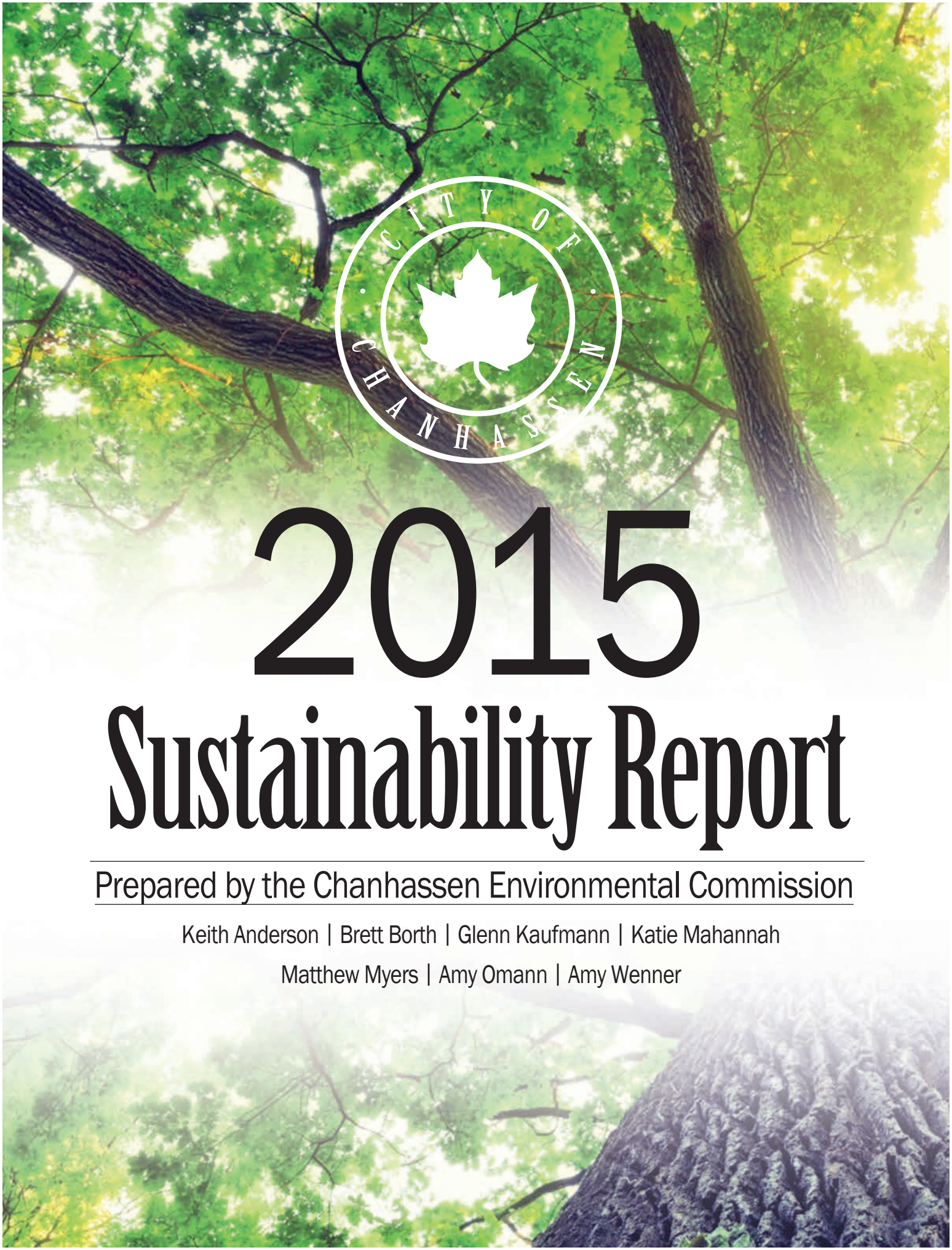

2015 Sustainability Report

Prepared by the Chanhassen Environmental Commission

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2015 CITY OF CHANHASSEN

Sustainability Report

The City of Chanhassen is committed to protecting our natural resources now and into the future. To ensure the continuation of this effort, the city strives to develop sound policies, take advantage of new technologies, and engage the community in environmental topics. Sustainable management of our natural resources is endeavored through protection, conservation and best management practices.

In 2011, the Chanhassen Environmental Commission was interested in knowing if our city was growing and functioning in a sustainable fashion. This report is the result of that curiosity. The City Council assigned the commission four key focus areas: Surface Water Quality, Stormwater, Water Conservation and Urban Forestry. In each of these areas the group investigated the current goals established by the city's comprehensive plan. Then they selected the three most important goals from each area. Through interviews with city employees, they determined the current status of those goals along with trends and improvements or challenges and any recent activities. Ultimately, the commission documented a baseline inventory for each of the topic areas.

This 2015 version of the Sustainability Report includes the ongoing goals and provides annual updates and recent activities. Information about these activities was collected from interviews with staff at the City and publicly available information. The report achieves the goal of educating Chanhassen residents in the Environmental Commission's target areas.

Surface Water

Over 26% of Chanhassen's 24 square miles are covered by lakes, streams, ponds or wetlands. Water quality, lakeshore preservation, lake level variability, and flood management are some of the important issues that impact the quality of life enjoyed by all residents. Maintaining, protecting, and instilling a preventative approach is a high priority for the city, which is currently preparing its third Surface Water Management Plan (SWMP). The plan outlines goals for managing these resources and implementation recommendations to achieve them. These goals strive to be realistic, attainable/implementable and affordable in their execution.

Goals

The initial goals for surface water were based primarily on maintaining and improving water quality, which have largely been met. New priorities are being developed to address changes in land use, aging of infrastructure, new data on surface water resources, and changes in watershed science. The city's strategy takes into account the continued growth and redevelopment activity that Chanhassen is experiencing. A focus on prevention first and treatment second is the concept to be followed.

Community Resources

Chanhassen contains 356 wetlands, 4 creeks, and 12 lakes, 7 of which are recreational and 5 that are natural environment lakes. The city is also home to a rare and unique calcareous fen, a state protected Scientific and Natural Area. Efforts to preserve these important natural resources require partnerships between the city, county, watershed districts, Met Council, MNDNR, and MPCA. Portions of four major watersheds exist within the city: Carver County Watershed (1.9%), Lower Minnesota River Watershed (8.4%), Minnehaha Creek Watershed (18.8%), and Riley- Purgatory-Bluff Creek Watershed (70.9%).

Surface Water

Recent City and Community Activities

After a year and a half of development, the Riley-Purgatory-Bluff-Creek Watershed District adopted new rules on November 5, 2014. These rules provide guidance on protecting our surface waters. The process included multiple meetings with the District's Technical Advisory Committee and Citizens Advisory Committee, public information sessions and comments, and numerous public hearings. These new rules became effective on 1/1/15 and were adopted to protect the public's health and welfare as well as the natural resources of the District and are enforceable under Minnesota Statutes.

The Bluff Creek restoration near Hwy. 101 is using an adaptive management approach to assess the impact on each of the implementation activities regarding the creek's turbidity levels. If water quality is shown to improve, it suggests that the approach is working and the implementation will continue. However, if the water quality is not shown to improve, this approach will be re-evaluated and adjusted in order to attain the desired water quality levels.

The city continues to monitor its waters for temperature, dissolved oxygen, pH, and turbidity through monitoring stations, grab sampling, and the citizen assisted Lake Monitoring program. As our city continues to develop/redevelop, the potential exists for increased runoff volumes, sedimentation and stormwater discharge.

The city and watershed district are updating their Stormwater Pond Protocol and Prioritization project to identify ponds that may be contributing excessive amounts of phosphorus to our natural water bodies. Limiting both point and non-point sources of pollution in surface water are essential in attaining the goals set forth by the city, county, and the local WMO.

Attention will be given to the trend of increased rainfalls occurring in shorter periods of time stressing local infrastructure and overwhelming existing channel sizes. Stormwater flows and pond storage volumes may need to be recalculated/redesigned to reflect this trend for future years.

Another exciting project continuing in 2015 is to introduce a fish ladder in an area of Bluff Creek where passage for fish from the lower to upper section is currently not possible. Once installed, the ladder would provide passage for fish to reach the upper stream. As this occurs, habitat can begin to be restored and improve the quality and environment of Bluff Creek. Chanhassen is looking at the Lake Susan Preserve Trail as an opportunity to employ a Spent Lime Treatment Facility Method as a way to remove phosphorus from stormwater. Phosphorus adheres to the lime in the basin. The method is low-cost, has a small footprint, and is Chanhassen's first attempt with this technique.

Fish Ladders

At large drops in the stream where passage is not possible, adding a fish ladder would encourage fish to reach the upper stream and restore a natural cycle.

A potential version of a fish ladder being looked at as a possibility.

Resources **Chanhassen Surface Water projects** http://www.ci.chanhassen.mn.us/index.aspx?NID-414

Stormwater

Stormwater management is crucial to preserving Chanhassen's natural environment and protecting our surface water resources. Stormwater runoff is rain and snow melt that runs off surfaces such as rooftops, paved streets, highways, parking lots and compacted lawns. As water passes over these surfaces, it can pick up pollutants such as soil, fertilizers, herbicides, trash or pet waste. If not treated appropriately, this polluted water might flow into a local stream, lake, or wetland. Stormwater mitigation seeks to reduce, control, and prevent stormwater runoff through a variety of strategies. Chanhassen continues to develop and the city looks for every opportunity to incorporate best management practices that minimize the volume and impact of water runoff as well as protect water quality in surface waters.

Goals

The city of Chanhassen strives to ensure that development projects minimize soil erosion, sedimentation, and stormwater runoff. City personnel manage this task by maintaining primary responsibility for managing water resources at the local level but continue coordination with other agencies and organizations. In an effort to engage the public, the city provides information and educational resources to improve knowledge and promote an active public role in managing water resources.

Recent City and Community Activities

A Total Maximum Daily Load, or TMDL, is a calculation of the maximum amount of pollutant that a waterbody can receive and still safely meet water quality standards. Part of the TDML management plan includes ravine stabilization which is currently underway for one of the ravines in Bluff Creek. The next project to meet the TMDL Implementation Plan for Bluff Creek is to address the fragmentation at the downstream end of the culvert going under the Three Rivers Park District Trail located on Hennepin County RR Authority's (HCRRA) land. This project will be a joint project with the Riley Purgatory Bluff Creek Watershed District (RPBCWD) and the City of Chanhassen. It is our hope to involve HCRRA as well. In 2015, the city plans to continue the same repair plan for an area identified as Ravine #2 that extends from Mandan Circle to Bluff Creek. Also anticipated to be undertaken in 2015 is the restoration of native vegetation along sections of Bluff Creek.

The city utilizes improved methods of allowing stormwater to flow into the ground instead of directly into lakes and streams. One example is the installation of pervious pavers in the Bandimere Heights Park parking lot. Also at Bandimere Heights Park, a stormwater pond was retrofitted with a "Minnesota Filter" Iron Filing Filtration System. This system should reduce phosphorus loading into waterways by 76%. Chanhassen will be working with the RPBCWD to study the downtown area, in an effort to look at opportunities for retrofit and stormwater opportunities (rain gardens, ponding, and tree trenches).

Storm Drain Markers *These highly visible storm drain markers are a first step in public education in stormwater pollution prevention.*

Get Involved!

As residents of Chanhassen, there are opportunities to get involved to help with stormwater management. With any road construction project, city staff works to educate neighborhood groups about the benefits of Low Impact Development (LID) installation opportunities, such as rain gardens and rain barrels. All residents are encouraged to learn more about incorporating raingardens into their yards. The city also partners with Metro Blooms to provide education on environmentally sound gardening and landscape practices. Additionally, community volunteers continue to install storm drain markers on neighborhood storm drains since the drains can lead directly to a city water resource. Marking the drains help raise awareness that anything carried by these storm drains can impact our natural resources.

If you are impacted by a 2015 road construction project and are interested in an LID opportunity, reach out to City Staff for more information.

Water Conservation

The Prairie du Chien aquifer supports 83 communities including the City of Chanhassen. Abundant, high quality water plays a large part in our city's growth and prosperity. The city distributes water to over 7,000 homes and nearly 300 commercial accounts daily. There are 13 wells, 3 reservoirs and two water treatment facilities. One additional well is proposed for use beginning July 2015.

Sustainability is a high-priority of the Metropolitan Council as the region grows and pressure is increased on the region's aquifer. The Met Council has developed a policy on Sustainable Water Supplies that includes collaboration with agency partners, identifying desired groundwater levels, providing technical assistance to local governments and promoting water supply resiliency. Community's comprehensive plans are expected to accommodate the forecasted population increase specified in the Council's Thrive MSP 2040 plan. The Council will look to ways to reuse stormwater runoff for irrigation. This theme is echoed locally in Chanhassen.

Goals Each year, as presented in the city's comprehensive plan, the city shall review, develop, and implement the current water conservation strategies and practices suitable for our community. The city continues to endorse and promote water conservation through the dissemination of educational materials to city residents.

Recent City and Community Activities

The city has a tiered billing system in place to incent water conservation. City code limits the use of the city water supply system for lawn and garden sprinkling, irrigation car washing or other non-potable uses to odd-even days.

The city has extensive tree preservation requirements for new subdivisions as well as stringent planting requirements for new site plans. The use of trees in site landscaping assists in the reduction of turf evapotranspiration.

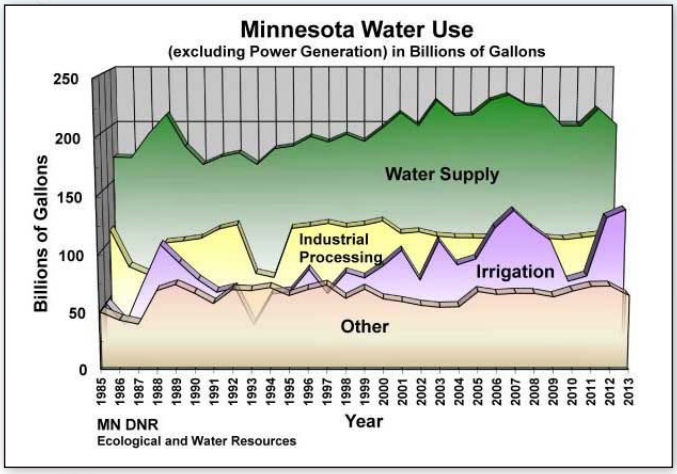
Newly installed irrigation systems are required to include a rain gauge as part of their operation. Rain gauges signal irrigation systems not to water during wet periods.

Chanhassen offers irrigation system audits, free of charge, to Homeowners' Associations, businesses, and new residents as a way to promote water-saving best management practices. The audits are performed by a WaterSense-certified city utility department employee.

Chanhassen partners with the U.S. Environmental Protection Agency in their WaterSense program. This program seeks to protect the future of our nation's water supply by offering people a simple way to use less water with water-efficient products and services. 2014 focused on offering irrigation audits to commerical and residential properties.

Water reuse opportunities are considered during construction projects. The highway 101 river crossing project will include stormwater collection that will then be used to irrigate the center island of a traffic circle.

The city provides education and promotes water conservation and stewardship with local municipal publications including the Connection, utility bills and the city's website.



Get Involved! Chanhassen has clay soils making runoff a common problem during lawn irrigation. Topsoil removed during the construction process is rarely replaced. Building healthy soil in your lawn will make it more beautiful and tolerant of drought. Something you can do is aerate your lawn and then topdress it with compost.

Check out this bulletin from the University of MN Extension
www.extension.umn.edu/garden/yardgarden/soils/

Resources

University of Minnesota Extension Soils and Composting
www.extension.umn.edu/garden/yard-garden/soils/

City of Chanhassen "2030 Comprehensive Plan," Chapter 9: Water
www.ci.chanhassen.mn.us/DocumentCenter/Home/View/134
Ground Water Level Data climate.umn.edu/ground%5Fwater%5Flevel/

WaterSense Tips to Save Water & Money
www.epa.gov/watersense/our_water/start_saving.html

Metropolitain Council Draft Water Resources Policy Plan
http://metrocouncil.org/METC/files/66/665454b7-662c-464f-bce4-1e19f1a-2f97a.pdf

Urban Forestry

Our urban trees play an important role in the health, livability, and economic well-being of our community. Trees help to clean the air, mitigate stormwater runoff, provide shelter to wildlife, cool our homes and make our city more beautiful. Chanhassen has long recognized these benefits, and achieved Tree City USA status for the 20th year in 2014 by meeting the four core standards of urban forestry management as laid out by the National Arbor Day Foundation. In Chanhassen, maintaining and protecting our urban forest takes shape in many forms through city and community engagement. Unfortunately, an unavoidable threat to over 20% of our trees is the Emerald Ash Borer (EAB). The city has an active EAB management plan to lessen the impact on city resources when this invasive species reaches Chanhassen. Our trees also face additional challenges such as urban expansion, invasive pests, and changing climates.

Goals Chanhassen places a high priority on the protection of its natural resources, and strives to maintain a healthy and diverse urban forest. According to the latest tree survey, the city has 40 species of trees planted on public lands. Chanhassen is also working to achieve the American Forests' standard of 40% overall tree canopy, about 10% higher than the city's current coverage.

City of Chanhassen Tree Inventory

A healthy amount of any one species should be no greater than about 20% of the tree population. With the changing climate, new varieties are being introduced into our community.

Tree Type	Number of Trees	Percentage
American Choke Cherry	26	0.4%
American Linden	506	8.1%
Amur Maple	32	0.5%
Aspen	20	0.3%
Autumn Blaze Maple	341	5.5%
Balsam Fir	7	0.1%
Bicolor Oak	229	3.7%
Black Walnut	19	0.3%
Boxelder	41	0.7%
Bur Oak	49	0.8%
Catalpa	20	0.3%
Cottonwood	48	0.8%
Crabapple	469	7.5%
Easter Red Cedar	12	0.2%
Elm	36	0.6%
Elm, hybrid	86	1.4%
Gingko	23	0.4%
Green Ash	1230	19.8%
Hackberry	259	4.2%
Hawthorn	50	0.8%
Honeylocust	234	3.8%
Japanese Tree Lilac	42	0.7%
Kentucky Coffee Tree	172	2.8%
Northern Pin Oak	30	0.5%
Norway Maple	42	0.7%
Ohio Buckeye	24	0.4%
Other	31	0.5%
Paper Birch	68	1.1%
Pine	258	4.1%
Red Maple	42	0.7%
Red Oak	197	3.2%
River Birch	55	0.9%
Russian Olive	1	0.0%
Silver Maple	117	1.9%
Spruce	652	10.5%
Sugar Maple	689	11.1%
Techny Arborvitae	29	0.5%
White Ash	7	0.1%
White Oak	14	0.2%
Willow	17	0.3%
Total	6224	
All Maple Varieties	1304	21%

Linden

Sugar Maple

Crabapple

Honey Locust

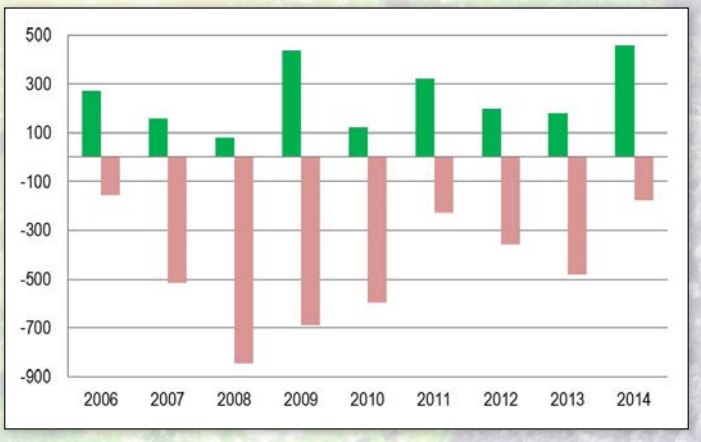
Emerald Ash Borer

The most significant threat to our city's urban forest is the emerald ash borer (EAB). EAB is spread commonly through transported infested firewood. Our neighboring county, Hennepin, is under quarantine and moving any ash wood out of the county is illegal. Minnesota has the highest volume of ash trees in the United States with almost a billion forestland and urban wood ash trees. When this invasive species finds its way to Chanhassen, the impact will be noticeable. The city has completed a public tree inventory and 20% of the existing trees are ash trees. The borer is fatal to all ash trees and has already cleared many other cities of their ash trees throughout the upper Midwest and Northeast. In preparation, the city has begun measures to lessen the impact here in Chanhassen:

- Annual tree plantings focus on replacing ash trees with a diversity of species.
- Depending on the size and health of an ash tree on public property, the city will either remove it or chemically treat the tree.
- The city preemptively removes and replaces ash trees at the homeowner's request in conjunction with street reconstruction projects.
- Annual public education opportunities engage residents in thinking about their trees for the future. In the case of EAB, a homeowner will need to decide whether to treat their ash or have them removed.

What can you do:

- Become familiar with the symptoms of EAB: http://www.emeraldashborer.info
- If you suspect your trees may have EAB, contact Jill Sinclair, our city's Environmental Resource Specialist: jsinclair@ci.chanhassen.mn.us
- Do not transport firewood or cut trees out of county. Use firewood certified by the Minnesota Department of Agriculture: http://www.mda.state.mn.us/emeraldashborer
- At this time, chemical treatments could be started...or not. The insect is barely inside the suggested threshold area radius recommended for starting treatment.



Trees Planted and Lost

In 2014, 459 trees were planted including 288 as part of the Highway 101 reconstruction project and 60 planted in Bandimere Park around the soccer fields and parking lot. Additionally, 974 trees were pruned and 175 trees were removed.

The city replaces existing poor-condition trees on boulevards on an annual basis as well as replants locations where boulevard ash trees were removed.

Other Invasive Species

A host of other invasive species threaten Chanhassen's trees, the most prevalent and troubling are listed below. The city constantly works to identify invasive species, provide information to residents, and treat or eradicate wherever possible.

Invasive Species	Introduction to MN	Threats	Preventing the Spread
Emerald Ash Borer	Wood packing materials from Asia	Kills all ash trees	Only buy MDA approved firewood
Buckthorn	Imported from Europe for hedging	Outcompetes native woody species and changes forest habitat	Remove from private yards; volunteer to help remove from parks & public areas
Gypsy Moth	Imported as possible source of silk	Defoliates many species of trees; prefers oaks, aspen, sugar maple	Inspect all recreational equipment and vehicles when leaving an invested area; monitor trees for white egg masses
Earthworms	Soils and plants brought from Europe; also sold as fish bait	Increased decomposition of forest floor litter; reduction in vegetation regeneration	Do not release worms outdoors; never dump bait – throw it in garbage.
Japanese Beetles	Accidentally introduced into New Jersey in 1916	Defoliates trees, shrubs and garden plants	Don't move plants or soil to uninfested areas; Don't import soil, plants, or sod from the eastern US unless certified
Garlic Mustard	Introduced as food source	Creates monoculture within forests by altering chemistry of soil and killing other seeds	Pull or cut flowering stems at ground level; governments may opt for prescribed burns for heavy infestation
Japanese Knotweed	Imported for use as erosion control	Colonizes areas thereby outcompeting native vegetation	Dig, pull or herbicide any found plants
Creeping Bellflower	European import popular in the garden industry	Easily escapes cultivation, spreads rapidly and creates monoculture	Very difficult to eradicate – use herbicides or dig up and remove all roots
Wild parsnip	Native to Europe and Asia, grown as a root vegetable.	Threatens prairies and oak opening; can severely modify habitats; contact with sap can cause rash, blistering and discoloration of skin	Using gloves, pull out by hand
Black locust trees	Native to Appalachia, planted for nitrogen-fixing qualities and hard wood	Crowds out native vegetation and creating single-species stands; reproduces vigorously by root suckering and stump sprouting	Cut-stump or basal bark spray chemical treatments

EAB Infested Firewood

Creeping Bellflower

Japanese Beetles

Earthworms

Recent City and Community Activities:

- The Environmental Commission, city staff, and community members gathered in May for the 4th annual Arbor Day tree planting at Riley Ridge Park. An average of 20 trees are planted each year in selected parks.
- To promote private tree planting during Arbor Month, the city offers tree coupons to residents who are interested. Begun in 1996, the 2014 coupons were worth $50 towards the purchase of a tree at local nurseries, and 120 of these were used.
- Also in May, the Environmental Commission selected a winner in the Arbor Day Poster Contest open to Chanhassen 5th graders and first started in 1998. The theme was "Trees are Terrific – Inside and Out!" and the finalists received special recognition from Mayor Furlong at the April city council meeting.
- In November, the Environmental Commission organized a public buckthorn removal day at Seminary Fen for the fourth year in a row. Interpretive hikes were offered by the DNR specialists on the ecology of the calcareous fen.
- The city continually monitors public areas for invasive species. In 2014, seven park areas and many sections of trails were treated for buckthorn, garlic mustard, black locust, and wild parsnip.

Get Involved!

- Watch local publications and join us for the Arbor Day celebration!
- Report invasive species on your property.
- Properly care for trees in your yard. A copy of the "Tree Owner's Manual" can be downloaded.
- Never remove trees from bluffs, even on private property!
- Never remove trees from public property, it is against the law and several fines have been levied in the past few years.
- Check out how valuable trees are by using this calculator: http://www.treebenefits.com/calculator/