



Case Study Panel: Alternate Delivery Project Management: A Discussion of Observations and Challenges from US 69 Project Team Members

Speaker:

David Williams, PE, Tori Colombatto, PE and Paul Tierney



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Purpose and Objectives:



Purpose:

The purpose of this session is to provide a platform for project team members to discuss their observations and challenges from working on the US 69 project, fostering learning and knowledge-sharing for current and future project management professionals.

- Understand key challenges faced during the US 69 project and how they were addressed.
- Learn best practices for managing complex infrastructure projects in a dynamic environment.
- Gain insights into teamwork, communication, and stakeholder management from real-life project scenarios.
- Identify practical strategies for mitigating risks and overcoming project obstacles effectively.

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Speakers: <<<



Paul Tierney
Project Manager



David Williams, PE
Geotechnical Department Manager



Tori Colombatto, PE
Principal Project Engineer



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ABOUT THE US69 PROJECT



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WHY

- BUSIEST FOUR LANE IN KANSAS

WHERE

- 151ST TO 103RD (7 MILES) THRU OVERLAND PARK KS
- 167TH INTERCHANGE

WHAT

- FULL ROAD RECONSTRUCTION
- ADDING EXPRESS TOLL LANES EA DIRECTION

WHEN

- STARTED STUDYING IN LATE 1990'S
- PURSUIT IN 2022, AWARDED IN SEPT 2022
- STARTED CONSTRUCTION IN 2023
- DONE LATE 2025 WITH SOME OUTLIER ACTIVITIES DONE IN 2026

WHO

- KDOT
 - HNTB
- CITY OF OVERLAND PARK
- JOINT VENTURE PARTNERSHIP
 - EMERY SAPP
 - AMES CONSTRUCTION
 - PARSONS / TERRACON

KDOT US69 WEBSITE



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DESIGN SUBCONSULTANT

David Williams, PE. – Geotechnical Lead



US69 EXPRESS
CONSTRUCTORS

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DESIGN SUBCONSULTANT



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INTERNAL ORGANIZATION
SCHEDULE RISKS
GEOTECHNICAL COORDINATION
LESSONS LEARNED



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INTERNAL ORGANIZATION



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Geotechnical Lead/Project Manager

- Responsible for all aspects
- Safety
- Communication and Teamwork
- Financial and Risk Management
- Timeliness

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INTERNAL ORGANIZATION



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INTERNAL ORGANIZATION



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Type I/II Projects

- Type I: Standard Projects
- Type II: Larger, more complex projects requiring additional project and/or management activity, attention, or oversight.

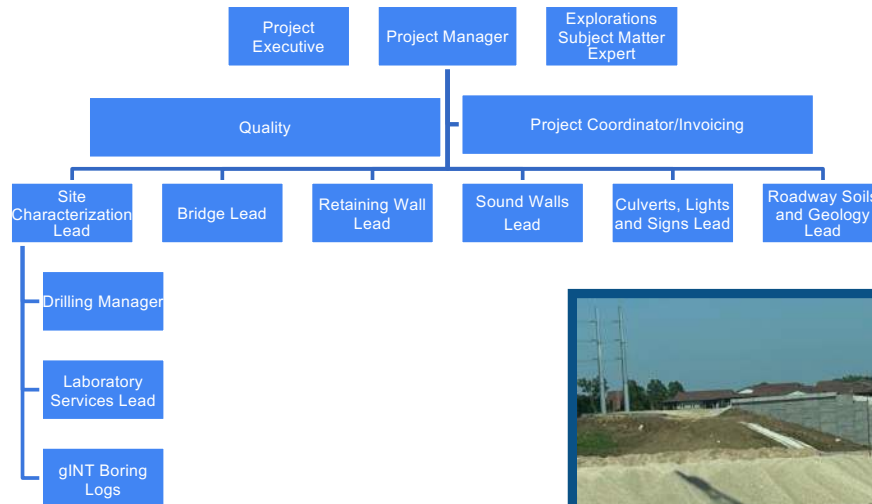


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INTERNAL ORGANIZATION



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INTERNAL ORGANIZATION



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Project Management Plan

- Guiding light for all internal parties involved.
- Communicates responsibilities and the pathway for success



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SCHEDULE



Work Plan No.	Elements included in the Work Plan	DP #	Discipline	Designer	Applicable Segment	30 % Plans Design Complete	60% Plans Design Complete	90% Plans Design Complete	Foundation Report Due to Parsons/JV (7 days prior to 60% Complete)	Foundation Report Due to KDOT	Revised Target RFC Date
4	Segment 5 - SB US69 Over Indian Creek (BR # 10) Plans	BR-10	Bridge	DAW/RB	5	N/A	12/15/2022	1/19/2023	12/8/22	2/10/2023	3/2/2023
3A	Segment 3 MSE Walls (Walls 3-6, 3-7, and 3-8)	RW-3A	WALL	SZ/JP	3	N/A	1/12/2023	2/16/2023	1/5/23	3/6/2023	3/17/2023
2A	Segment 2 MSE Walls	RW-2A	WALL	SZ/JP	2	N/A	1/19/2023	2/23/2023	1/12/23	3/13/2023	3/28/2023
2	Segment 2 - SB US-69over 143rd Street	BR-26	Bridge	DAW/RB	2	11/10/2022	12/8/2022	2/9/2023	12/1/22	3/3/2023	3/30/2023
2	Segment 2 - 135th Street Bridge over Tomahawk Creek (BR # 22) Plans	BR-22	Bridge	DAW/RB	2	11/10/2022	12/8/2022	2/9/2023	12/1/22	3/3/2023	3/30/2023
3B	Segment 3 MSE Walls (Walls 3-3, 3-4, 3-5, 3-9)	RW-3B	WALL	SZ/JP	3	N/A	1/27/2023	3/3/2023	1/20/23	3/16/2023	3/30/2023
5A	Segment 5 MSE Walls (Wall #2231)	RW-5A	WALL	SZ/JP	5	N/A	2/10/2023	3/17/2023	2/3/23	4/4/2023	4/21/2023
7	Segment 2 - US 69 Paving Package	69P-2	Soil and Geology Report	DBB	2	12/15/2022	1/19/2023	3/16/2023	1/12/23	4/7/2023	4/27/2023

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SCHEDULE



Work Plan No.	Elements included in the Work Plan		Work Plan Submitted	Work Plan Concurrence	JV Access Concurrence	Traffic Control Concurrence	Kansas 811/Permitting Concurrence	Field Work (Start)	Field Work (Completion)	Lab Work (Completion)	JV Survey Information Requested	JV Survey Information Received	Engineering Geology Sheet	Draft Foundation Report to Parsons	Rev 0 Foundation Report to KDOT	Foundation Report Approved						
4	Segment 5 - SB US69 Over Indian Creek (BR # 10) Plans		9/29/22 11/18/22	10/20/22 12/13/22 10/20/22	N/A	10/20/22 N/A	10/20/22 YES	10/27/22 12/15/22 11/3/22 1/6/23	11/17/22 YES	YES	YES	YES	YES	2/10/23	2/10/23	3/3/23						
3A	Segment 3 MSE Walls (Walls 3-6, 3-7, and 3-8)		10/27/22 10/13/22	11/17/22 11/10/22 11/17/22	N/A	11/17/22 N/A	11/17/22 YES	11/24/22 11/16/22 12/1/22 12/27/22 12/15/22	YES	YES	YES	N/A	3/8/23	3/8/23	3/30/23							
2A	Segment 2 MSE Walls		11/3/22 11/16/22	11/24/22 11/23/22 11/24/22	N/A	11/24/22 TERRACON MOT	11/24/22 YES	12/1/22 12/7/22 12/8/22 1/24/23 12/22/22 3/16/23	YES	YES	N/A	3/9/23	3/9/23	4/21/23								
2	Segment 2 - SB US-69over 143rd Street		9/22/22 11/14/22	10/13/22 11/23/22 10/13/22	N/A	10/13/22 TERRACON MOT (COMPLETED)	10/13/22 YES	10/20/22 11/22/22 10/27/22 11/23/22 11/10/22	YES	YES	YES	YES	2/20/23	3/6/23	3/27/23							
2	Segment 2 - 135th Street Bridge over Tomahawk Creek (BR # 22) Plans		9/22/22 11/14/22	10/13/22 11/23/22 10/13/22	N/A	10/13/22 N/A	10/13/22 YES	10/20/22 12/6/22 10/27/22 12/9/22 11/10/22	YES	YES	YES	YES	2/20/23	3/3/23	3/27/23							
3B	Segment 3 MSE Walls (Walls 3-3, 3-4, 3-5, 3-9)		11/11/22 10/13/22	12/2/22 11/10/22 12/2/22	N/A	12/2/22 N/A	12/2/22 YES	12/9/22 11/16/22 12/16/22 12/27/22 12/30/22	YES	YES	YES	N/A	3/8/23	3/8/23	5/4/23							
5A	Segment 5 MSE Walls (Wall #2231)		11/25/22 12/5/22	12/16/22 12/23/22 12/16/22	N/A	12/16/22 JV TC	12/16/22 YES	12/23/22 1/3/23 12/30/22 2/24/23 1/13/23	YES	PARTIAL	YES	N/A	4/8/23	4/8/23	5/5/23							
7	Segment 2 - US 69 Paving Package		11/3/22 WP10: 20/1/2023 WP11: 2/23/2023 WP12: 3/17/23	11/24/22 4/4/23 11/24/22	N/A	11/24/22 JV TC	11/24/22 YES	12/1/22 YES 12/8/22 YES 12/22/22 YES	YES	YES	YES	N/A	4/28/23	4/28/23	5/12/23							

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SCHEDULE



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- NTP-1 September 2022
- NTP-2 January 2023
- No Explorations until after NTP-1
- Contract Documents required Large Explorations scope for project elements
- No Traffic Control on **Department Facilities** until NTP-2

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SCHEDULE



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- Early Schedule Elements
- Large Green Spaces with Access Points
- Optimization
- Explorations Began November 2022



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GEOTECHNICAL COORDINATION



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Internal

- Work Plan Approval
- Exploration Package Development
- Pre-task Planning
- Explorations
- Laboratory
- Boring Logs Development

Success through pLogs, Member consistency

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GEOTECHNICAL COORDINATION



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External

- Work Plan Approval
- Traffic Control Coordination
- Benching of Existing Corridor
- Site Clearing



Success through early forecasting and repetitive communication

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GEOTECHNICAL COORDINATION



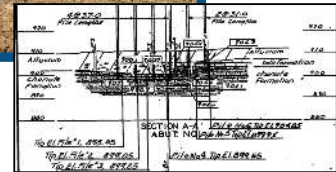
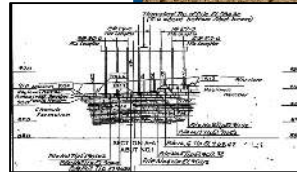
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Geotechnical Risks

Variable Bedrock

Thick Shale Formations

Success through early forecasting and repetitive communication



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LESSONS LEARNED



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Consistency of Colleagues of Internal & External Team

Early Forecasting

Carpenter vs. Craftsman Mindset



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DESIGN TEAM MANAGEMENT

Tori Colombatto, PE. – Design Team Member



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DESIGN TEAM MANAGEMENT



PROJECT ORGANIZATION
SCHEDULE
TRACKING / COMMUNICATION
POST-DESIGN SERVICES



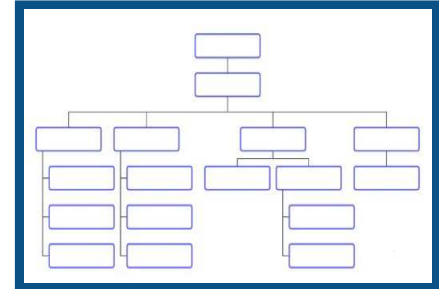
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PROJECT ORGANIZATION



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- MANAGEMENT STRUCTURE
- DISCIPLINE LEADS
- PROJECT SEGMENTS
- SEGMENT LEADS
- LESSONS LEARNED



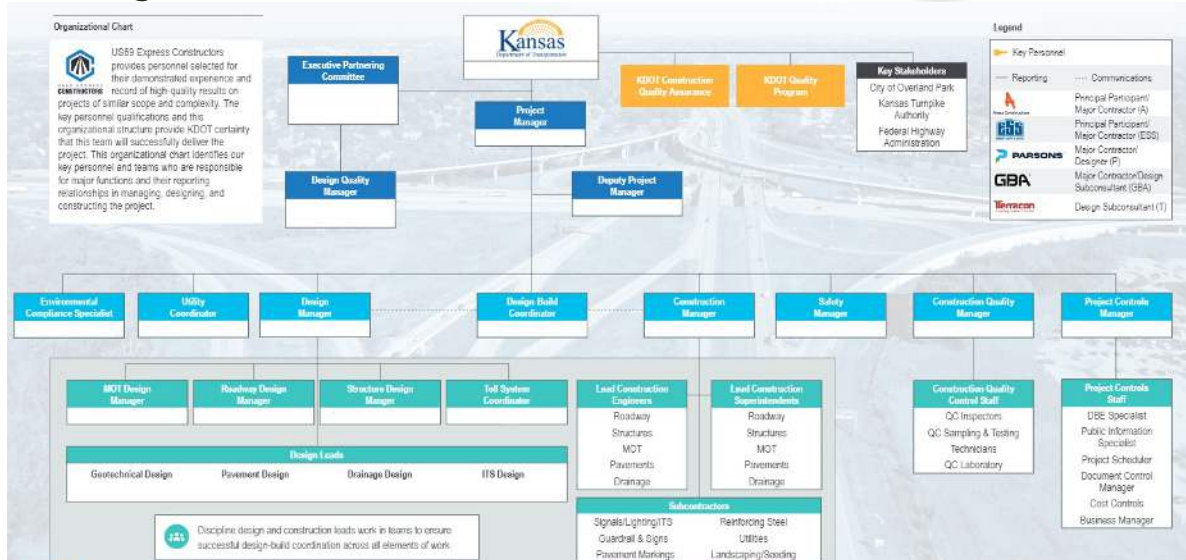
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PROJECT ORGANIZATION



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Management Structure



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PROJECT ORGANIZATION

DISCIPLINE LEADS

- Roadway Design Manager
 - Pavement Design
 - Drainage Design
 - Hydraulics
 - Signing/Striping
 - Signals and Lighting
 - ITS
- Structures Design Manager
 - Bridges/Culverts
 - Retaining Walls
 - Noise Walls
 - Miscellaneous
- MOT Design Manager
- Toll Systems Coordinator



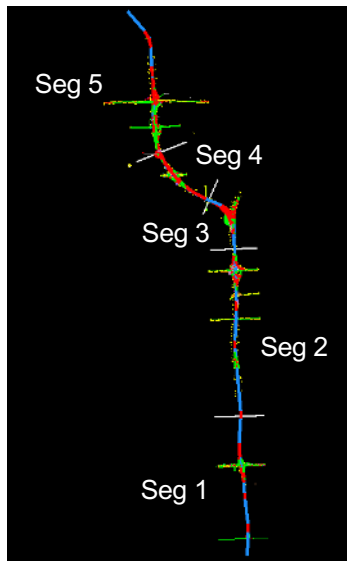
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PROJECT ORGANIZATION

Project Segments



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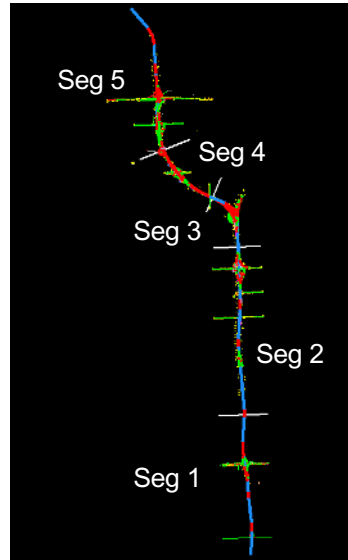
PROJECT ORGANIZATION



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Roadway Segment Leads

- Segment 1 - Michigan (Parsons)
- Segment 2 - Arizona (Parsons)
- Segment 3 - Texas (Parsons)
- Segment 4 - Texas (Parsons)
- Segment 5 - Kansas City (GBA)



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PROJECT ORGANIZATION



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Structures Leads

- Bridge Team 1 - Minnesota (Parsons)
- Bridge Team 2 - Missouri (Parsons)
- Bridge Team 3 - Minnesota (Parsons)
- Bridge Team 4 - Ohio (Parsons)
- Bridge Team 5 - Tennessee (Parsons)
- Retaining Walls - (HG Consult)
- Culverts - (HG Consult)
- Noise Walls - (HZ United)
- Geotechnical - (Terracon)

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PROJECT ORGANIZATION



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Management Lessons Learned

- Design Manager needed more hands and hours in the day!
- Miscellaneous Structure Designs amounted to A LOT.
- Roadway Barrier Designs/Transitions amounted to A LOT.
- The major Disciplines needed Deputy Managers to help with production due to the speed at which we were moving and the time committed to meetings and coordination with other disciplines and package reviews.

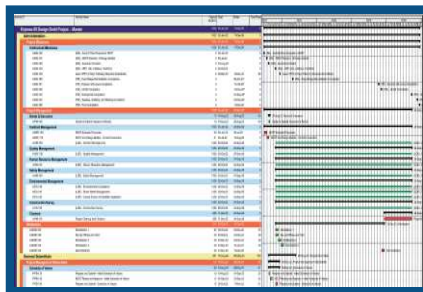
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SCHEDULE



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- **TIMELINE**
- **SUBMITTALS**
- **LESSONS LEARNED**



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SCHEDULE



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Timeline

- Pursuit in 2022
- Awarded in Sept 2023
- Delay in NTP, but deadlines remained the same
- The First Design Packages were due in March 2023
 - BR-MOT – Temporary Widening Package for MOT
 - BR-RH – Early Bridge Rehab Package
 - BR-10 – Southbound Bridge required for MOT switch



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SCHEDULE



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Submittals

- 4 Mainline Paving Packages
- 7 Interchange Packages
- 5 Finishing Packages
- 6 Noise Wall Preliminary and Final Layout Packages
- 4 Noise Wall Packages
- 12 Retaining Wall Packages
- 7 ITS/Tolling Packages
- 5 MOT Packages
- 2 Signing Packages
- 4 Drainage Structures Packages
- 24 Bridge (New) Packages
- 2 Bridge (Widened) Packages
- 2 Bridge Rehab Packages
- 2 Bridge (Early Steel) Packages
- 1 Bridge MOT Package
- 3 Structural Sign Packages
- 2 Standards Packages (KDOT, OP)

90+ Packages!

Most Packages had 3 Submittal Stages

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SCHEDULE



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Schedule Lessons Learned

- Deputy Design Manager was brought on board to act as a Production Manager with the massive amounts of submittals.
- Original Package Layouts were broken up into smaller packages to get plans to the JV quicker, so construction could start.
- Structures were prioritized and schedules on smaller groups of bridges were shifted earlier/later to get plans in the contractor's hands.
- More resources were brought on board to make sure the original deadlines could be met in a shorter amount of time.

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TRACKING / COMMUNICATION

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- **WEEKLY MEETINGS**
- **TASK FORCE WORKING GROUPS**
- **SUBMITTAL PROCESS AND REVIEWS**
- **LESSONS LEARNED**



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TRACKING / COMMUNICATION

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WEEKLY MEETINGS

- Internal Team Meetings (Monday AM)
- Design Leads Meeting (Monday PM)
- Design Management / JV Meeting (Tuesday AM)

Be A Good Communicator!

Be A Good Listener!

Come with a Solution!

Don't play the blame game....



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TRACKING / COMMUNICATION

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WEEKLY MEETINGS

- Task Force Working Group Meetings
 - #1 - Roadway/Drainage/Hydraulics
 - #2 – Structures
 - #3 – MOT
 - #4 – Traffic (ITS, Tolling, Lighting, Signals, Signing, Striping, Utilities)

Tuesdays / Wednesdays

In Project Office with Management/JV, Virtual Option

Agendas / Meeting Minutes

Upcoming Submittal Dates

Action Items with Due Dates



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TRACKING / COMMUNICATION

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SUBMITTAL REVIEWS

- 60% Submittals
- 90% Submittals
- RFC Submittals

DCR/CR Review

QA Submittal

KDOT Review

Comment Resolution Meeting



Design Package Development (60% Sheets)										90% Design Package Development						RFC	
Design Start Date	Design Complete Date	RP self detail check complete	Formal Detail Checking Complete Date	DCR/CR Submittal Date	Receive DCR/CR Comments Date	QA Submittal Date	KDOT 60% Submittal	Receive KDOT 60% Comments	KDOT 60% OTS Meeting	DCR/CR Submittal Date	Receive DCR/CR Comments Date	QA Submittal Date	KDOT 90% Submittal	Receive KDOT 90% Comments	KDOT 90% OTS Meeting	QA Submittal Date	Target RFC Date

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TRACKING/COMMUNICATION

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Lessons Learned

- Some Packages could be combined with Others.
- Some Packages could skip the 60% stage (twin bridges).
- Some of the Task Force meetings could go long. When in doubt, take a 5-minute break. And it doesn't hurt to lighten the mood every once in a while, to make sure people are staying awake.

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POST-DESIGN SERVICES



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- **WEEKLY TASK FORCE**
- **InEIGHT TEAM BINDER**
- **NDC/FDC LOGS**
- **TASK NUMBERS TO TRACK WORK**



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POST-DESIGN SERVICES



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WEEKLY TASK FORCE

- Task Force Working Groups were combined into a single meeting for design items.
- Most Design Leads did not come to this meeting unless it was requested by the JV.
- Running Agenda of NDC/FDC submittals
- Discussion of Design Support for Non-Conformances



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POST-DESIGN SERVICES



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InEight DOCUMENT - (TEAM BINDER)

- Project Record Documents
- RFIs, Submittals, Shop Drawings
- Design Review and Comment and also Department Review and Comment
- Forms are customizable (added Task Number)



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POST-DESIGN SERVICES



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NDC/FDC LOGS

- NDC = Notice of Design Change
- FDC = Field Design Change
- Logs assigned numbers and kept track of the items changing, where it originated from and the issue date.



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POST-DESIGN SERVICES



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TIME CHARGES FOR ESDC WORK

- Most Issues were tracked with a task number.
- The task number would be used to fill out the design side's time cards.
- Each task could be then identified if it was billed to the JV



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PROJECT CHALLENGES

Paul Tierney – Design Builder Team Member



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PROJECT CHALLENGES



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LOCATION

- OVERLAND PARK – ONE OF BEST PLACES TO LIVE
- NOISE
- NIGHT WORK
- TRAFFIC

COMPRESSED SCHEDULE

- 570 MILLION TOTAL REVENUE
- DEADLINES REMAINED UNCHANGED THRU PURSUIT
- 1202 TOTAL DAYS TO COMPLETE (SEPT '22 THRU DEC '25)
 - 474K REV REQUIRED EA DAY



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PROJECT CHALLENGES



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WORK STARTED MARCH '23

- FIRST DESIGN PACKAGES ALSO REC'D IN MARCH '23
- MOT DESIGN PACKAGE RELEASED IN MARCH '23
 - 21 MAJOR MOT PHASES
- FIRST MAJOR PAVING PACKAGE RELEASED IN MAY

DESIGN PACKAGES

- APPROX 60 IN TOTAL
- MOSTLY COMPLETED BY DEC '23

DESIGN CHANGES >200 EA

- STARTED IN APRIL '23
- STILL CONTINUE

CONTINUOUSLY CHANGING PLANS / EVOLVING DESIGN

- 2,381 ORIGINALLY RELEASED SHEETS
- 1,515 PLAN SHEET REVISIONS
- UP TO 9 EA REVISIONS ON SOME SHEETS IN 10 MO SPAN



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PROJECT CHALLENGES



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KEEPING EVERYONE ALIGNED & ON SAME PAGE??

- DESIGNERS, JV, OWNER, INSPECTORS, SUBS, SUPPLIERS

811 / UTILITIES

- LOCATORS CANNOT KEEP UP
- NOT 100% SURE WHERE THEIR FACILITIES ARE LOCATED
- MANY HAD TO MOVE WITH THE PROJECT



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PROJECT CHALLENGES – SOLUTIONS

LOCATION

- GOOD PARTNERING WITH OWNER / OWNERS REP
- COLLABORATION
- UNDERSTANDING PRIORITIES OF OTHERS AND WORKING TOGETHER TO HELP MEET EVERYONE'S GOALS

SST - PLAN AND DOCUMENT MANAGEMENT

- INEIGHT DOCUMENT
 - SHEET BY SHEET TRACKING
 - GROUP FOLDERING
 - ALLOWS FOR CUSTOMIZED WORKFLOW PROCESSES
 - OPEN TO INFINITE # OF USERS
- TAKE THE TIME TO STRUCTURE IT CORRECTLY & MANAGE IT APPROPRIATELY



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PROJECT CHALLENGES – SOLUTIONS

SST – GIS WEB MAP & MOBILE APPLICATION MAP

- KMZ PROCESS VS GIS PROCESS
- PUBLIC ACCESSIBILITY
 - INTERNAL, OWNER, ENGINEERS, DESIGNERS, UTILITIES, LOCATORS, SUBS, SUPPLIERS, COMPANY MANAGEMENT, CITY, ETC.
- WORK PLAN IMPLEMENTATION
 - 21 STAGES MOT
 - STAGE 0 – BROKEN DOWN INTO SUBSECTIONS
- BRING ALL DATA TOGETHER
 - DRONE AERIAL IMAGERY
 - PDF OVERLAYS
 - LABELS FOR REFERENCE INTO INEIGHT DOCUMENT
 - ALIGNMENTS w/STATIONS
- PARALLEL PATHS
 - UPDATING GIS MAP
 - FIELD TRUSTED THE CONTENT TO CHECK THE PLANS
 - NOT ENOUGH DATA TO BUILD FROM

APPLE STORE – FIELD MAPS APP



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PROJECT CHALLENGES – SOLUTIONS

SST – GIS WEB MAP & MOBILE APPLICATION MAP CON'T

- UTILITIES
 - INCORPORATE MUNICIPALITY GIS DATA
 - LOCATOR COMMUNICATION
 - JV CULTURE
 - PAINT ON GROUND VS GIS AUDIT
- SWPPP
 - PRIVATE MAP
 - TRACKING OF MAIN'T ITEMS
- PUNCHLIST
 - PRIVATE MAP
 - REAL TIME LOGGING & TRACKING OF ITEMS

US69 PROJECT PUBLIC GIS
RECOMMEND COMPUTER ACCESS



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PROJECT CHALLENGES – GIS DEMO

PUBLIC WEB MAP

- PDF Overlay
- Drone Imagery
- Utilities
- Stationing

SWPPP MAP

PUNCHLIST MAP

- DASHBOARD



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The graphic has a dark blue background with a large yellow diagonal stripe. In the top left corner is the EMI logo. The text 'DISCUSSION TIME' is written in large, bold, yellow capital letters. Below it is the 69EXPRESS logo. On the right side, there is a photograph of three people (two men and one woman) wearing hard hats and looking at a set of blueprints on a construction site.

DISCUSSION TIME

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