

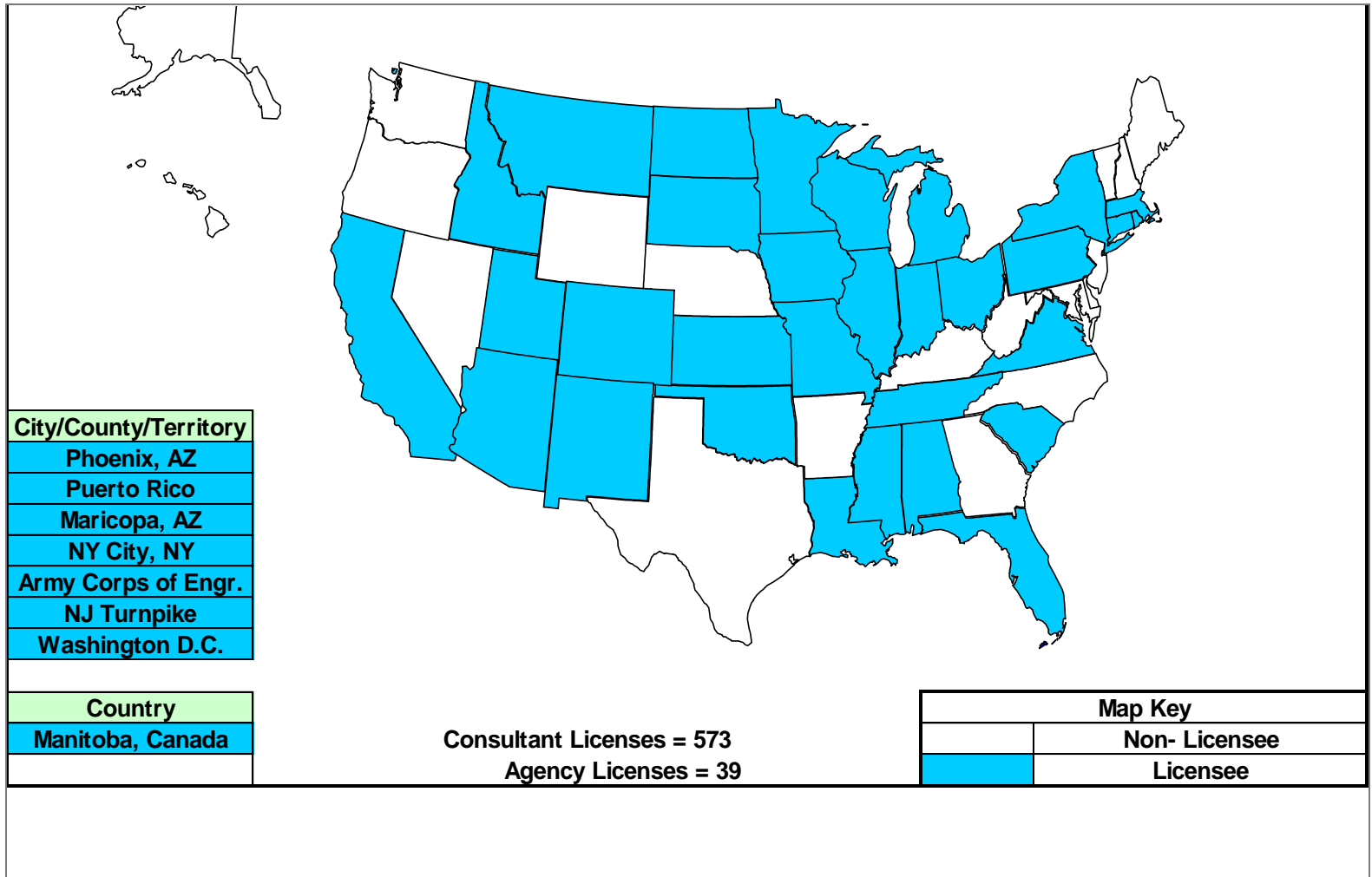


Bridge Design-Rating 2015 Administrative Overview

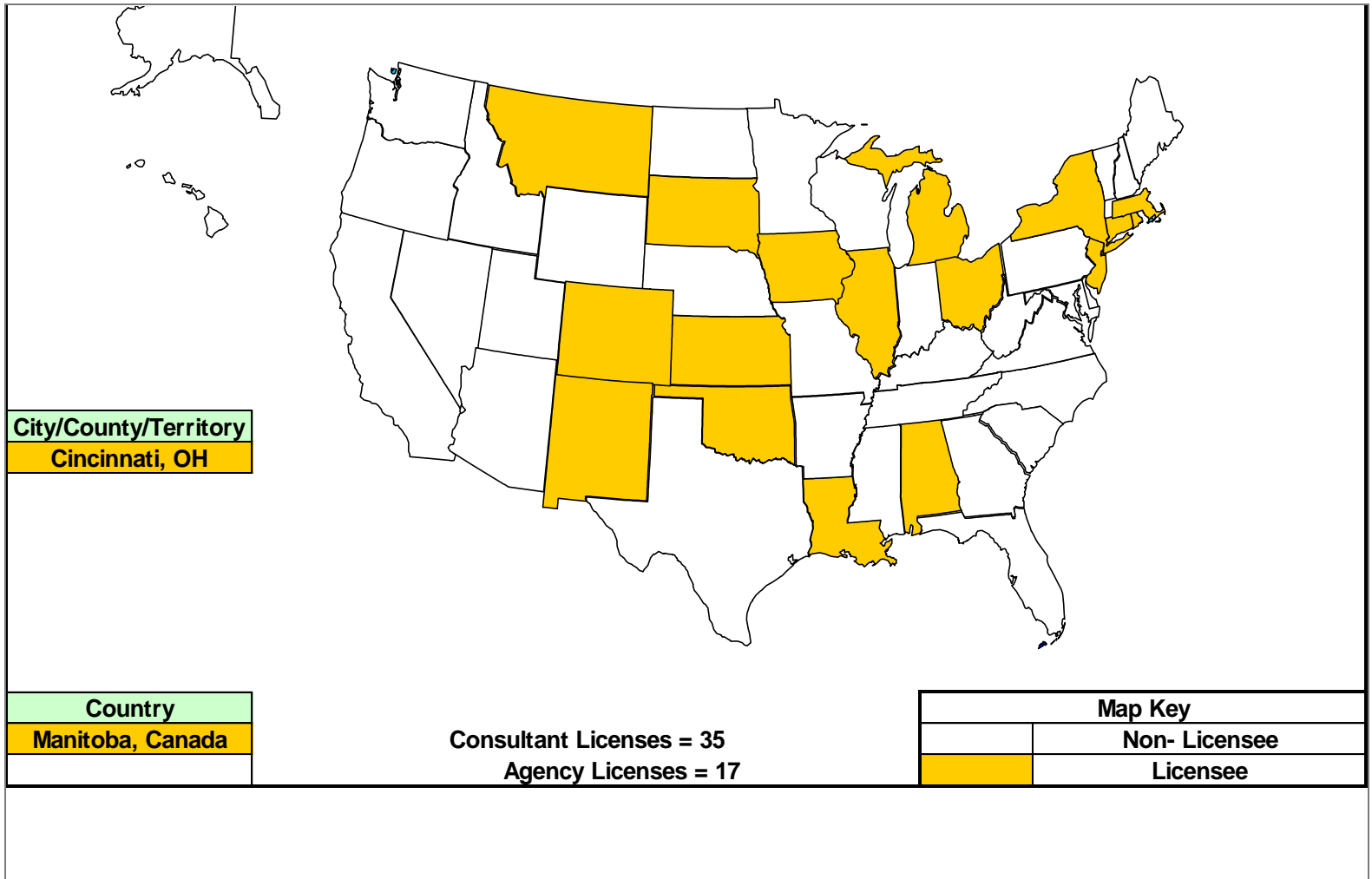
**RADBUG Meeting
Albany, NY**

Judy B. Skeen, P.E.

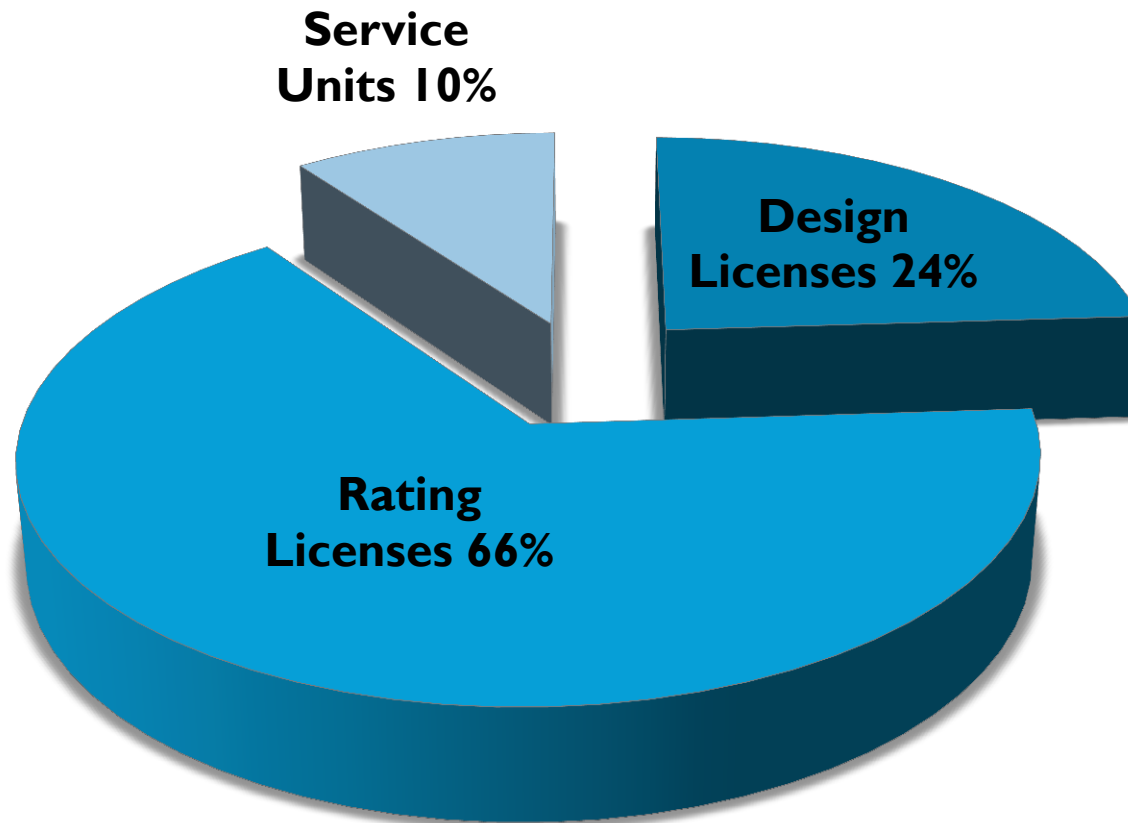
Bridge Rating Licensees (FY15)



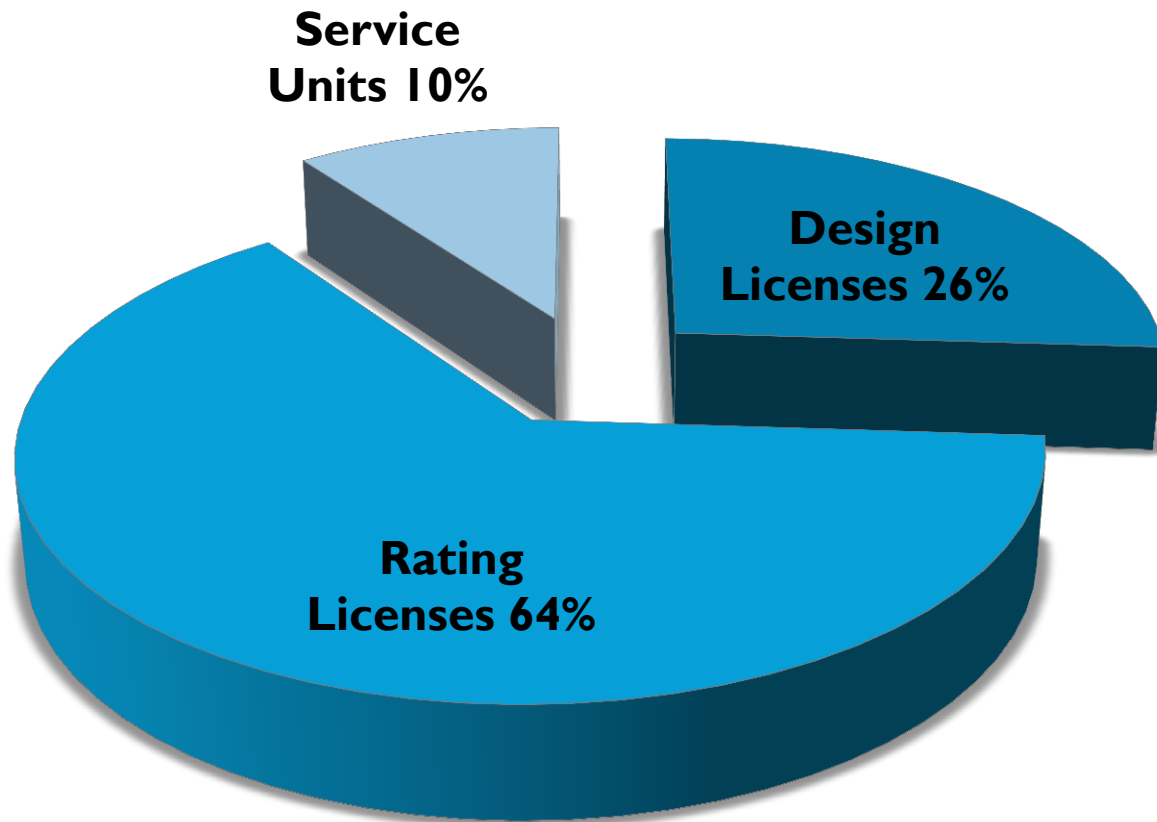
Bridge Design Licensees (FY15)



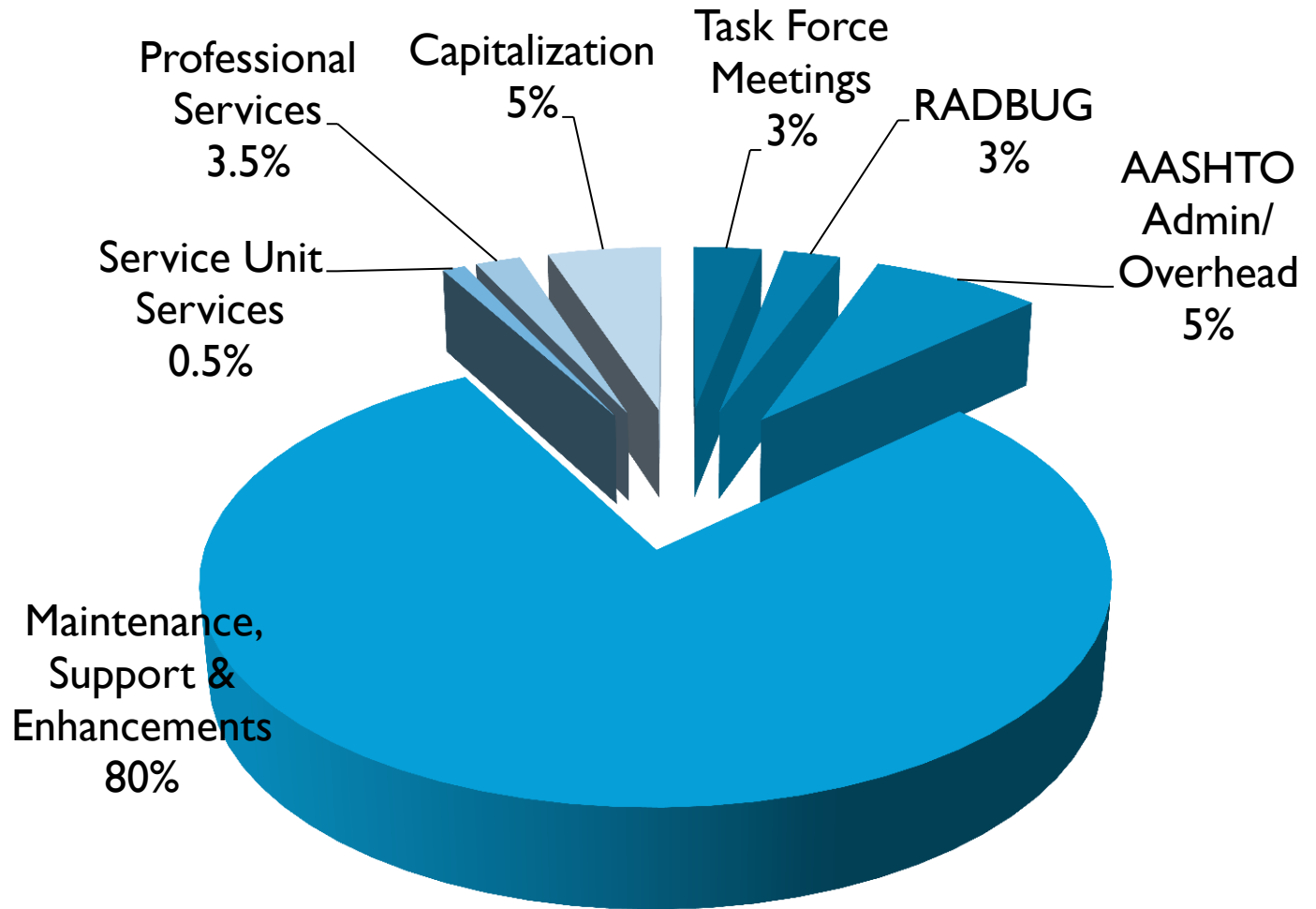
FY2014 Bridge Design-Rating Revenue



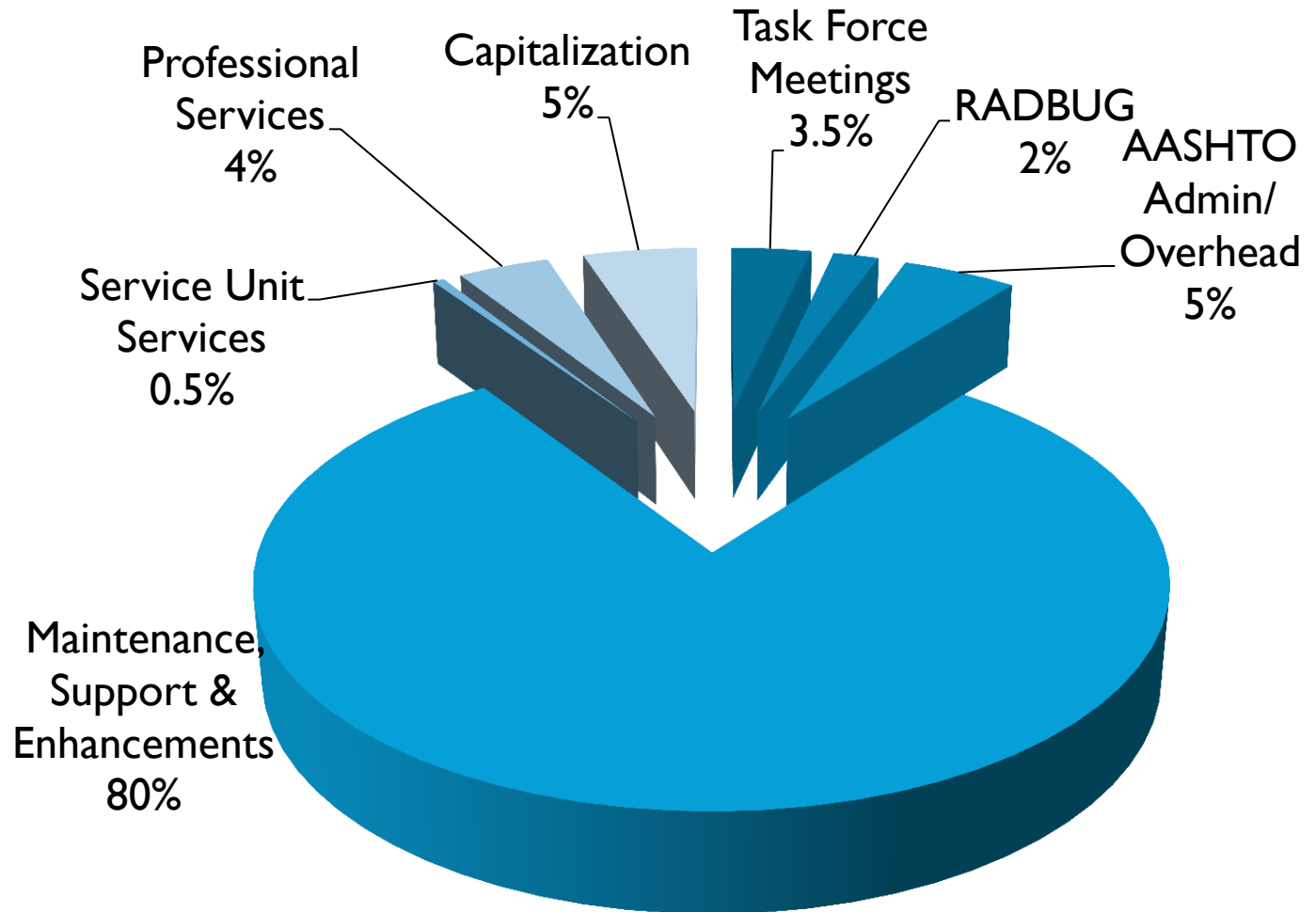
FY2015 Bridge Design-Rating Revenue



FY2014 Expenditures



FY2015 Expenditures



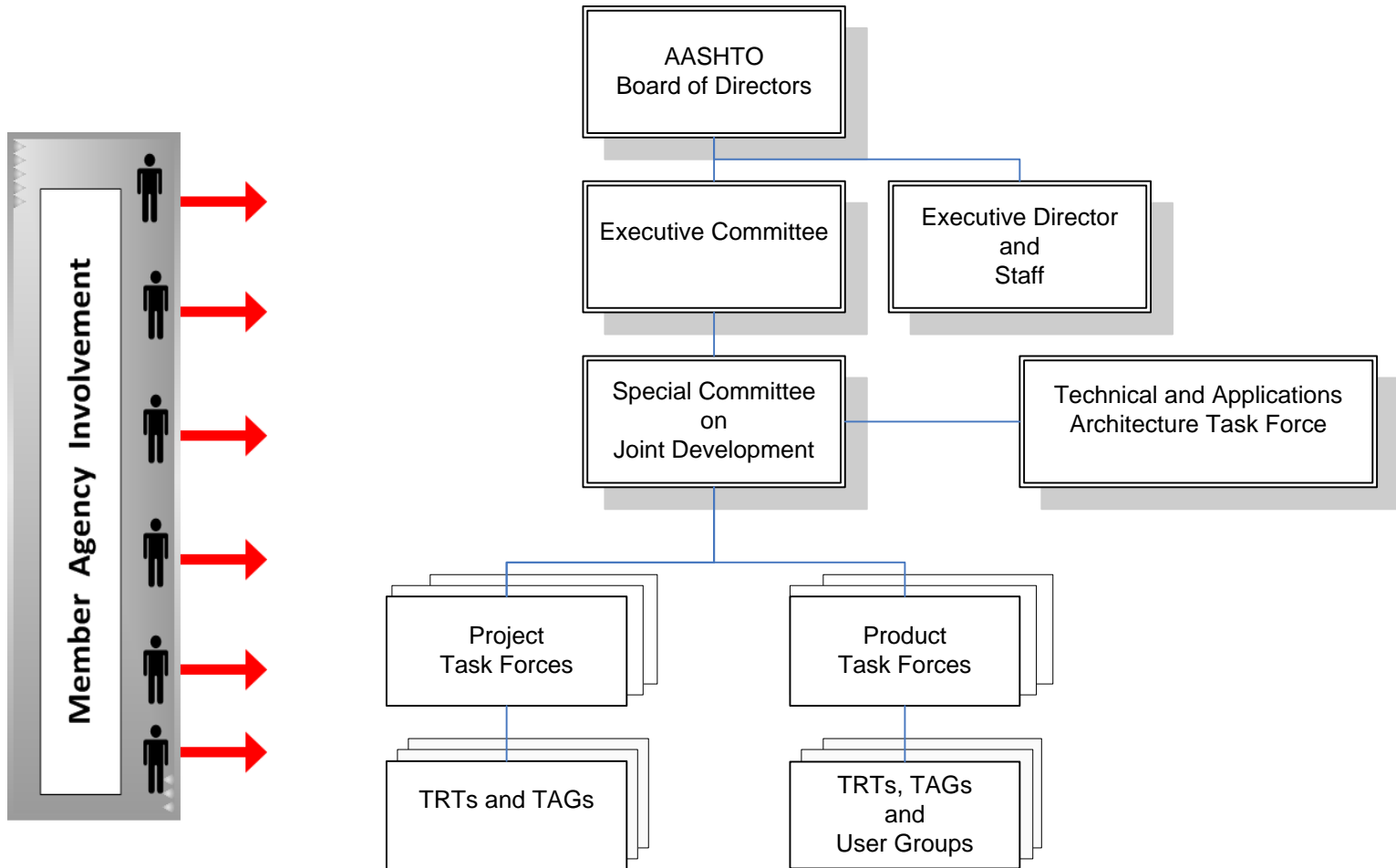
AASHTO Administrative Overhead

- AASHTO Administration & Overhead
 - Staff salaries, benefits, and overhead
 - Contracted Project Manager
 - Proportional share of SCOJD, T&AA and indirect costs
 - Legal Services
- Technical and Applications Architecture Task Force
 - Technical resource for SCOJD and product task forces
 - Develop and maintain software standards and perform QA Reviews

Why Use AASHTOWare?

- Incorporates “best practices”
- Users share solutions and costs
- License fees cover overall expenses ensure software products are kept current with technology and functional requirements
- Each product is self-supporting
- Non-profit operation
- Management and oversight by agency (DOT) personnel
- AASHTO staff project management/assistance

AASHTOWare Program Management



Task Force Member Appointment Process

- Conduct broad solicitation of interest to member community
- Candidate resumes reviewed by Task Force Chair, SCOJD Liaison, and AASHTO Project Manager
- Interviews conducted by same to find subject matter expertise needed to compliment the current Task Force membership
- Candidate recommendation and all resumes received submitted to SCOJD for approval

Members allowed to serve two, three-year terms. Special terms may be extended at the direction of the SCOJD



AASHTOWare Service Units

A Brief Overview

AASHTOWare Service Units

- Agencies can gain convenient access to services provided by the AASHTOWare contractor via service units.
- AASHTO serves as facilitator by accepting the commitment for contractor-provided services, invoicing and receiving payment from the agency and forwarding the order to the contractor for the appropriate number of service units.
- AASHTO makes payment for services rendered to the contractor following agency approval of the invoice.
- Service units remaining at the conclusion of a fiscal year are carried forward into the next fiscal year.

AASHTOWare Service Units

Service units are intended to provide consultation and support to incorporate functional enhancements or to assist the licensee in the implementation of AASHTOWare products.

Service Unit – Example Activities

- Service Unit work by the contractor may include the following types of activities:
 - Adding new agency-specific features to the system
 - Developing custom reports
 - Providing specialized training in the use of AASHTOWare products
 - Updating prior releases of product databases

Service Unit – Example Activities

- Supporting common software enhancements unfunded through product licensing fees that will become part of the code base and will be supported by Maintenance, Support and Enhancement (MSE) costs
- Incorporating analytical or specification engines into AASHTOWare products
- Funding software development projects / solicitations

Use of Service Units

- The example activities outlined previously may require more than one Service Unit each, depending on the specific agency requirements.
- Service Units may not be used to provide reimbursement for travel expenses by agency personnel.
- Service Units should not be used for work involving major new software development by member agencies.
- Service Units may be converted to provide additional enhancement funding under the guidance of the Task Force.

Fee for Service Units

- Service Units can be ordered in unit increments of \$11,600 (this fee includes AASHTO administrative costs).
- Service Units must be paid upon receipt of the invoice.
- Each service unit provides \$10,000 in routine contractor services.

Service Units Fee Distribution

86.2	the percentage directly allocated to the software service provider
8.8	the percentage used to offset AASHTO internal administrative costs <ul style="list-style-type: none">• staff salaries, benefits, and overhead• proportional share of SCOJD, T&AA and indirect costs• legal services
5.0	the percentage dedicated to support the Research, Innovation, and Product Improvement Program required by governing policy approved by the AASHTO Board of Directors <ul style="list-style-type: none">• covers risks associate with software development• provides seed money for new projects• funds expenses associated with patenting and third-party testing• supports product branding / marketing initiatives• Funds research initiatives and product high-priority enhancements over and above funding available from user license fees

Service Unit Process

- Partnership between requesting agency, Task Force and contractor.
- Task Force 'weighs in' and approves, ensuring contractor resources are available with no detrimental impact to software development efforts.
- Analyze opportunities for collaboration between agencies and Task Force product work plans.



2015 Bridge Design-Rating Customer Satisfaction Survey Results

Conducted June 23 – July 27, 2015

Survey Participation

- Two survey instruments were published
 - AASHTO Member Agencies (State Agencies, Counties, Cities)
 - Consultants
- 94 responses (64 in 2013)
 - 33 member agencies - state (41 in 2013)
 - 3 member agencies - county (2 in 2013)
 - 3 member agencies - city (1 in 2013)
 - 55 consultants (20 in 2013)
 - 14 agency sponsored license (6 in 2013)
 - 38 special consultant option license (13 in 2013)
 - 2 single workstation license (1 in 2013)
 - 1 standalone developer license (0 in 2013)

Software Used

	Bridge Design	Bridge Rating	Both
Member Agency	0 (0)	59% (49%)	41% (51%)
Consultant	0 (0)	84% (70%)	16% (30%)

	6.7	6.6	6.5	6.4	6.3	6.2
Member Agency	18%	69%	10%	3% (80%)	(14%)	(6%)
Consultant	25%	60%	13%	2% (95%)	(0)	(5%)

Does the State DOT you work for require BrD or BrR?

	Yes	No
Consultant	93%	7%

(2013 Responses)

Software (versions other than 6.7)

- Did not know 6.7 was available (8)
- Haven't had time, upgrades are tedious (7)
- In the process of upgrading to 6.7 (4)
- Waiting on internal IT (3)
- 6.7 hasn't been fully tested by their agency
- Waiting for BRASS engine to work with 6.7
- Waiting for bugs to be worked out in 6.7

Respondent Role/Proficiency

Designated End User?

	Yes	No	Not Sure
Member Agency	64% (73%)	18% (11%)	18% (16%)
Consultant	71% (85%)	7% (0)	22% (15%)

Active User of the Software?

	Yes	No
Member Agency	92% (87%)	8% (13%)
Consultant	93% (10%)	7% (10%)

(2013 Responses)

Level of Proficiency?

	Beginner	Intermediate	Advanced
Member Agency	8%	54%	38%
Consultant	16%	46%	38%

Bridge Design Usage

Member Agency	Consultant
<ul style="list-style-type: none">• Use 100% - for design check of concrete slab, pre-stressed girder, and steel girder bridges (3)• All designs that the software can support• Use 80%• Use 25% - reinforced concrete box culvert• Use 10%• Use 5% - secondary software• Minimal usage – primarily used to vet inputs submitted by consultants (4)• Used for design check only	<ul style="list-style-type: none">• Primary software for bridge design• Design checking• Independent check of hand calculations and outside designs• Secondary software for bridge design

Bridge Rating Usage

Member Agency	Consultant
<ul style="list-style-type: none">• Primary software for bridge rating (23)• Primary software for permit routing (2)• Primary software for timber and pre-stressed box, channel ratings• Use 90% (4)• Use 80% (3)• Use 25% - primarily use in-house software• Use LARS for super load and permitting (2)• Rating of superstructure for slab spans, box culverts and quad beams• Secondary software – slab, pre-stressed, steel (2)• Use 10% (2)	<ul style="list-style-type: none">• Primary software for bridge rating (33)• Primary software for AASHTO member clients (11)• Use 90% (5)• Use 75%• Use 50%• Use 20%• Use CSI Bridge for more complex structures• Use Midas, STAAD and/or spreadsheets for bridges that BrR cannot support• Timber and culvert modules are useless - culvert doesn't support ASD

Bridge Database

Integrated BrDR and BrM Database?

Yes	No
26%	74%

Number of Bridges in BrDR Database?

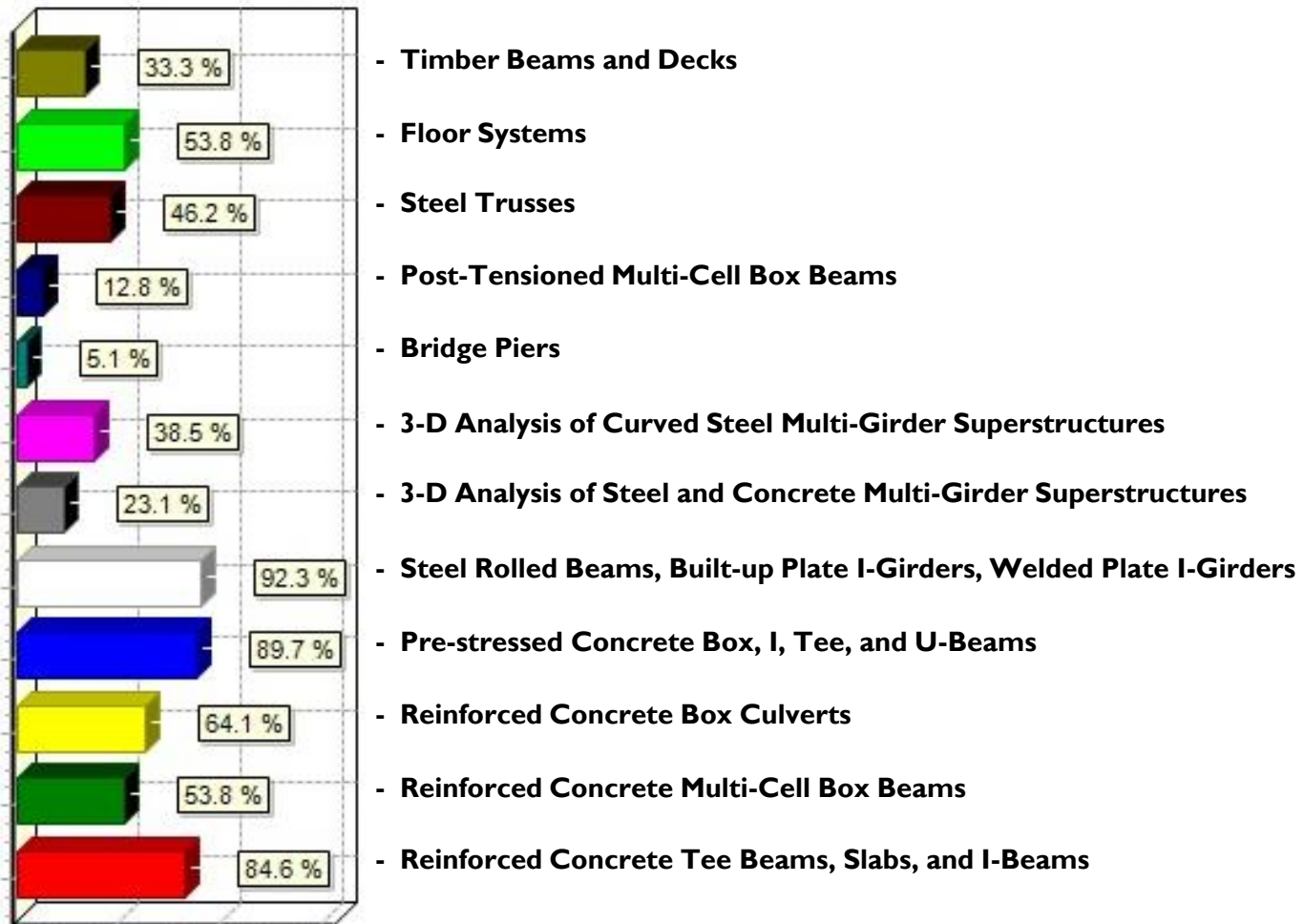
0 - 1999	2000 - 3999	4000 - 5999	6000 - 7999	8000 - 9999	10,000 - 11,999	12,000 - 13,999
16	9	4	4	1	0	1

Percentage of Bridges Modeled in BrDR?

0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100
10	3	3	4	2	0	5	2	1	5	1

Bridge Database

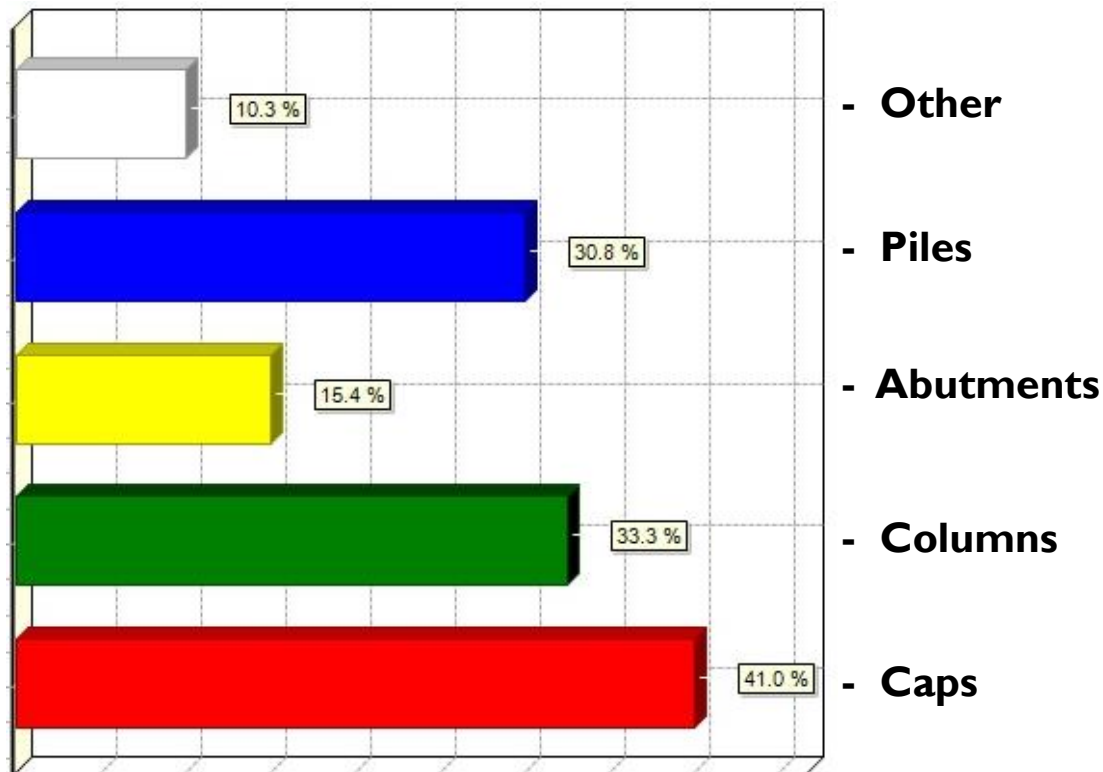
Types of Bridges Modeled in BrDR?



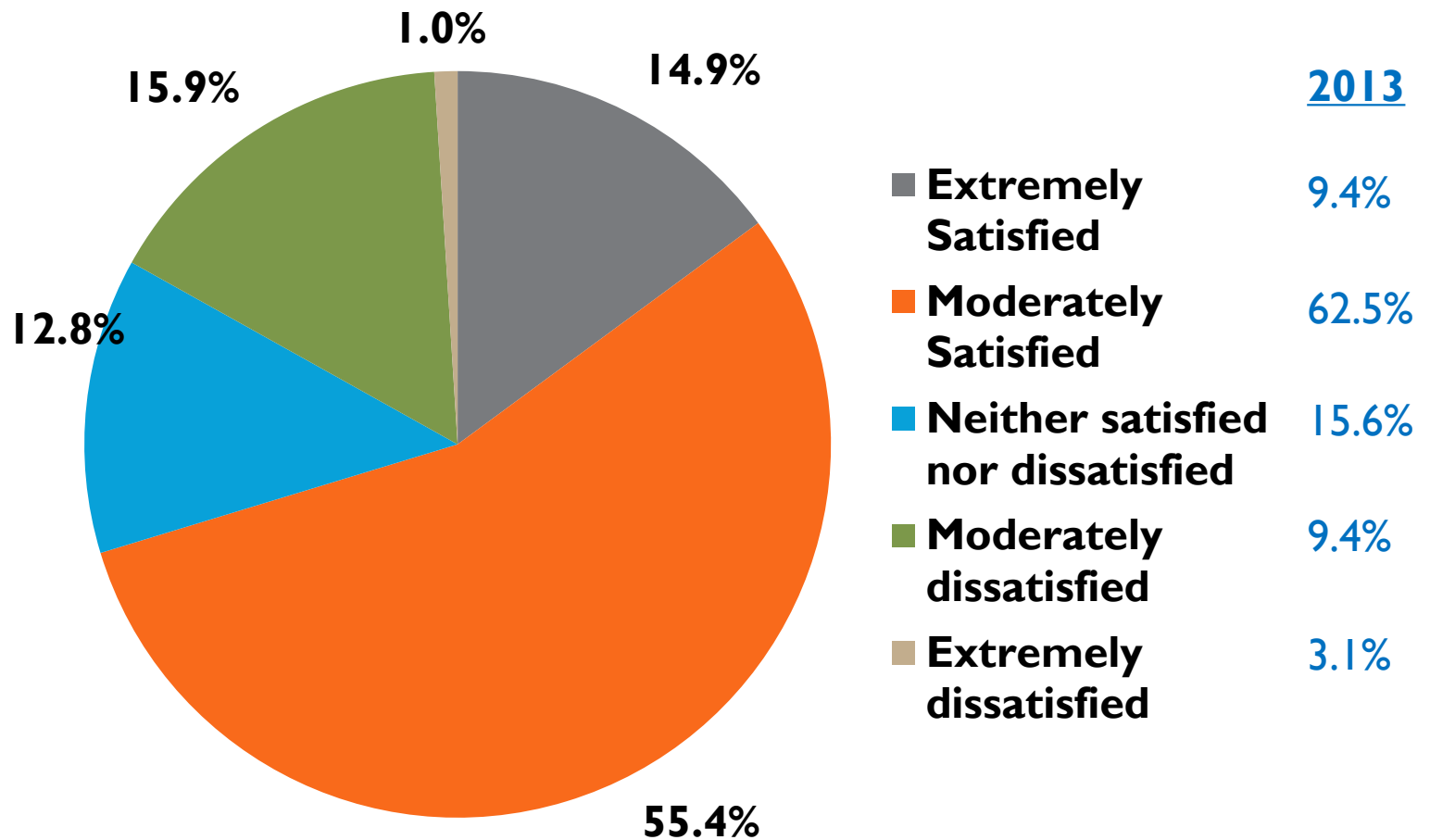
Bridge Rating

Do you Load Rate Substructures?

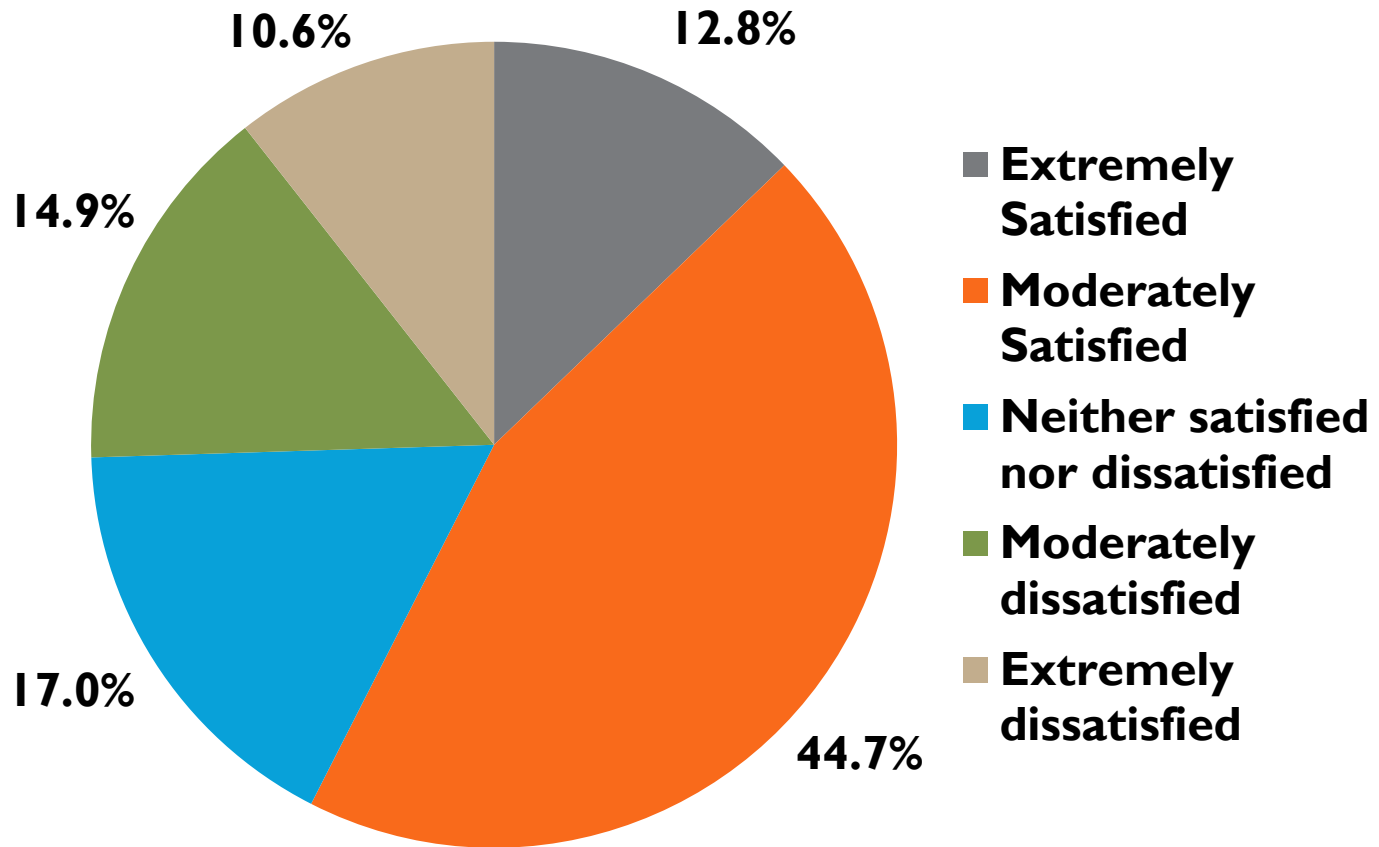
Routinely	As-needed	No
0	49%	51%



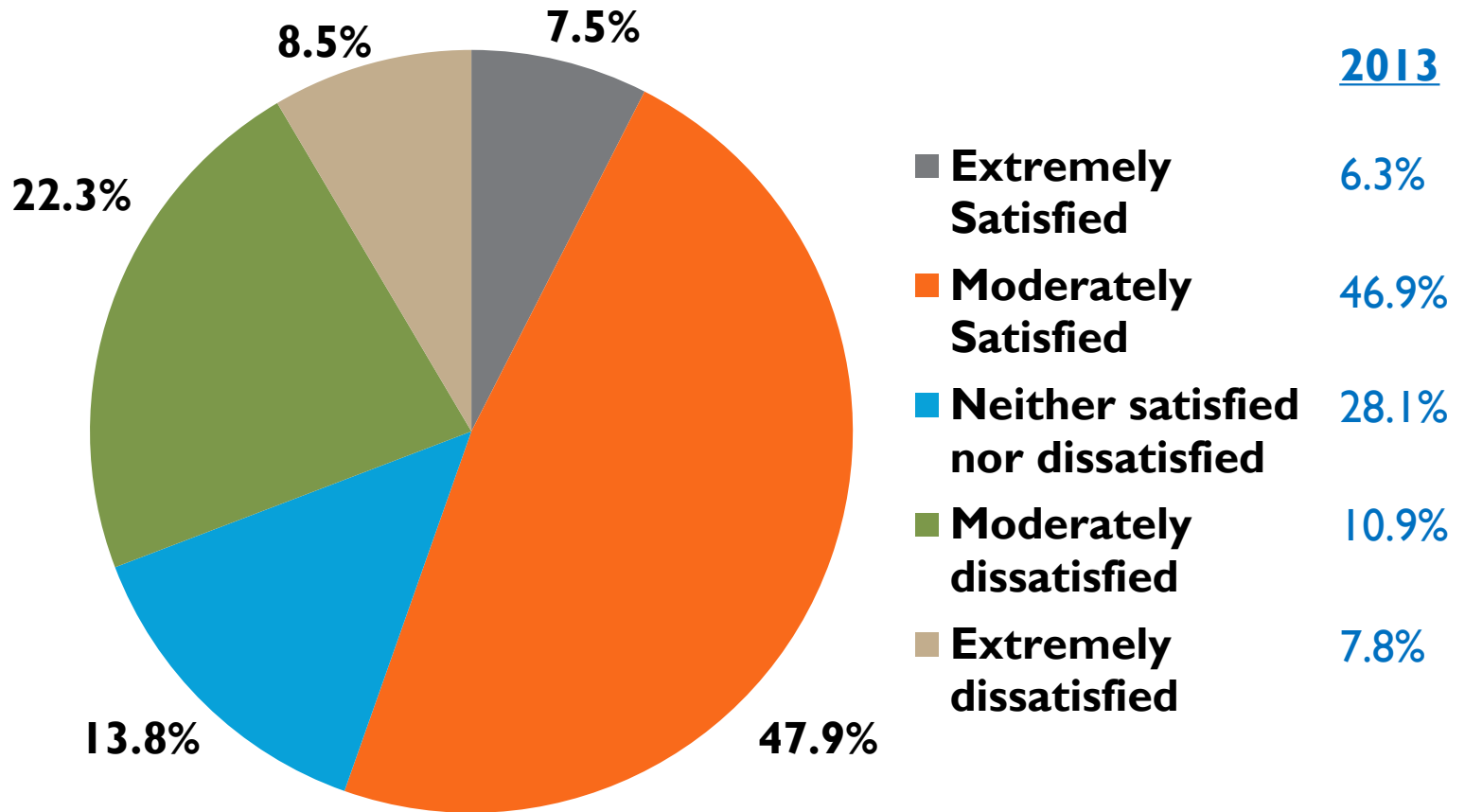
Operation (Ease of Use / Reliability)



Operation (Speed)



Reports (Quality / Completeness)

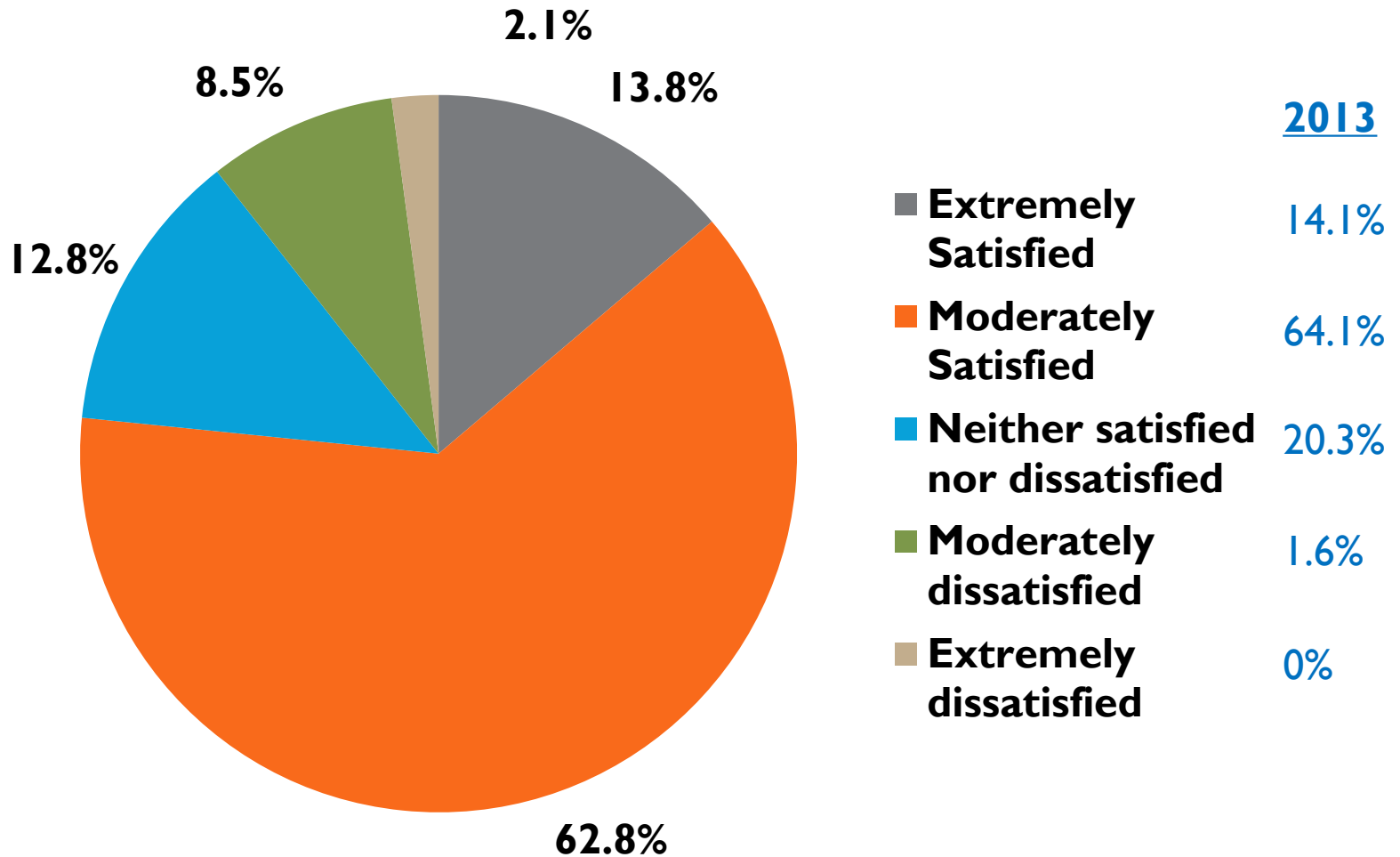


Additional Reports Requested

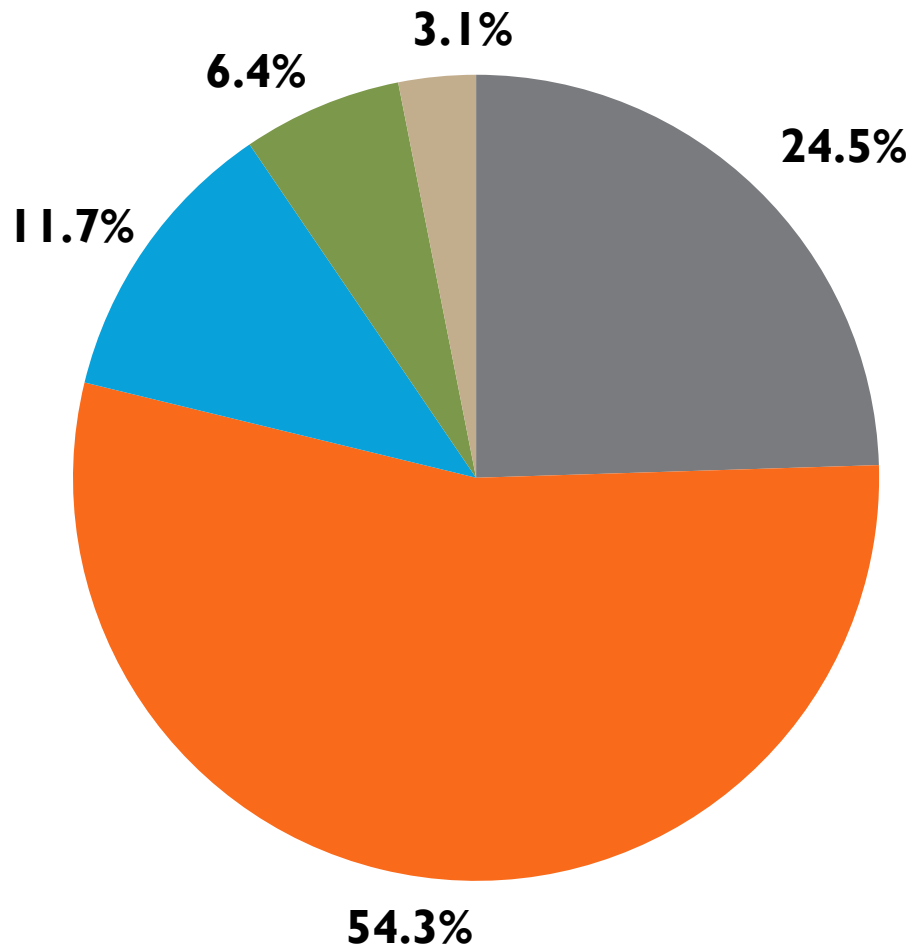
Summary of 21 Responses Received

- Ability to customize load rating reports
 - obtain ratings at specific points
 - print the moment/shear envelope graphs
 - generate LRFR reports from the report tool
 - include the controlling member and limit state in the tabular output
- Ability to export reports into MS Word
- Develop a uniform standard report that contains all inputs, intermediate calculations, & summary reports – organized in a repeatable manner
- Add a hand calculation of the select case – show the components of the rating factor equation and where they came from

Program Features/Capabilities



Analysis Provided



2013

■ Extremely Satisfied	28.1%
■ Moderately Satisfied	56.3%
■ Neither satisfied nor dissatisfied	7.8%
■ Moderately dissatisfied	4.7%
■ Extremely dissatisfied	1.6%

Software Use Comments – Summary of 35 Responses Received

- **Interface is not user friendly**
 - difficult and complicated to use
 - needs to be better aligned with typical Windows features
- **Output is disorganized and hard to use**
 - detailed level of calculations within the output are difficult to find
- **Unacceptable run times**
 - many 3-D model analyses crash the program
 - saving changes for analysis is extremely difficult
- **Software is riddled with errors**
 - error messages do not relate to the problem indicated
 - instances where the software will stop permitting dialogue boxes to be opened or the analysis will not run correctly

Software Use Comments – Summary of 35 Responses Received (cont)

- Software structure types are too limited
- Help menus and tutorials are very outdated
- Importing files into BrR is difficult
- Bridges with varying girder numbers per span cannot be modeled in BrR
- Software version upgrades are cumbersome
- Software license restrictions and costs make it difficult to use on multiple projects

Member Agency use of support from the contractor - 68% (65%)

	Extremely satisfied	Moderately satisfied	Neither satisfied nor dissatisfied	Moderately dissatisfied	Extremely dissatisfied
a) quality of the support provided	58% 31%	31% 47%	11% 13%	0% 9%	0% 0%
b) timeliness of the response / resolution	58%	38%	4%	0%	0%
c) contractor communication and follow-up	50% 31%	31% 44%	19% 19%	0% 6%	0% 0%
d) effectiveness of contractor telephone & e-mail support	50% 31%	27% 45%	19% 21%	4% 3%	0% 0%
e) knowledge of the contractor help desk staff	58% 39%	19% 48%	23% 13%	0% 0%	0% 0%
f) overall quality of contractor problem resolution	62% 37%	23% 43%	15% 17%	0% 3%	0% 0%

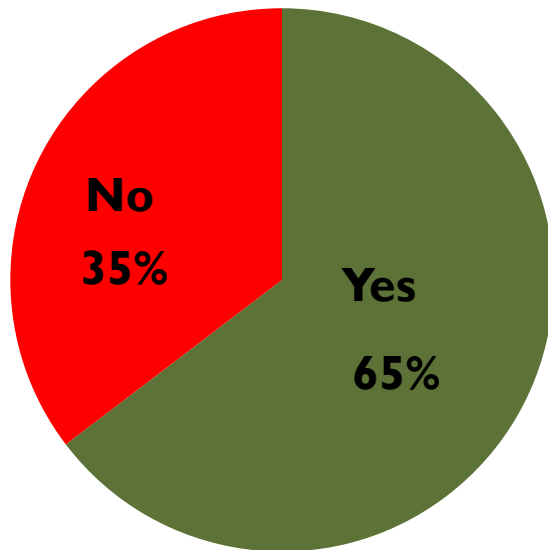
Contractor Support Comments

- Responses are usually provided promptly; however, responses seem "rushed" and sometimes do not fully answer the questions asked
- Telephone support is lacking - sometimes the user needs to talk to someone instead of sending email
- "cannot reproduce error" is used to dismiss issues too frequently, and too quickly

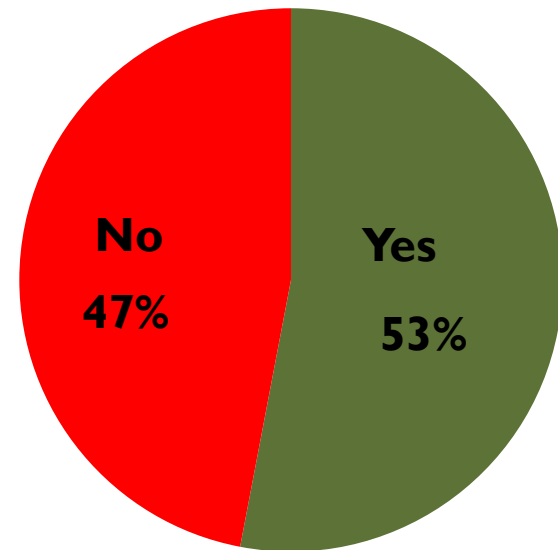
Online Tutorial Usage

Have you used the online tutorials available on the BrDR support site?

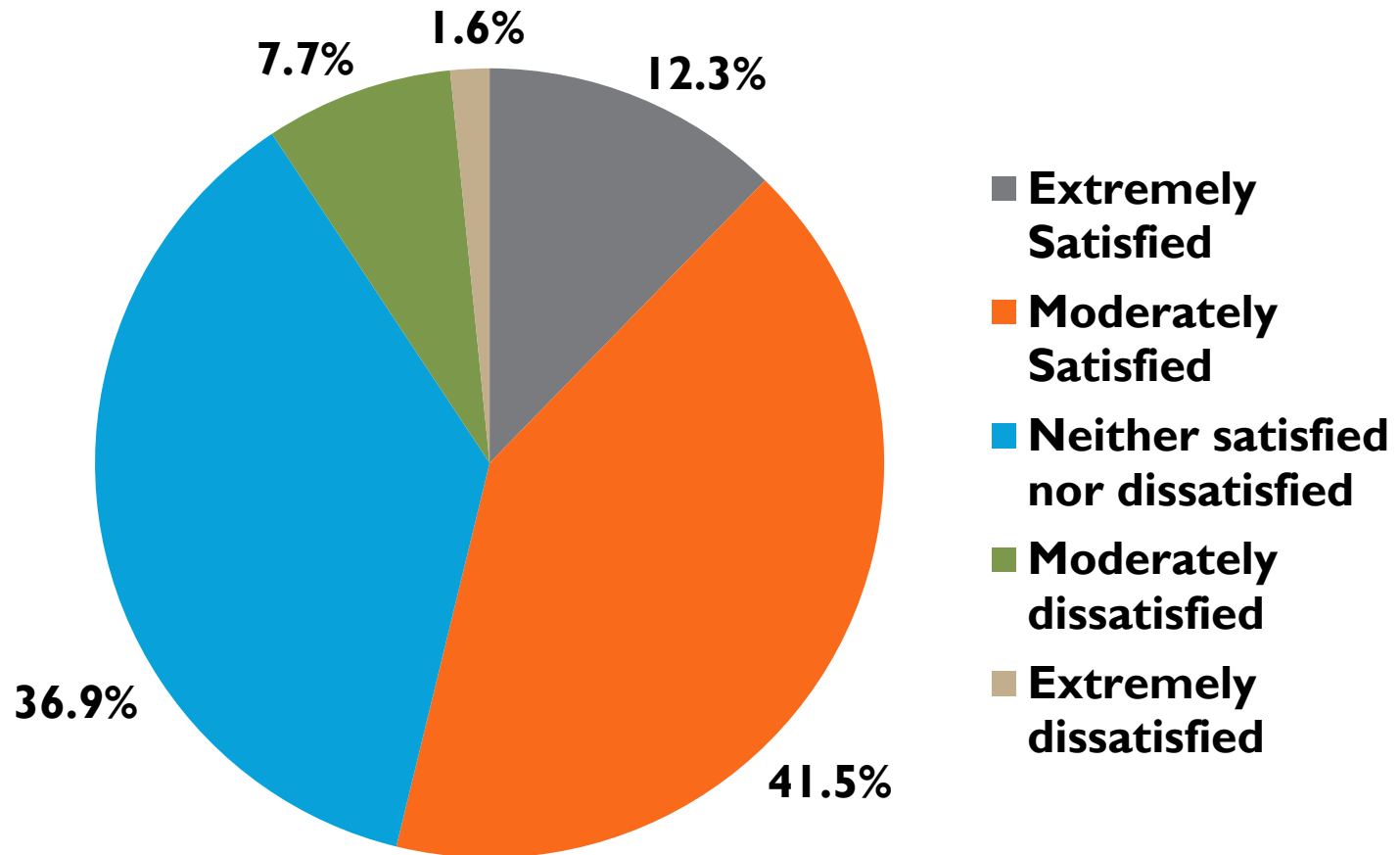
Member Agency



Consultant



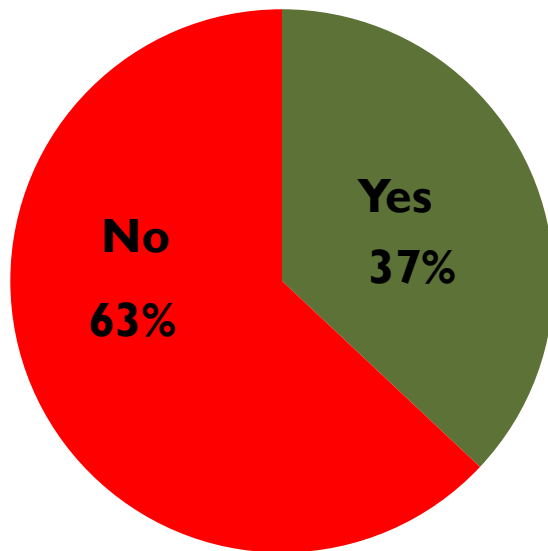
Online Tutorial Satisfaction



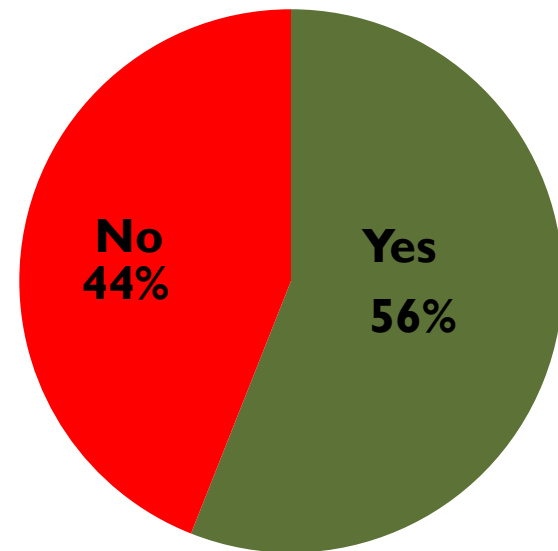
FAQ Usage

Have you used the FAQs available on the home page of the BrDR support site?

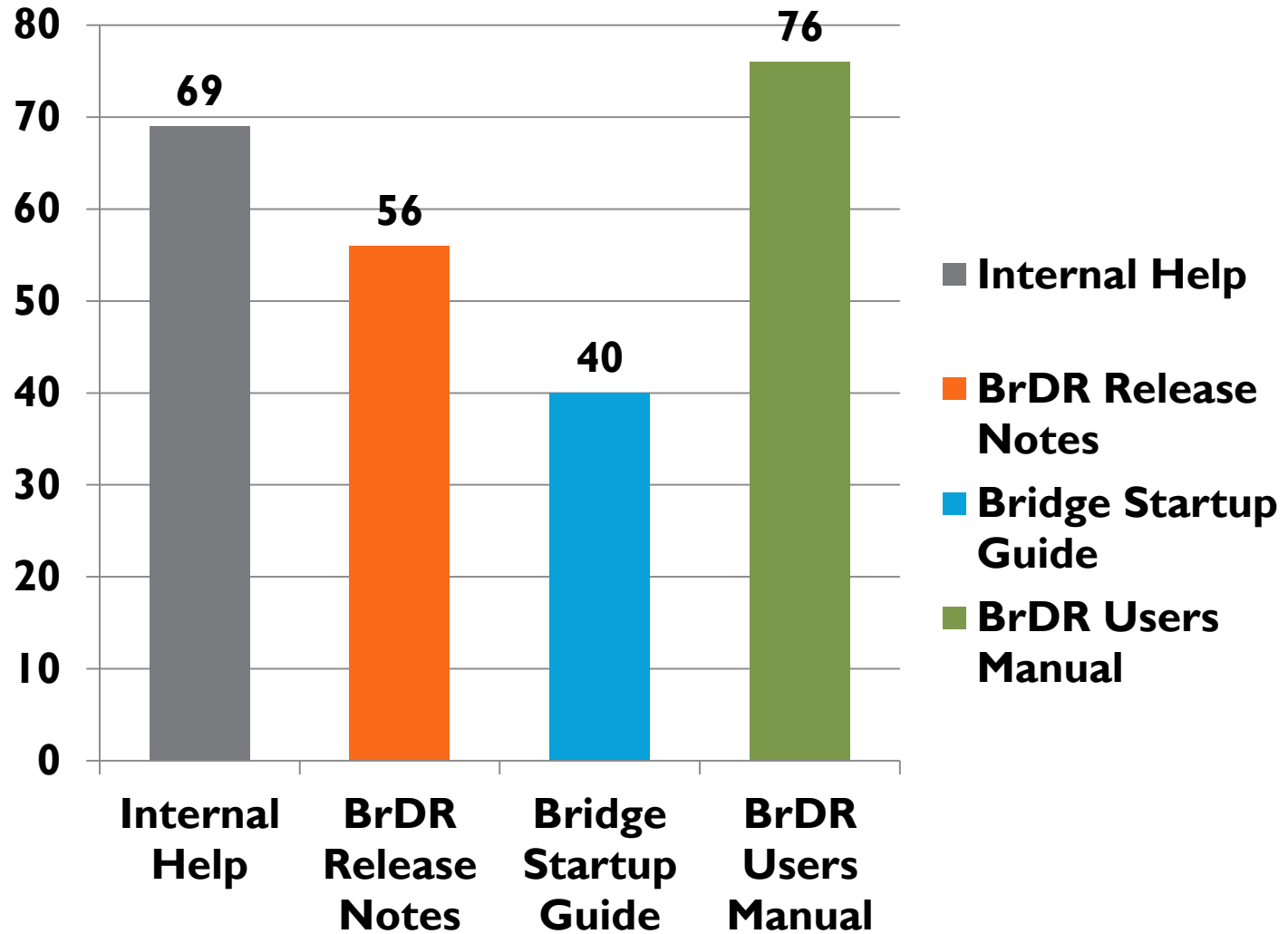
Member Agency



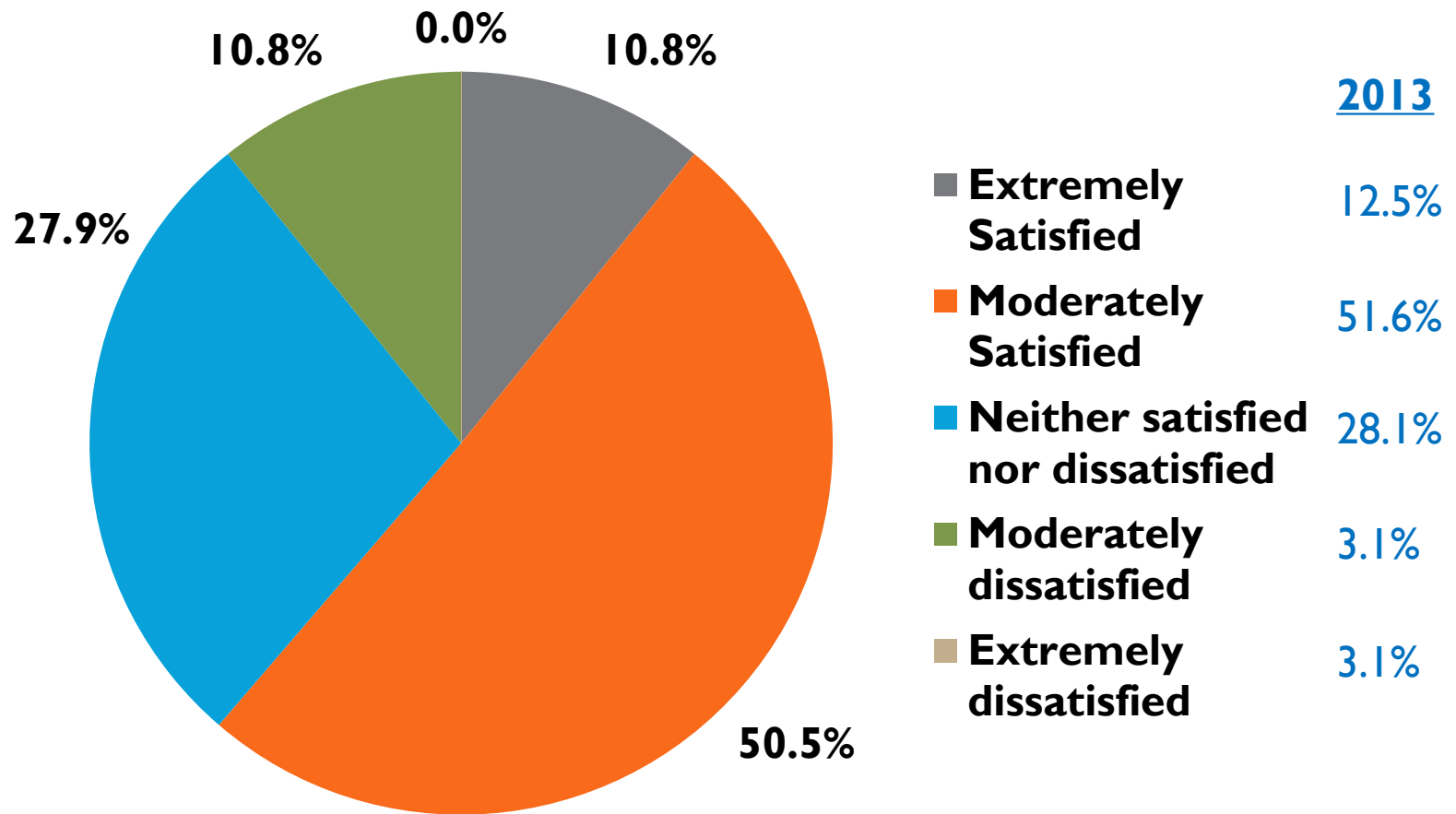
Consultant



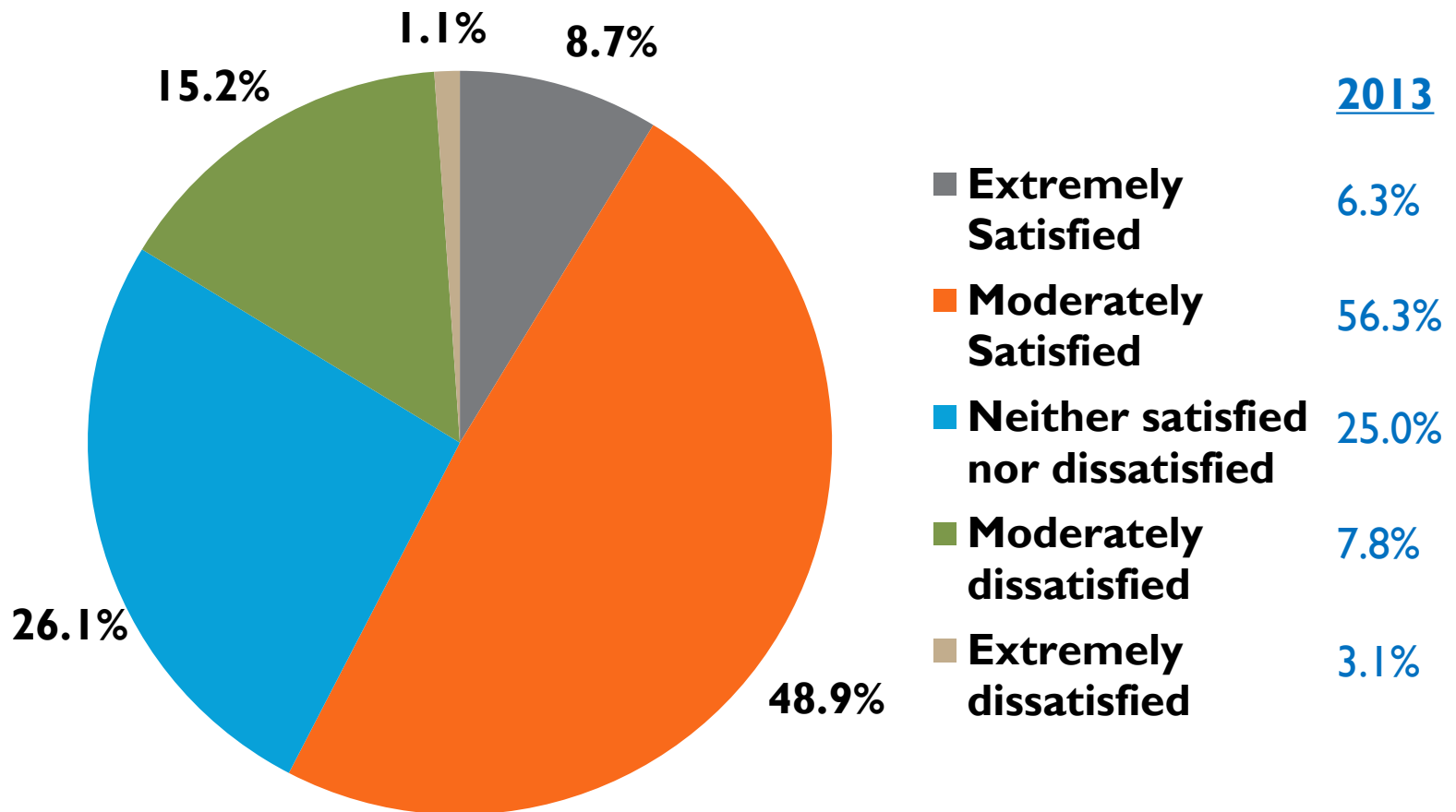
Documentation Used



Documentation Usability



Documentation Completeness



Documentation Comments

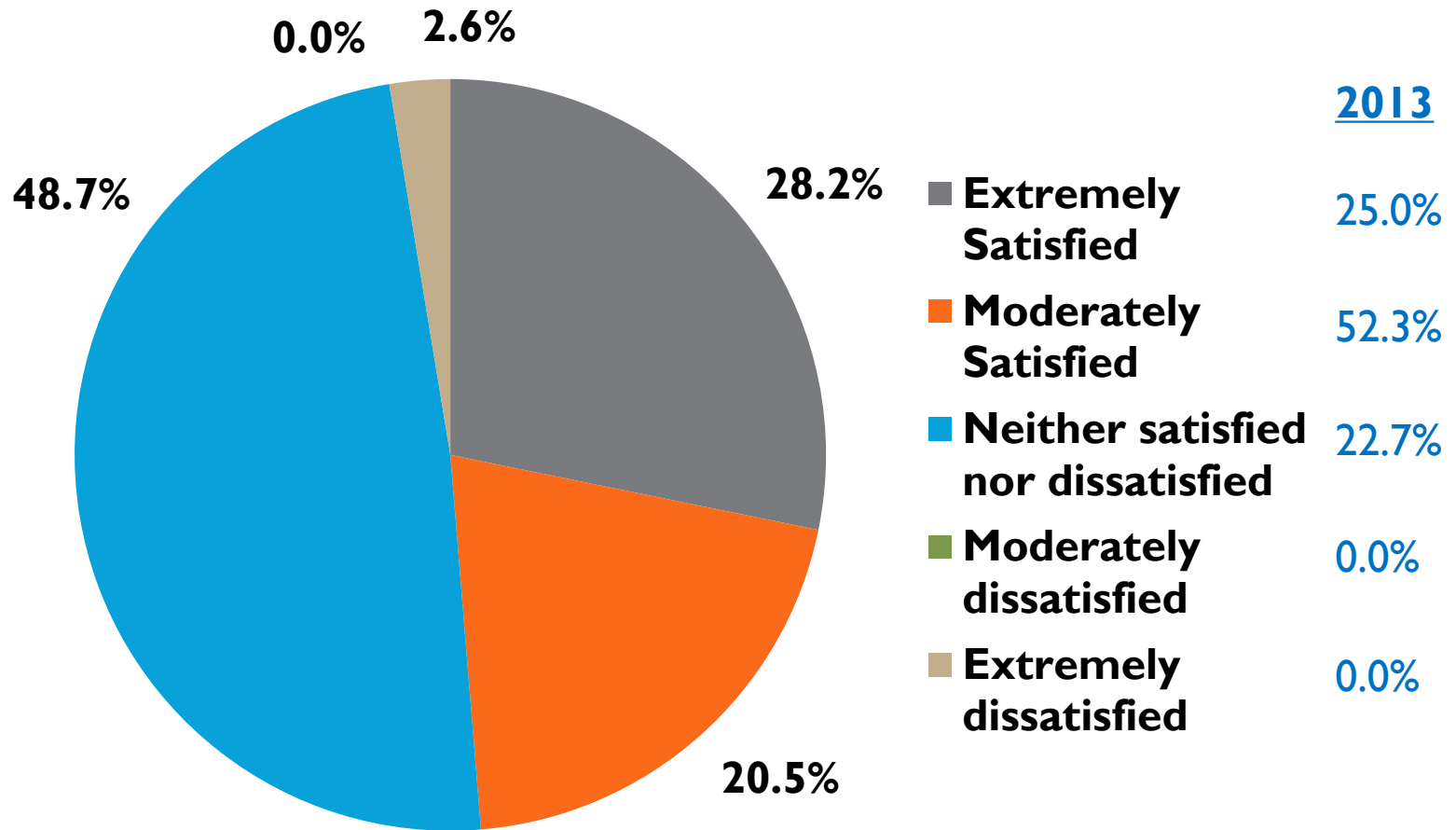
Summary of 19 Responses Received

- Document is not specific to the problems users encounter – results do not match other analyses
- Documentation and tutorials are available only for the most basic cases
- Help information is incomplete – useful information is lacking
- Additional background for the reason to have specific control options should be provided
- Help tool is difficult to navigate
- Tutorials and documentation are out of date

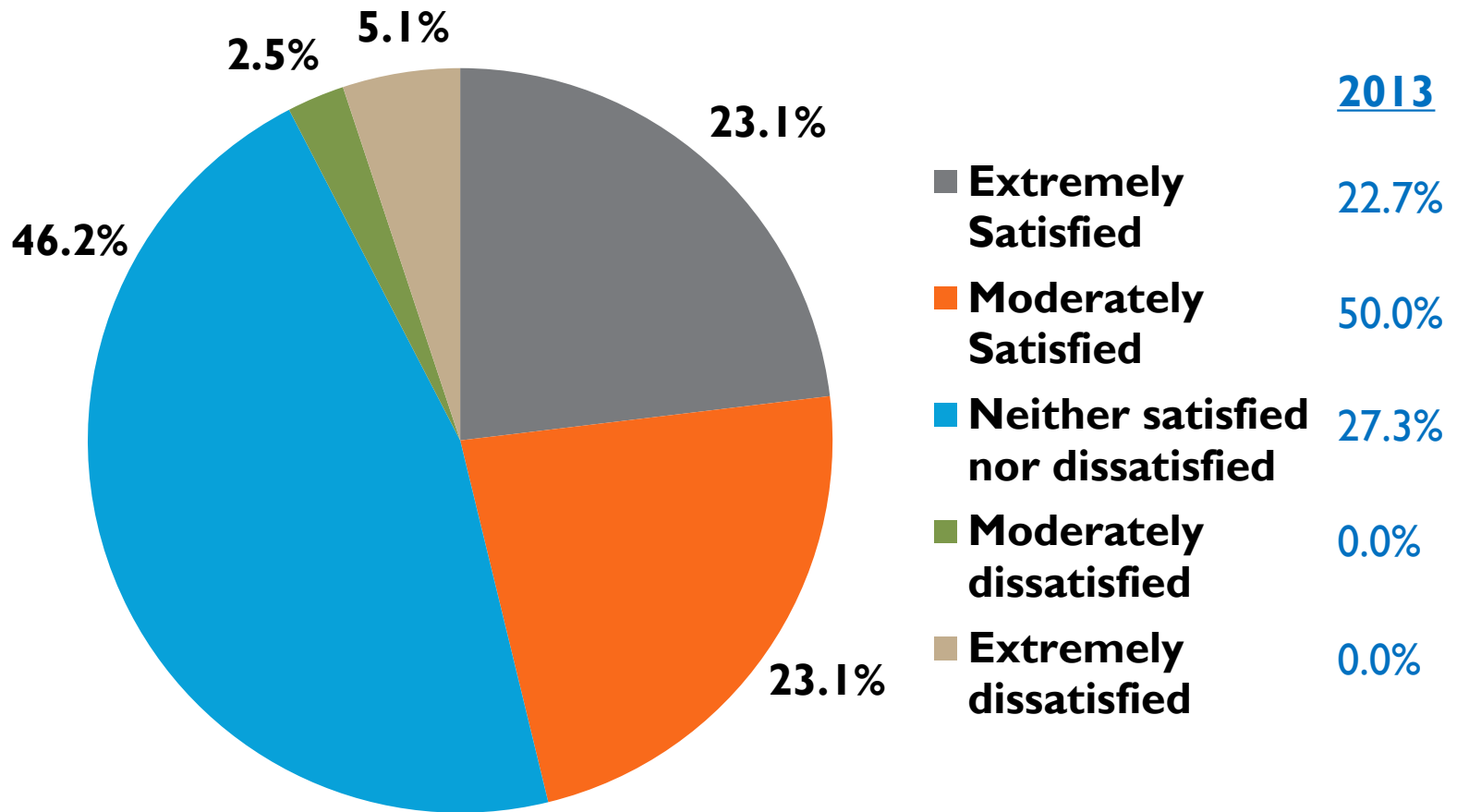
Member Agency Satisfaction with the BrDR Support Website

	Extremely satisfied	Moderately satisfied	Neither satisfied nor dissatisfied	Moderately dissatisfied	Extremely dissatisfied
a) amount of content	8%	50%	39%	0%	3%
b) quality of the content	8%	50%	39%	0%	3%
c) usability of the content	11%	44%	42%	0%	3%

Member Agency contact with Bridge Task Force



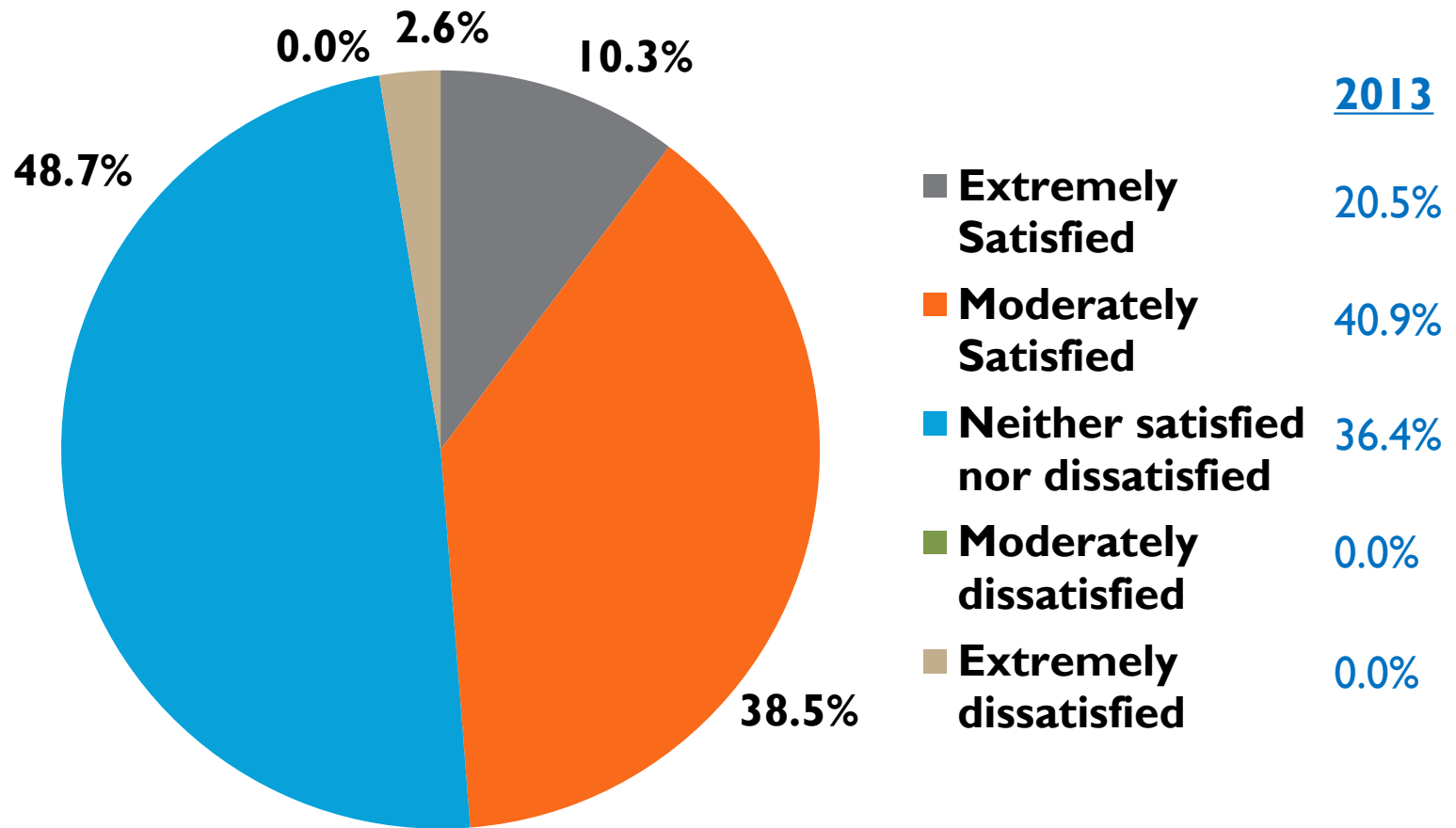
Responsiveness of Bridge Task Force



Task Force Improvement Suggestions

- Get the software to the point where it can rate bridges – specifically, what does geotechnical soil stiffness have to do with superstructure ratings?
- Incorporate more transparency between Task Force decisions and members' needs
- Establish an open process for the selection or election of Task Force members
- Establish a user blog site
- Develop an online user forum that all users can access, ask questions and provide tips

Communication Between User Group and Bridge Task Force



Task Force / User Group Improvement Suggestions

- I appreciate the work the Task Force does
- More transparency between the Task Force decisions and member needs
- Provide more information when some enhancements on the top of the RADBUG voting list are not implemented. If it's due to the large cost to implement the item, alternative methods to finance should be proposed by the Task Force

Specific Issues / Concerns

Summary of 21 Responses Received

- Address integration between BrM and BrR – the current connection is poor
- Concentrate on basic user functions
- Increase analysis speed in lieu of constantly adding new features
- Focus on fixing the broken functions currently existing in the software
- Fix the problems with ASD
- Make third party engines a top priority – need ability to quickly compare software
- Bring back the BRASS engine to increase the accuracy of the output

Specific Issues / Concerns

Summary of 21 Responses Received

- Include more features
 - culvert analysis and other culvert types
 - LFR capabilities for CIP reinforced concrete multi-cell box girders
 - PT capabilities for box girder bridges
 - perform a global edit on member alternative settings
 - rate all floor system members and trusses with LRFR and not just LFP
 - rate steel substructures
 - rate steel box girder / tub bridges
 - prefabricated concrete arch type vehicular bridges
 - find/replace functionality & multi-selection/changing features

Specific Issues / Concerns

Summary of 21 Responses Received

- After each run, show rating results
 - multiple lane LLDF with full impact
 - multiple lane LLDF with reduced impact
 - single lane LLDF with full impact
- Support customized results screens to report what the user wants to see
- Improve application help – current information is not useful

Specific Issues / Concerns

Summary of 21 Responses Received

- Develop an output report that includes a summary of all members analyzed rather than requiring the creation of individual pdf summary sheets for each member via the member alternative in the tree
- Allow users to remote in to the software to use the software when out in the field
- Seek external software professional assistance to support the modernization effort
- Reduce license costs to allow the software to be used on smaller projects
- Improve the tedious annual licensing process

Specific Issues / Concerns

Summary of 21 Responses Received

- Improve application help – current information is not useful
- Consultants (agency sponsored licensees)
 - ability to submit issues directly to Baker rather than going through the time delay with the DOT ‘middle man’
 - need information on who to contact within their sponsoring DOT(s)
- Special Consultant Licensee issues that have not been reported to Baker:
 - LFD capability of reinforced concrete structures in the negative moment regions
 - Calculation of bets when multiple strengths of concrete are compositely used
 - Discrete locations of lateral bracing show as unbraced. For all instances you need to continuously brace for program to consider

Follow-up Actions

- **AASHTOWare Bridge Task Force Meetings (August 6 and November 3-5, 2015)**
 - Review the detailed results of the survey
 - Discuss opportunities for improvement
 - Assign action items to implement changes
 - Incorporate changes into FY17 work plan as appropriate
- **Special Committee on Joint Development (December 8-9, 2015)**
 - Bridge Design-Rating survey results presented/discussed

Thank You

- Questions?
- Comments?