

April 22, 2026

FROM INVESTIGATION TO INNOVATION:

Preserving Legacy Schools Through Bond Planning

A4LE Southern Region Conference



PRESENTERS



Charles Johnson, AIA
Principal, VLK



Brad Ewing, AIA
Design Architect, VLK



Lynn Rabatsky, RA, NCARB
Architect, VLK



Trey Barnett
Project Manager, KatyISD

LEGACY HIGH SCHOOLS CARRY UNIQUE RISKS



**HIDDEN
CONDITIONS**



**PATCHWORK
BUILDING SYSTEMS**



**HIGH
EXPECTATIONS**

LEARNING OBJECTIVES



Investigative Framework

Identify facility, historical, and stakeholder methods that make bond planning safer and more defensible for legacy high schools.



Evidence-Based Decisions

Use findings to improve **health, safety, and welfare**, protect legacy features, and clearly communicate value to stakeholders.



Long-Range Strategy

Prioritize and phase upgrades to align with district mission, instructional goals, community expectations, and bond cycles.

KATY HIGH SCHOOL

A LEGACY CAMPUS WITH MANY LAYERS



**Multi-Decade
Campus Growth**



**Deep Community
Identity**



**Modern Learning
Demands**

WHAT MAKES LEGACY CAMPUSES RISKY?

AT KATY HS, THE RISKS SHOW UP IN 3 WAYS

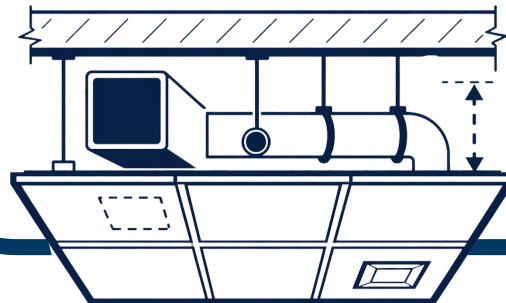
SYSTEMS PATCHWORK

MULTIPLE ELECTRICAL
SERVICES +
HYBRID CONTROLS



TIGHT ABOVE- CEILING SPACE

PLENUM CONGESTION
FROM DECADES OF
ADDITIONS

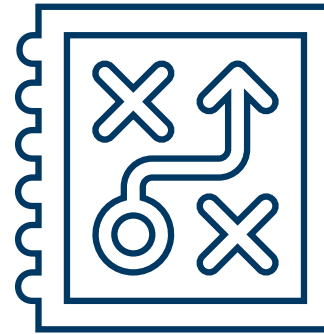
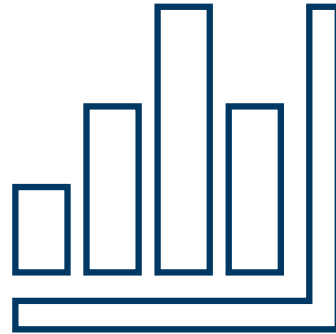


LAYERED CONSTRUCTION

OLDER FOOTPRINTS
UNKNOWN CONDITIONS,
JURISDICTION COMPLEXITY



FRAMEWORK



INVESTIGATE:

*Gather accurate
existing conditions
+ context*

ANALYZE:

*Translate findings into
risks + opportunities*

STRATEGIZE:

*Prioritize and
phase work for
project readiness*

IMPLEMENT:

*Execute with
confidence:
reduce risk,
control cost,
honor legacy*

INVESTIGATE



VVLK



INVESTIGATE

WHAT WE VERIFY

- *Structure & Building Envelope*
- *MEP Infrastructure*
- *Life Safety / Code*
- *Accessibility (ADA)*

HOW WE DO IT

- *Targeted On-Site Validation*
- *Owner Provided Checklist*
- *Coordinate findings with design team*

WHAT IT ENABLES

- *Clear scope before project decisions*
- *Reduced surprises during construction*
- *Better health, safety, and welfare outcomes*

INVESTIGATE: *WHAT WE NEEDED TO CONFIRM @ KHS*

ARCHITECTURAL

- Remove ceiling tiles for visual inspection + photo documentation
- Confirm TEA/TDLR/code compliance + occupancy verification

CIVIL

- Verify size/location of utilities and meters
- Verify sanitary/storm piping condition (camera if needed)

STRUCTURAL

- Investigate structural conditions at CMU walls
- Consult on structural impacts of future work

MEP + LIFE SAFETY

- Verify remaining areas needing sprinkler coverage + capacity
- Verify mechanical equipment condition/life + duct/piping routing

ELECTRICAL

- Verify feeds/meters/transformers + major gear condition
- Electrical study for accurate as-built one-line diagram

TECHNOLOGY

- Verify fiber entry points + MDF/IDF rooms + classroom tech impacts
- Verify PA/intercom, access control, fire alarm condition

INVESTIGATE: BUILDING UTILIZATION

ROOM #	ROOM NAME	T.S.	NET AREA	SF STU	MAX CAP	SEAT UTILIZATION	AVG STU	PEAK STU	PERIOD							
									UTILIZATION	P1	P2	P3	P4	P5	P6	P7
A215	Classroom		710 SF	28	25	107.3%	27	30	85.7%	29	24		30	25	26	27
A216	Classroom		675 SF	28	24	88.2%	21	23	85.7%	18	23		19	22	23	22
A217	Classroom		742 SF	28	26	71.8%	19	22	85.7%	17	18		19	22	20	16
A218	Classroom		720 SF	28	25	70.7%	18	23	85.7%	12	18		23	21	16	16
A221	Classroom		712 SF	28	25	98.7%	25	29	85.7%	29	24	20	24	24	27	
A223	Classroom		724 SF	28	25	115.3%	29	30	85.7%	30	30		30	28	30	25
A224	Classroom		741 SF	28	26	110.8%	29	30	71.4%		30		26	30	30	28
A225	Classroom		765 SF	28	27	108.0%	29	37	85.7%		37	29	29	35	25	20
			8,025			281 TOTAL										
SCIENCE LABS																
A202	Science Lab		1158 SF	58	19	135.1%	26	30	85.7%	23	27		20	30	29	25
A204	Science Lab		1158 SF	58	19	127.2%	24	29	85.7%	23	25		29	26	21	21
A206	Science Lab		1158 SF	58	19	131.6%	25	29	71.4%	29	22		25		29	20
A207	Science Lab		1332 SF	58	22	109.1%	24	26	71.4%		26	25	23	22		24
A209	Classroom		1135 SF	58	19	141.2%	27	30	85.7%		24	30	22	28	28	29
A210	Classroom		1136 SF	58	19	133.3%	25	28	85.7%	26	28	26	27		28	17
A211	Classroom		1135 SF	58	19	138.6%	26	29	85.7%	25	26	28		29	29	21
A230	Science Lab		1147 SF	58	19	114.9%	22	30	85.7%	21	20	18	30	20	22	
A232	Science Lab		1144 SF	58	19	115.8%	22	27	85.7%	22		27	25	25	9	24
A233	Science Lab		979 SF	58	16	147.9%	24	26	85.7%	22		26	26	25	19	24
A234	Science Lab		1156 SF	58	19	129.8%	25	28	85.7%	21	26	22	28	26		25
A235	Science Lab		1179 SF	58	20	125.8%	25	27	85.7%	22	25	27	25	26		26
A236	Science Lab		981 SF	58	16	130.0%	21	24	71.4%	24	24	24	8	24		
			14,798			245 TOTAL										

Realize program space utilization to propose informed updates.



INVESTIGATE: 3D DOCUMENTATION



SCAN



POINT CLOUD



B.I.M.

Why legacy drawings fail:

- *Decades of additions + renovations*
- *As-builts rarely match field conditions*
- *Hidden systems aren't documented reliably*

What we capture:

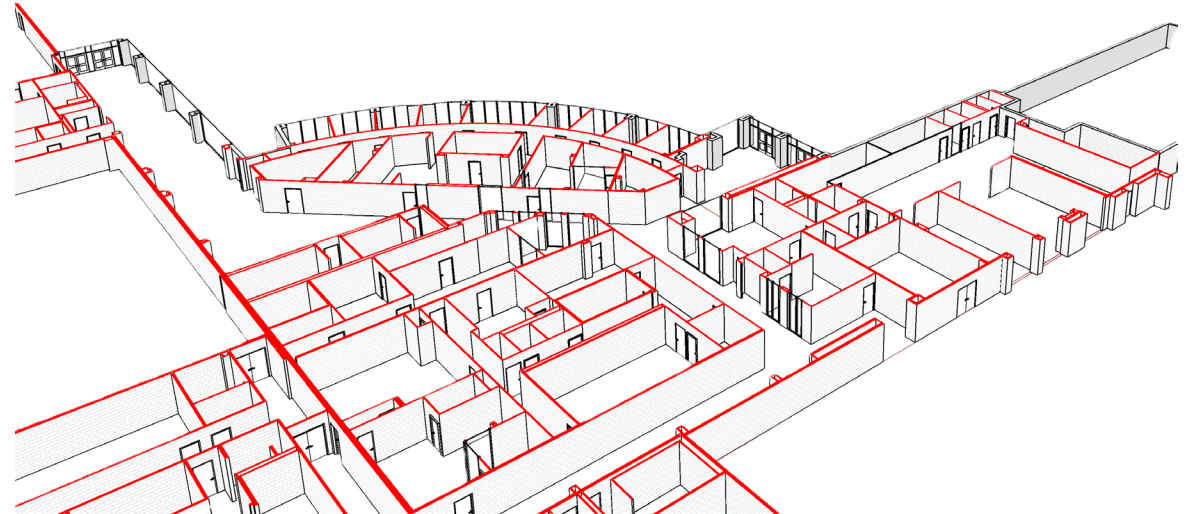
- *Scan / point cloud of existing conditions*
- *Above-ceiling pathways + constraints*
- *Verified base model for coordination*

INVESTIGATE: 3D DOCUMENTATION

POINT CLOUD



COORDINATED BIM MODEL



Clashes found before bid. Quantities verified before pricing.

INVESTIGATE



INVESTIGATE: HISTORICAL DOCUMENTATION

PRESERVE



Protect character
defining features

ADAPT



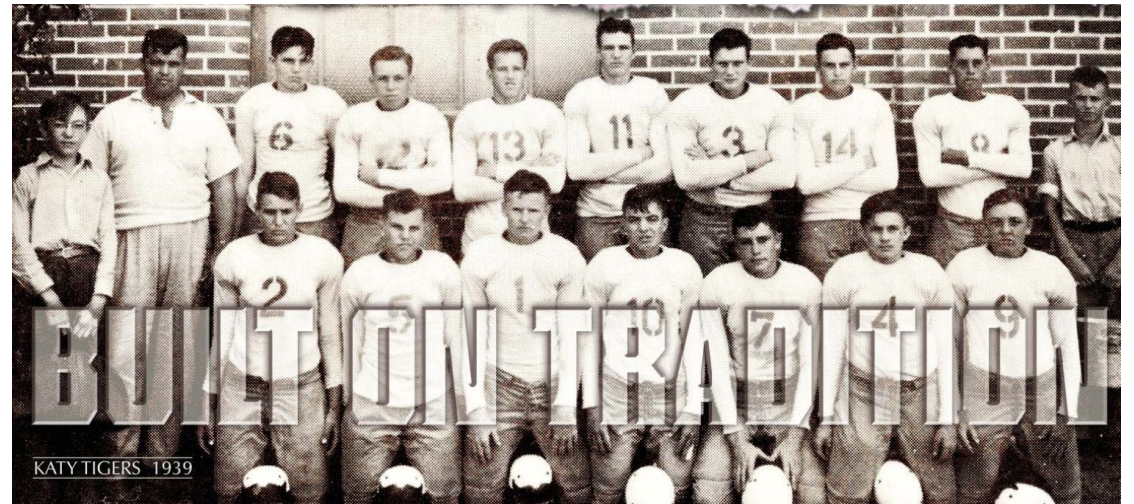
Reuse materials to
honor legacy

UPGRADE



Modernize learning
without erasing history

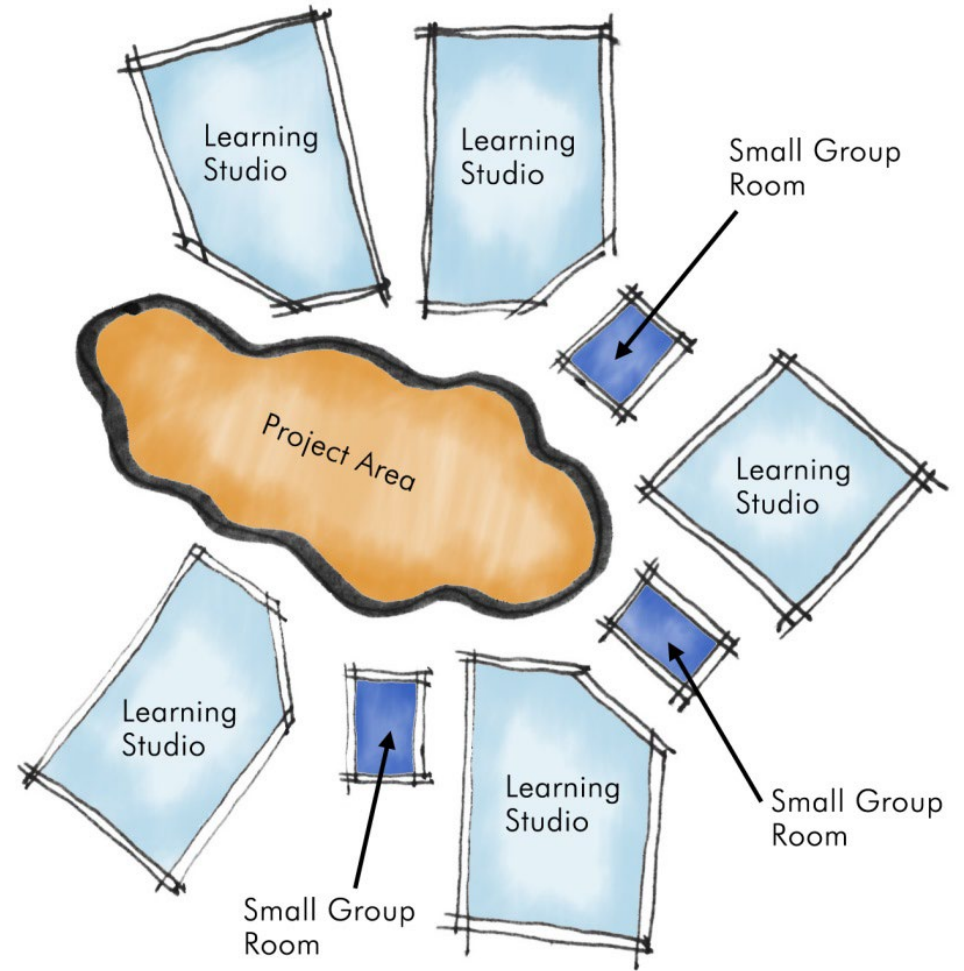
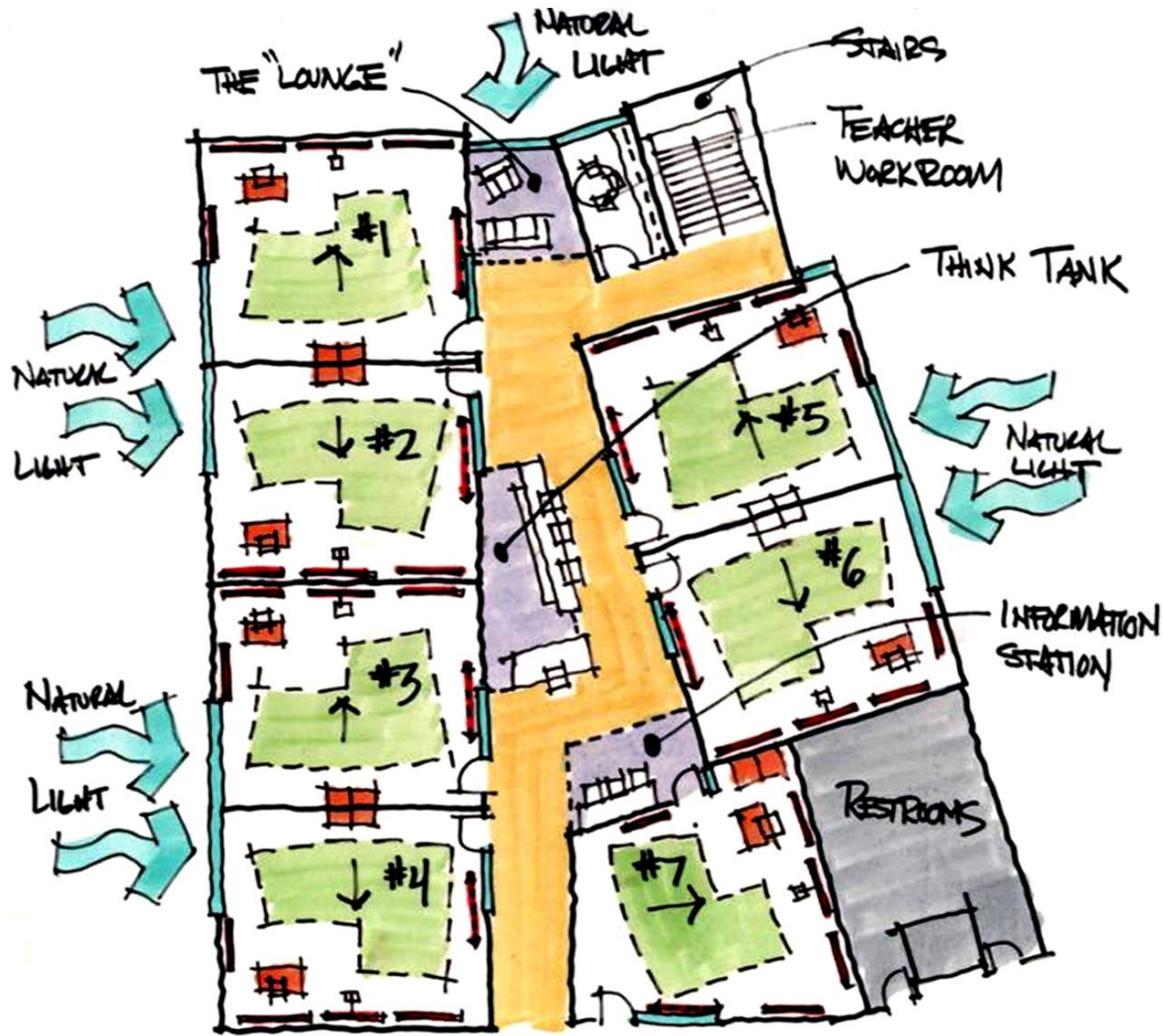
INVESTIGATE



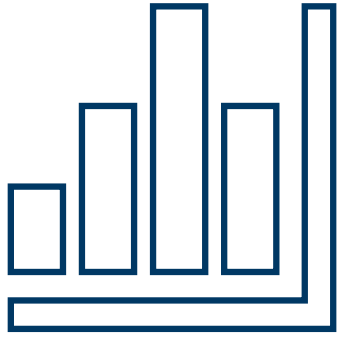
INVESTIGATE: KATY ISD DESIGN SYMPOSIUM



INVESTIGATE: KATY ISD DESIGN SYMPOSIUM



ANALYZE

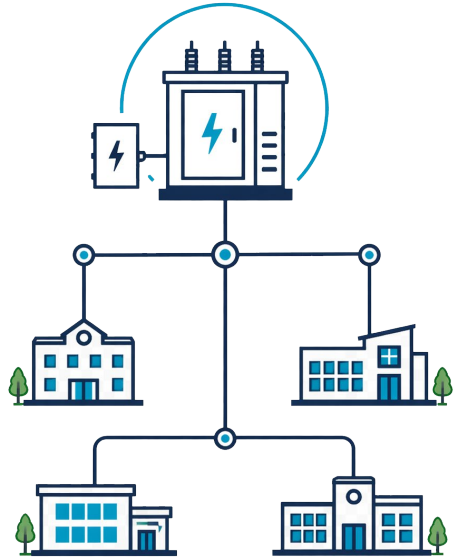


VVLK



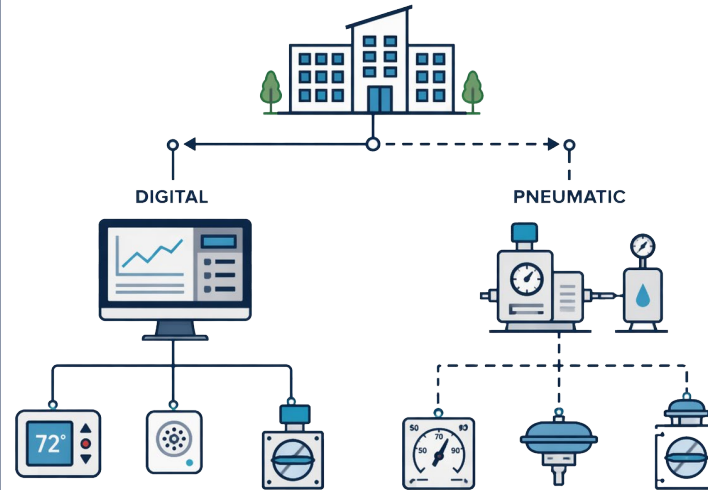
ANALYZE: SYSTEM OBSTACLES THAT DRIVE RISK

ELECTRICAL



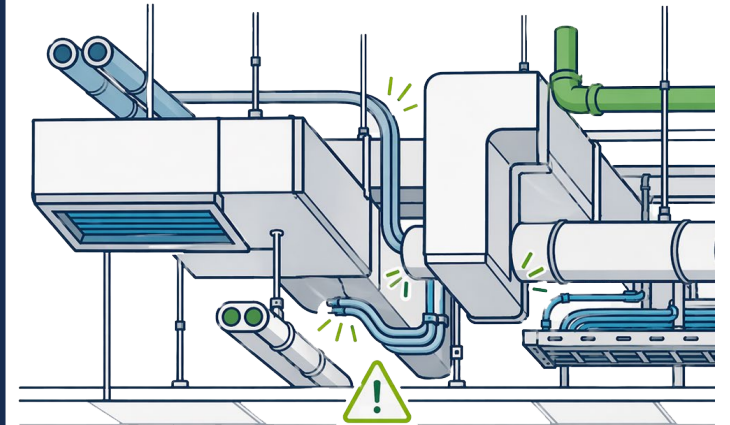
Multiple services and feeds across campus.

CONTROLS



Different control systems across different eras.

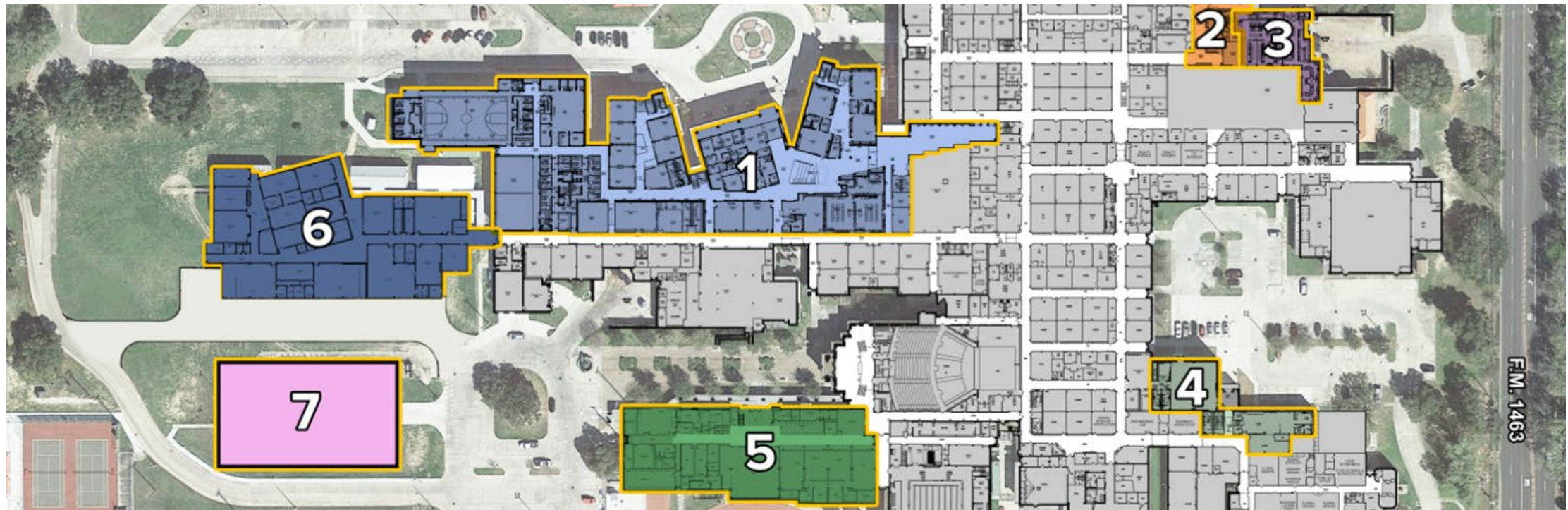
PLENUM



Plenum congestion from layered additions + varying structure.

ANALYZE: FROM RISKS TO OPPORTUNITIES

- *Constraints become clarity (systems pathways + space limits)*
- *Unknowns become priorities (We identify what must come first for H/S/W)*
- *Complexity becomes a plan (We understand what drives phasing & cost)*



| **ANALYZE:** FINDINGS BECOME DECISIONS

FINDING

What we uncovered.



IMPACT

Why it matters.

- *Health*
- *Safety*
- *Welfare*
- *Cost*
- *Schedule*



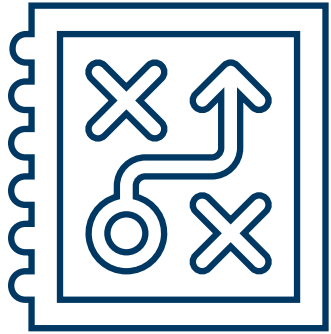
DECISION

What we did.

- *how it drove scope / phasing*



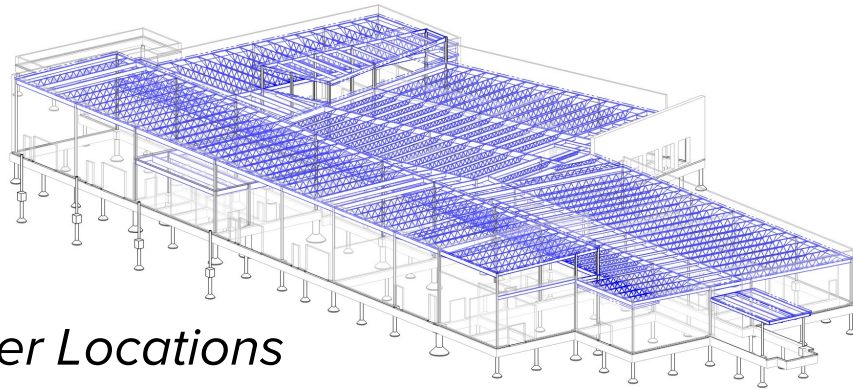
STRATEGIZE



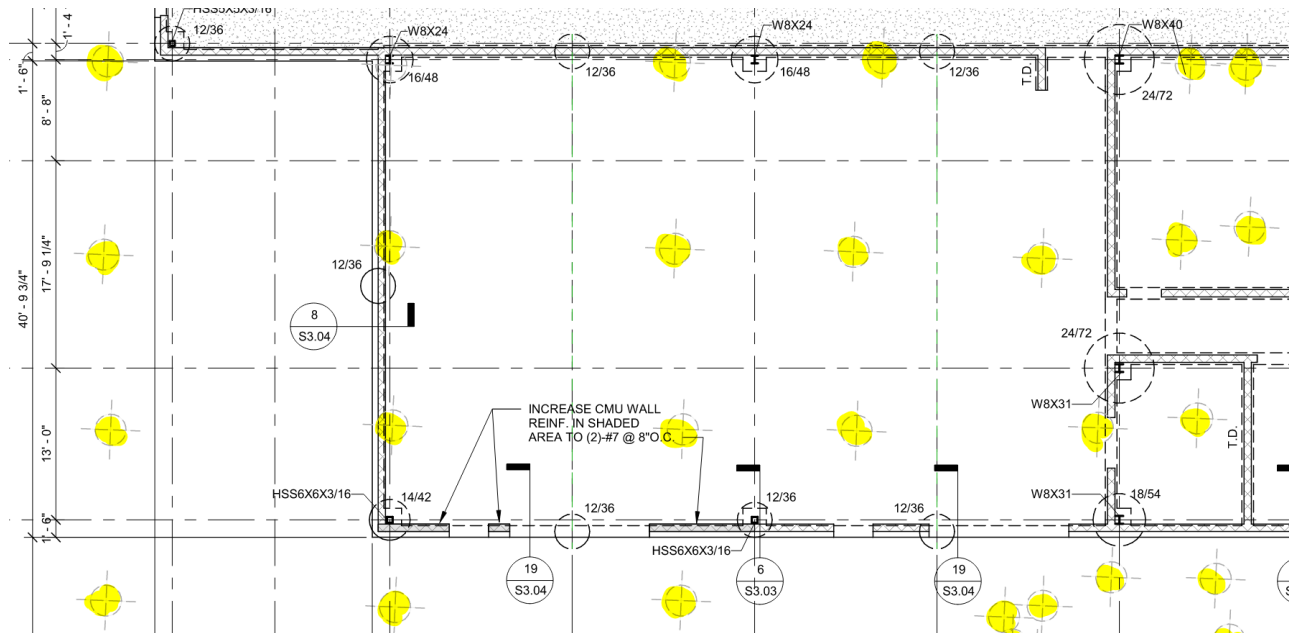
VVLK



STRATEGIZE: CTE WING PIER COORDINATION



New Pier Locations



Old Pier Locations in Yellow

FINDING

Existing pier locations in new scope areas.

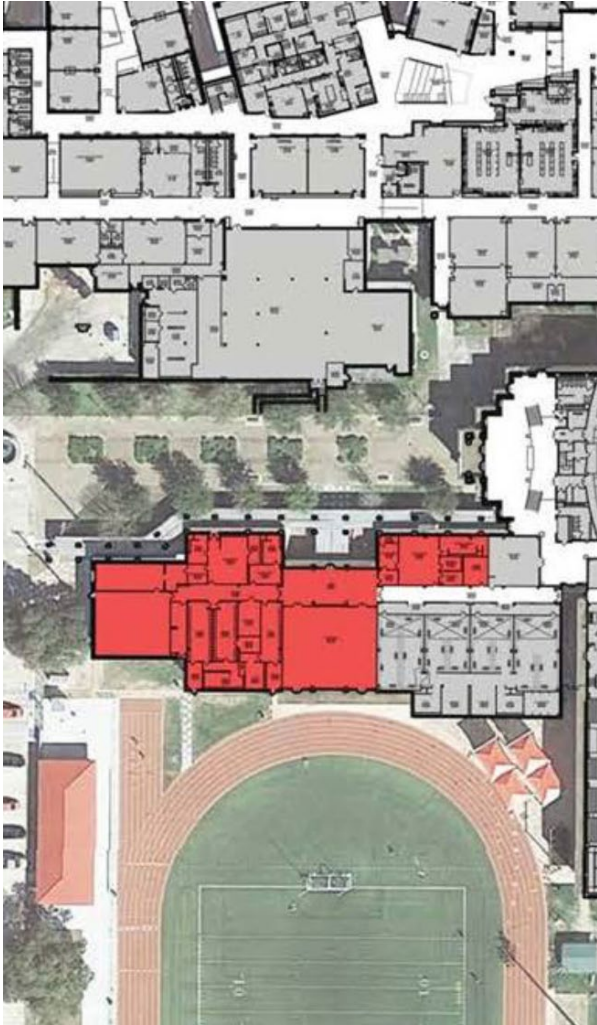
IMPACT

Structural coordination to avoid surprises during construction.

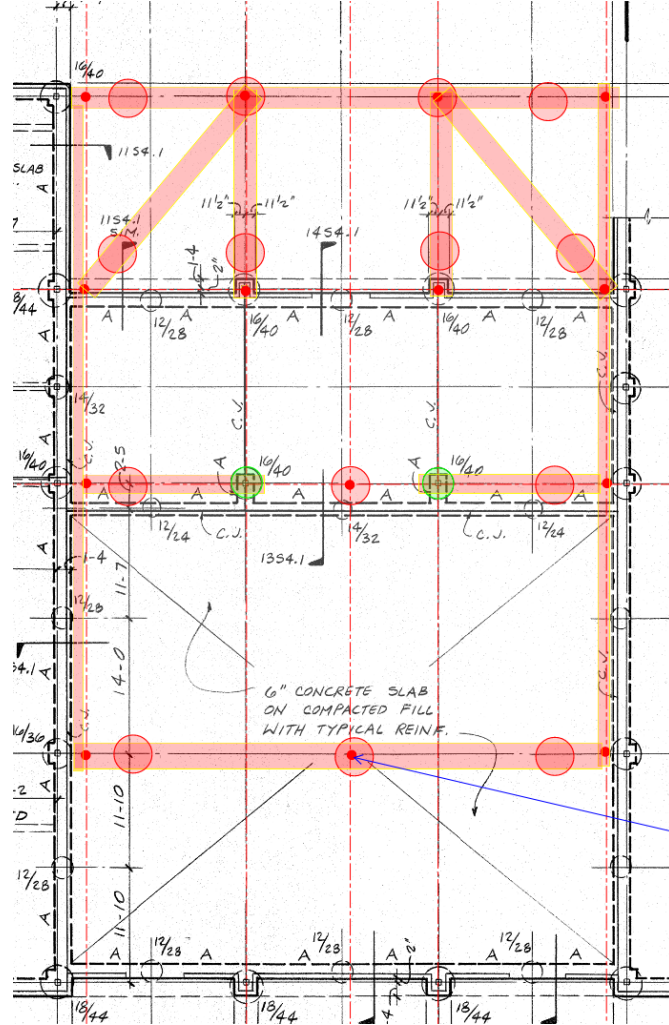
DECISION

Locate piers early and coordinate the foundation approach before pricing and phasing.

STRATEGIZE: GOING VERTICAL – ATHLETIC WING



Existing Site



Coordinating New Piers

FINDING

No room to expand north or south without impacting key spaces.

IMPACT

Athletic program needed to grow to meet district standards, without disrupting key campus areas

DECISION

Go vertical. Increase program area within the same footprint while protecting legacy campus nodes, and existing frame.

STRATEGIZE: GOING VERTICAL – ATHLETIC WING



FINDING

No room to expand north or south without impacting key spaces.

IMPACT

Athletic program needed to grow to meet district standards, without disrupting key campus areas

DECISION

Go vertical. Increase program area within the same footprint while protecting legacy campus nodes, and existing frame.

STRATEGIZE: V-HALL TILT WALL RENO



FINDING

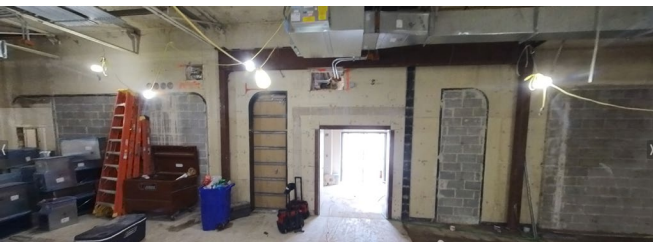
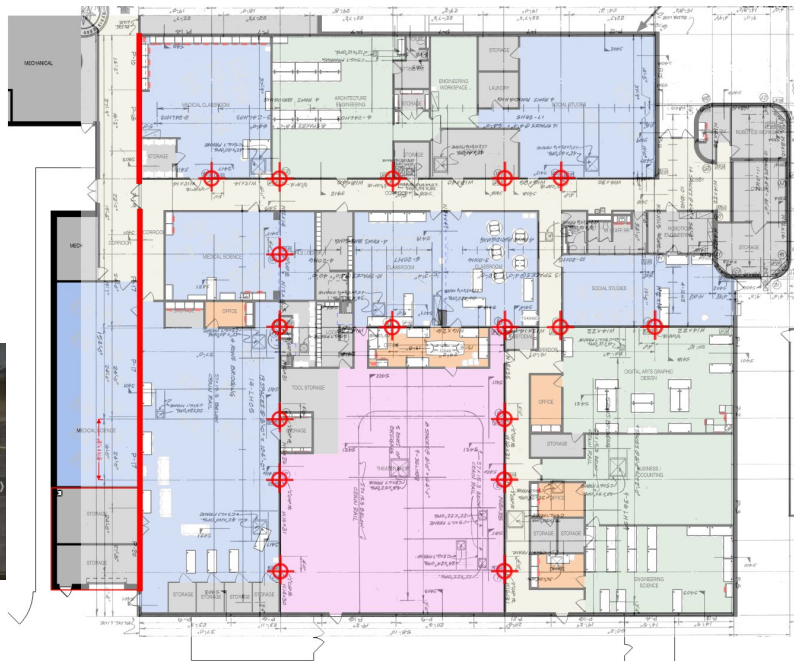
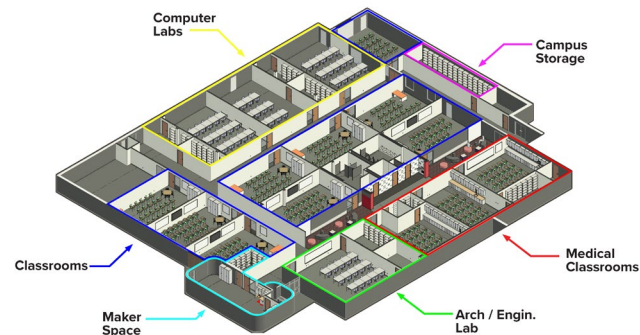
V-Hall built as Tilt Wall construction

IMPACT

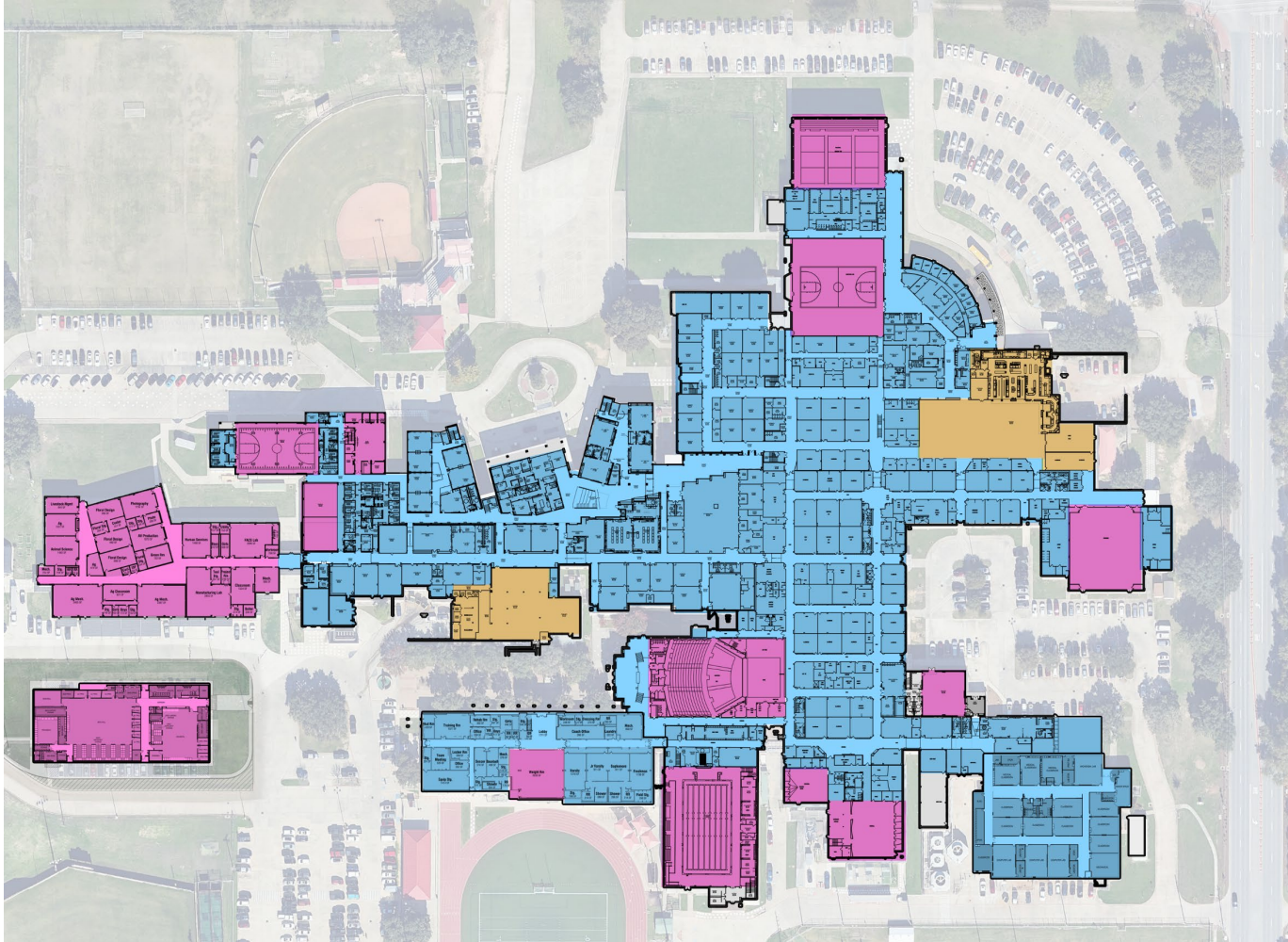
Renovation scope had to account for existing framework, penetrations, constructability.

DECISION

Verify constraints early, plan penetrations, and sequence work to minimize disruption.



STRATEGIZE: ZONING LOUD PROGRAMS



FINDING

Loud programs (Fine Arts, CTE shops) adjacent to learning areas

IMPACT

Noise + vibration + traffic disrupting future flexibility for both programs.

DECISION

Re-zone: move loud programs to dedicated campus zone to improve learning quality and support long term growth

STRATEGIZE: LONG RANGE PHASING PLAN



**KEEP CAMPUS
OPERATIONAL**

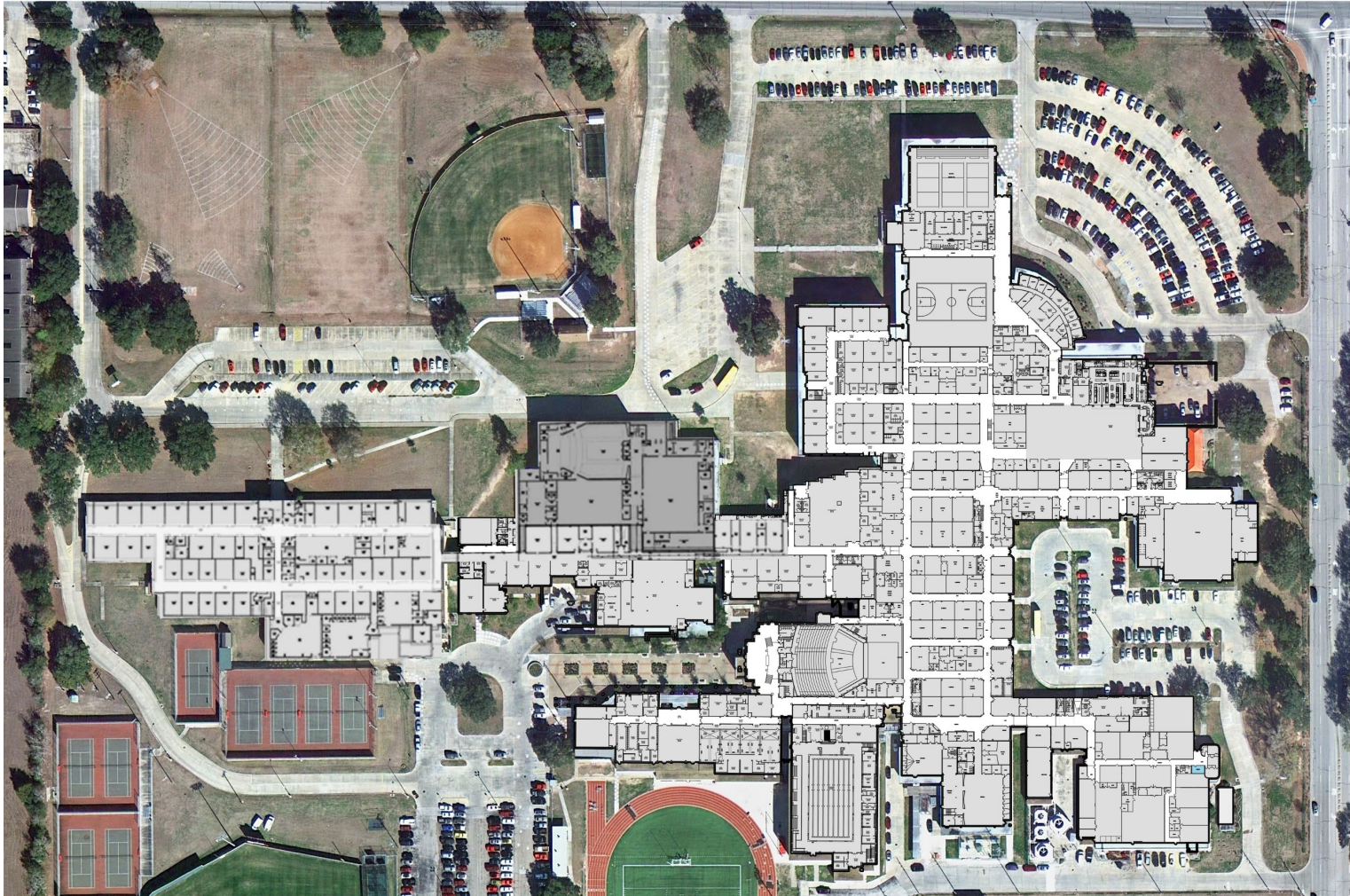


**MINIMIZE
DISRUPTION
AND REWORK**



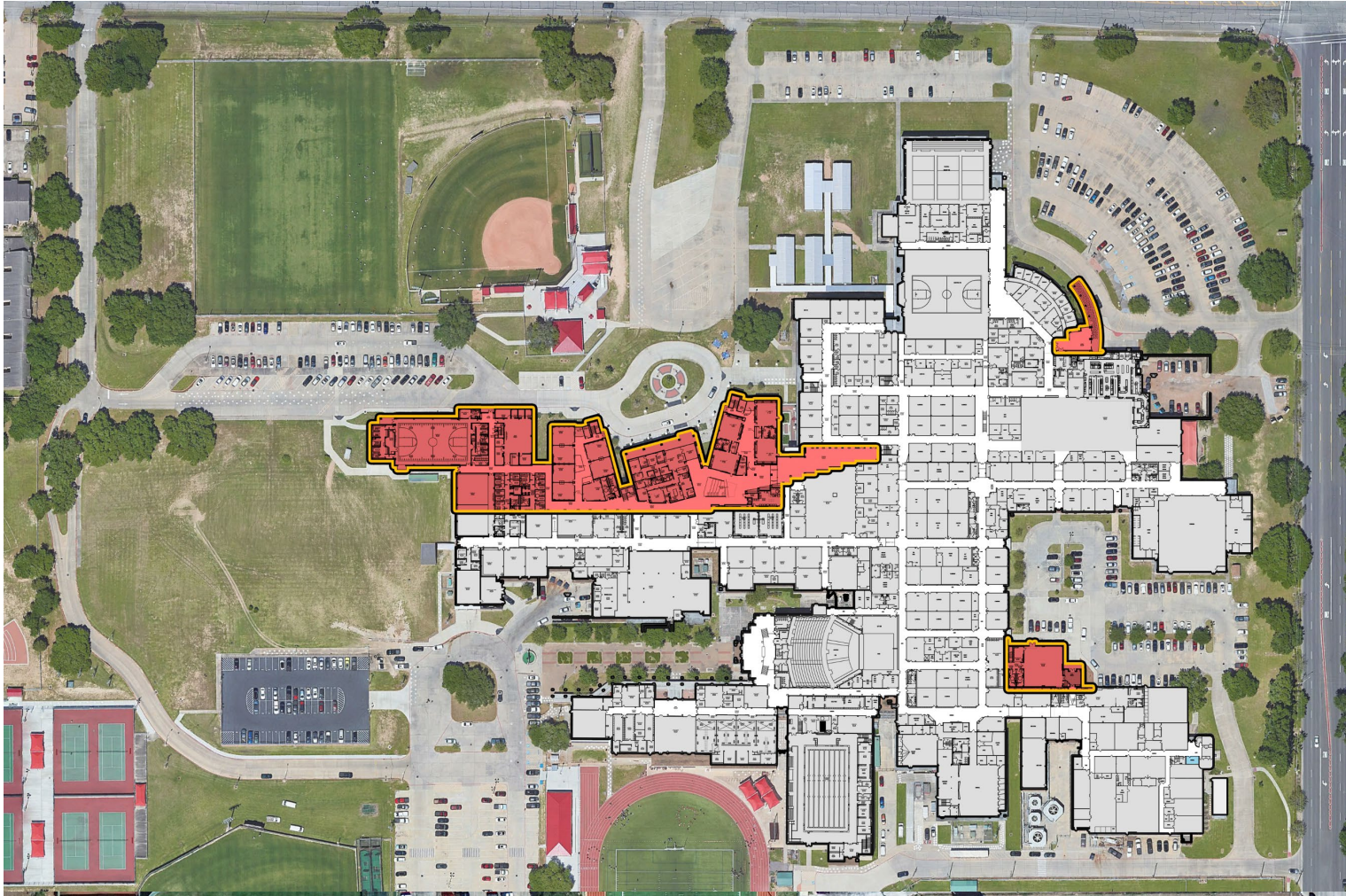
**COORDINATE
KEY
CONNECTIONS**

STRATEGIZE: PHASING PLAN



EXISTING PLAN

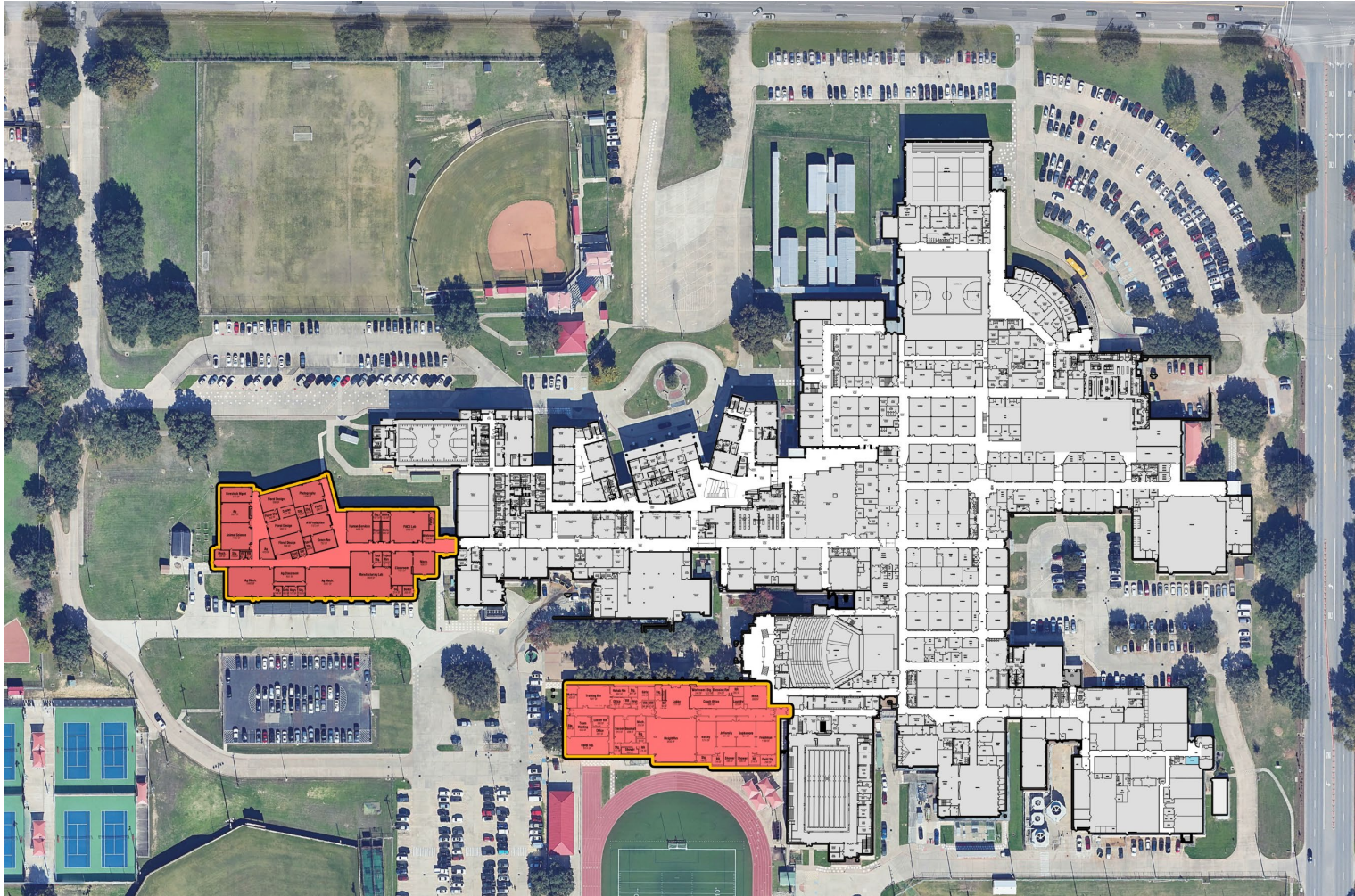
STRATEGIZE: PHASING PLAN



PHASE 1

- *Set up Portables*
- *Demo 9th Grade Building*
- *Demo Old Gyms*
- *Build New West Campus*
- *Build New Main Entry*
- *Build New Black Box*

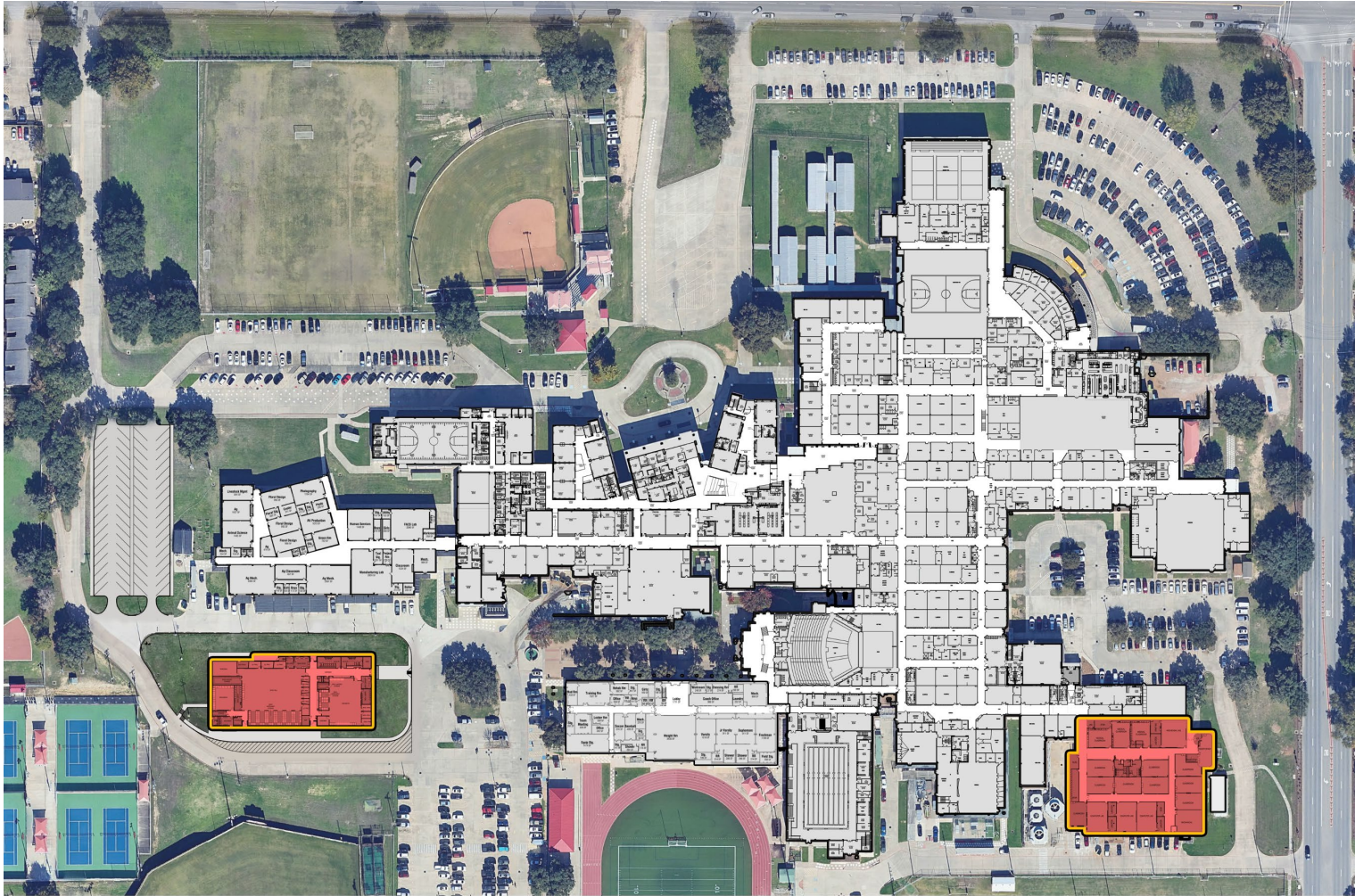
STRATEGIZE: PHASING PLAN



PHASE 2

- *Temp Weight Room*
- *Build New Athletic Wing*
- *Build New CTE Wing*
- *New Access Drives*
- *Vacate V-Hall*

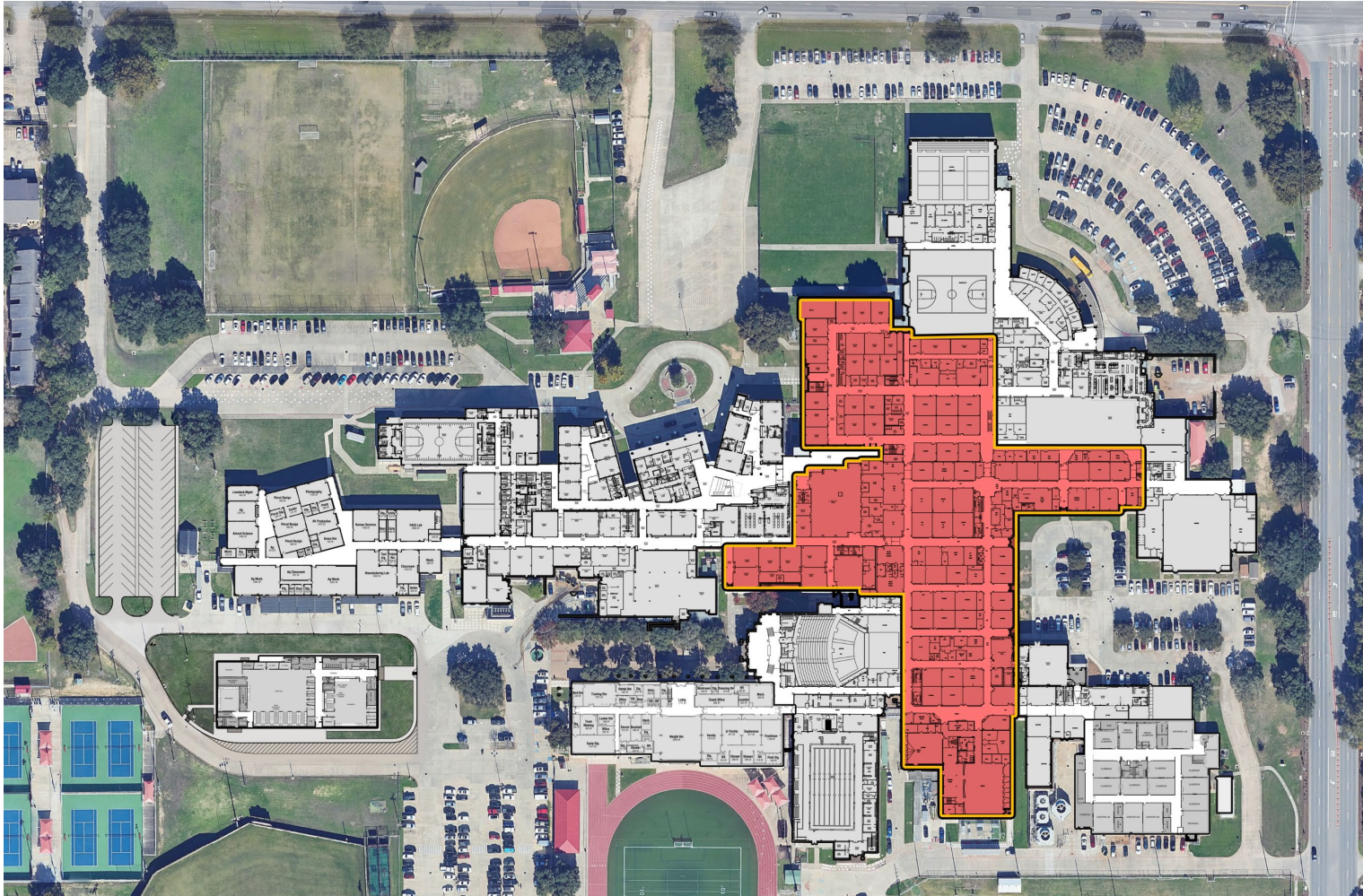
STRATEGIZE: PHASING PLAN



PHASE 3

- *Build out V-Hall*
- *Build New Band Hall*
- *Minimize Disruptions*
- *Old Band Hall becomes Fine Arts Scene Shop*

STRATEGIZE: PHASING PLAN



PHASE 4

- *Overhaul Academics*
- *Modernize Science Labs*
- *Renovate Fine Arts*
- *Renovate Media Center*
- *Remove Portables*

IMPLEMENT



VVLK



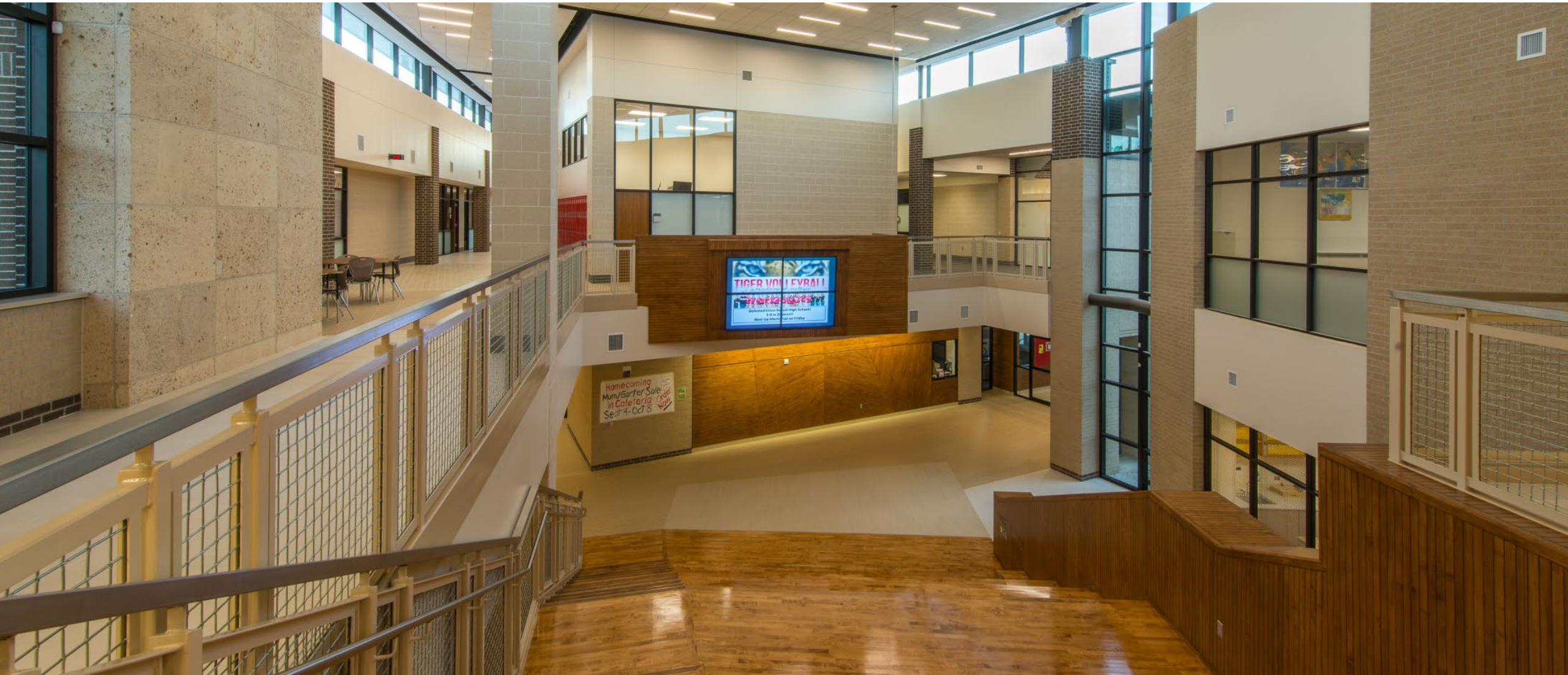
IMPLEMENT: WEST CAMPUS INTEGRATION



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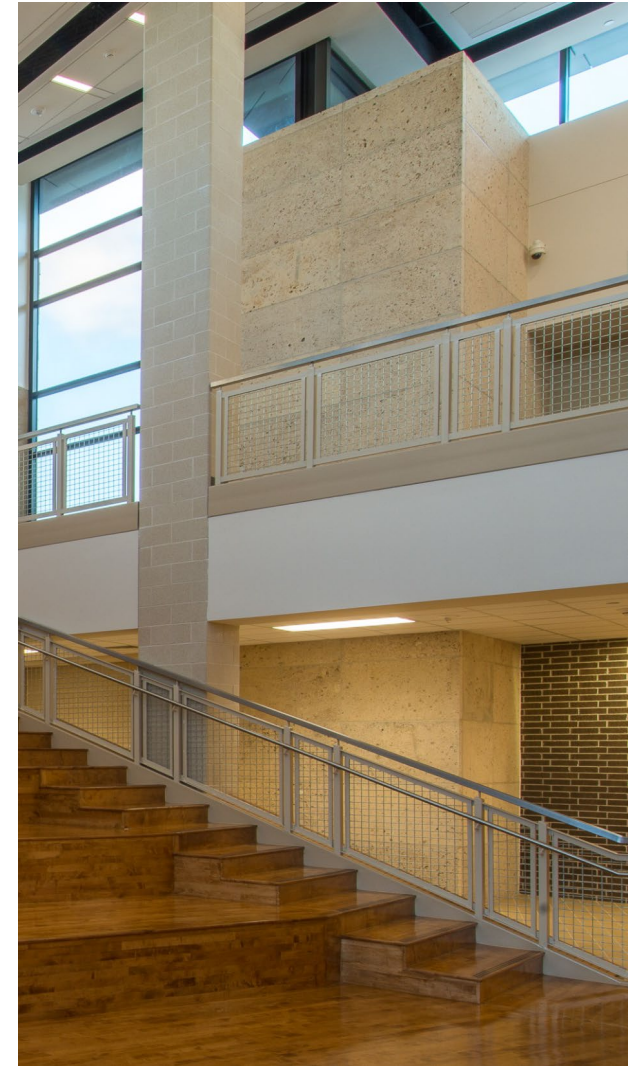
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IMPLEMENT: HONORING LEGACY



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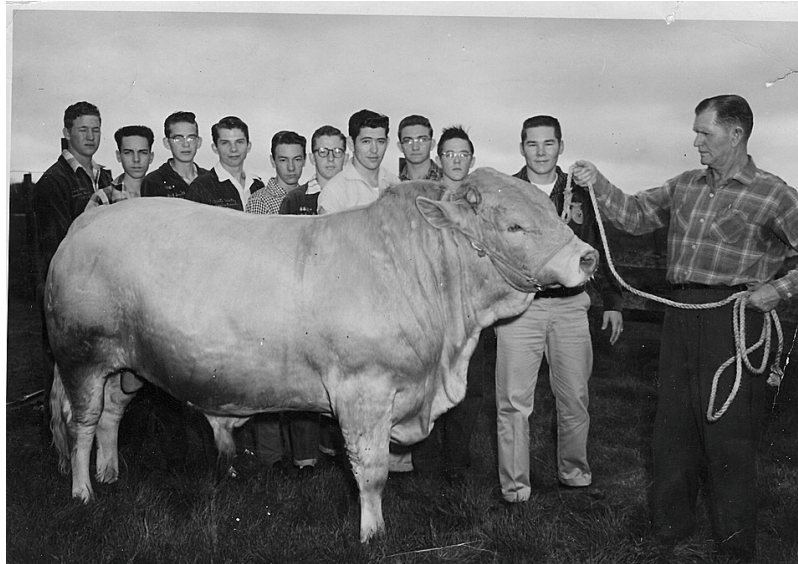
IMPLEMENT: HONORING LEGACY



IMPLEMENT: HONORING LEGACY



IMPLEMENT: CTE WING STORYTELLING



IMPLEMENT: V-HALL TRANSFORMATION



KEY TAKEAWAYS

VVLK



KEY TAKEAWAYS



Investigate Before You Design

Owner validation + utilization, 3D documentation, and historical review turn unknowns into clarity before bond commitments.



Evidence Builds Trust

Transparent findings, shared through a community process, create buy-in and support informed bond decisions.



Preserve. Adapt. Upgrade.

Legacy and modern learning demands can coexist when you document what to keep, reuse meaningful materials, and modernize where it matters.



Phase With Purpose

Long-range phasing keeps the campus operational, minimizes disruption and rework, and coordinates key connections early so each phase enables the next.

THANK YOU!

VVLK

