2014 Chesapeake Watershed Agreement

Achieving the Goal of Stewardship

Developing a Citizen Stewardship Indicator Preliminary Results

Status & Trends Workgroup

Stewardship Workgroup

May 9, 2017

Objectives for Today

1. Review Process of Developing an Indicator
2. Methods and Analysis
3. High-Level Results
4. Implications and Next Steps

Stewardship Outcome

"Increase the number and diversity of trained and mobilized citizen volunteers with the knowledge and skills needed to enhance the health of their local watersheds."

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

DEVELOPING THE STEWARDSHIP INDICATOR

Puget Sound Behavior Index

- Measures 28 positive and negative behaviors
- Clearly stated criteria for including behaviors
- Stratified for 12 counties; 3,600 interviews
- Conducted biennially by telephone (‘11, ‘13, ‘15)

Greendex™

A research project by National Geographic and GlobeScan

NATIONAL GEOGRAPHIC GLOBESCAN

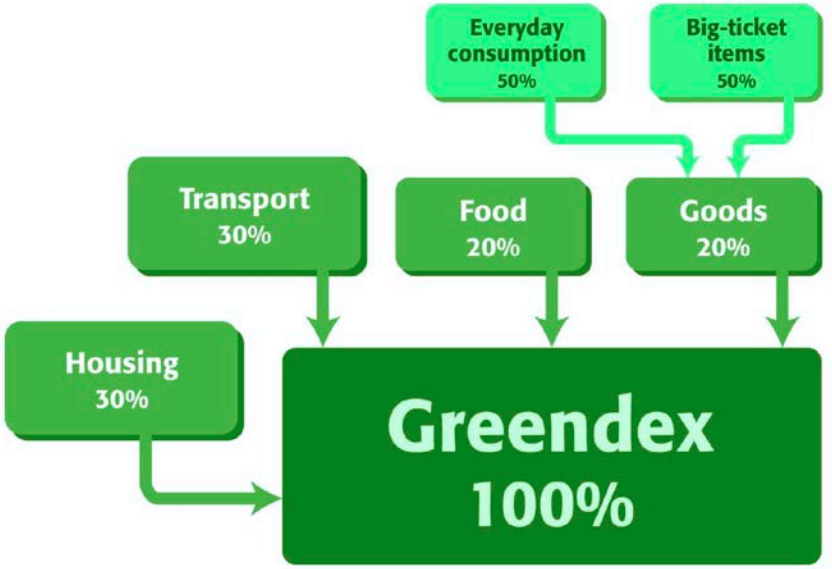
Greendex 2014:
Consumer Choice and the Environment—
A Worldwide Tracking Survey

"an international research approach to measure and monitor consumer progress towards environmentally sustainable consumption."

Index Structure with Weighting

NATIONAL GEOGRAPHIC

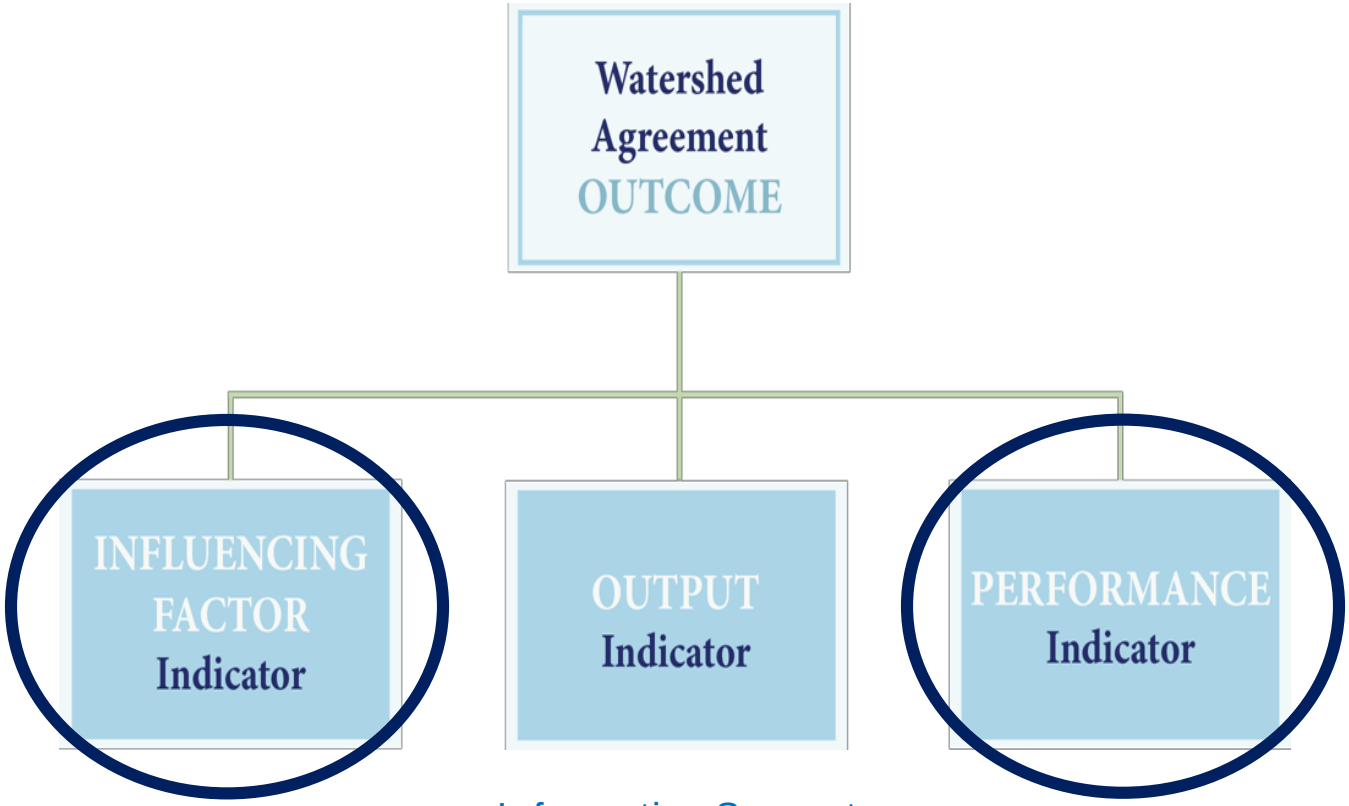
In calculating the total Greendex scores, the sub-indices are weighted as follows:



- **Meta-index with 4 sub-indices.**
- 65 variables, internally weighted.

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?

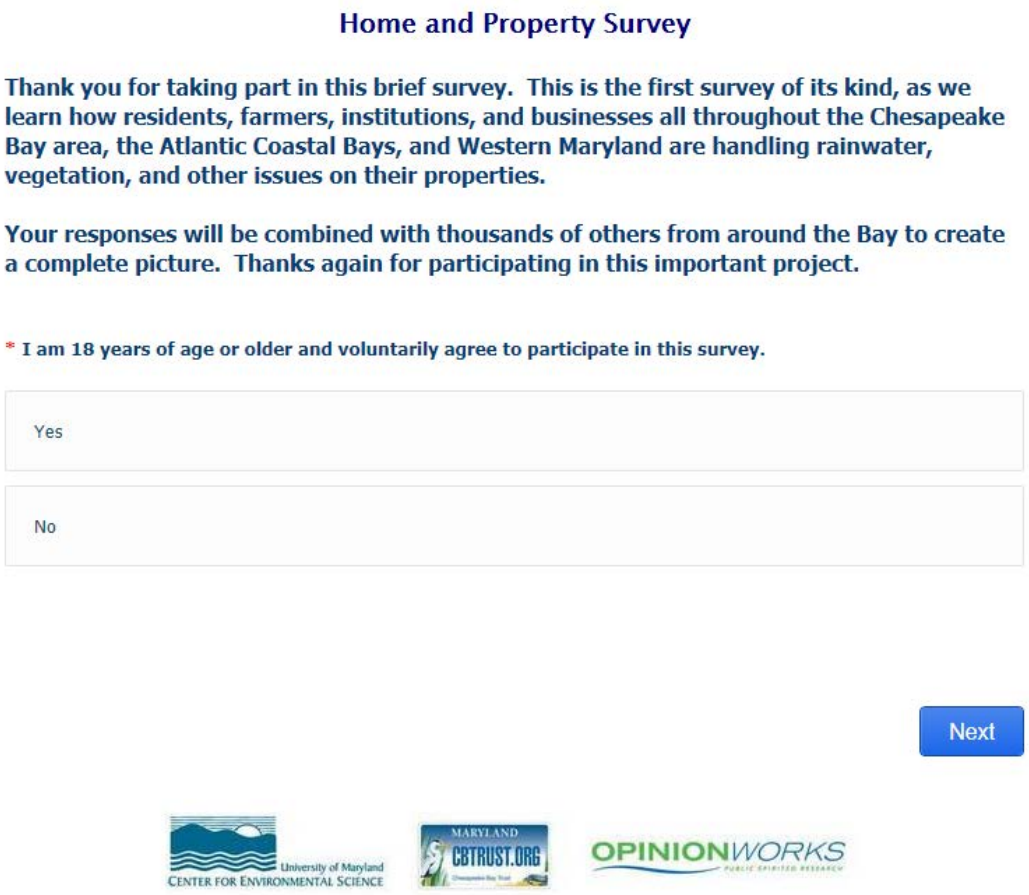
Performance – Are we achieving the outcome?

Stakeholders

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

Predecessor Survey Tool:

www.BaySurvey.org



From 2015 Stakeholder Process:

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

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

Measured Behaviors

- Pet waste (2: on property/off property)
- Leaves/Lawn clippings (2)
- Litter (2: drop/pick-up)
- Fats, grease/Medicines down the drain (2)
- Fertilizer use/keep off hard surfaces (2)
- Pesticide/Herbicide use (2)
- Conservation landscaping
- Rain garden installation
- Septic system
- Tree planting
- Downspout redirect
- Rain barrel/Connected, emptied (2)
- Water conservation

Response Scales

Yes/No:

In the last several years, have you…?

Replaced an area of grass lawn with native low-maintenance plants?

Frequency (5-point):

For each of the following things, please tell me if you never, seldom, sometimes, usually, or always do it.

Wash used cooking oil or grease down the drain.

Agreement (5-point):

For each of the statements that follow please tell me if you strongly disagree, somewhat disagree, are neutral, somewhat agree, or strongly agree.

Polluted water affects me personally.

Likelihood (3-point):

Looking forward over the next year or so, how likely are you to do each of these things using the scale not likely, somewhat likely, or very likely.

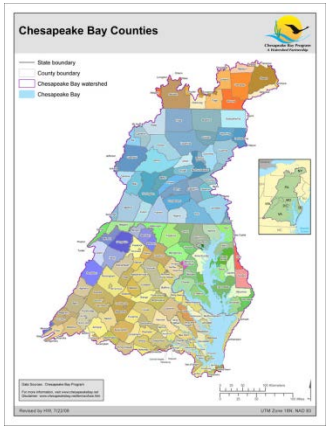
Have your septic system inspected or pumped out.

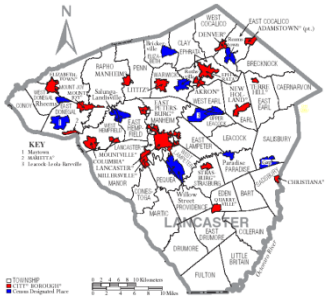
What This Survey Tool Can Do

- ✓ Measure and track Stewardship progress.
- ✓ Inform smart behavior selection for practitioners.

Level of Adoption x Likelihood x Impact

- ✓ Segment data by major jurisdiction, demographic.





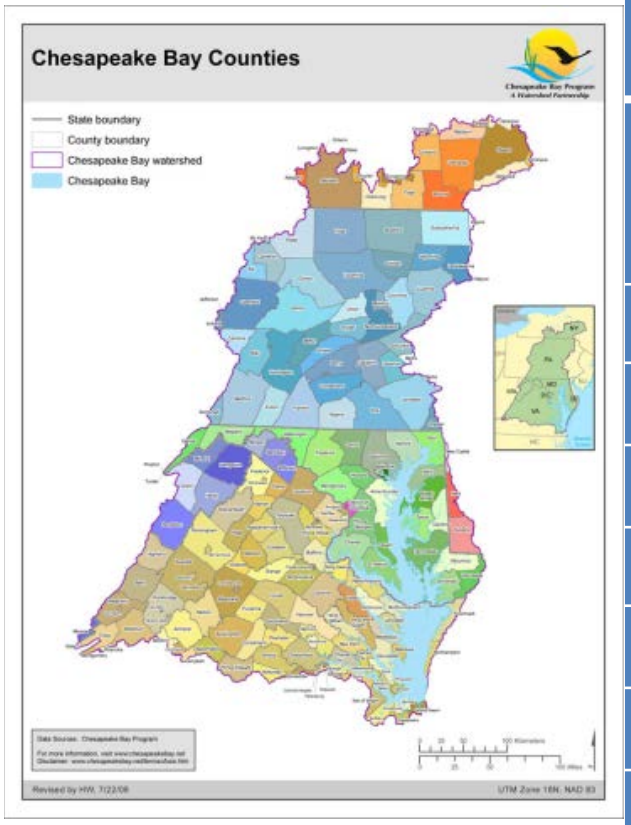
- ✓ Be a resource for other Bay Program priorities: Access, Diversity.

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.

Citizen Stewardship Indicator

Sampling Methodology



	2017 Baseline
	All states statistically significant N=5,200
VA	1,000 (±3.1%)
MD	1,000 (±3.1%)
PA	1,000 (±3.1%)
DC	800 (±3.5%)
WV	600 (±4.0%)
NY	400 (±4.9%)
DE	400 (±4.9%)

Fielded March – May 2017
13-minute interview
Wireless and Landline
Spanish language interviewing

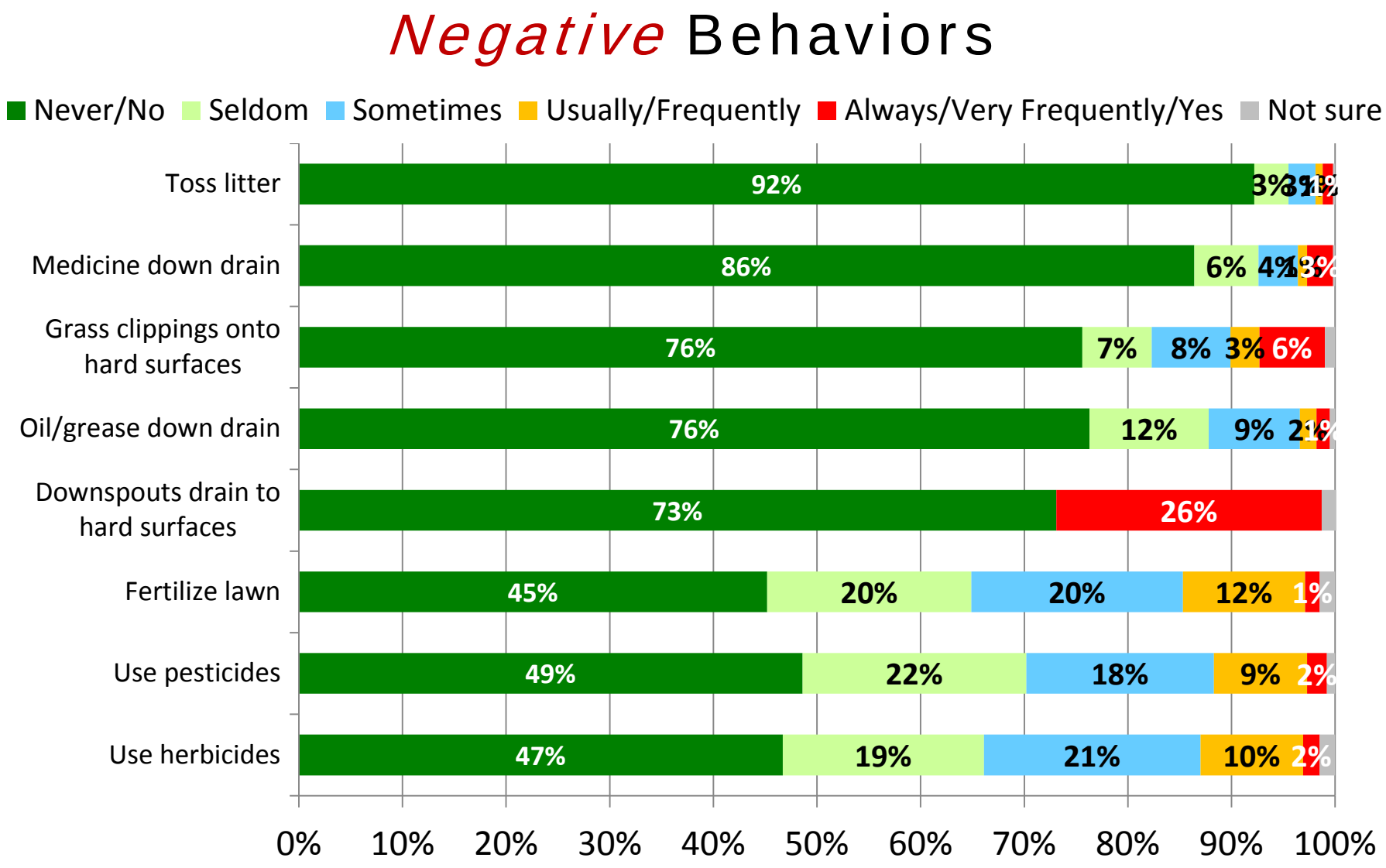
Segmentation Opportunities

- Jurisdiction
- Age
- Educational attainment
- Health status (self-assessed)
- Household size, presence of children
- Home ownership
- Housing type
- Community size
- Agriculture
- Religious affiliation, worship frequency
- Race/ethnicity
- Household income
- Gender

High-Level Results: Performance Indicator

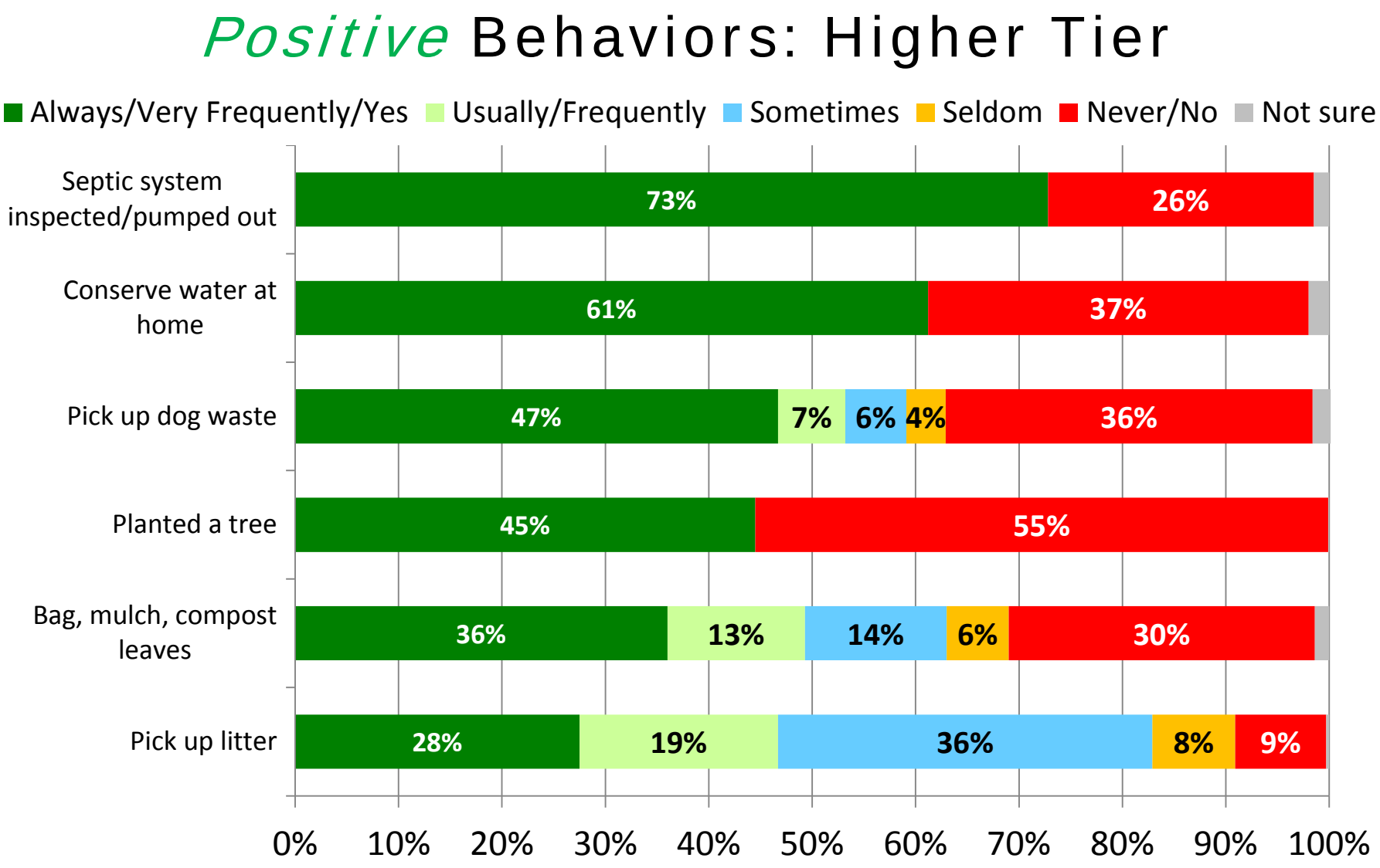
Citizen Stewardship Indicator

2017 Baseline: *Partial, Unweighted Data (4/26/17)*



Citizen Stewardship Indicator

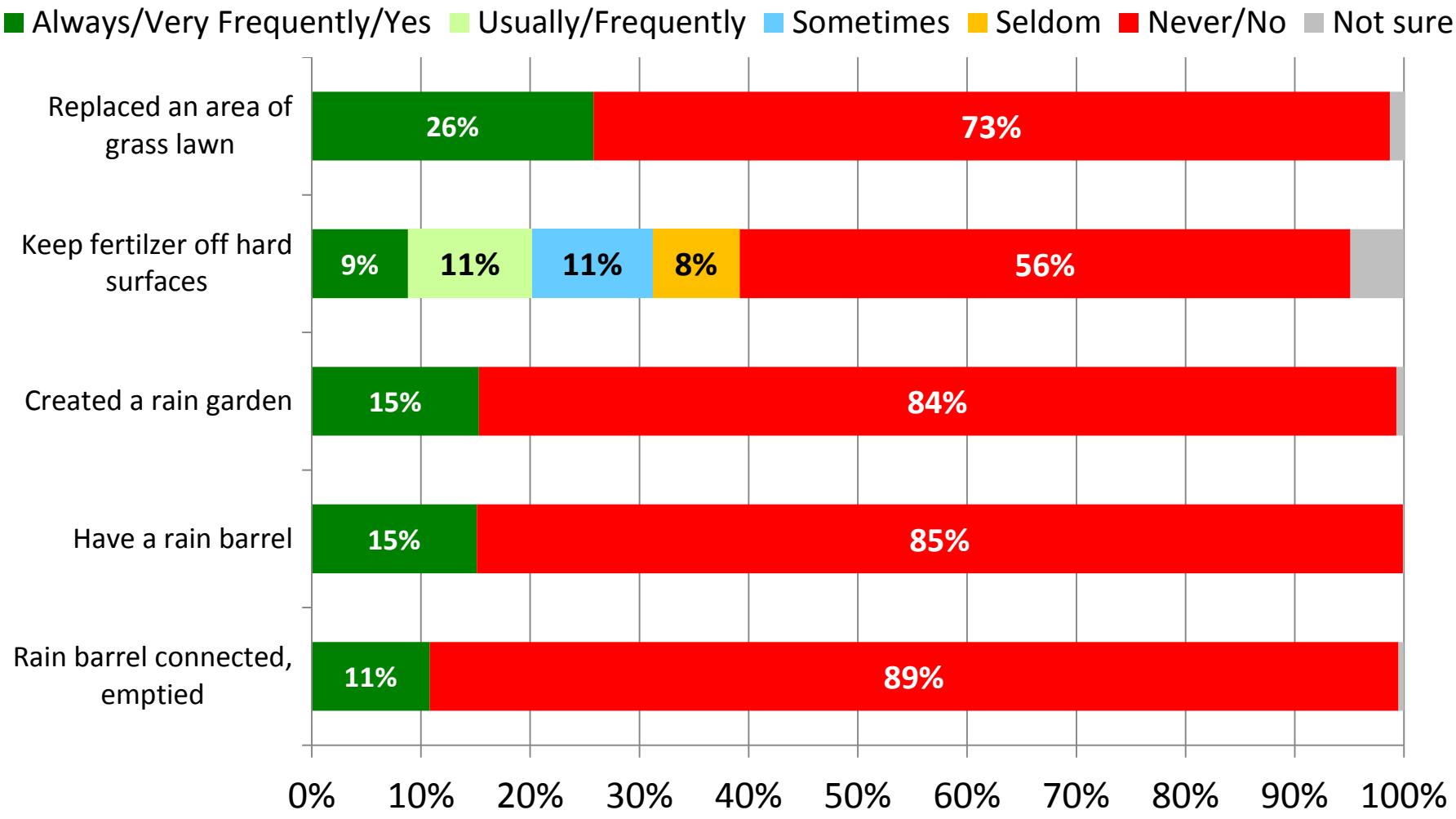
2017 Baseline: *Partial, Unweighted Data (4/26/17)*



Citizen Stewardship Indicator

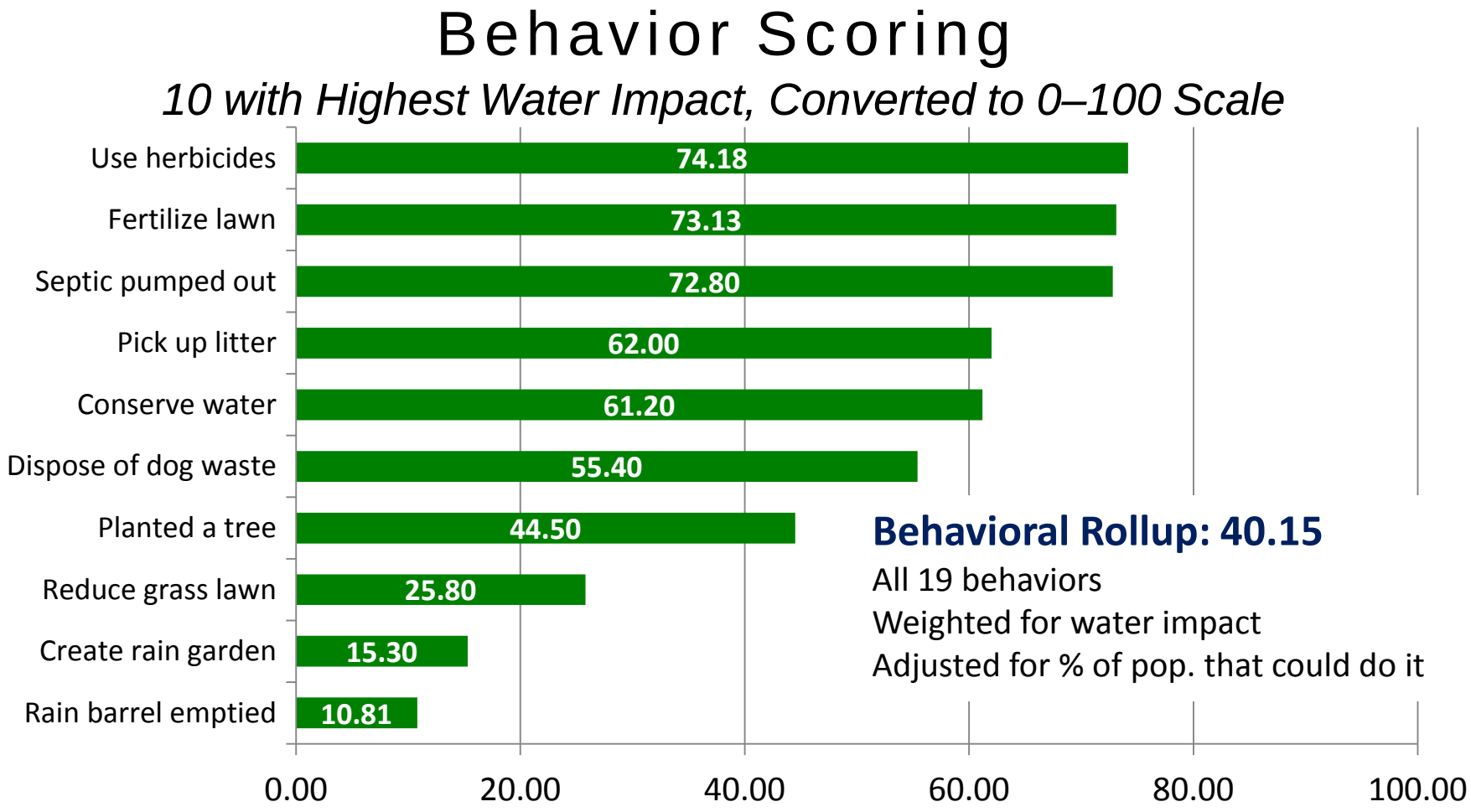
2017 Baseline: *Partial, Unweighted Data (4/26/17)*

Positive Behaviors: Lower Tier



Citizen Stewardship Indicator

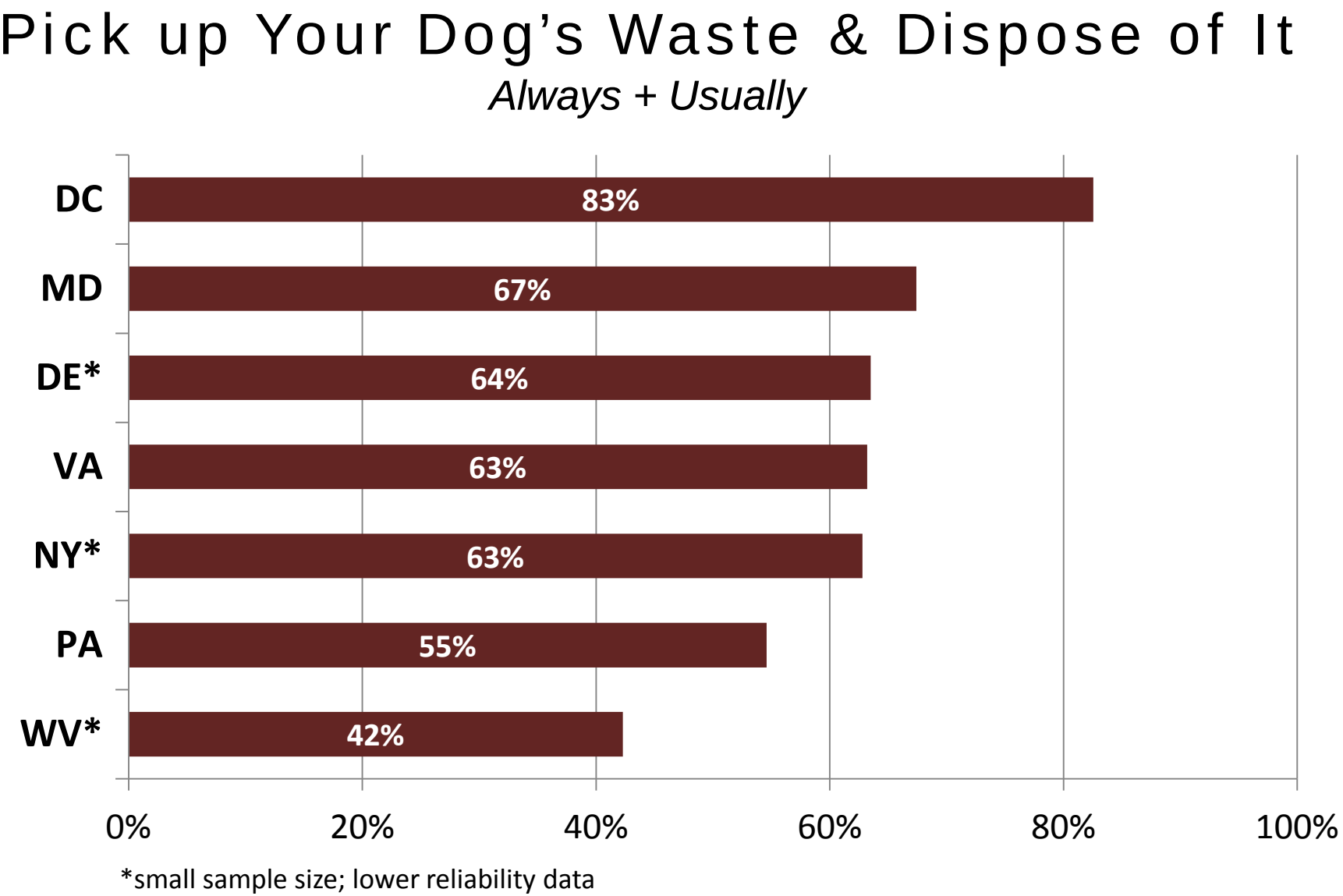
2017 Baseline: *Partial, Unweighted Data (4/26/17)*



Never	Seldom	Sometimes	Usually	Always
Never	Seldom	Sometimes	Frequently	Very frequently
No				Yes
0	25	50	75	100
100	75	50	25	0

Citizen Stewardship Indicator

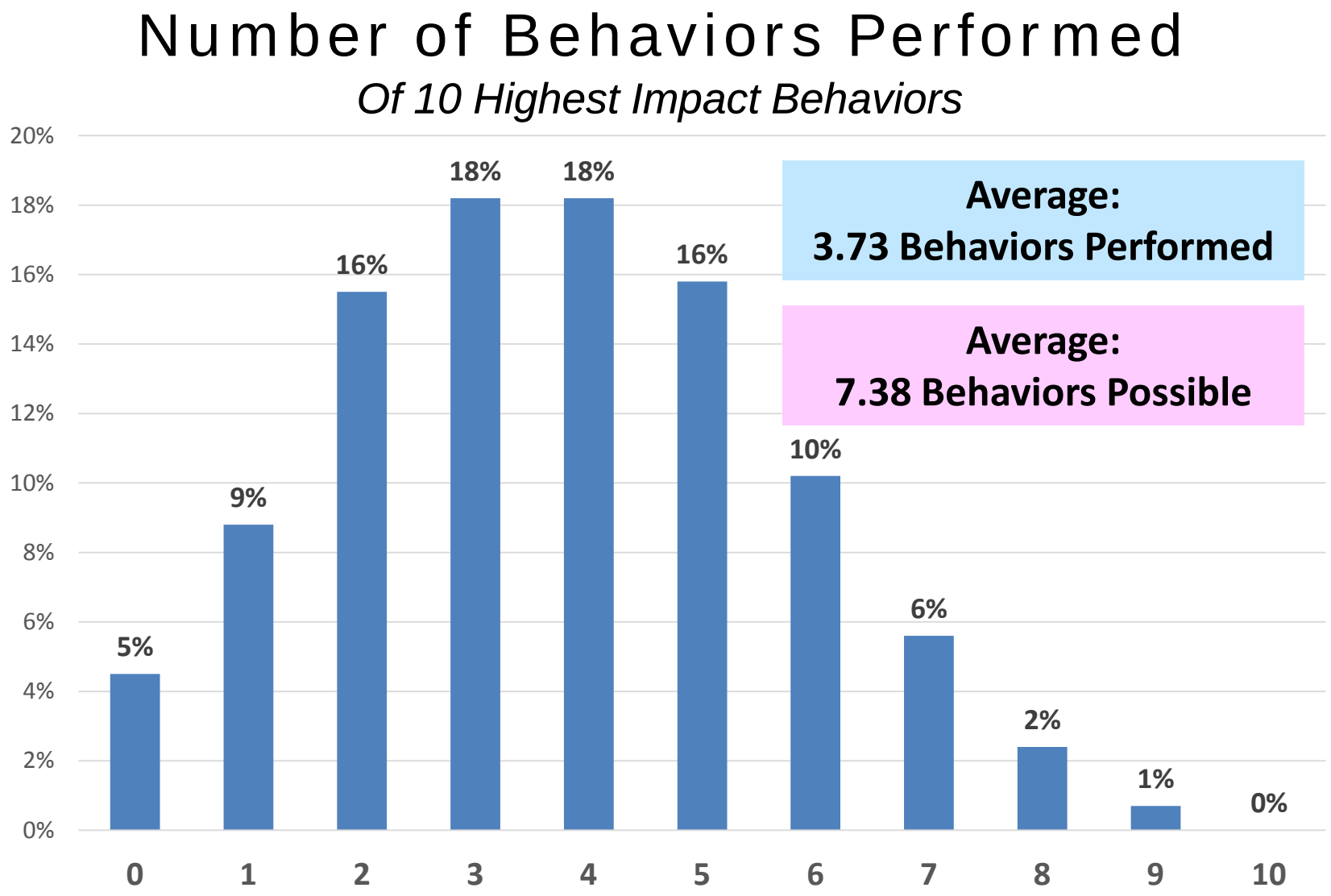
2016 Pilot Data



*small sample size; lower reliability data

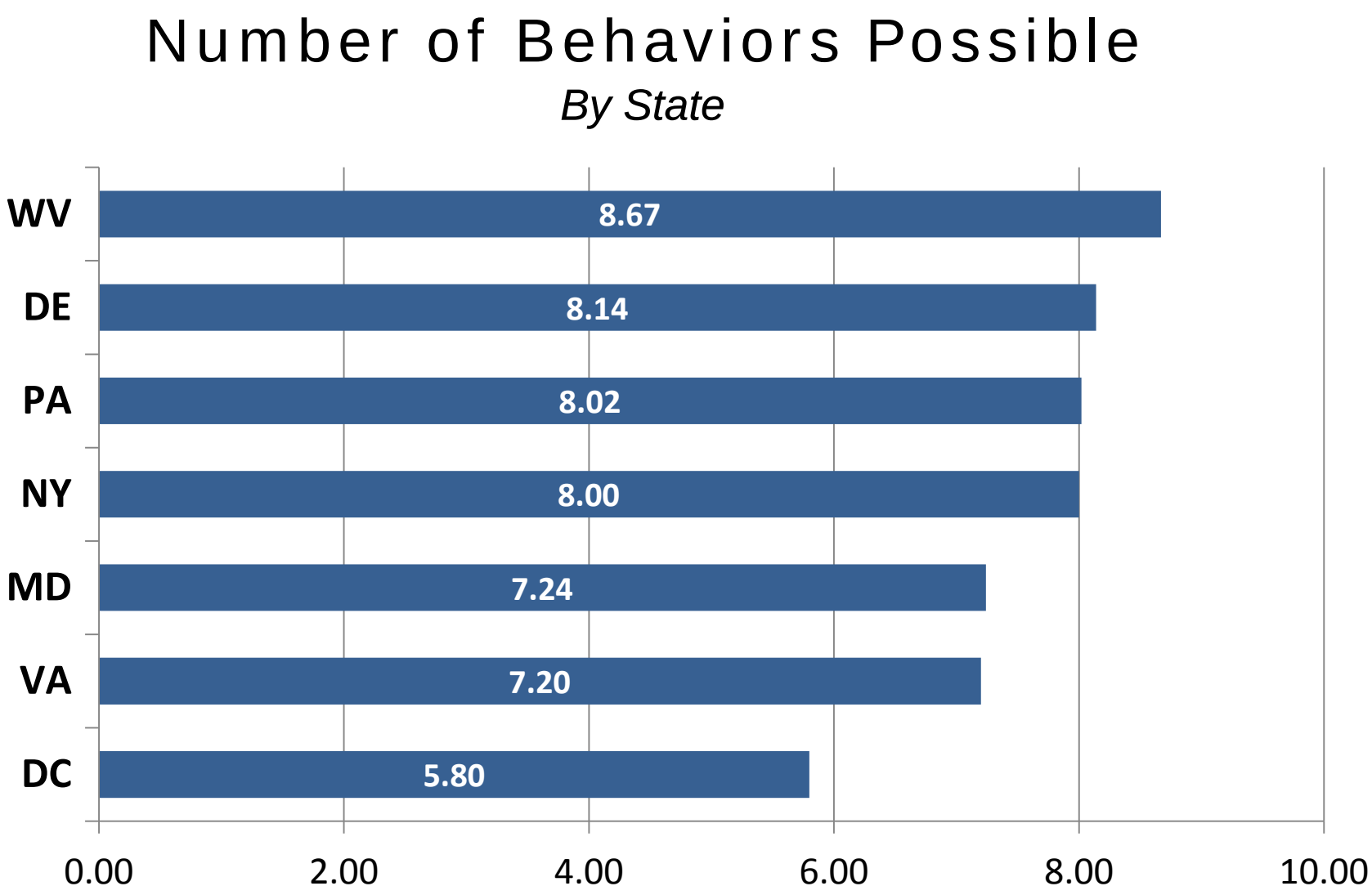
Citizen Stewardship Indicator

2016 Pilot Data



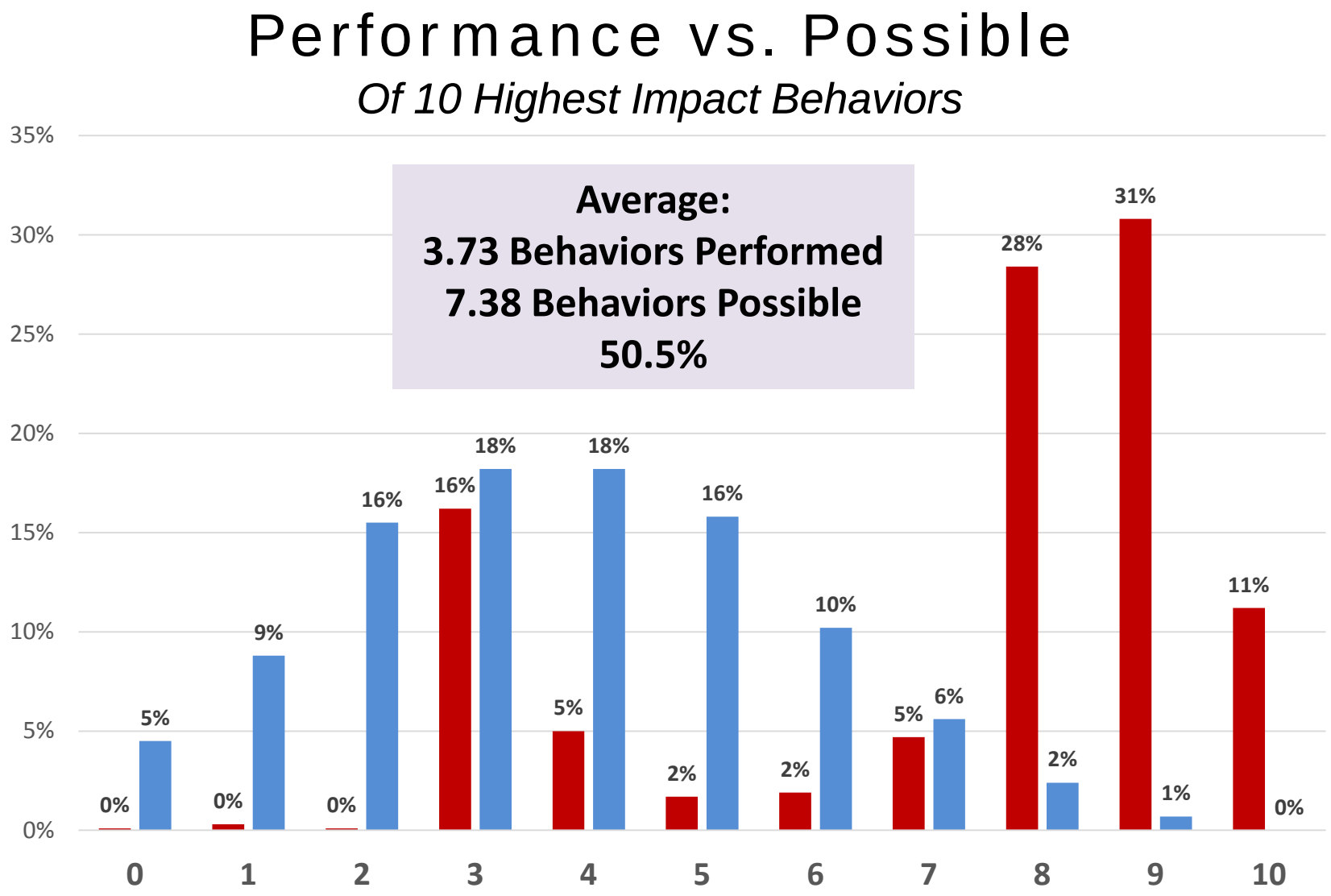
Citizen Stewardship Indicator

2016 Pilot Data



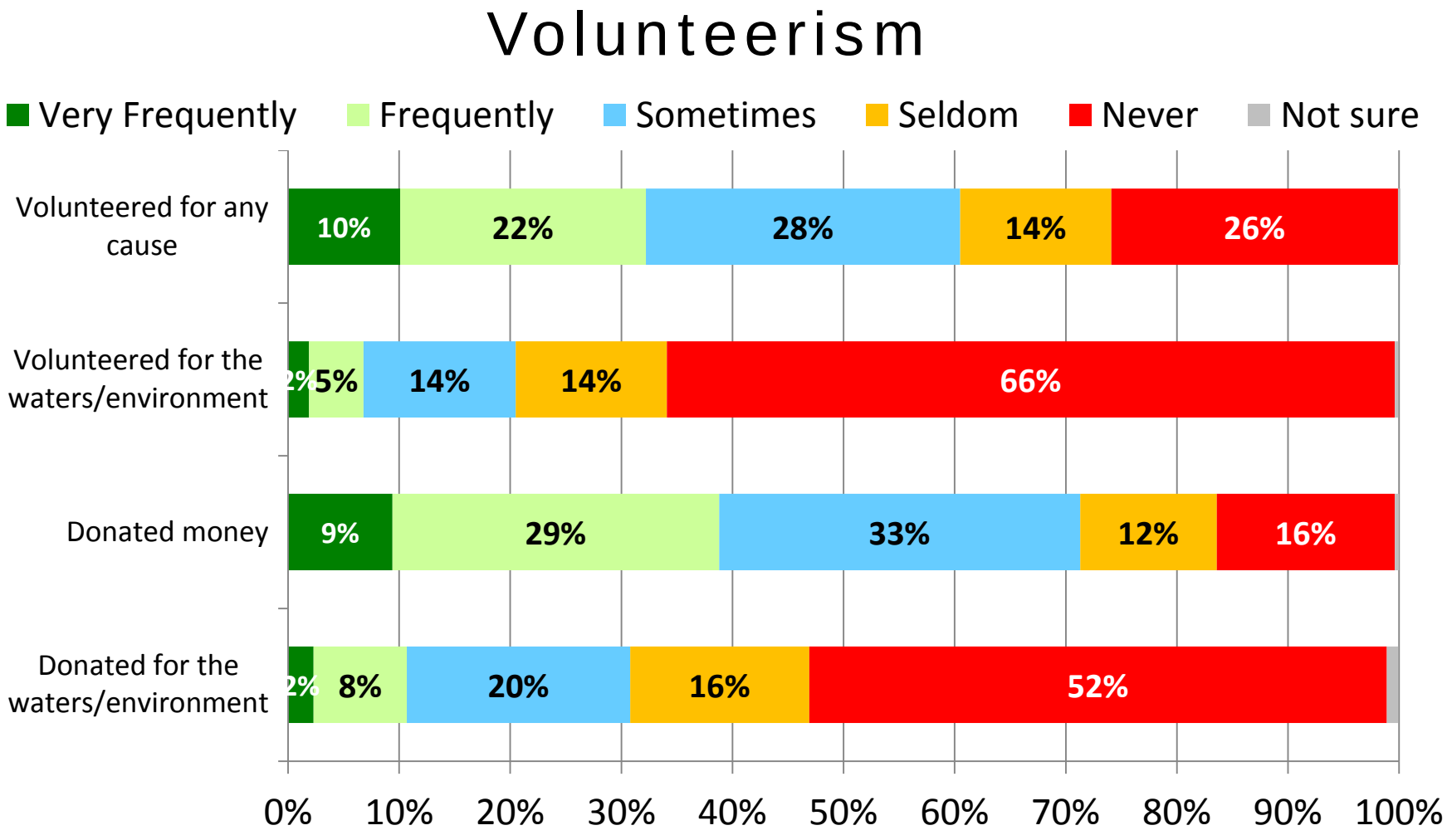
Citizen Stewardship Indicator

2016 Pilot Data



Citizen Stewardship Indicator

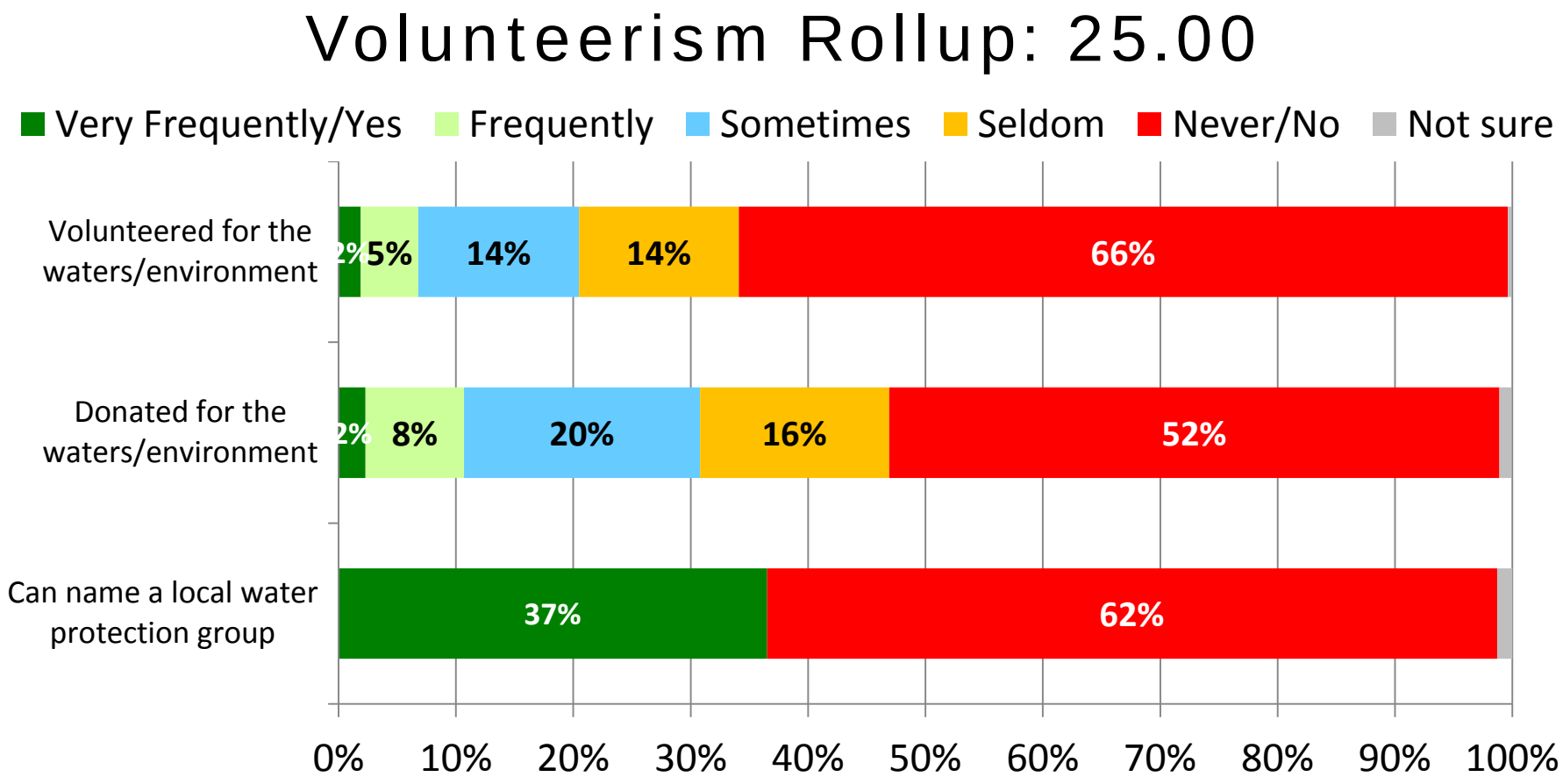
2017 Baseline: *Partial, Unweighted Data (4/26/17)*



36.5% can name at least one group in their own community that is working to clean up and protect local waters.

Citizen Stewardship Indicator

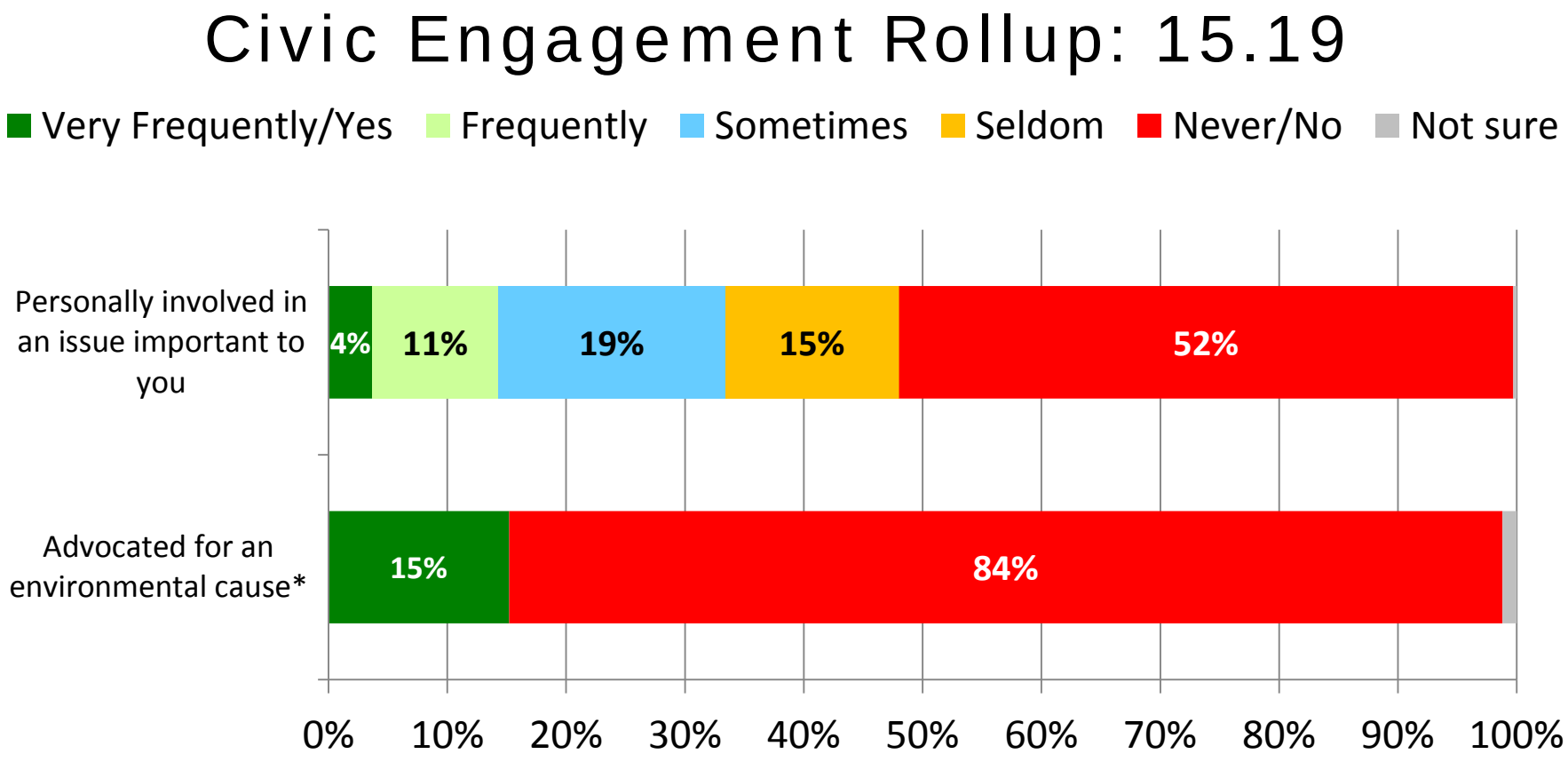
2017 Baseline: *Partial, Unweighted Data (4/26/17)*



Never	Seldom	Sometimes	Frequently	Very frequently
No				Yes
0	25	50	75	100
100	75	50	25	0

Citizen Stewardship Indicator

2017 Baseline: *Partial, Unweighted Data (4/26/17)*



*includes those who said both for and against

Draft Performance Indicator Rollup

Draft (4/26/17)

Individual Behavior[1]	40.15
Volunteerism[2]	25.00
Civic Engagement[3]	15.19
Rollup	**24.11**

Bay-wide, based on 2017 Baseline data to date

[1]19 behaviors, weighted for water impact and % of population that could perform each behavior

[2]Volunteered, given money for water restoration, or aware of a group in their local community

[3]Spoken out on behalf of an environmental cause

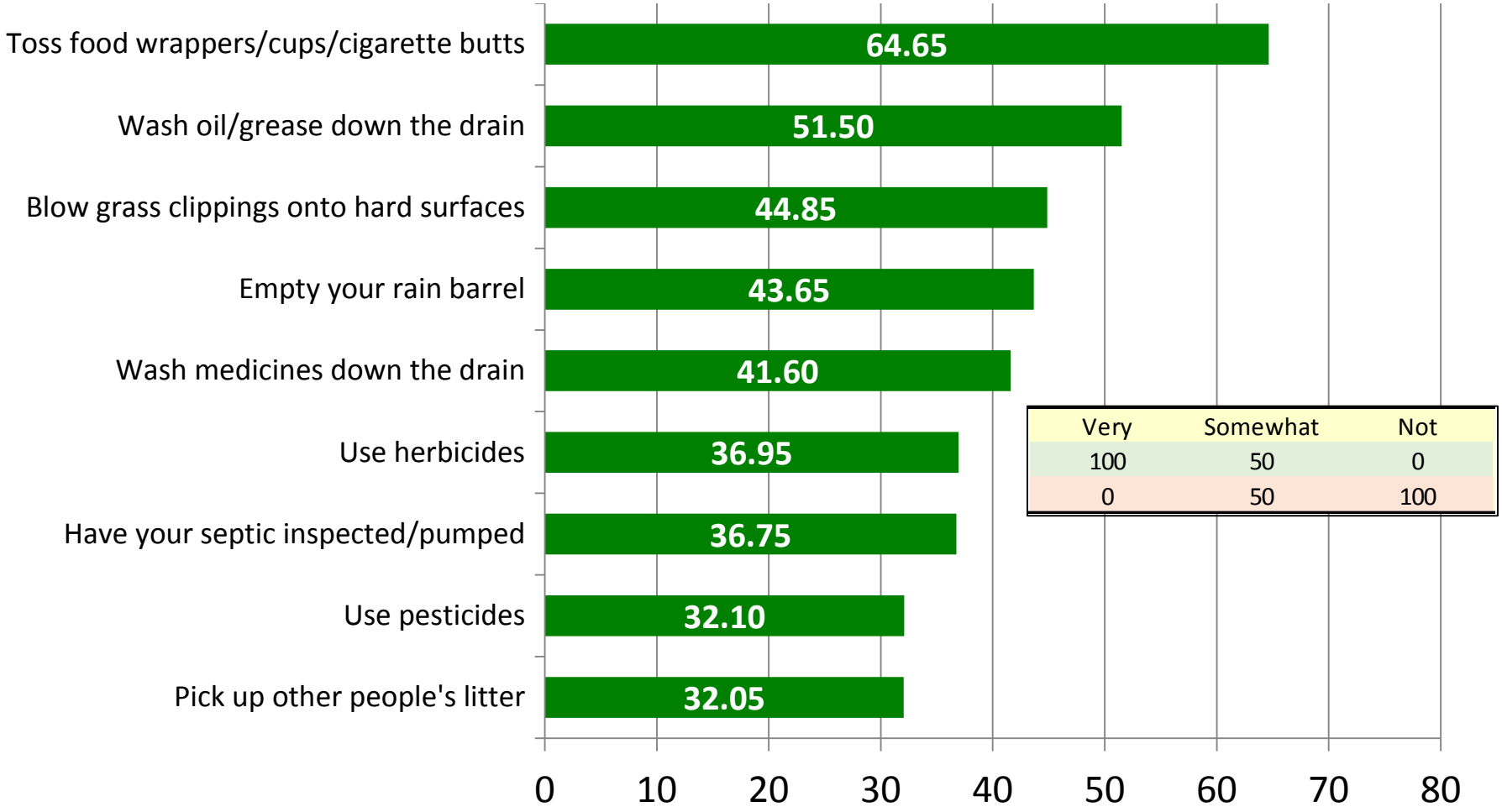
High-Level Results: Influencing Factors

Citizen Stewardship Indicator

2017 Baseline: *Partial, Unweighted Data (4/26/17)*

Behaviors Most Susceptible to Change

Asked Only of Those Not Taking the Desired Action Today



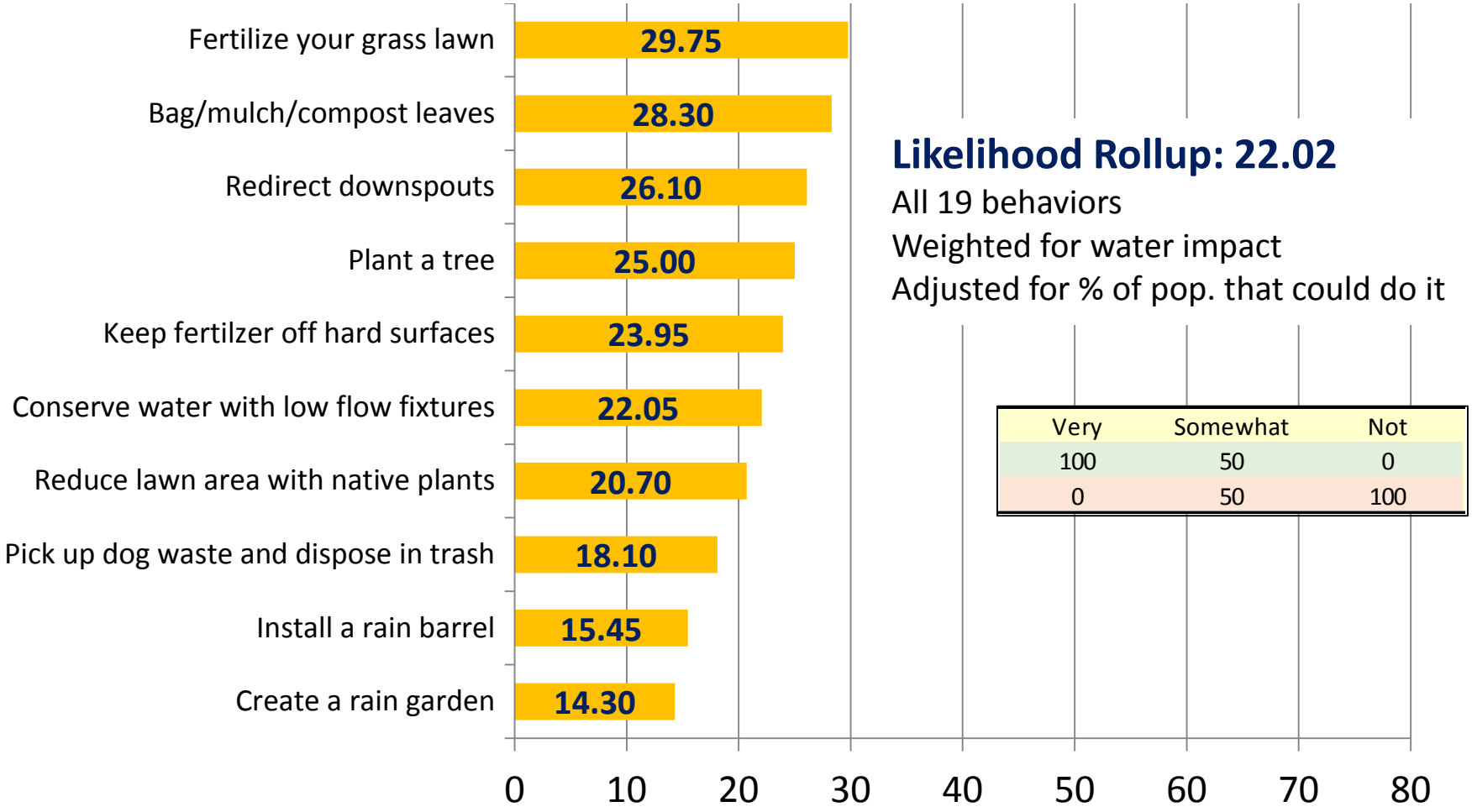
Looking forward over the next year or so, how likely are you to do each of these things using the scale (rotate high to low/low to high): [very likely, somewhat likely, (or) not likely]?

Citizen Stewardship Indicator

2017 Baseline: *Partial, Unweighted Data (4/26/17)*

Behaviors Less Susceptible to Change

Asked Only of Those Not Taking the Desired Action Today



Likelihood Rollup: 22.02

All 19 behaviors
Weighted for water impact
Adjusted for % of pop. that could do it

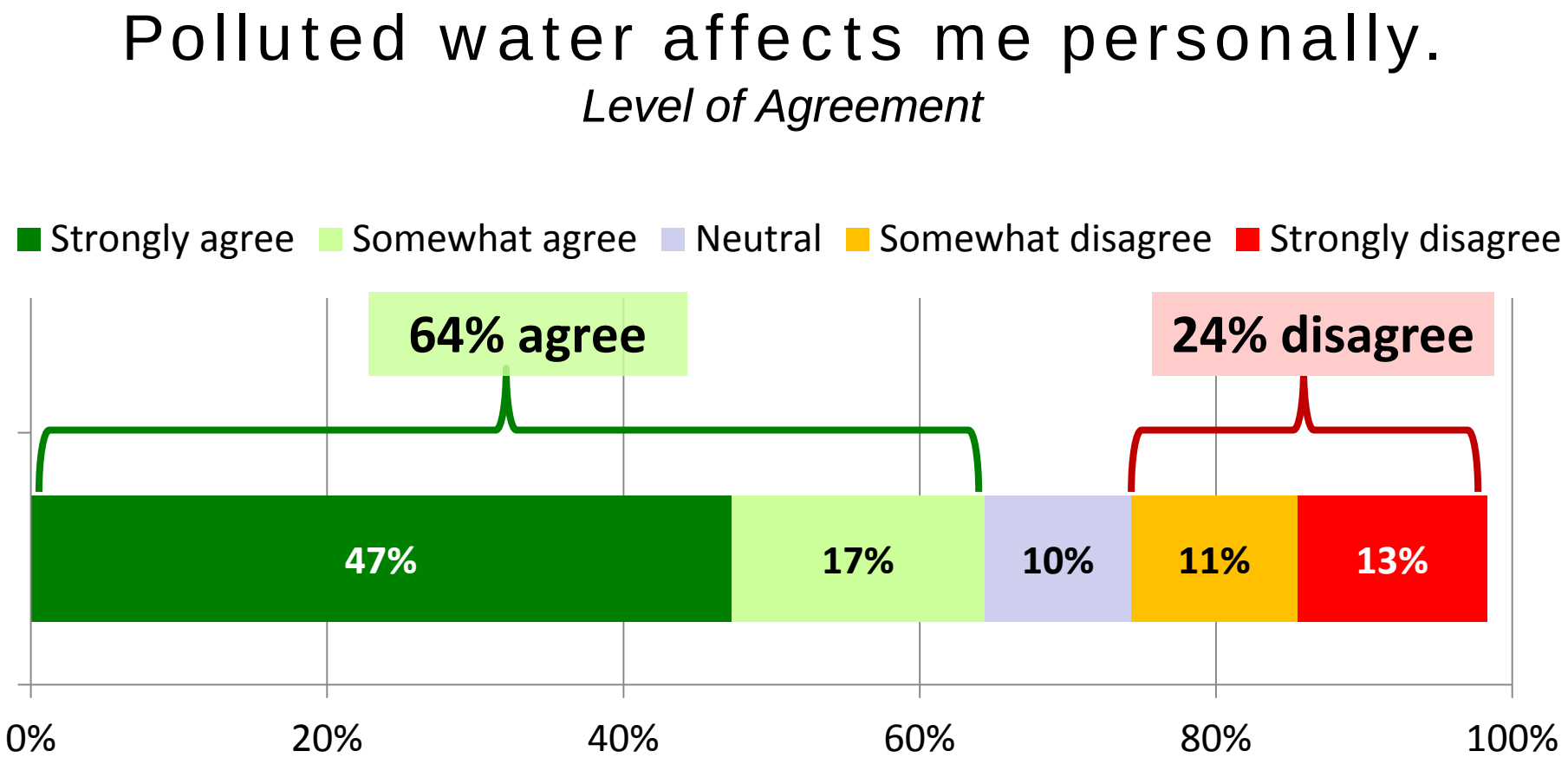
Very	Somewhat	Not
100	50	0
0	50	100

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]?

Influencing Factors: Individual Engagement

Citizen Stewardship Indicator

2017 Baseline: *Partial, Unweighted Data (4/26/17)*

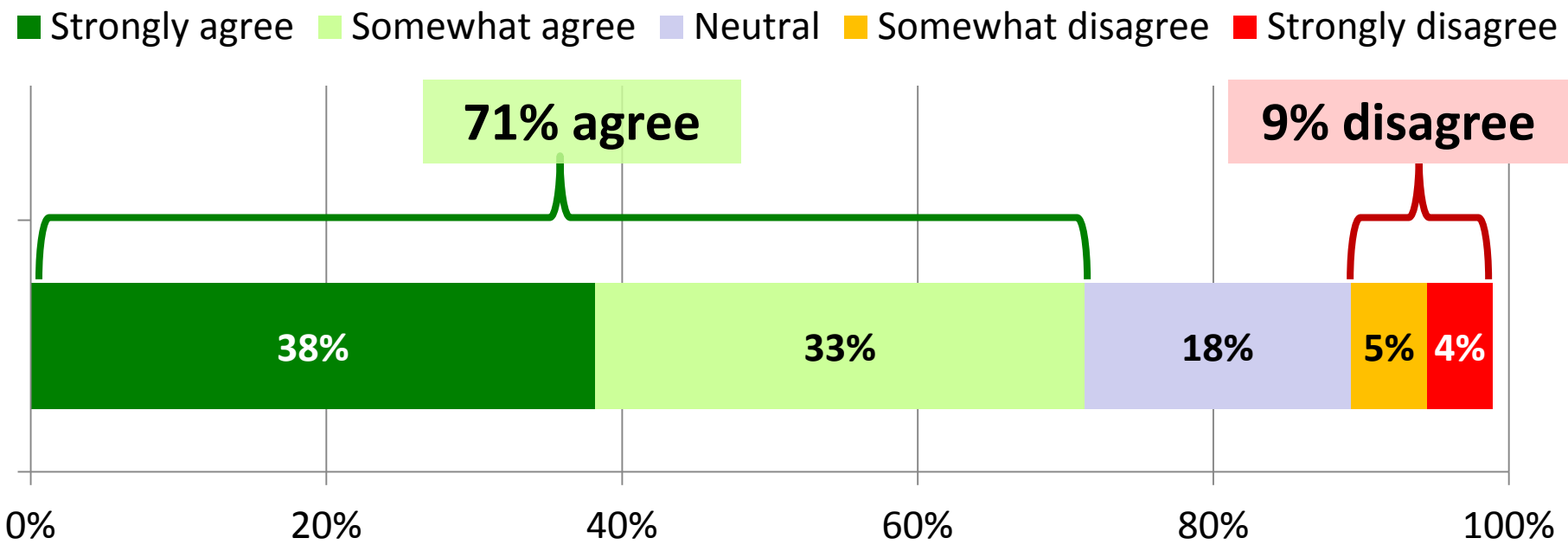


Citizen Stewardship Indicator

2017 Baseline: *Partial, Unweighted Data (4/26/17)*

I want to do more to help make local creeks, rivers, and lakes healthier.

Level of Agreement

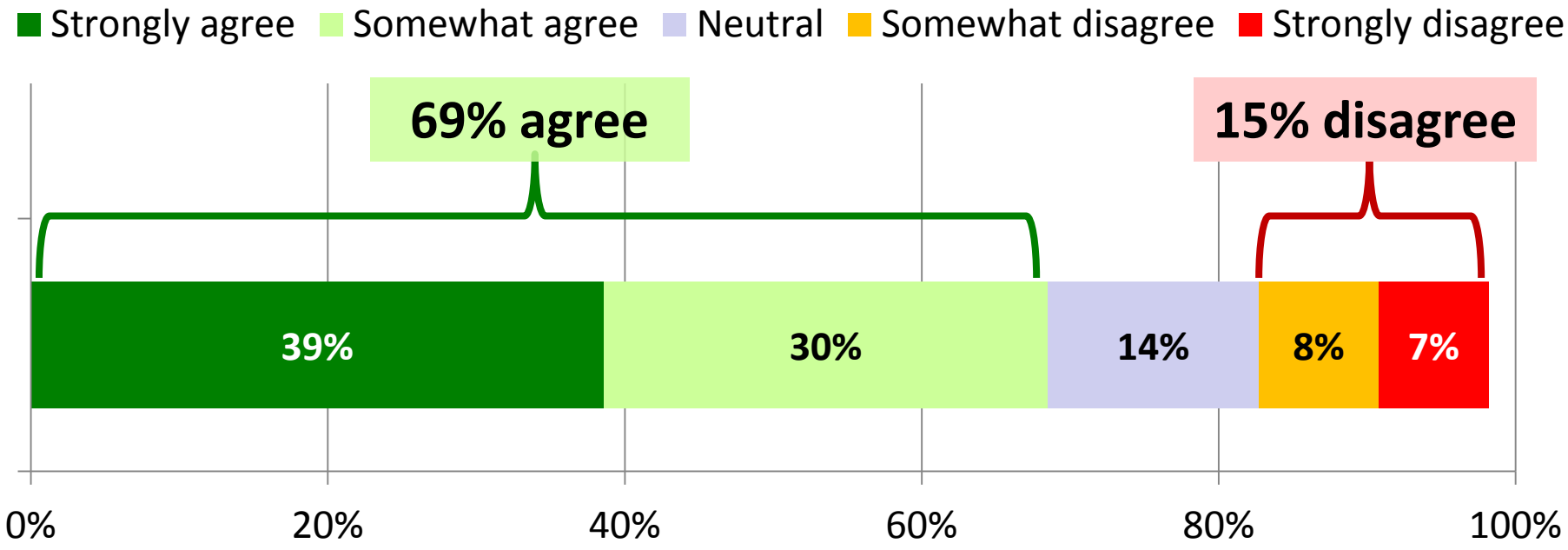


Citizen Stewardship Indicator

2017 Baseline: *Partial, Unweighted Data (4/26/17)*

I know some things I can do to help reduce water pollution where I live.

Level of Agreement

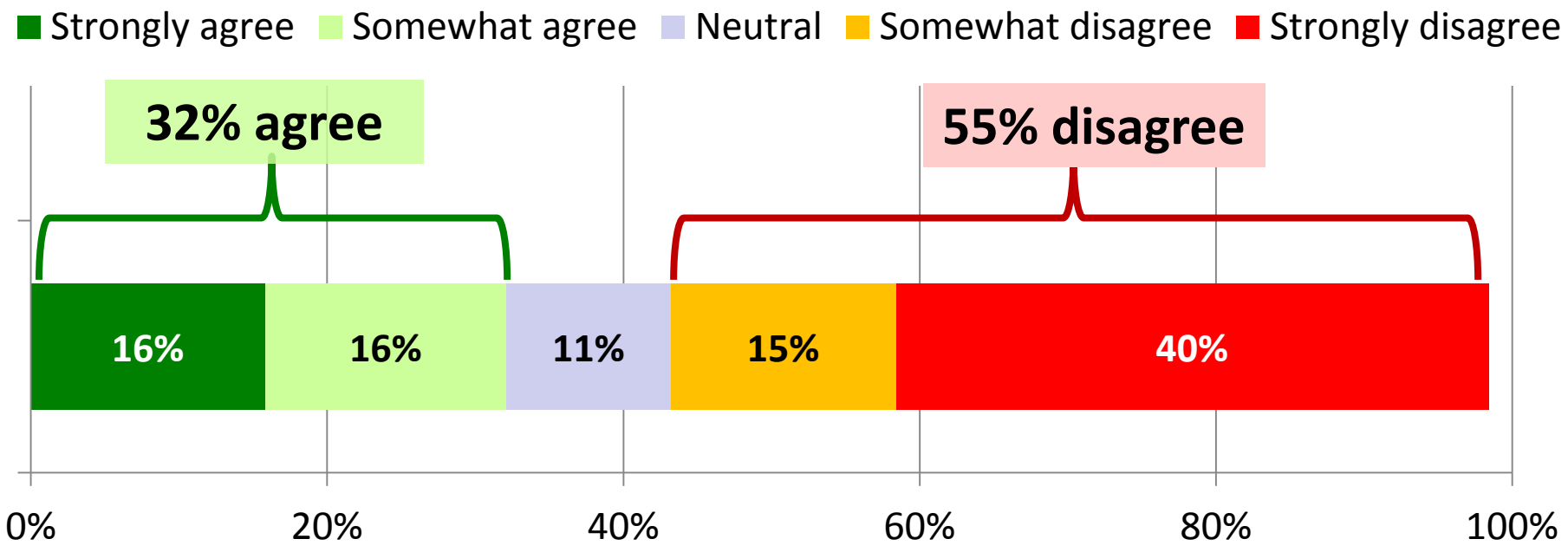


Citizen Stewardship Indicator

2017 Baseline: *Partial, Unweighted Data (4/26/17)*

My actions contribute to water pollution where I live.

Level of Agreement

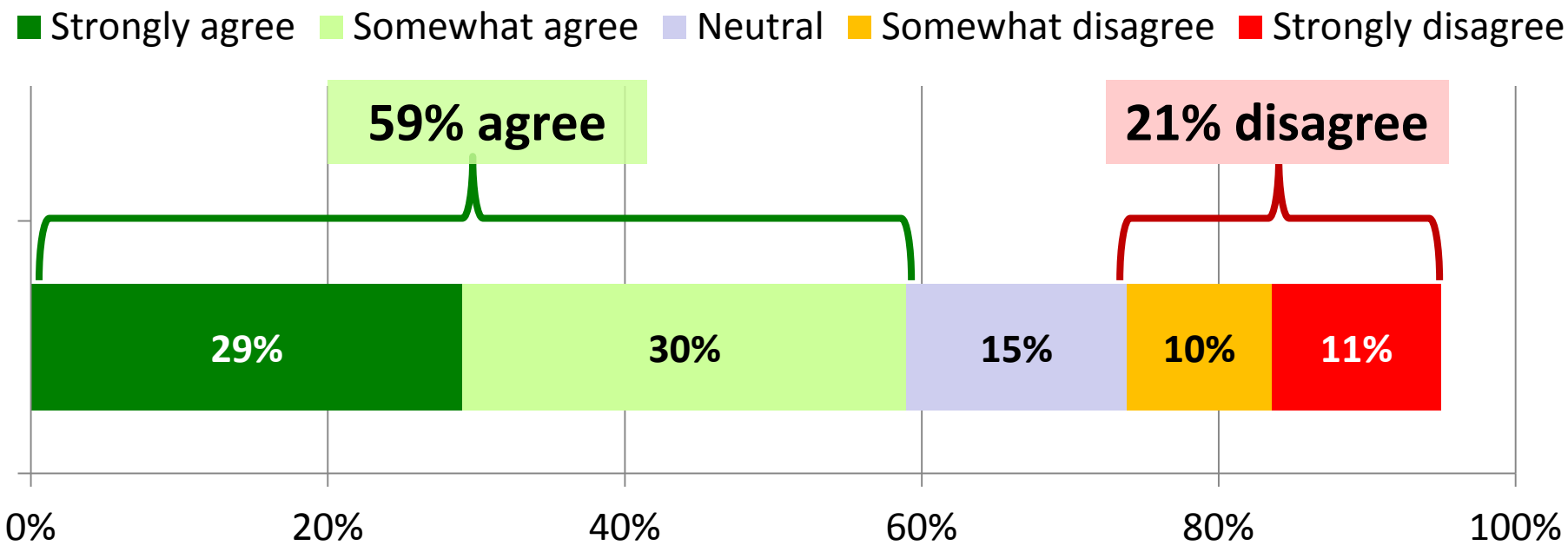


Citizen Stewardship Indicator

2017 Baseline: *Partial, Unweighted Data (4/26/17)*

The water near where I live is healthy and safe for boating, fishing, or swimming.

Level of Agreement



Influencing Factors:
Other Context

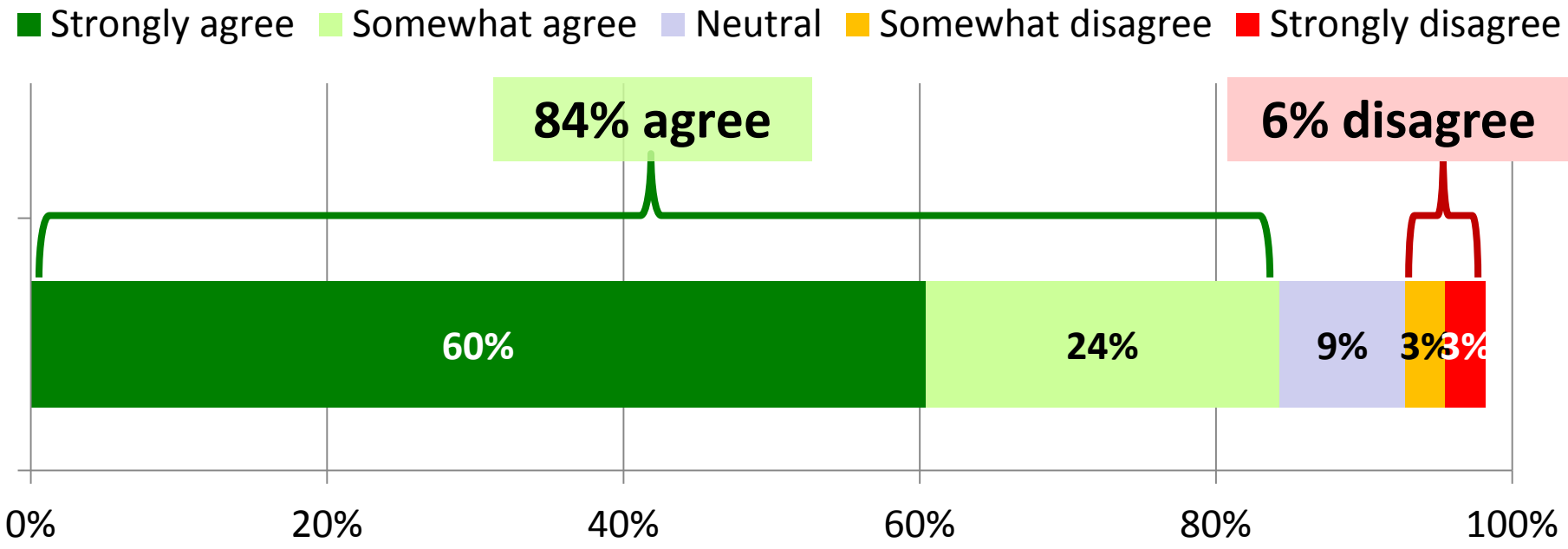
OPINIONWORKS
PUBLIC SPIRITED RESEARCH

Citizen Stewardship Indicator

2017 Baseline: *Partial, Unweighted Data (4/26/17)*

If people work together, water pollution around here can be fixed.

Level of Agreement

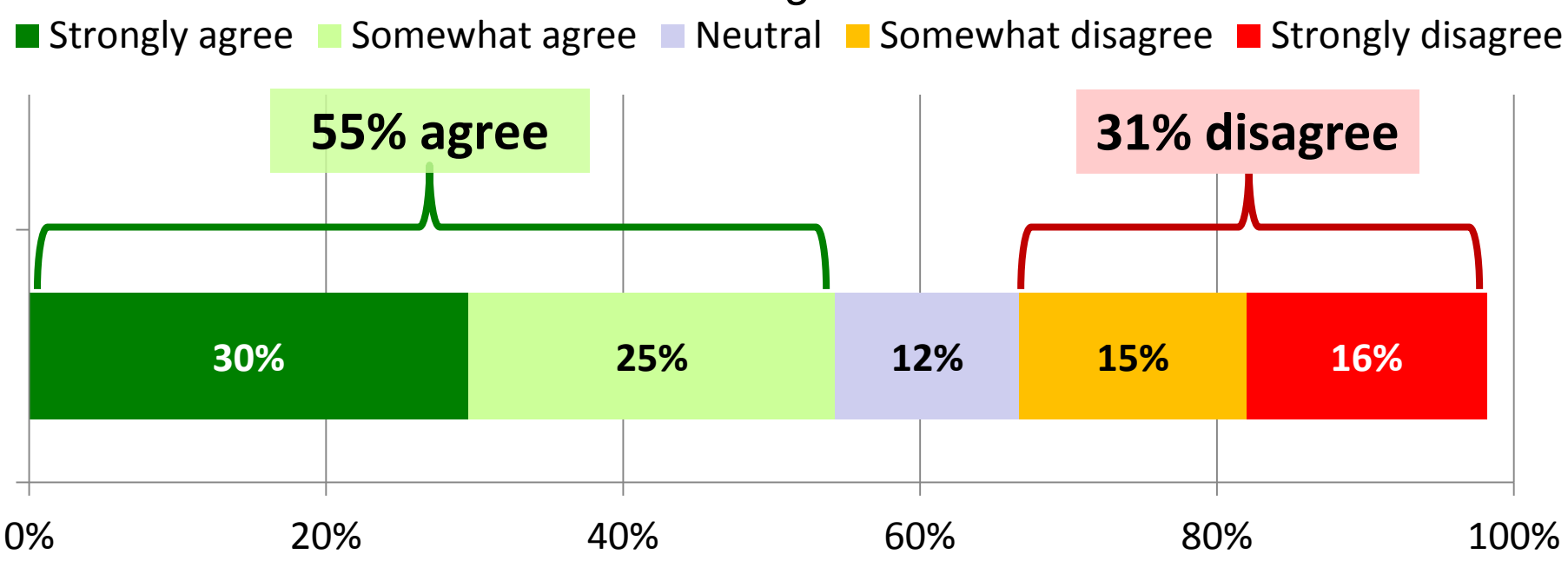


Citizen Stewardship Indicator

2017 Baseline: *Partial, Unweighted Data (4/26/17)*

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

Level of Agreement

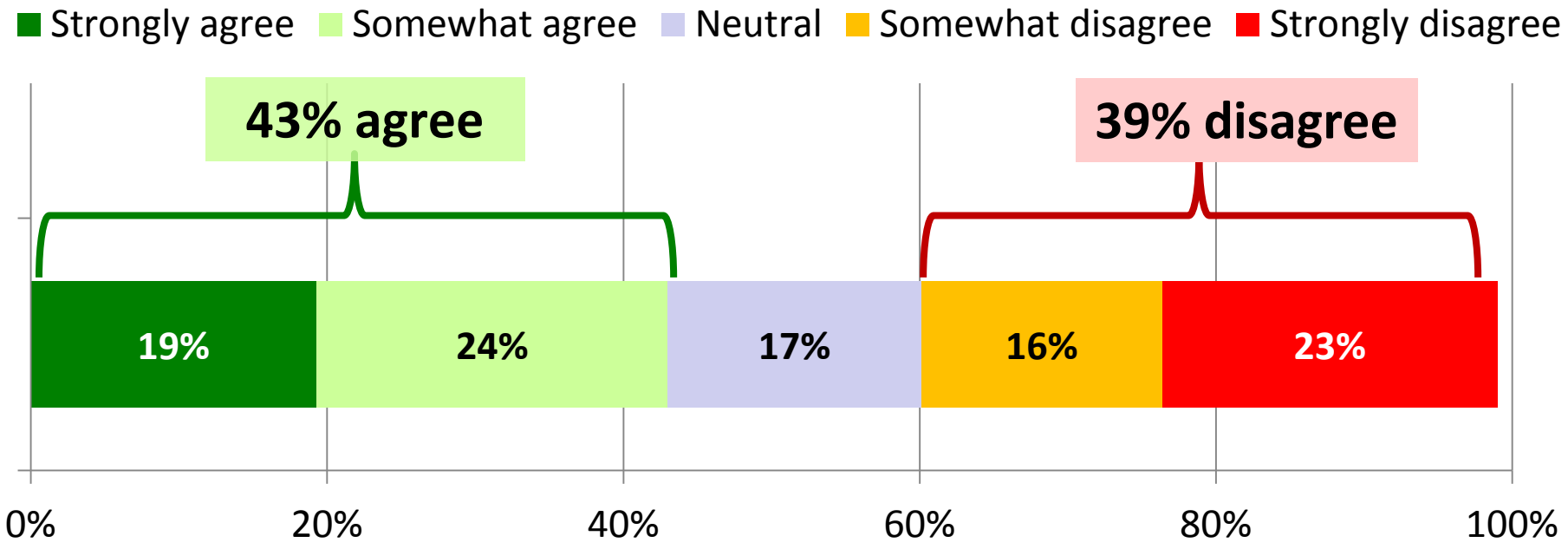


Citizen Stewardship Indicator

2017 Baseline: *Partial, Unweighted Data (4/26/17)*

I could see myself attending meetings or speaking out publicly for clean water.

Level of Agreement



Draft Influencing Factors Scoring

Draft (4/26/17)

Individual Behavior Likelihood[1]	22.02
Individual Engagement[2]	62.02
Volunteerism/Civic Engagement Likelihood[3]	61.79

Bay-wide, based on 2017 Baseline data to date

[1]19 behaviors, weighted for water impact and % of population that could perform each behavior

[2]Contextual factors predictive of individual engagement

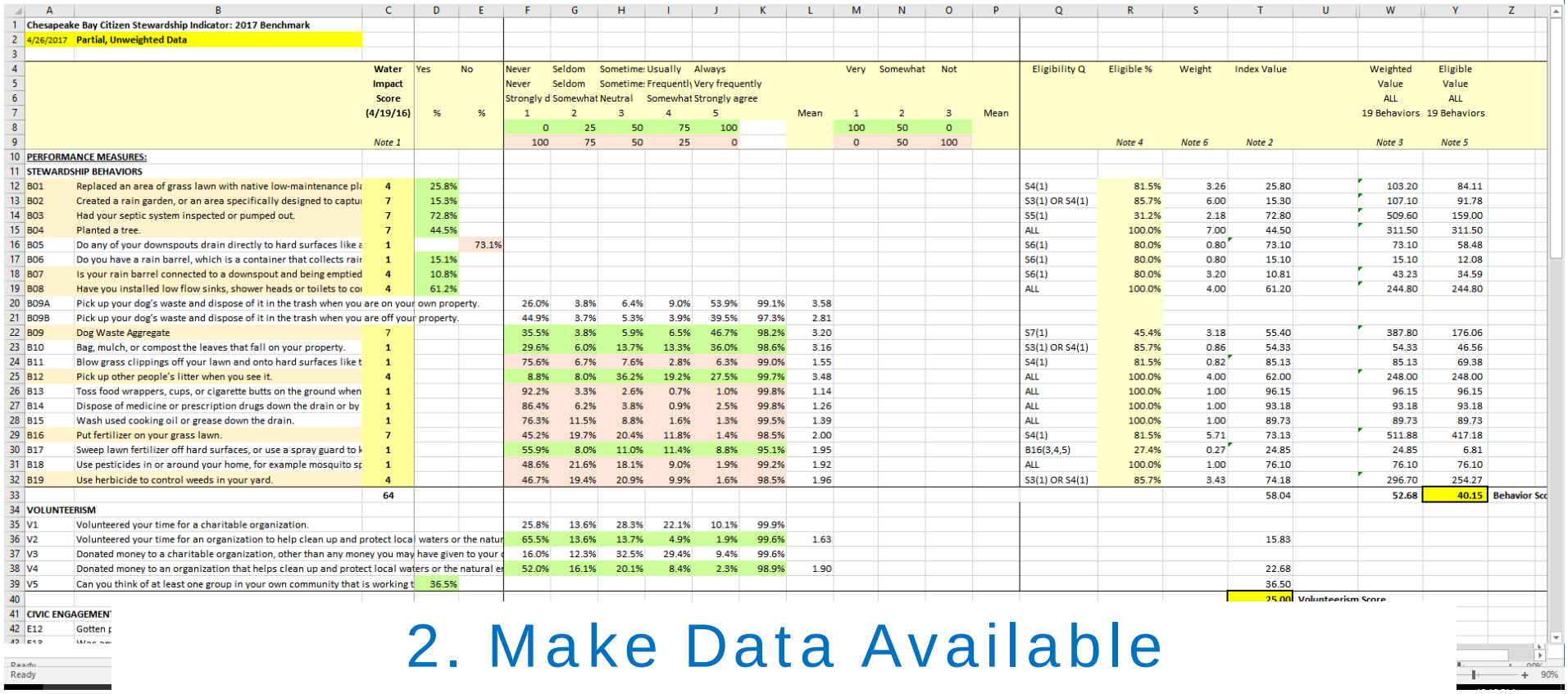
[3]Three predictive factors

Next Steps

OPINIONWORKS
PUBLIC SPIRITED RESEARCH

1. Public Sharing of Key Findings

- June 3-11, 2017
- Build public awareness of Citizen Stewardship
- Engage media through initial launch, & over time
- Advance key storylines
- Address upstream, midstream, downstream audiences



1	Chesapeake Bay Citizen Stewardship Indicator: 2017 Benchmark																													
2	4/26/2017	Partial, Unweighted Data																												
3																														
4			Water Impact Score (4/19/16)	Yes	No	Never Never Strongly d	Seldom Seldom Somewhat	Sometime Sometime Neutral	Usually Frequentl Somewhat	Always Very frequently Strongly agree			Very	Somewhat	Not		Eligibility Q	Eligible %	Weight	Index Value		Weighted Value ALL 19 Behaviors	Eligible Value ALL 19 Behaviors	
5																														
6																														
7						1	2	3	4	5		Mean	1	2	3	Mean														
8						0	25	50	75	100			100	50	0															
9			Note 1			100	75	50	25	0			0	50	100			Note 4	Note 6	Note 2		Note 3	Note 5							
10	PERFORMANCE MEASURES:																													
11	STEWARDSHIP BEHAVIORS																													
12	B01	Replaced an area of grass lawn with native low-maintenance pla	4	25.8%													S4(1)	81.5%	3.26	25.80		103.20	84.11							
13	B02	Created a rain garden, or an area specifically designed to captu	7	15.3%													S3(1) OR S4(1)	85.7%	6.00	15.30		107.10	91.78							
14	B03	Had your septic system inspected or pumped out.	7	72.8%													S5(1)	31.2%	2.18	72.80		509.60	159.00							
15	B04	Planted a tree.	7	44.5%													ALL	100.0%	7.00	44.50		311.50	311.50							
16	B05	Do any of your downspouts drain directly to hard surfaces like a	1		73.1%												S6(1)	80.0%	0.80	73.10		73.10	58.48							
17	B06	Do you have a rain barrel, which is a container that collects rair	1	15.1%													S6(1)	80.0%	0.80	15.10		15.10	12.08							
18	B07	Is your rain barrel connected to a downspout and being emptied	4	10.8%													S6(1)	80.0%	3.20	10.81		43.23	34.59							
19	B08	Have you installed low flow sinks, shower heads or toilets to co	4	61.2%													ALL	100.0%	4.00	61.20		244.80	244.80							
20	B09A	Pick up your dog's waste and dispose of it in the trash when you are on your own property.				26.0%	3.8%	6.4%	9.0%	53.9%	99.1%	3.58																		
21	B09B	Pick up your dog's waste and dispose of it in the trash when you are off your property.				44.9%	3.7%	5.3%	3.9%	39.5%	97.3%	2.81																		
22	B09	Dog Waste Aggregate	7			35.5%	3.8%	5.9%	6.5%	46.7%	98.2%	3.20					S7(1)	45.4%	3.18	55.40		387.80	176.06							
23	B10	Bag, mulch, or compost the leaves that fall on your property.	1			29.6%	6.0%	13.7%	13.3%	36.0%	98.6%	3.16					S3(1) OR S4(1)	85.7%	0.86	54.33		54.33	46.56							
24	B11	Blow grass clippings off your lawn and onto hard surfaces like t	1			75.6%	6.7%	7.6%	2.8%	6.3%	99.0%	1.55					S4(1)	81.5%	0.82	85.13		85.13	69.38							
25	B12	Pick up other people's litter when you see it.	4			8.8%	8.0%	36.2%	19.2%	27.5%	99.7%	3.48					ALL	100.0%	4.00	62.00		248.00	248.00							
26	B13	Toss food wrappers, cups, or cigarette butts on the ground when	1			92.2%	3.3%	2.6%	0.7%	1.0%	99.8%	1.14					ALL	100.0%	1.00	96.15		96.15	96.15							
27	B14	Dispose of medicine or prescription drugs down the drain or by	1			86.4%	6.2%	3.8%	0.9%	2.5%	99.8%	1.26					ALL	100.0%	1.00	93.18		93.18	93.18							
28	B15	Wash used cooking oil or grease down the drain.	1			76.3%	11.5%	8.8%	1.6%	1.3%	99.5%	1.39					ALL	100.0%	1.00	89.73		89.73	89.73							
29	B16	Put fertilizer on your grass lawn.	7			45.2%	19.7%	20.4%	11.8%	1.4%	98.5%	2.00					S4(1)	81.5%	5.71	73.13		511.88	417.18							
30	B17	Sweep lawn fertilizer off hard surfaces, or use a spray guard to k	1			55.9%	8.0%	11.0%	11.4%	8.8%	95.1%	1.95					B16(3,4,5)	27.4%	0.27	24.85		24.85	6.81							
31	B18	Use pesticides in or around your home, for example mosquito sp	1			48.6%	21.6%	18.1%	9.0%	1.9%	99.2%	1.92					ALL	100.0%	1.00	76.10		76.10	76.10							
32	B19	Use herbicide to control weeds in your yard.	4			46.7%	19.4%	20.9%	9.9%	1.6%	98.5%	1.96					S3(1) OR S4(1)	85.7%	3.43	74.18		296.70	254.27							
33			64																	58.04		52.68	40.15	Behavior Sc						
34	VOLUNTEERISM																													
35	V1	Volunteered your time for a charitable organization.				25.8%	13.6%	28.3%	22.1%	10.1%	99.9%																			
36	V2	Volunteered your time for an organization to help clean up and protect local waters or the natur				65.5%	13.6%	13.7%	4.9%	1.9%	99.6%	1.63								15.83										
37	V3	Donated money to a charitable organization, other than any money you may have given to your c				16.0%	12.3%	32.5%	29.4%	9.4%	99.6%																			
38	V4	Donated money to an organization that helps clean up and protect local waters or the natural er				52.0%	16.1%	20.1%	8.4%	2.3%	98.9%	1.90								22.68										
39	V5	Can you think of at least one group in your own community that is working t		36.5%																36.50										
40																				25.00	Volunteerism Score									
41	CIVIC ENGAGEMENT																													
42	E12	Gotten p																												
43	E13	Was an																												

Ready

2. Make Data Available

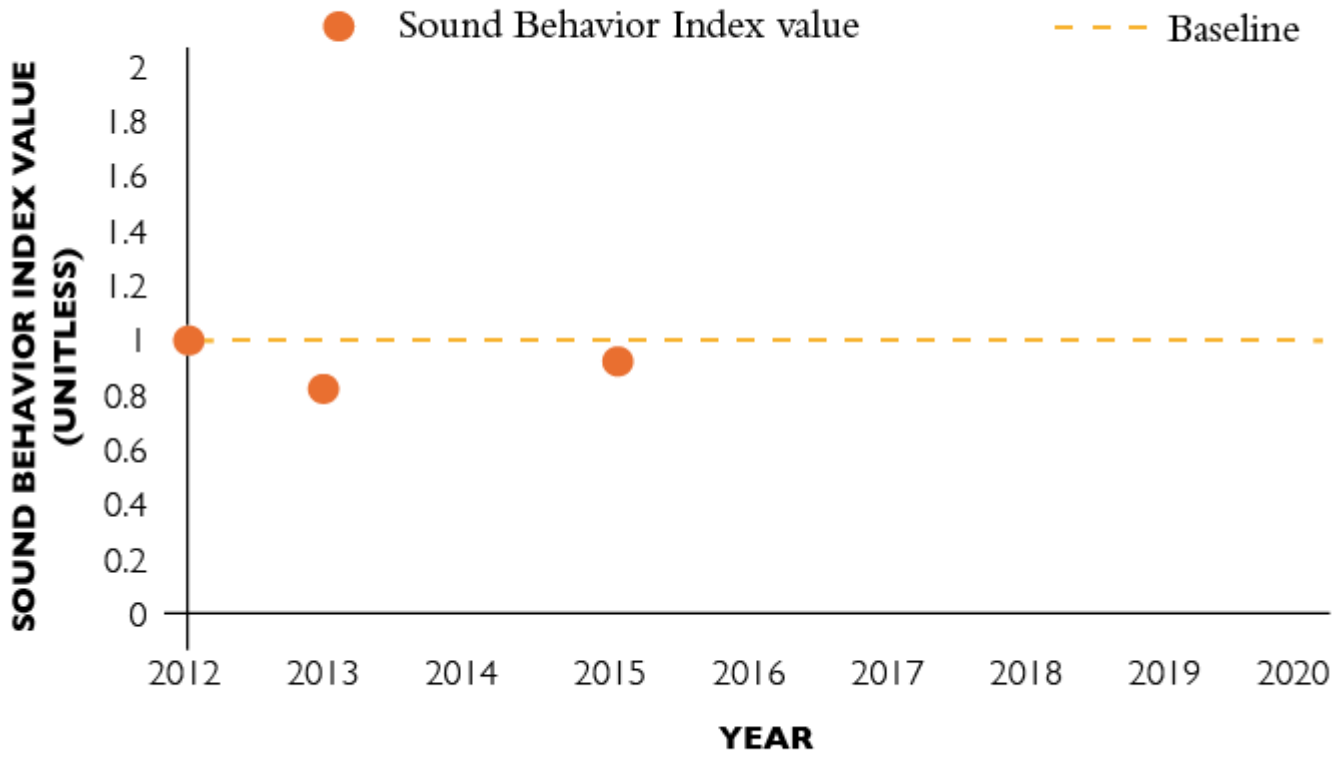
- Powerful dataset
- Useful to Jurisdictional partners, NGOs, academic community
- Analysis tool for practitioners to help target efforts

3. Track Progress

- Measure these metrics again at an appropriate interval.

FIGURE 1. SOUND BEHAVIOR INDEX

2012 – 2015



Source: Puget Sound Partnership

2014 Chesapeake Watershed Agreement

Achieving the Goal of Stewardship

Developing a Citizen Stewardship Indicator Preliminary Results

Status & Trends Workgroup

Stewardship Workgroup

May 9, 2017