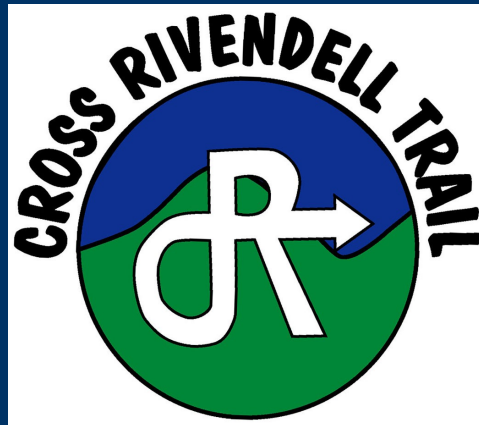


Place-Based Education and the Community: Using GIS & GPS with the Cross Rivendell Trail (CRT)

Andy Boyce

Rivendell Interstate School District
Rivendell Trails Association



Brief History ...

Rivendell Interstate School District (RISD)

~ established by voters in 1998

Cross Rivendell Trail (CRT)

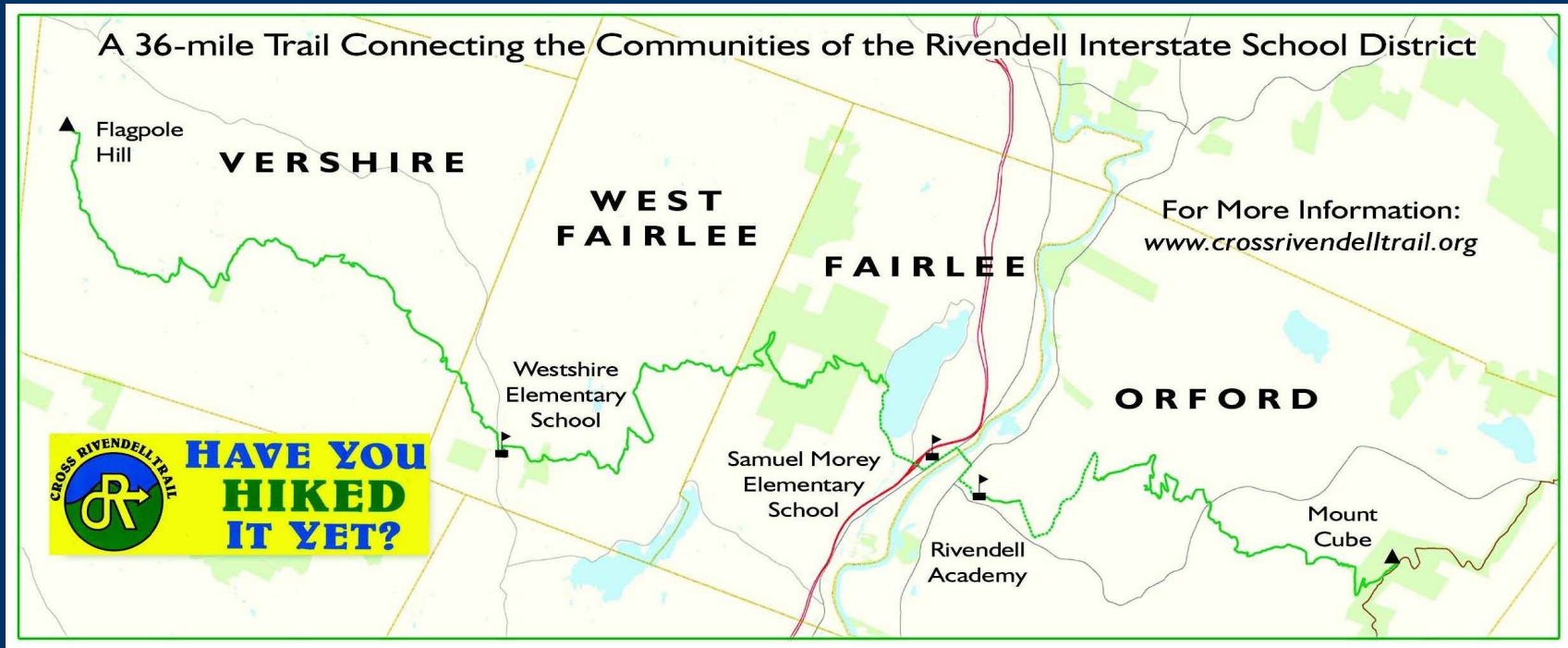
~ proposed in 1998; “completed” in 2008

Rivendell Trails Association (RTA)

~ non-profit organization formed in 2003

Trail Coordinator Position

The Cross Rivendell Trail ...



Is a 36-mile continuous footpath connecting the
Towns, and Schools, of the
Rivendell Interstate School District

An Educational Resource ...

The trail provides a wide variety of learning opportunities for students across disciplines (science, history, math)

Place-Based Education Goals include:

- ~ enhancing curriculum with local knowledge
 - ~ providing outdoor learning opportunities
 - ~ building relationships with communities
 - ~ promoting environmental stewardship
 - ~ student leadership for trail management
-
-

A Recreational Resource ...

The trail offers opportunities for Recreation and Community Outreach through:

- ~ hiking; interpretive walks; special events
 - ~ public awareness of natural resources
 - ~ work with volunteers (trail adopters; trail construction / maintenance workdays)
 - ~ a network of landowners (including towns)
-
-

Using Geospatial Information ...

Provides students, teachers / staff, and the community with new opportunities to **visualize** the trail at the local and regional levels

Enhances Place-Based Education Goals and the curriculum

When used with Geospatial Technology (GIS, GPS) increases learning opportunities for students, captures public interest, provides information to the Community

Examples to follow of the ...

INTEGRATION of Geospatial Information and Geospatial Technology to support Educational Goals and to inform / engage the Community

Different **TOOLS** and **METHODS** used (thus far) to promote and distribute Geospatial Information

Ideas and ongoing plans for **FUTURE** work

See 'Links Page' at the end of presentation

The CRT Website ...

Provides static maps and Geospatial Information for the entire trail in different formats

- ~ Embedded, interactive, Google Map of trail including parking areas, viewpoints, links
- ~ Link to KML file for use in Google Earth
- ~ Link to Shapefile (VTSP) for GIS and online applications (VT Interactive Map Viewer)



KML file (trail) ...

KML file of the entire trail (track) was

- ~ GPS, map-based (digitized) trail segments
- ~ GPS files converted to .gpx and exported to Shapefile format using DNRGarmin
- ~ edited in GIS and exported in KML format using Shape2Earth (MapWindow GIS, Open Source)
- ~ re-edited for attribute information and descriptions using HTML / Google Earth

KML file (waypoints) ...

KML file of Waypoints (parking areas, viewpoints, schools) was

- ~ originally created using GPS and map-based (digitized) trail locations
 - ~ edited Coordinates (Lat/Lon) in an ASCII text file and converted to KML using the GPS Visualizer web page
 - ~ re-edited for attribute information and descriptions using HTML / Google Earth
-
-

For the Community ...

Geospatial Information available on the web using mapping applications can be used to

- ~ View recreation activities (hiking, Geocaching)
 - ~ Display trail conditions and log trail maintenance for volunteers/adopters
 - ~ Improve safety (ex. trail mileage markers)
-
-

For the Community (other examples) ...

- ~ Upcoming work with Town Conservation Commissions (and students) to identify and record locations of invasive plants
- ~ Record specific trail features (ex. wildlife activity, past land-use)



In the Classroom ...

Students and teachers view information about the trail and local communities using maps and online map resources.

- ~ Geospatial information can be used with students of all ages as they learn about maps, history, local environment, and GIS
 - ~ (ex) online Rivendell mapping exercise for Elementary students
 - ~ What is GIS?
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-

Field Trips ...

Focus on place-based education and offer opportunities to introduce maps / map reading skills and demonstrate Global Positioning System (GPS) technology

Useful items include:

- ~ hard-copy maps; compass; field notebook
 - ~ GPS Receiver for simple activities and to record tracks / generate waypoints
(Garmin GPS 76, Garmin etrex)
-
-

Back in the Classroom ...

Information again displayed online using mapping applications this time with data collected in the field to

- ~ reinforce place-based learning
- ~ provide a spatial component to ongoing learning
- ~ perform GIS lessons with older students

Examples ...



Goals & Future Work (Education) ...

Embed the use of Geospatial Information and Geospatial Technology in curriculum ...

Additional access to GIS software resources and GPS receivers with online instruction for teachers / staff and students ...

Improved Geospatial Information database for education activities along the trail

Goals & Future Work (Community) ...
Continue to develop avenues for public access
to Geospatial Information and Geospatial
Technology using the website ...

Use Geospatial resources for Community
Outreach

Improved Geospatial Information database for
trail maintenance

Why all this works ...

Long history of community support for the Cross Rivendell Trail and schools ...

Rivendell Interstate School District support for the trail, place-based education, technology (etc) at all levels including teachers, staff, administrators ...

Dedicated trail volunteers, landowners, Rivendell Trails Association Board members ...

For More Information ...

CRT Website:

www.crossrivendelltrail.org

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Links Page ...

www.rivendellschool.org

www.crossrivendelltrail.org

www.crossrivendelltrail.org/maps.htm

www.crossrivendelltrail.org/geo-maps.htm

http://maps.vermont.gov/imf/sites/VCGI_basemap/jsp/launch.jsp

www.geographic-solutions.net/WebMapping/8-Google_Maps_API.htm

www.dnr.state.mn.us/mis/gis/tools/arcview/extensions/DNRGarmin/DNRGarmin

www.mapwindow.org/

<http://shape2earth.com/shp2e.aspx>

www.gpsvisualizer.com

www.crossrivendelltrail.org/geo-maps.htm

www.geographic-solutions.net/Rivendell

www.crossrivendelltrail.org/education.htm

www.granit.unh.edu

www.crossrivendelltrail.org/bog.htm

