PGCLitterTRAK
Tracking Litter Reduction in Prince George’s County, MD

Catherine Escarpeta, GISP
Introduction

PGCLitterTRAK is a smartphone application designed to assist County residents, community organizations and businesses report trash and debris collected during individual and group clean-up events.

Developed in Survey123 – step by step questions enable the user to submit bags of litter removed, items collected and litter pick-up locations.

Litter collection data connects directly from the Survey123 App to LitterTRAK Map in ArcGIS Online
PGCLitterTRAK enables citizens to use their smart devices to easily participate in improving the community.
Litter Reduction

Federal Mandate

The National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit requires the County to achieve a litter reduction rate of **170,628 lbs/yr** for the Anacostia River Watershed.
Problem

Big question – Where is litter is being collected?

• County Agencies
• Municipalities
• Community Groups
• Businesses
• Individual Citizens

WHO  WHAT  WHERE  WHEN
Previously

Spreadsheets

Weigh Tickets
Deficiencies

• Weigh tickets give you the quantity of the entire truck
• Litter from different areas
• Multiple days of collections
• Need type of litter for MS4 credit
• Specific watershed goal so location is vital
Solution

Survey 123 for ArcGIS Application

• Free app
• Runs on apple, android, and windows phones and tablets
• XLS Form (customizable)
• Formcentric
• User names – provides data trail & group assignment
• Registration is available at county website
Why Survey 123?

Easy to use application that lets users

• Answer questions about litter collection
• Map location
• Photo of the collection
• Upload to cloud based server
• Feeds into an online map for analysis and reporting
• App supports voice-to-text and other built-in functionality of smartphones and tablets
• Ability to complete survey off line and submit later
• Average time to complete survey < 1 minute
XLSForm Format

• Create relevant questions based on previous responses
• Calculations
• Dropdown boxes that auto populate as you type
• Hints
• Validate the data
• Set default values
• Hidden fields – in table but not shown in survey
• Option for Mandatory completion (survey won’t submit if not answered)
Internal

LitterTRAK Users Manual
for use by County Agencies

Prince George’s County
Department of the Environment
Sustainable Initiatives Division

External

PGCLitterTRAK Users Manual
for use by Community Groups and County Citizens

Prince George’s County
Department of the Environment
Sustainable Initiatives Division

User Manuals
LitterTRAK

What is your organization? *
- DPW&T
- DPIE
- DOE
- DOC
- SHA
- Other

What type of collection are you doing? *
- Adopt-A-Road
- Adopt-A-Stream
- Bus Stop Trash Can
- Clean Lot
LitterTRAK

What type of collection are you doing? *
- Adopt-A-Road
- Adopt-A-Stream
- Bus Stop Trash Can
- Clean Lot
- Clean Up Green Up
- Clean Sweep
- Eviction Pickup
- Illegal Dumping
- In Stream Contractor Services
- Roadside Litter Pickup
- Other

What type of litter did you collect? *
- Bags of Litter
- Bikes
- Car Parts/ Car seats/ Bumpers
- Construction Debris
- Furniture
- Illegal Signs
- Mattress/Box Springs
- Stove/Fridge
- Tires
- TV
- Yard Waste
- Other

How many bags of litter? *
(33 gallon bags) if > 10 select OTHER and enter number

Additional information you would like to provide:

Location *
LitterTRAK

Can collect data if you are offline or not signed in and submit later
Updates to Choices

Looked at all the entries for OTHER option and updated the list

• Type of Litter (Original)
  – Bags of Litter
  – Tires
  – Bikes
  – Stove/Fridge
  – Car Parts
  – Other

• Type of Litter (Updated)
  – Bags of Litter
  – Bikes
  – Car Parts/Car seats/Bumpers
  – Construction Debris
  – Furniture
  – Illegal Signs
  – Mattress/Box Springs
  – Stove/Fridge
  – Tires
  – TV
  – Yard Waste
  – Other
Updates to Choices

• Easy to update choices
• Add new items in the choices tab with same list name
• BE AWARE that the survey that are currently installed will not update until they delete and redownload the survey
PGCLitterTRAK

My Surveys

PGCLitterTRAK

TRAK Litter Collections by county citizens and community groups

TRAK where and what litter is collected by you the county citizen or the community group. You can upload one photo per location. If you wish to submit more photos of your clean up, please send to LitterRedactions@co.pg.md.us.

Collect
Start collecting data

Outbox
Send your completed survey data

What type of cleanup are you doing? *
○ Adopt-A-Road
○ Adopt-A-Stream
○ Clean Sweep
○ Clean Up, Green Up
○ Comprehensive Community Cleanup
○ Individual
○ MNCPPC
○ Municipality
○ Voluntary Community Cleanup
○ Other
PGCLitterTRAK

What is your organization?
- Community Group
- Individual name
- Government
- Other

Community Group Name
start typing - select name, not in list select OTHER then enter name
- Fairfield Knolls Civic Association
- Fairfield-Millwood Civic Association
- Fairgreen

Number of volunteers at cleanup

Contact Person
John Smith

Contact Phone
3011241451 (numbers only)

Contact Email
jsmith@yahoo.com

What type of litter did you collect? *
- Bags of Litter
- Tires
- Bikes
- Stove/Fridge
- Car Parts
- Other

Additional Info you would like to provide:

Location *

SUSTAINABLE INITIATIVES DIVISION
PGCLitterTRAK

Additional Info you would like to provide:

Location *

38.875°N 76.744°W

Upload photo of the collected material (required) *

SUSTAINABLE INITIATIVES DIVISION
Online Map – Reporting and Analysis
created using Web AppBuilder for ArcGIS
Online Map – Reporting and Analysis

Statistics

Field: Total Tires

- Number of Values: 13
- Sum of Values: 247
- Minimum: 0
- Maximum: 165
- Average: 19
- Standard Deviation: 44

Chart Results

Bags of Litter and Tires by Department
# Operations Dashboard

<table>
<thead>
<tr>
<th>LitterTRAK County Agencies</th>
<th>PGCLitterTRAK Community Groups &amp; Municipalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bags Removed - LitterTRAK</td>
<td>Bags Removed - PGCLitterTRAK</td>
</tr>
<tr>
<td>5,922</td>
<td>315</td>
</tr>
<tr>
<td>Tires Removed - LitterTRAK</td>
<td>Tires Removed - PGCLitterTRAK</td>
</tr>
<tr>
<td>315</td>
<td>112</td>
</tr>
</tbody>
</table>

- **LitterTRAK County Agencies**: 5,922 bags removed, 315 tires removed.
- **PGCLitterTRAK Community Groups & Municipalities**: 315 bags removed, 112 tires removed.
### Dashboard – Filter

<table>
<thead>
<tr>
<th>New Description</th>
<th>Tires Removed - LitterTRAK</th>
<th>Tires Removed - PGCLitterTRAK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LitterTRAK County Agencies</strong></td>
<td>334</td>
<td>30</td>
</tr>
<tr>
<td><strong>PGCLitterTRAK Community Groups &amp; Municipalities</strong></td>
<td>30</td>
<td>67</td>
</tr>
</tbody>
</table>

**2017 ESRI UC**
Challenges / Lessons Learned

• Ensure survey 123 is updated on devices
• Think through choices – survey has to be redownloaded if changed
• Save data as FGDB to preserve photo attachments for backups from ArcGIS online
• **DO NOT** change SCHEMA of survey (even if accidentally in ArcGIS Pro)
NACo Award

National Association of Counties (NACo)

2017 Achievement Award

Won Best in Category County Resiliency: Infrastructure, Energy and Sustainability.
Questions???

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