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The Heart of the Park Spiral Project

by Dr. Keith Prussing and David Zenk

The nature park at Cedar Lake in Minneapolis is a special place. Located primarily on the north and east sides of the lake, within 2 miles of downtown, the park is composed of close to 200 acres of land, with an equal amount of water. Due to the original pre-settlement lake levels, as well as extensive wetlands, this land largely did not exist until extensive railroad activity started building it up beginning in 1858, and continuing into the mid-1980's.

47 acres of this land was purchased in 1991 from the Burlington Northern (BN) railroad in a unique private-public effort that raised $600,000 of the $1.8 million purchase price from private citizens, with the rest appropriated by the state after extensive lobbying efforts. This land was then donated to the Minneapolis Park and Recreation Board (MPRB) to be nurtured as an urban nature park in an ongoing partnership. This acquisition was the largest for the park system since the turn of the century.

The Cedar Lake Park Association (CLPA) is a 501-3(c) non-profit corporation formed by the people to buy the land for the park and to partner with the MPRB to steward the park. One vision for the new park property was that of a memorial cedar grove in which people could buy an Eastern Red Cedar tree to honor their loved ones. This proved to be a popular concept, and by 1995 over 60 trees had been sold.

A location was chosen near the northeast shores of the lake, in an area that had once contained massive railroad machine shops, and over 15 rows of track for switching and making up trains. Everything had been removed, and the land had been slowly returning to a more natural state.

In 1995 a twin spiral design was conceived, and in 1996 the layout began, utilizing a compass and 100-foot tape. Crawling through the underbrush, volunteers were able to establish the beginnings of the spiral geometry. Enough was accomplished so that a public ceremonial dedication was able to be held in the autumn of 1996, attended by over 100 people. At this time 6 trees were planted along one spiral arm at 13 foot intervals, consecrated by spiritual leaders from various traditions, and watered with offerings from other lakes and the Mississippi. It was a huge success.

1997 was to be the year that the rest of the trees would be planted, and the CLPA realized that in order to complete the layout, help was needed. As Dunwoody Institute was nearby, calls were made to determine if the surveying department would be interested in volunteering their expertise. It was a great relief to receive a positive response from instructor David Zenk, who felt it would be a fine project for his students.

The students at Dunwoody were learning to use GPS equipment and AutoCAD. The complex geometry would be a great learning tool for developing AutoCAD skills and the resulting coordinates could be used in a practical project that would allow GPS to be used as a layout tool.

The spiral geometry is based on a series of compound curves, each successive curve being double the radius of the previous curve (for example 50, 100, 200 feet, etc.) and being 90 degrees of central angle. Two such spirals are intertwined, forming a kind of double spiral (see photo). With the doubling of radius every 90 degrees, the spirals would soon become very large and could conceivably cover the whole Metropolitan Area after only a few rotations.

A set of Universal Transverse Mercator (UTM), Zone 15 coordinates was established for the pre-existing starting points of the spirals using GPS. These starting coordinates were extended out to a distance of about 40 miles using AutoCAD as the computation and drafting tool. The UTM coordinate system was chosen because many maps are published in this common system and because GPS systems commonly support UTM output.

Two Dunwoody students, Jason Oberg and Mark Haselius, had an interest in this project and took lead roles in laying out the first few hundred feet of the spirals in late Spring 1997.

Planting day arrived in October 1997, over 60 red cedar trees were delivered, and on a bright Saturday morning and into the afternoon, volunteers labored to distribute the trees to their places, dig the holes, and water and fill and mulch. Hard work, a team effort, and a success.

Since this time, work has continued on the spirals. At first, the trees existed in the midst of grass and shrubs, so clearing activities were necessary to establish a 5 foot corridor along both arms. A thick layer of wood chips was laid along these paths, allowing for people to walk the spirals for several hundred feet without tripping, while brushing up against the trees.

Concurrently, a native plant restoration project was underway throughout the area. Funded by a grant involving LCMR (lottery trust fund) monies matched by private funds raised by CLPA, this project involved exotic plant removal, as well as installation of native trees, shrubs, and wildflowers.

The spirals are part of the Heart of the Park area, and there are other forms developing on the landscape. A henge, with solar and lunar alignments, is being laid out, with a summer solstice sunrise line cut this summer. A rune circle, with 24 stones representing the runes of the northern European tradition, has been present for some time. A native american-style medicine wheel is planned.

Encouraged by the fruits of their labors and by the availability of more trees to plant and volunteers to work, the CLPA asked Zenk to layout some additional points along the spirals. Several hundred feet of spiral was added to each spiral arm in the Summer of 2000. A GPS receiver using Coast Guard correction was used to layout each point, many of which fell under tree canopy. The GPS receiver performed under the trees, but required more patience to obtain reliable positions. The spirals were extended as far as the marsh on one side and the railroad tracks on the other.

The CLPA was intrigued with the possibilities of using GPS and GIS to layout this modern version of the ancient landforming practice of scribing lines on the surface of the Earth, even though they cannot be well appreciated from the surface but only from above the surface. Other examples of such line scribings exist in South America on the plains of Nazca, Peru and the figure called Mari Man in Australia.

The modern GPS receiver allows easy and accurate layout of the required points even across very large distances. The GIS systems could be used in a variety of ways. First, the CLPA could visualize the scope of the project in a graphical manner. Second, maps could be produced that showed the relationship of the project to private and public land parcels. Third, parcel owners could be contacted to solicit their involvement in the extension of the spirals across their property.

By the use of GPS and GIS, it will be easy to establish any desired portion of a spiral. The CLPA envisions a wide community involvement in the spirals over time. For example, where a spiral crosses a public street, a paint stripe could mark its crossing. Where a spiral crosses a pasture, trees or other markings like sidewalks could serve as markings. Would such an extended landform be visible from airplanes in the skies?

In the fall of 2000 further field work occurred to extend the arms of the spirals further out into the landscape. Aerial photographs were commissioned, and it was discovered that the spirals are now clearly visible from the air.

It is presently Winter 2001, and it is hoped that a marsh, now frozen, can now be safely crossed to lay out more points. There are also areas that are forested; and, in the absence of leaves, point locations can found in the woods as well.

This is a volunteer community effort, and all are welcome to participate. Come join us. Thank you.

For more information on the Cedar Grove, Cedar Lake Park, and the ongoing work of the Cedar Lake Park Association, please call 612 377 9522, e-mail: info@cedarlakepark.org, or visit CLPA's website at www.cedarlakepark.org.