

2025 Page Speed Optimization Checklist

Implement these advanced techniques to make your website load faster than ever.

Based on [Page Speed Optimization Techniques That Actually Work In 2025](#) by Casey's SEO

1. Core Web Vitals Focus

Prioritize Google's key metrics for SEO and user experience.

- Optimize Largest Contentful Paint (LCP) for under 2.5 seconds.
- Ensure First Input Delay (FID) is below 100 milliseconds.
- Minimize Cumulative Layout Shift (CLS) to prevent visual instability.
- Optimize your largest image or text block for LCP.
- Use a CDN to serve content faster from locations closer to users.
- Preload critical resources to speed up initial load.
- Eliminate render-blocking JavaScript that delays page display.

2. AI-Powered Performance

Leverage artificial intelligence for predictive and automated optimization.

- Utilize AI tools to analyze user behavior and predict clicks.
- Implement AI-driven preloading of content based on predicted user actions.
- Use Chrome's AI Performance Panel in Dev Tools to identify and fix speed issues.
- Employ AI-driven Real User Monitoring (RUM) to proactively spot performance problems.
- Set up AI-driven RUM to predict performance degradation before it impacts conversions.

3. Advanced Image Optimization

Adopt modern formats and smart loading strategies for faster image delivery.

- Serve images in next-gen formats like AVIF for better compression.
- Implement a fallback strategy for AVIF using WebP or JPEG for older browsers.
- Use the HTML `<picture>` element for format negotiation.
- Implement intelligent, priority-based image loading.
- Lazy load images that are below the fold.
- Use 'srcset' and 'sizes' attributes for responsive images.
- Ensure images are appropriately sized for the user's device and screen.

4. JavaScript Optimization

Streamline JavaScript execution to improve interactivity and load times.

- Implement code splitting to break down large JavaScript files into smaller chunks.
- Utilize tree shaking to remove unused JavaScript code from bundles.

- Use the 'async' attribute for non-critical JavaScript to load in the background.
- Use the 'defer' attribute for scripts that can wait until HTML parsing is complete.
- Choose the appropriate script loading attribute based on criticality.
- Break up long JavaScript tasks into smaller, manageable chunks (under 50ms).

5. Server-Side and Network Enhancements

Optimize your server and network protocols for maximum speed.

- Enable HTTP/3 and QUIC protocol if supported by your hosting provider.
- Implement edge computing to process data closer to users.
- Optimize your database performance to reduce query times.
- Ensure your server is configured for efficient content delivery.
- Minimize the number of HTTP requests made by your website.

6. Compression & Dictionary Technology

Reduce file sizes significantly using modern compression techniques.

- Utilize compression dictionaries (e.g., Brotli, Zstandard) for CSS, JS, and HTML.
- Leverage shared vocabularies to reduce data transfer for repeat visitors.
- Aim for file size reductions of 60-70% for repeat visitors using dictionaries.
- Ensure your compression tools support dictionary functionality.

7. Common Speed Problem Fixes

Address frequent issues that negatively impact page load times.

- Identify and fix render-blocking resources.
- Optimize oversized images to reduce file size.
- Reduce the total number of HTTP requests.
- Set explicit width and height attributes for all images.
- Reserve space for ads, embeds, and dynamic content to prevent layout shifts.
- Avoid inserting content above existing content after page load.

8. Performance Budgeting & Monitoring

Establish limits and continuously monitor performance.

- Set up a performance budget for your website.
- Cap image file sizes within your budget.
- Limit the number of HTTP requests allowed.
- Establish strict load time targets.
- Continuously monitor performance using Real User Monitoring (RUM).
- Compare RUM data with lab data for a comprehensive view.

Resources & Further Reading

Use these pages while working through the checklist:

■ Colorado Springs SEO Blog

<https://caseysseo.com/seo-blog>

■ Find Your Local Results

<https://caseysseo.com/>

■ Colorado Springs Local SEO Company

<https://caseysseo.com/colorado-springs-local-seo/>

■ AI SEO Tools Comparison: 2025 Software Rankings – Casey's SEO

<https://caseysseo.com/ai-seo-tools-comparison-2025-software-rankings/>

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Prioritize speed and AI to deliver an instant user experience in 2025.