



Digital Construction Management (DCM)

The value of digital transformation for those who build the work



[Digital Integration](#) for Construction





Forge ahead.

WSB is a design and consulting firm specializing in engineering, community planning, environmental, and construction services. Our staff of over 1700 improve the way people engage with communities, transportation, infrastructure, energy and our environment. We offer services in over 50 complementary areas that seamlessly integrate planning, design and implementation. Our coast-to-coast client base is served from offices across the U.S.

We share a vision to connect your dreams for tomorrow to the needs of today – the future is ours for the making.



1700+

STAFF

50+

SERVICE AREAS

45+

OFFICES

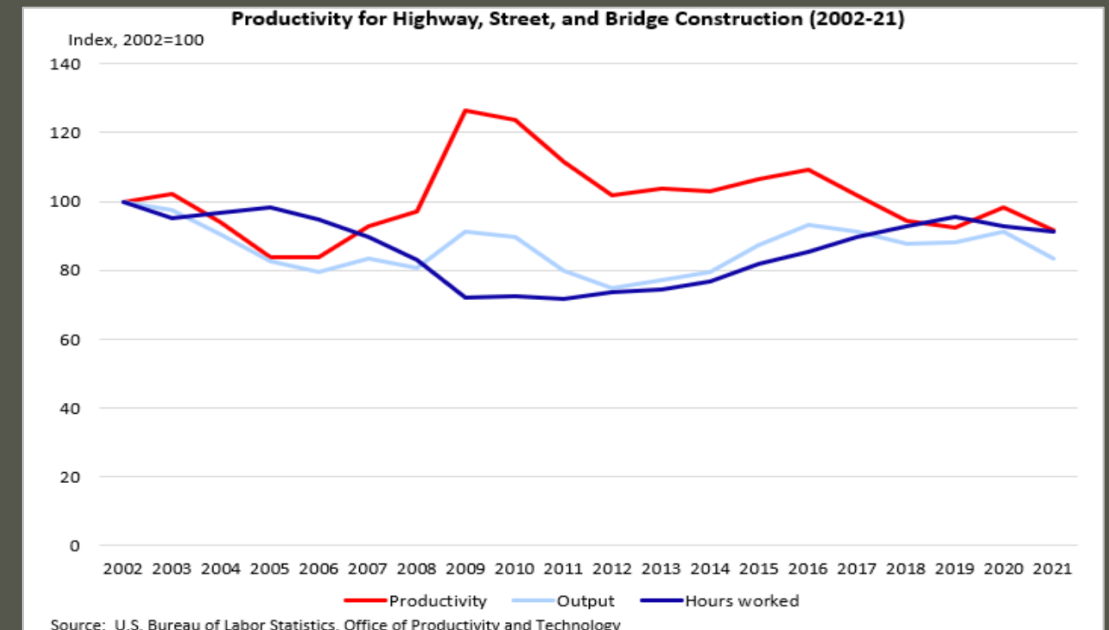
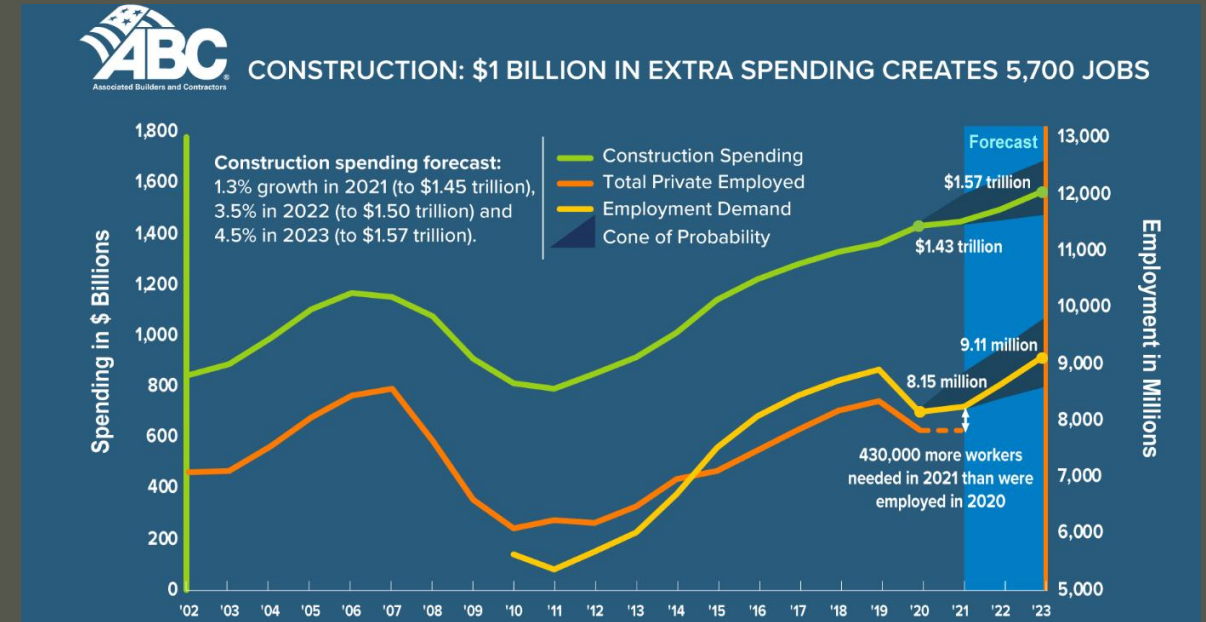
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STATES

Asset Management Systems | Community Planning | Construction Administration | Design–Build | Economic Development | Energy
| Environmental Planning & Natural Resources | Environmental Compliance | Geographic Information Systems | Geohazard Risk
Assessments | Geotechnical Engineering | Intelligent Transportation Systems | Landscape Architecture | Land Development |
Management Analysis & Development | Municipal Engineering | Pavement Management/Forensics | Project Controls | Project
Funding | Right of Way | Site Validation | Structures | Surveying | Transportation/Traffic | Visualization | Water Resources |
Wastewater

Why is DCM Needed?

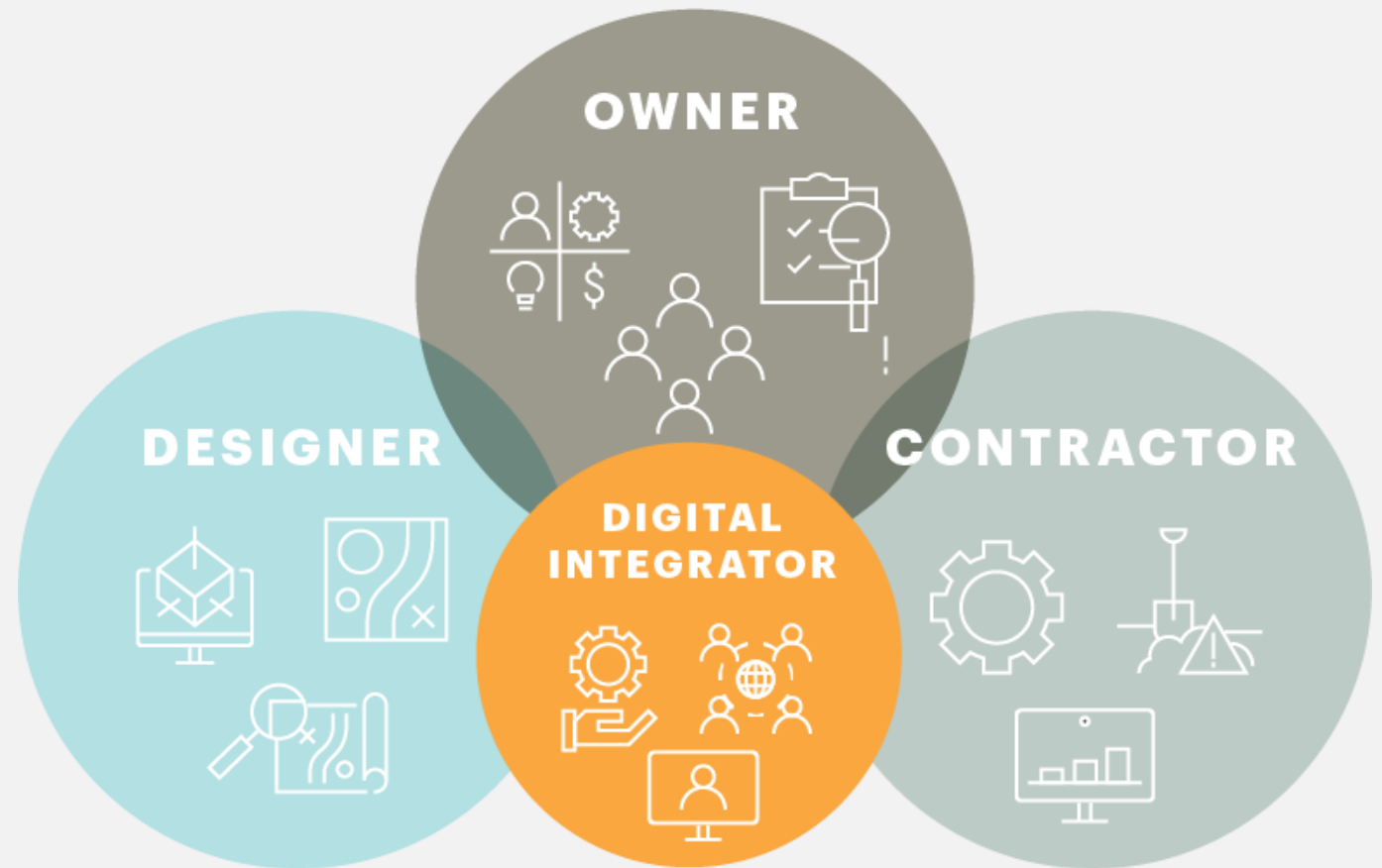
- **Infrastructure Demand Increasing:**
Non-building construction is set to grow 32% between 2022 and 2027.
- **Knowledge Base Shrinking:** Over 40% of the current U.S. construction workforce is expected to retire over the next decade.
- **Digital Revolution:** Much of construction world already here. It is coming in civil construction



Digital Construction Management (DCM)

WSB's Digital Construction Management (DCM) services provide data stewardship throughout the project lifecycle, helping organizations manage, organize, and connect project information as industry requirements continue to evolve toward Digital Delivery. DCM bridges today's design and construction processes by integrating existing 2D workflows, documents, and data while establishing a foundation for future 3D, 4D, and 5D capabilities.

By developing standardized data structures, repeatable workflows, and scalable deliverables, DCM enables organizations to improve collaboration, streamline project reviews, enhance reporting, and make more informed decisions. The result is a consistent and efficient approach to project delivery that increases the value of project information today while preparing organizations for the future of model-based project delivery.



Deploy and support the use of technology
to help everyone build better.

Project Setup

ESSENTIAL SETUP SERVICES

Secure Collaboration Access

DCM provides secure onboarding to cloud hosted environment for centralized team collaboration and data sharing.

Data Integration with BIC

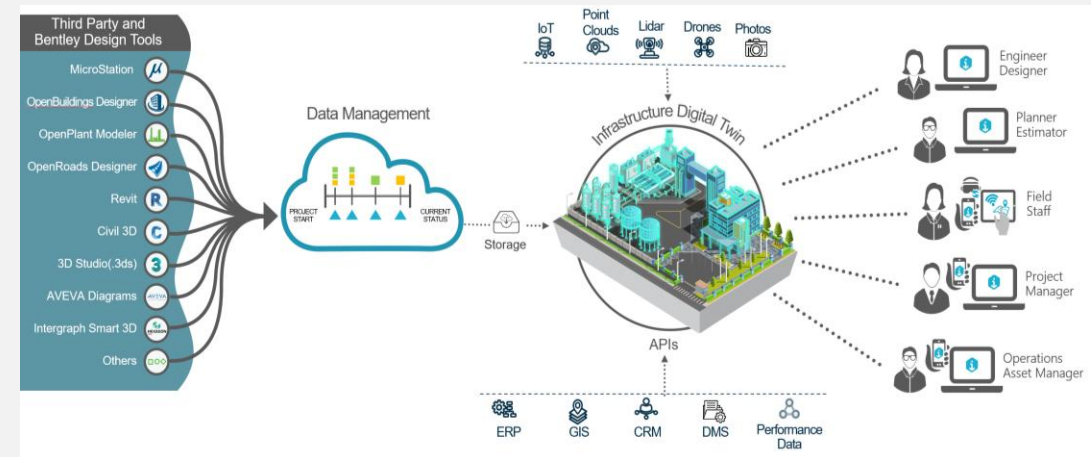
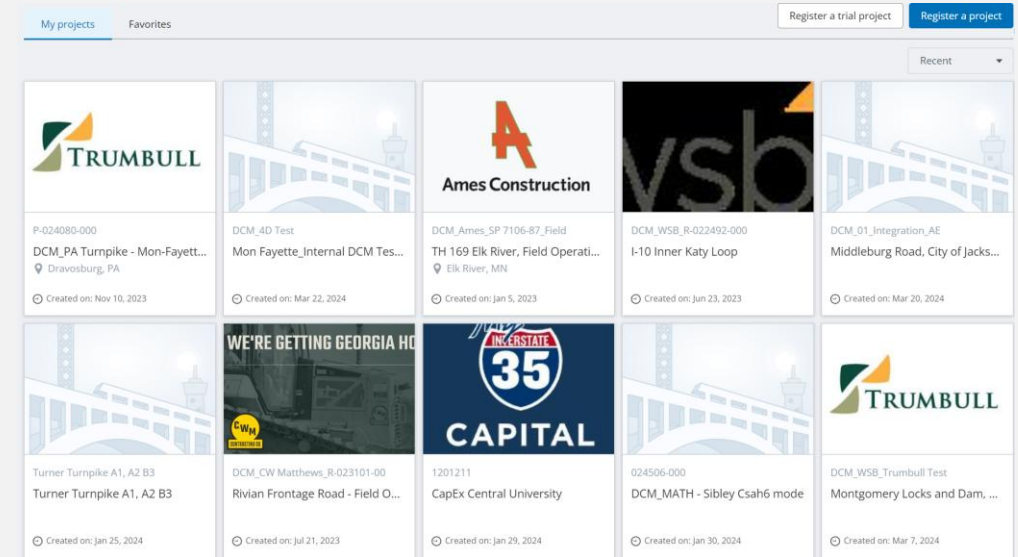
Bentley Infrastructure Cloud Access integrates business information for informed, data-driven decisions throughout the project lifecycle.

Roles and Permissions Management

Assigning appropriate access levels ensures security, workflows and accountability among project team members.

Support, Training, and Media Management

Support and training reduce errors, while PDF Plan Set and Media Indexing organize project documents and assets.



Data Collection and Workflows

OPTIMIZING DATA WORKFLOWS

Forms Creation and Training

Creating Federated iModels and conducting training sessions equip teams with skills to manage and develop models effectively.

Cost Estimation Accuracy

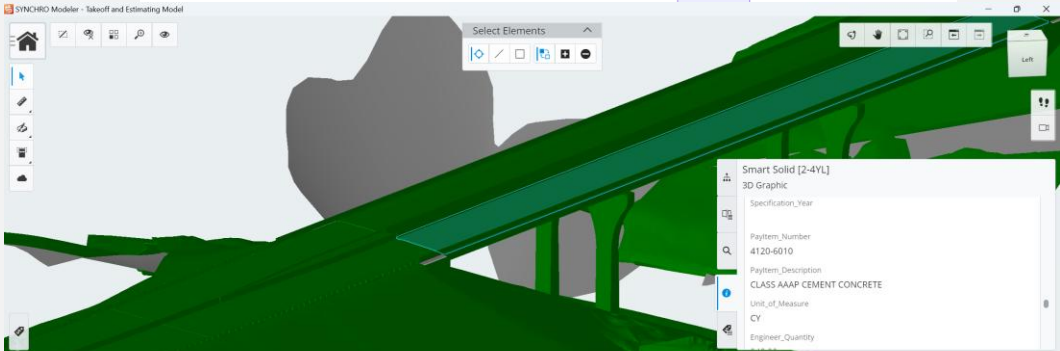
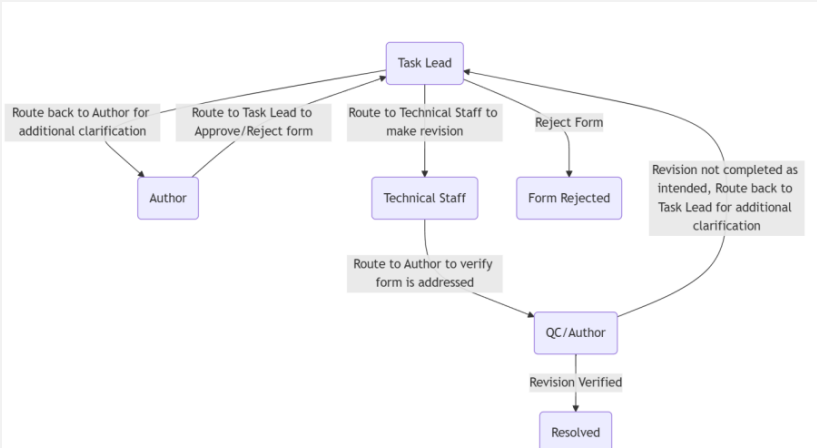
Quantity Take-Off (QTO) and engineering estimates offer precise cost calculations aiding budgeting and resource allocation.

Design Optimization Tools

Advanced Civil Tools help engineers optimize designs to meet project specifications and improve model quality.

Visualization and Review

Visualization packages and engineering model review improve stakeholder engagement and ensure model compliance with standards.



The screenshot shows the HCSS software interface with a 'Bid Summary' report. The report includes a table of Standard Markup Instructions, a 'Previous Run' section, and a 'Totals as of Last Spread' table.

	Cost Basis	Markup %	Markup
Labor	104,802,386	0.00	0
Burden	27,300,893	0.00	0
Perm Matl	297,971,012	0.00	0
Const Matl	35,060,403	0.00	0
Sub	850,463,298	0.00	0
Eq Op. Exps	38,923,620	0.00	0
Co E quip	16,111,186	0.00	0
Rentied Eqp	55,623,268	0.00	0
Trucking	8,540,257	0.00	0
Misc2	0	0.00	0
Misc3	0	0.00	0
Ovenides	0	0.00	0
Use Avg	1,434,802,323	0.00	0

Selected Bond Table: NO Bond Calc Addons Calc

Chief Estimator's Analysis Report Print

Previous Run: Last Summary on 05/07/2025 at 5:04 PM, Last Spread on 05/07/2025 at 5:05 PM. Summary run on Takeoff Quantity and Adjusted to Bid Quantity.

	Cost	Markup	Total
Direct	877,796,326	0	877,796,326
Indirect	557,005,998	0	557,005,998
Addons	0	0	0
Bond	0	0	0
SubTotal	1,434,802,324	0	1,434,802,324
Pass Through	0	0	0
Total	1,434,802,324	0	1,434,802,324

Model Management and Review

OPTIMIZING MODEL WORKFLOWS

Model Creation and Training

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Design Optimization Tools

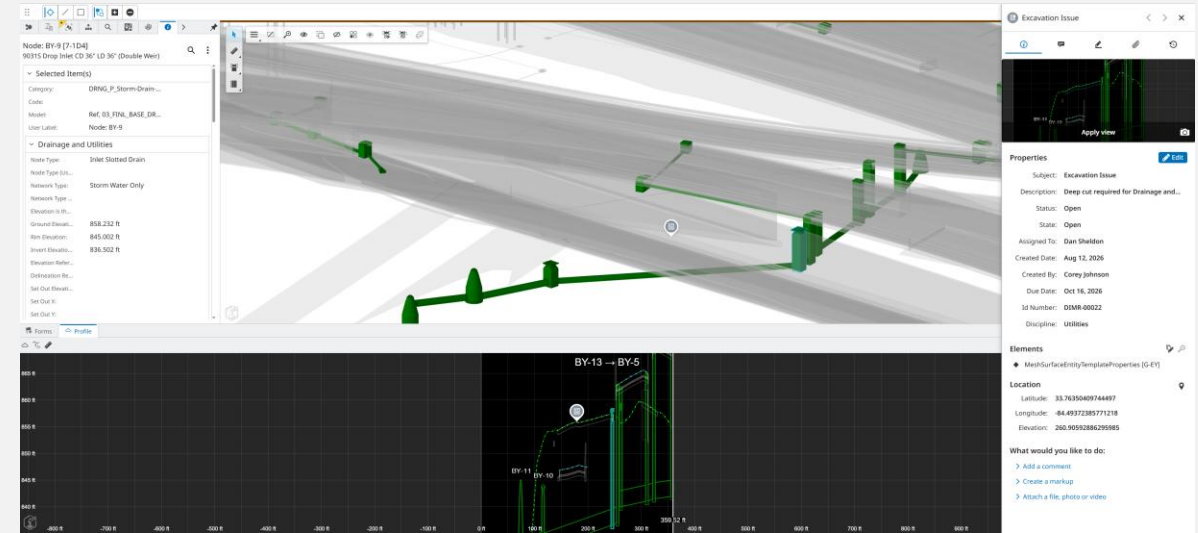
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QTO – Model-based Quantity Take Off Efficiencies

Organizational consistency regardless of owner deliverable standards

Engineering Quantities provide overall Project Quantities but providing contractors to ability to breakdown quantities based on their cost code structures, means and methods, and phasing provides greater detail and better estimates. Normalizing cost codes provides consistent data exchange to Estimating software's to drive better bids, reduced risk and higher confidence.

Assignments		Summary
>	23560 CONCRETE SIDEWALK	2,371.821 yd2
>	23570 CONCRETE CURB AND GUTTER	18,529.778 ft
>	23580 CONCRETE BARRIER	6,225.808 yd3
>	24622 SOD PLACEMENT	1,533.258 yd2
>	24662 BORROW-STONE FOR DRAIN	4,751.757 yd3
>	24682 MSE WALL - SF	376,707.766 ft2
>	24684 MSE WALL - LF	35,566.44 ft2
>	24685 MSE WALL FOOTINGS - VOLUME	1,975.797 yd3
>	24686 MSE WALL FOOTINGS - LF	33,397.318 ft
>	24687 MSE WALL COPING - VOLUME	2,762.257 yd3
>	24688 MSE WALL COPING - LF	32,837.294 ft
>	25020 6" LIME TREATED BASE	46,572.08 yd3
>	25040 6" CEMENT TREATED BASE	46,932.375 yd3
>	25514 HMA D	994.303 tn
>	25516 PAVED SURFACE (HMA+CRCP)	393,766.868 yd2
>	26010 1" ASB	15,487.969 tn
>	26012 10" CRCP - Volume	82,991.609 yd3
>	30040 STORM DRAIN PIPE-RCP (12-30)	31,430.048 ft
>	30050 STORM DRAIN PIPE-RCP (36-60)	11,276.453 ft
>	30060 STORM DRAIN PIPE-RCP (66-120)	1,925.092 ft



All Resources

wsba

Downloads

FileEditSetupEstimateQueryReportsSummarySubsystemsExchangeToolsHelpWhat's f

Estimate Entry - Tree View xBid Summary xExport to Excel xBiditem Setup x

TotalsAddonsBondSpread OverridesPackage Alternates

Standard Markup Instructions

	Cost Basis	Markup %	Markup
Labor	104,802,386	0.00	0
Burden	27,300,893	0.00	0
Perm Matl	297,971,012	0.00	0
Const Matl	35,060,403	0.00	0
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Rented Eqp	55,629,268	0.00	0
Trucking	8,540,257	0.00	0
Misc2	0	0.00	0
Misc3	0	0.00	0
Overrides	0	0.00	0

Use Avg: ☐ 1,434,802,323 0.00 0

Previous Run

Last Summary on 05/07/2025 at 5:04 PM
Last Spread on 05/07/2025 at 5:05 PM
Summary run on Takeoff Quantity and Adjusted to Bid Quantity.

Standard Spreads

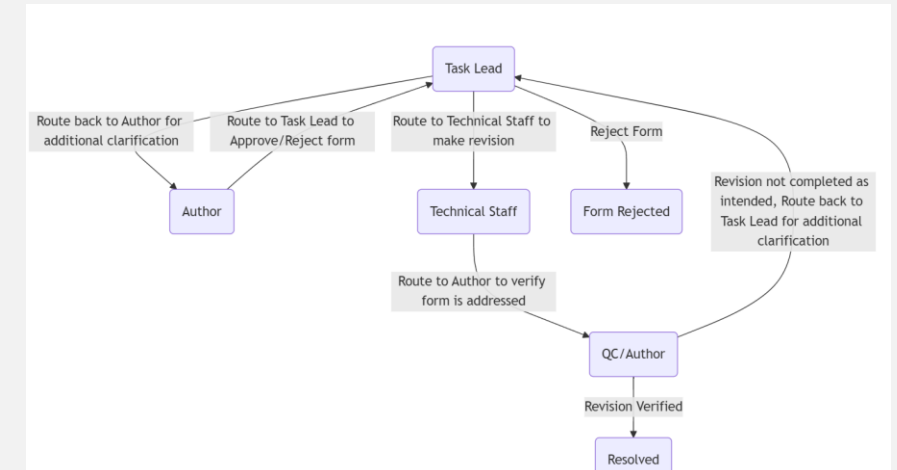
Indirect Spread: Total
Markup Spread: Total
Addon/Bond Spread: Total

Totals as of Last Spread

	Cost	Markup	Total
Direct	877,796,326	0	877,796,326
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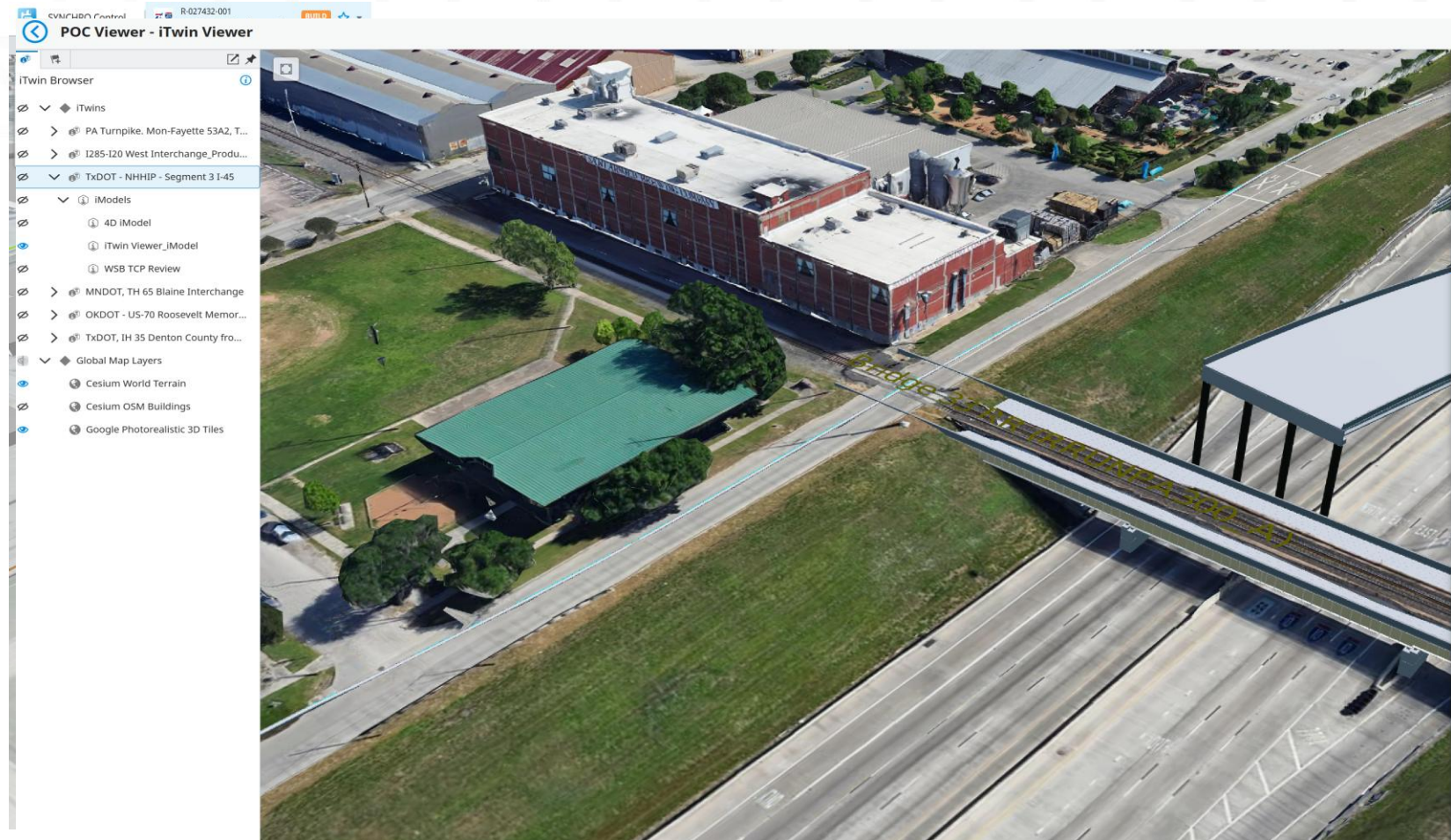
Utility Data Use Case – Conceptual Stage

Utility conflict with Road, Rail and Historical Registered Building

Bottom Up View: Existing 120" Storm Sewer

Top Down View: iModel view showing RR
Bridge placement and conflict

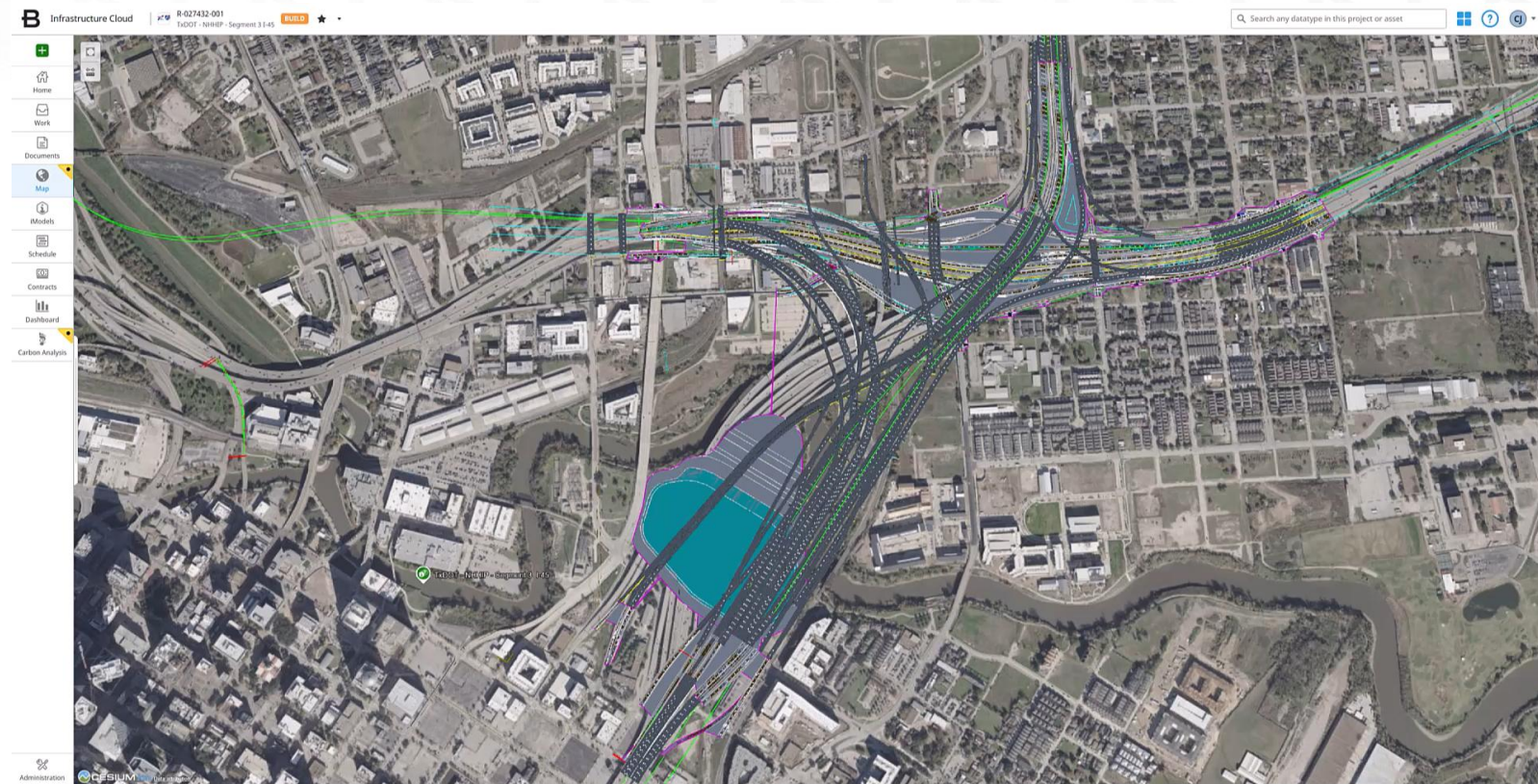
Cesium PoC Viewer: Seriousness of situation is
clearly visible



Utility Data Use Case – Conceptual Stage

Utility conflict with Road, Rail and Historical Registered Building

- Existing 120" Storm Sewer discovered via 4M
- iModel view showing RR Bridge placement and conflict with bridge piers at conceptual stage
- Seriousness of situation is clearly visible with Cesium, expediting discussions earlier to resolve



4D Constructability

INTEGRATING TIME AND CONSTRUCTION PLANNING

4D Constructability and Scheduling

Integrating time-based elements allows visualization and optimization of construction project schedules.

Cost Estimation and Breakdown

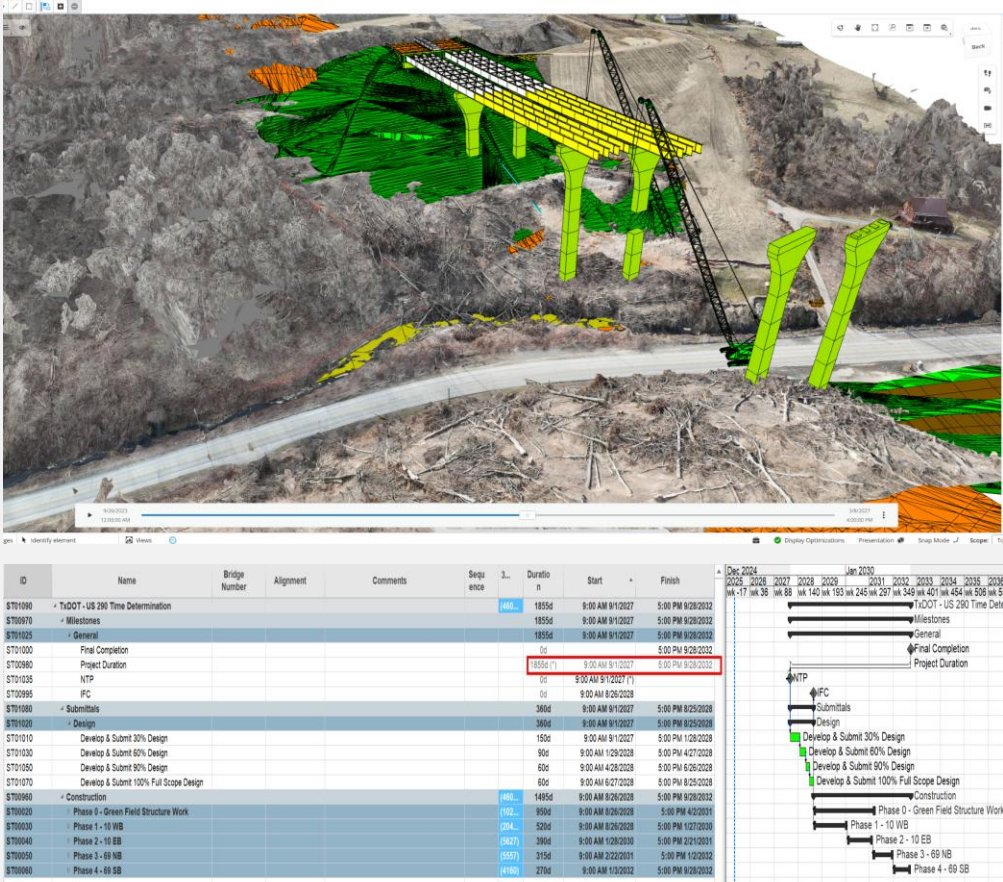
Quantity Take-Off and cost breakdown structures provide accurate financial projections and resource tracking.

Phasing and Project Segmentation

Breaking projects into phases improves efficiency and reduces risks by managing tasks in smaller segments.

Advanced Visualization and Reviews

Visualization packages and constructability reviews enhance stakeholder understanding and assess project feasibility. (Safety)



Alternative Delivery Throughout Texas

TEXAS DEPARTMENT OF TRANSPORTATION

The Texas Department of Transportation (TxDOT) Alternative Delivery Division (ALD) is working with WSB on preconstruction and planning phase for projects throughout Texas. These are the largest, most complex projects in the state and our model-centric approach to design management is helping the department alleviate risk when it is most critical to do so – when you can do something about it.

SERVICES PROVIDED

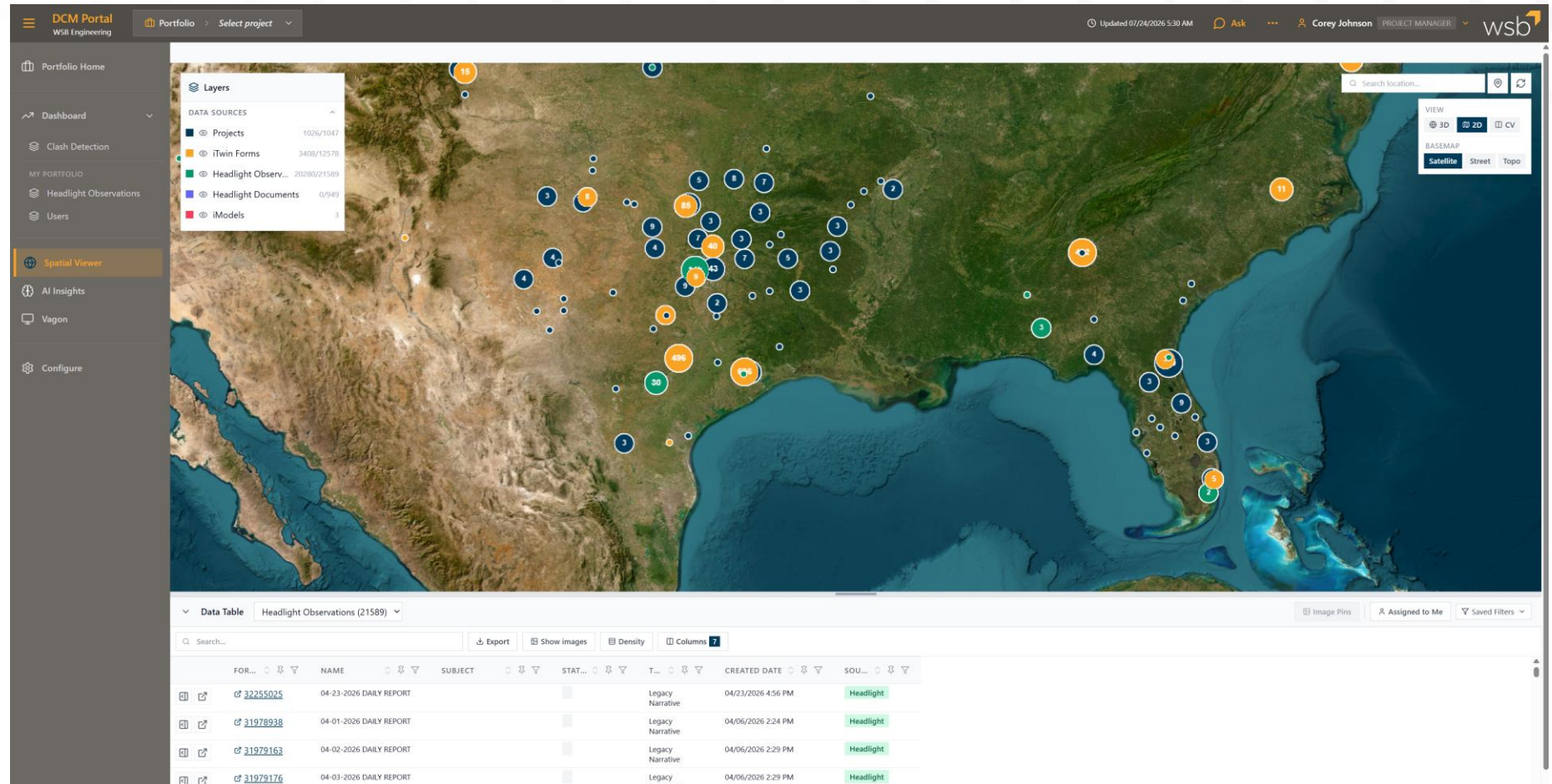
- Constructability Review
- Time Determination Schedule
- Preliminary Traffic Sequence in 4D
- Shadow Estimating
- 3D Model Creation from 2D Data



Portfolio / Project View

WSB DCM Portfolio

WSB's Digital Construction Management (DCM) Group transforms fragmented project data into a unified, actionable user experience. By connecting design, construction, schedule, cost, geospatial, and project management systems into a single digital environment, DCM enables stakeholders to make faster, more informed decisions. The result is improved collaboration, greater project transparency, reduced risk, and a scalable digital delivery framework that helps owners, designers, and contractors plan, build, and manage infrastructure more effectively.



Reporting and Analytics

DATA-DRIVEN INSIGHTS FOR BETTER DECISIONS

Forms-Based Reporting

Simplifies the process of data collection and presentation for clearer insights and easier understanding.

Engineering Performance Tracking

Monitors key project metrics to ensure objectives are met and performance is optimized.

PowerBI Dashboards

Provides interactive visualizations to simplify complex data and support strategic planning.

3D Model Reporting

Offers detailed design analysis to identify potential issues before construction begins.

