Manager

A Trail Management Tool from Office to Outdoors

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Pennsylvania Environmental Council

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What is GoTo TRAILS?

• Online trail management and communication toolset centered around ArcGIS Online webmaps

• **Goal #1:** To augment the information needs and everyday activities of trail planners, managers, and users in a 48-county region inclusive of portions of 4 states (PA, OH, WV, NY)

• **Goal #2:** To efficiently overcome vast distances, strengthen available resource capacities, and equalize various levels of understanding/familiarity with GIS

• **Key components:** web portal, interactive ArcGIS Online maps, mobile app
History of GoTo TRAILS

Sharing a Common Vision of a Connected Trail Network, Connected Communities.
History of GoTo TRAILS

• Regional trail planning project led by a partnership between the Pennsylvania Environmental Council (PEC) and the Rails-to-Trails Conservancy (RTC)

• Outgrowth of Industrial Heartland Trails Coalition (IHTC) initiative
  - Initial coalition formed in 2012
  - Partnership to develop a 1,450-mile-long multi-use trail system in the industrial heartland of America by 2033

• Intended as a tool to assist regional trail planning partners in more easily planning new trail sections and filling in trail gaps
Other Partner Organizations

- National Park Service (Rivers, Trails, and Conservation Assistance Program), the Benedum Foundation, the George Gund Foundation, Friends of the Riverfront, Pennsylvania Department of Conservation and Natural Resources, Ohio Department of Natural Resources, Great Ohio Lake-to-Greenway Coalition, and others
GoTo TRAILS, a Trail-Centered Web App

• Began as series of customized “sandboxes” (trail-specific ArcGIS Online webmaps) for individual trail development groups to plan routes/alignments and to make digital and hard-copy maps to share with other trail constituents/advocates

• Constantly-updated and editable basemaps with data for more than 7,000 miles of land trails, water trails, and on-road bike routes across the U.S.

• Based on the differences in the needs of a variety of users, GoTo TRAILS has grown into three different toolboxes, known as **Planner**, **Explorer**, and **Manager**
GoTo TRAILS Planner

- **Planner** – for trail planners (a set of tools to document existing trail facilities and to conceptualize, evaluate, and share potential trail corridors and community connections)
GoTo TRAILS Explorer

- **Explorer** – for trail users (find trails and on-road bike routes, identify points of interest, determine the availability of local services, check the weather, and plan itineraries)
GoTo TRAILS Manager

Hello Andrew:
Welcome back to GoTo TRAILS Manager!

PERSONAL PROFILE
TRAIL PROFILE
What is GoTo TRAILS Manager?

- Desktop + mobile web app that allows trail managers/operators, workers, and volunteers to:
  - Report problems along trails
  - Manage assets such as bridges, benches, pavement, receptacles, restrooms, pavilions, etc.
  - Mark and broadcast detours and closures
  - Create work orders
  - Estimate costs for construction and maintenance
  - Administer volunteer efforts
Why GoTo TRAILS Manager?

• “One-stop shop” for trail organizations to use and store all the information and resources they may need for the management, construction, and maintenance of their trails.

• Trail groups begun to realize that they could expand the functionality of their existing GIS tools, such as Planner.

• GIS maps need to be available even when out in the woods with only a mobile device.

• Many trail managers have limited familiarity with GIS, let alone computer programming and database development.
GoTo TRAILS Manager: Objectives

• Create GIS-based applications tailored to individual users, that have utility both in the office and out in the field
• Leverage existing GIS capabilities by integrating ArcGIS Online maps with non-geographic databases to facilitate a level of usability beyond what is available with geographic databases alone
• Use already-available technologies to minimize costs and incentivize adoption
• Wrap multiple tasks that trail managers and volunteers would otherwise need to complete separately into one package
• Supplement resource limitations/capacities with a ready-built tool
GoTo TRAILS Manager: Overview

- **Structure:** ArcGIS Online + FileMaker platforms
  - Geographical data + non-geographical data

- **Platforms:** Desktop, Mobile

- **Privilege levels:** Group Administrator, Group Leader, Volunteer

- **User profiles:** Trail organizations and “home” trail designations

- **Resource management:** Financial, Physical, Human, Time, etc.
GoTo TRAILS: Data Flow

- **PLANNER**
- **EXPLORER**
- **MANAGER**

**ArcGIS Online**
(webmaps)

**FileMaker**
(database platform)
GoTo TRAILS Manager: Tools

- Work Orders
- Broadcasts
- Project Estimator

- Report a Problem
- Set Trail Alerts
- Manage Assets
Work Orders

• Allows administrators and leaders to manage work orders and construction efforts and to track progress
• Includes form to organize all the necessary information to start, maintain, and complete a project
• Features embedded ArcGIS map to find and enter the coordinates/location of the work order
• Select the number of volunteers or workers needed to complete a task and automatically distribute email notifications
• Identify start times, tools needed, materials needed, etc.
• Most trail groups are volunteer-based and not full-time
• Helps meet need for trail groups to communicate efficiently with workers and volunteers
• Provides trail managers easy access to weather forecasts to better plan events
• Allows volunteers and workers to keep track of hours served or “donated” in-kind
• Ability to upload photos to more clearly depict (than simply with GPS coordinates) the exact location of the work order and to document current conditions
### Work Order Sheet

**Great Allegheny Passage**

<table>
<thead>
<tr>
<th>Work Order Number</th>
<th>Creation Date</th>
<th>Date of Work Effort</th>
<th>End Date</th>
<th>Work Order Description</th>
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</thead>
<tbody>
<tr>
<td>1234</td>
<td>11/22/2016</td>
<td>11/22/2016</td>
<td>11/24/2016</td>
<td>astthweve</td>
</tr>
</tbody>
</table>

**Meeting Time**: 9:00 AM

**Meeting Location**

**Trail Owner**: Allegheny Trail Alliance
**Maintained By**: Friends of the Riverfront

**Work Order Status**: Final, In Progress, Under Review
**Construction Status**: Finished, In Progress, Not Started

### General Work Conditions

- Standard Hand Tools Required: Yes
- Gasoline Powered Tools Required: Yes
- Off-Site Construction Materials Needed: Yes

### Total Number of Workers Needed

- Estimated Total Person-Hours
- Actual Total Person-Hours

**Work Group Name**: Dream Team

**Work Group Leader**

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
<th>Hours Worked</th>
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<tbody>
<tr>
<td>Chris Simmons</td>
<td>Volunteer</td>
<td></td>
</tr>
</tbody>
</table>
• **Report a Problem** – shows any problems or issues that have been reported by Manager users
  o Pinpoint dead animals, disturbed pavement, graffiti, fallen trees, etc. using ArcGIS icons
  o Touchable/clickable feedback with ArcGIS Online pop-up info windows
  o Select location, place icon, fill in description, date, coordinates, etc.

• **Set Trail Alerts** – display ongoing issues such as closures or caution advisories

• **Manage Assets** – organize and display all the assets along your trail
  o For trail organizations to guide maintenance and future asset construction while helping trail users find and anticipate trail features
• Gives trail groups/organizations who manage one section of a long-distance trail a holistic view of activity along the entire trail
• Eliminates the need to carry around a notebook or fieldbook to document issues and their locations
• More instantaneous way to report problems – report while in the field
• Allows better coordination between trail groups on detours, closures, and the like
Broadcasts, continued
Project Estimator

- Worksheet to estimate costs of trail construction/maintenance projects
- Select improvement materials such as drainage pipes, concrete pavements, asphalts, other construction essentials
- Instantly computes the unit of measurements and provides an estimated unit cost
- Calculates needed quantities of materials and final cost estimate
• Allows trail managers to:
  o Estimate detailed costs for use with grant applications, sponsorship requests, etc.
  o Quickly determine whether a project will cost closer to $50,000 or $500,000
  o Better plan their yearly budgets and see where there are gaps in available funding
  o Estimate both material and labor costs based on current rates
  o Print and save estimates
Project Estimator, continued

Project Estimate ID # 115
Date created: 4/19/2017
Date modified: 4/19/2017

Trail Name: Three Rivers Heritage Trail

Project Estimator: Colin Hall

Project Estimate Name: Test 1

Estimate Status: In Progress

Grand Total: $1,320.00
### Friends of the Riverfront
#### Detailed Project Estimate

**Worksheet**

<table>
<thead>
<tr>
<th>Project Estimate ID #</th>
<th>Trail Name</th>
<th>Date Created</th>
<th>Date Modified</th>
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<tbody>
<tr>
<td>115</td>
<td>Three Rivers Heritage Trail</td>
<td>4/19/2017</td>
<td>4/19/2017</td>
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</table>

<table>
<thead>
<tr>
<th>Project Estimator</th>
<th>Trail Organization</th>
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</thead>
<tbody>
<tr>
<td>Colin Hall</td>
<td>Friends of the Riverfront</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Improvement Name</th>
<th>Unit of Measurement</th>
<th>Length</th>
<th>Width</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Subtotal Cost</th>
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</thead>
<tbody>
<tr>
<td>Concrete pavement 8&quot; depth with no reinforcement</td>
<td>SF</td>
<td>15.00</td>
<td>4.00</td>
<td>60.00</td>
<td>$18.00</td>
<td>$1,080.00</td>
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<tr>
<td>Concrete pavement 5&quot; depth with reinforcement</td>
<td>SF</td>
<td>4.00</td>
<td>4.00</td>
<td>16.00</td>
<td>$15.00</td>
<td>$240.00</td>
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</tbody>
</table>

**Grand Total**  $1,320.00
• Goal with the project was to create a way to keep track of 120 different trail groups...
  o Requiring all of them to provide us regular updates via email, phone, etc. was impractical
  o Manager provides tools to make trail groups’ routine tasks easier while allowing them to simultaneously and automatically provide regular updates
  o To achieve what we want, Manager needs to achieve what trail groups want
Lessons Learned, continued

• Learning and adoption will take time...
  o Adoption has required more “train the trainers” moments than initially planned but has led to good direct feedback
  o A large number of trail volunteers are over 65 years old, and using a smartphone as a trail management tool has been a learning curve for some
  o On-the-ground/in-the-field demonstration sessions for volunteers have helped greatly with familiarization and have increased use of the tool
  o Younger volunteers will need to serve as ambassadors
Thank You!

Connecting Trails, People and Places
GoTo TRAILS provides a digital map, whiteboard and forum for trail planners, builders, enthusiasts and explorers to find trail-related information and share ideas for connectivity.

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