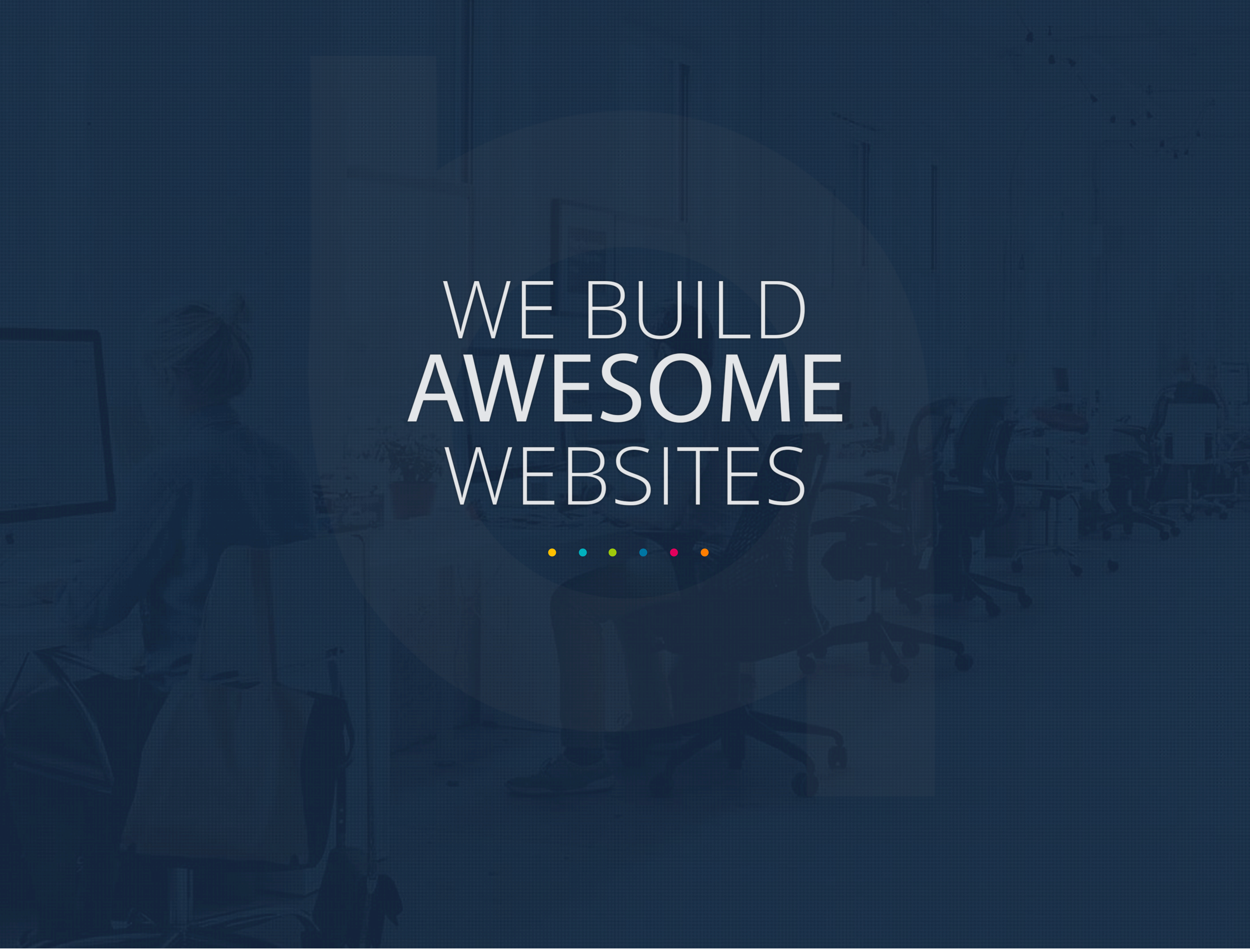

Blue Astral 2025 PEG Digital Readiness Study

A Technical Audit of 410 Community Broadcasters

Published: December 2025
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Executive Summary

The Blue Astral Research Group conducted a comprehensive technical infrastructure audit of Public, Educational, and Government (PEG) television stations across the United States. Of 576 stations in our database, 410 were successfully analyzed; 166 were unreachable during the analysis period.

Study Overview

Stations in Database: 576

Successfully Analyzed: 410

Unreachable / Incomplete: 166 (28.8%)

Geographic Coverage: All 50 U.S. states

Analysis Period: October–December 2025

Focus: Technical infrastructure (excluding content quality and organizational capacity)

Key Findings Summary

The audit reveals a sector with active content production but critical technical infrastructure gaps:

- **Performance & Optimization:** None of the analyzed stations (0%) have server compression or cach control headers configured. This is a universal gap affecting page load speeds and search rankings.
- **Discoverability:** Over half (54.9%) lack meta descriptions. Nearly half (48.3%) have no structured data markup. One in five (22.2%) lack XML sitemaps.
- **Security Infrastructure:** While 100% of analyzed stations have HTTPS enabled and 91.2% have valid SSL certificates, advanced security headers are universally absent. Zero stations implement HSTS, CSP, or X-Frame-Options.
- **Content Production (Positive):** Two-thirds (66.8%) maintain video archives, and 65.4% publish program schedules, demonstrating active content production.
- **Platform Diversity:** WordPress leads (40.7% of analyzed stations), but over one-quarter (27.3%) run on undetected or legacy platforms, creating potential modernization barriers.

The Digital Divide

The audit reveals a **fundamental paradox.** PEG stations are actively producing civic content, but technical barriers prevent community members from discovering this content through search engines and mobile devices.

This is not a content crisis. It is an **infrastructure gap**.

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Methodology

Data Collection

We employed automated web scraping and technical analysis tools to examine:

- **Performance:** Server compression, caching headers, asset minification, CDN usage
- **SEO:** Sitemaps, meta tags, structured data, canonical URLs, Open Graph tags
- **Security:** HTTPS implementation, SSL validity, security headers (HSTS, CSP, X-Frame-Options)
- **Content Features:** Program schedules, video archives, live streams, events calendars, blog sections
- **Platform:** CMS detection and version identification
- **Accessibility:** ARIA landmarks, skip links, image alt text compliance
- **Engagement:** Contact pages, social links, newsletter signups, RSS feeds
- **Tools:** Analytics platform detection

Scope

Of 576 stations in our database, 410 (71.2%) were successfully analyzed. The remaining 166 (28.8%) were unreachable during the analysis period due to:

- Server downtime or maintenance
- Firewall or bot blocking
- Domain issues or site migrations
- Other connectivity failures

All percentages in this report are calculated against the 410 successfully analyzed stations unless otherwise noted.

Limitations

This study focuses exclusively on technical infrastructure. It does not assess:

- Video content quality or production values
- Actual viewership metrics or community engagement levels
- Organizational capacity, staffing, or budget constraints
- Political or social impact of content produced

Detailed Findings

1. Performance & Page Speed Optimization

- **Mobile Responsiveness (Positive):** 90.2% (370 stations) have mobile viewport tags, indicating strong adoption of responsive design principles.
- **Server Compression:** Universal Gap 0% of analyzed stations have compression enabled. Compression (gzip/brotli) can reduce file sizes by 60-80%, making it one of the most impactful performance optimizations. This represents an easy, high-impact fix for the entire sector.
- **Cache Control:** Universal Gap 0% have cache control headers configured. Without caching directives, browsers re-download unchanged content on every visit rather than serving cached versions.
- **CDN Usage (Mixed):** 54.6% (224 stations) utilize Content Delivery Networks, demonstrating partial investment in performance infrastructure.

Asset Optimization:

- 76.3% (313 stations) serve minified JavaScript
- 46.3% (190 stations) serve minified CSS

Real-World Impact

Page speed directly affects both user experience and search engine rankings. Google's Core Web Vitals (page speed metrics) are official ranking factors. Without compression and caching, stations face slower page loads, higher abandonment rates, and reduced search visibility.

2. Discoverability & Search Engine Optimization

- 54.9% (225 stations) lack meta descriptions. These 150-160 character summaries appear below page titles in search results. Without them, search engines generate arbitrary excerpts that often fail to communicate relevance.
- 48.3% (198 stations) have no Schema.org structured data markup, missing opportunities to provide search engines with explicit context about
- content types.
- 39.5% (162 stations) are missing Open Graph tags, resulting in poor link previews when shared on social media platforms.
- 33.7% (138 stations) lack canonical URL tags, potentially creating duplicate content issues that dilute search rankings.
- 22.2% (91 stations) lack XML sitemaps, meaning search engines have no structured index of the station's content archive.
- 12.7% (52 stations) are missing robots.txt files entirely.

Real-World Impact

A community member searches "city council meeting December 2024" on Google. Without proper SEO infrastructure (meta descriptions, sitemaps, structured data), the station's content is either not indexed or appears with poor, irrelevant snippets that fail to attract clicks. The content exists but remains invisible.

3. Security Infrastructure

- **HTTPS Adoption (Positive):**
  - 100% (410 stations) have HTTPS enabled, indicating universal adoption of basic encryption.

- **SSL Certificate Status:**
  - 91.2% (374 stations) have valid SSL certificates
  - 8.8% (36 stations) have invalid SSL certificates, triggering browser security warnings

- **Advanced Security Headers:**
  - Universal Gap All three critical security headers are absent across the entire analyzed set:
  - **HSTS (HTTP Strict Transport Security):** 0% — No protection against downgrade attacks
  - **CSP (Content Security Policy):** 0% — No protection against cross-site scripting (XSS)
  - **X-Frame-Options:** 0% — No protection against clickjacking via iframe embeds

- **Mixed Content Issues:**
  - 25.4% (104 stations) serve mixed HTTP/HTTPS content, which can trigger browser warnings and undermine HTTPS benefits.

Real-World Impact

While basic HTTPS is universal, the complete absence of advanced security headers creates sector-wide vulnerabilities. A compromised site could serve malicious content to community members seeking civic information. The 8.8% with invalid SSL certificates actively deter visitors with browser warnings.

4. Content Production & Delivery Capabilities

This section reveals the sector's strengths in content production:

- 66.8% (274 stations) maintain active video archives, demonstrating consistent content production and preservation.
- 65.4% (268 stations) publish program schedules, indicating organizational planning and community communication.
- 49.3% (202 stations) have events calendars, suggesting active community engagement programming.
- 47.1% (193 stations) display donate buttons, showing fundraising infrastructure.
- 45.1% (185 stations) have blog or news sections, providing fresh written content.
- 33.4% (137 stations) offer live streaming capabilities.

Real-World Impact

The sector is actively producing, archiving, and scheduling civic content. The gaps are in the technical infrastructure that makes this content discoverable and accessible to modern web users and search engines.

5. Platform & Content Management Systems

Of the 410 successfully analyzed stations:

Platform	Count	Percentage
WordPress	167	40.7%
Wix	43	10.5%
Squarespace	33	8.0%
Drupal	30	7.3%
Weebly	20	4.9%
Joomla	3	0.7%
Webflow	2	0.5%
Undetected/Legacy	112	27.3%

The sector is actively producing, archiving, and scheduling civic content. The gaps are in the technical infrastructure that makes this content discoverable and accessible to modern web users and search engines.

- Custom-built or proprietary systems
- Heavily modified legacy platforms
- Outdated technology stacks

These 112 stations face elevated risk for:

- Vendor lock-in and migration difficulty
- Security patch unavailability
- Long-term platform obsolescence
- Higher modernization costs

Real-World Impact

Stations on identified platforms (especially WordPress at 40.7%) have access to extensive plugin ecosystems, security updates, and community support. The 27.3% on undetected platforms face higher costs and complexity when addressing infrastructure gaps, and may require full platform migrations rather than incremental improvements.

6. Accessibility & Inclusive Design

- 62.2% (255 stations) implement ARIA landmarks, demonstrating attention to screen reader compatibility.
- 35.4% (145 stations) include skip-to-content links, a basic accessibility feature for keyboard navigation.
- Average images missing alt text: 1.7 per page, relatively low, suggesting decent image accessibility practices.

Real-World Impact

Accessibility implementation is moderate. The 35.4% skip-link adoption rate indicates room for improvement in keyboard navigation support, which is important for users with motor disabilities and those navigating via screen readers.

7. Community Engagement & Contact Infrastructure

- 82.2% (337 stations) display social media links, indicating multi-platform community engagement.
- 71.5% (293 stations) have dedicated contact pages, providing baseline accessibility for community inquiries.
- 44.6% (183 stations) provide RSS feeds for content syndication.
- 6.3% (26 stations) offer newsletter signup forms for direct audience development.

Real-World Impact

Strong social media presence, but email list building (6.3%) is severely underutilized. Newsletter signups represent a direct communication channel that doesn't depend on algorithm changes or platform policies. This is a missed opportunity for audience retention and community building.

8. Analytics & Measurement

46.6% (191 stations) have analytics tools installed (primarily Google Analytics).

Real-World Impact

Over half of stations lack analytics, meaning they cannot measure audience engagement, track content performance, or demonstrate reach to funders and stakeholders. Data-driven decision-making is limited across the sector.

Appendix: Technical Glossary

Blue Astral

CDN (Content Delivery Network): Distributed server network that caches content closer to users, reducing load times.

Compression: Server-side technology (gzip, brotli) that reduces file sizes before transmission.

Core Web Vitals: Google's performance metrics (LCP, FID, CLS) used as ranking factors.

CSP (Content Security Policy): Security header preventing cross-site scripting attacks.

HSTS (HTTP Strict Transport Security): Header forcing browsers to use HTTPS connections.

Meta Description: 150-160 character summary appearing in search results below page titles.

Robots.txt: File instructing search engines which pages to crawl.

Schema.org Markup: Structured data providing content context to search engines.

Sitemap: XML file listing all pages for search engine indexing.

SSL Certificate: Digital certificate enabling HTTPS encryption.

X-Frame-Options: Header preventing clickjacking attacks via iframe embeds.

Next Steps: How Blue Astral Can Help

If you're reading this report and wondering "Is this us?" you're not alone. The issues identified here affect the majority of PEG stations we analyzed. The good news: these are solvable engineering problems, not insurmountable funding crises.

1: Self-Assessment Checklist

Ask your web hosting provider or IT team these questions:

- Is gzip/brotli compression enabled on our server? (0% of stations have this)
- Do we have cache control headers configured? (0% have this)
- Do we have an XML sitemap for our video archive? (22.2% are missing this)
- Are meta descriptions set for our key pages? (54.9% lack these)
- Is our SSL certificate valid and current? (8.8% have invalid certs)
- What CMS platform are we on, and can it be updated? (27.3% run undetected/legacy systems)

If your vendor can answer "yes" to the first four and confidently name your CMS, you're ahead of most stations. If you're getting hesitation or "I'll have to check" responses, you have gaps.

2: Request Your Free Digital Visibility Audit

Blue Astral offers complimentary technical audits for PEG stations. We'll analyze your specific site against the 410-station baseline and provide:

- Your Digital Readiness Score (how you compare to sector averages)
- Prioritized Fix List (compression first, or sitemap, or SSL: what matters most for your station)
- Cost Context (which fixes are configuration changes vs. platform upgrades)
- Custom Roadmap (tactical next steps for your budget and staffing level)

Request Your Free Audit at BlueAstral.com

No obligation. No sales pressure. Just data on where your station stands and what to fix first.

- Contact
peg-research@blueastral.com
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- Audit Request
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About Blue Astral

Blue Astral is a digital infrastructure firm specializing in Community Media Hubs: technical platforms purpose-built for civic transparency, local search optimization, and long-term scalability.

What We Do

We partner with PEG stations, municipal governments, and community organizations to close the gap between content production and community discovery.

Our services include:

- **Technical Audits:** Comprehensive analysis of performance, SEO, security, and accessibility gaps
- **Platform Modernization:** Migration from legacy systems to scalable, SEO-optimized CMS platforms
- **Infrastructure Optimization:** CDN implementation, compression configuration, sitemap automation
- **Content Strategy:** Workflows that reduce manual labor while improving search visibility

Why Civic Media Is Different

Commercial media companies can afford dedicated SEO teams and infrastructure engineers. Community broadcasters operate on thin budgets with one person wearing six hats.

We believe civic content is critical infrastructure, deserving the same technical standards as commercial media, but delivered with the budget and staffing realities of the public sector in mind.

Our Approach: Audit, Architect, Automate

1. **Audit:** Map your current gaps (sitemap, SSL, compression, meta descriptions)
2. **Architect:** Design infrastructure that meets modern standards within your budget constraints
3. **Automate:** Implement workflows that reduce ongoing maintenance burden

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