
STEAM CLASSROOMS
TRANSFORMING EDUCATIONAL PROJECTS
THROUGH PROGRAMMING AND COLLABORATION
spiezle
TSARK
ARCHITECTURE
Brevard
Public
Schools

Introduction

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Introduction

- Aligning educational vision with built environments
- Overview of the Brevard County 8-10-classroom addition
- How programming shifted the project to a STEAM focus
- Collaboration among the District, stakeholders, and local architects

Understanding the District Vision

- District priorities and long-term educational objectives
- Initial program vs desired outcomes
- Identifying opportunities to strengthen STEAM pathways
- Early engagement with educators, administrators, and students

Our Process

PRE-DESIGN

SCHEMATIC DESIGN

DESIGN DEVELOPMENT

CONSTRUCTION DOCUMENTS

BIDDING

CONSTRUCTION ADMINISTRATION

PRE-DESIGN FOCUS

Condition Assessment

Stakeholder Meetings

Planning

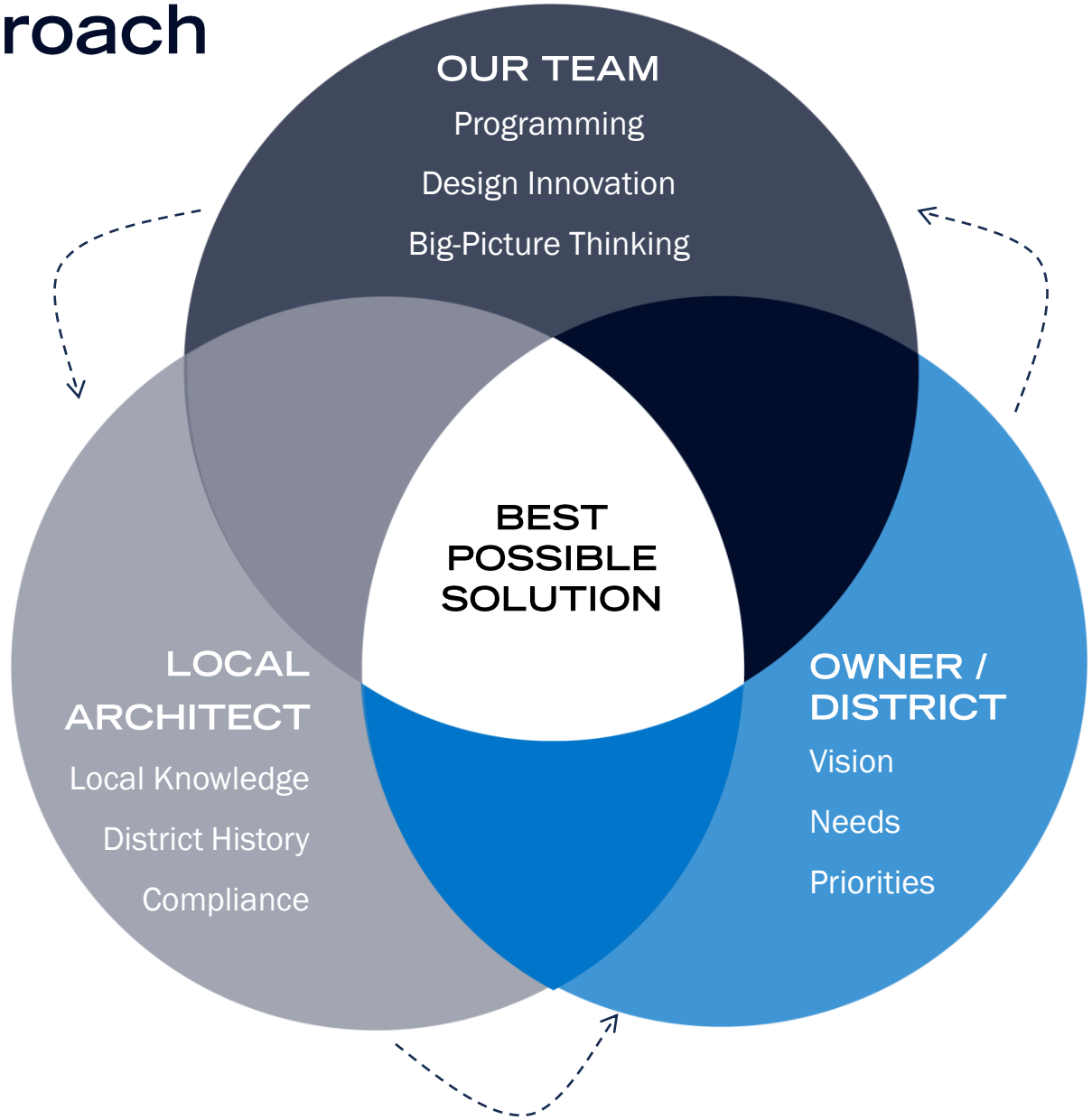
Programming

Holistic Design

Guidelines & Codes

Collaborative Project Approach

- Local expertise + global perspective
- Integrated team structure
- Owner-centric process
- Strategic benefits



Synergetic Design Schedule

KICK-OFF MEETING

Introduce team roles and responsibilities

Review project goals, vision, and District priorities

PROGRAMMING & CONCEPT

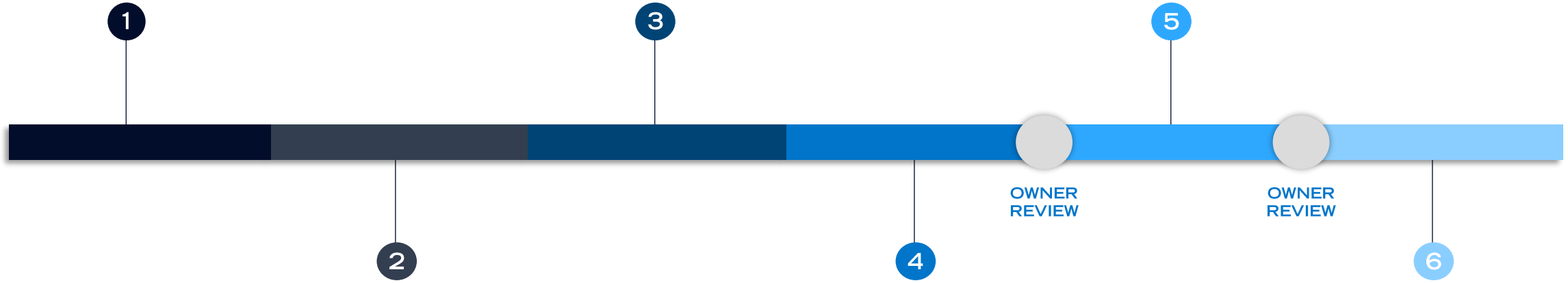
Program validation workshops with District

Conceptual design review and feedback

DESIGN DEVELOPMENT PHASE

Refine plans based on District input

Coordination meetings for systems and compliance



INFORMATION GATHERING & SURVEY

Site survey and existing conditions review

Collect District standards and guidelines

SCHEMATIC DESIGN PHASE

Collaborative design sessions with owner and team

Preliminary layouts and big-picture solutions

PRE-SUBMISSION REVIEW

Internal QA/QC and checklist compliance

Owner review and approval for next steps

Stakeholder Engagement

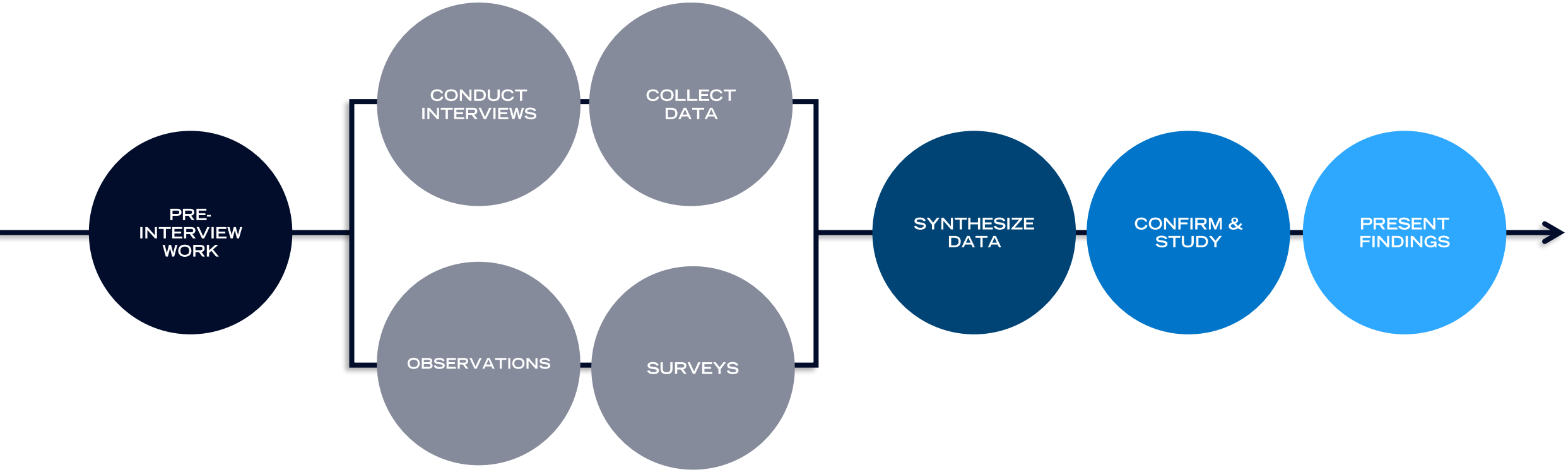
1 IDENTIFY & ENGAGE STAKEHOLDERS	2 COLLECT & ANALYZE DATA	3 DOCUMENT & COMMUNICATE RESULTS	4 IMPLEMENT STRATEGIES	5 EVALUATE PROGRESS	6 PROCESS RESULTS
▪ District Administration ▪ School Staff ▪ Student ▪ Community	▪ Surveys/Questionnaires ▪ Board Meetings ▪ Emails ▪ Design Charettes ▪ Site Visits	▪ Meeting Minutes ▪ Public Reports	▪ Seek to Understand Why ▪ Develop Creative Solutions to Overcome Roadblocks	▪ Continuous Feedback & Analysis as We Progress	▪ Team & Community Involvement/Buy-In ▪ Clear, Logical Solutions ▪ Best Possible Facility Considering Quality, Time & Cost

Programming & Educational Assessment

- Site analysis and existing facility considerations
- Curriculum alignment and departmental collaboration
- Space utilization and flexibility strategies
- Benchmarking and educational trends in STEAM facilities

Existing STEAM Room

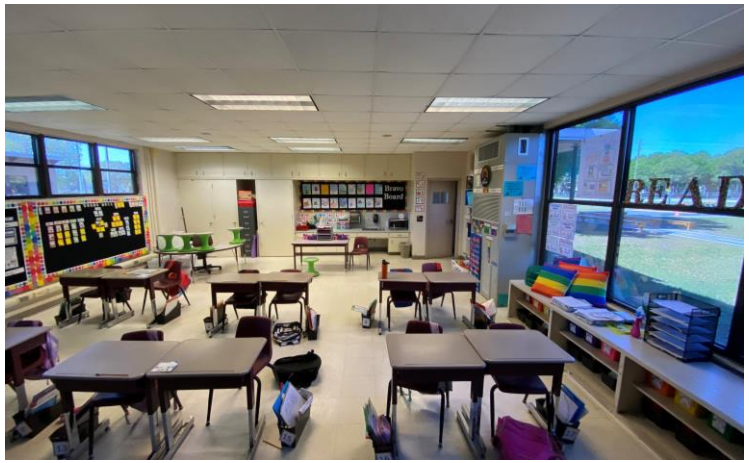
Needs Assessment Process



Existing Spaces

MUSIC ROOM

ART ROOM



CLASSROOM

TOILET ROOM

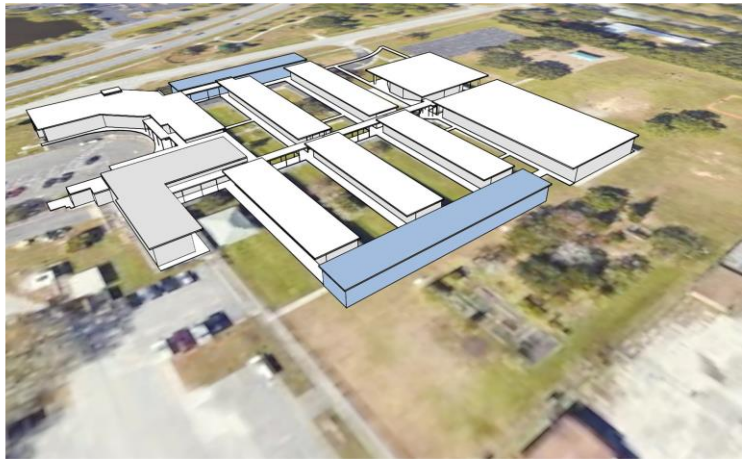
CAFETERIA

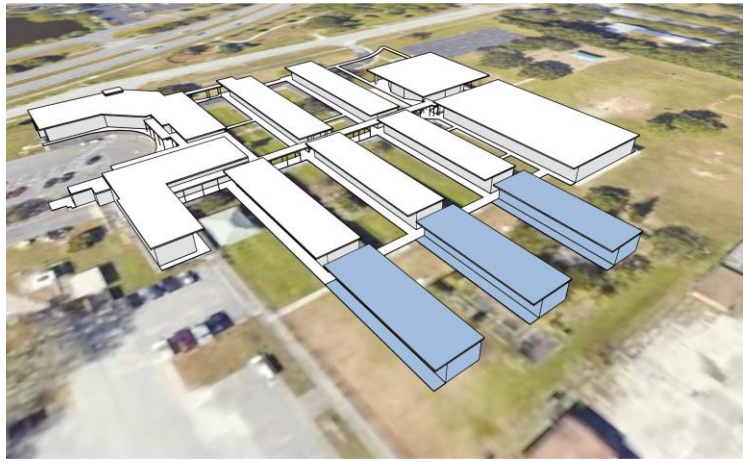
GARDEN

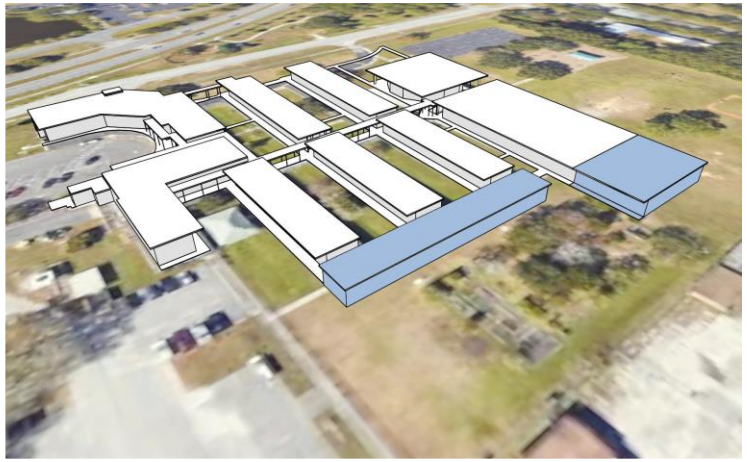
Initial Program

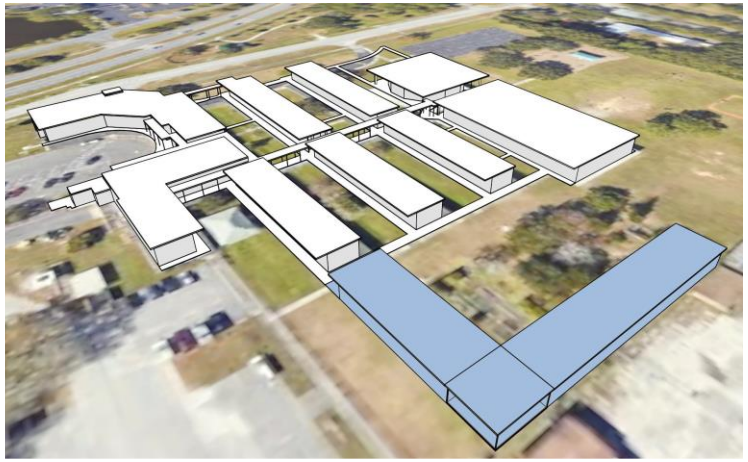
INITIAL PROGRAM - CLASSROOM BUILDING ADDITION								
FISH CODE	NO.	SPACE NAME	RECOMMENDED OCCUPANTS	NSF/OCCU	AREA/ CRITERIA	TOTAL AREA	SREF RELATED SPACE	NOTES
001	6	CLASSROOMS - PRIMARY	18+1	49	931 SF NET	5,586 SF	808, 811. 813, 814	
002	4	CLASSROOMS - INTERMEDIATE	22+1	39	897 SF NET	3,588 SF	808, 811, 815, 816	
808	10	STORAGE - CLASSROOM		100		1,000 SF	001, 002	
811	10	STORAGE – OUTSIDE CLASSROOM		50		500 SF	001, 002	
813	6	STORAGE – STUDENT (N-3)		40		240 SF	001	PRIMARY STORAGE
814	6	STUDENT RESTROOMS (MALE/FEMALE)		60		360 SF	011	PRIMARY RESTROOM
815	1	STUDENT RESTROOM (MALE) (22 Student X 4 Classrooms = 88 Students X 5%= 4.4 X 15= 66 NSF)	5% CAP	15		66 SF		INTERMEDIATE RESTROOM
816	1	STUDENT RESTROOM (FEMALE)	5% CAP	15		66 SF		INTERMEDIATE RESTROOM
PROGRAMMED STUDENT STATIONS			**196 STUDENT STATIONS**					
40	2	RESOURCE ROOM* *1 per each 150 Stations or major portion thereof in elementary schools	10+1	29	319 SF NET	638 SF	808	
						12,044 SF PROGRAM		
		MECHANICAL / ELECTRICAL ROOM ** **Aggregate amount of program NSF may be increased up to 6 percent for interior enclosed space needed for electrical, mechanical and HVAC equipment	6%+12,044 SF					
						12,767 SF TOTAL NET		
		GENERAL CIRCULATION, INTERIOR/EXTERIOR WALLS & ROOF OVERHANGS*** ***The additional space is the Net-to-Gross square footage difference for the building. The recommended amount for elementary school is 27% of the building NSF	27%+12,767 SF					
						16,2154 TOTAL BLDG		

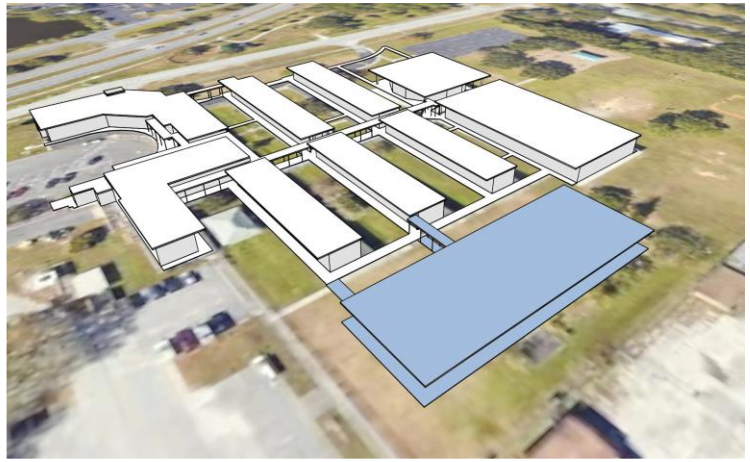
Initial Conceptual Designs











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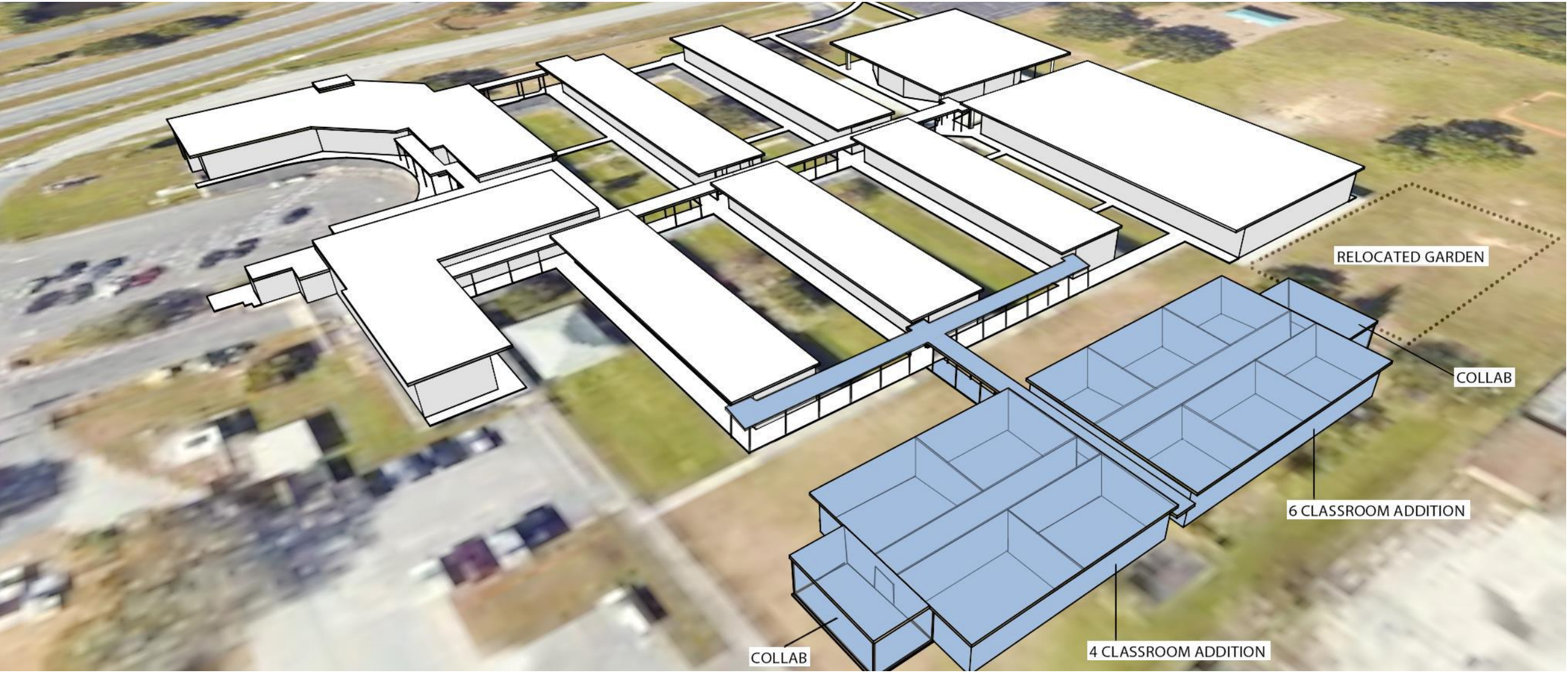
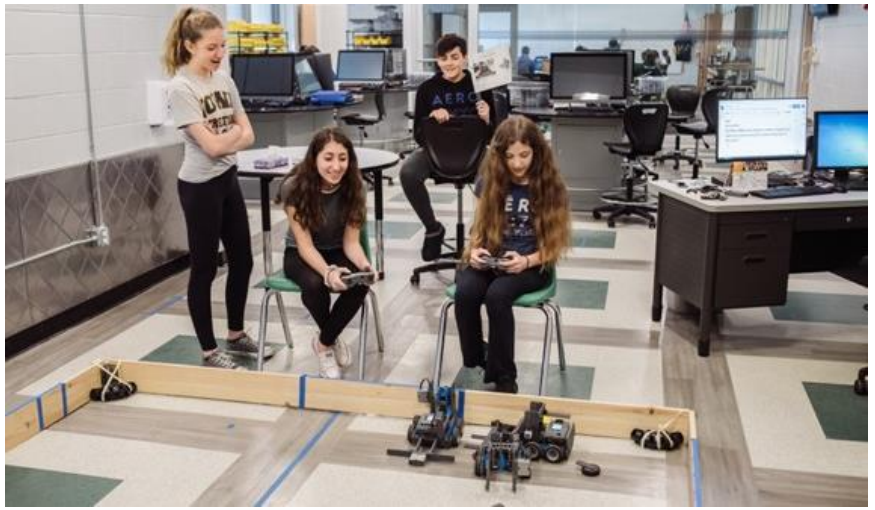


Inspiration Projects: STEAM



Inspiration Projects: Science

Inspiration Projects: Art

Inspiration Projects: Music

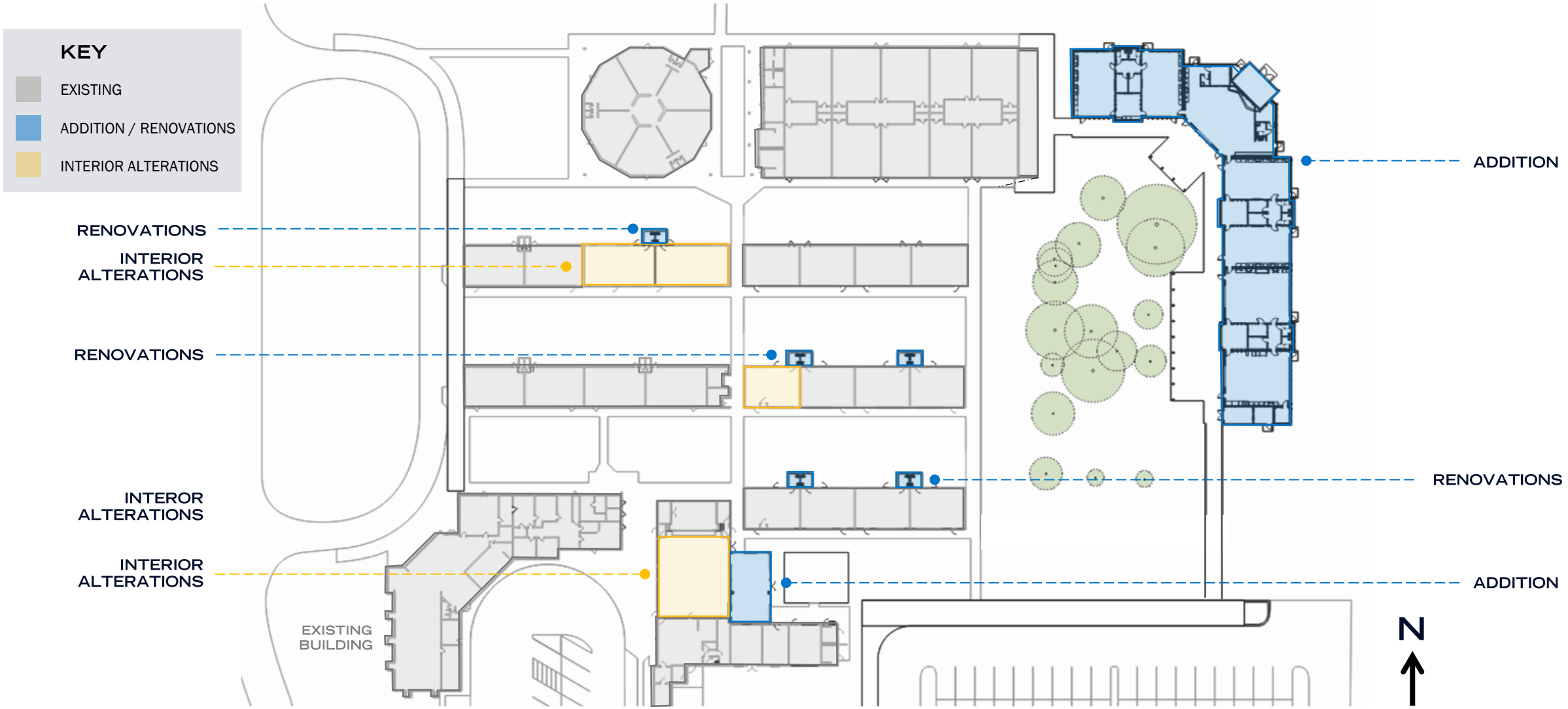
Inspiration Projects: Makerspace

Transforming a Standard Addition into a STEAM Facility

- Original scope: 8-10 general classrooms
- Final concept: integrated STEAM program wing
- Key programmatic changes:
  - Makerspace integration
  - Labs and specialty rooms
  - Outdoor classrooms
  - Collaborative student zones
  - Visual connection to learning in progress
- Features that support inquiry, creativity, and hands-on learning

Final Floor Plan

Overall Site Plan



Site Aerial


"TO INVENT YOU NEED A GOOD IMAGINATION AND A PILE OF JUNK."
-THOMAS A. EDISON
SCIENCE
STEAM LAB
SCIENCE
ART
MUSIC
COLLABORATION
OUTDOOR LEARNING
COLLABORATION
COLLABORATION
OUTDOOR LEARNING

EXTERIOR RENDERING

OUTDOOR LEARNING RENDERING

COLLABORATION RENDERING

CAFETERIA RENDERING

STEAM RENDERING

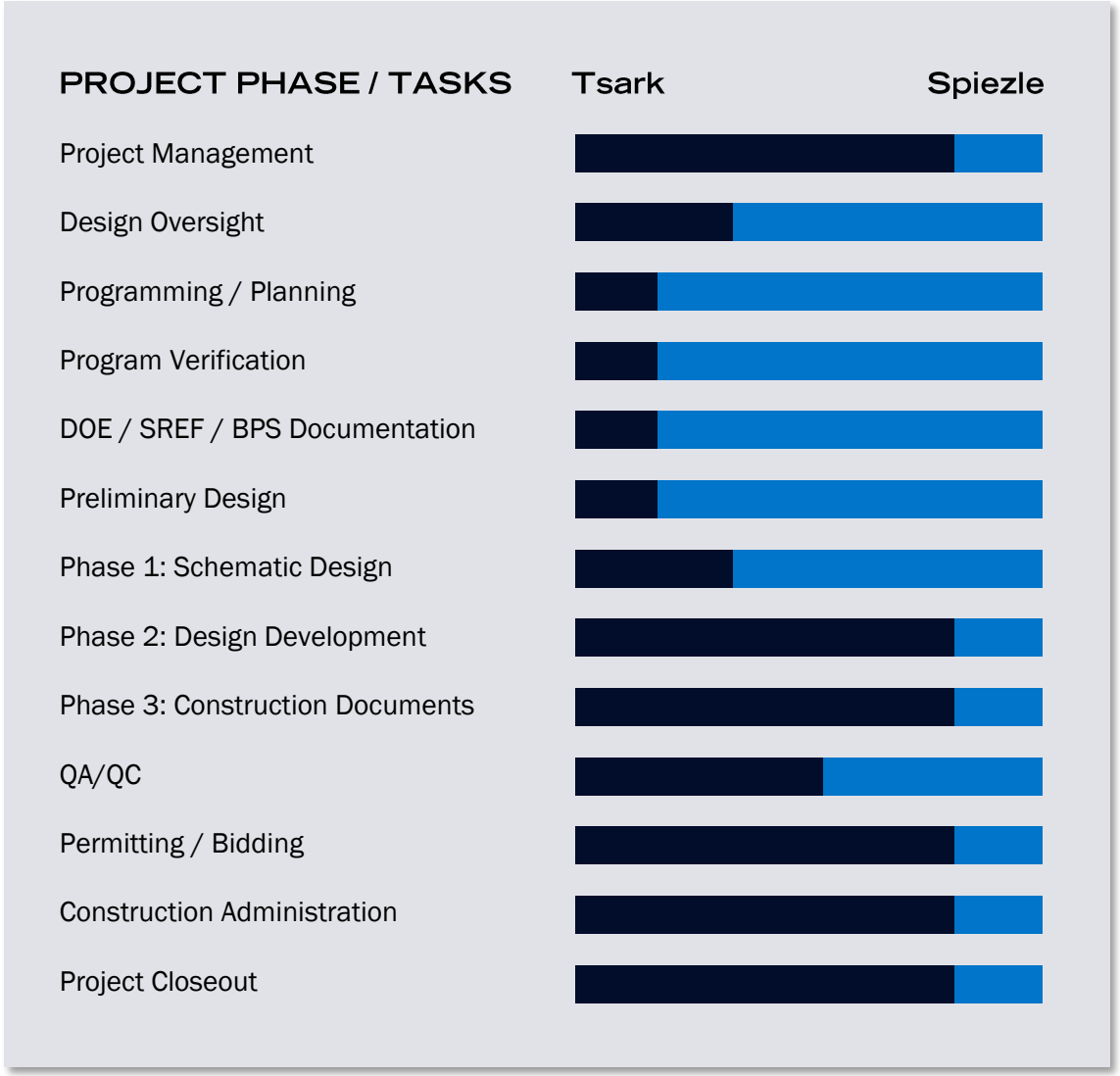
SCIENCE RENDERING

ART RENDERING

MUSIC RENDERING

Partnership & Collaboration

- Role of the local architectural firm
- Division of responsibilities and communication strategies
- Demonstrating respect for local knowledge and shared goals
- Lessons learned in fostering strong design partnerships

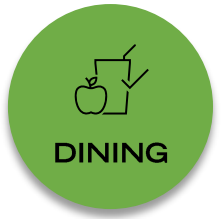


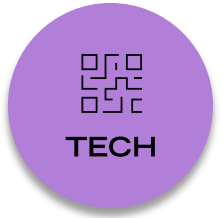
Data Driven Design Decisions

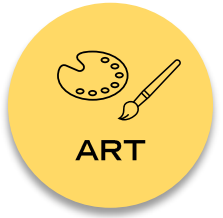
- Aligning program quantities with enrollment and curriculum data
- Feedback loops: educator and student input
- Evaluating cost, phasing, and operational impacts
- Final program justification and approvals

Data Driven Design Decisions

FINAL PROGRAM - STEAM BUILDING ADDITION									
PAR	FAC	YEAR	BLDG	RM	NET SQ	STU STA	PROPOSED SF	EXISTING SF	PROPOSED OR ACTUAL USE DESCRIPTION
33	30	2024	3	301A	50	0	814	N/A	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	3	302A	50	0	814	N/A	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	3	303A	50	0	814	N/A	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	3	304A	50	0	814	N/A	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	5	501A	50	0	814	N/A	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	5	502A	50	0	814	N/A	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	5	503A	50	0	814	N/A	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	5	504A	50	0	814	N/A	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	6	604A	50	0	814	N/A	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	6	601A	50	0	814	N/A	STUDENT RESTROOM (BOTH SEXES)
33	**30**	**2024**	**2**	**202**	**989**	**0**	**340**	**1923**	**DINING AREA**
33	**30**	**2024**	**13**	**601**	**1611**	**22**	**240**	**1450**	**TECHNOLOGY EDUCATION EXPLORATION LABORATORY**
33	30	2024	13	120B	53	0	814	N/A	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	13	120C	146	0	851	N/A	STORAGE, TOOL (LARGE)
33	**30**	**2024**	**13**	**121**	**957**	**22**	**020**	**800**	**SCIENCE DEMONSTRATION - INTERMEDIATE**
33	30	2024	13	121A	56	0	814	45	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	13	121B	83	0	808	N/A	STORAGE
33	30	2024	13	121C	254	0	011	N/A	COLLABORATIVE SPACE
33	**30**	**2024**	**13**	**122**	**957**	**22**	**020**	**800**	**SCIENCE DEMONSTRATION - INTERMEDIATE**
33	30	2024	13	122A	56	0	814	45	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	13	122B	83	0	808	N/A	STORAGE
33	30	2024	13	122C	95	0	700	N/A	INSIDE CIRCULATION
33	**30**	**2024**	**13**	**123**	**960**	**22**	**020**	**800**	**SCIENCE DEMONSTRATION - INTERMEDIATE**
33	30	2024	13	121A	56	0	814	45	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	13	123B	83	0	808	N/A	STORAGE
33	30	2024	13	123C	254	0	011	N/A	COLLABORATIVE SPACE
33	**30**	**2024**	**13**	**124**	**960**	**22**	**020**	**800**	**SCIENCE DEMONSTRATION - INTERMEDIATE**
33	30	2024	13	124A	56	0	814	45	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	13	124B	83	0	808	N/A	STORAGE
33	30	2024	13	124C	95	0	700	N/A	INSIDE CIRCULATION
33	**30**	**2024**	**13**	**125**	**1350**	**22**	**055**	**784**	**MUSIC**
33	30	2024	13	125A	56	0	814	45	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	13	125B	83	0	808	N/A	STORAGE
33	30	2024	13	125C	254	0	011	N/A	COLLABORATIVE SPACE
33	**30**	**2024**	**13**	**126**	**1357**	**22**	**051**	**784**	**ART - INTERMEDIATE**
33	30	2024	13	126A	56	0	814	45	STUDENT RESTROOM (BOTH SEXES)
33	30	2024	13	126B	83	0	808	N/A	STORAGE
33	30	2024	13	126C	95	0	700	N/A	INSIDE CIRCULATION
33	**30**	**2024**	**13**	**126D**	**101**	**0**	**805**	**N/A**	**KILN**
33	30	2024	13	127	450	0	702	350	ELECTRCAL ROOM
33	30	2024	13	127A	784	0	702	450	MECHANICAL ROOM
				TOTAL EXISTING & ADDITIONS	**79,420**	**770**			
					14,406	NSF	BUILDING ADDITION		
					8,416	GSF	CANOPY ADDITION		

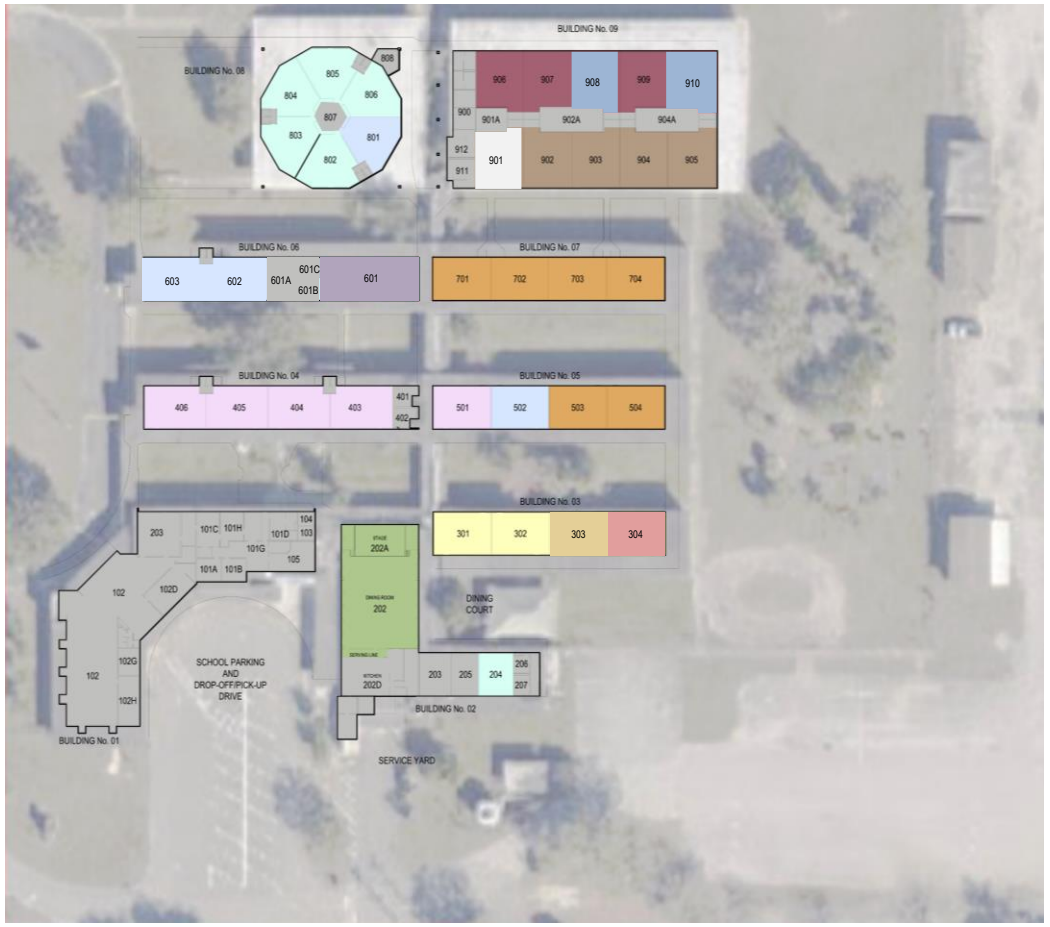




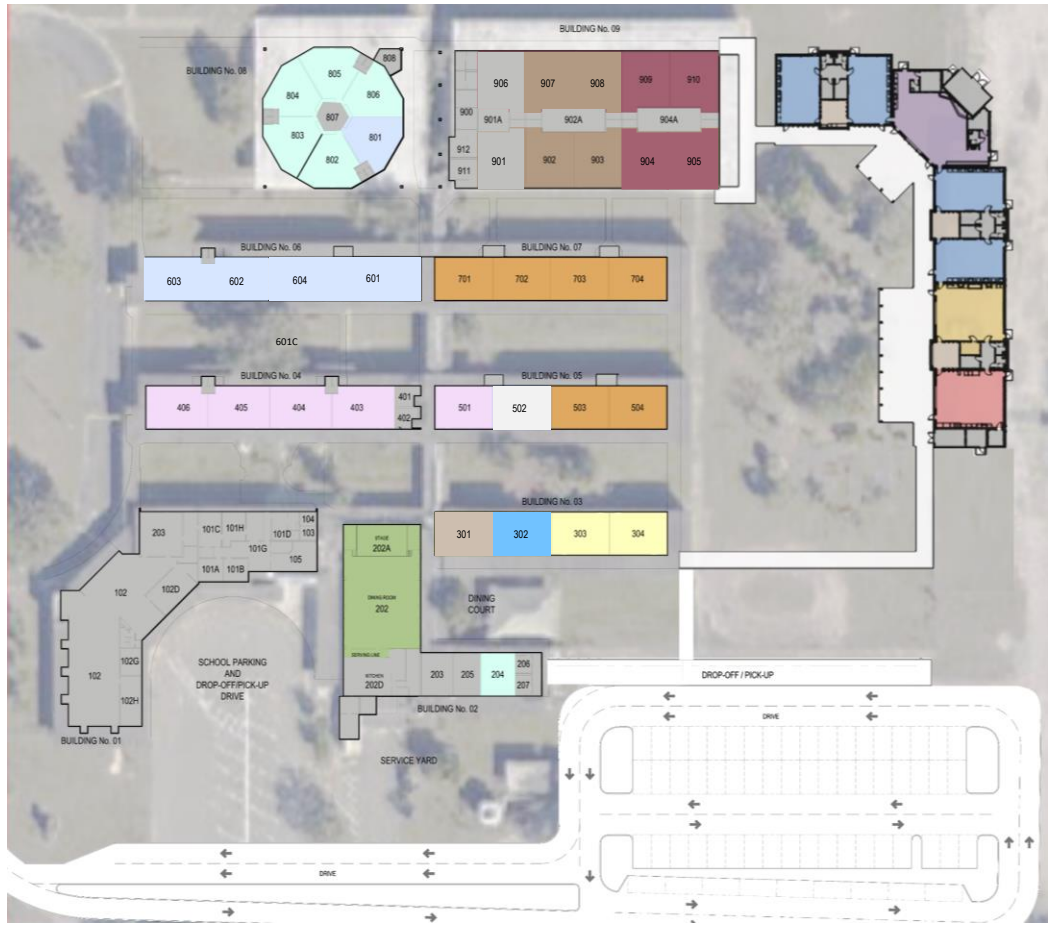


Programming Plan

EXISTING SITE



PROPOSED SITE



LEGEND

- KINDERGARTEN
- FIRST GRADE
- SECOND GRADE
- THIRD GRADE
- FOURTH GRADE
- FIFTH GRADE
- SIXTH GRADE
- ART
- MUSIC
- SCIENCE
- STEAM LAB
- CAFETERIA
- RESOURCE ROOM
- GIFTED ROOM
- AFTER CARE
- DATA PROCESSING

Outcome and Community Impact

- Enhanced STEAM pathways for students
- Innovative learning environments and flexibility
- Long-term district value and community connection
- Feedback from stakeholders
- Brand new Art and Music rooms

Key Takeaways

- Start with vision and validate with data
- Collaboration strengthens outcomes
- Programming as a transformational tool
- Facility design directly supports educational pathways


LABORATORY
I WONDER...


BODY WORKS
SCIENCE
WELCOME


WELCOME
BODY WORKS


13-1307
LAB
POWER HOUSE
PLANET


01 29 PM
Fri Jan 10
13-1305
CLASSROOM


EXIT


YAMAHA

QUESTIONS?

PEOPLE. PASSION. PURPOSE.