

# SAKAI ACCESSIBILITY COMPLIANCE & TESTING

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Cunningham & Marissa Thompson,  
Illinois State University





# Presentation Topics

- About the Sakai Accessibility Working Group
- How and why we evaluate accessibility
- How do you test for accessibility?
- Examples of Testing:
  - Hiring a professional firm: Sakai's Ra11y - Review Accessibility Plan
  - Automated testing with paid software: Pomona College's use of SiteImprove
  - Authentic User Testing: Illinois State University's Accessibility Testing Team
- Resources for testers
- (Time allowing) QA testing with audience volunteers





# SAKAI ACCESSIBILITY WORKING GROUP

Introductions



# About the Accessibility Working Group

What we do:

- Accessibility consulting to the Sakai Community
- Identify and set standards to meet (WCAG 2 Level AA, WAI-AIRA)
- Track accessibility issues (+ write JIRAs)
- Work to resolve issues
- Help with accessibility documentation
- Meet every other Wednesday at 16:00 EST (20:00 UTC)
- <http://apereo.blindsidenetworks.net/>
- Choose “Apereo Room 4”, password “apereo”
- Keep in touch through the sakai-dev and sakai-user mailing lists



“

Join us!

Accessibility Working Group Calls  
Every other Wednesday at 16:00:00  
EST

Next Meeting: Wed, June 13, 2018 ”





Accessibility = a11y

*Accessibility*

**a11y** is a shortening of **accessibility**, with 11 letters dropped





# How & Why We Evaluate Accessibility

Global Standards and Beyond

Credit: Photo by Tourisme Montréal, Stéphan Poulin





# WCAG 2

- The standard that we apply to Sakai and other modern web sites is WCAG2 (Web Content Accessibility Guidelines 2.0 )
- International & more stringent than the Americans with Disabilities Act (ADA) Section 508
- Developed by W3C (World Wide Web Consortium)
- Applies to more than just the HTML
- Adopted into the procurement standards for organizations such as the California Department of Education
- Big spec. Big deal.

“

Make your content  
P.O.U.R. - NOT poor!

”





# POUR principle

- **Perceivable** - Is the content presented to users in a way that they can perceive? Does it rely on one sense? Have you considered how someone who isn't well sighted might read that information, or how someone colorblind might?
- **Operable** - Can the content be interacted with by someone not using a mouse?
- **Understandable** - Are items like structural elements, like lists and headings, used in a meaningful way?
- **Robust** - Content must be robust enough so that it can be interpreted reliably by a wide variety of technologies and devices, including assistive technologies.

**More info:** WebAIM - Constructing POUR content: <http://webaim.org/articles/pour/>



“

Stupid Question: It's the law and it's morally right, so why else make content accessible?

”



# Universally-Designed Content is Better for Everyone!



CLEARING A PATH  
FOR PEOPLE WITH SPECIAL NEEDS  
CLEARS THE PATH FOR EVERYONE!

**Cartoon:** Students waiting outside school while janitor shovels snow off stairs.

**Student in wheelchair:** Could you please shovel the ramp?

**Janitor:** All these other kids are waiting to use the stairs. When I get through shoveling them off, then I will clear the ramp for you.

**Student:** But if you shovel the ramp, we can all get in!

**Clearing a path for people with special needs clears the path for everyone!**

**Image credit:** Michael Giangreco. *Absurdities and Realities of Special Education*. SAGE: Corwin. 2007. CD.

<http://www.uvm.edu/~cdci/archives/mgiangre/>





# HOW DO YOU TEST FOR ACCESSIBILITY?

## Methodologies

Credit: Photo by Tourisme Montréal, Stéphan Poulin



# Some Ways to Test

- Hire a professional firm to test, e.g., Level Access, Paciello Group, Deque, AccessibilityOz
- Automated Testing
  - Paid software
  - Use native browser tools to identify issues
- Manual testing using assistive technology (either simulating user experience or, better yet, having an authentic user test!)
- Using BOTH automated and manual testing is recommended!





# METHOD 1: HIRE A FIRM

Example: Sakai's Ra11y - Review Accessibility Plan

Credit: Photo by Tourisme Montréal, Stéphan Poulin

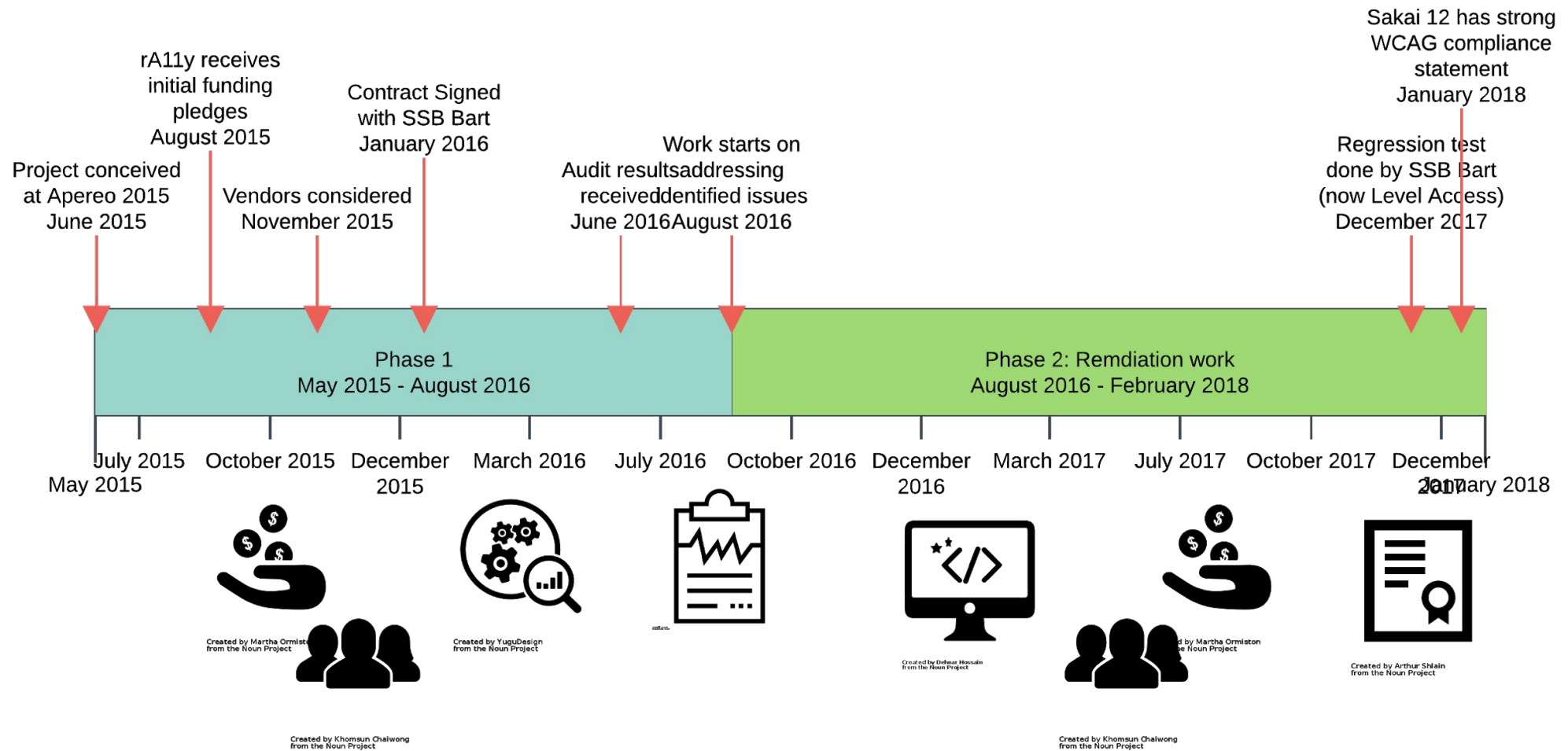


# RA11y Plan

The RA11Y Plan (Review Accessibility Plan) is an initiative by the Sakai Accessibility Working Group to commission a substantive review of Sakai's accessibility by a trusted third-party reviewer with a goal of obtaining a certification, including a VPAT (Voluntary Product Accessibility Template) and WCAG2-based review, that would assure potential adopters and current users alike.



# RA11y Timeline (Original Projected)



# Funding

We raised \$86,000+ and many development hours! Big THANKS to...

- Apereo
- Durham Tech
- Tufts University
- Pepperdine
- Longsight
- Brock University
- Illinois State University
- University of Virginia
- University of Rhode Island

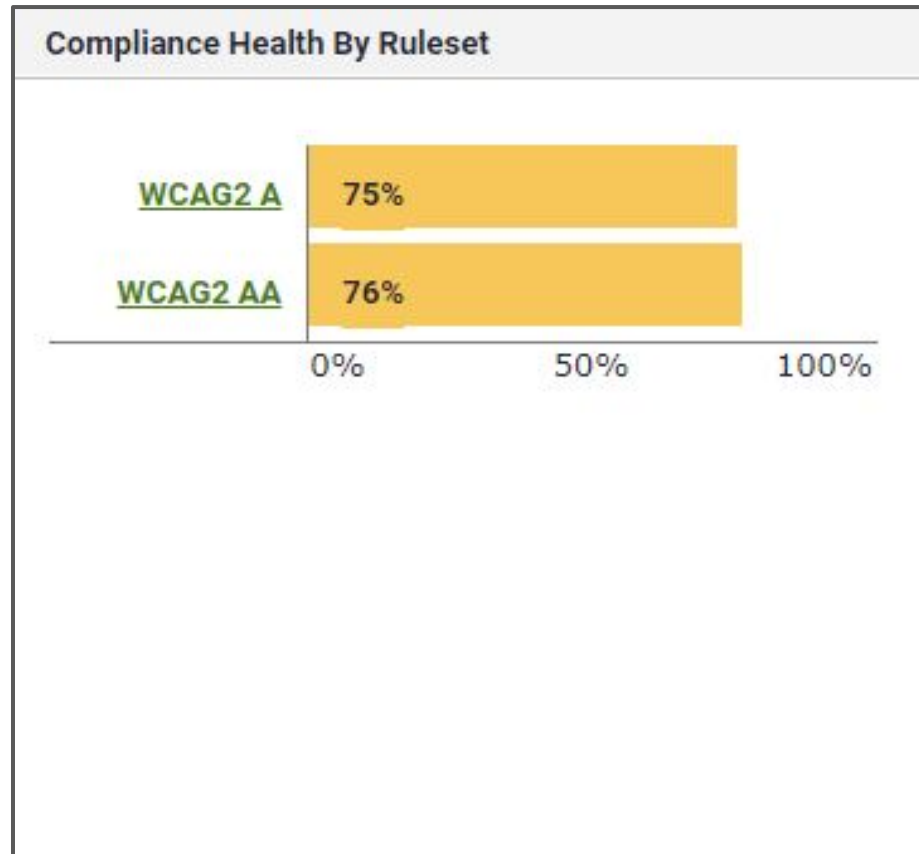


# What We Reviewed

- rA11y was a review of the most common 17 tools in Sakai.
- 40 specific static items were reviewed within them, as well as 20 tasks.
- Focus was primarily on student tasks.
- The review was conducted by SSB Bart (now Level Access) on a server hosted by Marist.

# Initial Test Results (June 2016)

76% Compliance against WCAG 2 AA

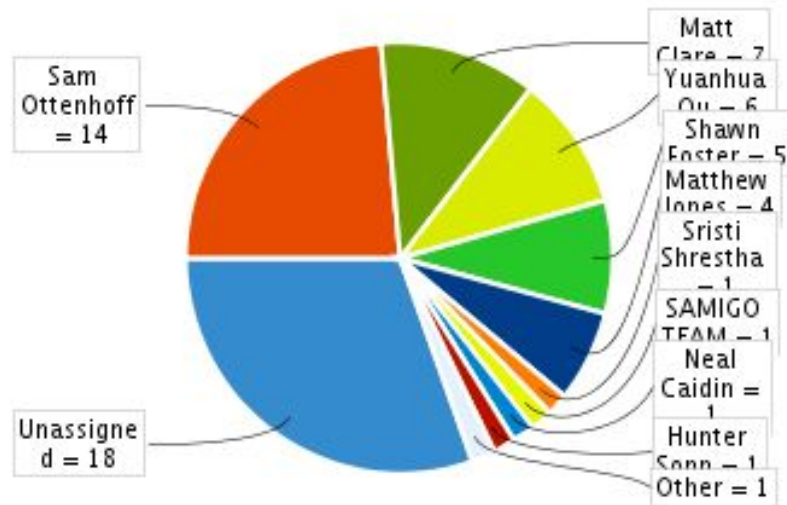




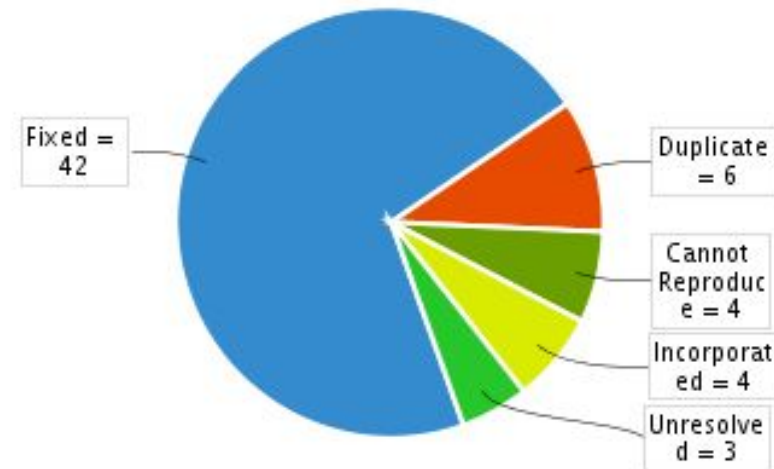
# Response and Remediation

- SSB Bart (now Level Access) returned a report and an interim WCAG 2 compliance statement for Sakai, with 61 issues detected (some of these are the same issue appearing on multiple pages).
- Work began on addressing issues (labelled rA11y).
- Some of that work shipped in 11.3 and 11.4 (big screen reader fix in 11.3!) and will ship in 12.

# Interim Report



Total: 59 . Chart by: Assignee



Total: 59 . Chart by: Resolution

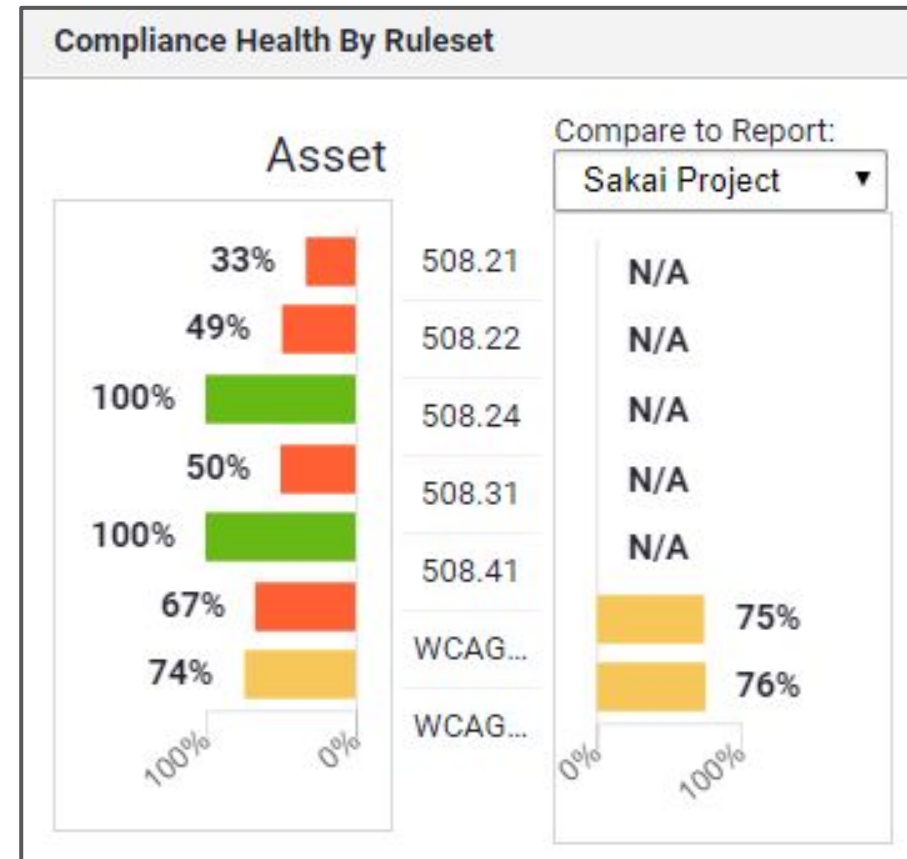
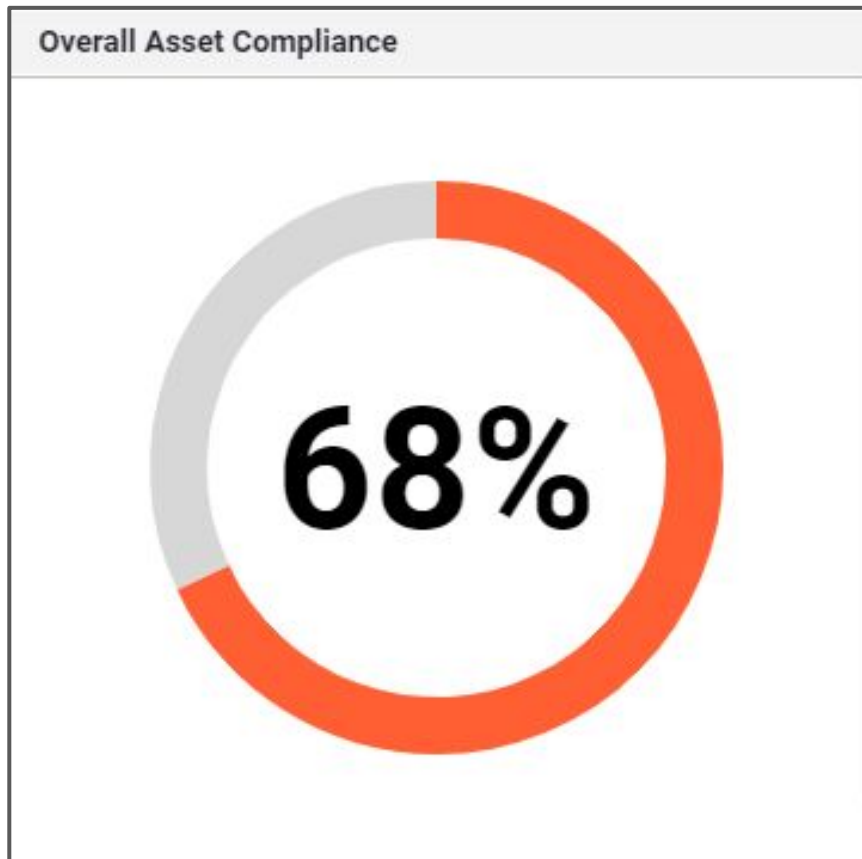
Following first round testing, **95%** of the issues were resolved (fixed, incorporated, duplicate or non-issue)! Thanks developers!!

**Details at:** <https://confluence.sakaiproject.org/display/2ACC/rA11y+Plan>



# Regression Test Results (February 2018)

68% compliance against WCAG2 AA



# Why Such a Low Score?

- Level Access testing identified 116 new issues in Sakai JIRAs. Most of these are **newly identified** issues in the regression test related to new features/code in Sakai 12.
- Many of the issues identified by Level Access appear on multiple pages (most prevalent issues are described by Level Access as “Pattern” and “Global”).
- Level Access marked about 10% as “Not Fixed” or “Partially Fixed” from first round testing.
- A lot of excellent work was done (90% of original issues completely fixed taking into account regression test!) but we have a lot more to do!



# Final Audit & Compliance Statement

- Unfortunately, the results from the regression test would not yield a strong compliance statement.
- Level Access recommends having 90% compliance rating before we get a statement.


# Next Steps

- 116 Sakai JIRAs (labelled a11y2) were created.
- Developers have started work on these and 24 have already been fixed.
- Level Access has discussed setting up a new contract to assist us with continued work, so they can test smaller changes as we go.
- Longsight has estimated 100 hours for fixing “Pattern” and “Global” issues this summer (thanks Josh Wilson, Sam Ottenhoff, Matthew Jones, and Earl Nietzel!!)
- We are waiting on Level Access’ estimate to determine total cost.
- Development hours, funding, and developers needed!



# Key Takeaways

- Remediation is MUCH more difficult and costly than building accessibility into product design from the beginning.
- When new development occurs, we must be vigilant not to introduce new accessibility issues.
- Building accessibility into our development and testing process ensures that we will not need remediation work.



# METHOD 2: AUTOMATED TESTING WITH PAID SOFTWARE

Example: Pomona College's Use of Siteimprove  
SangHyun Jeon, PhD.

Credit: Photo by Pomona College, California, U.S.A.





# Claremont Sakai History



FOUNDED 1887



FOUNDED 1925



FOUNDED 1926



FOUNDED 1946



FOUNDED 1955



FOUNDED 1963



FOUNDED 1997



CLAREMONT UNIVERSITY CONSORTIUM  
*Serving* THE CLAREMONT COLLEGES

# Pomona College Accessibility History



- Provider selection
  - Siteimprove vs Monsido
- Regular accessibility meetings
  - Communications/ITS
- External vendors - contract
  - Accessibility Requirements
- Digital accessibility website

A screenshot of the Pomona College website's "Digital Accessibility" page. The page features a navigation bar with links for "ADMISSIONS & AID", "ACADEMICS", "LIFE @ POMONA", "NEWS & EVENTS", "ABOUT", and "ALUMNI & FAMILIES". The Pomona College logo is prominently displayed in the center of the navigation bar. Below the navigation bar, the page title "Digital Accessibility" is followed by a paragraph stating the college's commitment to providing an accessible campus environment. A sidebar on the right contains a "DIGITAL ACCESSIBILITY" section with three buttons: "GOALS AND GUIDELINES", "BEST PRACTICES", and "REPORT A DIGITAL ACCESSIBILITY ISSUE". At the bottom of the sidebar, there is a "CONTACT US" section with the location "Alexander Hall", the email address "disabilityservices@pomona.edu", and the phone number "(909) 621-8017".

ADMISSIONS & AID · ACADEMICS · LIFE @ POMONA

NEWS & EVENTS · ABOUT · ALUMNI & FAMILIES

QUICKLINKS +

Home / Digital Accessibility

## Digital Accessibility

Pomona College is committed to providing an accessible campus environment. The Accessibility Oversight Committee Digital Subcommittee exists to oversee digital accessibility measures across the College, and to constantly enhance and improve the College's offerings. Our mission is to make sure that all of our constituencies are provided with equal access to all Pomona College programs, activities and services.

Accessible technologies are constantly evolving, and the College sees many opportunities in this arena to improve our offerings and to help our campus community make sure that any content they produce can be accessed by all of our constituencies. We intend this site to serve as a resource to our campus community, provide a look into our work as we move forward, and to allow for input of our internal and external constituencies.

### DIGITAL ACCESSIBILITY

- GOALS AND GUIDELINES
- BEST PRACTICES
- REPORT A DIGITAL ACCESSIBILITY ISSUE

### CONTACT US

📍 Alexander Hall  
✉ [disabilityservices@pomona.edu](mailto:disabilityservices@pomona.edu)  
☎ (909) 621-8017

# What is Siteimprove?

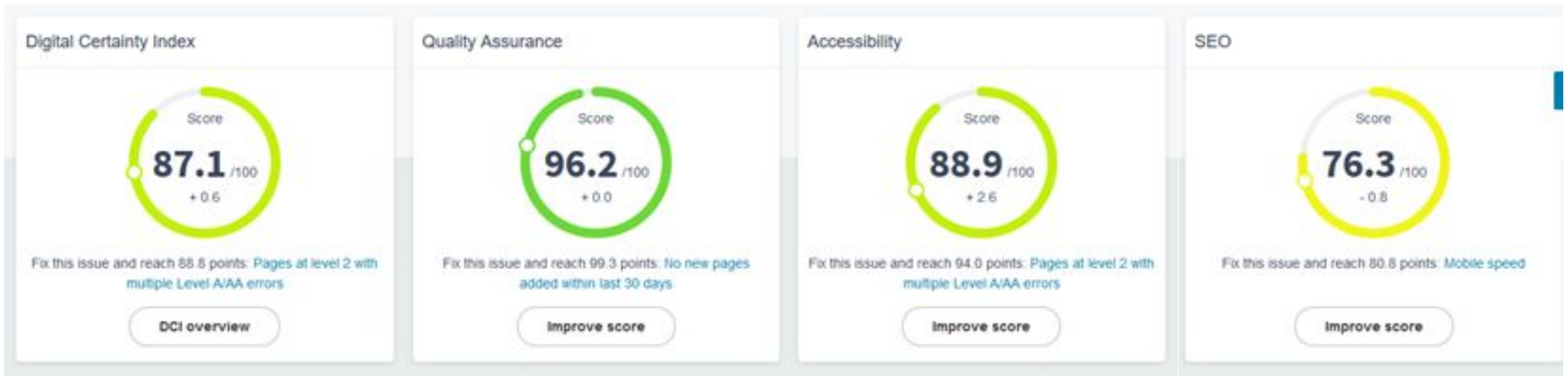
- Third party SaaS provider
- Web site tools to help content authors identify
  - broken links, misspellings and ADA compliance issues
- Email reports to site administrator
- Weekly scan results: content evaluations with potential issues
- Siteimprove setup



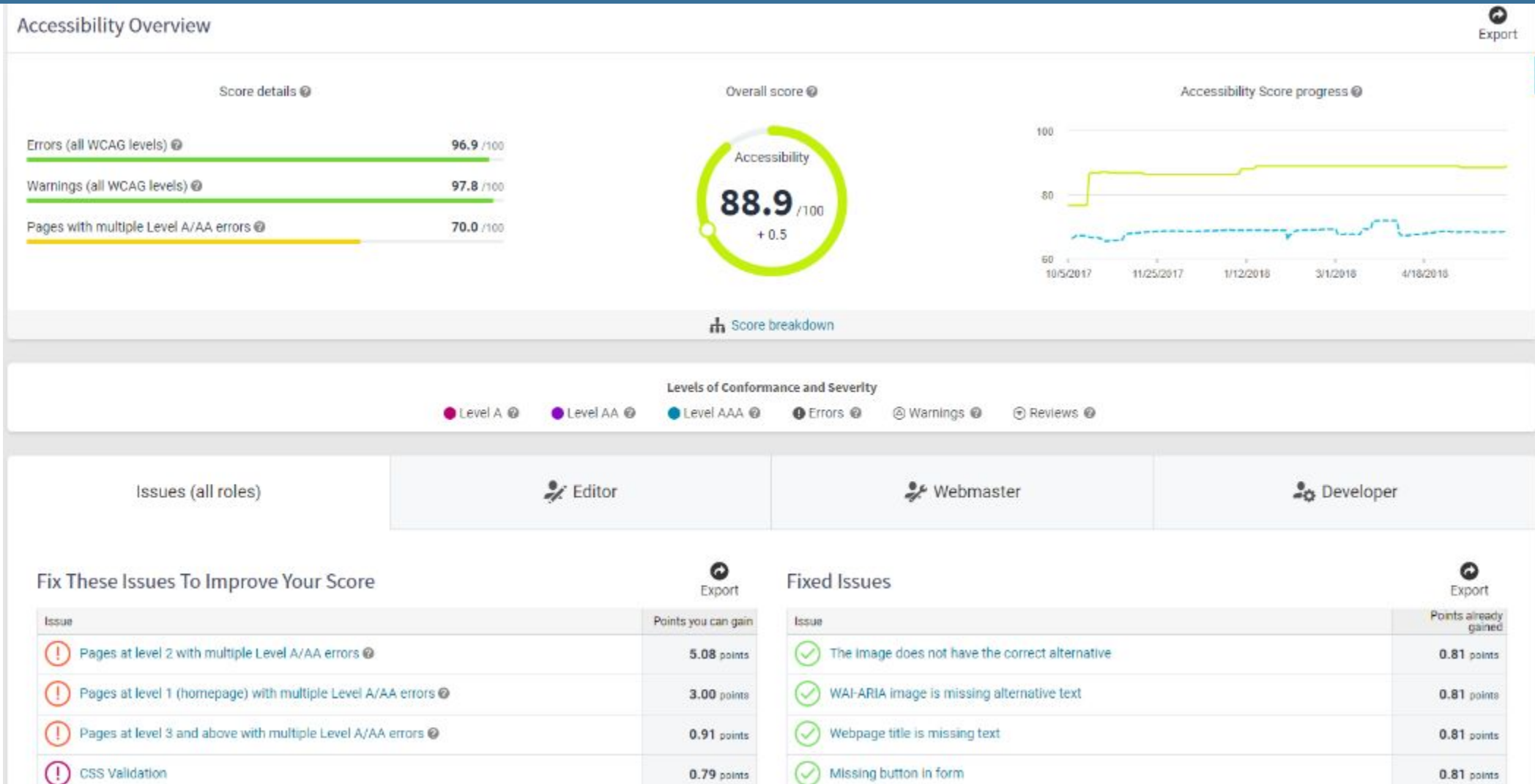


# Siteimprove's Index

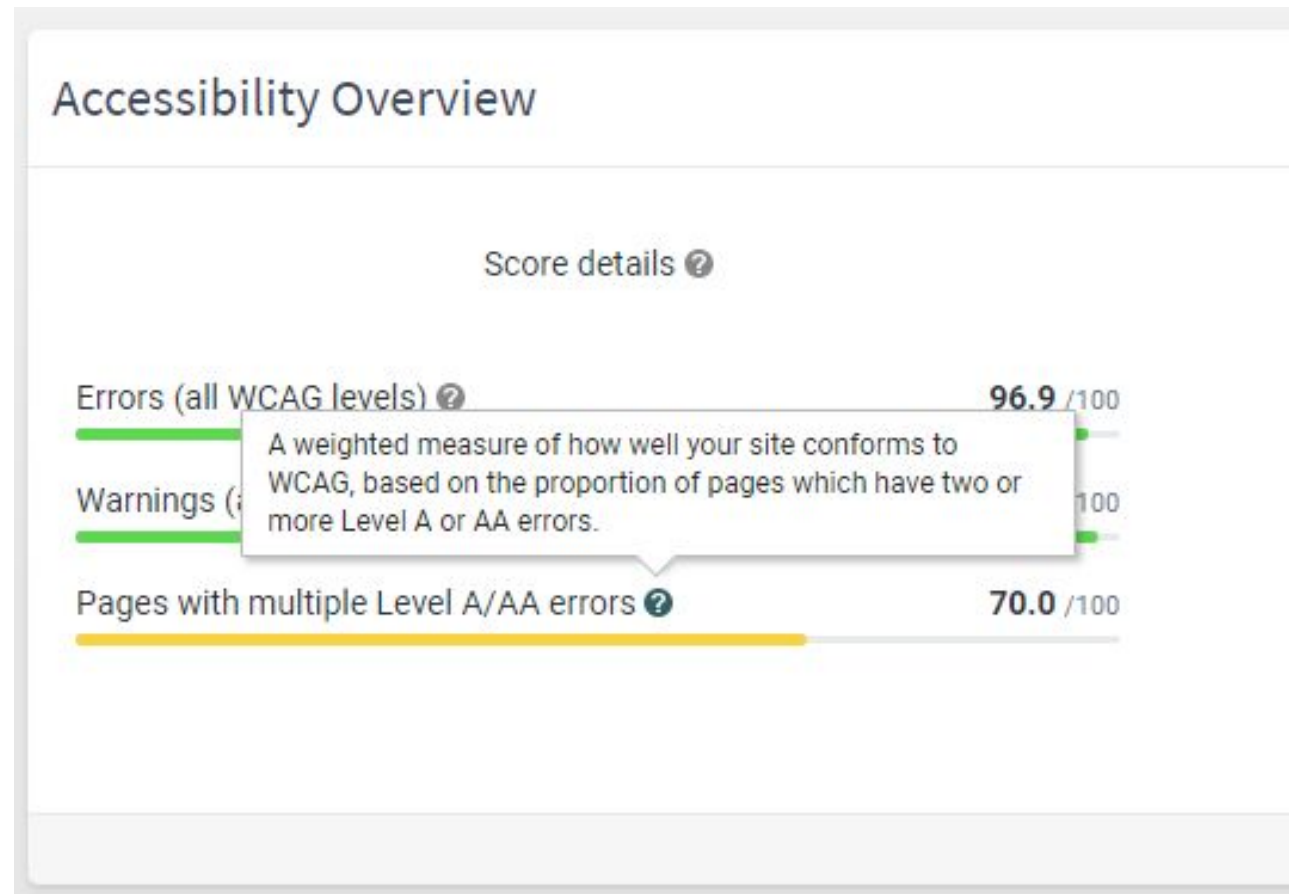
## Digital Certainty Index (DCI) Score Dashboard



# Accessibility Overview

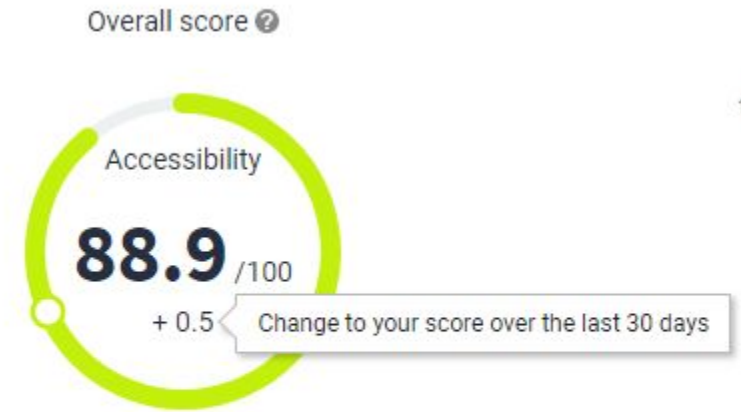
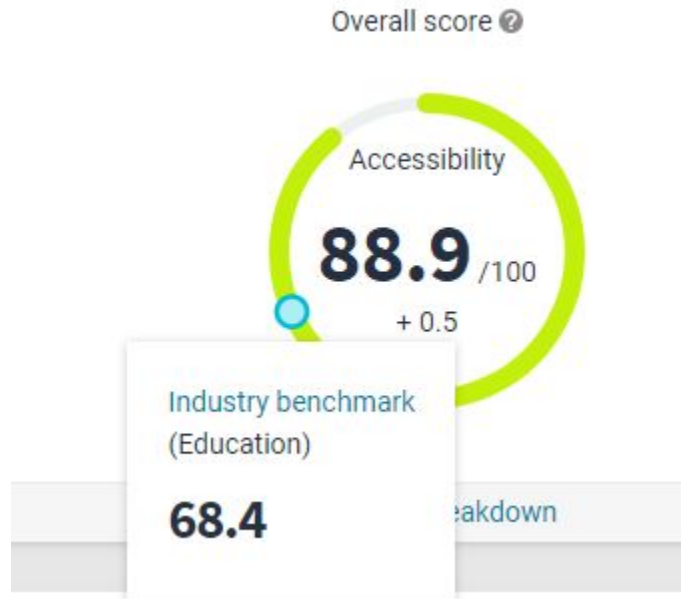


# Accessibility Overview - Score Details

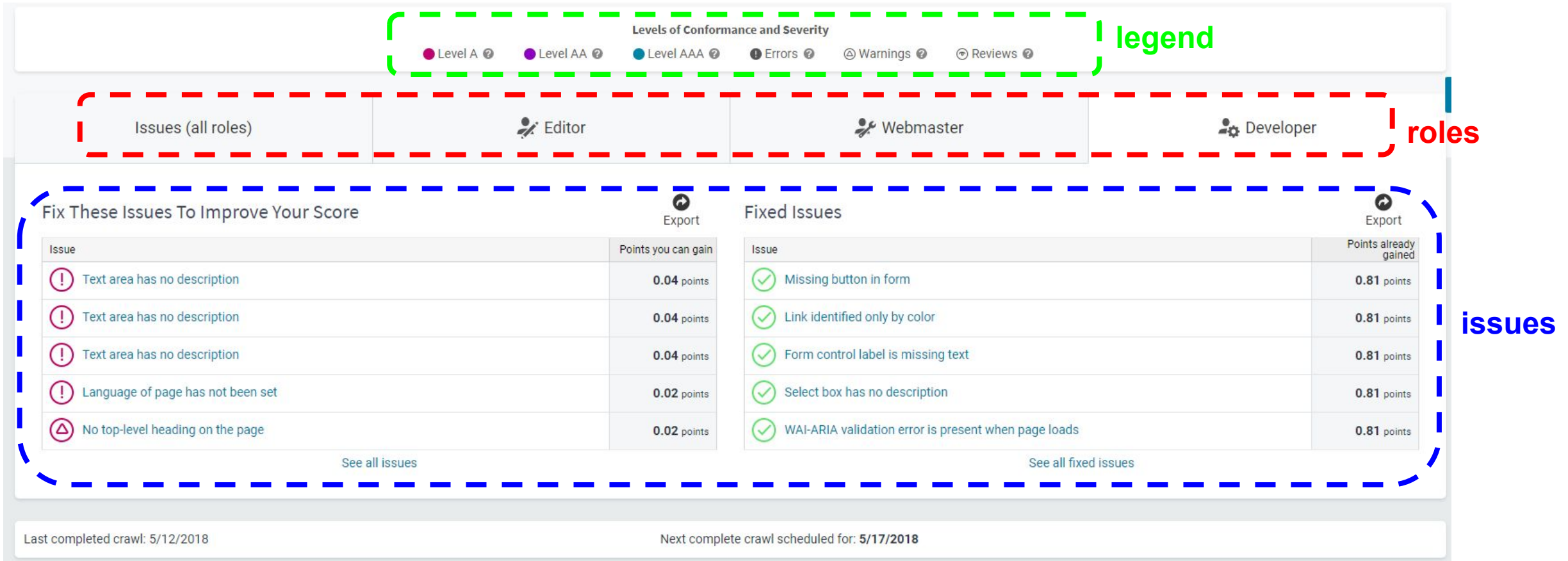




# Accessibility Overview – Overall Score



# Accessibility Overview – Issues Panels



**Levels of Conformance and Severity**

- Level A
- Level AA
- Level AAA
- Errors
- Warnings
- Reviews

**roles**

- Issues (all roles)
- Editor
- Webmaster
- Developer

**issues**

### Fix These Issues To Improve Your Score

Issue	Points you can gain
Text area has no description	0.04 points
Text area has no description	0.04 points
Text area has no description	0.04 points
Language of page has not been set	0.02 points
No top-level heading on the page	0.02 points

[See all issues](#)

### Fixed Issues

Issue	Points already gained
Missing button in form	0.81 points
Link identified only by color	0.81 points
Form control label is missing text	0.81 points
Select box has no description	0.81 points
WAI-ARIA validation error is present when page loads	0.81 points

[See all fixed issues](#)

Last completed crawl: 5/12/2018      Next complete crawl scheduled for: 5/17/2018

# How to fix issues?

## ⓘ Link text used for multiple different destinations

Decision for this issue  
No decision taken

**AAA** 2.4.9 Link Purpose (Link Only)  
Description of this issue:  
The same link text is used for links going to different destinations. Users might not know the difference if they are not somehow explained.

How to fix it:  
If the destination page is the same, this is not an issue.  
If the destination pages are not the same, make sure the links can be distinguished by their link texts or WAI-ARIA labels ('aria-labelledby' or 'aria-label') alone to make the difference clear to all users.

Filter occurrences

Decision

No decision taken 2

Can't fix 0

Approved 0

Cancel Apply filter

Showing 2 of 2 occurrences

### Occurrences on this page 2

Link 2

Link

Link  
https://[redacted]#Mainxgatewa  
yx110\_directurl

Highlight in

Page content  HTML

Link

How do I meet this criteria?  
Use one of the following techniques from WCAG 2.0:

- ARIA7
- ARIA8
- G91
- H30
- H33

See all pages with this issue

LINK HELP

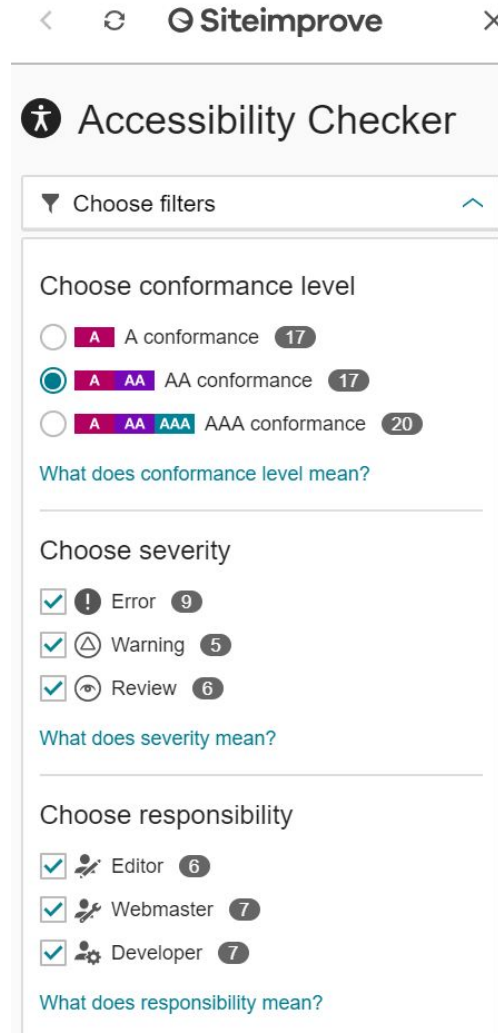
ment for further assistance.

LINK HELP



# Siteimprove Accessibility Checker

- Free Chrome Plugin
  - Anyone
  - Evaluate any webpage
  - Without costing
  - Check page by page
  - No fix guidance



The screenshot shows the Siteimprove Accessibility Checker interface. At the top, there's a browser tab for 'Siteimprove'. Below it, the 'Accessibility Checker' title is displayed. A 'Choose filters' dropdown is visible. The main section is divided into three filter categories: 'Choose conformance level', 'Choose severity', and 'Choose responsibility'. Each category has several options with checkboxes and counts.

**Choose conformance level**

- A conformance 17
- AA conformance 17
- AAA conformance 20

[What does conformance level mean?](#)

**Choose severity**

- Error 9
- Warning 5
- Review 6

[What does severity mean?](#)

**Choose responsibility**

- Editor 6
- Webmaster 7
- Developer 7

[What does responsibility mean?](#)

## ! Local link destination does not exist

### A 1.3.1 Info and Relationships

A local link (anchor link) occurs but the destination does not exist.

When using local links they must refer to an existing element on the page.

#### Occurrences on this page 1

<a> Sites [w]

</> Open DevTools to view code snippet

#### How do I meet this criteria?

Use one of the following techniques from [WCAG 2.0](#):

These references are taken from the [Web Content Accessibility Guidelines 2.0](#).



“Pomona College is very proud of the stride we’ve made in improving accessibility.”







# ADMINISTRATIVE TECHNOLOGIES

*Illinois State University*

## METHOD 3: USER-BASED ACCESSIBILITY TESTING

Example: Illinois State University's  
Accessibility Team

Ben Bricker  
Morgan Cunningham  
Ron McGettrick  
Marissa Thompson



# Accessibility Team

**Morgan Cunningham** is a senior at Illinois State University studying Social Work. She is passionate about advocating for the disability community. In the future she'd like to pursue a career working with individuals with disabilities.

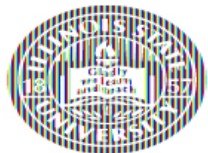
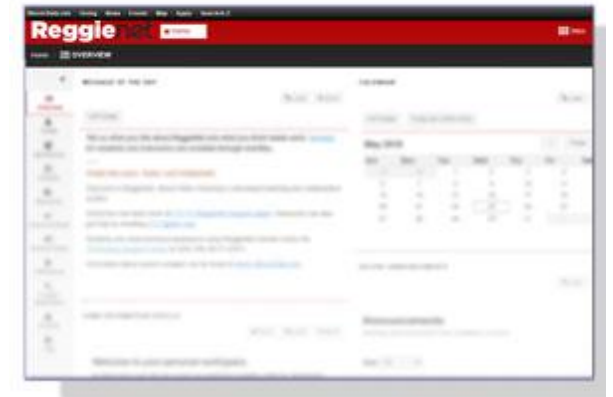
**Marissa Thompson** is also a senior at Illinois State University. She is double majoring in Special Education for Low Vision/Blindness and Special Education Learning and Behavior Specialist. Marissa loves teaching and working with individuals with disabilities.

Pictured (Left to Right): Marissa, Morgan, and Zoot



# Team Background

- Our team was formed in December of 2016 by our executive vice president Charles Edamala and Todd Smoak Director of Application Services
- Our original scope was to provide accessibility review and testing of the ISU Sakai LMS system (“Reggienet”).
- Our scope has expanded to encompass all enterprise applications that our department supports (65 applications)
- To date, our team has found close 40 issues both in-house, with external vendors, and working with the sakai community.
- The accessibility testing team is made of 2 part-time accessibility testers with 1 full time supervisor reporting to AT leadership.



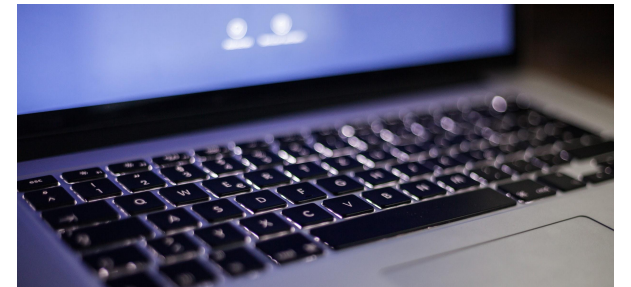
# How we go about testing

1. Leadership identifies potential applications to review, ideal times to do testing and create a maintenance window. A testing calendar is created.
2. Morgan and Marissa are given training on the app or website that will be reviewed.
3. Morgan then tests the app using JAWS 18.0
4. Marissa watches and lets Morgan know if there are any visual blockers on the screen preventing JAWS from working.
5. After finding defects in the website, Marissa types up a spreadsheet documenting the defects.
6. Morgan prioritizes the defects and they submit the spreadsheet for review.
7. ISU leadership meets monthly with the accessibility supervisor to review the report and coordinate fixes with our development teams or vendors.

**CRITICAL**

**MODERATE**

**MINOR**





# How to set up your own accessibility testing team

- **Establishing partnerships** with accessibility organizations (student accommodation offices, special education programs, human service agencies, or other local groups) on or near your campus.
- **Utilizing their recommendations** and referrals on potential candidates to work for you.
- **Create a job posting with specific requirements** according to employment laws in your state. We recommend hiring candidates with knowledge or experience in the world of accessibility.



“

But it's just me on  
the team!  
What can I do?

”



# Use a Screen Reader for Testing

## Screen Readers for Windows and Mac:

- Freedom Scientific JAWS (Expensive, but robust, fully-featured, and often used by those with low vision):  
<http://www.freedomscientific.com/Products/Blindness/JAWS>
- NVDA for Windows (open source!): <https://www.nvaccess.org/>
- VoiceOver for iOS:
  - In iOS, go to the Settings page, select General > Accessibility > Speech



# Browser Tools & Plugins

## Chrome:

- ChromeVox screen reader plugin for Chrome
- Chrome's Developer Tools - Accessibility Audit

## Firefox:

- Fangs (Firefox screen reader emulator)
- FAE - Firefox Accessibility Extension

## Chrome and Firefox:

- WebAIM's WAVE plugin - <http://wave.webaim.org/extension/>

# Additional Testing Tools & Resources

Sakai Accessibility Working Group List of Resources:

<https://confluence.sakaiproject.org/display/2ACC/Accessibility+Resources+Listing>



# THE FUN PART

Let's do some testing!

Credit: Photo by Tourisme Montréal, Stéphan Poulin





“

Volunteers?  
Step Right Up!

”





# JOIN THE CONVERSATION

<https://confluence.sakaiproject.org/display/2ACC/Accessibility+Working+Group>

Accessibility Working Group Calls

Every other Wednesday at 16:00:00 EST

Next Meeting: Wed, June 13, 2018





# THANK YOU!

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Illinois State University







**OPEN  
APEREO 2018@**  
Montreal, Quebec, 3rd - 7th June





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