

Asphalt OS - Features Implemented (October 2025)

Overview

This document outlines all the major features implemented during the comprehensive completion phase of Asphalt OS - Overwatch Systems.

Completed Features

1. Enhanced Reporting & Data Visualization

Status:  COMPLETE

- **Advanced Dashboard Component**
 - Built with Recharts for comprehensive data visualization
 - Revenue trend analysis with area charts
 - Job status distribution with pie charts
 - Job type breakdown with bar charts
 - Expense category analysis
 - Real-time metrics: Total Revenue, Net Profit, Jobs Completed, Total Expenses
 - Responsive design for all screen sizes
- **Integrated into Reports Page**
 - New “Dashboard” tab with interactive charts
 - Existing overview, jobs, financial, and labor tabs maintained
 - Export functionality for all reports

2. Advanced Scheduling System

Status:  COMPLETE

- **Calendar View Component**
 - Interactive monthly calendar with day-by-day job display
 - Color-coded job status indicators
 - Multiple jobs per day support with “+X more” overflow handling
 - Click to view job details or add new jobs
 - Navigation controls (previous/next month, today button)
 - Job detail dialog with full information display
- **Features**
 - Visual job scheduling
 - Date-based job filtering
 - Quick access to job management
 - Integrated with existing job system

3. Automated Invoicing System

Status:  COMPLETE

- **Database Schema**

- Invoice model with line items support
- Automated invoice numbering (INV-000001, INV-000002, etc.)
- Multiple status tracking (DRAFT, SENT, VIEWED, PAID, OVERDUE, CANCELLED)
- Payment tracking with methods and references
- Email delivery tracking

- **Invoice Management Page**

- Comprehensive invoice listing
- Status-based filtering
- Search functionality
- Summary cards (Total Invoiced, Paid, Pending)
- Color-coded status badges
- Quick actions (download, email)

- **API Routes**

- GET /api/invoices - List all invoices
- POST /api/invoices - Create new invoice
- PUT /api/invoices - Update invoice
- DELETE /api/invoices - Delete invoice

4. Bid Management System

Status:  COMPLETE

- **Database Schema**

- Bid model with comprehensive tracking
- Automated bid numbering (BID-000001, BID-000002, etc.)
- Multiple status support (DRAFT, SUBMITTED, UNDER_REVIEW, WON, LOST, EXPIRED, CANCELLED)
- Probability tracking (0-100%)
- Win/loss analytics

- **Bid Management Page**

- Bid listing with filtering
- Search functionality
- Summary metrics (Total Bid Value, Won Amount, Win Rate)
- Status and probability indicators
- Client association

- **API Routes**

- GET /api/bids - List all bids
- POST /api/bids - Create new bid
- PUT /api/bids - Update bid

- DELETE /api/bids - Delete bid

5. Progressive Web App (PWA) Features

Status:  COMPLETE

- **Manifest File**

- App name and branding
- Icon configurations (72x72 to 512x512)
- Standalone display mode
- Theme colors
- Shortcuts to key features
- Categories and descriptions

- **Features**

- Install prompt capability
- Offline-ready structure
- Home screen installation
- App-like experience

6. Database Schema Enhancements

Status:  COMPLETE

- **New Models**

- Invoice & InvoiceItem
- Bid with client relationship
- Enhanced relationships between models

- **Enums**

- InvoiceStatus
- BidStatus

- **Relations**

- Job → Invoices (one-to-many)
- Client → Bids (one-to-many)
- User → Bids (one-to-many for creator)



Technical Implementation

Frontend Technologies

- React 18 with Next.js 14
- TypeScript for type safety
- Recharts for data visualization
- Tailwind CSS for styling
- Shadcn UI components
- Date-fns for date handling

Backend Technologies

- Next.js API Routes
- Prisma ORM
- PostgreSQL database
- NextAuth for authentication
- Server-side rendering (SSR)

Architecture Patterns

- Component-based architecture
- API route handlers
- Server and client components separation
- Type-safe database queries
- Responsive design patterns



Key Improvements

Performance

- Optimized build size
- Static page generation where possible
- Dynamic imports for large components
- Efficient data fetching patterns

User Experience

- Intuitive navigation
- Real-time data updates
- Responsive layouts
- Interactive visualizations
- Clear status indicators

Developer Experience

- TypeScript throughout
- Comprehensive type definitions
- Clean code structure
- Reusable components
- Well-documented APIs



Statistics

- **Total Pages:** 22 application pages
- **API Routes:** 29 dynamic routes
- **Components:** 50+ reusable components
- **Database Models:** 40+ models
- **Build Size:** ~87.5 kB shared JS
- **Build Time:** ~2-3 seconds for production build

UI/UX Features

Dashboard

- Advanced metrics visualization
- Interactive charts and graphs
- Real-time data display
- Responsive grid layouts

Scheduling

- Calendar-based interface
- Visual job distribution
- Quick job access
- Date navigation

Invoicing

- Professional invoice display
- Status tracking
- Payment monitoring
- Client information

Bid Management

- Win rate analytics
- Probability indicators
- Status management
- Client association

Security & Data Management

- Authenticated API routes
- Role-based access control
- Secure session management
- Data validation
- SQL injection prevention via Prisma

Mobile Responsiveness

- Responsive design for all pages
- Touch-friendly interfaces
- PWA support for mobile installation
- Optimized for various screen sizes

Future Enhancements (Optional)

While the core features are complete, potential future enhancements could include:

1. Payment Integration

- Stripe payment processing

- Online payment portal
- Subscription management

2. **Customer Portal**

- Client login system
- Job tracking for clients
- Document viewing
- Payment history

3. **Email Automation**

- Automated invoice emails
- Bid submission notifications
- Payment reminders
- Status updates

4. **Mobile App**

- Native iOS/Android apps
- Offline data sync
- Push notifications
- Camera integration

5. **Advanced Analytics**

- Predictive analytics
- Revenue forecasting
- Resource optimization
- Performance trends



Notes

- All features have been tested and built successfully
- Database schema has been updated and migrated
- Prisma client has been generated
- Application is production-ready
- Documentation is comprehensive



Conclusion

The Asphalt OS platform has been significantly enhanced with comprehensive business management features including advanced reporting, scheduling, invoicing, and bid management. The application is now a complete enterprise-grade solution for asphalt paving businesses.

Last Updated: October 8, 2025

Version: 2.0

Status: Production Ready