



2014 Chesapeake Watershed Agreement

Achieving the Goal of Stewardship

Developing a Citizen Stewardship Indicator Pilot Survey Results

Management Board: June 16, 2016

Stewardship Goal

"Increase the number and diversity of local citizen stewards and local governments that actively support and carry out conservation and restoration activities that achieve healthy local streams, rivers and a vibrant Chesapeake Bay."



Citizen Stewardship Framework

Increasing citizen actions for watershed health



Why Measure Stewardship?

- Track progress in engaging the public
- Design social marketing campaigns for BMP adoption and behavior change
- Improve strategic communications to build public support for Bay restoration work
- Prioritize investments in citizen-led action
- Improve local decision-making



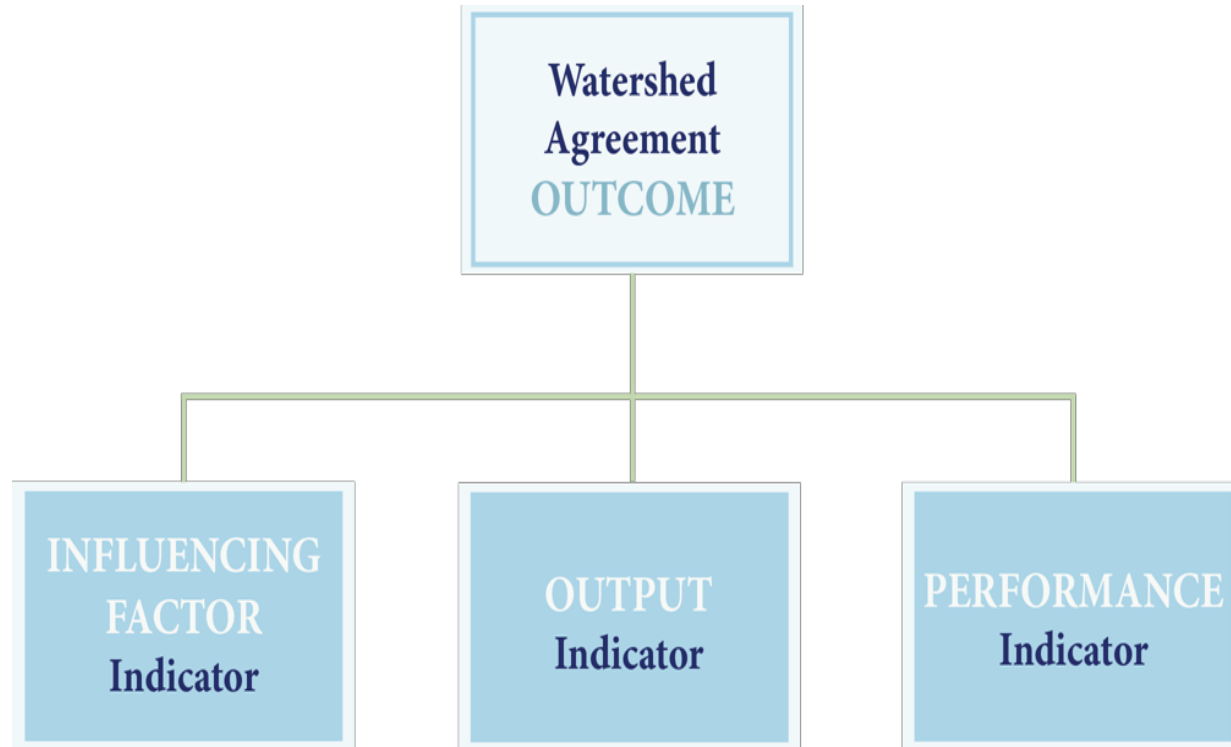


Photos Courtesy Chesapeake Bay Program

STEWARDSHIP INDICATOR

Chesapeake Bay Program Indicators Framework

Approved November 2015 Management Board Meeting



Information Support

Three information types are needed to support adaptive management and communication needs.

Influencing Factors – What KEY influencing factors are impacting the achievement of an outcome?

Outputs – Are we doing what we said we would do in our work plans and management strategies?

Performance – Are we achieving the outcome?

From 2015 Stakeholder Process:

- ✓ 2025 time horizon for this Indicator.
- ✓ Tracking human behavior.
- ✓ Measure:
 - Stewardship Behaviors
 - Future Likelihood of Adoption
 - Volunteerism
 - Keys to Individual Engagement
 - Civic Engagement Behaviors

What This Survey Tool is *Not*

- ✓ The citizen stewardship index will NOT verify implementation of behaviors or practices per Bay Program protocols. Other tools like the Smart Tracker exist for this purpose.
- ✓ It will NOT answer why questions.
- ✓ It will NOT measure public policy preferences.
- ✓ It will not measure perceptions and attitudes, except those that directly drive stewardship behavior.



Puget Sound Behavior Index

- Measures 28 positive and negative behaviors
- Stratified for 12 counties
- Conducted biennially by telephone
- 3,131 interviews (2013)
- Measures progress; drives decision-making

Stewardship Behavior Measurement Criteria

1. Involves individual decision-making
2. Is repetitive and can be tracked over time
3. Can be broadly adopted
 - A. Not just by experts
 - B. Not pre-emergent
4. Has an impact on water health
5. And/or will engage the public

Stakeholders

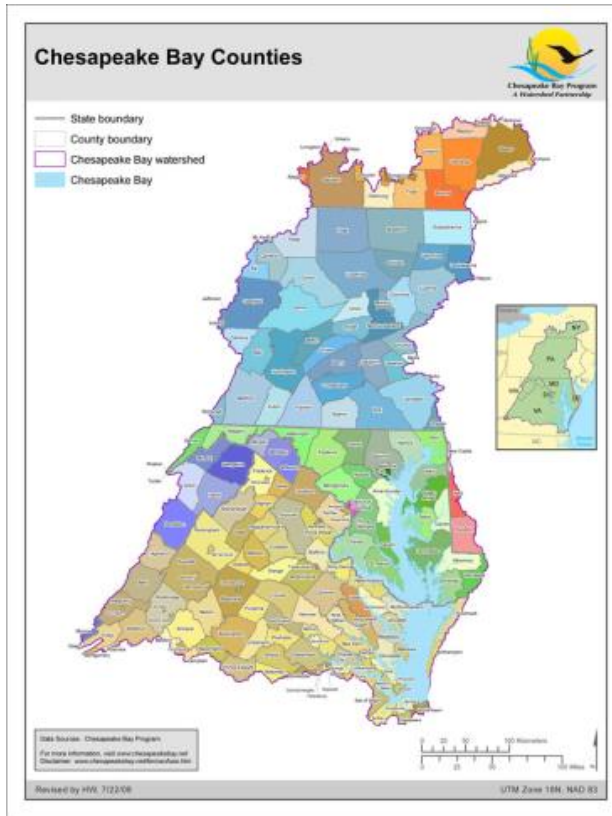
- NGOs
- EPA Representatives
- State Department Representatives
- Bay Program staff
- Funders
- Local government
- Chesapeake Stormwater Network
- UMCES
- VA Tech University
- University of Maryland

Measured Behaviors

- **Pet waste**
- **Leaves/Lawn clippings (2)**
- **Litter (2)**
- **Fats, grease, contaminants down the drain (2)**
- **Fertilizer use (2)**
- **Pesticide/Herbicide use (2)**
- **Conservation landscaping**
- **Rain garden installation**
- **Septic system**
- **Tree planting**
- **Downspout redirect**
- **Rain barrel (2)**
- **Water conservation**

Citizen Stewardship Index

Pilot Sampling Methodology



	Pilot Program Feb 2016
	N=2,000
DC	402 ($\pm 4.9\%$)
MD	400 ($\pm 4.9\%$)
PA	398 ($\pm 4.9\%$)
VA	400 ($\pm 4.9\%$)
WV	199 ($\pm 6.9\%$)
NY	101 ($\pm 9.8\%$)
DE	100 ($\pm 9.8\%$)

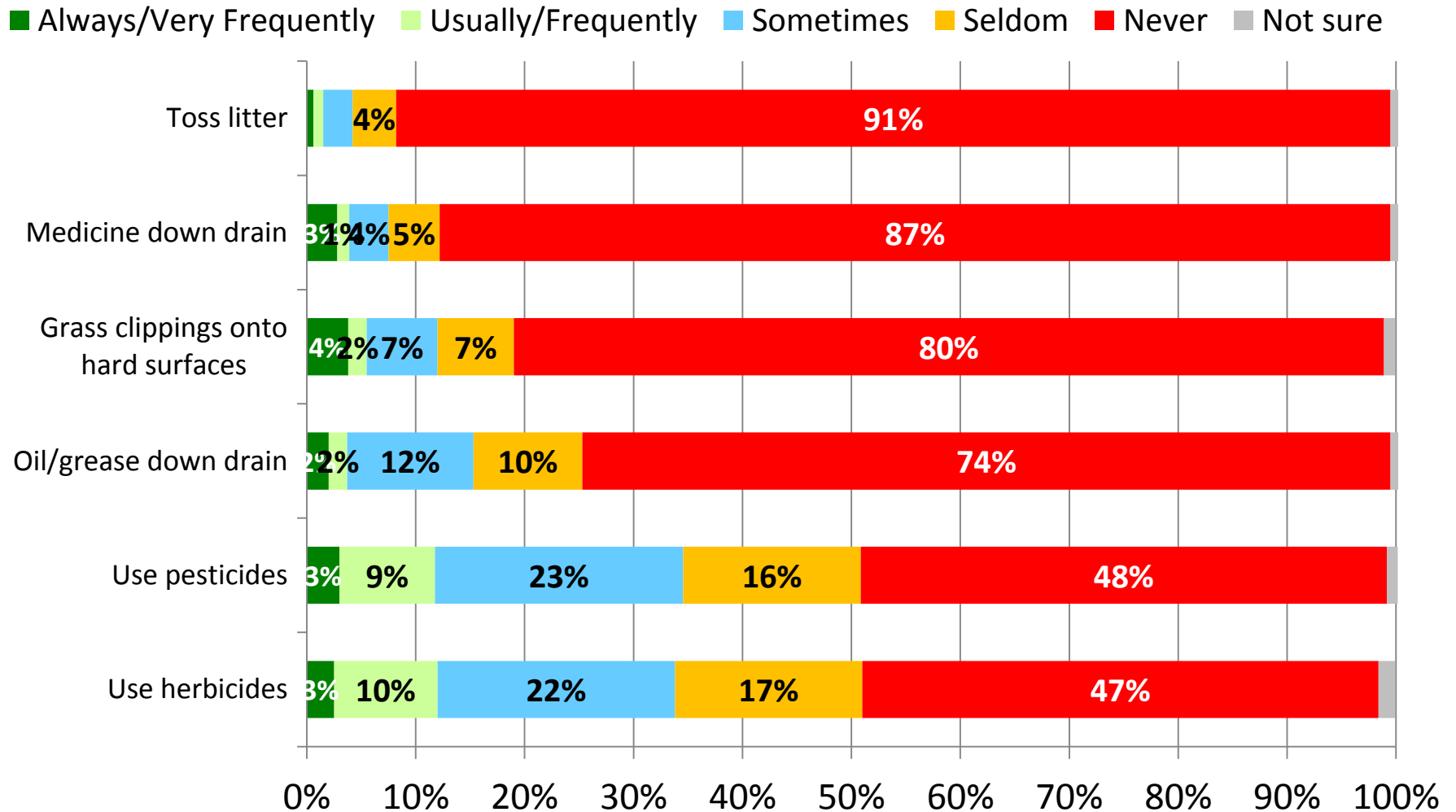
23 days in field
13-minute interview
43% cell/57% landline

Performance: Stewardship Behaviors

Pilot Citizen Stewardship Indicator

Weighted Data: (4/12/2016)

Top Performing Behaviors (Scaled)

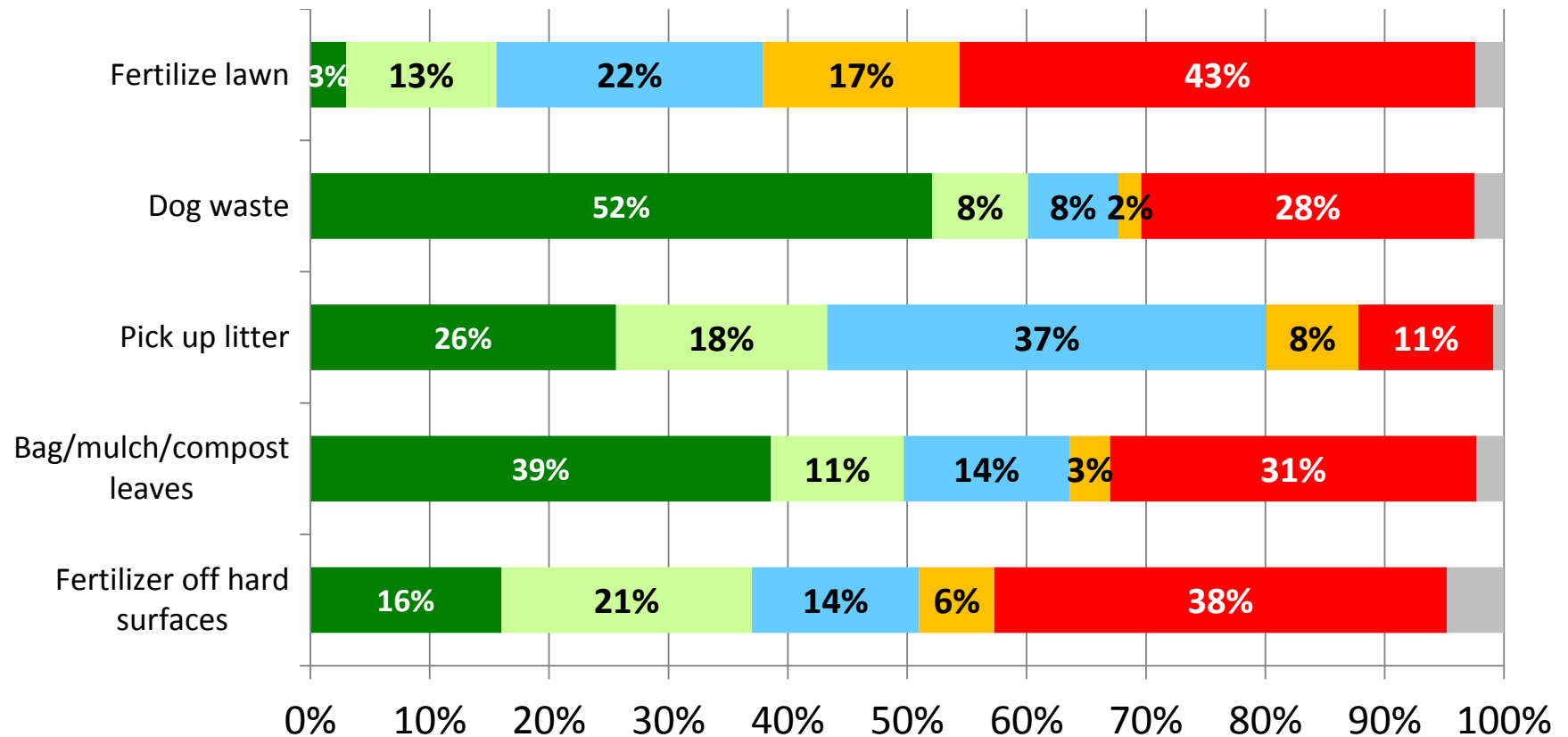


Pilot Citizen Stewardship Indicator

Weighted Data: (4/12/2016)

Second Tier Behaviors (Scaled)

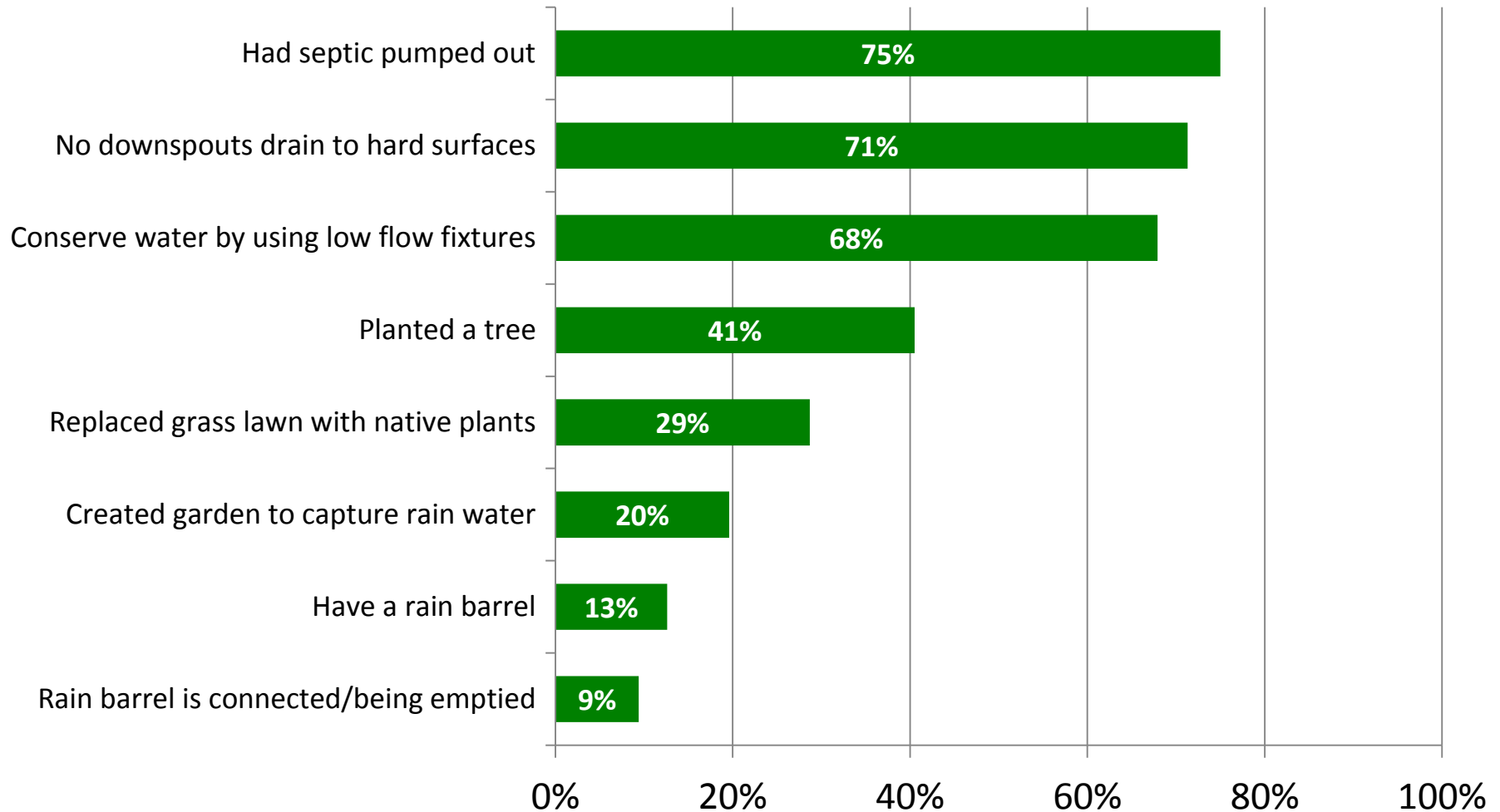
■ Always/Very Frequently ■ Usually/Frequently ■ Sometimes ■ Seldom ■ Never ■ Not sure



Pilot Citizen Stewardship Indicator

Weighted Data: (4/12/2016)

Performance of Behaviors (Yes/No)



“Threshold” Behaviors

**Not highly penetrated
Require intentionality/effort**

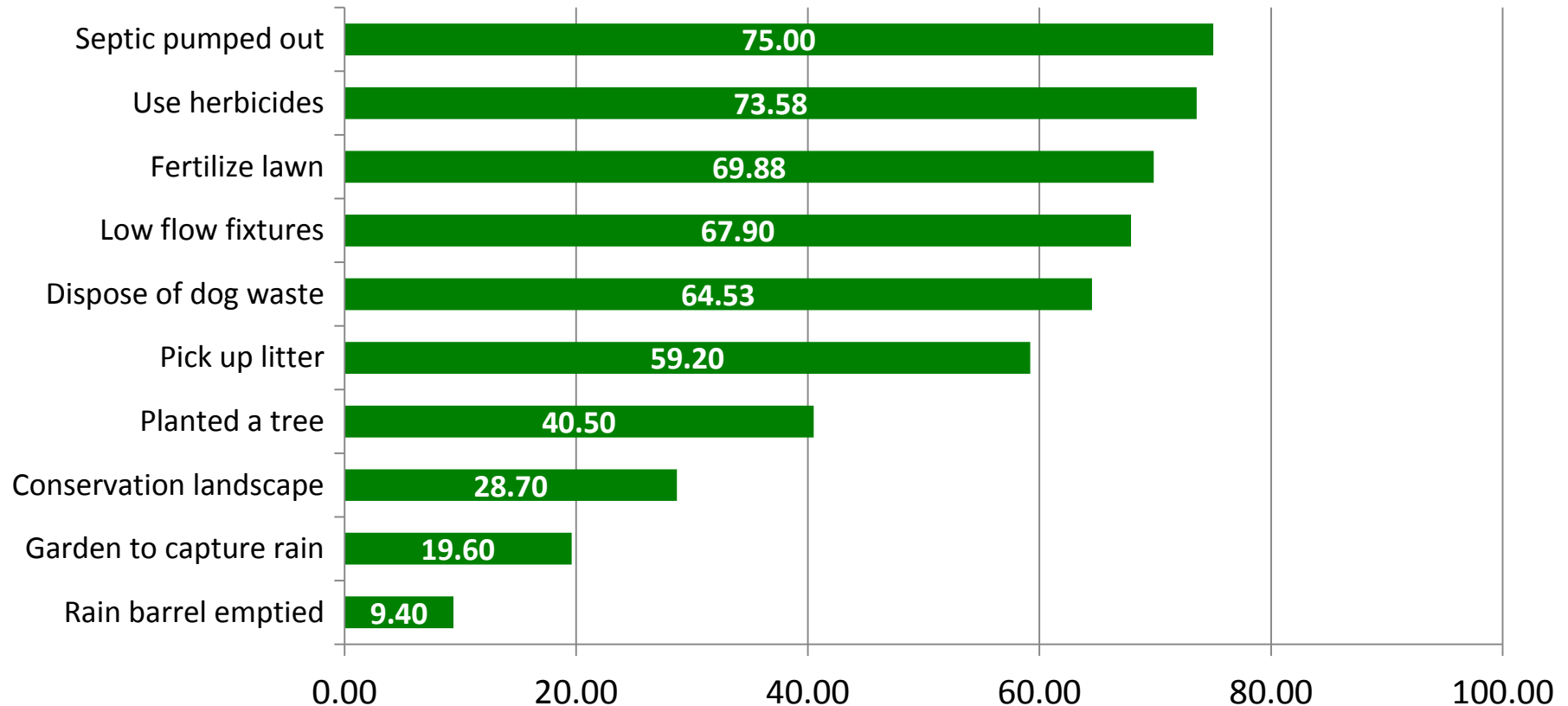
- 1. Conservation landscaping**
- 2. Rain garden installed**
- 3. Septic system pumped out**
- 4. Planted a tree**
- 5. Rain barrel connected and emptied**
- 6. Conserve water at home**
- 7. Pick up and dispose of pet waste**
- 8. Pick up litter**
- 9. Fertilizer use**
- 10. Herbicide use**

Pilot Citizen Stewardship Indicator

Weighted Data: (4/12/2016)

Threshold Behavior Performance

Converted to 0 – 100 Scale



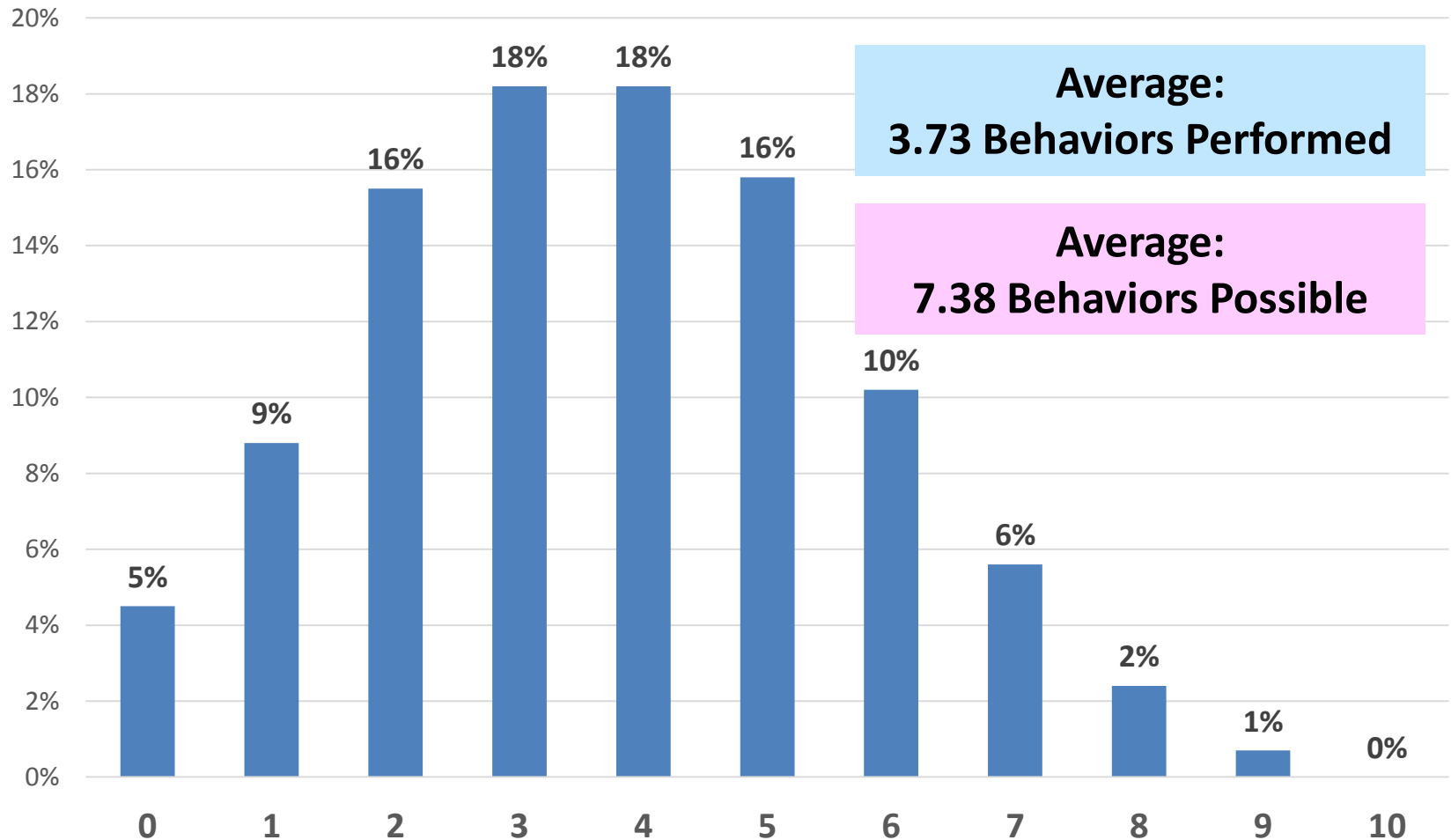
Never	Seldom	Sometimes	Usually	Always
Never	Seldom	Sometimes	Frequently	Very frequently
Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
0	25	50	75	100
100	75	50	25	0

Pilot Citizen Stewardship Indicator

Weighted Data: (4/12/2016)

Number of Behaviors Performed

Of 10 "Threshold Behaviors"

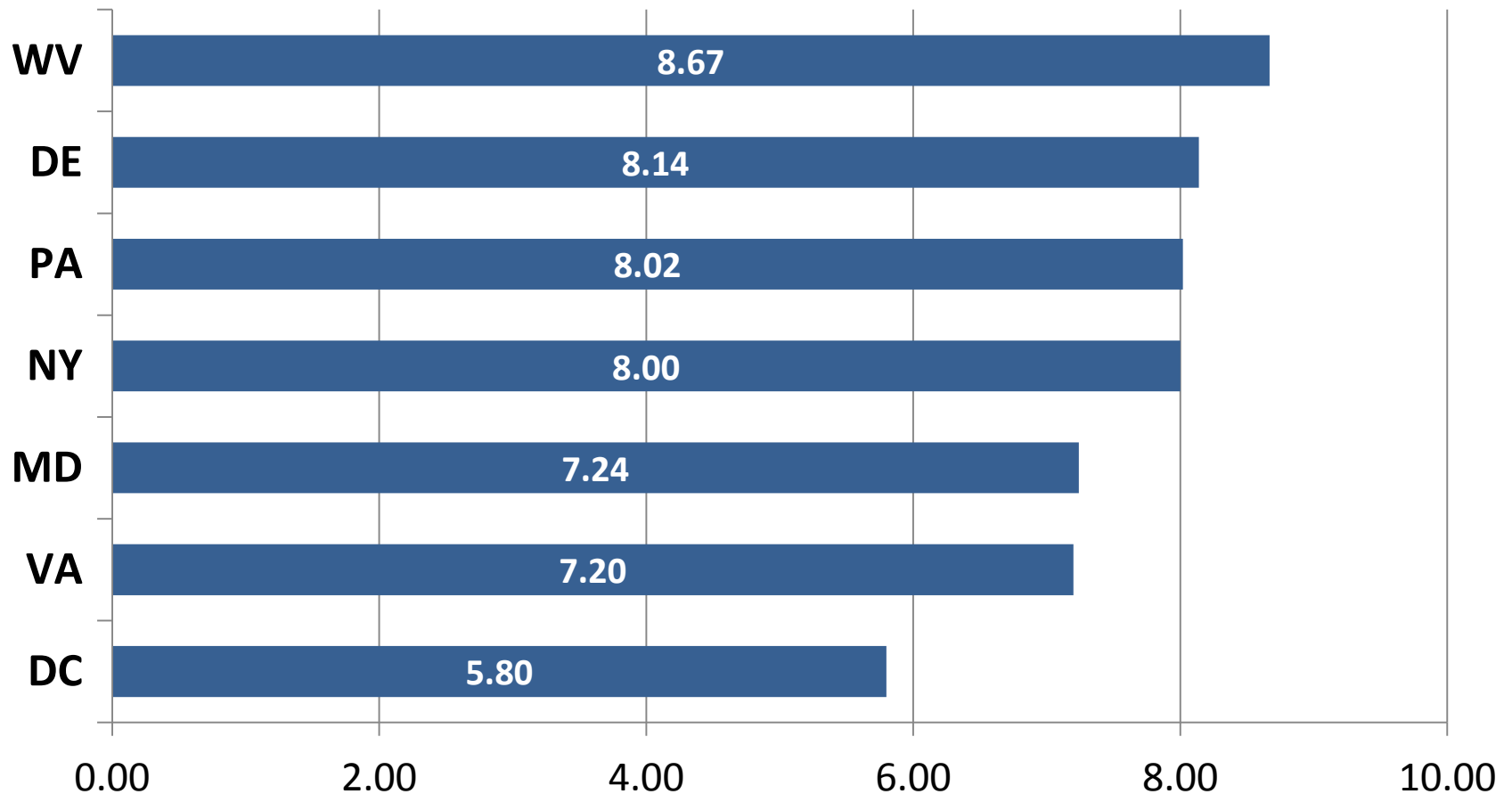


Pilot Citizen Stewardship Indicator

Weighted Data: (4/12/2016)

Number of Behaviors Possible

By State



Segmentation Opportunities

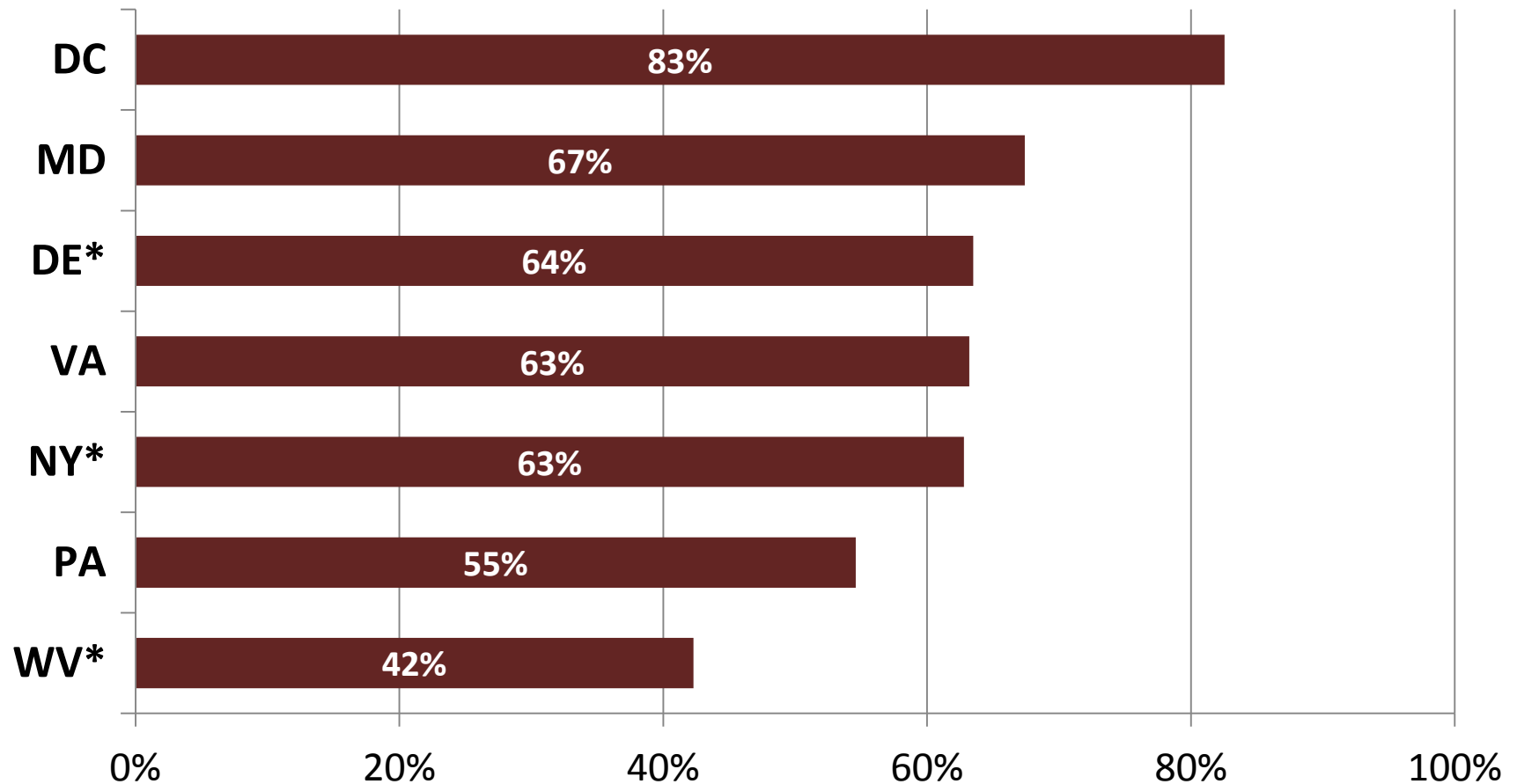
- **Jurisdiction**
- **Age**
- **Educational attainment**
- **Health care professionals**
- **Home ownership**
- **Housing type**
- **Community size**
- **Agriculture**
- **Religious affiliation**
- **Race/ethnicity**
- **Household income**
- **Gender**

Pilot Citizen Stewardship Indicator

Weighted Data: (4/12/2016)

Pick up Your Dog's Waste & Dispose of It

Always + Usually



*small sample size; lower reliability data

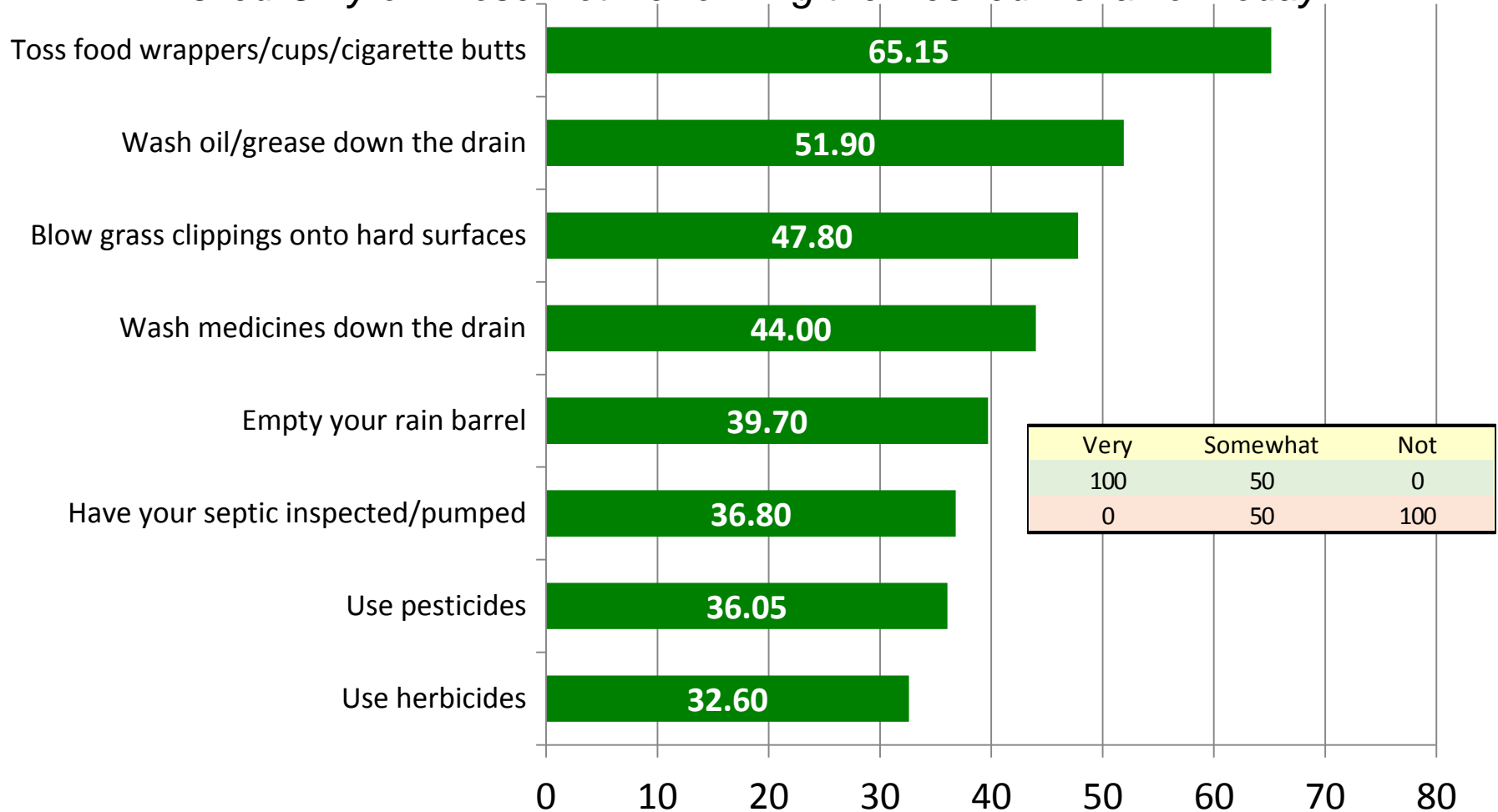
Likelihood to Change Behavior

Pilot Citizen Stewardship Indicator

Weighted Data: (4/12/2016)

Behaviors Most Susceptible to Change

Asked Only of Those Not Performing the Desired Behavior Today



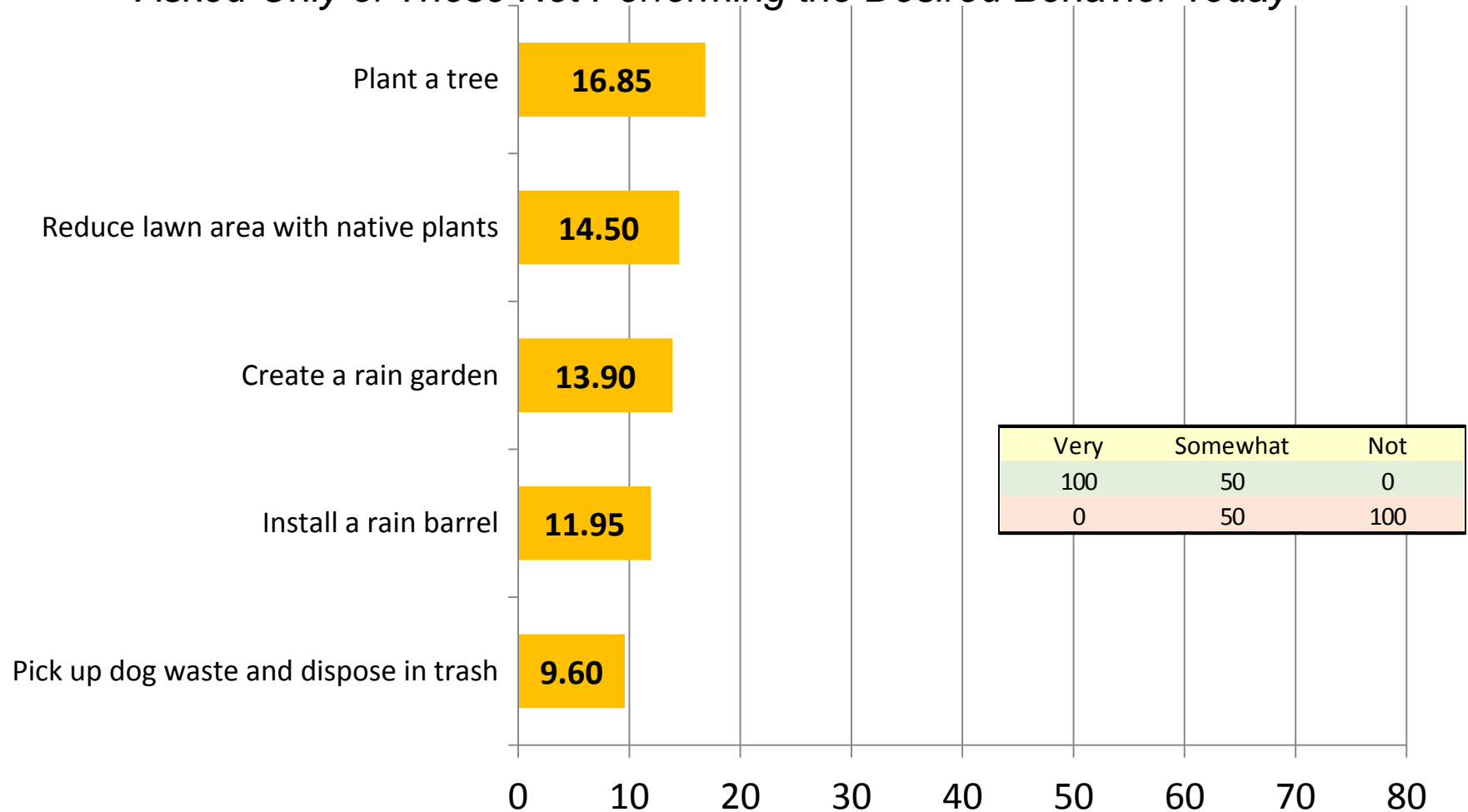
Now I would like to ask you about a few of those actions again. Looking forward over the next year or so, how likely are you to do each of these things using the scale (rotate high to low/low to high): [very likely, somewhat likely, (or) not likely].

Pilot Citizen Stewardship Indicator

Weighted Data: (4/12/2016)

Behaviors Least Susceptible to Change

Asked Only of Those Not Performing the Desired Behavior Today



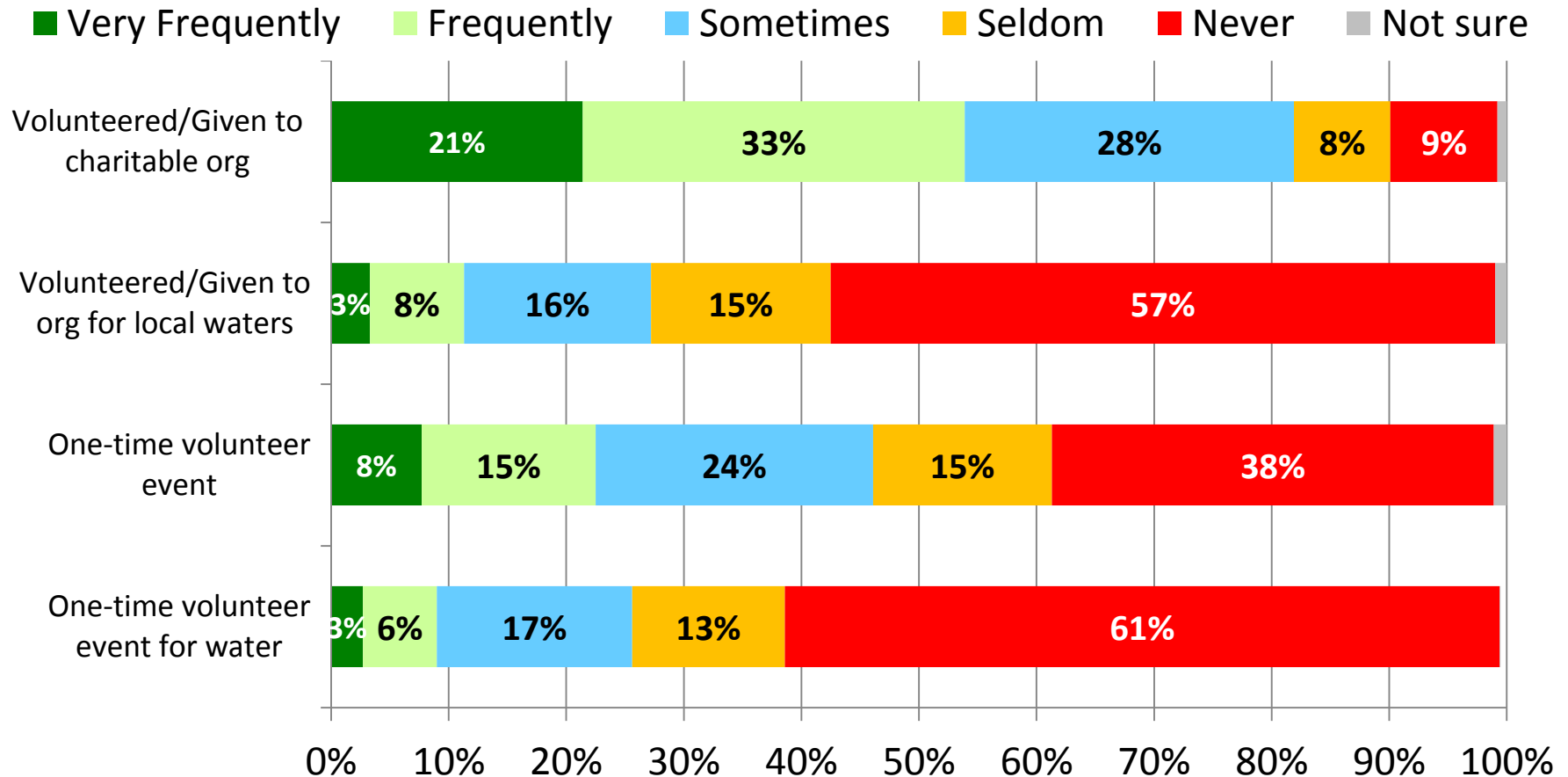
Now I would like to ask you about a few of those actions again. Looking forward over the next year or so, how likely are you to do each of these things using the scale (rotate high to low/low to high): [very likely, somewhat likely, (or) not likely].

Volunteerism

Pilot Citizen Stewardship Indicator

Weighted Data: (4/12/2016)

Volunteerism



40% can think of at least one group in their own community that is working to clean up and protect local waters.

Draft Performance Indicator Rollup

Stewardship Behavior	51.44
Likelihood of Adoption	23.66
Volunteerism	26.82
Weighted Rollup	35.41

Bay-wide

Draft, as of June 13

Threshold behaviors

Weighted for water quality impact

8 Keys to Individual Engagement

- I am causing water pollution where I live.
- Polluted water affects me personally.
- I want to do more to help make local waters healthier.
- I know some things I can do to help reduce water pollution where I live.
- If people work together, water pollution around here can be fixed.
- If I wanted to volunteer to help the natural environment locally, I would know how to do that.
- I am more likely to vote for a candidate for office who makes it a priority to protect the natural environment.
- Leaders in my community pay attention to the opinions of people like me.

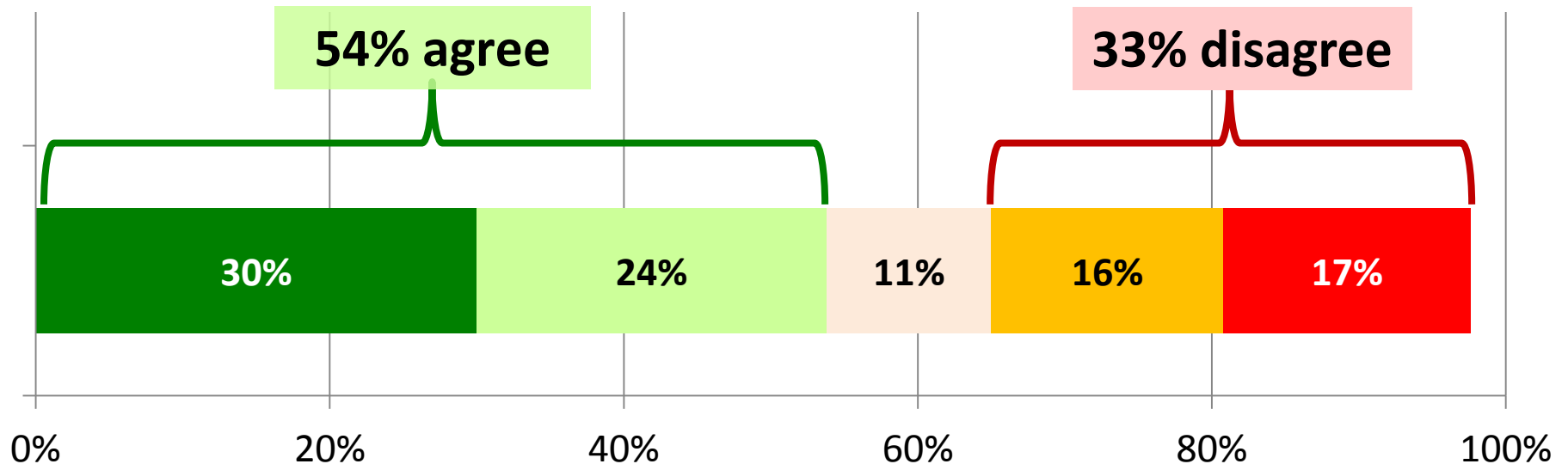
Pilot Citizen Stewardship Indicator

Weighted Data: (3/1/2016)

If I wanted to volunteer to help the natural environment locally, I would know how to do that.

Level of Agreement

■ Strongly agree ■ Somewhat agree ■ Neutral ■ Somewhat disagree ■ Strongly disagree



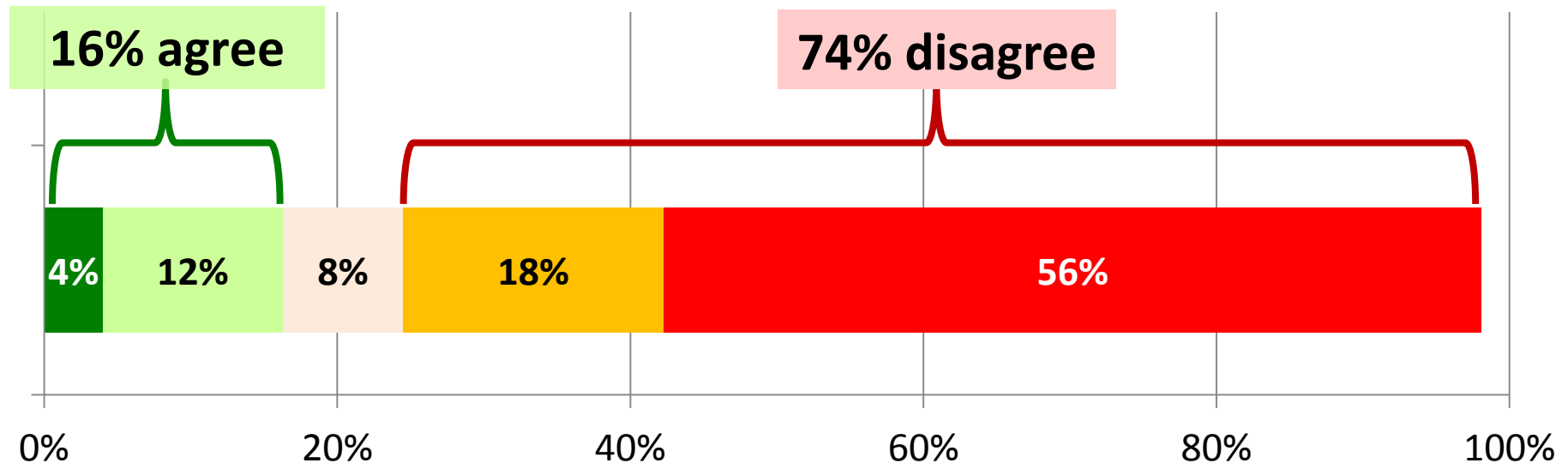
Pilot Citizen Stewardship Indicator

Weighted Data: (3/1/2016)

**I am causing water pollution
where I live.**

Level of Agreement

■ Strongly agree ■ Somewhat agree ■ Neutral ■ Somewhat disagree ■ Strongly disagree



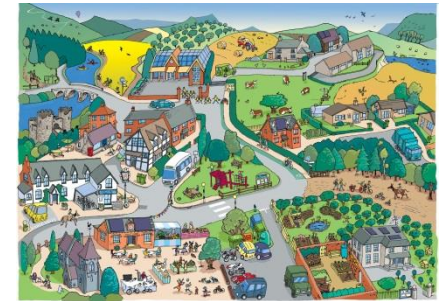
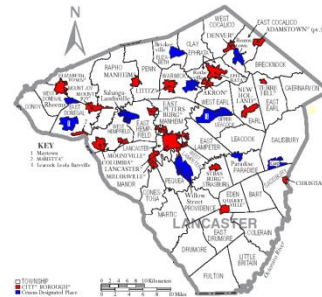
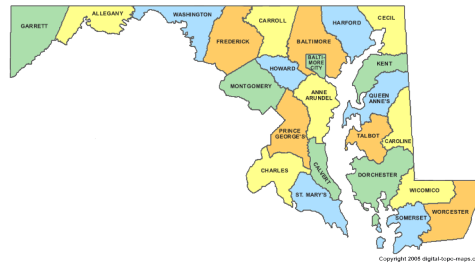
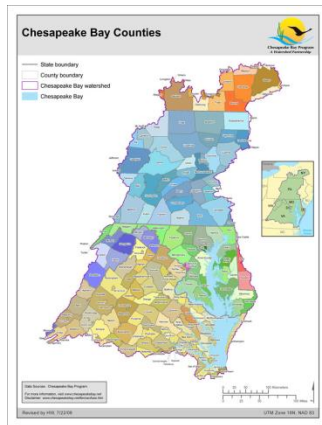
Indicator Scale-up

Uses

- Measuring change over time
- Benchmarking against a Bay-wide norm, other communities
- Maximizing limited resources through smart behavior selection
- Informing outreach to target audiences
- A resource for other Bay Program priorities

Citizen Stewardship Index

Measuring Stewardship Progress



	Regional Index	State or Jurisdiction Index	County or Municipality Index	Community Index
Tool	Index Survey	Index Survey	Index Survey	Baysurvey.org
Date	Pilot Winter 2015/2016	Pilot Winter 2015/2016	TBD	Ongoing
Result	Pilot (+/- 2.2%)	Pilot (+/- 4.9% to 9.8%)	2016 TBD	Scalable to most local level

Citizen Stewardship Index

Sampling Methodology

	Pilot program (2015)	Rollout Option 1 (2016+)
	N=2,000	All states statistically significant N=5,200
MD	400 ($\pm 4.9\%$)	1,000 ($\pm 3.1\%$)
VA	400 ($\pm 4.9\%$)	1,000 ($\pm 3.1\%$)
PA	400 ($\pm 4.9\%$)	1,000 ($\pm 3.1\%$)
DC	400 ($\pm 4.9\%$)	800 ($\pm 3.5\%$)
WV	200 ($\pm 6.9\%$)	600 ($\pm 4.0\%$)
NY	100 ($\pm 9.8\%$)	400 ($\pm 4.9\%$)
DE	100 ($\pm 9.8\%$)	400 ($\pm 4.9\%$)