Purchase and Plant the Trees. Shade trees will average 2" caliper, evergreens will be 5 to 7 feet tall. All trees balled and burlapped.
- Maintain and care of the trees for one year.



## PROJECT GOALS

■ Number of Trees Planted .....	10,000
■ Volunteers .....	1,000
■ Volunteer Hours .....	50,000
■ Fundraising Goal .....	\$1,500,000

• 1000+ Gifts .....	\$ 25+
• 500 .....	250
• 200 .....	500
• 100 .....	1,000
• 20 .....	5,000
• 10 .....	10,000
• 8 .....	25,000
• 3 .....	50,000
• 1 .....	100,000
• 1 .....	250,000
• 1 .....	350,000

- Received by June 1, 1994.
  - Department of Transportation: \$460,000. We anticipate an additional \$300,000 grant next year.
  - **Natural Treesource, Inc.**, received a grant from the National Urban Forestry Advisory Council which provides funds for operational and implementation costs of the project.
  - Start up costs for the Derby Community Foundation have been paid by the members of the Board.
  - The goal is to complete the project in 12 months.

**U**rban and community forestry can make a difference in our lives. Each one of us can make a personal contribution. As we develop and apply technologies for a better way of life, often times side effects adversely affect our natural environment. For example, in our urban areas summer temperatures and noise levels are higher than in the surrounding countryside. Air pollution problems are more concentrated, and the landscape is significantly altered, reducing personal health benefits available to us by having access to wooded areas and green open spaces. Trees help solve these problems. Now, 75 percent of us live in cities and towns and we can act individually to improve our natural environment through the planting and care of trees on our own streets, and by supporting community-wide forestry programs. Through technology we are learning more about trees and how they benefit mankind, and how we can do a better job of planting and caring for these trees that make up our urban forests.





**TREES ADD BEAUTY AND  
IMPROVE PERSONAL HEALTH**



Trees



Streets



Public buildings



## INTRODUCTION

**T**rees are major capital assets in America's cities and towns.

Just as streets, sidewalks, sewers, public buildings and recreational facilities are a part of a community's infrastructure, so are publicly owned trees. Trees—and, collectively, the urban forest—are important assets that require care and maintenance the same as other public property.

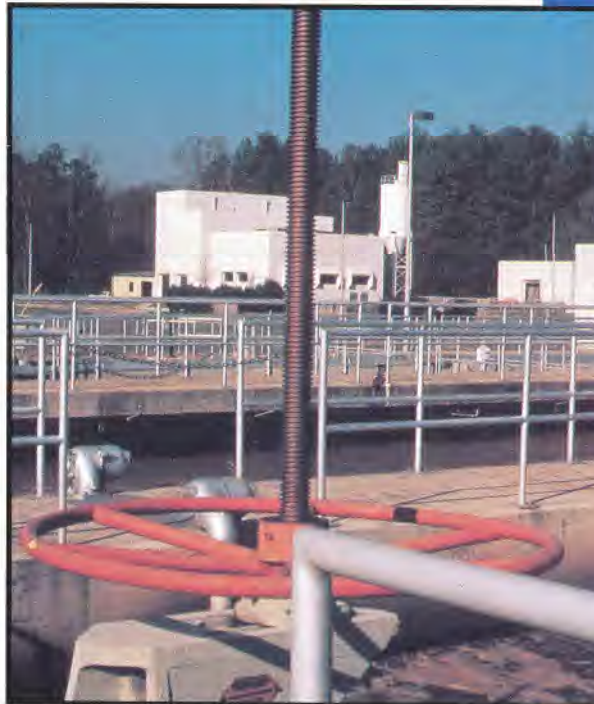
Trees are on the job 24 hours every day working for all of us to improve our environment and quality of life.



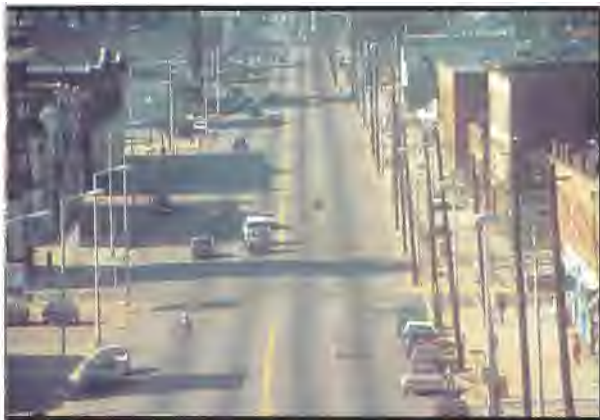
Sidewalks



Recreation facilities



Sewerage systems



Without trees



With trees



Without trees, the city is a sterile landscape of concrete, brick, steel and asphalt. Picture your town without trees. Would it be a place where you would like to live? Trees make communities livable for people. Trees add beauty and create an environment beneficial to our mental health. Trees:

- Add natural character to our cities and towns.
- Provide us with colors, flowers, and beautiful shapes, forms and textures.
- Screen harsh scenery.
- Soften the outline of masonry, metal and glass.
- Can be used architecturally to provide space definition and landscape continuity.

Trees impact deeply on our moods and emotions, providing psychological benefits impossible to measure. A healthy forest growing in places where people live and work is an essential element of the health of the people themselves. Trees:

- Create feelings of relaxation and well-being.
- Provide privacy and a sense of solitude and security.



- Shorten post-operative hospital stays when patients are placed in rooms with a view of trees and open spaces.

A well-managed urban forest contributes to a sense of community pride and ownership.

### TREES REDUCE AIR POLLUTION

**T**rees and other plants make their own food from carbon dioxide (CO<sub>2</sub>) in the atmosphere, water, sunlight and a small amount of soil elements. In the process, they release oxygen (O<sub>2</sub>) for us to breathe. Trees:

- Help to settle out, trap and hold particulate pollutants (dust, ash, pollen and smoke) that can damage human lungs.
- Absorb CO<sub>2</sub> and other dangerous gases and, in turn, replenish the atmosphere with oxygen.
- Produce enough oxygen on each acre for 18 people every day.
- Absorb enough CO<sub>2</sub> on each acre, over a year's time, to equal the amount you produce when you drive your car 26,000 miles. Trees remove *gaseous* pollutants



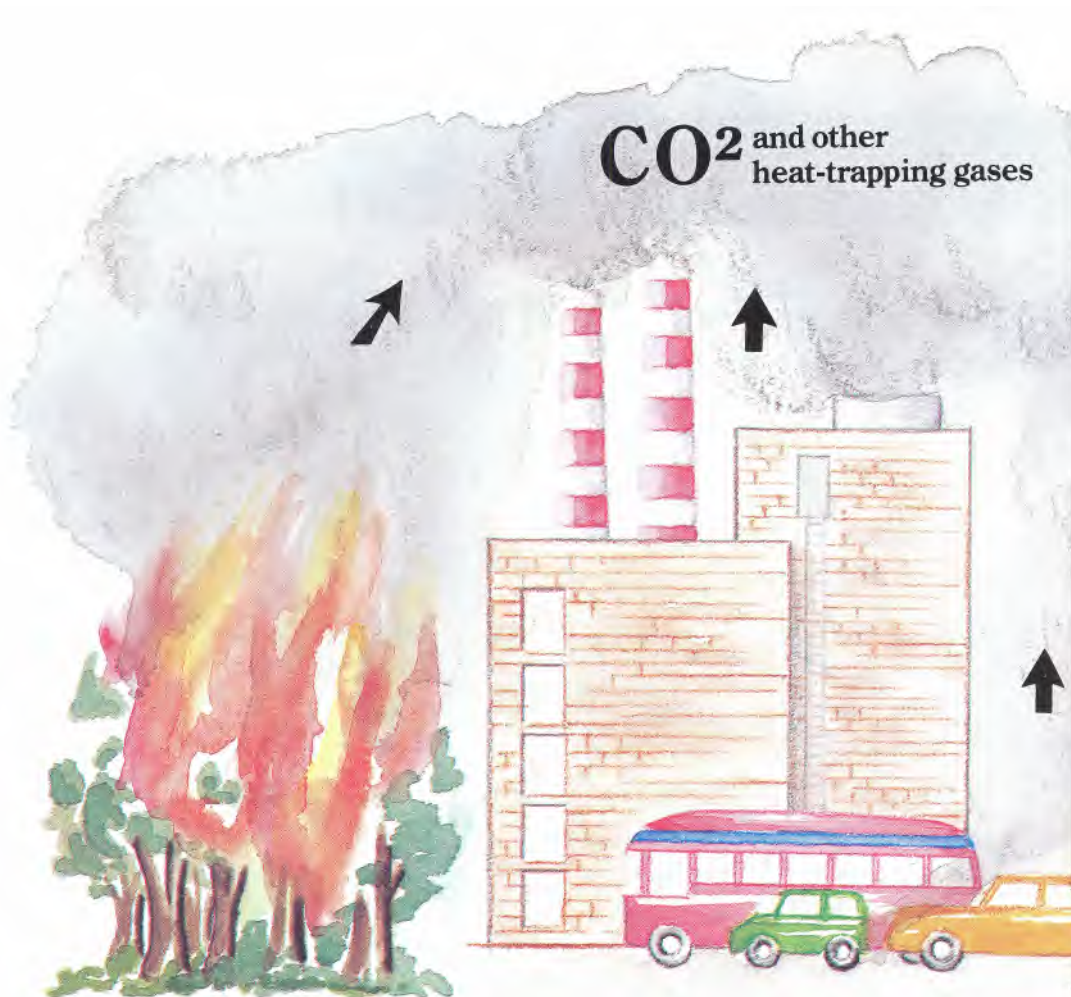
by absorbing them through the pores in the leaf surface. *Particulates* are trapped and filtered by leaves, stems and twigs, and washed to the ground by rainfall.

Air pollutants injure trees by damaging their foliage and impairing the process of photosynthesis (food making). They also weaken trees making them more susceptible to other health problems such as insects and diseases.

The loss of trees in our urban areas not only intensifies the urban "heat-island" effect from loss of shade and evaporation, but we lose a principal absorber of carbon dioxide and trapper of other air pollutants as well.

Some of the major air pollutants and their primary sources are:





POLLUTANT	MAJOR SOURCES
Carbon dioxide	Burning oil, coal, natural gas for energy. Decay and burning of tropical forests.
Sulfur dioxide	Burning coal to generate electricity.
Hydrogen fluoride and silicon tetrafluoride	Aluminum and phosphate fertilizer production, oil refineries, and steel manufacturing.
Ozone	Chemical reactions of sunlight on automobile exhaust gases. Ozone is a major pollutant in smog.
Methane	Burning fossil fuels, livestock waste, landfills and rice production.
Nitrous oxides	Burning fossil fuels and automobile exhausts.
Chlorofluorocarbons	Air conditioners, refrigerators, industrial foam.



The burning of fossil fuels for energy and large scale forest fires such as in the tropics are major contributors to the buildup of CO<sup>2</sup> in the atmosphere.

Managing and protecting forests and planting new trees reduces CO<sup>2</sup> levels by storing carbon in their roots and trunk and releasing oxygen into the atmosphere.

**T**he greenhouse effect is created when heat from the sun enters the atmosphere and is prevented from radiating back into space by air-polluting gases. The buildup of about 40 heat-trapping gases is created mostly by human activities. Heat buildup threatens to raise global temperatures to levels unprecedented in human history. About half of the greenhouse effect is caused by CO<sub>2</sub>.

Trees act as a carbon sink by removing the carbon from CO<sub>2</sub> and storing it as cellulose in the trunk while releasing the oxygen back into the air. A healthy tree stores about 13 pounds of carbon annually—or 2.6 tons per acre each year.

Trees also reduce the greenhouse effect by shading our homes and office buildings. This reduces air conditioning needs up to 30 percent, thereby reducing the amount of fossil fuels burned to produce electricity.

This combination of CO<sub>2</sub> removal from the atmosphere, carbon storage in wood, and the cooling effect makes trees a very efficient tool in fighting the greenhouse effect.







**Tree roots hold soil in place and increase water infiltration.**

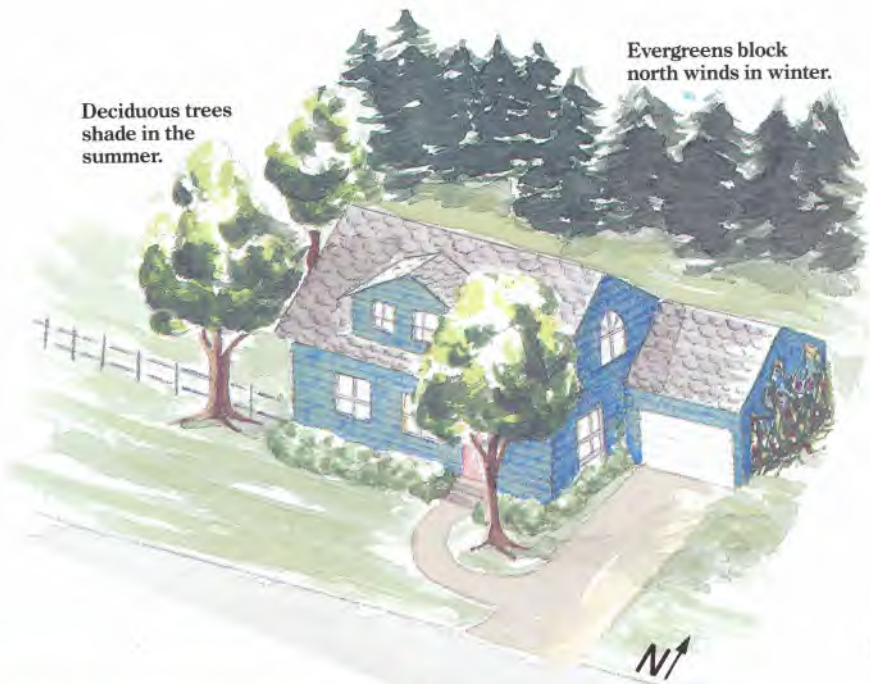


### **TREES CONSERVE WATER AND REDUCE SOIL EROSION**

**T**rees create organic matter on the soil surface from their leaf litter. Their roots increase soil permeability. This results in:

- Reduced surface runoff of water from storms.
- Reduced soil erosion and sedimentation of streams.
- Increased ground water recharge that is significantly reduced by paving.
- Lesser amounts of chemicals transported to streams.
- Reduced wind erosion of soil.

Without trees, cities would need to increase sewage and storm water drainage channels and waste-treatment capacities to handle increased water runoff.



Deciduous trees shade in the summer.

Evergreens block north winds in winter.

## TREES SAVE ENERGY

Strategically placed trees can be as effective as other energy saving home improvements, such as insulation and the installation of weather-tight windows and doors. Trees can help reduce your heating and cooling costs.

Trees save energy through cooling in the hotter months. They provide a windbreak during winter. This results in burning less fossil fuels to generate electricity for cooling and heating.

Strategically placed *shade trees*—a minimum of three large trees around your home—can reduce air conditioning costs up to 30 percent. Shade trees offer their best benefits when you:

- Plant *deciduous* trees, which shed their leaves during winter. These trees provide shade and block heat from the sun during hotter months. By dropping their leaves in the fall they admit sunlight in the colder months.
  - Place these trees on the south and west sides of buildings.
  - Shade all hard surfaces such as driveways, patios and sidewalks to minimize landscape heat load.
- Use *evergreens*, which retain their leaves/needles yearlong, in a planned pattern. They will serve as *windbreaks* to save from 10 to 50 percent in energy used for heating. Evergreens offer their best benefits when you:



**Hotter**  
**More Glare**  
**More Noise**  
**More Water Runoff**  
**More Energy Used**  
**Harsh Landscape**



**Cooler**  
**Less Glare**  
**Absorbs Noise**  
**Less Runoff**  
**Less Energy**  
**More Beautiful**

- Place them to intercept and slow winter winds, usually on the north side of your home.
- Do *not* plant them on the south or west sides of your home, because they block warming sunlight during winter. These trees also provide some shading benefits during summer.

Get professional assistance to assure correct selection of species and their placement to maximize energy savings.

### TREES MODIFY LOCAL CLIMATE

**T**rees can help cool the “heat island” effect in our inner cities. These islands result from storage of thermal energy in concrete, steel and asphalt. Heat islands are 3 to 10 degrees warmer than the surrounding countryside. The collective effect of a large area of transpiring trees (evaporating water) reduces the air temperature in these areas.

Trees also:

- Lower air temperature through shade.
- Increase humidity in dry climates



- through evaporation of moisture.
- Reduce glare on sunny days.
  - Reduce wind speed.

### TREES INCREASE ECONOMIC STABILITY

**T**he scope and condition of a community's trees and, collectively, its urban forest, is usually the first impression a community projects to its visitors. Studies have shown that:

- Trees enhance community economic stability by attracting businesses and tourists.
- People linger and shop longer along tree-lined streets.
- Apartments and offices in wooded areas rent more quickly, have higher occupancy rates and tenants stay longer.
- Businesses leasing office space in wooded developments find their workers are more productive and absenteeism is reduced.

A community's urban forest is an extension of its pride and community spirit.





### TREES REDUCE NOISE POLLUTION

**T**rees absorb and block noise from the urban environment.

### TREES CREATE WILDLIFE AND PLANT DIVERSITY

**T**rees and associated plants create local ecosystems that provide habitat and food for birds and animals. They offer suitable mini-climates for other plants that would otherwise be absent from urban areas. Biodiversity is an important part of urban forestry.



### TREES INCREASE PROPERTY VALUES

**W**e all know that property that is well landscaped with trees and other plants is more desirable than property sitting on a barren landscape. Studies have shown that:

- Healthy trees can add up to 15 percent to residential property value.
- Office and industrial space in a wooded setting is in more

demand and is more valuable to sell or rent.

## HELPING TREES AND YOUR URBAN FOREST

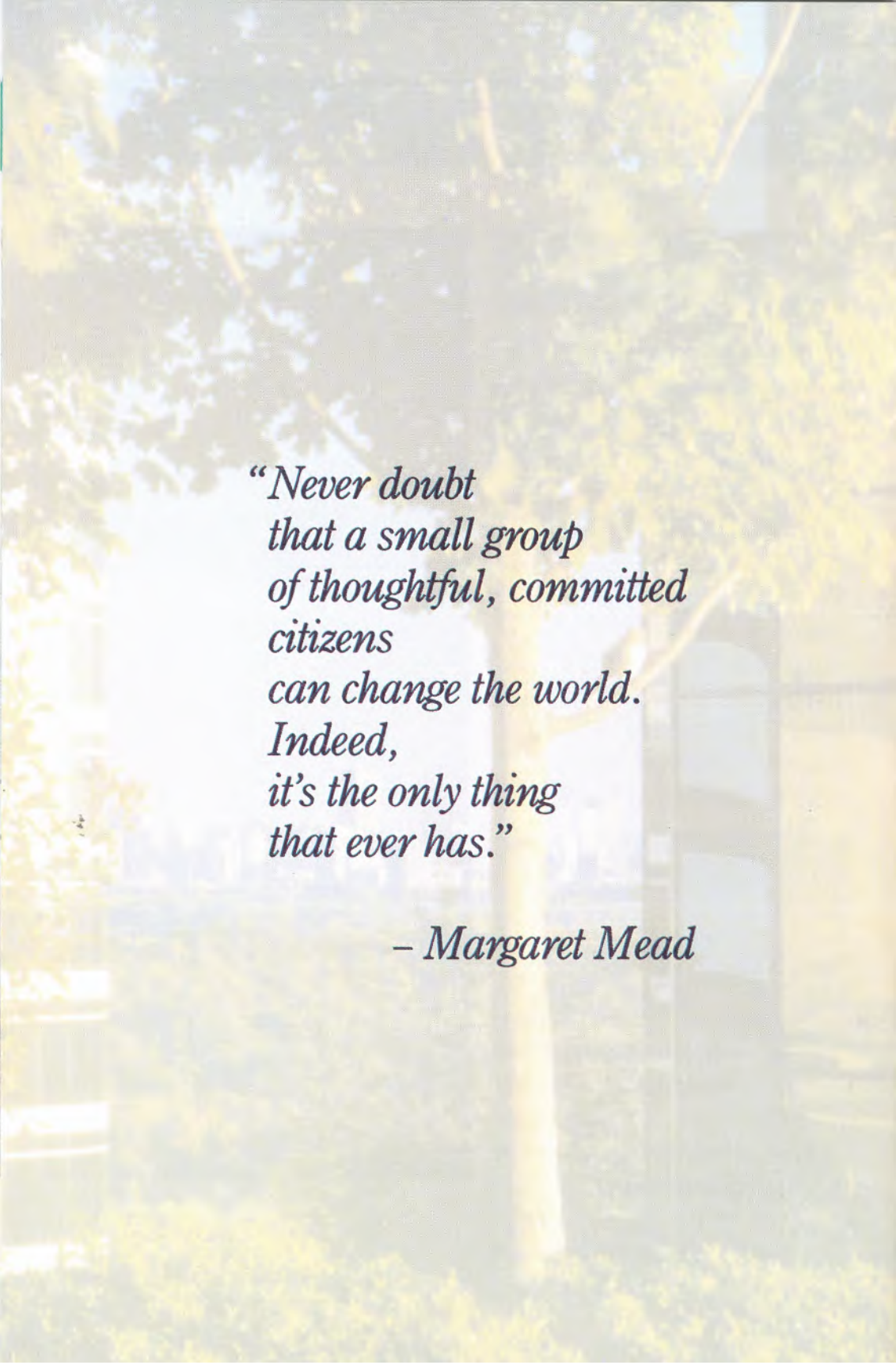
### Urban and Community Forestry Programs

**T**rees on public property belong to all of us. Proper management of this valuable resource is known as *urban and community forestry*. A commitment to urban and community forestry is a commitment to the long term well being of a community. An environmentally responsible community helps insure a healthy future.

Urban forestry programs establish legacies for future generations, foster stewardship and instill community pride. The benefits of such a program are innumerable, both tangible and intangible.







*“Never doubt  
that a small group  
of thoughtful, committed  
citizens  
can change the world.  
Indeed,  
it’s the only thing  
that ever has.”*

*– Margaret Mead*



## Statement of Mission

To improve the services, institutions, environment and the economy in the City of Derby by encouraging, promoting and implementing innovative philanthropic, educational and other volunteer programs.

## Objectives

1. **LEADERSHIP DEVELOPMENT**  
Identify and recruit persons in the community who will provide leadership in developing the Foundation as the vehicle for incremental improvement projects and programs in Derby.
2. **PROJECT PLANNING**  
Identify and develop strategic plans for projects that will benefit the entire community and stimulate expanded projects and programs for community improvement.
3. **RESOURCE DEVELOPMENT**  
Promote and secure private sector financial participation that is broad based and gives community residents, and others who have an interest in the community, the opportunity to include Foundation projects and programs in their philanthropic giving. Actively encourage consideration of including the Derby Community Foundation in estate planning.
4. **COMMUNICATION AND PROMOTION**  
Widely promote and communicate the mission of the Foundation, its programs and projects for community improvement and gather data on the economic and social value of the projects.
5. **FINANCIAL MANAGEMENT**  
Prudently invest Foundation funds and develop a budgeting and records system that assures accurate and timely management of funds received and distributed by the Foundation.

Special acknowledgement to the USDA Forest Service - Southern Region  
for the core development of this brochure.

