

Technology Stack Version Information

Updated: November 22, 2025

This document tracks all major package versions used in the GreenScapes AI Next.js application, upgraded to the absolute latest stable versions.



Core Framework & Runtime

Next.js

- **Version:** 16.0.3
- **Type:** Bleeding Edge / Release Candidate
- **Features:**
 - Turbopack bundler (faster builds)
 - React Server Components
 - App Router
 - Improved performance and optimization
- **Migration Notes:** Updated from earlier versions to leverage Turbopack and latest React features

React & React-DOM

- **Version:** 19.2.0
- **Type:** Latest Stable
- **Features:**
 - Improved React Server Components
 - Enhanced concurrent rendering
 - Better TypeScript support
 - Performance optimizations
- **Breaking Changes:** None major, smooth upgrade path



Styling & UI

Tailwind CSS

- **Version:** 4.1.17
- **Type:** Latest Major Version (4.x)
- **Configuration:**
 - Uses `@tailwindcss/postcss` plugin
 - CSS-first configuration approach
 - Enhanced JIT compilation
- **Key Changes from 3.x:**
 - New PostCSS-based architecture

- Improved performance
- Better tree-shaking
- Simplified configuration
- **PostCSS Plugin:** `@tailwindcss/postcss@4.1.17`

Framer Motion

- **Version:** 12.23.24
 - **Features:** Latest animation capabilities for React 19
 - **Usage:** Page transitions, interactive animations
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TypeScript

TypeScript

- **Version:** 5.9.3
- **Type:** Latest Stable
- **Features:**
 - Enhanced type inference
 - Better error messages
 - Improved performance
 - Full support for latest React patterns

Type Definitions

- **@types/node:** 24.10.1 (Latest)
 - **@types/react:** 19.x (React 19 compatible)
 - **@types/react-dom:** 19.x (React 19 compatible)
 - **@types/react-google-recaptcha:** 2.1.9
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AI & API Integration

Google Generative AI (Gemini)

- **Version:** `@google/generative-ai@0.24.1`
- **Models Used:**
 - `gemini-1.5-flash` - Main content generation
 - `text-embedding-004` - Vector embeddings
- **Features:**
 - Landscape visualization generation
 - Property audit reports
 - Quote estimation
 - Smart suggestions
- **API Updates:** Updated service layer for latest SDK syntax

EmailJS

- **Version:** `@emailjs/browser@4.4.1`

- **Usage:** Contact form and quote request submissions
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Database & ORM

Prisma

- **Client Version:** 7.0.0 (Latest Major)
 - **Prisma CLI:** 7.0.0
 - **Features:**
 - Type-safe database client
 - Migration system
 - Schema validation
 - **Breaking Changes:** Upgraded from 6.x to 7.0.0
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Utility Libraries

State Management & Utilities

- **lucide-react:** 0.554.0 - Icon library
- **clsx:** 2.1.1 - CSS class composition
- **class-variance-authority:** 0.7.1 - Component variants
- **tailwind-merge:** 3.4.0 - Tailwind class merging

UI Components

- **react-hot-toast:** 2.6.0 - Toast notifications
- **recharts:** 3.4.1 - Data visualization
- **react-google-recaptcha:** 3.1.0 - reCAPTCHA integration

Document Processing

- **mammoth:** 1.11.0 - DOCX parsing
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Build & Development Tools

Build Configuration

- **PostCSS:** Configured with Tailwind CSS 4.x plugin
- **Turbopack:** Enabled by default in Next.js 16
- **TypeScript:** Strict mode enabled

Environment Variables

- **dotenv:** 17.2.3 - Environment configuration
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Migration Summary

Major Upgrades Completed

1. **Next.js**: 14.x → 16.0.3
 - Turbopack integration
 - Improved build performance
 - Enhanced React Server Components

2. **React**: 18.x → 19.2.0
 - React Server Components improvements
 - Better TypeScript support
 - Performance enhancements

3. **Tailwind CSS**: 3.x → 4.1.17
 - New CSS-first configuration
 - PostCSS plugin architecture
 - Improved JIT compilation
 - Better tree-shaking

4. **TypeScript**: 5.6.x → 5.9.3
 - Latest stable release
 - Enhanced type inference
 - Better React 19 support

5. **Prisma**: 6.7.0 → 7.0.0
 - Major version upgrade
 - New features and optimizations

TypeScript Fixes Applied

1. **Gemini Service** (`services/geminiService.ts`):
 - Updated API syntax for `@google/generative-ai@0.24.1`
 - Fixed `generateContent` response handling
 - Updated embedding generation methods

2. **Vector Store** (`services/vectorStore.ts`):
 - Fixed GoogleGenerativeAI initialization
 - Updated embedding API calls
 - Corrected type definitions

Verification

Build Status

-  TypeScript compilation: No errors
-  Production build: Successful
-  All pages pre-rendering: Successful
-  Static optimization: Working

Route Generation

Route (app)	
📄 /	(Static)
📄 /about	(Static)
📄 /contact	(Static)
📄 /quote	(Static)
📄 /service-areas	(Static)
📄 /locations/[slug]	(Dynamic)
📄 /api/contact	(API Route)
📄 /api/quote	(API Route)
📄 /api/reviews	(API Route)

🎯 Production Readiness

Performance Optimizations

- ✓ Static page pre-rendering
- ✓ Automatic code splitting
- ✓ Image optimization (Next.js Image)
- ✓ Turbopack fast refresh
- ✓ Tree-shaking with Tailwind 4

SEO Features

- ✓ Dynamic sitemap generation
- ✓ Robots.txt configuration
- ✓ Meta tags per page
- ✓ Structured data ready

📚 Resources

Documentation Links

- [Next.js 16 Documentation](https://nextjs.org/docs) (<https://nextjs.org/docs>)
- [React 19 Release Notes](https://react.dev/blog/2024/04/25/react-19-upgrade-guide) (<https://react.dev/blog/2024/04/25/react-19-upgrade-guide>)
- [Tailwind CSS 4.0 Guide](https://tailwindcss.com/docs) (<https://tailwindcss.com/docs>)
- [TypeScript 5.9 Release Notes](https://www.typescriptlang.org/docs) (<https://www.typescriptlang.org/docs>)
- [Gemini API Documentation](https://ai.google.dev/docs) (<https://ai.google.dev/docs>)

Migration Guides

- [Tailwind CSS 3.x to 4.x Migration](https://tailwindcss.com/docs/upgrade-guide) (<https://tailwindcss.com/docs/upgrade-guide>)
- [React 18 to 19 Migration](https://react.dev/blog/2024/04/25/react-19-upgrade-guide) (<https://react.dev/blog/2024/04/25/react-19-upgrade-guide>)
- [Next.js App Router Migration](https://nextjs.org/docs/app/building-your-application/upgrading) (<https://nextjs.org/docs/app/building-your-application/upgrading>)

Update History

- **November 22, 2025:** Full stack upgrade to latest versions
 - Next.js 16.0.3
 - React 19.2.0
 - Tailwind CSS 4.1.17
 - TypeScript 5.9.3
 - Prisma 7.0.0
 - All dependencies updated to latest stable versions
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Next Steps

1. **Testing:** Comprehensive feature testing in development
 2. **Environment Setup:** Configure production environment variables
 3. **Deployment:** Deploy to production hosting (Vercel recommended)
 4. **Monitoring:** Set up error tracking and analytics
 5. **Performance:** Run Lighthouse audits and optimize
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