



# **IDOT HMA Technical Briefs**

Brian Pfeifer, Bureau Chief of Materials

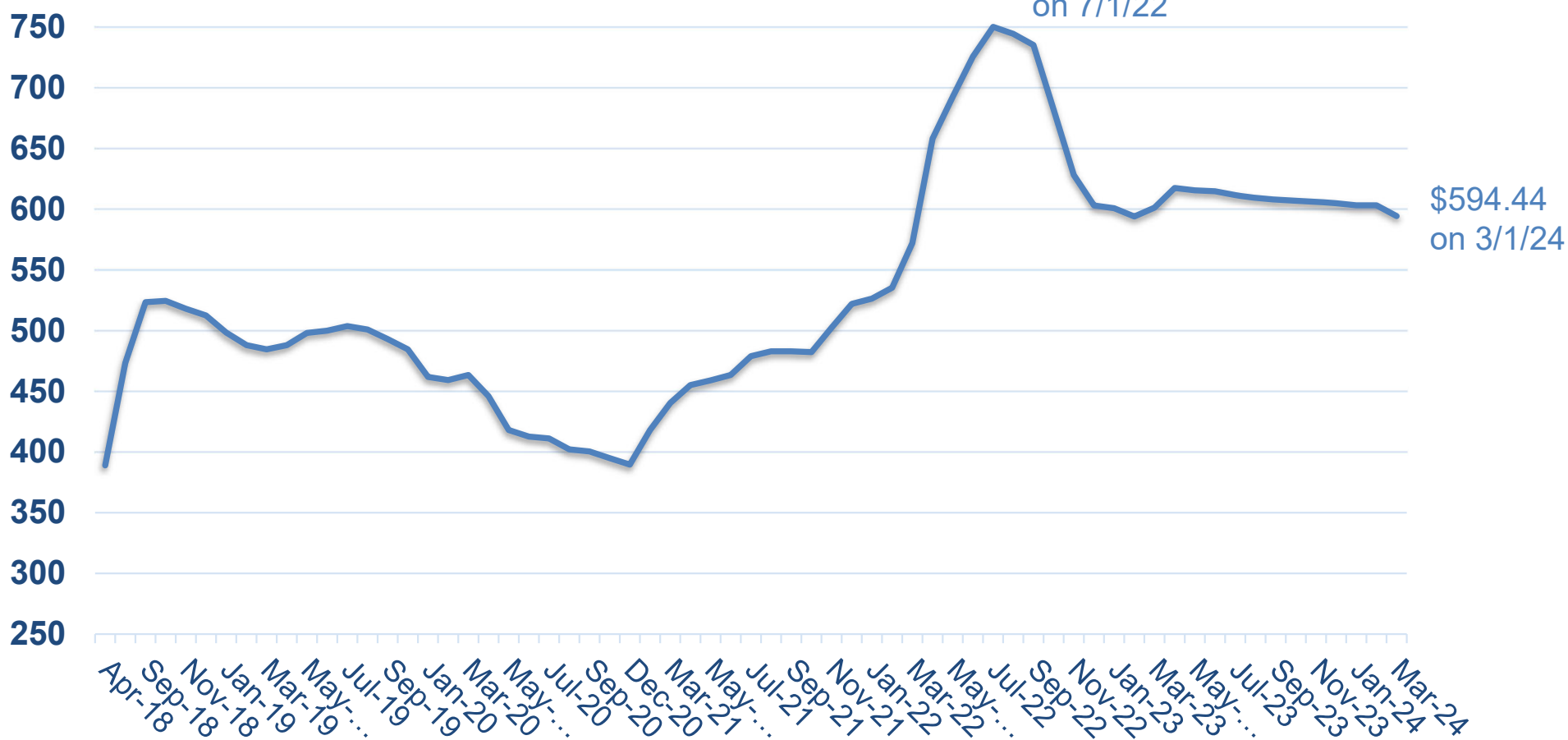


# HMA Trends at IDOT

- 2018: 3.2M tons
- 2019: 4.7M tons
- 2020: 6.6M tons
- 2021: 5.1M tons
- 2022: 5.1M tons
- 2023 projected: 3.8M tons
- 2024 projected: 4.0M tons
  - Nov-June lettings, no carry-over



# Bituminous Price Index (\$/ton)



# “Hot-Mix Asphalt” BDE Special Provision

- January 2024
- $G_{mm}$  for Establishing Target Density
  - QCP & PFP
    - Running avg of 4 Department results for project
    - Initial  $G_{mm}$  - last Department test result from QMP proj.
  - QC/QA, Department mix design verification test result
- All Test Strip Stops – Contractor Option

# FLS Waterproofing System for Bridge Decks

- BDE Special Provision, November 1, 2023
- Prevents ingress of water and chlorides
- Improved wearing surface
- More efficient & cost-effective means of construction than System in 581





# HMA Density

- Most important performance parameter
  - Can lead to numerous distresses & reduced service life
- Can we increase HMA density in Illinois?
  - Where are we today?
    - Specifications
    - Data

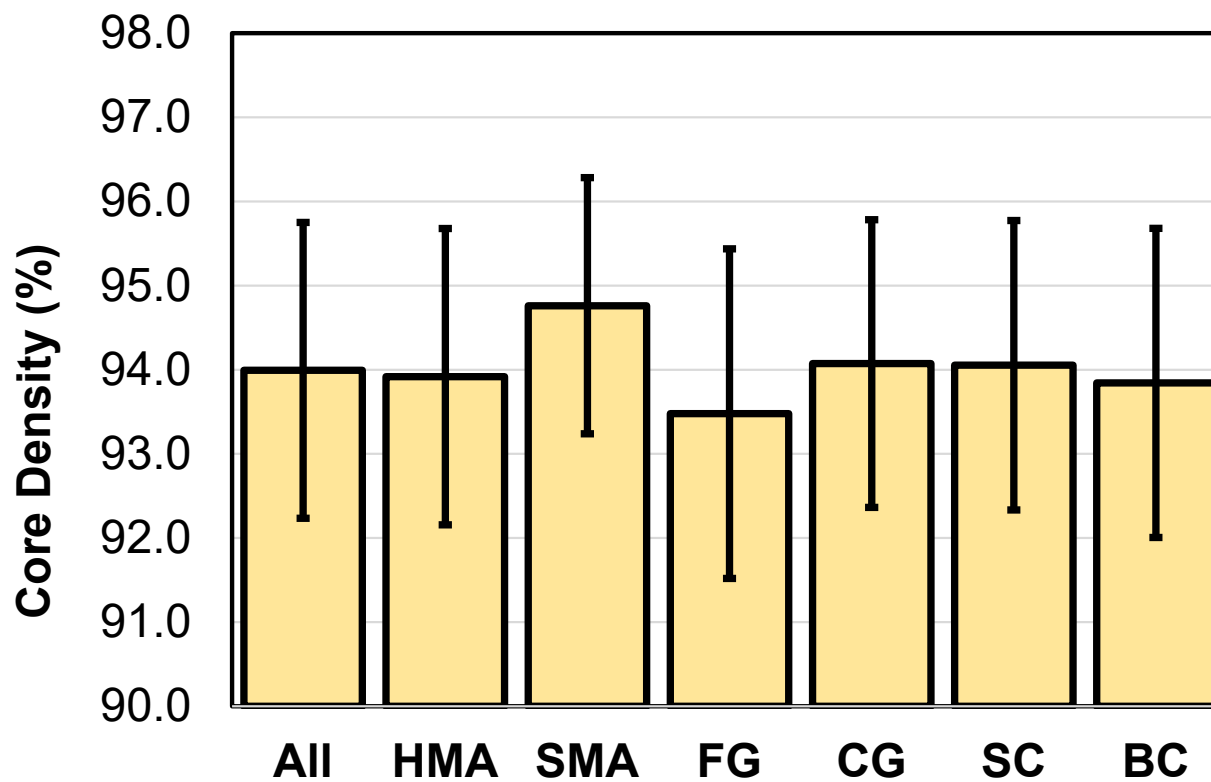


# Current Specification Limits

PFP Percent within Limits Criteria			
Pay Parameter		Upper Quality Limit	Lower Quality Limit
Density	IL-4.75	97.5	92.5
	IL-9.5/IL-9.5FG	97.5	91.5
	IL-19.0	97.5	92.2
	SMA	98.0	93.0

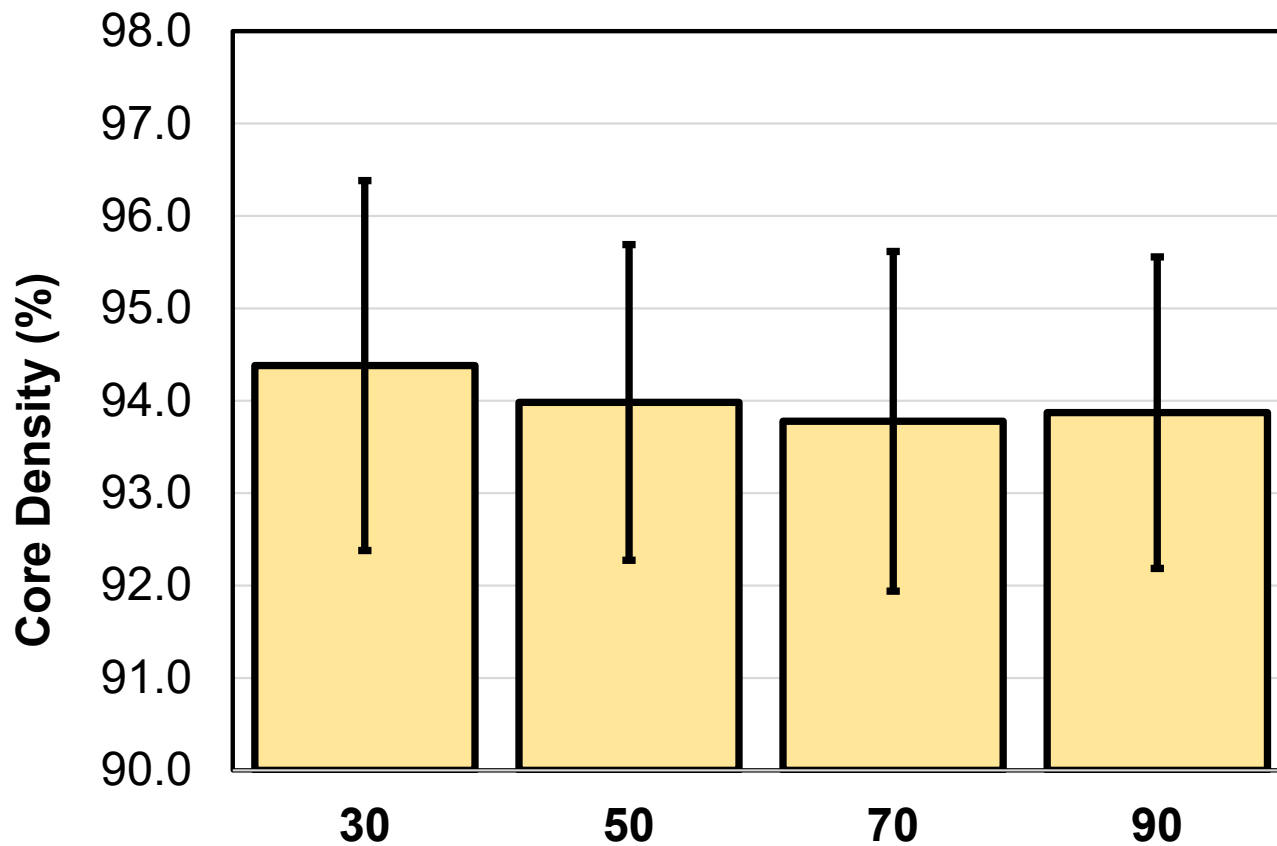
QCP Pay Factors					
Pay Parameter		105%	100%	95%	90%
Density	HMA	93.5% to 94.5%	92.5% to 96.5%	91.5% to 97.0%	90.0% to 98.0%
	SMA	94.0% to 95.0%	93.5% to 96.5%	92.5% to 97.0%	92.0% to 98.0%

# IDOT Core Density by Mix Type (2018-2022)

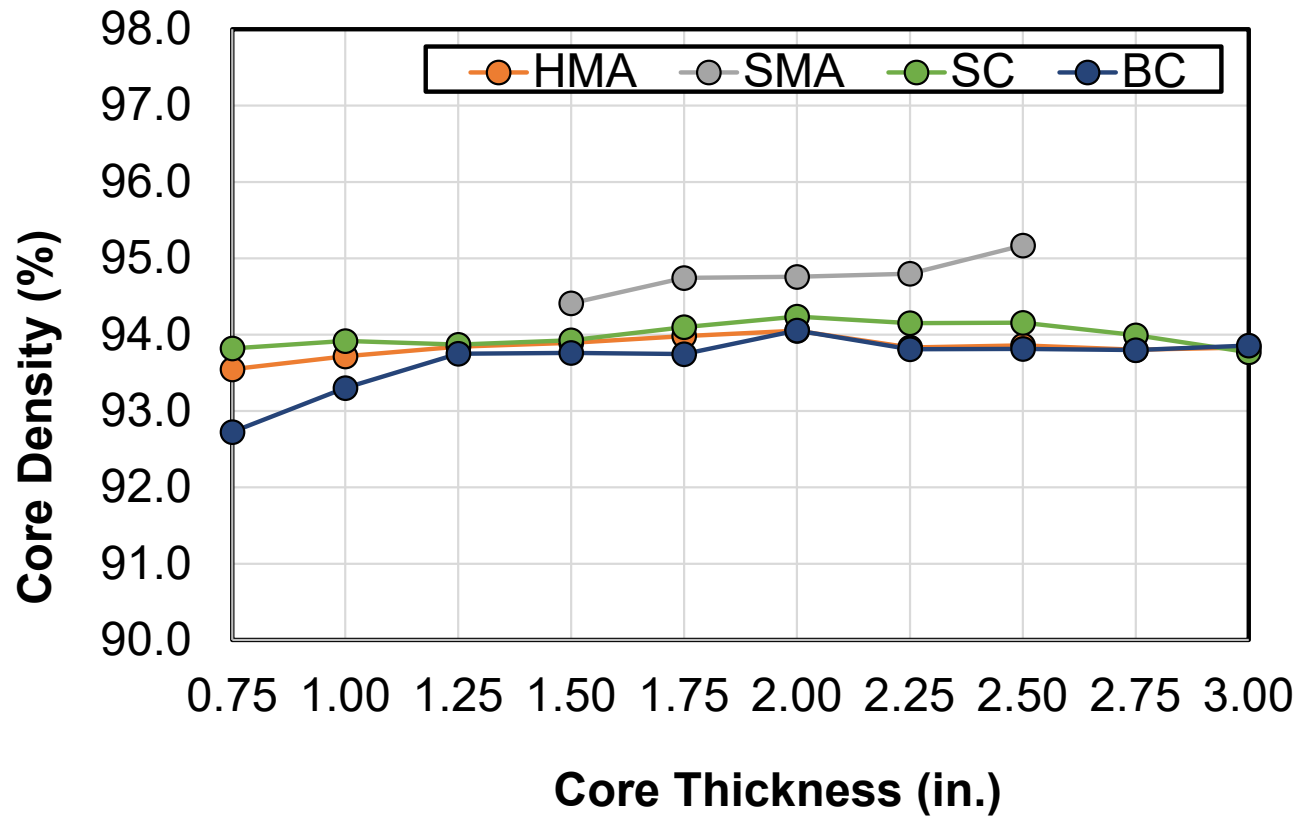




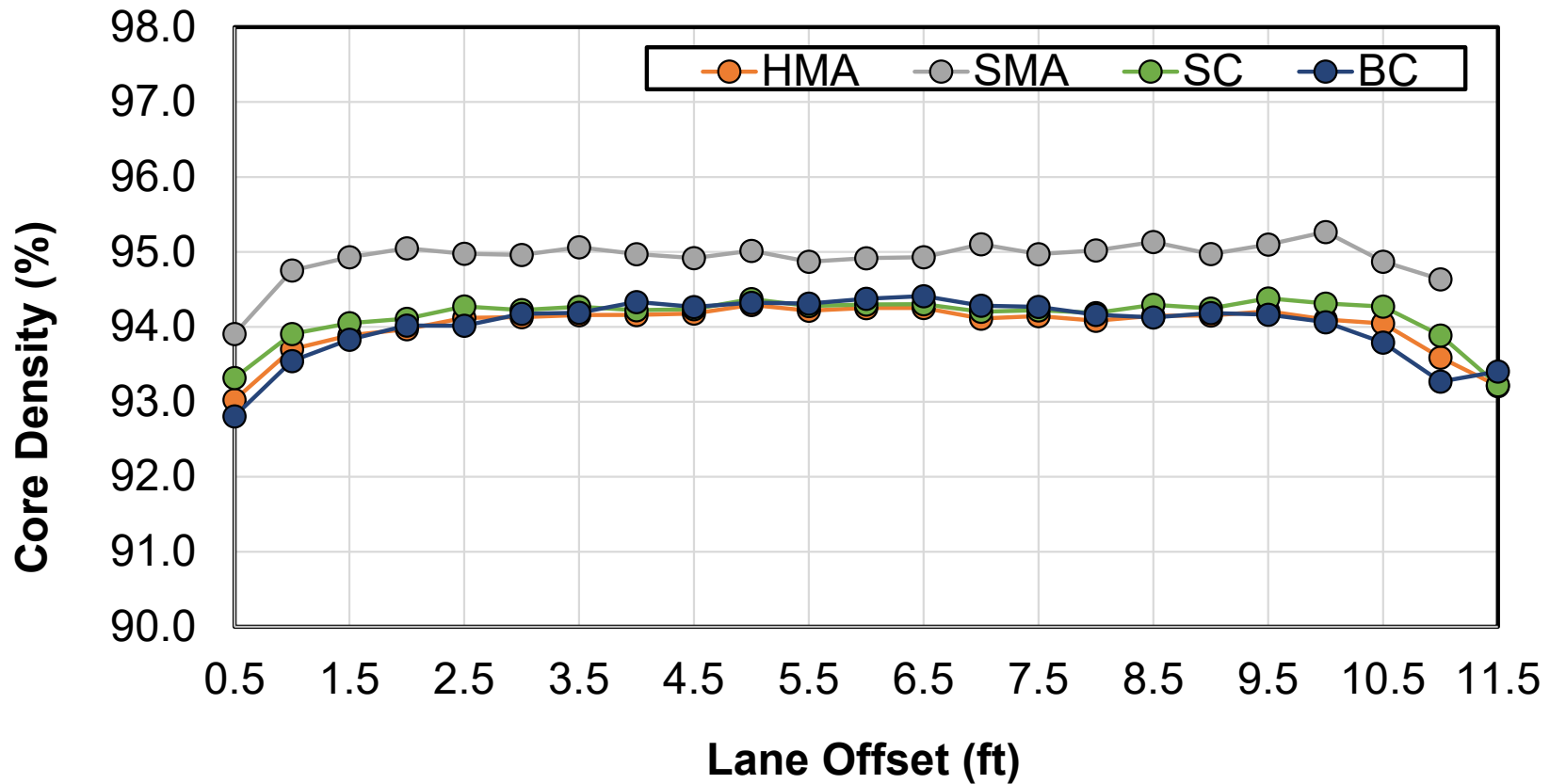
# IDOT Core Density by $N_{des}$ (2018-2022)



# Avg Core Density vs Core Thickness



# Avg Core Density vs Lane Offset



# HMA Density

- Can we increase HMA density in Illinois?
  - Starting Point – where are we today?
  - Initial meeting with IAPA and CBM
  - Working Group meeting this year



# Construction & Materials Management System (CMMS)

- Materials functionality finishing up (plant inspections)
- QMP Package – web-based solution, interface with CMMS
  - Mix designs and test data
- QMP Package tools – stand-alone, random numbers and pay factor calculations





# Quality Management Training Program

## *5-Year Recertification*

- Online, self-paced refresher material
- Five Phases
  - Phase I for 1992-1999
- Reducing material for HMA II & III
- Reviewing/adjusting exams





# New Materials Lab

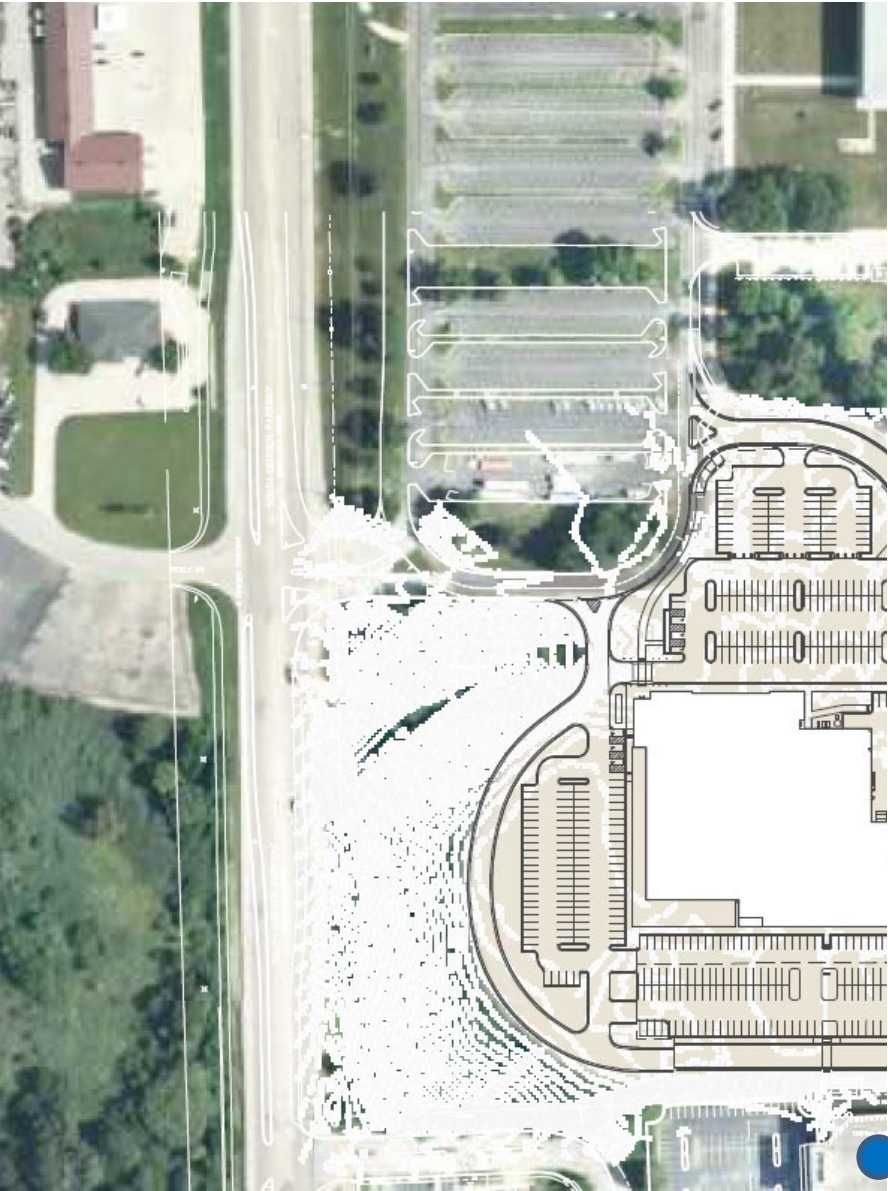
## \$63.4M & 81,000 SF

- 10 CBM Lab Areas, 36,000 SF
- District 6 Materials Lab, 6,700 SF
- Traffic Instrumentation Lab, 1,900 SF
- Bureau of Research Offices and Library
- Bureau of Materials Offices
- Training/Conference Rooms (50 & 30)

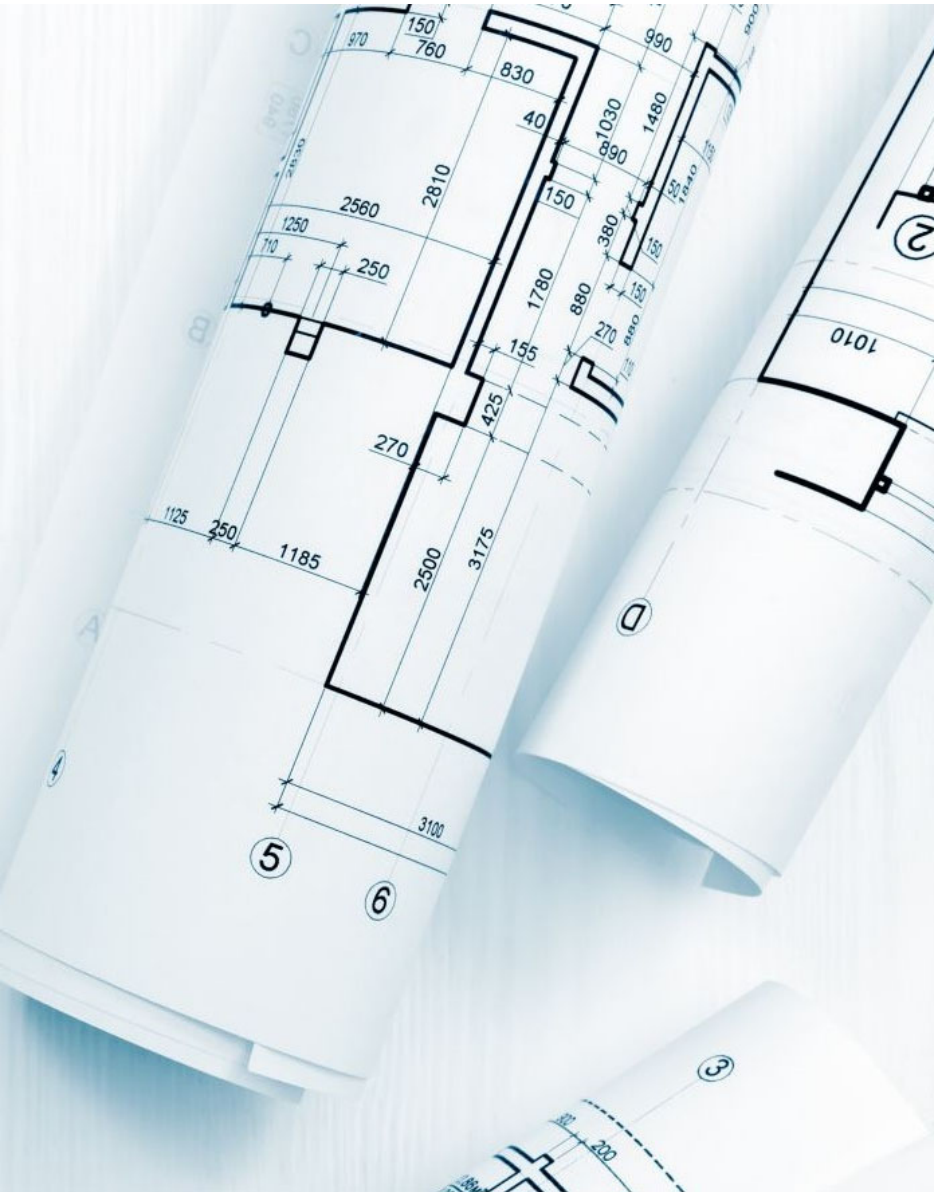








- South of Hanley Building
- North of D-6 Easterly Building



# Timeline/Milestones

- Authorization to Proceed
  - May 13, 2024
- Mobilization
  - August 16, 2024
- Design Complete
  - December 16, 2024
- **Project Complete**
  - **April 30, 2026**



# QUESTIONS?

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