DOVER HIGH SCHOOL AND CAREER TECHNICAL CENTER

Appendix

Dover, New Hampshire

August 2015

Volume 3 of 3

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Acknowledgements

We wish to thank the following individuals for their assistance and their contributions to this feasibility study:

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Sarah Greenshields	School Board Representative
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Visioning Report

Educational Visioning

Dover High School + Career Technical Center
Dover School District
Dover, NH

January 2015
Frank Locker Educational Planning

Contents + Acknowledgements

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Executive Summary

INTRODUCTION

This Educational Vision reflects the work of a Visioning Team; approximately 45 teachers, administrators, students, parents, community members, and board members. HMFH Architects, chosen as architects for the new or renovated Dover High School (DHS) and Career Technical Center (CTC), was represented in the process. Created through intense facilitated workshops over six days, it is intended to guide the long-term development of both education and facilities for DHS and CTC.

Much of the work was conducted by Table Teams, small groupings of six participants each. They brainstormed, debated, and attempted to reach consensus on most of the defining issues. Generally the Table Teams were interdisciplinary, with participants at each table representing teachers, administrators, students, and parents.

The work of the Visioning Process is composed of two parts, the Educational Vision and the Facility Concept. The following summary describes the outcome of those two parts.

EDUCATIONAL VISION

Guiding Principles

The *Guiding Principles* presented here were created to express the values, beliefs, and concepts developed by the Visioning Team which examined educational trends, best practices, and issues affecting the delivery of 21st century education. These *Guiding Principles* present the essence of that inquiry. They are not policy but they address the overarching themes identified by participants. They may serve as a foundation for planning the future of DHS and CTC. As such, they are intended to form the basis of future educational delivery and facilities planning. Staff professional development is crucial to the successful implementation of the educational concepts outlined here.

The overarching *Guiding Principles* are:

- Integrate CTC and DHS through facilities planning and as much as practical, course offerings
- Create flexibility in facilities, thinking, scheduling, and curriculum

- Provide communication, leadership, and staff professional development to continue shifting the educational model to one that is research-based, employing innovative student-centered practices
- Prepare students for success in the 21st century, an emerging world of global competition, uncertain employment prospects, infinite access to information, and rapid change in technology
- Teach 21st century skills at the same time as traditional content
- Foster relationships in all aspects of school, including paying conscious attention to building relationships with students, families, and communities through school structure and programs
- Aspire beyond the Common Core to do what is best for student learning, and to instill a life-long sense of wonder and purpose. Create independent, life-long learners
- Establish a program of staff professional development to support the educational deliveries outlined here
- Make all learning and facilities design student-centered

The Guiding Principles are expressed in full in Ch 3, Educational Vision.

FACILITY CONCEPTS

Key Words for Facilities

Visioning Team participants were asked to identify one word that best represented their individual thoughts about the future facilities.

Their most commonly cited key words were:

- Flexible (cited 12 times)
- Open (cited 3 times)
- Diverse (cited 2 times)

See Ch 4, Facility Concepts for the full listing.

Places for Learning

The Visioning Team reviewed fourteen exemplar schools from the USA, the United Kingdom, and Australia. Working in Table Teams they ranked the schools for appropriateness for the future DHS and CTC.

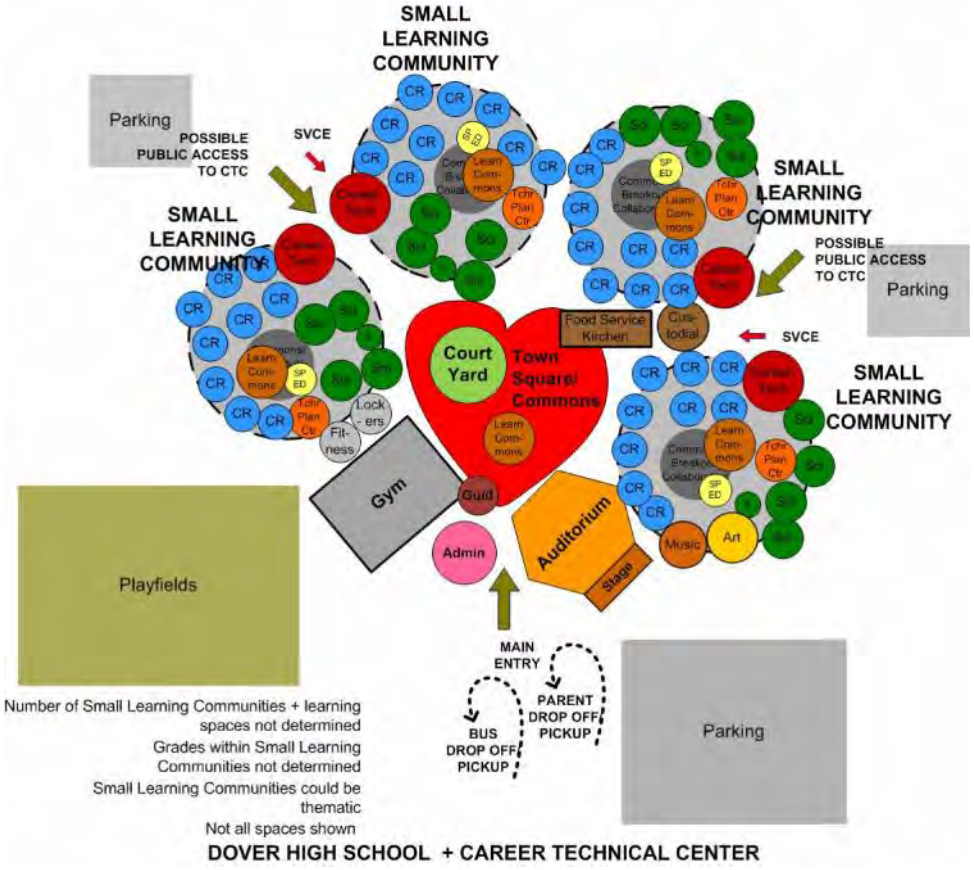
Four of the schools were cited for their specific concepts. The concepts from those models were included in further discussion of school organization ultimately leading to a diagram of the school organization. The critical concepts from the models and from the discussion:

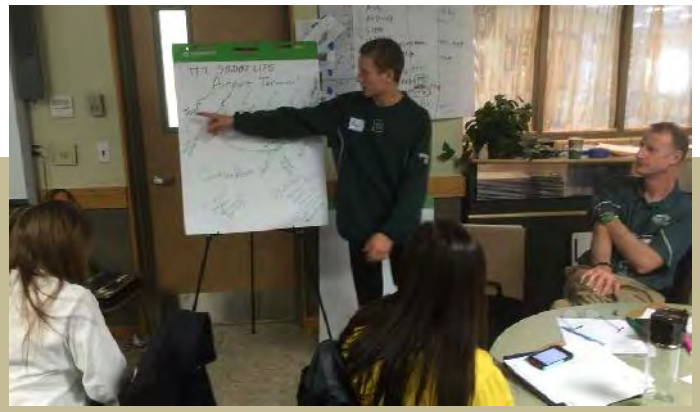
- A centralizing space which could be called Commons or Town Square. Public Access to this space will be encouraged
- Spaces most likely to have public access require special care in planning to maintain safety and security. Coordinate public access to these destinations with controlled access doors, as few as possible
- School organized into Small Learning Communities (SLCs).
- Academic and CTE spaces should be integrated within the SLCs
- Integrate public facing CTE programs such as culinary, cosmetology and the school store into the centralizing space
- SLCs must be flexible and adaptable to operate either in a thematic mode or an interdisciplinary mode.
- Encourage a high level of visual connection throughout.

For a full description of their entire list of most appropriate and least appropriate exemplars, see Ch 4 Facility Concepts.

Overall School Organization Diagram

Workshop participants guided Frank Locker in the drawing of an overall school planning diagram.


SMALL LEARNING COMMUNITY
Parking
POSSIBLE PUBLIC ACCESS TO CTC
SVCE
SMALL LEARNING COMMUNITY
SMALL LEARNING COMMUNITY
POSSIBLE PUBLIC ACCESS TO CTC
Parking
SVCE
SMALL LEARNING COMMUNITY
Court Yard
Town Square/ Commons
Food Service Kitchen
Cus-todial
Gym
Guid
Admin
Auditorium
Stage
Music
Art
Lock-ers
Fit-ness
Playfields
MAIN ENTRY
PARENT DROP OFF PICKUP
BUS DROP OFF PICKUP
Parking
Number of Small Learning Communities + learning spaces not determined
Grades within Small Learning Communities not determined
Small Learning Communities could be thematic
Not all spaces shown
DOVER HIGH SCHOOL + CAREER TECHNICAL CENTER



Educational Vision

INTRODUCTION

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Much of the work was conducted by Table Teams, small groupings of six participants each. They brainstormed, debated, and attempted to reach consensus on most of the defining issues. Generally the Table Teams were interdisciplinary, with participants at each table representing teachers, administrators, students, and parents.

VISION COMPONENTS

The Educational Vision for the future DHS and CTC are described here through several components:

- **Guiding Principles** establish broad parameters for educational delivery, school structure, and facilities
- **Key Words for Education** expresses concepts for future education and facilities
- **School Transformation + Development Map** (ST+DM © 2015 Frank Locker Inc) relates educational delivery and facilities to national practices, both today and projected into the future
- **Most Important Concepts for the Future** identifies the 21st Century issues most important to the future schools
- **Learning Modalities** identifies the most effective and appropriate ways for teachers to reach students with curriculum delivery
- **School Organizational Structure** defines preferred approaches to the overall relationships of people and programs

GUIDING PRINCIPLES

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Overarching Principles

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- Make all learning and facilities design student-centered

Educational Delivery

Educational Delivery addresses overarching themes required to provide a 21st century high-performing educational experience for all students.

INSTRUCTIONAL MODELS

- Employ project-based learning
- Support interdisciplinary learning through schedules, programs and initiatives, and collaborative teaching
- Create opportunities for students to grow socially and emotionally through daily classroom activities
- Integrate curriculum deliveries through simultaneous, seamless student exploration of multiple curriculum-content areas
- Teach 21st century skills, especially the “four C’s”, collaboration, communication, creativity, and critical thinking, while simultaneously meeting standard curriculum goals
- Group students in small learning groups to foster communication, collaboration, and improved social skills
- Create opportunities for students to make things as part of their learning
- Create an internship program with local businesses and institutions
- Create regular opportunities to grow students’ oral communication skills, through presentations of their work to peers, teachers, and community members

TECHNOLOGY INTEGRATION

Our world is dependent on technology implementation in all aspects of life. Students must be provided with the technological skills and knowledge which will enable them to function successfully in a global context. Technology should include:

- Explore use of computers to personalize learning for each child
- Wireless capability in all spaces in future school buildings
- Deploy mobile devices in lieu of desktop devices
- Integrate new media effectively in student learning: mobile devices, social networking, virtual worlds
- Create places and learning goals for students to learn using new technologies
- Support teachers who wish to utilize blended learning as an alternative classroom delivery with training and resources
- Explore the powerful learning potential of technology-based adaptive learning programs

Technology must not be viewed as an add-on, but rather, as an effective tool to be utilized in meaningful instruction that is relevant and rigorous

PARENT/COMMUNITY RELATIONS AND RESOURCES

- Make the school a Community Center, serving area residents of all ages and interests through a variety of cultural, educational, and recreational programs and spaces
  - School isn't a school. It's a community building. One of the things it does is educate

Educational Structure

Educational Structure establishes the organizational patterns necessary to group students and teachers in the most effective ways.

ORGANIZATION

- Position educators to better know their students through the size and strategic placement of learning spaces

RELATIONSHIPS

- Organize schools as Small Learning Communities that support formation of relationships
- Explore whether Freshmen should be based in their own Small Learning Community
- Explore Advisor/Advisee Programs, scheduled on a frequent basis
- Foster student collaboration to build communication skills and the ability to work with others
- Support teacher collaboration through scheduling, positioning, and facilities design

SCHEDULE

- Create common planning time for teachers
- Institute strategic scheduling to empower the concepts outlined here. The school schedule must provide for flexibility, collaboration, and interdisciplinary learning

Facility Implications

- Design facilities to be flexible, able to support multiple learning modalities, teaching styles, and program change over time
- Develop Small Learning Communities with students and teachers contiguously arranged in clusters
- Plan the Small Learning Communities to allow one or more of them to operate thematically, if desired
- Plan the Small Learning Communities to allow one of them to be a Freshman House, if desired
- Select furniture that supports collaboration, different learning modalities, and is substantiated by brain research
- Create Teacher Planning Centers to foster collaboration, interdisciplinary teaching, and greater knowing of students by teachers
- Create a Media Center for the 21st century. Call it a Learning Commons. Locate it close to students, in each Small Learning Community and in a central location
- Create a building plan that offers security and safety despite constant visitors, many of whom will be using CTC services or will be active participants in student learning

KEY WORDS FOR EDUCATION

Workshop participants each identified one-word or two-word phrases that best represented their individual thoughts about their desired future Educational Deliveries. These words could be the basis of the "elevator speech" describing the future DHS and CTC.

Their key words for education were:

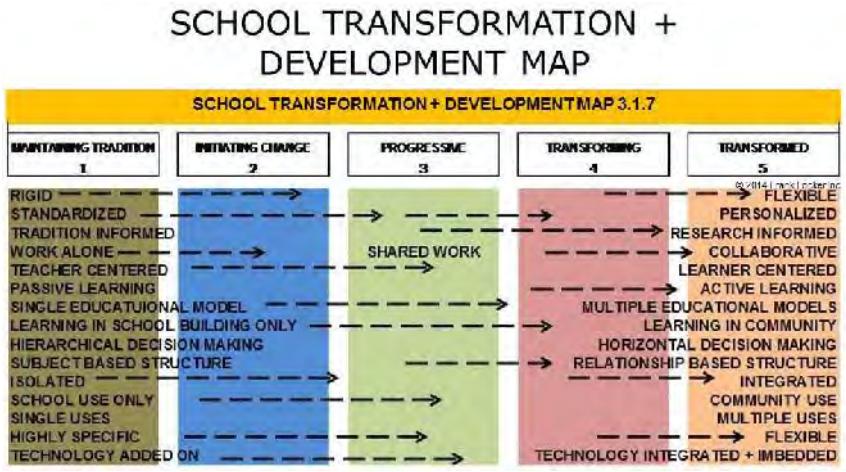
- Collaborative (cited 7 times)
- Individualized (cited 2 times)

- Active
- Active/productive
- All inclusive
- Authentic/passionate
- Catered to the student's future
- Custom
- Efficient
- Exciting engaging
- Experimental
- For everyone
- Hands-on
- Individualized-based education
- Inspiring
- Integrated (Interdisciplinary)

- Interactive learning (engaging)
- Motivational
- Practical
- Project-based learning
- Real-world application
- Revision driven
- Revolutionary
- Sincere
- Student-centered

SCHOOL TRANSFORMATION + DEVELOPMENT MAP

Workshop participants, working in three person Micro Teams, used the School Transformation + Development Map to evaluate DHS and CTC's current educational delivery and facilities, and to project the desired future for both.



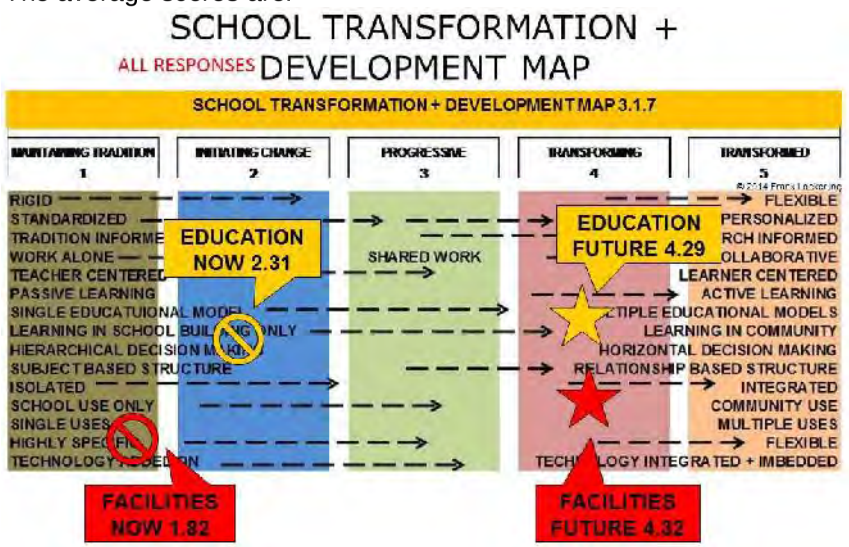
The ST+DM expresses the evolutionary shift in education in great detail, chronicling educational practices and facility design. Schools today are in different points of evolution, and many schools expect to be in different points of evolution in the long-term future. The ST+DM characterizes schools and facilities on a 1 through 5 basis, with 1 as the most traditional category, and 5 as the most transformed.

Workshop participants worked in Micro Teams to review the multiple educational practices and facilities concepts in the School Transformation + Development Map. They scored the schools in the following categories:

- Educational Delivery Today
- Facilities Today
- Future Educational Delivery
- Future Facilities

This average score gives a general understanding of current and desired future practices and facilities. Appendix Ch 5.5 contains the results articulated by the Micro Teams.

The average scores are:



The overall scoring of all Micro Teams was relatively close on all four issues, indicating a high degree of consensus among workshop participants

The most important lessons from the ST+DM for the immediate future come from the difference between today's situation and the desired future. The Visioning Team desires significant change in both, more than two columns out of five. For education this means that a program of staff professional development needs to be implemented, starting soon. For facilities, it means that facilities will not look like traditional school. In both cases dialogue with the community needs to be engaged in order to share and receive comments and guidance on the exciting concepts proposed for the future DHS and CTC.

MOST IMPORTANT CONCEPTS FOR THE FUTURE

Visioning Team members, working in eight Table Teams, were asked to identify the three most important issues for learning in the 21st century at DHS and CTC.

The results are outlined here, in order of importance based on frequency of citing:

- Project-Based Learning
- 21st Century Skills
- 21st Century Learning Spaces
- Flexibility for Change
- Teacher Teaming/Collaboration

LEARNING MODALITIES

The Visioning Team members considered twenty learning modalities, ranging from traditional lecturing and direct teaching to independent study, and ranked them in order of appropriateness.

The most commonly cited most effective modalities are:

- Small Group Work/Student Collaboration
- Project-Based Learning
- Student Presentations
- Making Things/Design Thinking
- Internships
- Teacher Teaming/Synchronous Teaching

The most commonly cited as the least effective modalities were:

- Lecture
- Distance Learning

The full record of Learning Modalities preferences is in Appendix Ch 5.2.

SCHOOL ORGANIZATIONAL STRUCTURE

Visioning Team members were asked to reflect on model school organizational structures.

Overall Organization

They were presented with six possibilities, and asked to create new ones if necessary. Their charge was to rank the possibilities for appropriateness, and then develop "pros" and "cons" for one or more of the possibilities.
The choices were:

A. Departmental, 9-12, separate Career-Tech
B. Departmental, 10-12, with separate Freshman House, and separate Career-Tech
C. Vertical (interdisciplinary) 9-12 Small Learning Communities (SLCs), with Career-Tech as one of them
D. Vertical (Interdisciplinary)10-12 SLCs, with Career-Tech as one of them and a separate Freshman SLC
E. Choice, Thematic 9-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or other with Career-Tech integrated in them as appropriate
F. Choice, Thematic 10-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or other with Career-Tech integrated in them as appropriate, and Freshmen as its own SLC
G. Other: identify and share with others ASAP

Working in Table Teams, they ranked these possible school structures as follows. The one most commonly cited as most appropriate one is first.

Choice F, Thematic 10-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate, and Freshmen as its own SLC
Choice D, Vertical (Interdisciplinary)10-12 SLCs, with Career-Tech as one of them and a separate Freshman SLC
Choice C, Vertical (interdisciplinary) 9-12 Small Learning Communities (SLCs), with Career-Tech as one of them
Choice E, Thematic 9-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or other with Career-Tech integrated in them as appropriate

Choice G was favored by its proponents, in four variations:

- Thematic Freshman sampler, advisories
- Themes as events during each school year
- Combined thematic and vertical Small Learning Communities
- Interdisciplinary Small Learning Communities

The least favored defined structure was:

Choice A, Departmental, 9-12, separate Career-Tech

These results are significant. The traditional American school model, and the one generally employed in DHS and CTC, the departmental model, was deemed the least appropriate. The combination of the most favored organizational structures defines a school that does not look like traditional school, with teachers working collaboratively, swapping interests and passions, in a physical setting conducive to collaboration, sharing, and knowing students well, and most importantly, complete integration of CTC with DHS.

See Appendix Ch 5.4 for full details.

Teacher Collaboration

They were presented with six possibilities, and asked to create new ones if necessary. Their charge was to rank the possibilities for appropriateness, and then develop “pros” and “cons” for one or more of the possibilities.
The choices were:

A. Teachers work separately
B. Teachers “platooned” (swapping specialties/passions/interests)
C. Teachers “looping” with students
D. Teachers collaboratively/synchronously teaming
    a. In pairs
    b. In triads
    c. In quads, or more
E. Out of the Box

Working in Table Teams, they ranked the Teacher Collaboration possibilities as follows. The most appropriate one is first.

Choice Da, Collaboratively, synchronously teaming in pairs
Choice Dc, Collaboratively, synchronously teaming in quads, or more
Choice Db, Collaboratively, synchronously teaming in triads

The least favored was:

Choice A, Teachers work separately

These results are also significant. As with School Organization, outlined above, the traditional American school model, and the one generally employed at DHS and CTC, teachers working separately, was deemed the least appropriate.

See Appendix Ch 5.3 for full details.

Facility Concepts

INTRODUCTION

The Visioning Team developed facility concepts for the future Dover High School (DHS) and Career Technical Center (CTC). The concepts are defined through:

- **Key Words for Facilities,** characterizing the desired future school building in tiny "sound bites"
- **Places for Learning,** detailed descriptions of the learning environments
- **Defined Spaces,** expressing desired characteristics of the most important non-classroom spaces
- **Overall School Organization Diagram,** capturing strategic relationships over the entire DHS and CTC school building

KEY WORDS FOR FACILITIES

As closure to the six days of workshops, participants were asked to identify one word that best represented their individual thoughts about the future DHS and CTS's facilities.

Their key words were:

- Flexible (cited 12 times)
- Open (cited 3 times)
- Diverse (cited 2 times)

- Better
- Community/cooperative space
- Cost effective
- Dynamic
- Efficient
- Expensive
- Innovative
- Inspirational
- Inspiring
- Inviting
- Light and air
- Magnificent
- Modern
- Net-zero
- Public access

- Supportive
- Versatile
- Welcoming

PLACES FOR LEARNING

The Visioning Team reviewed fourteen exemplar schools from the USA, the United Kingdom, and Australia. Working in Table Teams they ranked the schools for appropriateness for the future DHS and CTC.

Essential characteristics of future core learning spaces are:

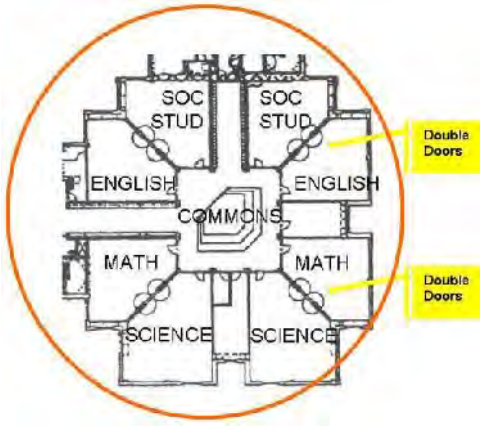
- Learning spaces arranged as Small Learning Communities
- Participants desire future facilities to be flexible for change, with multiple educational deliveries and learning modalities
- Classrooms are to be flexible, interconnected, and supported by auxiliary spaces including Collaboration/Breakout/Commons Spaces
- Possibility of students working in multiple places
- Common, collaborative spaces
- Circulation to be used for learning
- Interdisciplinary possibilities
- Teacher collaboration should be supported by the facilities, such as connections between the rooms
- Teacher Planning Centers to support collaboration and community
- Possible to locate satellite Learning Centers within

Most Appropriate Planning Concepts

ALL RESPONSES

The composite scoring of all of the Table Teams responses gives a good indication of the overall values and goals of the workshop participants. Here are representative photos, descriptions, and Table Team comments for the five most commonly cited exemplars, each with citations by three to five of the eight Table Teams.

IPSWICH MIDDLE SCHOOL



Featuring:

- Arranged in “pods” or “clusters” with eight classrooms, a Teacher Planning Center, and a Special Education Resource Room in each
- Each pod is centered around a shared Commons/breakout space
- Classrooms are arranged In pairs
  - Math and science
  - English and social studies
- Paired Classrooms have communicating double doors between them
- Commons/breakout space designed as multi-media presentation space

Table Team comments included:

- Common seating forum
- Interdisciplinary classes
- Community spaces clustered at Entry
- Courtyard potential
- Common Area
- Flexible seating
- Small Learning Communities
- Ability to break into “Houses”
- Gym/Theatre separate to accommodate community use
- Flexibility of learning space + intentional teaming

- Common space, presentation space
  - *Pod, SLC
- Connect between rooms
- Connecting classrooms
- Common spaces
- Flexibility

OLD TOWN ELEMENTARY SCHOOL
Featuring:

- Classrooms arranged as a cluster around a central Commons
- The number of classrooms in a cluster intentionally does not match the number of classrooms needed for each grade level
- 6 FT wide openings between adjacent classrooms
- Commons Area has presentation area, alcoves for breakout/ tutorials, mini-Library area
- Accessible through Commons are Teacher Planning Center, Student Toilets, Storage, Specialist Offices

Table Team comments included:

- More potential for natural light
- Flexible spaces like other models
  - More instruction, autonomy, model “C”
- Common space, SLC
- Offices → flexible work spaces within Pods
- Allows for interdisciplinary teaching options within layout
- Flexible common spaces
- Small school within a school
- Common spaces
- Connecting classrooms
- Open areas
- Everything comes off of Central Common Area

MILAN HIGH SCHOOL CENTER FOR INNOVATIVE STUDIES
Featuring:

- Learning spaces organized as Activity Centers, each with different furniture and equipment
- Learning spaces include a Maker Space, a Design Studio, flexible Classrooms, and Collaboration Booths
- Teachers teach by rotating among the spaces with their students
- Teachers share a Teacher Planning Center
- Circulation used for learning: student study and small group collaboration

Table Team comments included:

- Variety of spaces – collaboration

  - Project working spaces
- Common Area
- Multiple use of Corridors
- Technology-based
- Project-based learning
- Look appears comfortable, inviting, homey
- Fosters project-based learning
- Natural light/flexible learning spaces
- Unique size + shape of learning spaces

NEW TECH HIGH
Featuring:

- Double sized classrooms for teachers working in pairs
- Cyber Café at center of the school
- Well-developed outdoor learning spaces
- Each classroom has small group discussion area

Table Team comments included:

- Indoor space
- Interdisciplinary studies
- Varied work spaces (learning, social, collaborative)
- Ability to break up into “Houses”
- Flexibility of design to incorporate CTE
- Outside learning spaces
- Outside walls
- Natural lighting
- Commons Area

Least Appropriate Planning Concept

SOUTHAMPTON HIGH SCHOOL
Cited five times
Featuring:

- Departmental planning
- Isolated classrooms
- No central focus
- Challenging separations between learning spaces

Table Team comments included:

- Already have it
- Teachers not collaborating
- No natural light
- Isolation and separations
- Lack of flexible/project working spaces
- Potential lack of natural light
- Lack of light
- Not flexible/differentiated size/shape
- Isolated
  - Department
  - Classroom
  - Teachers
  - Students
  - Etc
- Departmental
- Inflexible
- Current, traditional model
- Compartmentalized everything
- Overly traditional classes

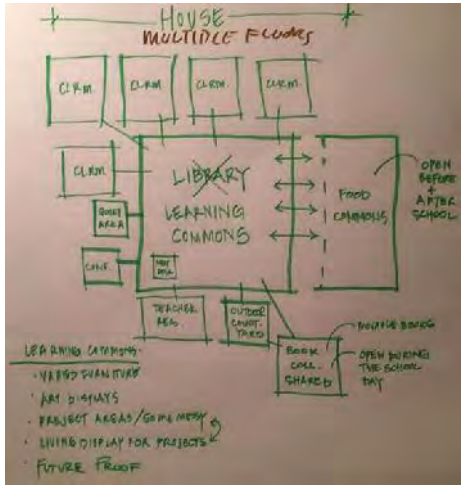
Full details of all Table Team responses are in Appendix Ch 5.6.

DEFINED SPACES

Essential non-classroom spaces were given consideration by the Table Teams. The outlines below represent their most salient concepts.

21st Century Library/ Media Center
Essential characteristics are:

- Each House has a Learning Common
  - House – multiple floors
- In each Learning Commons:
  - Varied furniture
  - Art displays
  - Project areas/some messy
  - Living display for projects



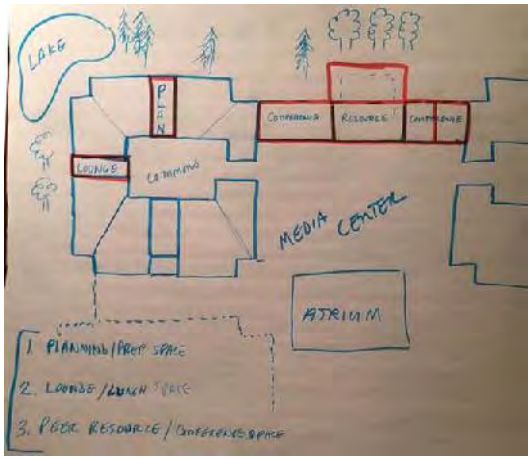
Auditorium
Essential characteristics are:

- Full-size Stage
- Backstage
- Green Room
- Storage/costumes/props
- Orchestra Pit (with extendable stage when needed)
- Stage lights
- Generous Lobby with area for Ticket Booth
- Close to
  - Art Department
  - Band/Chorus Room
  - Building trades
  - Sewing
  - AV
- Entrance – rear Main Lobby (for community)
  - Can be segregated from the rest of school
- Classroom space or sections incorporating (through flexible furniture) work space
- Working Fly System

Making Things to Learn
Essential characteristics are:

- Storage
- Variety of spaces
- Safety/equipment + training
- Specialized areas blend to CTE:
  - Electronics
  - Woodworking
  - Textiles
  - Welding
  - 3D Modeling
  - Video/Audio Studio
  - Machining
  - Graphics
- MANY low-tech Maker Spaces by zone

Teacher Support
Essential characteristics are:



Student Life
Essential characteristics are:

- Like an Airport Terminal
  - Food
    - ✓ Water stations
  - Electronic support
  - Variety of furniture
  - Project space
  - Outside vendors
    - ✓ Food
    - ✓ School supplies
  - Large groups could meet
    - ✓ Clubs
    - ✓ Students
    - ✓ Before/after school
  - Courtyard/Atrium
    - ✓ Lunch/Study
      - Advisory – get help
      - Two-hour block
  - Study Halls
    - ✓ Make these spaces available
    - ✓ Change supervision paradigm

Community in Building; School in Community
Essential characteristics are:

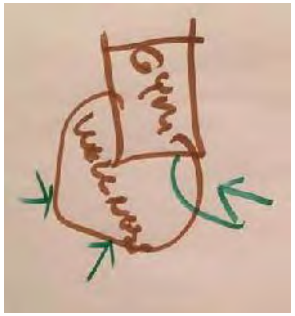
- Two entrances → student + community
  - Student → front
  - Community → rear/side → leads to CTC programs that offer services
    - ✓ → Make like a store front
- Marketing runs Dover High "Bookstore"
- Central to school, Library/Media Center directly above
  - → Opens up School Store to community and integrates school into the real world
- Both CTC and traditional classrooms are conducive to adult education/night classes
- Allow community to use school spaces
  - Meetings
  - Plays/shows (public)
- Good advertisements
  - On/in school
  - In business downtown
- School isn't a school → it's a community building. One of the things it does is educate.

Administration
Essential characteristics are:

- Administration
  - Deans
  - Principal
  - CTC director
  - Guidance
  - Social worker
  - Psychologist
  - Nurse
- Ideas
  - Open
  - Inviting
  - Private
  - One-way windows
  - New front of the school
  - Secure/safe
  - Passageways

Wellness
Essential characteristics are:

- Wellness Center/Gym
- Health Office/Nurse Practitioner
  - LNA
  - Athletic training
    - ✓ Classroom spaces
- Mental Health Office
- (Youth 2 Youth/DARE) Student Services
- Resource officer
- Fitness Center
- Group Fitness Rooms
- Boys + Girls Locker Room
- Wellness instructor space



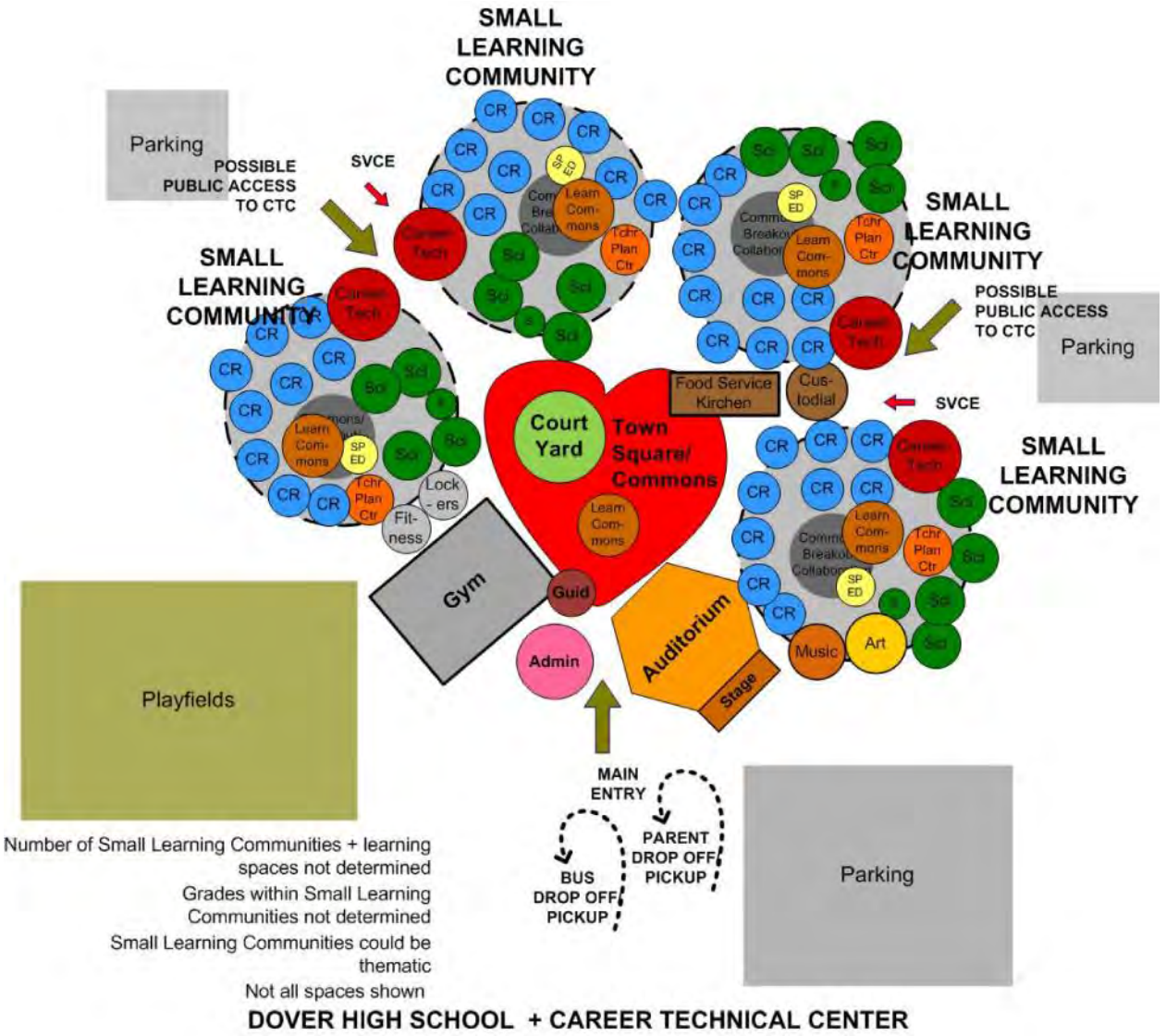
A full description of Table Team work is in Appendix Ch 5.6.

OVERALL SCHOOL ORGANIZATION DIAGRAM

Workshop participants guided Frank Locker in the drawing an overall school planning diagram. Critical features of this were:

- A centralizing space, which could be called Commons or Town Square
- It would have:
  - Tiered seats
  - Food
  - IT
  - Study Hall
  - Learning Commons
- A centralizing space which could be called Commons or Town Square. Public Access to this space will be encouraged
- Spaces most likely to have public access require special care in planning to maintain safety and security.
  - Integrate public facing CTE programs such as culinary, cosmetology and the school store into the centralizing space
  - Coordinate public access to these destinations with controlled access doors, as few as possible
- Some public access will be by vehicles, such as to Auto Tech and Animal Science
- School organized in Small Learning Communities (SLCs)
  - Academic and career-tech learning spaces in each
  - SLCs must be flexible and adaptable to operate either in a thematic mode or an interdisciplinary mode
- Encourage a high level of visual connection throughout

The overall planning diagram is shown on the next page:


SMALL LEARNING COMMUNITY
Parking
POSSIBLE PUBLIC ACCESS TO CTC
SVCE
SMALL LEARNING COMMUNITY
SMALL LEARNING COMMUNITY
POSSIBLE PUBLIC ACCESS TO CTC
Parking
Food Service Kitchen
Cus-todial
SVCE
Court Yard
Town Square/ Commons
SMALL LEARNING COMMUNITY
Gym
Guid
Admin
Auditorium
Stage
Music
Art
Playfields
MAIN ENTRY
BUS DROP OFF PICKUP
PARENT DROP OFF PICKUP
Parking
Number of Small Learning Communities + learning spaces not determined
Grades within Small Learning Communities not determined
Small Learning Communities could be thematic
Not all spaces shown
DOVER HIGH SCHOOL + CAREER TECHNICAL CENTER

Workshop Notes Day 1

AGENDA

The first Visioning workshop was held on 17th December2014. Notes of all activities follow:

- Snapshot of Dover HS and CTC
- Discussion of Pre-Workshop Videos
- 21st Century Schools Presentation
- 21st Century Learning Most Important Issues
- What Works at Dover HS and CTC? What Could Be Better?

SNAPSHOT OF DOVER HS AND CTC

DHS School Principal Peter Driscoll gave a short overview of the current organization and learning outcomes of Dover HS and CTC, citing:

- There are 1400 students in the building
  - 1315 FTE students
  - 75 PTE at CTC
- Academics include:
  - Advanced Placement
  - Honors
  - College Prep
  - Foundational
- Core subjects include:
  - Science
  - Social Studies
  - Math
  - English Language Arts
  - World Language (extensive, includes Latin)
  - Biotech through CTC taught by DHS tech
  - Look for more integration
- Extensive arts, musical, visual
- Visual arts are visible throughout the city
- Music has lots of electives
- Winterguard– highly successful
  - Lots community support
- Theater arts:
  - Unified
    - ✓ Special needs kids are paired with others
- 29-41 Club offerings
  - Lots community service

- Food Pantry
- Blood Drive

- We are a Division 1 school
- Students encouraged to participate
  - Extra-curricular
  - Sports
- 2014 graduate destinations
  - 79% college
  - 22% work
  - 4% military
- SAT average scores:
  - 513 math
  - 492 writing
  - 65% took the SATs
- 99% graduation rate
  - Guidance and Dean are very important
- Schedule:
  - (4) 90 min blocks per day
  - We have A – B - alternating days
  - Therefore there are eight slots to fill in a two-day sequence
- CTC has a regional agreement:
  - Includes Rochester, Spaulding, Marshwood
- CTC has new technology and old technology
  - Must keep up with industry
- CTC has:
  - Engineering classes
  - Flight
  - Biotech
  - CNA program
    - ✓ Healthcare is 20% of GDP
  - EMT
  - Fire fighting
- Approximately 1/3 of DHS students are in the CTE program
- Non-traditional roles:
  - Girls class for engineering
  - STEM club for girls

DISCUSSION OF PRE-WORKSHOP VIDEOS

The Visioning Team was asked to review videos related to education. They identified the most important lessons from the videos in a whole group discussion. Here are their comments:

Videos watched were:

- Sir Ken Robinson on *Why Schools Kill Creativity*
- Sir Ken Robinson on *Changing Paradigms of Education*
- *21st Century Learning in New Brunswick, Canada*

Comments included:

- School as we know it was driven by Industrial Revolution
- Students need to construct knowledge themselves
- HS is where you learn how to learn
- People who end up at university where most educated in traditional system
- Think Pre-K – 12 overall
- Unless parents buy in, our work will not be accepted
- Paradigm Shift:
  - Standardized testing vs collaboration
  - Redefine our values
    - ✓ Academic is taught in separate subjects – world is not separate
- Memorizing for test
  - Why?
  - How to find information and use it is more important
  - Sorting information is more important than memorizing
- Why do we test?
- We need:
  - Problem solving
  - Persistence
- Students display what they know:
  - Projects
  - Test results
- Students will have 5 to15 careers
- Disruptive technologies – how to encourage kids to be disruptive in HS
- 24/7/52 learning. What would that look like?
- Have to know how to do everyone's jobs who works under you

21st CENTURY SCHOOLS PRESENTATION

Frank Locker presented on the changing values, goals, and deliveries that characterize the most progressive thinking about schools in the United States, and worldwide, today. Key points included:

- 20th vs 21st century schools:
  - The 20th century was a century of creating efficient schools; the 21st century has been a century of looking for effectiveness in schools
  - 20th century was the century of the teacher; 21st century is the century of the learner
  - The teacher used to hold all the information; now the teacher is the guide
- Research in learning informs us of many effective educational practices
  - Some are gaining popularity
  - Others are not yet in general practice
- Learning is more effective when students apply their learning immediately
- The Multiple Intelligence Theory explains why different students learn best in different ways
- 21st Century Skills Framework offers a clear concept of skills students need for success in our rapidly changing global economy. It establishes:
  - Core, subject-based learning is not sufficient any more
  - Learning relevant 21st century survival skills is just as important, perhaps more important. These include:
    - ✓ Learning and innovation skills
    - ✓ Life and career skills
    - ✓ Information, media, and technology skills
- Craig Jerald was cited as researching the most important traits that business and industry really want – professionalism/work ethic
- Learning should be interdisciplinary, bridging the gaps between subject areas
- Learning should be infused with 21st century themes. These include:
  - Global awareness
  - Financial, economic, business and entrepreneurial literacy
  - Civic literacy
  - Health literacy
- Learning is a social activity. Students learn better when they are in strong relationships with teachers and peers
- The Relevance and Rigor Framework of the International Center for Leadership in Education correlated Bloom's Taxonomy with application, offering a concise understanding of effective learning
- Google's Futurist has identified future new job titles
  - University Dismantler
  - Wireless Electrician
  - Urban Agriculturalist
- Teachers' work is supported through strong relationships with other professionals
- Schools are looking for more community connections to improve student learning
- Flexible furniture is needed to bring the student the support to learn in a variety of modalities

Individual Responses

Visioning Team members scored the relevancy of the different issues outlined while Frank was presenting. The next page has a compilation of their scores. Individual comments follow:

ISSUE	VERY IMPORTANT	IMPORTANT	DON'T KNOW	MAYBE NOT	NOT IMPORTANT	SCARY TO ME
1 Learning Pyramid	9	28	4	1	1	2
2 Gardner: Multiple Intelligences	18	20	3	1	1	
3 Integrate arts in core learning	15	14	10	3	1	2
4 Environmental Sciences/Sustainable Lvng/ STEM/STEAM	23	15	2	2		2
5 Relationships: Dunbar's Law, "Magic of 150", Breaking Ranks, Advisor/Advisee programs	18	15	6	3	1	1
6 Computers for Learning: Adaptive Lrning, Blended Learning, Computer Games Lrning	12	15	8	4	2	4
7 Revised Bloom's Taxonomy	11	17	14	1		
8 Daggett: Relevance + Rigor Framework	16	15	8	2	1	2
9 21st Century Skills	26	13	3		1	2
10 Jerald's Research on 21st Cent Education	18	14	7	2	1	3
11 Project Based Learning, Paris Cafe	30	7	3	2	1	6
12 Design Thinking; Making Things to Learn	14	18	8		1	2
13 Small Learning Communities	24	11	4		2	1

ISSUE	VERY IMPORTANT	IMPORTANT	DON'T KNOW	MAYBE NOT	NOT IMPORTANT	SCARY TO ME
14 Flexible, Varied, Brain Based Furniture	25	10	6	1		3
15 New Technology Close By	20	15	4			1
16 21st Century Learning Spaces	21	15	5			4
17 Teacher Planning Centers	13	16	11	2		
18 The End of the Library as we Know it Today	15	16	7	2		4
19 Flexibility for Change	17	15	1	1		3
20 Frequent Presentations, Group Discussions	7	12	3			1
21 Internships, Service Learning	12	10				
22 New Schedule Concepts	11	6	4	1		1
23 Integrated Applied Learning	7	10	3			1
24 Teacher Teaming/Collaboration	14	10	7	2	1	3
25 End of the Classroom as we know it Today	18	11	5	3		9

Individual Comments

Comments from individual Visioning Team members in response to the presentation issues are as follows:

ISSUE

1 Learning Pyramid

- Work on retaining knowledge not copying previous generations
- Realistic figure
- Depends on how it is applied
- Retention now does smarter balance
- Has worked in my life
- "Hands-on learning" is important
- Foundation concept
- Shows the ineffectiveness of some teaching
- Targets for success
- Understand how learners remember

- Career/hands-on
- I don't understand the pyramid
- Good to know
- Learn by doing and teaching others
- I learn similarly
- Is this still true? Research?
- Construct knowledge
- Interactive is important
- Our pyramid model is upside down
- It is not relevant to today's learning
- Yes we need to pay attention to this
- Guide on the side

2 Gardner: Multiple Intelligences

- Need to look at reaching all learners
- Teach many ways to target all people
- Many other intelligences
- Test this? We need to stop teaching kids that they are dumb!
- Some strengths aren't just in core subjects
- Not everyone learns the same way
- Grouping students in only two is dangerous and false
- Appreciation of diversity is key
- I have multiple forms of intelligence, as do nearly all my peers
- Seems hard to implement
- To understand how you learn and how to teach
- People learn in ways other than listening to a teacher speak
- Around long enough to know
- Needs of different students' strengths considered
- Need to be well rounded
- I am 'athlete
- How does this happen - ? Helps students feel
- Special Ed…
- Recognize <u>all ways</u> to knowledge
- Important to recognize and vary lessons
- Because it doesn't help with what to do with those who don't learn the same way
- Teach to diverse students/learning styles
- People learn differently
- Seek toward success for everyone
- Differentiate instruction
- People learn differently

3 Integrate arts in core learning

- Brings in creativity, perseverance, communication
- Increase pass rate
- How can we as a high school do this and prep for college?
- May work in some subjects, not others
- Opens students to new ideas and allows them to break out of insecurity
- Arts make life worth living
- Modern system discourages interaction/assimilation
- Might help with #2
- Not all students feel they are "artsy"
- Goes along with multiple intelligences
- Brain research fascinating
- Only a few students
- Sometimes arts are a kid's only success – make it translate
- Engagement/authentic
- Allows for engaging students
- Not relevant to all
- Humans are artistic
- Concern we will not offer enough…we need strong arts! Levels the field
- Integration
- Kinesthetic learning/movement

4 Environmental Sciences/Sustainable Living/STEM/STEAM

- Integrate with other content areas!
- Apply different subjects
- Wider amount of education
- Future and real-world
- Love the integration idea
- Important in today's society
- We don't have enough (★) higher ed focus on STEM a lot more now
- Focus on specific jobs (for engineering kids)
- Connection to real-world – life after HS
- Will be predominant subject in future
- Looks very expensive. Seems very technical. English? Arts?
- Prepare students for workplace need
- Already doing this
- Gives choices to students
- Better prepares students for future

- Applied math and science hugely important
- Integrating separate topics
- Teachers definitely need more time to talk and plan together
- STEAM
- Not every kid is really good with math or tech
- Integration of curriculum
- Breaks down stereo-types
- People need a variety
- Students who enjoy social studies and English wouldn't have access to them
- Expression

5 Relationships: Dunbar's Law, "Magic of 150", Breaking Ranks, Advisor/Advisee programs

- Need to be connected to students and colleagues or cross disciplines
- The teachers I know best, I have the highest grade in their class
- Better chance of learning more
- What about content area support for teaching? Advisory? How would the split be defined?
- Relationships between teachers and students
- Make education personal = higher averages
- Need to know our kids
- Intrapersonal relationships are discouraged
- ✓ idea of teachers of same students meet
- Career content areas together
- It's easier for me to focus in the classroom where I have a good relationship with the teacher
- Fact finding and listening!
- Stray from curriculum elements
- Learn better when I know teacher well
- Well known – relationships
- I feel like I have good relationships with most of my teachers
- Teacher student ration 15:1
- Kids need a greater support system
- Connection/relationships
- Definite benefits with advisor programs
- Very accurate
- Enhances retention and success
- Should sort by department NOT age level, keep all to one school
- Power of small communities – sort by work! Montessori!!

6 Computers for Learning: Adaptive Learning, Blended Learning, Computer Games Learning

- Still need to face to face with students but varied options important – real life
- Cater towards how kids learn as individuals
- A good idea, but will it work?
- Must "teach" personal and social skills "off-line"
- What about collaboration and interpersonal relationships?
- (HS on-line) learning only on-line – missing very important human interaction
- Small schools aren't always better
- Blended learning!
- We shouldn't rely on technology work with teachers
- Important to have as an option – need to keep human connection
- More collegiate. Like it
- Problem = how does this translate into the workforce?
- Hard to do with career tech
- I feel that it'd be harder on-line
- Our technology is terrible
- Critical – but may well be some relational costs
- Need to learn in person. On-line good for supplemental review
- Creates better learning
- Sounds good for helping kids – but also robot like
- Blended – bring knowledge into class – demographics don't need a computer at home – just a phone
- Need to know more about it
- Students won't do on-line courses. They need someone telling them
- Social skills could take
- You can see this is the trend we are moving to
- Because it's a bad idea
- Adjusting learning to individuals
- At what point is the teacher too involved?
- Flipped classroom. Accessing a valid resource

7 Revised Bloom's Taxonomy

- Depth of knowledge (by Webb) more important
- The idea works

- Need more time…
- Revision shows change is coming
- Application is important
- Foundation concept
- Evolution of learning process
- Relevant
- Streamlines planning
- Doesn't seem to add much
- Not much change
- Create knowledge passive → action
- As it relates to learning pyramid
- The revised version!
- Application
- Active learning
- Create use for planning – language students can understand

8 Daggett: Relevance + Rigor Framework

- Students need to be able to make meaning. Work needs to have connection to life
- WE need to apply knowledge to jobs
- It seems outdated
- Is this a grading system to be used in a school?
- We're already working on this
- Keeping some of the "old-fashioned" techniques too. Real-world issues in school
- Model of how to move to 21st Century
- Another attempt to quantify educational values?
- Old dated evaluation
- Basic idea, re-application useful but seems too "two dimensional"
- Need a mix of A+D
- Real world
- But I love Bill Daggett – I just don't get this chart/colors
- Knowledge but don't know what to do with it
- Get to D
- Relevance to real world/careers in future
- In a good way, how to make it more student friendly

9 21st Century Skills

- Not sure how to reunite with state and federal requirements (HQT, testing etc), 4C's!
- Teach present-day skills, not skills from 100 years ago
- All the skills are needed
- What are 21st Century themes?
- Meet today's needs
- Life + career skills!
- The arts needs to be a part of academic importance
- Model of how to move to 21st Century
- Key to one's success is modern economy
- NEVER WAS SUFFICIENT
- Preparing students for life after school
- Can't live without them!
- Needing more
- Having things that every student can excel in
- Stop memorizing and start thinking
- Proven to be needed for future employees
- Slowly removing math, science, English, and social studies
- Global awareness
- GLOBAL AWARENESS! Exchange program? Opportunity to travel?

10 Jerald's Research on 21st Cent Education

- The idea and integration works
- How is this graded? How does on-line learning support spoken communication?
- Four + two years are where you craft your skills
- Communication, creativity, etc
- Model of how to move to 21st Century
- This is not news
- Feel we do this in CTE
- Real-world workplace
- Need to focus on speaking
- All the core subjects are important like the ones at the bottom
- It's scary if this is an issue, especially the written and oral communication. More kids can speak well than write well
- Accurate
- Work ethic! Please help us foster!
- Speaking vs writing
- Social media – does it take away from verbal communication?

11 Project Based Learning, Paris Cafe

- Critical mechanism to support students in developing/refining above topics and integrating content
- Applying knowledge
- Allows teamwork to happen
- "Right" person in the "right" seat
- Seems like quality performance assessments
- Projects allow for application
- No single answer that is right (does need to be monitored)
- Combines research with collaboration
- Great example of model of how to move to 21st century
- Seems effective as my education lacks real-world application
- PRACTICAL APPLICATION. LOVE IT
- Unexpected outcome can be scary to students/staff
- Very different from what we're used to
- Time management and people to people planning
- How to implement?
- Exciting, innovative, integrative, collaborative
- Demonstrating they learned the basic skills and concepts needs strong network
- Not all of work in school!
- This will work for motivated kids with strong family support systems
- Projects are a great way to test knowledge. Real-world experiences promote travel. Traditional school layout is easy to navigate
- Super = all problem solving
- Difficult to coordinate in our structure and scary for teachers
- Helpful – proves and expands knowledge
- No answer, big overhanging projects
- Hands-on, helpful
- Integrates and applies knowledge, makes it real and applicable
- No way to find definite answer
- Help us innovate!
- Application – cross curriculum

12 Design Thinking; Making Things to Learn

- Need to know more, sounds interesting!
- Allows creativity to work
- Where do the materials come from?
- Physical learning helps the lesson to "stick"
- Expand what we already do
- Seems effective as my education lacks real-world application
- More practical application!
- Great idea/realistic on large scale?
- This is huge. I could go on for hours
- Creation spaces and some school libraries too
- Many public libraries have
- Maker spaces
- Hands-on works
- Resources, community buy-in
- Very important – provides community involvement
- Hands-on helpful
- WOW!
- Creativity

13 Small Learning Communities

- More collaboration
- Much better learning experience
- Timing/implementation
- Space is specific to the student. Benefits vary
- Support collaboration
- I had an open concept high school. Disaster; the open area wasn't used and the classrooms on the outside were traditional classrooms. There was a lack of commitment to the structure from the administration. Winchester High School
- May not be possible for all area's
- Variety
- Safety to be honest ↓ is not respected by others in room. Risky at times
- Use of space
- Relationships!!! Having voice heard
- More focus on students
- Collaboration

14 Flexible, Varied, Brain-Based Furniture

- Comfort, promoting learning/active
- Fewer distractions/more focus
- Is it cost efficient?
- Cost and maintenance
- Drooling right now!!
- Sitting in those traditional desks is awful

- Light and easy to move on wheels
- Being comfortable and brain movement help learning
- Healthy and promotes focus!
- IMPORTANT – school can be and has been a disaster to physical health
- Love it
- Traditional doesn't work
- Easier to stay focused
- I work with student services – works!
- Maintain flow of class. Don't won't to see a circus
- Movement
- But expensive for Dover
- Hard to sit in uncomfortable chairs for long period of time. Hard to be on your feet all day. Collaborative zones (corridors) are a cool idea. Glass, what happens when someone tries to shoot people? It is important to have mixed classes so you're always interacting with new people
- Recognize different learning needs
- Never really thought about before
- Studies show better focus
- Helps kids focus
- Must be flexible for meeting changing need over time
- I'm sick of sitting now
- No more one arm bandits
- Brain-based learning – continued movement

15 New Technology Close By

- Need more information, but probably important
- More learning potential
- We also need to be versatile for incoming technology
- Easy and fast or distracting
- Technology is the future. If this harnesses it, I am all for it
- Technology = correct and working
- Need a robust IT infrastructure for this to happen
- Separate use
- PUBLIC SPACE!
- $ and access
- Authentic learning tools/active learning
- Why not take advantage?!
- A lot of money
- Media Center surrounded by classrooms
- Technology is part of leaning for the student 24/7

16 21st Century Learning Spaces

- Love it!
- Collaborate/retain/apply knowledge
- More teamwork
- Encourages group learning. Open spaces create safety issues
- Round tables, door in the middle, <u>all glass walls safety issue!</u>
- Space does matter
- Promotes student creativity and collaboration – <u>connection</u>
- Encourages an important life skill
- More like a business meeting. Makes perfect sense
- All open/glass = safety issues
- If you're focusing on collaboration, it's good, but it would be harder to focus
- Need to change groups
- Supervision of students
- Nice concept
- Develop life- long learning/career/social skills
- Student-centered/authentic engagement
- Student-centered
- Desks can move, tables can't open areas
- Critical for collaboration

17 Teacher Planning Centers

- Need to help them know how to use it effectively
- Understand what does/doesn't work
- They could just hang around
- We already collaborate a ton
- Gives teachers ability to share
- Depends on teacher personality
- 16 + 17 – promote positive school climate
- Much
- Collaboration is critical
- I'm not sure if teachers need it
- Similar lessons
- Adults need talk
- Collaboration/team teaching
- Teachers need to do their thing also
- Team teaching is important. Is this another version of Teachers' Room → not functional

- Good collaboration about students
- Collaboration

18 The End of the Library as we Know it Today

- We really need to help Library/Media Center be more relevant – love this!
- Collaboration
- An excellent idea
- "A place for books"…?
- A safe, helpful place needed
- I still love books
- Hmmmm. Not sure about this one
- Working together, massive Library
- But our Library and many Libraries are already like your future design, need to be even more high tech and futuristic
- Like Library as Corridor between classrooms
- Not good with tech, the layout is cool
- Increased access!
- Learning integration/resource
- Library
- Constant access to resources/media

19 Flexibility for Change

- Change is needed
- That's the real world
- Need to keep it financially realistic
- Change is progressive
- Flexible. I like the idea. Need to see more
- Won't work for all
- What we've wanted for years
- Integrity/authenticity
- Hard to do with Career Tech Classes - ex, animal science/barns- dog grooming
- Change is difficult
- Need to be open minded
- Times + education change, the school should be flexible
- You never know if change will work
- Absolutely – to make change over time
- Love that the building can "go back." That is very "Dover-ish"

20 Frequent Presentations, Group Discussions

- Not good at public speaking
- More internships
- Oral communication skills
- NEED THESE (very helpful)
- Outside of comfort zone

21 Internships, Service Learning

- Learn how to do jobs
- More realistic business jobs
- Real experience
- Connects students to the community and vice versa
- Application of skills/knowledge
- NEED THESE (very helpful)
- Opportunity

22 New Schedule Concepts

- More students are happy
- Anything other than AB
- Fits needs of students
- Love 3hr blocks

23 Integrated Applied Learning

- Need to apply knowledge to careers
- More learning can happen
- Overlap is good
- Overlap CTC/academics
- Is this different from #21?
- Animal science/barking dogs next to math? Seems scary to me

24 Teacher Teaming/Collaboration

- Requires training, but promotes above ideas
- Role model
- Everything works together
- We do it already
- Example of New Tech High not comparable to DHS situation
- Not sure a large group would work for DHS
- Love the co-teaching

- I understand the higher concept, but two teachers working together doesn't necessarily prove the point. Two teachers with more students. I am not sold on the concept. I like the layout and the furniture choice. What is it like when the two teachers don't mesh? Possibly disaster, no?
- A big shift in Ed model
- Comfy chairs, good along with #16
- Provocative indeed! challenges
- Teachers collaborate – students see how to collaborate, curriculum alignment
- Super!!!
- Across disciplines, too
- Realistic to life
- Integrated career/teachers
- Work load/teacher. How paired up? How to prepare?

25 End of the Classroom as we know it Today

- Concept of spaces that promote deep work critical
- More spaces = more work done
- Timing is everything
- How do you keep track of attendance?
- Seems unrealistic and impractical for proper security
- Would the space be used to its full potential?
- Design for students = better understanding
- More business-like. Intriguing
- How to coordinate teachers and students in this space?
- You would have to get used to distractions and work a lot harder to stay focused
- Adaptable for change
- Only science and math
- Huge variety of classroom possibilities
- Combination of traditional and Maker Spaces
- Grading?
- Flexibility and longevity are more important for sustainability. Adaptability
- I think the concept is great although some major changes to the current practices and thoughts would have to be changed
- Innovation
- Developing a new system will be hard

26 Other

- These concepts are all important as presented. However I am sitting here wondering how feasible these actually are. The concepts discussed require a rate of change which may exceed the capacity of the current system and, as a parent, I am unsure what this means within the current system and how it works with the mandate of the visioning group. (pg 1 1-7)
- Research supporting presentation would have been helpful. Spaces look great, but what is the research for a mixed environment such as DHS? (pg 1 15-18)
- What about safety?
- Co-teaching is scary
- * 4C's
- Forbes.com article why the open concept office trends need to

- "Teacher to Project Manager intro, people challenges"
- I like the idea of project-based learning.
- Master/ /relationship – intergeneration schools
- Access to tech, communication, collaboration, critical thinkers
- A Whole New Mind – Hot, Flat, and Crowded. The World is Flat. Frames of Mind. Emotional Intelligence

21ST CENTURY LEARNING MOST IMPORTANT ISSUES

Workshop participants, working as Table Teams, were asked to reach consensus on the three most important (effective) ideas for future Dover HS and CTC, and identify why they believed as they did.

Their thoughts are:

TABLE TEAM 1
Three Most Important

- 1 21st Century skills (#9)
- 2 Flexibility for change (#19) 2/6
- 3 21st Century learning spaces

TABLE TEAM 2

Three Most Important

- 1 Project-based learning (11)
- 2 Flexibility for change (19)
- 3 21St Century skills (9)

TABLE TEAM 3
Three Most Important

- 1 Project-based (#11)
  - Learning
- 2 Student/teacher collaboration (#24)
- 3 New technology close by (#15)

TABLE TEAM 4
Three Most Important

- 1 21st Century Skills (#9)
- 2 Project-based learning (#11)
- 3 21st Century learning spaces (#16)

TABLE TEAM 5
Three Most Important

- 1 Project-based learning (11)
- 2 Computers for learning (6)
- 3 21st Century skills (9) 4/6

TABLE TEAM 6
Three Most Important

- 1 Relationships (5)
- 2 Project-based (11) 5/6
- 2.5 Learning spaces (16) 3/6
- 3 Teacher (24)
  - Collaborating

SUMMARY
Most Important
Shown here in order of number of citations.

TABLE TEAM MOST IMPORTANT 21st CENTURY ISSUES		
Number	**Score**	**Issue**
11	5	**Project-Based Learning**
9	4	**21st Century Skills**
16	3	**21st Century Learning Spaces**
19	2	**Flexibility for Change**
24	2	**Teacher Teaming/Collaboration**
5	1	Relationships: Dunbar's Law, "Magic of 150", Breaking Ranks, Advisor/Advisee programs
6	1	Computers for Learning: Adaptive Learning, Blended Learning, Computer Games Learning
15	1	New Technology Close By
1		Learning Pyramid
2		Gardner: Multiple Intelligences
3		Integrate arts in core learning
4		Environmental Sciences/Sustainable Living/STEM/STEAM
7		Revised Bloom's Taxonomy
8		Daggett: Relevance + Rigor Framework
10		Jerald's Research on 21st Cent Education
12		Design Thinking/ Making Things to Learn
13		Small Learning Communities
14		Flexible, Varied, Brain Based Furniture
17		Teacher Planning Centers
18		The End of the Library as we know it Today
20		Frequent Presentations, Group Discusions
21		Internships, Service Learning
22		New Schedule Concepts
23		Integrated Applied Learning
25		End of the Classroom as we know it Today

WHAT WORKS AT DOVER HS AND CTC? WHAT COULD BE BETTER?

Frank Locker led a whole group discussion brainstorming what currently works at Dover HS and CTC, and what could be better. Students were asked to respond first. Here are the Visioning Team's thoughts:

Works

STUDENT RESPONSES

- School spirit
- Block schedule
- Art department
- Lots course selections
- School easy to navigate
- 30 minute lunch

OTHERS RESPONSES

- Interdisciplinary
  - American study
  - Caring faculty
  - CTC + ROTC – lots offering
- Clustering of public spaces
- Resourceful with limited $
  - Physical location in city good
  - Easy access for Barrington
  - Easy access for Nottingham
- Feels safe
  - But too many doors
- Administration communication good
- Administration + teachers responsive to parent concerns
- Level of community engagement
  - Students + staff community
- Teacher/student relations sometimes really good
- Block scheduling
  - Business community
- Athletics accommodated well
- Administration that organized this Visioning Session

Could be Better

STUDENT RESPONSES

- Technology
- Not enough social life student spaces
- More time to pass between classes
- Location of the entrance/not central
- Lunch is too short
- Student parking
- Not good food/nutrition/noisy crowded Cafeteria
- Poor indoor air temp/quality
- No free time/study time
- Outdated PE program
- Can't hear intercom from all areas
- Needs updating
- Teacher/student relationships
- Small Locker Rooms, Weight Rooms, not enough Gyms
- Bathrooms

OTHERS RESPONSES

- "Student-centered" learning
- Faculty collaboration
- Narrow Corridors/stairs
- No outside space for students
- Classrooms with no windows
- No customer access for CTE programs
- Outside – public/community view of CTE
- Too many doors/safety issue
- Handicapped accessibility/ADA
- Level charges
- Band Room on 2.5 level
- Office is not visible from Entrance/community spaces
- Block scheduling difficult for community scheduling internships
- Building layout no longer works with changing programs and additions over years
- Auditorium lights, seating, acoustics

Workshop Notes Day 2

AGENDA

The second Visioning Workshop was held on 6th January 2015. Notes of all activities follow:

- Discussion of Pre-Workshop Video
- Defining Student Success in Life
- Review of Current Programs, Services, Deliveries + School Organizational Structure
- Learning Modalities

DISCUSSION OF PRE-WORKSHOP VIDEO

The Visioning Team was asked to review videos related to education. They identified the most important lessons from the videos in a whole group discussion. Here are their comments:

The video was Sugata Mitra: *Experiments in Self-Teaching*

Dr Mitra, a professor at Newcastle University, UK, has been placing computers in locations accessible to children in poverty stricken villages in India. He has given the children no instruction, but they have learned to use the computers for learning at an astonishing rate. He suggests that students can learn with computers faster than if they had teacher instruction.

Comments included:

- Video - no teachers
- Granny could
  - Students taught each other
- Group of kids at one computer = more knowledge than kids working alone
- We have IPad carts
  - Lots of flexibility
  - Varied formats
- Key - students wanted to learn
- Collaborative learning
- Persistence
  - Kids worked for months
  - Are our kids interested?
- Concern - attention
  - What are they doing with this knowledge?

- Our kids want to know – why are we doing this?
- Challenges us to reconceptualize
  - Role of teachers
  - What we think of students in general
    - ✓ We don't see students as being able to guide own learning
- Student said:
  - Make human interaction work like computers
    - ✓ Therefore don't need grannies
    - ✓ Interest factor
  - Internet can be like good teacher
    - ✓ Keep searching
- *Engagement
  - Saw kids engaged
  - Want this from our teachers for our kids

DEFINING STUDENT SUCCESS IN LIFE

Workshop participants were given this challenge:

DEFINE STUDENT SUCCESS IN LIFE

A. Define success in life for our students.
B. What do our students need from us to be successful in life?
C. Define the kind of place our future school should be
   a. Identify what educators should be doing
   b. Identify what students should be doing in school
      i. And out of school

Their responses were:

TABLE TEAM 1

Success

A Define success in life for our students

- Give students direction
  - ✓ Purpose outside of school
- Skills that last a lifetime
- Curiosity – never finished learning
- Social/emotional skills

B What do our students need from us to be successful in life?

- Passion
- Motivation
- Inspiration
- Knowledge
- Mentorship
- Encouragement
- Skills

C Define the kind of place our future school should be

- Enjoyable
- Clean – looking and physically
- Well lit and ventilated
- Comfortable
- Safe
- A place you know you can learn
- Flexible
- Inspirational
- Well integrated with outside world
- Up-to-date/modern

Ca Identify what educators should be doing

- ✓ Facilitate learning
- ✓ Engage students
- ✓ Passionate about job and career
- ✓ Be likable
- ✓ Teach in all styles
- ✓ EARN respect
- ✓ Mentor
- ✓ Challenge students

Cb Identify what students should be doing in school in school

- ✓ PAY ATTENTION
- ✓ Learn well outside of school
- ✓ Be flexible/ open-minded
- ✓ Take care of yourself
- ✓ Be prepared
- ✓ Accept challenges
- ✓ Take advantages of internships
- ✓ DRIVE

- ✓ Don't be afraid of failure
- ✓ Work ethic (positive)
- ✓ Learn how to learn

TABLE TEAM 2
Success

A Define success in life for our students
- o Financial stability
- o Civic engagement
- o Basic life skills
- o Confidence
- o Positive relationships

B What do our students need from us to be successful in life?
- o Develop tools to be successful
- o Love of learning
- o Positive culture and climate
- o Support/opportunities
- o Safe environment

C Define the kind of place our future school should be
- o **Ca Identify what educators should be doing**
  - ✓ Encouraging/engaging
  - ✓ Facilitating learning
  - ✓ Flexible/responsive
  - ✓ Up-to-date PD
  - ✓ Innovative
- o **Cb Identify what students should be doing in school**
  - ✓ Collaborating
  - ✓ Mentoring
  - ✓ Creating
  - ✓ Communicating/expressing ideas
- o **Ci And out of school**
  - ✓ Volunteering
  - ✓ Hobbies/sports/interests

TABLE TEAM 3
Success

A Define success in life for our students
- o Academics leading to secondary education
- o A skill set to be financially independent
- o Career not job
- o Knowledge of self/being content
- o Civic duty/contributing member of society
- o Not being afraid to fall/okay to face challenges

B What do our students need from us to be successful in life?
- o Encouragement
- o Support through failure or success
- o Examples of being/model life long journey
- o Responsibility and independence
- o Respect
- o Guidance and mentors
- o Positivity
- o Empowerment
- o Recognizing individualities

C Define the kind of place our future school should be
- o **Ca Identify what educators should be doing**
  - ✓ Model
- o **Cb Identify what students should be doing in school**
  - ✓ Collaborative
  - ✓ Individualizing education
  - ✓ Civic responsibility to the students
  - ✓ Exploring
  - ✓ Participating
- o **Ci And out of school**
  - ✓ Effort out of school
  - ✓ Parental involvement/encouragement
  - ✓ Parents learning

TABLE TEAM 4
Success

A Define success in life for our students
- o Fulfilling career
- o Well rounded emotional intelligence
- o Independence (self sufficient)
  - ✓ → On many levels
- o Being happy with where you are in life

B What do our students need from us to be successful in life?
- o Broad education

- Support/guidance
- Freedom

C Define the kind of place our future school should be

- Teaching us how to survive on our own
  - ✓ Separate classes
- Better student/teacher relationships
  - ✓ → Smaller class sizes?
- Structure of the school day
- More choices and flexibility in class choices
- Customized learning
- Resources, interactive learning
  - ✓ Learning in context
- Collaboration
- Where is the drive? Teachers? Students? Teachers spark drive

TABLE TEAM 5
Success

A Define success in life for our students

- Different for everyone
- Emotional/social intelligence
- People skills
- Finding info

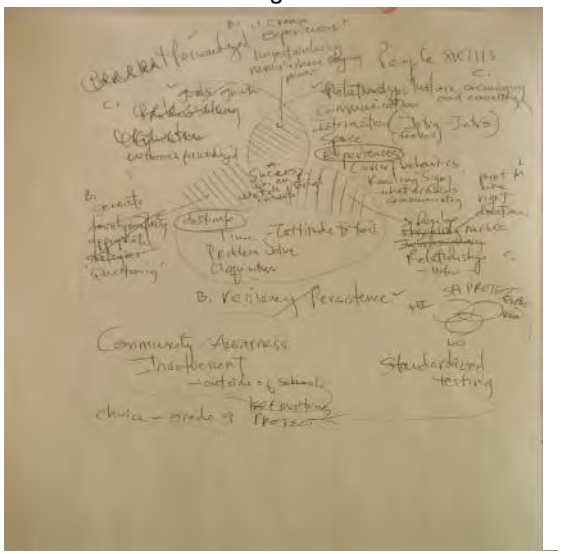


TABLE TEAM 6
Success

A Define success in life for our students

- Find and choose <u>own</u> success
- Success elective based

B What do our students need from us to be successful in life?

- Motivation, encouragement skills/tools, opportunities
- Well-rounded education
- Personal exploration
- Too many choices? Not enough guidance

C Define the kind of place our future school should be

Ca Identify what educators should be doing

- ✓ Personable
- ✓ Engaging
- ✓ Listens
- ✓ Gives feedback
- ✓ Reaches multiple intelligences
- ✓ Teaches diversity
- ✓ Motivates
- ✓ Teaches by example
- ✓ Inspires

Cb Identify what students should be doing in school

- ✓ Persistence
- ✓ No fear of failure
- ✓ Motivated
- ✓ Goal-setters

Ci And out of school

- ✓ Community service!!

TABLE TEAM 7
Success

A Define success in life for our students

- Options
- Passion (continual)
- Happiness
- Realistic
- Career
- Purpose
  - ✓ In general future-oriented school climate

B What do our students need from us to be successful in life?

- Permission
- Allowance to dream
- Role model
- Unconditional (supportive)
- Challenge
- Positive interactions (professional)

C Define the kind of place our future school should be

Ca Identify what educators should be doing

- ✓ Make themselves available
- ✓ Step outside classroom
- ✓ Clubs/groups
- ✓ Advisory program

Cb Identify what students should be doing in school

- ✓ Take responsibility
- ✓ ↑Education of future↑
- ✓ Need to use resources

REVIEW OF CURRENT PROGRAMS, SERVICES, DELIVERIES, + SCHOOL ORGANIZATIONAL STRUCTURE

The Visioning Team was given this challenge:

PROGRAM REVIEW

Here is a starter list of topics, covering types of learners and learning modalities currently at Dover High School. This list is not complete. Brainstorm with your Table Team to add others that are worth exploring.

TOPICS: LEARNERS, MODALITIES, + RELATIONSHIPS

1. Students with special needs: Special Education
2. Students with special needs: gifted/talented
3. Students who think (or we think) they will quit or barely make it through high school and will not pursue further education
4. Students who are bored/disengaged with school
5. Students who are musical learners in core courses
6. Students who are bodily/kinesthetic learners in core courses
7. Students who are visual learners in core courses
8. Social emotional learning in core courses
9. Critical thinking/problem solving skills in core courses
10. Interdisciplinary learning in core courses
11. STEM learning
12. Applied learning in core courses
13. Teacher collaboration in core courses
14. Blended learning/flipped classroom
15. Others of your choice

Each table will pick a few of these topics to review. All items are to be addressed.

On your flipchart(s), record your Table Team's answers to the following questions:

1. Identify the number + the topic
2. Is this topic something we are serving right now at Dover High School?
3. If so, how/where/in what way do we currently serve the topic?
4. Is this topic important? How much?
5. How well do we serve the topic?
6. Should we improve our programs/service/organization focused on this topic? Yes or No? If "Yes", how do we do that? If "No", why not?

7. Identify facilities implications of your improvement concepts

Responses were:
#1 Students with special needs: Special Education
Not selected

#2 Students with special needs: gifted/talented
TABLE TEAM 1
Program

2 Is this topic something we are serving right now at Dover High School?
- Students who have the aptitude and attitude to excel at all level classes
  - ✓ No formal program – very few opportunities
  - ✓ AP (somewhat)

3 If so, how/where/in what way do we currently serve the topic?
- You're stuck with what's here
- We need more project-based classes
- Culture of staff and students
- Most agree we should have a program
  - ✓ Funds don't allow it
- Objective grading

#3 Students who think (or we think) they will quit or barely make it through high school
TABLE TEAM 7
Program
- Characteristics
  - Indentify interests & passions
  - Peer mentor
  - Student ambassadors
  - Alternate school (alternative?)
  - Hook (engage)
  - CTC
  - Encouragement
  - Intervention plan
  - Student reflection
  - Environment
  - Alternate plans
    - ✓ Dover adult, etc
      - (Normal)
  - Special Education
  - Advisory
  - Learning going at the time
- Referrals
  - Drug
  - Alcohol
  - Mental Health
  - Family issues
- Social work
- Parent education
- Dropout rate less than 1%

4 Is this topic important? How much?
- Yes

5 How well do we serve the topic?
- Pretty well

#4 Students who are bored/disengaged with school
TABLE TEAM 4
Program
- Classroom activities:
  - Boring
    - ✓ Worksheets
    - ✓ Lectures
    - ✓ Reading most of class
  - Engaging
    - ✓ Discussions/debates
    - ✓ Technology (balanced)
    - ✓ Problem solving (collaborative)
    - ✓ Field trip
    - ✓ When teachers are engaged
    - ✓ Being challenged appropriately
      - Guided
    - ✓ Windows
    - ✓ Games out of topics

2 Is this topic we are serving right now at Dover High School?
- 75% bored

- Gut feeling of students as table

4 Is this topic important? How much?
- Yes, very

5 How well do we serve the topic?
- Varies by teacher 25%

6 Should we improve our programs/service/organization focused on this topic?
- Yes. **If "Yes", how do we do that?**
  - ✓ Professional development
  - ✓ Different learning styles
  - ✓ Experiential learning
  - ✓ Project-based learning
  - ✓

7 Identify facilities implications of your improvement concepts
- Prefer tables over desks
- Windows
- Variety/size of spaces
- Better AC/heating
- Better Auditorium

#5 Students who are musical learners in core courses
Not selected

#6 Students who are bodily/kinesthetic learners in core courses
Not selected

#7 Students who are visual learners in core courses
TABLE TEAM 2
Program

2 Is this topic something we are serving right now at Dover High School?
- 50% of the time

3 If so, how/where/in what way do we currently serve the topic?
- Video clips, whiteboard, flash cards, I Pad, illustrated notes

4 Is this topic important? How much?
- Yes. Necessary to meet the needs of the learners/engage learners

5 How well do we serve the topic?
- 50% of the time

6 Should we improve our programs/service/organization focused on this topic?
- Yes. **If "Yes", how do we do that?**
  - ✓ Need to assess students and help them discover their strengths and weaknesses. (WHO AM I? HOW DO I LEARN BEST?)
  - ✓ Engaging students in creating the visuals
  - ✓ Improve technology
  - ✓ Professional development for teachers
  - ✓ Field trips
  - ✓ Community connections (UNH!)

7 Identify facilities implications of your improvement concepts
- Available technology
- Space to use varied approaches to learning
- Flexible/adaptable furnishings

#8 Social emotional learning in core courses
TABLE TEAM 5
Program

2 Is this topic something we are serving right now at Dover High School?
- Yes!

3 If so, how/where/in what way do we currently serve the topic?
- Core classrooms
  - ✓ Teachable moment seized
- Program/club
- Advisory
- MSW
  - ✓ On site **MH**

6 Should we improve our programs/service/organization focused on this topic?
- Consistency
- Furniture arrangement
- PLC – collaboration

7 Identify facilities implications of your improvement concepts

- Furniture arrangement
- Are we teaching content or students?
- Do we move on even it mastery not met?

#9 Critical thinking/problem solving skills in core courses
Not selected

#10 Interdisciplinary learning in core courses
#13 Teacher collaboration in core courses
TABLE TEAM 3
Program

2 Is this topic something we are serving right now at Dover High School?
- Yes

3 If so, how/where/in what way do we currently serve the topic?
- American studies, eleventh grade social studies and English combined.
- In the future, we are combining art and English to design a graphic novel.

4 Is this topic important? How much?
- Yes. Very important, especially while transitioning into smaller learning communities.
- Shows how students are able to apply concepts in multiple areas

5 How well do we serve the topic?
- Gradually, currently have one program and are adding one next year.

6 Should we improve our programs/service/organization focused on this topic?
- Yes. **If "Yes", how do we do that?**
  - ✓ We can improve by broadening the offering of courses.
  - ✓ Communicate honestly what the expectations are of the course. (student, teacher, parents)

7 Identify facilities implications of your improvement concepts
- Shared learning spaces
- Technology
- Portability

#11 STEM/ STEAM learning
Not selected

#12 Applied learning in core courses
Not selected

#14 Blended learning/flipped classrooms
Not selected

#15 Others of your choice
TABLE TEAM 6
Others: Electives
Program

- CTC and "academics" (art, music, WL)
- Variety of classes
  - Auto
  - Cosmetology
  - Cultural science?
  - NJROTC
  - Building trades
  - Woodworking
  - Engineering
  - Computer technology
  - Nursing
  - Etc
- Hugely important! →
  - Self exploration
  - Critical thinking
  - Finding passion
  - Problem solving
- Needs → depends on classes (5)
  - Some fly under the radar
  - Some need more funding
- *Success of program depends on instructor*
- Improve
  - Physical space with regards to individual program needs
  - HVAC → cars, dogs, etc
  - Versatility
  - More space! → focus on option of collaboration

LEARNING MODALITIES

This was the challenge:

LEARNING MODALITIES

Here is a list of learning modalities. Which are most appropriate? Which ones should we be using most at our future school? Which ones are the least appropriate?

Step 1: Personal Reflection

- Personally rank them in order of appropriateness for learning
- Focus on the 4 most appropriate and the 2 least appropriate
  (Appropriateness implies extensive application)

Step 2: Group Discussion

- Then debate with your Table Team members.
- Learn from others (Change your mind. Revise this worksheet.)

Step 3: Personal Vote

- Use the 4 green dots to signify your choice of the 4 most appropriate modalities
- Use the 2 red dots to signify your choice of the 2 least appropriate modalities

Then turn this worksheet in

	4 Most	**2 Least**
A. Direct teaching	_____	_____
B. Lecture (sustained direct teaching)	_____	_____
C. Seminar instruction	_____	_____
D. Teacher team/synchronous collaboration	_____	_____
E. Independent study	_____	_____
F. Small group work/student collaboration	_____	_____
G. Peer tutoring/teaching	_____	_____
H. Service learning	_____	_____
I. Project-based learning	_____	_____
J. Making things, design thinking	_____	_____
K. Interdisciplinary learning	_____	_____
L. Thematic/integrated learning	_____	_____
M. Integrated arts learning	_____	_____
N. Social/emotional learning	_____	_____
O. Student presentations	_____	_____
P. Computer-based: adaptive, games	_____	_____
Q. Blended learning/flipped classroom	_____	_____
R. Distance learning	_____	_____
S. Technology with mobile devices	_____	_____
T. Technology with desktop devices	_____	_____
U. Other (identify)	_____	_____

The responses were:

- A Direct Teaching
  - Green – 3
  - Red – 6
- B Lecture ☹
  - Green – 1
  - Red – 23
- C Seminar
  - Green – 8
  - Red – 5
- D Teacher Teaming/Synchronous Teaching
  - Green – 9
  - Red – 1
- E Independent Study
  - Green 2
  - Red – 7
- F Small Group Work/Student Collaboration ☺

    - Green – 23
- G Peer Tutoring/Teaching
    - Green – 5
- H Service Learning
    - Green – 4
    - Red – 1
- I Project-based Learning ☺
    - Green – 21
- J Making Things/Design Thinking ☺
    - Green – 10
    - Red – 3
- K – Interdisciplinary
    - Green – 5
- L Thematic/Integrated
    - Green – 5
- M Integrated Arts
    - Green – 3
    - Red – 2
- N Social/Emotional
    - Green – 8
- O Student Presentations ☺
    - Green – 10
- P Computer-based
    - Green – 2
    - Red – 4
- Q Blended/Flipped
    - Green – 5
    - Red – 2
- R Distance ☹
    - Green - 1
    - Red – 8
- S Mobile
    - Green – 1
- T Desktop
    - Red – 3
- U Internships
    - Green - 10

Workshop Notes Day 3

AGENDA

The third Visioning Workshop was held on 10th January 2015. Notes of all activities follow:

- Discussion of Pre-Workshop Video
- Blended Learning/Flipped Classrooms
- Mastery (Adaptive) Learning
- Making Things to Learn
- Teacher Collaboration
- *What is Project-Based Learning?* and *Eeva Reeder's 10th Grade Geometry Class*
- Project-Based Learning
- Integrating the Curriculum

DISCUSSION OF PRE-WORKSHOP VIDEO

The Visioning Team was asked to review videos related to education. They identified the most important lessons from the videos in a whole group discussion. Here are their comments:

Video was Randy Nelson on *Living and Learning in the Collaborative Age.*

Randy Nelson, former Dean of Pixar University, outlined some ideas his company has adopted as a part of its search for creating a highly collaborative workplace. They included:

- Not being afraid to make mistakes
  - Now at DHS CTC – everybody is afraid; there are societal issues
- Error recovery vs risk avoidance
- This is like Grit – Angela Duckworth is an expert on this
  - Resiliency
  - Being able to make mistakes
- People who were interested - not interesting
  - Lean in
- Promise of portfolio vs record resume
  - Indication of future
- Positive attitude in thinking
- Collaboration – engagement
- More them a team

BLENDED LEARNING/FLIPPED CLASSROOMS

The workshop participants were given this challenge:

BLENDED LEARNING/FLIPPED CLASSROOMS

Table Team discussion and report out.

1. Reflect on the Khan Academy
2. Imagine that your students have experienced similar content (made by the teacher, or from Khan, or fee-based sources, or elsewhere) covering the subject taught
3. Construct a classroom activity that will engage your students to actively use the content and understandings of the video
    a. Describe the activity
    b. Formulate the questions/parameters for that activity
4. Project what your life as a teacher would be like if you had to know the course content but didn't have to deliver that content
    a. What could they do that you do not do now?
    b. Would there be any liabilities?
    c. Other considerations?
5. Do you think DHS + CTC should support blended learning/flipped classrooms in all classrooms on a regular basis?
    a. If not all, which ones?
    b. If not regularly, when?
6. What might this mean for facilities?

Four Table Teams explored this issue. Their responses were:

TABLE TEAM 1
Blended Learning/Flipped Classroom

3 **Classroom activity:**
- A **Activity:**
  - o A Activity: Velocity
    - ✓ Watch video lesson online
    - ✓ Come to school for challenge
      - Find velocity of eight cars, pick one that you would love to use in a race
      - Design/build fastest car from supply parts
  - o B **Qs and Ps**
    - ✓ Describe velocity
    - ✓ Describe units used/why (leave answers till end)
    - ✓ Create a data table
    - ✓ Pick winners

4 **Life of a teacher:**
- A **What could you do that you do not do now?**
  - o A More projects
    - ✓ More informed discussion
- B **Liabilities?**
  - o Internet access
  - o Still not doing homework/unprepared
  - o Videos available
  - o Distractions

5 **Support this?**
- o A **If not all, which ones?**
  - ✓ Flexibility/options
  - ✓ Yes, but in different forms, but not all classes ALL the time
    - As often as possible

6 **What might this mean for facilities?**
- o Technology improve
- o Versatility of space/furniture
- o Video Lab

TABLE TEAM 2
Blended Learning/Flipped Classroom

3 **Classroom activity:**
- A Activity: Career Exploration

- Create a digital portfolio
- Resume
- Interests
- Aptitudes
- Interview
  - ✓ Include presentation
- "Soft skills"
- Informational interviews
- Research company, industry

4 **Life of a teacher:**

A **What could you do that you do not do now?**

- A Teacher
  - ✓ Model life-long learner
  - ✓ Can't be the expert on everything. How can you work with the student to learn what is needed?

5 **Support this?**

- Balance
- This is another tool
  - ✓ To change culture for students and teachers
  - ✓ Support difficult content

6 **What might this mean for facilities?**

- Facilities – technology
  - ✓ Spiraling curriculum
  - ✓ Discussion spaces

TABLE TEAM 3
Blended Learning/Flipped Classroom

1 **Reflect on Khan:**

- If used correctly, it can be beneficial. It's a supplement but cannot replace classroom time

3 **Classroom activity:**

A Activity: Heroes Archetypes

- A Archetypes and hero quest in literature
- B After seeing content from an outside source, teacher will demonstrate hero quests, and students will follow with their own examples

4 **Life of a teacher:**

A **What could you do that you do not do now?**

- Can replay videos and further explore

B **Liabilities?**

- Students could not do it, could find wrong information, and there is no normal assessment

C **Other considerations?**

- There would have to be a way for the teacher to check in with students. Teachers have to be tech savvy, and be able to find reliable sources (time)

5 **Support this?**

A **If not all, which ones?**

- Based on responsive teaching individually-based, should not be mandatory

6 **What might this mean for facilities?**

- Available technology (that works) change traditional classroom/flip thoughts flexible spaces

TABLE TEAM 4
Blended Learning/Flipped Classroom

1 **Reflect on Khan:**

- Great resource
- Another delivery method

2 **Similar content?**

- Watch a video re: injecting vaccines in animals

3 **Classroom activity:**

A Activity: Practice injections with syringes on oranges and fruits

- Questions – safety with needles, types of injections

4 **Life of a teacher:**

A **What could you do that you do not do now?**

- More time, students more engaged

B **Liabilities?**

- Safety and no assessment.
- Risk, not all students are doing the work

C **Other considerations?**

- There would have to be a way for the teacher to check in with students. Teachers have to be tech savvy, and be able to find reliable sources (time)

5 **Support this?**

A **If not all, which ones?**

- Most should/could

B **If not regularly, when?**

- Varied for learning styles

6 **What might this mean for facilities?**
- Professional development
- Student access to resources at home
- More Lab space
- Available technology (that works)-change traditional classroom/flip thoughts - flexible spaces

MASTERY (ADAPTIVE) LEARNING

This was the challenge:

MASTERY (ADAPTIVE) LEARNING

DEFINITIONS

Standard learning: seat time is constant; amount of learning varies by student.
Mastery learning: seat time is variable; learning is mastered.
Adaptive learning: technology is used as a tool to support Mastery Learning.

CURRENT PRACTICES

1. Identify a classroom, by grade level and subject at your current schools.
2. Answer these questions:
   a. How many students in the class?
   b. How many students are learning below grade level?
   c. How many are above?
   d. How many students don't want others to know when they don't understand the learning material?

NEXT PRACTICES

3. Could mastery learning improve learning at our future schools? YES or NO
   a. If "yes", how?
4. What would classroom activities look like? Describe how a teacher could guide/manage teaching like this.
5. Could learning be enhanced by use of computers with adaptive learning programs?
6. What might mastery learning mean for scheduling? For graduation concepts?
7. What might mastery learning mean for facilities?
8. Do you think DHS + CTC should support mastery-based, adaptive learning in all classrooms on a regular basis? YES or NO
   a. Why?
   b. Why not?

This was addressed by four Table Teams. Here are their responses:

TABLE TEAM 5
Mastery (Adaptive) Learning

3 **Mastery improves learning?**
- NOT SURE, we feel better about it for some classes then others

4 **Classroom activities?**
- Classrooms would have many different things happening at the same time
- Small groups and instructions
- Technology-based instruction/practice

5 **Computers?**
- Yes

6 **Schedule?**
- Schedules would need time for intervention, re-assessment etc
- Graduation concepts
  - ✓ Valedictorian vs Principal List
  - ✓ Figuring GPA
  - ✓ Policies for re-grading

7 **Facilities?**
- More technology

- Different spaces
  - ✓ Large/small groups
  - ✓ Flexible furniture

8 **Support this?**
- Yes. We believe the CTC already hints at/uses this method
- The Lab/Class/Lab System allows students to focus on topics they struggle with while excelling at their strengths

TABLE TEAM 6
Mastery (Adaptive) Learning

1 **Classroom**
- Class – English 10 CP

2 **Questions**
A 28 students
B 10 (ish)
C 4 (ish)
D ALL

3 **Mastery improves learning?**
- No, but if it had to….
- 4
- 5
- 6 7 8

4 **Classroom activities?**
- Classrooms would have to be collaborative

6 **Schedule?**
- Students couldn't graduate until they master the skill→get an "A". Teachers would have to be able to place the kids that get it with the kids who don't
- Very small classes – all kids at the same level

7 **Facilities?**
- Very large building with flexible learning spaces. Many more teachers/mentors

8 **Support this?**
- Sometimes in some classes

TABLE TEAM 7
Mastery (Adaptive) Learning

- Yes
  - Rolling deadlines
  - Review/relevancy
  - Regular and frequent
  - Passionate instructor
  - Sharing environment
  - Rubric/expectations
  - Flex Schedule
  - Point me in the right direction = not tell me
  - Teach early
  - Differentiated learning not limited to 7:30 – 2:30
- No
  - If we jump around – connections not clear
  - Assessment
  - Low motivation
  - Needs not understood
  - Limited resources + space

TABLE TEAM 8
Mastery (Adaptive) Learning

1 **Classroom**
- Sophomores (language)

2 **Questions**
A 22
B 5
C 6-7
D Depends on student /class

3 **Mastery improves learning?**
- Yes – (more for students on both ends) advanced and behind

4 **Classroom activities?**
- Peer to peer – teacher guiding – groups (small)

5 **Computers?**
- Yes – but depends on class

6 **Schedule?**
- Messy graduation?
- Work together - graduate at different times

7 **Facilities?**
- More space (adaptive)

8 **Support this?**
- Yes – more opportunities

MAKING THINGS TO LEARN

Design Thinking
Agency by Design

The challenge was:

MAKING THINGS TO LEARN
Design Thinking
Agency by Design

Table Team discussion and report out.

1. Do you believe that making things can contribute to a student's cognitive growth?
    a. How and why?
    b. Does this apply to our "best and brightest" students?
2. Do you believe that "making things" can contribute to a student's sense of self-worth?
    a. How and why?
    b. Does this apply to our "best and brightest" students?
3. Develop a scenario for making things to learn
4. How low on the grade spectrum could "making things to learn" be effective?
5. Do you think DHS + CTC should support "making things to learn" on a regular basis in core classes?
    a. If not all, which ones?
    b. If not regularly, when?
6. What might this mean for facilities?

Four Table teams addressed this challenge. Their thoughts were:

TABLE TEAM 1
Making Things

1 **Contribute to cognitive growth?**
- Yes!

A **How and why?**
- Practical, authentic, engaging answers "why?"
- Learning social skills, fun!

B **Apply to our "best and brightest"** ("High GPA" thriving in **xx**current model)?
- Different learning styles and types of intelligence

2 **Contribute to self-worth?**
- Absolutely!

A **How and why?**
- Pride, accomplishment
    - ✓ Learn what your strengths are/weakness
        - Must have diversity
        - Tactile/kinesthetic

B **Apply to our "best and brightest"?**
- See 1b – even if you learn differently get challenge, bonds
    - ✓ Real world
    - ✓ Problem solving
        - Pride
        - Tolerance

3 **Scenario:**
- History
- Take out in woods, here is battle scene – research/tools, maps, resources, food
- How would they have gotten this?
- How could/are we doing this today?
- Bring in other subjects, expand learning creativity

4 **Grade spectrum?**
- Any level/ Pre-K

5 **Support this?**
- Yes, as appropriate, often as can, but not every lesson

6 **Facilities implications?**
- No, fixed classroom, around school outside
    - ✓ "Maker spaces"
    - ✓ Move past just making things

TABLE TEAM 4
Making Things

1 **Contribute to cognitive growth?**
- Yes

A **How and why?**
- Increases self-worth

- Retention of material
- Learn by doing
- Applies to other content areas
- Engagement/interest
- Applies to "real" world

B **Apply to our "best and brightest"?**

- Yes
  - ✓ Applies to <u>everyone</u>
  - ✓ Can take it to different levels

2 **Contribute to self-worth?**

- Yes

A **How and why?**

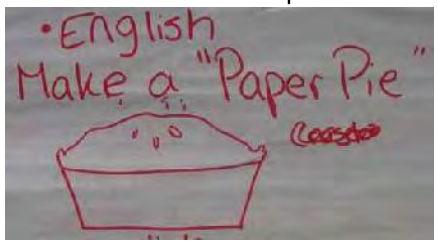
- Pride of accomplishment
- Room for flexibility
- Allows for trial and error
- Practical/"real" world

B **Apply to our "best and brightest"?**

- Yes

3 **Scenario:**

- English
- Make a "Paper Pie"



  - ✓ Thesis = ingredients
  - ✓ Outline = recipe
  - ✓ Intro = crust
  - ✓ Body = filling
  - ✓ Conclude = baking
  - ✓ Presentation = eating ☺
  - ✓ Cover page = top
  - ✓ Works cited = sugar
- Math concepts, science, health, English

4 **Grade spectrum?**

- Any grade level

5 **Support?**

- Yes – could be a tool in any class, according to teacher comfort level

6 **Facilities implications?**

- More resources
- Cost of projects
- Shared community space (Workshop, Kitchen)
- Flexibility
- Technology

TABLE TEAM 5
Making Things

1 **Contribute to cognitive growth?**

- Yes

A **How and why?**

- Engage students' minds in concrete, as well as abstract ways
  - ✓ Creates persistence
  - ✓ Builds experience
  - ✓ Includes research and application
  - ✓ Peeks curiosity

B **Apply to our "best and brightest"?**

- "Best and brightest" now may be those who thrive in the traditional setting
  - ✓ By catering to other learning styles, others are given an opportunity to join the ranks of the "best and brightest"

2 **Contribute to self-worth?**

- Yes

A **How and why?**

- More students can be successful
  - ✓ Sense of satisfaction making something tangible

B **Apply to our "best and brightest"?**

- Allows for application of theory
  - ✓ Broaden experience
  - ✓ Way to expand the ways "b + b" learn
  - ✓ Empowers them
  - ✓ Connect differently with others

3 **Scenario:**
- Education would be enriched with student-made videos, poetry, writing, 3D models, etc
  - ✓ Create concepts to explore and experience concepts
  - ✓ CP modeling

4 **Grade spectrum?**
- Any level/age learner. Might empower lower-grade level learners who have trouble with the traditional modality

5 **Support this?**
- Yes, but "regular" needs to be defined by need and by course
  - ✓ Trig/history/CTC and easy calculus = harder

6 **Facilities implications?**
- Maker Spaces/more tools/Presentation and Performance Spaces
- SCHEDULE

TABLE TEAM 6
Making Things

1 **Contribute to cognitive growth?**
- Yes

A **How and why?**
- Connection to the real world

B **Apply to our "best and brightest"?**
- Yes, it applies to everyone

2 **Contribute to self-worth?**
- Yes

A **How and why?**
- By giving students a sense of accomplishment

B **Apply to our "best and brightest"?**
- Yes, it applies to everyone

3 **Scenario:**
- Making a muffin: ethics of making food (hair in food), learning to actually make food, safety of cooking, economics (of scales)

4 **Grade spectrum?**
- It spreads the whole gambit (K-12)

5 **Support this?**
- CTC should provide space and training to allow core classes to use labs and shops
- **If not all, which ones?**
  - All
- **If not regularly, when?**
  - Whenever possible

6 **Facilities implications?**
- Blended learning

TEACHER COLLABORATION

This was the challenge:

TEACHER COLLABORATION

Table Team discussion and report out

CREATE THE MOST APPROPRIATE CONCEPT FOR THE FUTURE FROM AN EDUCATIONAL POINT OF VIEW

Possible structures:

A. Teachers work separately
B. Teachers "loop" with students
C. Teachers "platooned" (sharing/swapping specialties/passions/interests on personal initiative)
D. Teachers collaboratively, synchronously teaming
   a. In pairs
   b. In triads
   c. In quads or more
E. Out of the Box (invent your own)

Your assignment:

1. Rank the choices above, 1 (most appropriate) through 7 (least)
2. Choose the one you think is most worth exploring:
   a. Elaborate on the structure to give it more definition

   i. Is it interdisciplinary
   ii. Is it DHS + CTC, or DHS only, or CTC only
b. Combine possibilities if desired
c. Identify likely grade levels or limits
d. Identify the Pros and Cons

3. Do you recommend DHS + CTC explore it as a school organization?

Four Table Teams took the challenge. Here are their thoughts:

TABLE TEAM 2
Teacher Collaboration

1. **Rank the choices above, 1 (most appropriate) through 7 (least)**

RANK	CHOICE
1	B We like looping – change the HS
2	
3	
4	
5	
6	
7	A Teachers work separately

2. **Choose the one you think is most worth exploring**:
   - A **Elaborate on the structure to give it more definition**
     - E Out of the Box: Community Collaborates
       - ✓ Institutional
       - ✓ Colleagues, students
       - ✓ Platoon
       - ✓ Community
       - ✓ Identify likely grade levels or limits
   - D **Identify the Pros and Cons**
     - Pros:
       - ✓ 9-12
       - ✓ Students modeling/involved
       - ✓ Understanding
       - ✓ Collaboration
     - Cons:
       - ✓ PD
       - ✓ Investment
3. **Do you recommend DHS + CTC explore it as a school organization?**
   - o Small Learning Communities
   - o CTC – Engineering
   - o American studies
   - o Informal

TABLE TEAM 3
Teacher Collaboration

1. **Rank the choices above, 1 (most appropriate) through 7 (least)**

RANK	CHOICE
1	Da Teachers collaboratively, synchronously teaming in pairs
2	Db Teachers collaboratively, synchronously teaming in triads
3	Dc Teachers collaboratively, synchronously teaming in quads
4	C Platooned
5	D Teachers loop with students
6	A Separately/alone/traditional
7	E Out of the box/unknown

2. **Choose the one you think is most worth exploring**:
   - **A. Elaborate on the structure to give it more definition**
     Da: Would be interdisciplinary because it is combining two subjects.
     Both DHS and CTC, endless possibilities of combinations.
   - **C. Identify likely grade levels or limits**
     - ✓ Open to all grades if we want individualities and mastery
   - **D. Identify the Pros and Cons**
     Pros:
     - ✓ Collaboration between teachers
     - ✓ Teachers modeling as lifelong learners

     Cons:
     - ✓ Time
     - ✓ Funding
     - ✓ Favoritism of teams

3. **Do you recommend DHS + CTC explore it as a school organization?**
   - o Yes

TABLE TEAM 7
Teacher Collaboration

1. **Rank the choices above, 1 (most appropriate) through 7 (least)**

RANK CHOICE
1 Dc Teachers collaboratively, synchronously teaming in quads
2 Da Teachers collaboratively, synchronously teaming in pairs
3 Db Teachers collaboratively, synchronously teaming in triads
4 ?
5 C Platooned
6 D Teachers loop with students
7 A Teachers work separately

2. **Choose the one you think is most worth exploring**:
   - A. **Elaborate on the structure to give it more definition**

Dc Teachers collaboratively, synchronously teaming in quads
- ✓ Grade level exploratories
- ✓ Outsource electives to interdisciplinary teachers
- ✓ PD Center on site
  - Self-sustaining

D. **Identify the Pros and Cons**

Pros:
- ✓ Multiple teacher support
- ✓ Relations
- ✓ Hands-on

Cons:
- ✓ Commitment to ride it out
- ✓ Up front PD
- ✓ Cost

TABLE TEAM 8
Teacher Collaboration

1. **Rank the choices above, 1 (most appropriate) through 7 (least)**

RANK CHOICE
1 C Platooned
2-3-4 In no order:
Da Teachers collaboratively, synchronously teaming in pairs
Db Teachers collaboratively, synchronously teaming in triads
Dc Teachers collaboratively, synchronously teaming in quads
5 B Teachers loop with students
6 E Out of the box
7 A Teachers work separately

2. **Choose the one you think is most worth exploring**:
   - A**. Elaborate on the structure to give it more definition**

C Platooning
- ✓ Is it interdisciplinary?
  - Yes
- ✓ Is it DHS + CTC, or DHS only, or CTC only?
  - DHS + CTC

B. **Combine possibilities if desired**
- ✓ Flexibility (don't need it to be same subject or grade)

C. **Identify likely grade levels or limits**

D**. Identify the Pros and Cons**

Pros:
- ✓ Interest
- ✓ Engaging
- ✓ Model working together
- ✓ More level of experience
- ✓ Know resources

Cons:
- ✓ Time (overall)
- ✓ Combination class
- ✓ Logistics
- ✓ Not everyone does it

3. **Do you recommend DHS + CTC explore it as a school organization?**
   - o Yes. (Part of culture)

This chart summarizes the responses:

TEACHER COLLABORATION						
TT	2	3	7	8	TOTL	OPTION
					0	D. Teachers collaboratively, synchronously teaming
		1	2	2	5	a. In pairs
		3	1	2	6	c. In quads or more
		2	3	2	7	b. In triads
		4	5	1	10	C. Teachers "platooned" (sharing/swapping specialties/passions/interests on personal initiative)
		7		6	13	E. Out of the Box (invent your own)
	1	5	6	5	17	B. Teachers "loop" with students
	7	6	7	7	27	A. Teachers work separately
		Lower score = more favored				

- ✓ Long-term relationship
- ✓ 40% adds substance
- ✓ Their feedback was powerful
- ✓ 40% brave of the teacher
  - She ceded control
- ✓ Her rubrics were modified/updated

o Professionals in discipline
o Six weeks interaction
o Competition for contract\
o Could be as good project for AP math
o Team interaction, good collaboration (relevant to life)
o Site topography added complexity
o Kids learned about themselves
  - ✓ Inside box vs non-linear outside box

WHAT IS PROJECT-BASED LEARNING? EEVA REEDER'S 10th GRADE GEOMETRY CLASS

As a prelude to the project-based learning (PBL) challenge, workshop participants watched two videos. The first was a cartoon by the Buck Institute for Education explaining project-based learning. The second was a detailed look at a project for 10th grade math students to design a high school for the year 2050. Students applied their knowledge of geometry with the help and guidance of two architects who volunteered to work with them for the six week long project. Students worked in teams. They presented their work in a final presentation at the architects' offices. Awards were given by the architects for the best work in several categories.

Visioning Team comments were:

- Students said:
  - o Architects gave 40% of grade
  - o Time management skills needed
    - ✓ Adds stress
    - ✓ Would feel more real
    - ✓ Grading might be more fair
- All others
  - o Architects participation

PROJECT-BASED LEARNING

The challenge was:

PROJECT-BASED LEARNING

Table Team discussion and report out

Develop a project to serve as the vehicle for learning

1. Identify the learning/curriculum goals
2. Describe the content/subject areas. Bonus for interdisciplinary!
3. Conceive the project. The project should be sufficiently complex to have no single solution. EXAMPLE: Design a marketing strategy to market independent student summer businesses
4. Create the Driving Question
5. How long does it last? When? How prominent is the project within the context of the year/curriculum?
6. Does it involve community responsibility/service? How?
7. Is it enhanced through community experts?
8. When could this get started?

9. What does this mean for facilities?
10. Do you think DHS + CTC should support P-BL as a regular educational delivery? YES or NO.

Four Table Teams took the challenge. Here are their thoughts:

TABLE TEAM 3
Project-Based Learning
Design a search/research project to determine secondary education process

1 **Curriculum goal:**
- Research, budgeting, scholarships, geography, comparing and contrasting decision making
  - ✓ End goal: picking a college

2 **Content subject areas:**
- English: college essays, application process
- Social studies: history of school/geography, economics
- Math: budgets, costs, financial aid
-

3 **Project:**
- Design a search/research project to determine secondary education process

4 **Driving Question:**
- What is my best option for higher education?

5 **Length? When? How prominent?**
- On AB schedule: one quarter max - second half of sophomore year moderately prominent

6 **Community service/responsibility?**
- Involves parents, guidance, alumni, college tours

7 **Enhanced through community experts?**
- Yes, college reps, people would think of secondary education sooner

8 **Start when?**
- Second semester (10th)

9 **Facilities implications?**
- Space for collaboration

10 **Should DHS and CTC support PBL?**
- Yes

TABLE TEAM 4
Project-Based Learning
Garden Plot design

1 **Curriculum goal:**
- Knowledge of plant life and needs (photosynthesis)
- Planning and organizing garden space/content
- Community involvement (marketing) and service

2 **Content subject areas:**
- Biology, marketing, business, math, culinary, nutrition

3 **Project:**
- Garden Plot design. Prepare and implement for community benefit
-

4 **Driving Question:**
- How can we help provide healthy and local food for families in need?

5 **Length? When? How prominent?**
- Semester 2 → fall?
- Depends on students/teachers desires

6 **Community service/responsibility?**
- No

7 **Enhanced through community experts?**
- Yes

8 **Start when?**
- Anytime (Spring best)

9 **Facilities implications?**
- Outdoor space/Greenhouse
- Hydroponics

10 **Should DHS and CTC support PBL?**
- Definitely

TABLE TEAM 7
Project-Based Learning
Economics/business marketing

4 **Driving Question:**
- Class fundraiser
  - ✓ Which fundraiser would generate the most amount of profit, the least amount of cost?

5 **Length? When? How prominent?**
- Start: Freshman year
- Last:

- ✓ 1st half year
  - Planning
  - Collaboration
  - Ironing out details
  - Pitching
- ✓ 2nd half year
  - Implementing
  - Execute
  - APPLY

o Curriculum aligns with social aspects a HS will see – ex: Prom, Senior Banquet

6 **Community service/responsibility?**
a. Could – depends on student ideas

7 Enhanced through community experts?
o Yes – continued communication with community members

8 **Start when?**
o Yes – beginning of Freshman year

9 **Facilities implications?**
o Space to promote collaboration

TABLE TEAM 8
Project-Based Learning
How to create, present, and persuade a local organization to sponsor an opportunity to study abroad

1 **Curriculum goal:**
o Review prior knowledge (last year) and build new knowledge

2 **Content subject areas:**
o Math/geo, marketing, public speaking, economics

3 **Project:**
o Market your project
- ✓ Review vocabulary
- ✓ Gain new knowledge

4 **Driving Question:**
o How to create, present, and persuade a local organization to sponsor an opportunity to study abroad

5 **Length? When? How prominent?**
o 5-6 week

6 **Community service/responsibility?**
o Yes – report

7 **Enhanced through community experts?**
o Yes – community group

8 **Start when?**
o Start of school year

9 **Facilities implications?**
o Computers, libraries

10 **Should DHS and CTC support PBL?**
o Yes

INTEGRATING THE CURRICULUM

The challenge was:
INTEGRATING THE CURRICULUM

Table Team discussion and report out.
An integrated curriculum has interdisciplinary/cross-curricular teaching and learning.

1. Is interdisciplinary/cross-curricular teaching and learning important? YES NO
2. Why?
3. Here are some examples of integrated programs:
   a. STEM (Science, Technology, Engineering, Math)
   b. Arts with core
      i. Example: English and Art
   c. Project-based learning
      i. Example: Human Experience: English-Math-Science-Social Studies
   d. Wellness program integrating PE, Science, and Family/Consumer
   e. Others you identify
4. Pick one or more. For each develop a scenario:
   a. Characterize how teaching and learning like that would work, what it looks like
   b. How many teachers are involved?

c. What are they doing?
d. How many students are involved?
e. What are they doing?
f. How do students express their learning?
g. Do you have to change the schedule to make it work?
h. If so, how?

5. What does this mean for facilities?
6. Do you think DHS + CTC should support integrating the curriculum on a regular basis? YES or NO.

Responses of the four Table Teams addressing this challenge were:

TABLE TEAM 1
Integrated
Project-Based Learning: Human Experience

1 **Important?**
- Yes

2 **Why?**
- a Develops interest
- b Plays to strengths
- c More realistic – mirrors life
- d Leads to decreasing teacher isolation

3+4 **Examples + Scenario:**

A Characterization:
- Human experience – current event
- *Free two year college for HS students with X-GPA

B **How many teachers?**
- Four

C **Doing what?**
- Team teaching
  - ✓ Guest speakers
    - Industry experts
    - Economist
    - Financial
    - College President
    - Social studies
    - Current event
    - Social science
  - Math
  - Marketing
- 1-3+
- Facilitating

D **How many students?**
- 1 – multiple classes

E **Doing what?**
- e Researching
  - ✓ Where did idea come from?
  - ✓ How would it be paid for?
  - ✓ Fairness?

F **How is learning expressed?**
- Debating issues, presenting findings, developing/presenting proposals

G **Change the schedule?**
- OH YEAH! Many options and variables to consider

5 **Facilities implications?**
- Same issues as discussed earlier (+) "presentation spaces"/infrastructure

6 **Support this?**
- Yes

TABLE TEAM 2
Integrated
Strand Arts Center

1 **Important?**
- Yes – emphatic → EMPHATIC!

2 **Why?**
- Authentic – deeper connections – different perspectives – meaningful personal, applicable, relevant to real world. Life is interdisciplinary" Chris Strickland (1/10/15)

3 **Examples:**
- Humanities, art (creative arts), make a course interdisciplinary (sports and economics) - work of the individual teacher

4 **Scenario:**

A The Strand becomes an Arts Center

- Engineering/science, business, design, education provider, teachers, students, community members (PBL)
  - ✓ Relevant connections – students – classes, interest/passion

F **How is learning expressed?**
- Design/research/business activities/community outreach/formal presentations – Chamber of Commerce/community organizations

G **Change the schedule?**
- Schedule – does happen, can fit any schedule → collaboration/planning time

H **If so, how?**
- See G

5 **Facilities implications?**
- Forum – smaller presentation space than an Auditorium
- Open to community
- Function → Multi, performance only, showcasing work, "studio/museum"
- PD/workshops/community usage
- Self-sustaining – revenue generation

6 **Support this?**
- Yes

TABLE TEAM 5
Integrated
American Studies

1 **Important?**
- Yes

2 **Why?**
- Connection/context/relationships
- Engaging
- Promotes critical thinking and curiosity
- Understand spheres of influence when problem solving

4 **Scenario:**

A **Characterization:**
- American studies (English and SS)

B **How many teachers?**
- Two teachers: switch off/co-teaching

C **Doing what?**
- Lecture – study of literature, arts, politics, historical events, economy, reading, discussion, etc – facilitate/question

D **How many students?**
- 20 – 25

E **Doing what?**
- Debating, discussion, critiquing, role-play, emphasis, correlation between culture and history

F **How is learning expressed?**
- In their writing/presentation. Student-led scenarios such as mock debates and trials. Opinion pieces. Video

G **Change the schedule?**
- Not necessarily – common planning/collaboration opportunities would be necessary

5 **Facilities implications?**
- Larger classroom space, presentation/performance space, technology (ie video/sound etc, computers, etc)

6 **Support this?**
- Yes

TABLE TEAM 6
Integrated
Business Education and Design

1 **Important?**
- Yes

2 **Why?**
- Making connections and efficiency

4 **Scenario:**

A **Characterization:**
- Community involvement with local businesses

B **How many teachers?**
- 1-2 teachers and the business mentors involved

C **Doing what?**
- Guidance, give examples

D **How many students?**
- Groups of 3-5 students

E **Doing what?**
- Collaborating to create a website

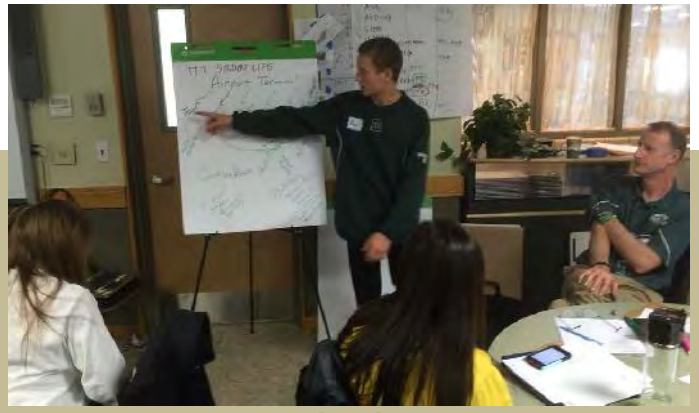
F **How is learning expressed?**
- Through the final product (website)

G **Change the schedule?**
- o Yes

H **If so, how?**
- o Offsite time, 90min a day, not enough – work around business schedule
  - ✓ Set aside a day or two a week – go to the business to work

5 **Facilities implications?**
- o More room, use of offsite facilities – need larger facilities

6 **Support this?**
- o Yes



Workshop Notes Day 4

AGENDA

The fourth Visioning workshop was held on 12th January 2015. Notes of all activities follow:

- Will Clayton Christenson be Right? School in 2035
- School Organizational Structure 1: Overall Organization
- School Organizational Structure 2: CTE + Academics
- School Organizational Structure 3: Effective Services Strategies

WILL CLAYTON CHRISTENSON BE RIGHT? SCHOOL IN 2035

The Visioning Team participants had looked into the long-term future as homework. This was the challenge:

WILL CLAYTON CHRISTENSON BE RIGHT? DEFINE SCHOOL IN 2035

Answer as many of these questions as needed to create your concept of future school:

1. What will students at DHS + CTC be doing in 20 years?
    a. What is "a day in the life of a student?"
    b. If they can learn content through the internet, why come to school?
2. What will faculty/staff at DHS + CTC be doing in 20 years?
    a. What is "a day in the life of a teacher?" What is the teacher role?
3. Community?
    a. How will the community be involved in the school?
    b. How will the school be involved in the community?

Facilities: What does this imply for facilities?

GENERAL DISCUSSION

Participants thought the following:

- Increased use of mobile
  - Embrace cell, tablets
- No standard school day
  - No school buses
  - Technology – no fixed time
- Year-round school
- Students working on projects with peers and experts
  - National and international
- If students 50% on-line, how face to face, as all jobs want?
- Students come together
- Community members as learners
- Internships
- Like a college schedule
  - More fluidity
- Kids - better direction on career path
- Degree of learning in HS will be higher

INDICUDUAL RESPONSES

1. **What will students at DHS + CTC be doing in 20 years?**
   a. **What is "a day in the life of a student?"**
      - Work on competence in a variety of settings
      - (Writing Labs); flexible hours, still structured but more AM/PM classes, community enriched
      - Doing, making, presenting
      - Lifelong learning somewhere
      - Combination of classroom learning, offsite community learning, online courses provided by real teachers from all over the world + independent learning at home + work
      - Too far off to even conceive. Varies by students – age, interest, achievement level, working on real-life projects + perhaps with experts + other students nationally/internationally
      - Waking up at a reasonable time, going to school, at school have projects/guest speakers, more of Socrates classes, after school activities
      - Continue to go to school with other at their level and be taught by a teacher
      - I see more collaborating, investing and creating of ideas. Most students will have jobs or internships
      - Partial day – online learning. Sports/Wellness Center. Smaller pods of students working toward competency. Mobile learning. Collaboration
      - Large groups broken into smaller ones that are project oriented in classes of moveable furniture and multiple teachers
      - Technology, new jobs, learning (comps), tablets (etc), more like a college schedule
      - The day will likely not be limited to 7:30 to 2:30. Will vary student to student, will include use of technology, student-driven work with other students, check-ins with teacher, more flexible schedule
      - Flexible, later (than 7:25) start
      - Working on subjects to develop skills that are useful in the workplace
      - A student will be responsible for his/her own educational goals. It will be more self-directed. Will still need CTC programs and be able to learn skills
      - Come in at various times, sign up to meet with teachers, take part in non-academic activities, more structured for younger students
      - Students will take classes that interest them. They will get their core classes integrated into those that they take
      - More collaborative learning. More open schedule to allow collaboration, not only within the school, but outside

b. If they can learn content through the internet, why come to school?

- Relationships and social development
- Support for students who need different ways to learn
- Social, experiments, enrichment, relationships, samples, sampling; experiences based on time in discovery
- To learn to interact + collaborate, present work, to assess depth of knowledge
- Face to face interaction
- Interpersonal skills
- Can't learn all via web - inaccurate info
- Collaboration with peers + experts + homework skills development. Social skills development. In person speaking skills
- Designing + making things collaboratively. Personal interaction with range of students + peers. Access to equipment + tools
- Human interaction, understanding, hands-on
- You cannot learn content on the internet like you can in person. Also, we need to form relationships with real people and the internet doesn't fit that
- To learn how to think I have the ability to produce higher order thoughts, skills + communication
- Socialization, sports, activities, some direct teaching for internships, blended learning
- Social interaction is a key component of learning
- Structure, guidance mentoring, peer interaction, sports/clubs
- Human interaction remains critical – students teaching and learning from other students, learning from adult role models, in groups on projects, interpersonal skills (social/emotional) will be keys in life after high schools
- Students need to learn more than information. They need to be able to interact with others, develop soft skills. They also need to have feedback
- They have to work on face to face communication somewhere!
- For the hands on experiences and personal feedback + relationships
- Teamwork, collaboration, social interaction, non-academic experiences provided by school. They can't learn all content through the internet
- Lecture – not engagement – blended learning – do engaged work in school. Come out with more knowledge – shifting content requirements down
- Social aspect, public speaking skills
- To learn what to do with the content and practice, refine skills development and skill sets!
- To learn the social aspect of life
- Social/intersocial, communication, personal skills

2. What will faculty/staff at DHS + CTC be doing in 20 years?

a. What is "a day in the life of a teacher?"

- Much more fluid; support system
- Inquiry, research, collaboration; classroom instruction by means of facilitation
- Facilitating learning, some direct instruction, collaborating with peers + community
- Lifelong flexibility
- Developing online courses. Teaching students in classrooms, communicating with students online. Assessing competency mastery
- Varied – working with groups of students and community members in person/online.

Regular planning/learning time with colleagues
- Teaching combined, helping
- Teaching 4-8 (depending on schedule) classes every day. Allowing students to explore while giving them the guidance they need
- Meeting with students and other teaches will be much different in the sense that they may make up their own schedule – much more interdisciplinary work being done!
- Personalize learning through technology. Assessment will look more like parameters for PBL
- Cooperation across disciplines and using technology to expand the classroom beyond the glass walls
- Mentoring, guiding, teaching
- Also unlikely to be 7:30 to 3:30. Checking in with students as they work on projects as well as working with students individually
- Flexible/less structured than now
- Facilitating projects and answering questions, helping find resources
- Being a mentor for students, help students see where to access information. Still will need memorization in medical/science field
- Varied schedule, seminar leader, short presentations
- No longer all knowing
- Float around from class to class, overseeing and aiding the learning process
- More collaborative teaching.

b. What is the teacher role?

i. Facilitator, direct instruction, feedback on practice
- Facilitation, questioning, flexible schedule
- To guide + assess learning
- Facilitate
- Researcher, facilitator, role model, colleagues, custodian, bus driver, project coordinator, counselor, supporter, assessor, advisor
- Facilitator, sometimes guide, sometimes "expert", co-learner, encouraging new lines of questioning
- Helping rather than lecturing
- To educate students through different multitudes of instruction, and create the best possible learning environment for the
- A facilitator!
- Facilitator. Help kids digest material. Digital portfolios. Collaboration. Teacher communication
- Same as now with help of online tools
- Facilitate learning. Recognize the different ways that students learn + use technology to customize. Encouragement – nothing like a real live person for this.
- Importance of non-teachers (case managers + counselors) increases – more need for guidance + personalization
- The teacher should e a facilitator of learning. Helping/showing students how to access information
- As a facilitator, more of a "boss" figure than a seminar leader
- Depends on if education has changed from its current model
- Serve as a resource to help find information. Walking around from student to student, don't have defined classrooms. Collaborate constantly with other teachers
- To facilitate experimental and authentic learning experiences. Serve as mentors and guides
- To be a mentor and guide the learning process
- Direct, guide, assess each other in addition to students

3. **Community?**
    - **a. How will the community be involved in the school?**
        - o Taking part in coursers; supporting internships + community placements
        - o Outreach learning, classroom extension, health, etc
        - o Support it financially + philosophically
        - o Partnerships
        - o Presentations to students, providing space + equipment for student learning. Provide student internship opportunities, provide volunteer time + labor. Provide financial support for education
        - o Community experts serving on learning/project teams, school more open to community groups, students, bringing in community members
        - o Guest speakers
        - o Taxes, funding. Same as now
        - o Provide space for community members, organizations so they have direct contact with the school and students
        - o Business/school connection will provide resources, internships
        - o Internships, cooperative learning. Assistance in/out of class using professional skills in advisory role
        - o Hopefully more civic engagement both ways. Community jobs
        - o Likely to be more involved as mentors as well as providing internships and opportunities for extended learning
        - o It would be great if community members shared their experiences with school/students
        - o Providing internships, guidance, and feedback for students
        - o Inter/externships coming into building to provide expertise and receive service
        - o The same as it is now, but more focus because of PBL
        - o Active role in offering support and assistance to possible authentic and meaningful learning experiences (ie mentors, sponsorship resources)
        - o Many internships from businesses as well as input about the work force, what jobs are needed at the time
        - o By providing more resources including time, money facilitates + mentors, sharing opportunities

    - **b. How will the school be involved in the community?**
        - o Community Center; social hub (clinic, meeting spaces, instruction, tech access); learning all day
        - o Sharing data, reporting out, leading curriculum dialogue
        - o It is part of the community
        - o Partnerships
        - o Provide students for internships + volunteer civic work. Provide young person expert opinions + guidance to city officials, committees. Teachers also provide expert guidance
        - o Projects from school into community, field trips
        - o Community service requirements possibly
        - o Students working inside of the school – internships.
        - o Communication, collaboration
        - o Vice. VS
        - o Likely to be more involved as mentors as well as providing internships and opportunities for extended learning – plus – focus on community service as students are encouraged x(required?). To contribute as part of their education

- The school is an extension of the community. As they do now, but more so, students should continue to be involved in community projects/needs/outreach
- Service projects, giving back to the community
- Providing services to the community
- Service provider – facilities – educate all components of the community – adult ed – senior
- PBL
- The school will serve as a platform and a focus for community resources to be shared
- Effectively preparing students to contribute to the community using the communities' input to create ready to work
- By being more flexible and open, sharing opportunities

4. **Facilities: What does this imply for facilities?**
   - Flexible spaces, technology access, large meeting + presentation spaces; breakout spaces; climate controlled for better heating + cooling (year round)
   - Annex building, small + satellite building, self-management with public transportation
   - Presentation spaces, other useful agencies housed in building x(healthier – mental health)
   - Open more hours and days…
   - Four walls are four walls
   - Flexible learning spaces plus large Common Areas with mobile furniture for groups of students meeting to discuss, conduct research, create projects + portfolios, and communicate online with experts, teachers to their students. Also space for face xto face instruction, tutoring, presentations + digital production. Technology will also be mobile – with numerous charging stations for flawless wireless network. Diverse Lab spaces for exploration, experimentation + inquiry. Spaces for performance, physical fitness, eating, listening, viewing + editing. All of the spaces will be available evening + weekends for the community
   - High demand for powerful, up to date technology. Flexible spaces more open to community. No locked doors!
   - Clean, multiple bathroom stalls, working water, good heat/cooling, reliable technology
   - A place with reliable technology, and room for collaboration
   - Change of scheduling, different types of space to be used for large meeting space – small class, a way to work in small or large groups. Access to technology
   - Technology Center. Flexible space for flow, collaboration, and project-based learning
   - * Next 10 years, more kids taking community college courses for Gen Eds than move to university or online
   - Larger open spaces. Glass walls. Integrated tech. Small space for groups to work. Unisex Bathrooms!
   - More open space. Multi-purpose rooms. Small + large rooms
   - Access to technology, rooms that can be used for small group meetings, availability for community groups, space for performing + visual arts. Likely to be open + active close to x24/7
   - Facilities should be flexible use and extended throughout the xday
   - Versatility; an openness (for the community) to the building xwhile still providing safety for the students

- More community spaces, technology. Increase use of mobile devices
- Community services – work spaces – open 24/7
- Very different. Must be flexible - more like New Tech High
- Adaptable schedules, improved and enhanced technology, available space for the community to learn, practice and hosts programs or events that compliment and not impeded the "learning landscape"
- Facilities will need to be flexible, able to change with the ever changing world
- CHANGE

SCHOOL ORGANIZATIONAL STRUCTURE 1: OVERALL ORGANIZATION

Workshop participants were given this challenge:

SCHOOL ORGANIZATIONAL STRUCTURE 1
OVERALL ORGANIZATION

Table Team discussion and report out
An exploration of relationship-building and igniting passions.

CREATE THE MOST APPROPRIATE CONCEPT FOR THE FUTURE FROM AN EDUCATIONAL POINT OF VIEW

Possible structures:

A. **Departmental, 9-12**, separate Career-Tech
B. **Departmental, 10-12**, with separate **Freshman House**, and separate Career-Tech
C. Vertical (interdisciplinary) **9-12 Small Learning Communities (SLCs)**, with Career-Tech as one of them
D. Vertical (Interdisciplinary)**10-12 SLCs,** with Career-Tech as one of them and a separate **Freshman SLC**
E. Choice, **Thematic 9-12 SLCs** such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate
F. Choice, **Thematic 10-12 SLCs** such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate, and **Freshmen as its own SLC**
G. **Other:** identify and share with others ASAP

Your assignment:

1. Rank the choices above, 1 (most appropriate) through 7 (least)
2. Focus on your Most Appropriate and Least Appropriate selections
    a. Elaborate on the structure to give it more definition
    b. Identify the Pros and Cons
3. Do you recommend as a school organization for the future DHS-CTC?

All eight Table Teams explored this issue. Their responses were:

TABLE TEAM 1
Ranking – Structure

1 F
Choice, Thematic 10-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate, and Freshmen as its own SLC
2 E

Choice, Thematic 9-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate
3 D
Vertical (Interdisciplinary)10-12 SLCs, with Career-Tech as one of them and a separate Freshman SLC
4 B
Departmental, 10-12, with separate Freshman House, and separate Career-Tech
B + C tied
5 C
Vertical (interdisciplinary) 9-12 Small Learning Communities (SLCs), with Career-Tech as one of them
6 A
Departmental, 9-12, separate Career-Tech
7 G
Other

Favorite: F + E

Pros
- Forced interdisciplinary + collaboration
- Career Tech works best integrated in a non-departmental organization
- Small learning groups
  - ✓ Students or staff

Cons F + E
- Departmental
  - ✓ Not future
- Budget
- Personnel
  - ✓ Right people to make the change?

TABLE TEAM 2
Ranking – Structure

1 G
Other
2 F
Choice, Thematic 10-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate, and Freshmen as its own SLC
3 E
Choice, Thematic 9-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate
4 D
Vertical (Interdisciplinary)10-12 SLCs, with Career-Tech as one of them and a separate Freshman SLC
5 C
Vertical (interdisciplinary) 9-12 Small Learning Communities (SLCs), with Career-Tech as one of them
6 B
Departmental, 10-12, with separate Freshman House, and separate Career-Tech
7 A
Departmental, 9-12, separate Career-Tech

Favorite: G

Thematic – Freshman Sampler

Pros
- Integrated – learning styles
- Support
- Advisory – relationships
- Freshmen with higher grades
- Pointing out relationships between classes

Cons
- Switching themes
  - ✓ Transfer credits?
  - ✓ Longer school for CTCF if transfer?

Least Favorite: A

Cons
- Physical separation are a step back
- Not interdisciplinary

TABLE TEAM 3
Ranking – Structure

1 G
Other

2 D
Vertical (Interdisciplinary)10-12 SLCs, with Career-Tech as one of them and a separate Freshman SLC
3 C

Vertical (interdisciplinary) 9-12 Small Learning Communities (SLCs), with Career-Tech as one of them
4 F
Choice, Thematic 10-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate, and Freshmen as its own SLC
5 E
Choice, Thematic 9-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate
6 B
Departmental, 10-12, with separate Freshman House, and separate Career-Tech
7 A
Departmental, 9-12, separate Career-Tech

Favorite: G
Small Learning Communities with interdisciplinary teaching + school year broken into themes

- STEAM
- Career Tech

Pros
- 9th graders shouldn't be forced to choose/aren't able to choose
- SLC's allow for building relationships
- Competency-based
- Interdisciplinary teaching increases communication + collaboration with students and teachers
- More applicable
- Project-based learning

Cons
- Placing students (Honors/CP)
- Meeting needs of AP students ←→ college credit – and students with disabilities

Least Favorite: A

Pros
- Easy to schedule; logistically simple

Cons
- It is what we are doing now and it doesn't work

TABLE TEAM 4
Ranking – Structure

1 F
Choice, Thematic 10-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate, and Freshmen as its own SLC
2 D
Vertical (Interdisciplinary)10-12 SLCs, with Career-Tech as one of them and a separate Freshman SLC
3 E
Choice, Thematic 9-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate
4 B
Departmental, 10-12, with separate Freshman House, and separate Career-Tech
5 C
Vertical (interdisciplinary) 9-12 Small Learning Communities (SLCs), with Career-Tech as one of them
6 A
Departmental, 9-12, separate Career-Tech
7 G
Other

Favorite: F

Pros
- Integrated CTC
- Physically/curriculum
- Addresses Freshmen
- Relationship building

Cons
- Expense/PD

Least Favorite: G

Pros
- More course offerings

Cons
- No relationship building between students and teachers
- Does not address Freshmen

TEAM 5
Ranking – Structure

1 F
Choice, Thematic 10-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate, and Freshmen as its own SLC
2 D
Vertical (Interdisciplinary)10-12 SLCs, with Career-Tech as one of them and a separate Freshman SLC
3 E
Choice, Thematic 9-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate
4 C
Vertical (interdisciplinary) 9-12 Small Learning Communities (SLCs), with Career-Tech as one of them
5 B
Departmental, 10-12, with separate Freshman House, and separate Career-Tech
6 A
Departmental, 9-12, separate Career-Tech
7 G
Other

Favorite: F

Pros
- Freshman House
- Orientation
- Strong relationships
- Interests of classes

Cons
- Feeling separated

Least Favorite: G

Cons
- Outdated

TABLE TEAM 6
Ranking – Structure

1 G
Other: Hybrid of C + E
2 C
Vertical (interdisciplinary) 9-12 Small Learning Communities (SLCs), with Career-Tech as one of them
3 E
Choice, Thematic 9-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate
4 D
Vertical (Interdisciplinary)10-12 SLCs, with Career-Tech as one of them and a separate Freshman SLC
5 F
Choice, Thematic 10-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate, and Freshmen as its own SLC
6 A
Departmental, 9-12, separate Career-Tech
7 B
Departmental, 10-12, with separate Freshman House, and separate Career-Tech

Favorite: G
Hybrid of C + E)
SLC's: <u>Advisor</u> (9-12) component, structure, interdisciplinary

Pros
- Thematic Elements
  - ✓ Choice of themes
  - ✓ Wings – not Houses
  - ✓ SLC
- Vertical Elements
  - ✓ CTC integrated with academic
  - ✓ Assessment, possibly eliminate grade levels
  - ✓ SLC's
- Collaboration
- Efficiency
- Structure
- Incorporates multiple intelligences

Cons

- Resistance

Least Favorite: Any with freshmen separate: D, F, B

Con
- Frosh separate leads to lack of communication
  - ✓ Maturity doesn't happen as quickly

TABLE TEAM 7
Ranking – Structure

1 G
Other
2 F
Choice, Thematic 10-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate, and Freshmen as its own SLC
3 C
Vertical (interdisciplinary) 9-12 Small Learning Communities (SLCs), with Career-Tech as one of them
4 D
Vertical (Interdisciplinary)10-12 SLCs, with Career-Tech as one of them and a separate Freshman SLC
5 E
Choice, Thematic 9-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate
6 B
Departmental, 10-12, with separate Freshman House, and separate Career-Tech
7 A
Departmental, 9-12, separate Career-Tech

Favorite: G
8th + 9th Academy → Self-selection starting in 10th
Themes/disciplines
- Mastering learning
- Older peer-mentor in grade 10+ theme

Pros
- Reduce transitions
- Offer exploratory and then focused choice
- Reduce "high stakes" exams, failure (hard to recover when you get a low grade now)
- Build relationships
- 8th grade needs easily communicated by proximity
- Administrative continuity

Cons
- Staff transition harder

Least favorite: A

TABLE TEAM 8 7587-89
Ranking – Structure

1 G
= C + Integrated CTC (with strong advisory need!)
2 C
Vertical (interdisciplinary) 9-12 Small Learning Communities (SLCs), with Career-Tech as one of them
3 D
Vertical (Interdisciplinary)10-12 SLCs, with Career-Tech as one of them and a separate Freshman SLC
4 E
Choice, Thematic 9-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate
5 F
Choice, Thematic 10-12 SLCs such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate, and Freshmen as its own SLC
6 B
Departmental, 10-12, with separate Freshman House, and separate Career-Tech
7 A
Departmental, 9-12, separate Career-Tech

Favorite: G = C + integrated CTC (with strong advisory need!)

Pros
- Personalization
- Teacher teaming
- Cross curricular
- Integrated
- Small teams

- Get outside of classes
- Desired feel too small
- Cross over
- Community
- *CTC specialized electives

Cons

- Students who don't like SLC
- Team working together
- Requests to change

Least Favorite: A

Pros

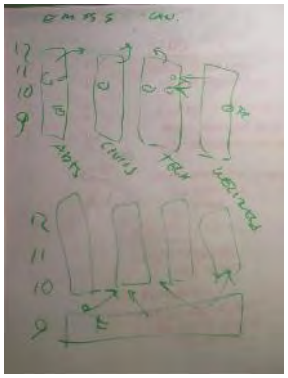
- Teachers within department sharing materials

Cons

- Don't see how it "fits"
- They vs us
- Separate Academy vs CTC

SUMMARY DISCUSSION

- Used to have 9th Academy at DHS
- Peter– want to be a community of one
- Maybe don't isolate but maybe paired teachers
- Review of results:
- Concept: Favored by:
  - Sampling of programs 3 Table Teams
  - Advisory 5 Table Teams
  - Freshman with 10-12 6 Table Teams
  - Freshmen separate 2 Table Teams
  - SLC 8 Table Teams
  - Not Departmental 8 Table Teams
  - CTE EVERYWHERE 8 Table Teams



This is a scoring of all responses:

SCHOOL ORGANIZATIONAL STRUCTURE 1: OVERALL ORGANIZATION										
TT	1	2	3	4	5	6	7	8	TOTL	OPTION
									0	**G. Other:** identify and share with others ASAP
		1							1	**G, TT2: Thematic freshman sampler, integrated, advisories**
			1						1	**G, TT3:** SLCs, interdisciplinary, **year broken into themes** (STEAM, career-tech, etc)
						1			1	**G, TT 6:** SLCs, advisor component, interdisciplinary, **thematic and vertical, 9-12**
							1		1	G, TT7: **8th +9th,** advisory, **self selection starting in 10th (themes/disciplines)**
								1	1	**G, TT8: C (interdisciplinary SCLs) with integrated CTC**
	1	2	4	1	1	5	2	5	21	F. Choice, **Thematic 10-12 SLCs** such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate, and **Freshmen as its own SLC**
	3	4	2	2	2	4	4	3	24	D. Vertical (Interdisciplinary)**10-12 SLCs,** with Career-Tech as one of them and a separate **Freshman SLC**
	4	5	3	5	4	2	3	2	28	C. Vertical (interdisciplinary) **9-12 Small Learning Communities (SLCs)**, with Career-Tech as one of them
	2	3	5	3	3	3	5	4	28	E. Choice, **Thematic 9-12 SLCs** such as a STEM/STEAM focus, or Arts, or Human Services or ??? with Career-Tech integrated in them as appropriate
	4	6	6	4	5	7	6	6	44	**B. Departmental, 10-12**, with separate **Freshman House**, and separate Career-Tech
	6	7	7	6	6	6	7	7	52	**A. Departmental, 9-12**, separate Career-Tech
						Lower score = more favored				

SCHOOL ORGANIZATIONAL STRUCTURE 2: CTE AND ACADEMICS

This was the challenge:

SCHOOL ORGANIZATIONAL STRUCTURE 2
C-T E + ACADEMICS

Table Team discussion and report out
An exploration of integration of career-technical learning and academic learning

CREATE THE MOST APPROPRIATE CONCEPT FOR THE FUTURE FROM AN EDUCATIONAL POINT OF VIEW
Using the two most favored school structures explored in the last challenge, elaborate more on how they would work.

Your assignment:

1. Identify any current integration initiatives
2. Identify the two structures just cited as most appropriate
   a. Elaborate on each of the structures to give it more definition
   b. Identify the Pros and Cons
3. Given this further consideration, do you recommend as a school organization for the future DHS-CTC?

This was addressed by one Super Table Team, created by participants choosing to join Louise Paradis at a double table, with approximately 10 people. Here are their responses:

SUPER TABLE TEAM
CTE IS Everywhere
Integration

Pros
- o Have culinary located in Café
- o Better prep for life experience
- o Expertise from community
- o Projects : ie business and culinary – calculus and engineering
- o Labs used for more than one thing
- o Applied learning
- o Leads the way for rest of school
- o LEADERSHIP
- o Professional development
- o CTC programs do what needs to be done – looking to the future

Cons
- o Sensory aspects
  - ✓ Automotive
  - ✓ Cosmetology
- o Not having access – from the public
- o Resistance from best and brightest
  - ✓ Thrive in current system
- o Hard to supervise both lab and classroom
- o Spaces have to have outside access – hard to give inside visibility
- o Parking
- o More technology
  - ✓ Possibilities
    - Live feeds
    - Video internships

Overall: integration is a positive
- o BETTER ADVERTISING FOR THE PROGRAM
  - ✓ → Community and school wide
    - → Better visibility

SUMMARY DISCUSSION

- CTC – questions
  - o How do we manage the storefront aspect of CTC (access to customers from the public)?
  - o Safety?
  - o CTC as model for school
    - ✓ Visibility into CTC Labs
      - More likelihood of collaboration
      - Integrate CTE into academics
    - ✓ Teacher collaboration
    - ✓ Math class into CTE class

SCHOOL ORGANIZATIONAL STRUCTURE 3: EFFECTIVE SERVICES STRATEGIES

The challenge was:
SCHOOL ORGANIZATIONAL STRUCTURE 3
EFFECTIVE SERVICES STRATEGIES

Table Team discussion and report out
An exploration of most effective services strategies

CREATE THE MOST APPROPRIATE CONCEPT FOR THE FUTURE FROM AN EDUCATIONAL POINT OF VIEW

A. 21st century Library/ (old and new) media services
B. 21st Century food services
C. Special Education
D. School leadership (administration and guidance)
E. Teacher support
F. Student learning support
G. Student life
H. Other: identify and share with others ASAP

Your assignment:
1. Choose two of the services outlined above
    a. Elaborate on the structure to give them more definition
    b. Identify the Pros and Cons
2. Do you recommend as a school organization for the future DHS-CTC?

Five Table teams addressed this challenge. Their thoughts were:

A 21st Century Library/(Old + New) Media Services
TABLE TEAM 5

- Multiple locations
    - One outside (Courtyard, benches)
- Theme-based
    - (Fiction, non-fiction, history, science, etc)
    - Maker Space
- Different technologies
    - Or do we bring it with us?
- Teacher Planning Space/true PD
- Instruction
    - Evaluating websites
    - Siting sources
    - Using databases
- Students need time to access the Libraries
- Allowed to be used as a social space
- Parts designated for eating and drinking (food and beverage available)
    - Could draw parents and community in
- Some quiet space – maybe part of or separate
    - Might be used more if know social space available
- Central and or visible from school/need natural light
- Collaboration
    - Community gathering, project work, parallel pursuits
- Connection with CTC (Coffee Shop, desk, cashier)

B 21st Century Food Services
TABLE TEAM 6

- Venue choices
    - Café
        - ✓ Communal
    - Courtyard
        - ✓ Exterior (tables) picnic, etc
    - Classrooms
        - ✓ Small Learning Community
    - Gourmet table
        - ✓ Formal
- *Flexible schedule/open hours…reflects SLC schedule/needs
- Snack Cart that travels to designated areas in facility at designated times
    - Student ID # - no $
    - H20, juice, smoothies, fruit, yogurt, granola
- Food: Farm to Table (local farms)
    - Serving all <u>three</u> meals (breakfast, lunch, dinner)
- CTE – self-sustaining nutrition/business

- Agriculture
- Non-wasting/complies with USDA and FDA regulations

- Pros
  - You are what you EAT!
  - Integration of student involvement/programs
  - Choice
  - Availability
- Cons
  - Schedule
  - Budget
  - Logistics

D School Leadership
TABLE TEAM 8

- Open space (central) – yet private and secure
- Intro into advanced
  - Guidance, (together, private, secure, Waiting Space (structure important), (keep same students)
  - Health (central, easy to find, hidden access to other offices, private rooms)
  - Deans (Private! Small offices, conference space, ISS near-by (mini), same student over time), close to Health near other sources
- Multiple exits and entrances
- CTC with Principal
- Deans are building managers
- Secure
- Main office
  - Principal, CTC + Dean, Director of Instruction

F Student Learning Support
TABLE TEAM 8

- Could be part of an advisory program
- Guidance support for post-secondary planning
- Meeting basic needs (food, clothes, etc)
- Mental health supports/counseling
- *Crisis supports
- *Learning interventions at all levels
- Mastery learning a must!
- *Ensure that teachers know and follow student accommodations plans
- Provide supports for parents through guidance
- Create ways for parents to connect with school
- *Teach students to advocate for themselves with parents and teachers
- *Have adult and peer mentors
- Create ways to extend and enrich for all students
  - Flexible hours
  - More course and club offerings
- Late busses
- Create a space for students to wait/study after school (Common Space)
- *Have community members talk about careers and/or mentor students within a career path
- *Make all information readily available*
- *Be proactive with information*

G Student Life
TABLE TEAM 4

- Student spaces – "congregate"
- Outside
  - Courtyard → Cafeteria
  - Classroom → Amphitheatre (tiered)
  - Rooftop
- Inside
  - Current – Mezzanine, Band, Solarium, Library before school
  - Places for students to work
    - ✓ Benches/Learning Commons
    - ✓ Conference/working rooms
  - Auditorium/Cafeteria – able to use more often – wireless, flexibility
- Food Court concepts – work – lunch
  - Licensing
  - Hour lunch
    - ✓ Time for clubs, HW, Advisory, builds collaboration on many levels
  - Piped in music/live music
  - Video screens – announcements, student work
  - Valet parking - revenue

SUMMARY DISCUSSION

- Library
  - Like multiple different Libraries
    - ✓ Curricular areas would keep it stocked
- Food
  - Choice of food?
- Student learning support
- Student life
  - Plus all others
  - Kids could eat lunch with teachers
  - This shifts us more to a university model

Workshop Notes Day 5

AGENDA

The fifth Visioning Workshop was held on 20th January 2015. Notes of all activities follow:

- Ron Berger: *Cultivating an Ethic of Excellence*
- School Transformation + Development Map

RON BERGER: *CULTIVATING AN ETHIC OF EXCELLENCE*

Ron Berger is the head of the Expeditionary Learning Schools network, an organization of more than 100 schools nationwide founded on the principles of engaged, active student learning.

As homework the Visioning Team had watched a video of Ron Berger's presentation at Brandeis University, outlining how an ethic of learning excellence could be created in schools K-12.

SCHOOL TRANSFORMATION + DEVELOPMENT MAP

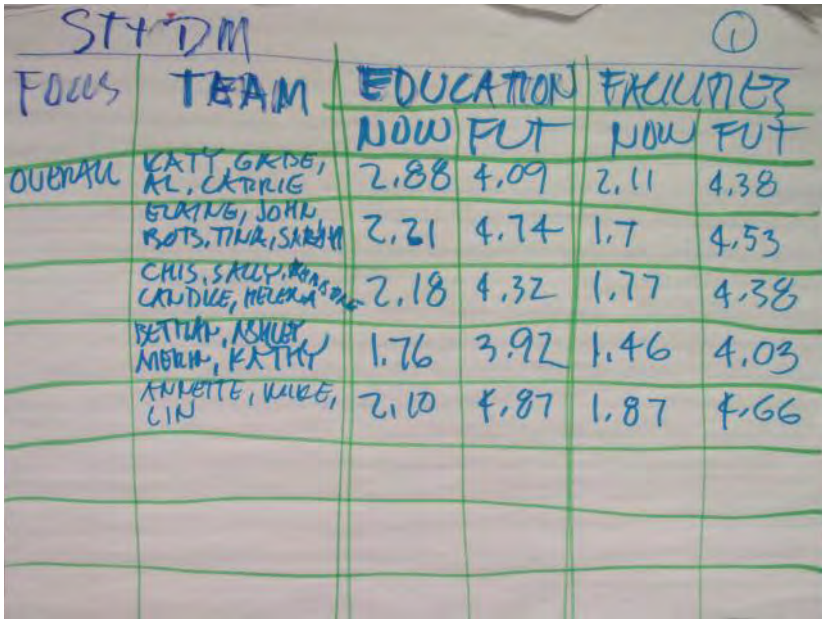
Workshop participants used the School Transformation + Development Map (ST+DM © 2015 Frank Locker Inc) to evaluate Dover High School (DHS) + Career Technical Center's (CTC) current educational deliveries and facilities, and to project the desired future for both.

The ST+DM expresses the evolutionary shift in education in great detail, chronicling educational practices and facility design. Schools today are in different points of evolution, and many schools expect to be in different points of evolution in the long-term future. The ST+DM characterizes schools and facilities on a 1 through 5 basis, with 1 as the most traditional category, and 5 as the most transformed.

Workshop participants worked in three-person micro teams to review the multiple educational practices and facilities concepts in the School Transformation + Development Map. They scored DHS + CTC in the following categories:

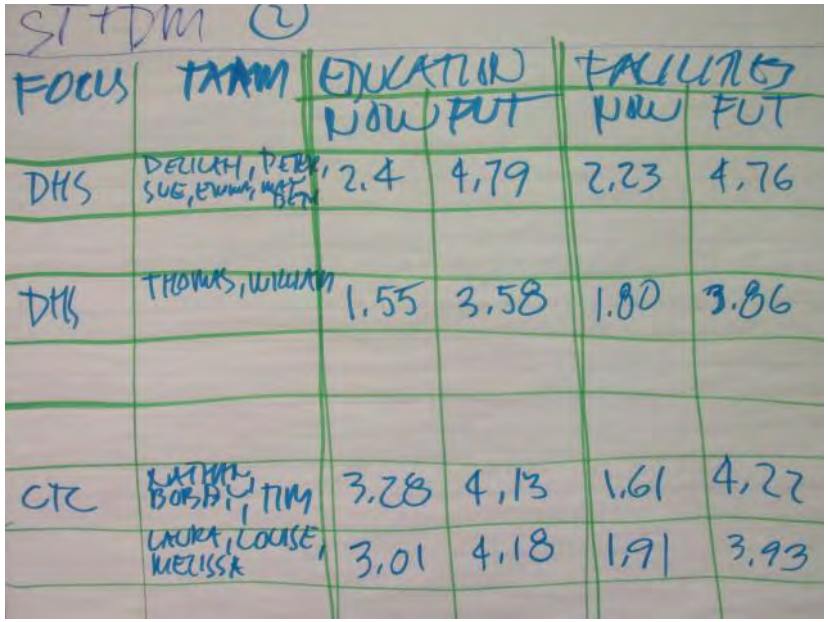
- Educational Delivery Now
- Facilities Now
- Future Educational Delivery
- Future Facilities

Here are the results:



ST+DM ①

FOCUS	TEAM	EDUCATION NOW	EDUCATION FUT	FACILITIES NOW	FACILITIES FUT
OVERALL	KATY, GRIDS, AL, CATRIE	2.88	4.09	2.11	4.38
	GLAING, JOHN, BOTS, TINA, SARAH	2.21	4.74	1.7	4.53
	CHIS, SALLY, CANDICE, HELENA	2.18	4.32	1.77	4.38
	BETTAR, ASHLEY, MARK, KATHY	1.76	3.92	1.46	4.03
	ANNETTE, MIKE, LIN	2.10	4.87	1.87	4.66



ST+DM ②

FOCUS	TEAM	EDUCATION NOW	EDUCATION FUT	FACILITIES NOW	FACILITIES FUT
DHS	DELILAH, PERE, SUE, EMMA, MAT, BETH	2.4	4.79	2.23	4.76
DHS	THOMAS, WILLIAM	1.55	3.58	1.80	3.86
CTC	KATHY, BOBBI, TIM	3.28	4.13	1.61	4.27
	LAURA, LOUISE, MELISSA	3.01	4.18	1.91	3.93

These will be analyzed and reported out in the next workshop.

Workshop Notes Day 6

AGENDA

The sixth Visioning workshop was held on 31st January 2015. Notes of all activities follow:

- School Transformation + Development Map Results
- Places for Learning
- Defining Spaces
- Larry Rosenstock on *High Tech High*
- Overall School Organization Diagram
- Key Words
- Reflections + Next Steps

SCHOOL TRANSFORMATION + DEVELOPMENT MAP RESULTS

Workshop participants used the School Transformation + Development Map (ST+DM © 2015 Frank Locker Inc) to evaluate DHS and CTC's current educational deliveries and facilities, and to project the desired future for both.

The ST+DM expresses the evolutionary shift in education in great detail, chronicling educational practices and facility design. Schools today are in different points of evolution, and many schools expect to be in different points of evolution in the long term future. The ST+DM characterizes schools and facilities on a 1 through 5 basis, with 1 as the most traditional category, and 5 as the most transformed.

Workshop participants worked in three-person micro teams to review the multiple educational practices and facilities concepts in the School Transformation + Development Map. They scored the schools in the following categories:

- Educational Delivery Now
- Facilities Now
- Future Educational Delivery
- Future Facilities

The scores are expressed on the following spreadsheets:

Ch 5.6 Workshop Notes Day 6

#	ISSUE	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	LEAPS
		MICRO TEAM 1		MICRO TEAM 2		MICRO TEAM 3		MICRO TEAM 4		MICRO TEAM 5		MICRO TEAM 6		MICRO TEAM 7		MICRO TEAM 8		MICRO TEAM 9		ALL MICRO TEAMS		DIFF BETWEN NOW AND FUTURE
		CTC		CTC														Students				
EDUCATIONAL DELIVERIES		**NOW**	**FUT**	**NOW**	**FUT**	**NOW**	**FUT**	**NOW**	**FUT**	**NOW**	**FUT**	**NOW**	**FUT**	**NOW**	**FUT**	**NOW**	**FUT**	**NOW**	**FUT**	**NOW**	**FUT**	**LEAPS**
INSTRUCTION																						
1	LEARNING THEME	5.00	5.00	5.00	5.00	1.00	2.50	1.00	2.50	0.00	0.00	1.00	4.00	1.00	2.50	1.00	4.00	1.00	2.50	2.00	3.50	1.50
2	EXHIBITIONS	5.00	5.00	5.00	5.00	3.00	5.00	2.00	4.00	2.00	5.00	2.00	4.00	2.00	5.00	3.00	5.00	1.00	3.00	2.78	4.56	1.78
3	DIFFERENCES	3.50	5.00	3.50	3.50	2.00	3.50	2.00	5.00	1.00	5.00	1.00	5.00	2.00	5.00	2.00	5.00	2.00	3.50	2.11	4.50	2.39
4	PERSONAL LEARNING	3.50	5.00	3.50	5.00	2.00	5.00	2.00	3.50	2.00	3.50	1.00	5.00	2.00	5.00	2.00	5.00	1.00	3.50	2.11	4.50	2.39
5	COLLABORATION	3.00	3.00	3.00	3.00	3.00	5.00	4.00	4.00	2.00	4.00	3.00	5.00	3.00	4.00	2.00	4.00	2.00	4.00	2.78	4.00	1.22
6	TEACHER TEAMS	1.00	2.00	1.00	4.00	1.00	5.00	0.00	0.00	1.00	4.00	1.00	5.00	1.00	4.00	1.00	5.00	1.00	4.00	1.00	4.13	3.13
7	OWNERSHIP	1.00	1.00	1.00	1.00	1.00	5.00	1.00	3.50	1.00	3.50	1.00	3.50	1.00	3.50	1.00	5.00	2.00	3.50	1.11	3.28	2.17
8	AWARENESS	2.00	2.00	2.00	2.00	1.00	5.00	1.00	2.00	1.00	3.50	1.00	5.00	1.00	3.50	2.00	5.00	2.00	3.50	1.44	3.50	2.06
9	TECHNOLOGY	3.00	5.00	3.00	4.00	3.00	5.00	4.00	5.00	1.00	4.00	1.00	5.00	3.00	5.00	3.00	5.00	1.00	5.00	2.44	4.78	2.33
10	DISPLAY	4.00	5.00	2.50	5.00	1.00	5.00	2.50	5.00	2.50	5.00	2.50	5.00	1.00	5.00	2.50	5.00	2.50	4.00	2.33	4.89	2.56
11	DELIVERY	5.00	5.00	4.00	4.00	4.00	5.00	4.00	4.00	2.00	5.00	3.00	5.00	3.00	5.00	3.00	5.00	1.00	4.00	3.22	4.67	1.44
12	INTEGRATION	5.00	5.00	5.00	5.00	2.00	5.00	5.00	5.00	2.00	4.00	2.00	5.00	3.00	5.00	2.00	5.00	1.00	3.00	3.00	4.67	1.67
13	LEARNING LOCATION	4.00	5.00	4.00	5.00	1.00	5.00	2.50	5.00	2.50	5.00	4.00	5.00	2.50	4.00	1.00	5.00	1.00	5.00	2.50	4.89	2.39
14	WHO TEACHES	4.00	5.00	4.00	5.00	3.00	5.00	2.00	4.00	1.00	4.00	3.00	5.00	3.00	5.00	1.00	5.00	1.00	4.00	2.44	4.67	2.22
15	MAKING LEARNING VISIBLE	4.00	5.00	2.00	5.00	2.00	5.00	3.00	5.00	1.00	5.00	2.00	5.00	2.00	5.00	2.00	5.00	2.00	3.00	2.22	4.78	2.56
CURRICULUM/ ASSESSMENT																						
16	ASSESSMENTS	4.00	5.00	4.00	5.00	3.00	5.00	3.00	4.00	3.00	4.00	2.00	5.00	2.00	4.00	3.00	5.00	2.00	3.00	2.89	4.44	1.56
17	CURRIC FLEX	4.00	5.00	0.00	0.00	3.00	5.00	2.00	5.00	2.00	4.00	2.00	4.00	2.00	4.00	2.00	5.00	2.00	4.00	2.38	4.50	2.13
18	SOCIAL/ EMOTIONL	4.00	5.00	2.50	5.00	2.50	5.00	2.50	5.00	2.50	5.00	4.00	5.00	2.50	5.00	2.50	5.00	1.00	4.00	2.67	4.89	2.22
19	21st CENT SKILLS	4.00	5.00	4.00	5.00	4.00	5.00	2.50	5.00	2.50	5.00	4.00	5.00	4.00	5.00	1.00	5.00	1.00	4.00	3.00	4.89	1.89
20	CURRICULUM	5.00	5.00	3.50	5.00	3.50	5.00	2.00	5.00	2.00	5.00	2.00	5.00	3.50	5.00	2.00	5.00	1.00	3.50	2.72	4.83	2.11
21	KNOWLEDGE	3.00	3.00	3.00	5.00	1.00	5.00	3.00	3.00	1.00	5.00	3.00	5.00	3.00	5.00	3.00	5.00	1.00	3.00	2.33	4.33	2.00
22	TEXT BOOKS	0.00	0.00	3.00	5.00	2.00	5.00	2.00	5.00	2.00	3.00	3.00	5.00	1.00	3.00	2.00	4.00	2.00	5.00	2.13	4.38	2.25
23	PACE + VEHICLES	3.00	4.00	2.00	2.00	2.00	4.00	1.00	4.00	2.00	4.00	3.00	4.00	2.00	4.00	2.00	4.00	1.00	3.00	2.00	3.67	1.67
24	GRADING	2.00	3.50	2.00	5.00	2.00	5.00	2.00	3.50	1.00	1.00	2.00	5.00	2.00	2.00	2.00	5.00	1.00	3.50	1.78	3.72	1.94
25	FREQUENCY	3.50	5.00	5.00	5.00	2.00	5.00	3.50	3.50	1.00	3.50	2.00	5.00	2.00	3.50	2.00	5.00	2.00	3.50	2.56	4.33	1.78
LEADERSHIP																						
26	DISTRIBUTION	1.00	1.00	1.00	5.00	1.00	0.00	1.00	5.00	1.00	3.00	1.00	5.00	1.00	3.00	1.00	5.00	1.00	0.00	1.00	3.86	2.86
27	SCHEDULING	1.00	2.50	4.00	4.00	4.00	0.00	1.00	5.00	1.00	1.00	1.00	2.50	2.50	4.00	4.00	5.00	1.00	2.50	2.17	3.31	1.15
PROFESSIONAL DEVELOPMENT																						
28	PROF DEVELOPMENT	2.00	3.50	2.00	3.50	2.00	5.00	1.00	3.50	3.50	5.00	3.50	5.00	2.00	5.00	3.50	5.00	2.00	3.50	2.39	4.33	1.94
29	COMMON PLANNING	2.00	5.00	1.00	2.00	1.00	5.00	1.00	3.50	1.00	3.50	1.00	5.00	1.00	3.50	2.00	3.50	1.00	3.50	1.22	3.83	2.61
RELATIONSHIP BUILDING																						
30	ADVISORS	4.00	5.00	0.00	0.00	3.00	5.00	1.00	5.00	3.00	5.00	1.00	5.00	3.00	5.00	3.00	5.00	1.00	3.00	2.38	4.75	2.38
31	KNOWING	2.00	3.50	3.50	3.50	2.00	5.00	1.00	3.50	2.00	3.50	2.00	5.00	2.00	5.00	2.00	5.00	2.00	3.50	2.06	4.17	2.11
CONNECTIONS																						
32	ADULTS	5.00	5.00	5.00	5.00	2.50	5.00	2.50	4.00	0.00	2.50	4.00	5.00	2.50	5.00	1.00	5.00	2.50	4.00	3.13	4.50	1.38
33	ARTICULATION	5.00	5.00	0.00	0.00	4.00	5.00	0.00	0.00	2.00	4.00	3.00	5.00	3.00	4.00	3.00	5.00	1.00	4.00	2.63	4.57	1.95
34	COMMUNITY	3.50	5.00	2.00	3.50	5.00	5.00	3.50	3.50	2.00	3.50	2.00	3.50	3.50	3.50	3.50	5.00	2.00	3.50	3.00	4.00	1.00
HIGH SCHOOL																						
40	TRACKING	1.00	5.00	5.00	5.00	1.00	3.00	4.00	4.00	1.00	3.00	3.00	5.00	1.00	5.00	1.00	5.00	2.00	3.00	2.11	4.22	2.11
41	SCHOOL ORG	2.00	2.00	1.00	3.50	0.00	0.00	1.00	5.00	1.00	3.50	1.00	5.00	1.00	5.00	1.00	5.00	1.00	2.00	1.13	3.88	2.75
42	ELECTIVES	5.00	5.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	5.00	3.00	3.00	3.00	5.00	3.00	5.00	3.22	3.89	0.67
43	INTERDISCIPLINARY	0.00	0.00	2.00	5.00	2.00	5.00	3.50	5.00	1.00	5.00	2.00	5.00	2.00	5.00	2.00	5.00	1.00	3.50	1.94	4.81	2.88
44	APPLIED LEARNING	4.00	5.00	2.50	5.00	4.00	5.00	2.50	4.00	2.50	5.00	2.50	5.00	2.50	5.00	2.50	5.00	2.50	5.00	2.83	4.89	2.06
45	CLASS SIZE	2.50	2.50	2.50	2.50	2.50	4.00	1.00	2.50	1.00	0.00	2.50	5.00	2.50	5.00	1.00	5.00	2.50	4.00	2.00	3.81	1.81
46	TIME TABLE	2.50	2.50	2.50	5.00	4.00	4.00	2.50	2.50	2.50	2.50	2.50	4.00	2.50	4.00	2.50	5.00	2.50	1.00	2.67	3.81	1.15
		3.28	4.13	3.01	4.18	2.40	4.79	2.28	4.09	1.76	3.92	2.21	4.74	2.18	4.32	2.10	4.87	1.55	3.58	2.31	4.29	1.98

#	ISSUE	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	LEAPS
		MICRO TEAM 1		MICRO TEAM 2		MICRO TEAM 3		MICRO TEAM 4		MICRO TEAM 5		MICRO TEAM 6		MICRO TEAM 7		MICRO TEAM 8		MICRO TEAM 9		ALL MICRO TEAMS		DIFF BETWEN NOW AND FUTURE
		CTC		CTC														Students				
FACILITIES		NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	NOW	FUT	LEAPS
OVERALL PLANNING																						
1	SIZE/ CAPACITY	5.00	5.00	4.00	4.00	3.00	5.00	2.00	4.00	1.00	3.00	1.00	4.00	1.00	5.00	2.00	4.00	1.00	3.00	2.22	4.11	1.89
2	FUTURE PROOFING	1.00	5.00	2.00	2.00	2.00	5.00	2.00	5.00	1.00	5.00	2.00	5.00	2.00	5.00	1.00	5.00	1.00	3.00	1.56	4.44	2.89
3	COLLABORATION	2.00	2.00	2.00	5.00	2.00	5.00	2.00	4.00	1.00	5.00	1.00	4.00	2.00	5.00	1.00	5.00	1.00	3.00	1.56	4.22	2.67
4	VISIBLE LEARNING	2.00	4.00	3.00	5.00	3.00	5.00	3.00	5.00	2.00	5.00	2.00	5.00	2.00	5.00	1.00	4.00	1.00	3.00	2.11	4.56	2.44
5	FLEXIBILITY	1.00	2.00	1.00	1.00	2.00	5.00	1.00	4.00	1.00	5.00	2.00	5.00	1.00	5.00	1.00	5.00	1.00	3.00	1.22	3.89	2.67
6	SOCIAL SETTING	1.00	5.00	1.00	5.00	2.00	5.00	2.00	5.00	1.00	5.00	2.00	5.00	2.00	5.00	1.00	5.00	1.00	4.00	1.44	4.89	3.44
7	EXPRESSION	1.00	5.00	5.00	5.00	4.00	5.00	3.00	5.00	1.00	5.00	2.00	5.00	1.00	5.00	1.00	5.00	1.00	4.00	2.11	4.89	2.78
8	SCHOOL ORGANIZATION	2.00	2.00	2.00	5.00	2.00	5.00	2.00	3.50	2.00	5.00	2.00	3.50	2.00	5.00	1.00	5.00	2.00	5.00	1.89	4.33	2.44
9	INTERDISCIPLINARY	2.00	5.00	1.00	5.00	3.00	5.00	2.00	4.00	1.00	5.00	1.00	5.00	2.00	5.00	1.00	5.00	1.00	5.00	1.56	4.89	3.33
10	MOVEMENT	2.00	5.00	1.00	5.00	2.00	5.00	1.00	3.00	2.00	3.00	1.00	5.00	2.00	4.00	1.00	4.00	2.00	4.00	1.56	4.22	2.67
11	AUTONOMY	2.00	2.00	3.50	3.50	2.00	5.00	3.50	5.00	1.00	2.00	1.00	5.00	2.00	3.50	1.00	3.50	2.00	3.50	2.00	3.67	1.67
12	COMMUNITY	2.00	5.00	2.00	3.00	3.00	5.00	2.00	4.00	2.00	3.00	2.00	3.00	2.00	3.00	1.00	5.00	2.00	3.00	2.00	3.78	1.78
13	MIXED USE	3.00	5.00	1.00	1.00	3.00	5.00	3.00	0.00	1.00	1.00	2.00	2.00	1.00	2.00	1.00	5.00	1.00	3.00	1.78	2.67	0.89
14	LEADERSHIP	2.00	3.50	1.00	5.00	2.00	5.00	1.00	3.50	1.00	2.00	1.00	5.00	2.00	3.50	1.00	5.00	1.00	2.00	1.33	3.83	2.50
15	PARENTS/ VOLUNTRS	1.00	5.00	1.00	4.00	1.00	5.00	1.00	0.00	2.00	2.00	2.00	5.00	2.00	5.00	1.00	5.00	2.00	4.00	1.44	4.38	2.93
SPECIFIC SPACES																						
16	TRANSPARENCY	1.00	5.00	1.00	5.00	2.00	5.00	2.00	3.50	2.00	3.50	2.00	3.50	2.00	3.50	2.00	3.50	2.00	3.50	1.78	4.00	2.22
17	GROUPING	1.00	3.50	2.00	3.50	2.00	5.00	2.00	5.00	1.00	3.50	2.00	5.00	1.00	5.00	2.00	5.00	2.00	3.50	1.67	4.33	2.67
18	SMALL GROUPS	3.00	5.00	3.00	3.00	3.00	5.00	2.00	5.00	1.00	5.00	3.00	5.00	3.00	5.00	3.00	5.00	3.00	5.00	2.67	4.78	2.11
19	ARTS	2.00	5.00	2.00	5.00	2.00	5.00	2.00	5.00	2.00	5.00	2.00	5.00	2.00	5.00	2.00	5.00	2.00	3.50	2.00	4.83	2.83
20	SPECIAL ED	1.00	5.00	2.00	3.50	2.00	5.00	3.50	3.50	2.00	5.00	2.00	5.00	2.00	3.50	2.00	3.50	2.00	3.50	2.06	4.17	2.11
21	PE/ ATHLETICS	2.00	5.00	2.00	3.50	2.00	5.00	2.00	5.00	1.00	3.50	2.00	5.00	2.00	3.50	1.00	5.00	2.00	3.50	1.78	4.33	2.56
22	TECH ED	2.50	4.00	2.50	4.00	4.00	5.00	0.00	5.00	2.50	5.00	2.50	5.00	2.50	4.00	2.50	5.00	2.50	4.00	2.69	4.56	1.87
23	WET LABS	1.00	3.00	1.00	3.00	1.00	5.00	3.00	3.00	3.00	3.00	1.00	5.00	1.00	3.00	1.00	5.00	1.00	3.00	1.44	3.67	2.22
24	CLASS-ROOM SIZES	1.00	2.50	1.00	5.00	1.00	5.00	2.50	5.00	0.00	5.00	1.00	5.00	2.50	5.00	2.50	5.00	2.50	5.00	1.75	4.72	2.97
25	DRY LABS	1.00	5.00	2.00	2.00	1.00	5.00	1.00	5.00	1.00	3.50	2.00	3.50	1.00	3.50	1.00	5.00	2.00	3.50	1.33	4.00	2.67
26	MEDIA CTR	1.00	4.00	2.00	4.00	4.00	4.00	0.00	0.00	2.00	4.00	1.00	4.00	2.00	5.00	2.00	5.00	2.00	4.00	2.00	4.25	2.25
27	ASSEMBLY	2.00	5.00	2.00	4.00	4.00	4.00	1.00	4.00	2.00	4.00	2.00	4.00	1.00	4.00	2.00	4.00	4.00	5.00	2.22	4.22	2.00
28	TEACHER PLANNING	1.00	2.00	1.00	3.50	1.00	5.00	2.00	5.00	1.00	5.00	2.00	5.00	1.00	5.00	1.00	5.00	2.00	3.50	1.33	4.33	3.00
29	CONNECTIONS	1.00	4.00	2.00	4.00	2.00	5.00	3.00	4.00	1.00	5.00	2.00	5.00	2.00	0.00	2.00	5.00	2.00	4.00	1.89	4.50	2.61
FOOD SERVICE																						
30	FOOD CHOICES + PREP	2.00	5.00	3.00	4.00	3.00	5.00	3.00	5.00	2.00	4.00	3.00	4.00	3.00	5.00	2.00	5.00	2.00	5.00	2.56	4.67	2.11
SUSTAINABLE DESIGN																						
31	ENVIRON IMPACT	1.00	5.00	1.00	4.00	1.00	4.00	1.00	5.00	1.00	4.00	1.00	5.00	1.00	5.00	1.00	5.00	1.00	3.00	1.00	4.44	3.44
FURN + EQUIP																						
32	TECH INTEGRATION	1.00	5.00	3.00	5.00	3.00	5.00	3.00	4.00	2.00	4.00	2.00	5.00	2.00	5.00	2.00	5.00	4.00	5.00	2.44	4.78	2.33
33	STUDENT FURNITURE	1.00	5.00	1.00	4.00	1.00	4.00	2.00	4.00	1.00	4.00	1.00	4.00	2.00	4.00	2.00	5.00	1.00	3.00	1.33	4.11	2.78
34	CABINETRY	1.00	5.00	2.00	4.00	2.00	0.00	3.00	4.00	1.00	4.00	1.00	4.00	2.00	4.00	2.00	5.00	2.00	4.00	1.78	3.78	2.00
35	COMPUTER RATIO	1.00	5.00	1.00	5.00	1.00	5.00	1.00	5.00	1.00	5.00	1.00	5.00	1.00	5.00	1.00	5.00	2.00	4.00	1.11	4.89	3.78
		1.61	4.24	1.91	3.93	2.23	4.76	2.11	4.38	1.46	4.03	1.70	4.53	1.77	4.38	1.83	4.76	1.80	3.86	1.82	4.32	2.49

PLACES FOR LEARNING

The workshop participants analyzed places for learning and established preferences for the future DHS + CTC. Options were reviewed, ranked, and evaluated by Table Teams.

Workshop participants were asked to:

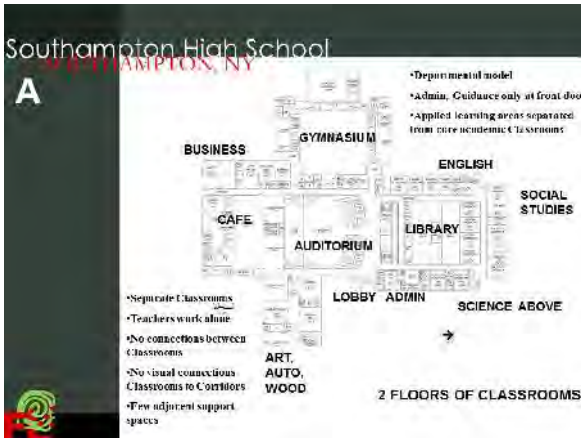
- Rank the choices
- Identify the three most appropriate for their future school
- Identify the one least appropriate
- Explain their choices

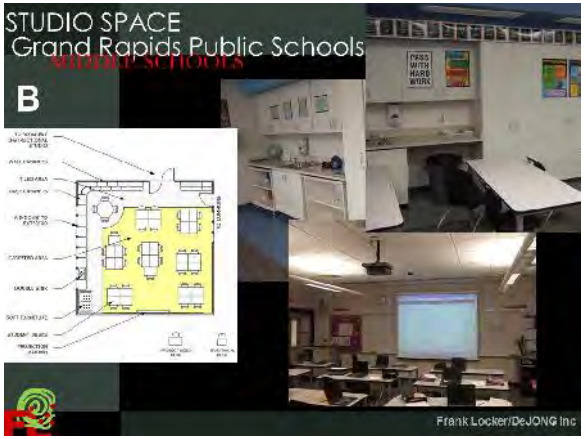
The physical places shown in the challenge were proxy for educational deliveries. While reviewing these physical places, participants were actually projecting the future of learning, and how to best support it.

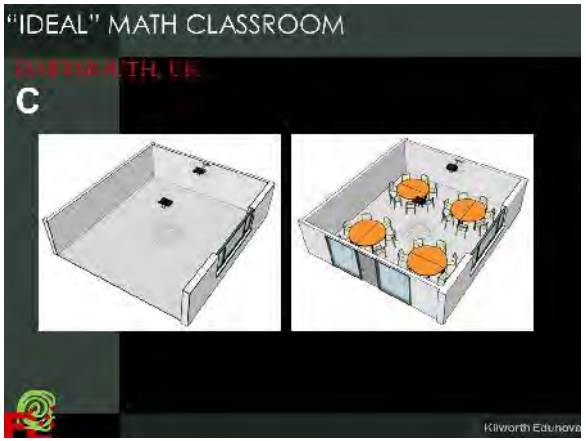
Each of the exemplars reviewed by the workshop participants supports a range of learning modalities, and can best support different teaching deliveries and student activities. No single exemplar supports every possible delivery and activity.
The contenders were:

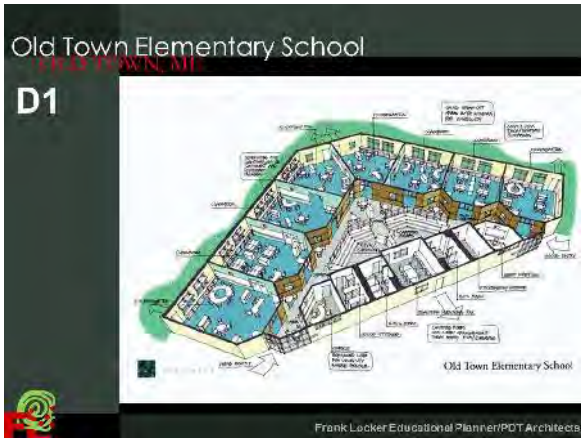
A Southampton High School
B Grand Rapids Middle Schools
C Ideal Math Classroom
D1 Old Town Elementary School
D2 Ipswich Middle School
E Waverly High School
F Bryan HS/ MS
G Cristo Rey High School
H Concord Elementary Schools
I New Tech High
J Forest Avenue K-2 Center
K1 Wooranna Park Primary School
K2 Milan HS Center for Innovative Studies
L School of One

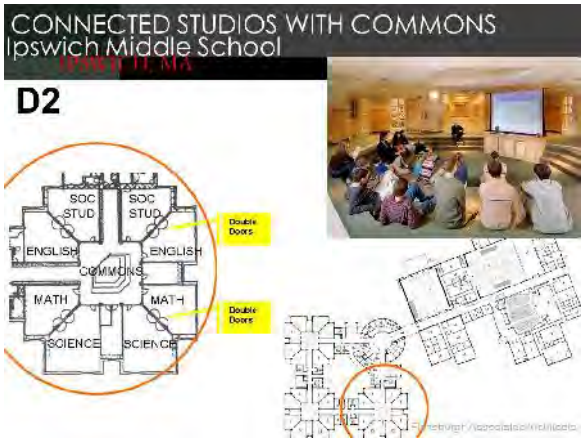
Images for these contenders are shown here and on the next pages:

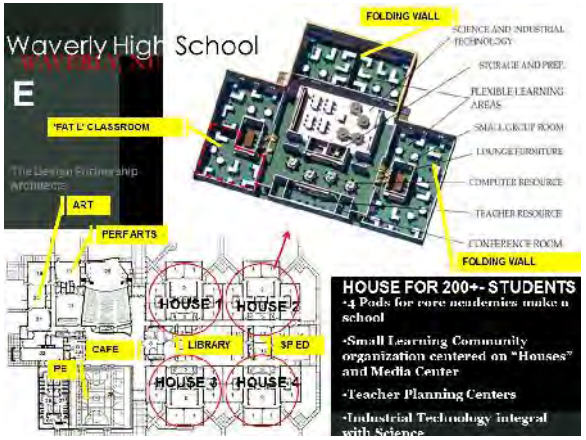





"IDEAL" MATH CLASSROOM
C
Kilworth Edunova


Old Town Elementary School
D1
Old Town Elementary School
Frank Locker Educational Planner/PDT Architects


CONNECTED STUDIOS WITH COMMONS
Ipswich Middle School
D2
SOC STUD
SOC STUD
ENGLISH
ENGLISH
COMMONS
MATH
MATH
SCIENCE
SCIENCE
Double Doors
Double Doors

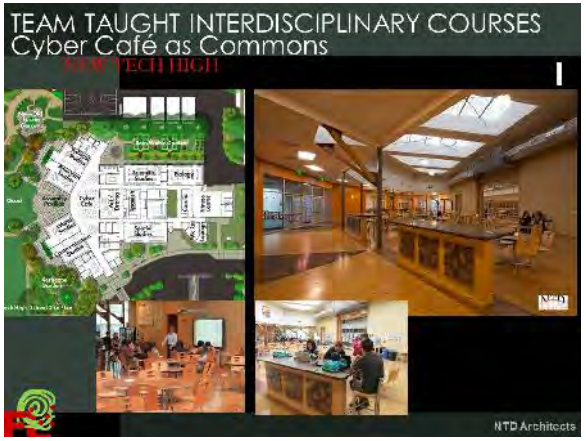

Waverly High School
E
FOLDING WALL
SCIENCE AND INDUSTRIAL TECHNOLOGY
STORAGE AND PREP
FLEXIBLE LEARNING AREAS
SMALL GROUP ROOM
LOUNGE FURNITURE
COMPUTER RESOURCE
TEACHER RESOURCE
CONFERENCE ROOM
FOLDING WALL
'FAT L' CLASSROOM
ART
PERF ARTS
HOUSE 1
HOUSE 2
HOUSE 3
HOUSE 4
CAFE
LIBRARY
SP ED
PE
HOUSE FOR 200+- STUDENTS
•4 Pods for core academics make a school
•Small Learning Community organization centered on "Houses" and Media Center
•Teacher Planning Centers
•Industrial Technology integral with Science


FLEXIBLE CLASSROOM SUITE
Bryan High School/ Middle School
F
BRYAN, OH
OPEN CONFIGURATION
BA
Bellharz Architects


COMMON SPACE OTHER USES/FLEX WALLS
Cristo Rey High School
MINNEAPOLIS, MN
G
Fielding Nair International

✓

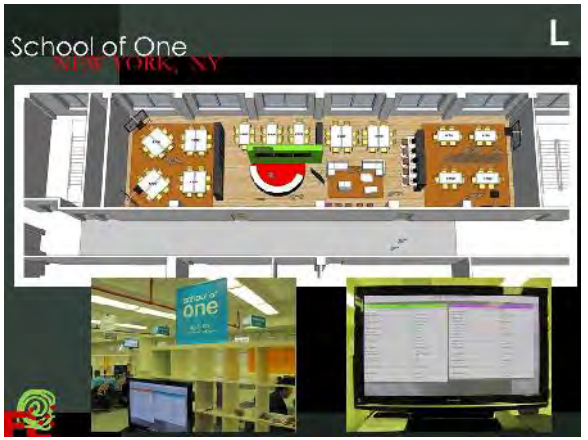

COMMON SPACE HOLDS OTHER USES
End of the Library as We Know it Today
H
HMFH Architects


TEAM TAUGHT INTERDISCIPLINARY COURSES
Cyber Café as Commons
I
NTD Architects


SHARED STUDIOS + RESPONSIBILITY
Forest Avenue School K-2 Center
J
COMMONS
TEACHER CENTER
STAGE


DIFFERENTIATED STUDIOS
Wooranna Park Primary School
K1.
Mary Featherston Designer


THE END OF THE CLASSROOM AS WE KNOW IT TODAY
Milan HS Center for Innovative Studies
K2
Project-Based Learning
FanningHowey Associates Architects


School of One
L

The Table Team responses were:

TABLE TEAM 1
Most Appropriate

F/G Bryan HS/ MS + Cristo Rey High School
- Versatility
- Flexibility of classroom size/layout/furniture
- Garage door
  - ✓ Natural light to interior

K1 Wooranna Park Primary School
- Learning booths
- Natural light
- Teachers + students mobile/project-based learning

D2 Ipswich Middle School
- Common seating forum
- Interdisciplinary classes
- Community spaces clustered at Entry
- Courtyard potential

Least Appropriate

A Southampton High School
- Already have it
- Teachers not collaborating
- No natural light

TABLE TEAM 2
Most Appropriate

K2 Milan HS Center for Innovative Studies
- Variety of spaces – collaboration
  - ✓ Project working spaces
- Common Area
- Multiple use of Corridors

D2 Ipswich Middle School
- Common Area
- Flexible seating
- Small Learning Communities

F Bryan HS/ MS
- Flexibility
  - ✓ Spaces can be large or small
- Corners – project work areas
- Corridor system – multiple uses – not just movement of students

Least Appropriate

A Southampton High School
- Isolation and separations
- Lack of flexible/project working spaces
- Potential lack of natural light

TABLE TEAM 3
Most Appropriate

I New Tech High
- Indoor space
- Interdisciplinary studies
  Varied work spaces (learning, social, collaborative)

K2 Milan HS Center for Innovative Studies
- Technology-based
- Project-based learning
- Look appears comfortable, inviting, homey

L School of One
- Can be incorporated in any educational setting
- Puts more accountability on each student
- Better meets the needs of individuals

Least Appropriate

E Waverly High School
- More appropriate for middle schools
- Not a lot of natural light
- Feel disconnected

TABLE TEAM 4
Most Appropriate

K2 Milan HS Center for Innovative Studies
- Fosters project-based learning
- Natural light/flexible learning spaces
- Unique size + shape of learning spaces

I New Tech High
- Ability to break up into “houses”
- Flexibility of design to incorporate CTE
- Outside learning spaces

D2 Ipswich Middle School

- Ability to break into "houses"
- Gym/Theatre separate to accommodate community use
- Flexibility of learning space + intentional teaming

Least Appropriate

A Southampton High School
- Lack of light
- Not flexible/differentiated size/shape
- Isolated
  - ✓ Department
  - ✓ Classroom
  - ✓ Teachers
  - ✓ Students
  - ✓ Etc

TABLE TEAM 5

Most Appropriate

D2 Ipswich Middle School
- Common space, presentation space
  - ✓ *Pod, SLC
- Connect between rooms

E Waverly High School
- Dedicated space consult
- Flexible spaces, Learning Studio
- Integration of courses beyond common space, SLC

D1 Old Town Elementary School
- More potential for natural light
- Flexible spaces like other models
  - ✓ More instruction, autonomy, model "C"
- Common space, SLC

Least Appropriate

A Southampton High School
- Departmental
- Inflexible
- Current, traditional model

TABLE TEAM 6

Most Appropriate

C Ideal Math Classroom
- Flexible
- "Future proof"
- Collaborative Corners

H Concord Elementary Schools
- Promotes community
- Visibility from classroom to community spaces
- Flexible community spaces with storage option

D1 Old Town Elementary School
- Offices → flexible work spaces within Pods
- Allows for interdisciplinary teaching options within layout
- Flexible common spaces
- Small school within a school

Least Appropriate

B Grand Rapids Middle Schools
- Too self-contained = isolating
- Lack of usable wall space because of storage
- Difficult to have students display work + have work areas on walls

TABLE TEAM 7

Most Appropriate

D2 Ipswich Middle School
- Connecting classrooms
- Common spaces
- Flexibility

D1 Old Town Elementary School
- Common spaces
- Connecting classrooms
- Open areas

I New Tech High
- Outside walls
- Natural lighting
- Commons Area

Least Appropriate

J Forest Avenue K-2 Center
- Disjointed
- Messy
- Not practical

TABLE TEAM 8
Most Appropriate

D1 Old Town Elementary School
- Everything comes off of Central Common Area

G Cristo Rey High School
- Wide variety of classrooms
- Flexibility of class spaces
- Good use of common spaces

I New Tech High
- Modern Cyber Café feel
- Like college bookstores

Least Appropriate

A Southampton High School
- Compartmentalized everything
- Overly traditional classes

SUMMARY
The most appropriate Places were:

D2 Ipswich Middle School
Cited by 5 of 8 table Teams

D1 Old Town Elementary School
4 citations

K2 Milan HS Center for Innovative Studies
4 citations

I New Tech High
3 citations

The least appropriate Places was

A Southampton High School
Cited by 5 of 8 Table Teams

DEFINING SPACES

The workshop participants were given this challenge:
DEFINING SPACES

Table Team discussion and report out

DEVELOP CONCEPTS FOR SPACES TO SUPPORT ONE OF THE FOLLOWING:

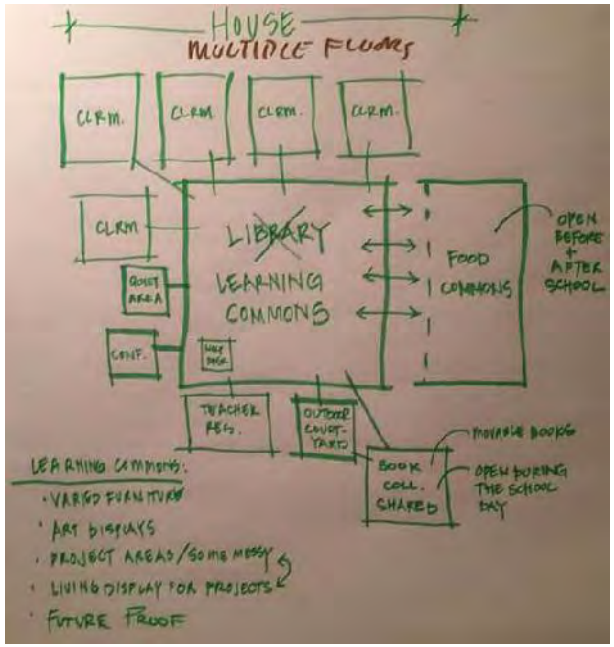
A. 21st century Library/Media Center
B. 21st Century Dining/Food Service
C. Auditorium
D. Supporting applied/active learning, such as project-based learning
E. STEM, STEAM
F. Interdisciplinary Learning
G. Student Collaboration
H. Making Things to Learn
I. Mastery Learning/Independent Study
J. Student Life
K. Teacher Support
L. Community in building; school in community
M. Other

Use drawings, bullets, narratives, or poems, as appropriate

Their responses were:

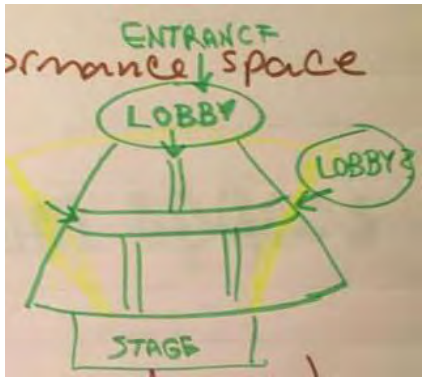
A 21st Century Library/ Media Center
TABLE TEAM 6
Essential characteristics are:

- Each House has a Learning Common
  - House – multiple floors
- Learning Commons:
  - Varied furniture
  - Art displays
  - Project areas/some messy↓
  - Living display for projects ↑
  - Future-proof



C Auditorium
TABLE TEAM 1
Essential characteristics are:
Components of a functional Performance Space

- Full-size Stage
- Backstage
- Green Room
- B/G Dressing Room
- Storage/costumes/props
- Orchestra Pit (with extendable stage when needed)
- Lighting system (box?)
- Stage lights
- Generous Lobby with area for Ticket Booth
- Adequate Bathrooms off Lobby
- *Close to
    - Art Department
    - Band/Chorus Room
    - Building trades
    - Sewing
    - AV
- Entrance – rear Main Lobby (for community)
    - Can be segregated from the rest of school
- Garage door off the back
- Side Balconies
- Multiple Entrances for public
- Classroom space or sections incorporating (through flexible furniture) work space
- Acoustical engineering with incorporated tech
- Climate control
- Comfortable/usable seats/all with non-obstructed view
- ADA Assembly
- Working Fly System
- "If we build it, they will come."



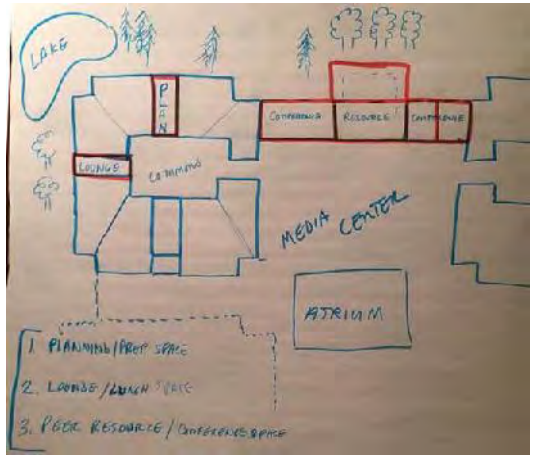
H Making things to learn
TABLE TEAM 4
Essential characteristics are:

- Storage
- Variety of spaces
- Safety/equipment + training
- Supervision
- Specialized areas blend to CTE
    - Electronics
    - Woodworking
    - Textiles
    - Welding
    - 3D Modeling
    - Video/Audio Studio

- Machining
- Graphics

- MANY low-tech Maker Spaces by zone

K Teacher Support
TABLE TEAM 5
Essential characteristics are:



J Student life
TABLE TEAM 2
Essential characteristics are:

Like an Airport Terminal

- Food
  - Water stations
- Electronic support
- Variety of furniture
  - Ottomans
  - Table heights
  - Moveable
- Project space
  - Outside vendors
    - ✓ Food
    - ✓ School supplies
- Large groups could meet
  - Clubs
  - Students
    - ✓ Before/after school
- Courtyard/Atrium
  - Lunch/Study
    - ✓ Advisory – get help
      - Two-hour block
- Study Halls
  - Make these spaces available

- Change supervision paradigm

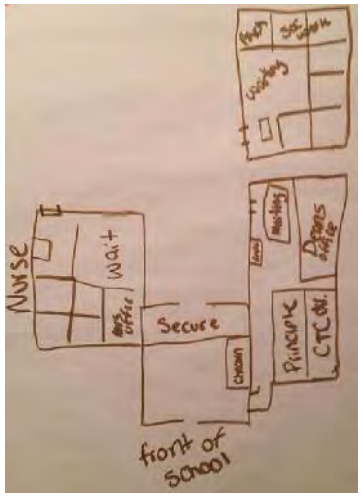
L Community in building; school in community
TABLE TEAM 8
Essential characteristics are:

- Two entrances → student + community
  - Student → front
  - Community → rear/side → leads to CTC programs that offer services
    - ✓ → Make like a store front
- Marketing runs Dover High "Bookstore"
- Central to school, Library/Media Center directly above
  - → Opens up School Store to community and integrates school into the real world

- Both CTC + traditional classrooms are conducive to adult ed/night classes
- Allow community to use school spaces
  - Meetings
  - Plays/shows (public)
- Good advertisements
  - On/in school
  - In business downtown
- School isn't a school → it's a community building. One of the things it does is educate.

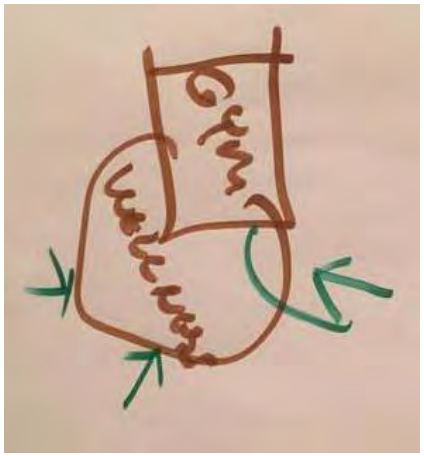
M Other: Administration
TABLE TEAM 7
Essential characteristics are:
Admin

- Who?
  - Deans
  - Principal
  - CTC director
  - Guidance
  - Social worker
  - Psychologist
  - Nurse
- For?
  - Students
  - Teachers
  - Parents
  - Other
- Ideas
  - ★ Open
  - ★ Inviting
  - ★ Private
  - ★ One-way windows
  - ★ New front of the school
  - ★ Secure/safe
  - ★ Passageways



M Other: Wellness
TABLE TEAM 3
Essential characteristics are:
Wellness Center/Gym

- Health Office/Nurse Practitioner
  - LNA
  - Athletic training
    - ✓ Classroom spaces
- Mental Health Office
- (Youth 2 Youth/DARE) Student Services
- Resource officer
- Fitness Center
- Group Fitness Rooms
- Boys + Girls Locker Room
- Wellness instructor space



LARRY ROSENSTOCK ON *HIGH TECH HIGH*

The Visioning Team watched a video of Larry Rosenstock, founder and Chief Executive Officer of High Tech High (HTH), San Diego, sharing concepts and images of this highly successful 21st century school.

Workshop participants were asked "What from this video applies to your future school?"

Comments from the participants included:

- Schools used to separate those who learn with their heads from those who learn with their hands. HTH does not do that
- We need to be doing it, acting it
- Teachers are asked:
  - What was your best learning experience?
  - What support do you need?
- Takes courage to do this
- Push from business community created High Tech High
- We are not asking students what they want to do with the rest of life. We are giving them the opportunity to try things out
- Display student work everywhere. The school is the curator of student work
- Staff can see students learning
- Students can see others learning
- Transparency is a key factor at HTH

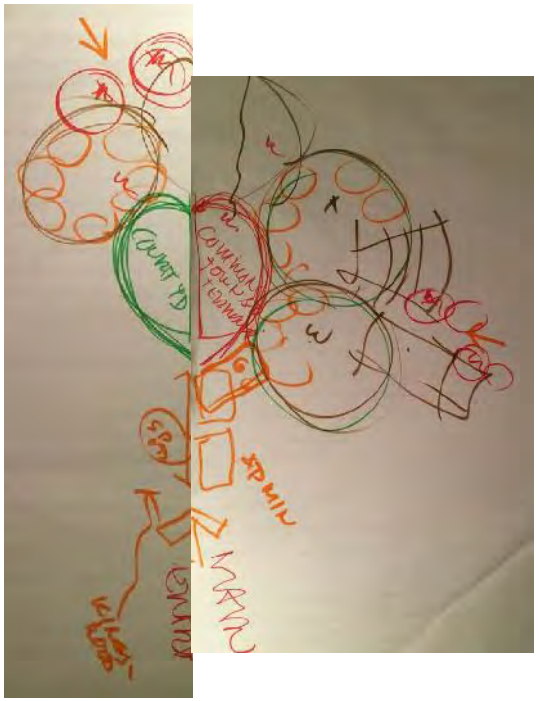
OVERALL SCHOOL ORGANIZATION DIAGRAM

Workshop participants guided Frank Locker in drawing an overall DHS/CTC Planning Diagram.

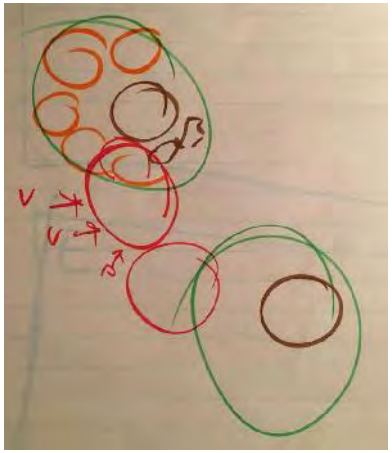
Major functions were drawn as bubbles, in relative size, and in relative positioning. The concept featured the following essential characteristics:

- A centralizing space that might be called:
  - Central
  - Terminal
  - Commons
  - Town Square
  - Cyber Café
- In it would be:
  - Tiered seats
  - Food
  - IT
  - Study Hall
  - Pods

- Learning Common
- Spaces most likely to have public access include:
  - Cosmetology
  - Culinary
  - Student Store
  - Animal Science
  - Auto Technology
  - Auto Collision
  - Gym Lockers
  - Auditorium
  - Wellness Facilities/Gymnasium
  - Administration
  - Nurse
  - Guidance
  - Playing fields
- Windows for all classrooms
  - Some could be on the Town Square
- School organized in Small Learning Communities (SLCs)
- Academic and career-tech learning spaces in each
- The SCLs might be arranged in such a way that they could be operated as Thematic Academies
  - Each would have a theme, such as Arts, Technology, Civics, Wellness
  - Students would choose an academy
  - Each would be interdisciplinary, with all core courses
  - Core learning would be wrapped around each Academy theme
  - Teachers would choose an Academy as their primary "home base"
  - Students would leave their chosen academy for "specials" and courses that are not offered often, like Spanish IV
  - Bring natural light and safe student access to the outside into the Commons/Town Square with a Courtyard



- Coordinate public access to most common destinations with controlled access doors, as few as possible
- Some public access will be by vehicles, such as to Auto Tech and Animal Science



KEY WORDS

As closure to the six days of workshops, participants were asked to identify one word or a two-word phrase that best represented their individual thoughts about the Educational Deliveries and Facilities at the future DHS and CTC. These words could be the basis of the "elevator speech" describing them.

Their key words were:
Education:

- Collaborative (cited 7 times)
- Individualized (cited 2 times)

- Active
- Active/productive
- All inclusive
- Authentic/passionate
- Catered to the student's future
- Custom
- Efficient
- Exciting engaging
- Experimental
- For everyone
- Hands-on
- Individualized-based education
- Inspiring
- Integrated (Interdisciplinary)
- Interactive learning (engaging)
- Motivational
- Practical
- Project-based learning
- Real-world application
- Revision driven
- Revolutionary
- Sincere
- Student-centered

Facilities:

- Flexible (cited 12 times)
- Open (cited 3 times)
- Diverse (cited 2 times)

- Better
- Community/cooperative space
- Cost effective
- Dynamic
- Efficient
- Expensive
- Innovative
- Inspirational
- Inspiring
- Inviting
- Light and air
- Magnificent
- Modern
- Net-zero
- Public access
- Supportive
- Versatile
- Welcoming

REFLECTION + NEXT STEPS

Bob Carrier, Joint Building Committee (JBC), Tina Stanislaski, HMFH Architects, high school principal Peter Driscoll, and superintendent Elaine Arbour outlined next steps. These included:

- Visioning report to be released within a month, after review by the Joint Building Committee
- The architects will develop planning options through the winter and spring based on the Vision
- A presentation will be made to the DHS/CTC faculty and staff this spring
- The JBC will work to bring the project to a community vote

Places for Learning
A TYPOLOGY

Mt Si High School

Frank Locker PhD
fl@franklocker.com
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Places for Learning- A Typology
ORGANIZATION

From:	To:
Most traditional	Most innovative
Teachers work alone	Teachers work together
Students learn in class	Personalized learning
Isolated subjects	Integrated curriculum
Teach + test learning	Project-based learning
Schedule controls time	Students + teachers control time

Two Tipping Points:

Teachers:

Work together in shared spaces

Students:

Initiative/responsibility for own learning

Places for Learning- A Typology
YOUR ASSIGNMENT

RANK

- Work with your table team mates. Identify:
  - The 3 most appropriate exemplars.
    - Why? What qualities did you admire?
  - The 1 least appropriate.
    - Why? What qualities did you dislike?

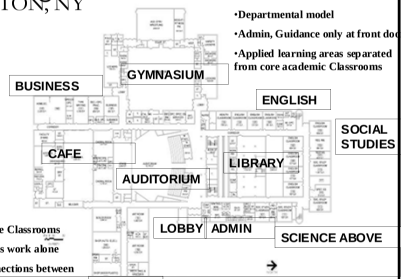
Places for Learning- A Typology
CTC + ACADEMICS

Your focus last workshop was on integration of CTC and academics.

Imagine that CTC spaces would be interspersed in these exemplars.

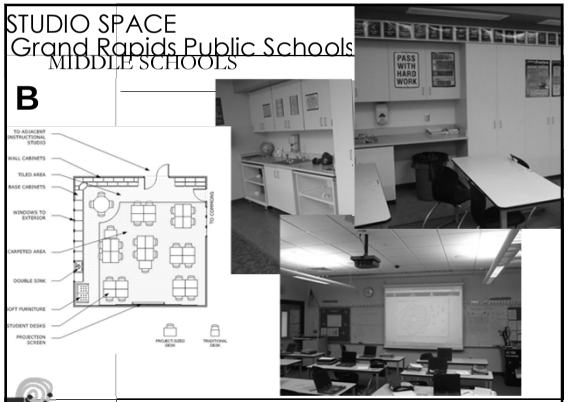
Southampton High School
SOUTHAMPTON, NY

A



STUDIO SPACE
Grand Rapids Public Schools
MIDDLE SCHOOLS

B

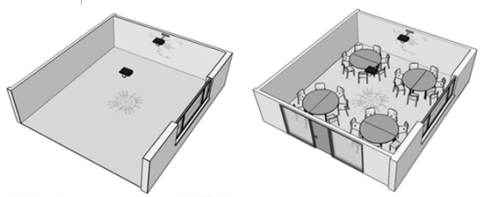


Frank Locker/DeJONG Inc

"IDEAL" MATH CLASSROOM

DARTMOUTH, UK

C



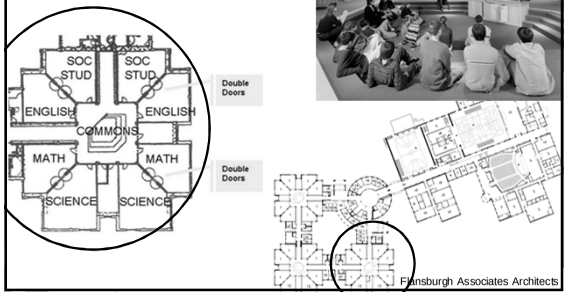
Kilworth Edunova

CONNECTED STUDIOS WITH COMMONS

Ipswich Middle School

IPSWICH, MA

D



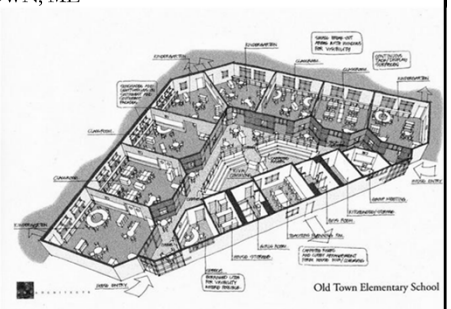
Flansburgh Associates Architects

CONNECTED STUDIOS WITH COMMONS + SUPPORT

Old Town Elementary School

OLD TOWN, ME

E



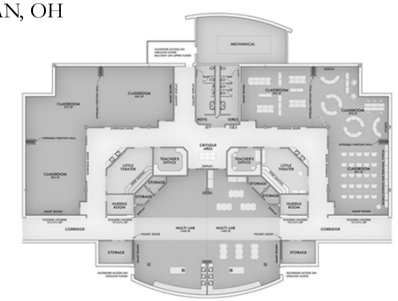
Frank Locker Educational Planner/PDT Architects

FLEXIBLE CLASSROOM SUITE

Bryan High School/ Middle School

BRYAN, OH

F



E=21C STUDIO
EDUCATION SUITE FOR THE 21st CENTURY

Beilharz Architects

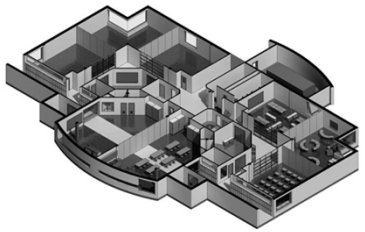
FLEXIBLE CLASSROOM SUITE

Bryan High School/ Middle School

BRYAN, OH

F

CLOSED CONFIGURATION



E=21C STUDIO
EDUCATION SUITE FOR THE 21st CENTURY

Beilharz Architects

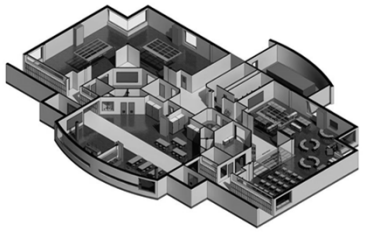
FLEXIBLE CLASSROOM SUITE

Bryan High School/ Middle School

BRYAN, OH

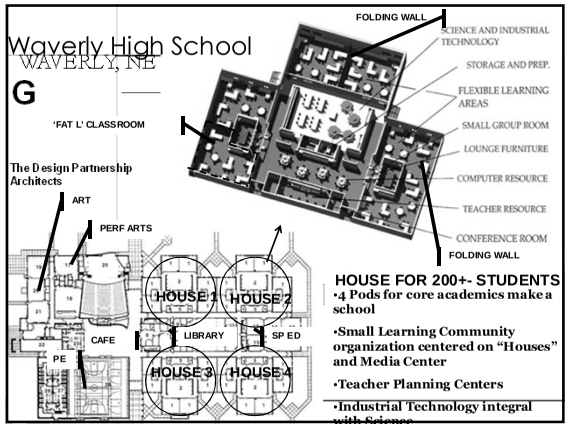
F

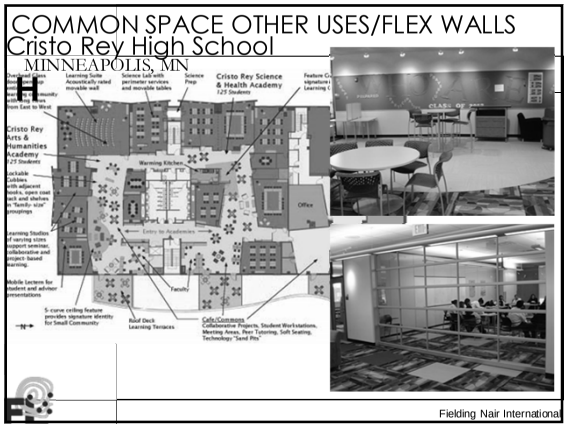
OPEN CONFIGURATION



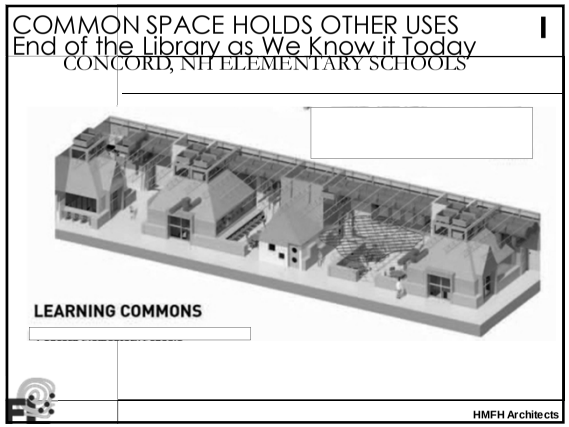
E=21C STUDIO
EDUCATION SUITE FOR THE 21st CENTURY

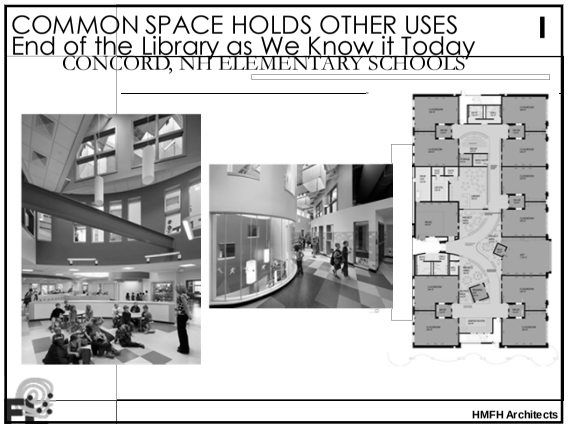
Beilharz Architects


Waverly High School
WAVERLY, NE
G
'FAT L' CLASSROOM
The Design Partnership Architects
ART
PERF ARTS
CAFE
LIBRARY
SP ED
PE
HOUSE 1
HOUSE 2
HOUSE 3
HOUSE 4
FOLDING WALL
SCIENCE AND INDUSTRIAL TECHNOLOGY
STORAGE AND PREP.
FLEXIBLE LEARNING AREAS
SMALL GROUP ROOM
LOUNGE FURNITURE
COMPUTER RESOURCE
TEACHER RESOURCE
CONFERENCE ROOM
FOLDING WALL
HOUSE FOR 200+- STUDENTS
•4 Pods for core academics make a school
•Small Learning Community organization centered on "Houses" and Media Center
•Teacher Planning Centers
•Industrial Technology integral


COMMON SPACE OTHER USES/FLEX WALLS
Cristo Rey High School
MINNEAPOLIS, MN
H
Fielding Nair International


COMMON SPACE OTHER USES/FLEX WALLS
Cristo Rey High School
MINNEAPOLIS, MN
H
Fielding Nair International


COMMON SPACE HOLDS OTHER USES
End of the Library as We Know it Today
CONCORD, NH ELEMENTARY SCHOOLS
I
LEARNING COMMONS
HMFH Architects


COMMON SPACE HOLDS OTHER USES
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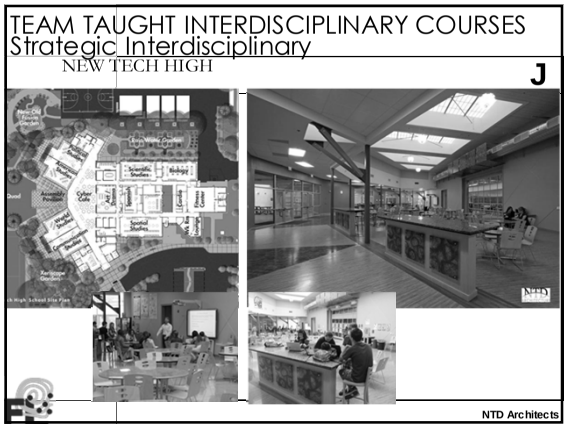
I
HMFH Architects


TEAM TAUGHT INTERDISCIPLINARY COURSES
Strategic Interdisciplinary
NEW TECH HIGH
J
NTD Architects

TEAM TAUGHT INTERDISCIPLINARY COURSES
Strategic Interdisciplinary

NEW TECH HIGH

J

- 1:1 student computer ratio
- Use of projects to engage students: achieve deeper learning
- Integrate 21st Century skills
- 2 Person synchronous team teaching

NTD Architects

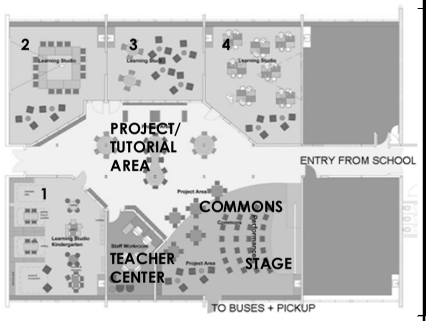
SHARED STUDIOS + RESPONSIBILITY
Forest Avenue School K-2 Center

MIDDLETOWN, RI

K

Teacher Teams, Multi-Age, Flexible Student Groups

4 Core Teachers + 2 Spl Ed Teachers + Specialists with 85 Students

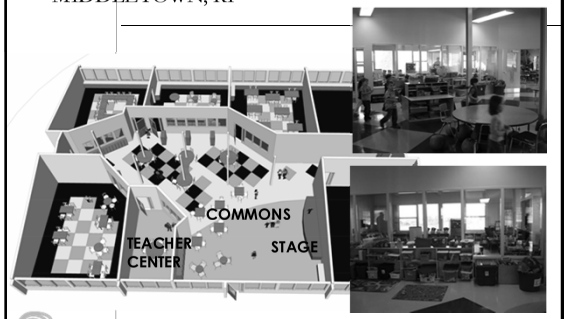


Frank Locker/Fielding Nair International Educational Planners Litman Architects

SHARED STUDIOS + RESPONSIBILITY
Forest Avenue School K-2 Center

MIDDLETOWN, RI

K



Frank Locker/Fielding Nair International Educational Planners Litman Architects

SHARED STUDIOS + RESPONSIBILITY
Forest Avenue School K-2 Center

MIDDLETOWN, RI

K

Frank Locker/Fielding Nair International Educational Planners Litman Architects

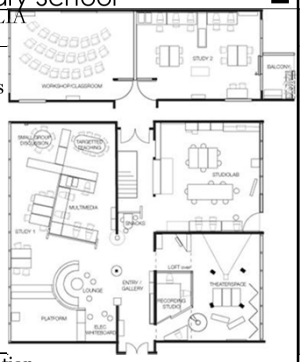
DIFFERENTIATED STUDIOS
Wooranna Park Primary School

MELBOURNE, AUSTRALIA

L

- Year 5 + 6
- 110 Students
- Teacher Teams
- Activity Zones
- Project-Based Learning

- High Poverty
- Test Scores at 36% - 73% vs 12% Expected per Student
- Family Occupation



Mary Featherston Designer

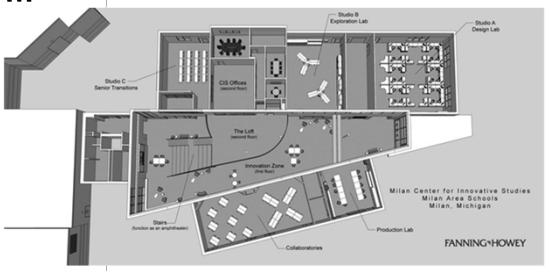
DIFFERENTIATED STUDIOS
Wooranna Park Primary School

MELBOURNE, AUSTRALIA

L

Mary Featherston Designer

THE END OF THE CLASSROOM AS WE KNOW IT TODAY
Milan HS Center for Innovative Studies
MILAN MI
M
Project-Based Learning



Fanning Howey Associates Architects

THE END OF THE CLASSROOM AS WE KNOW IT TODAY
Milan HS Center for Innovative Studies
MILAN MI
M
Project-Based Learning

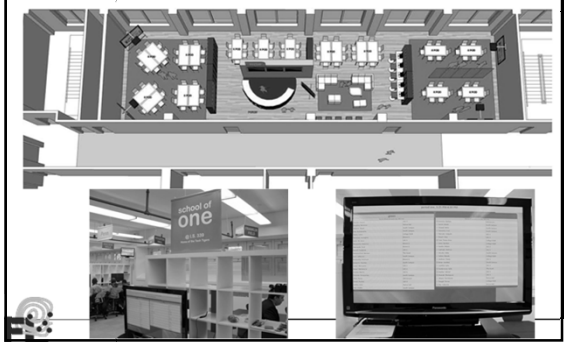
Fanning Howey Associates Architects

THE END OF THE CLASSROOM AS WE KNOW IT TODAY
Milan HS Center for Innovative Studies
MILAN MI
M
Project-Based Learning

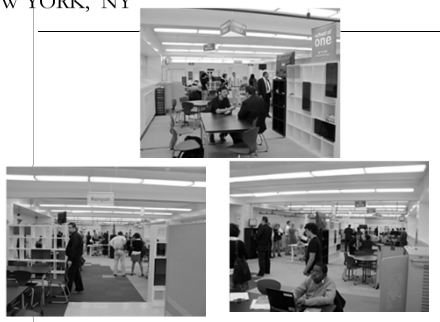
Fanning Howey Associates Architects

PERSONAL LEARNING/ MASTERY LEARNING
School of One
NEW YORK, NY
N

PERSONAL LEARNING/ MASTERY LEARNING
School of One
NEW YORK, NY
N



PERSONAL LEARNING/ MASTERY LEARNING
School of One
NEW YORK, NY
N



PERSONAL LEARNING/ MASTERY LEARNING
School of One
NEW YORK, NY

PERSONAL LEARNING/ MASTERY LEARNING
School of One
NEW YORK, NY

School of One
NEW YORK, NY

What did students think?

Student Survey (selected questions)	Liked	Didn't Like
SO1 core principles		
Going to School of One every day	79.2%	20.8%
Having a schedule that changed every day	96.6%	3.4%
Taking the Playlist Update *(Assessments)*	64.8%	35.2%
Learning modality		
Learning math from my teachers	98.4%	1.6%
Using computer to learn math	96.9%	3.1%
Learning from a virtual tutor	74.5%	25.5%
Asking friends for help with my work	87.3%	12.7%
Schedule delivery		
Seeing my schedule in my folder	98.4%	1.6%
Seeing my schedule on big board	84.2%	15.8%
	88.9%	11.1%

School of One
NEW YORK, NY

What did the teachers think?

Teacher Survey (selected questions)	strongly disagree	disagree	unsure	agree	strongly agree
School of One has the potential to transform the way that instruction is individualized in NYC public schools		1	1	3	3
I think School of One has had a significant positive impact on students' math skills.			1	5	2
I felt this program has the potential to be particularly helpful for students who struggle in traditional classrooms.			1	4	3
I would like to participate again as a teacher for School of One		1	1		6

Appendix A.2

Preliminary Foundation Engineering Report / Foundation Type Plans & Oil Tank Locations

15,000 gallon oil tank, fill pipes and vent pipe per 1966 Drawings

Possible location of 750 gallon oil tanks.

Location of 500-550 gallon Oil Tanks.

DOVER VOCATIONAL CENTER

DOVER, NEW HAMPSHIRE

SITE PLAN

SITE LOCATION MAP ~ SCALE: 1" = 24000 S.F.

PROPOSED 1 & 2 STORY ADDITION

DOVER HIGH SCHOOL (EXISTING)

VERTICAL DATUM BASED ON ASSUMED ELEVATION 100.00 @ FFE EXISTING GROUND FLOOR.

APPROVED BY THE CITY OF DOVER PLANNING BOARD

DRAWING C-1:

1. Provide offset at fence adjacent to new mechanical room as required for accessing fire department connection from non-fenced parking area.

SITE DATA:
ZONED - R-20
MAP H LOT 12

LEGEND:
- SOIL BORING
- S — SEWER LINE
- G — GAS LINE
- W — WATER LINE
- DRAINAGE PIPE
- FW — SPRINKLER LINE
- C.L. FENCE
- SILT FENCE
- HAY BALES
- EXISTING CONTOUR
- PROPOSED CONTOUR
- FOOTING DRAIN FOUNDATION

CONSTRUCTION NOTES:

1. The contractor shall not begin work until all local, state, and federal permits have been obtained and notices given. All provisions of these permits must be ully complied with. He shall also comply with all local and state building laws, ordinances or regurations relating to site work, and work within public ways.
2. The contractor shall check all grades and final dimensions on the ground and report any discrepancies to the engineer immediately for a decision.
3. The exact location and size of all existing utilities shall be verified in the field by the contractor. Any discrepancy in utility locations shall be brought to the attention of the engineers. Care shall be taken to protect those that are to remain and all construction shall be coordinated with the appropriate utility company. Any damage or relocation shall be accomplished per local utility standard at the contractor's expense.
4. The contractor shall be responsible for any demage done to the premises or adjacent premises or injuries to the public during the construction of the work, caused by himself, his subcontractors, or any of his employees. He shall furnish and install all necessary temporary works for the protection of the work and the safety of the workers and the public.
5. The contractor will be held responsible for the demage or loss of any survey reference points, property monuments, and stakes set or placed during construction of his work and shall bear the cost of replacing same.
6. Contractor shall verify all demolition and salvageable material with the owner prior to proceeding. All salvageable material shall be the property of the owner unless otherwise directed.
7. The contractor must understand that the work is entirely at his risk until same is accepted, and he will be held responsible for its safety by the owner.
8. All construction materials and procedures shall conform to the State of New Hampshire Department of Transportation Standard Specifications for Road and Bridge Construction - edition and addendums dates otherwise specified. Sewer and water main materials and installation shall conform to requirements of the governing authority.

(WATERLINE SHALL CROSS A CLEAR 18" ABOVE SEWER. LOCATION TO BE VERIFIED AND IF SEPARATION CAN NOT BE OBTAINED, SEWER SHALL BE ENCASED)

Reference Plans:

(1) "High School, Dover, N.H. Plot Plan" Scale: 1" = 50' Revised 3/29/88 by Dirsa & Lamprey Architects & Engineers

(2) Water Department Gate Ties City of Dover Scale: 1" = 400' Dated April 27, 1981 Plan No. 802-H

Notes:

(1) Topographic Survey Supplied by Thomas F. Moran Inc. Dated January 5, 1988

(2) Water & Sewer Lines are Approximate Locations Scaled from Reference Plans. Plans Obtained from City of Dover, Eng. Dept., Jan. 1988. (VERIFIED BY WATER DEPT. APRIL 1988 WITH SUPERSEDES LOCATION BY MORAN SURVEY (2))

(3) Gas Line is from Bellamy Road to Approx. where Sewer & Water Enter Bldg. Info. from Northern Utilities (603) 742-2800 & Dover High School Maintenance Supervisor.

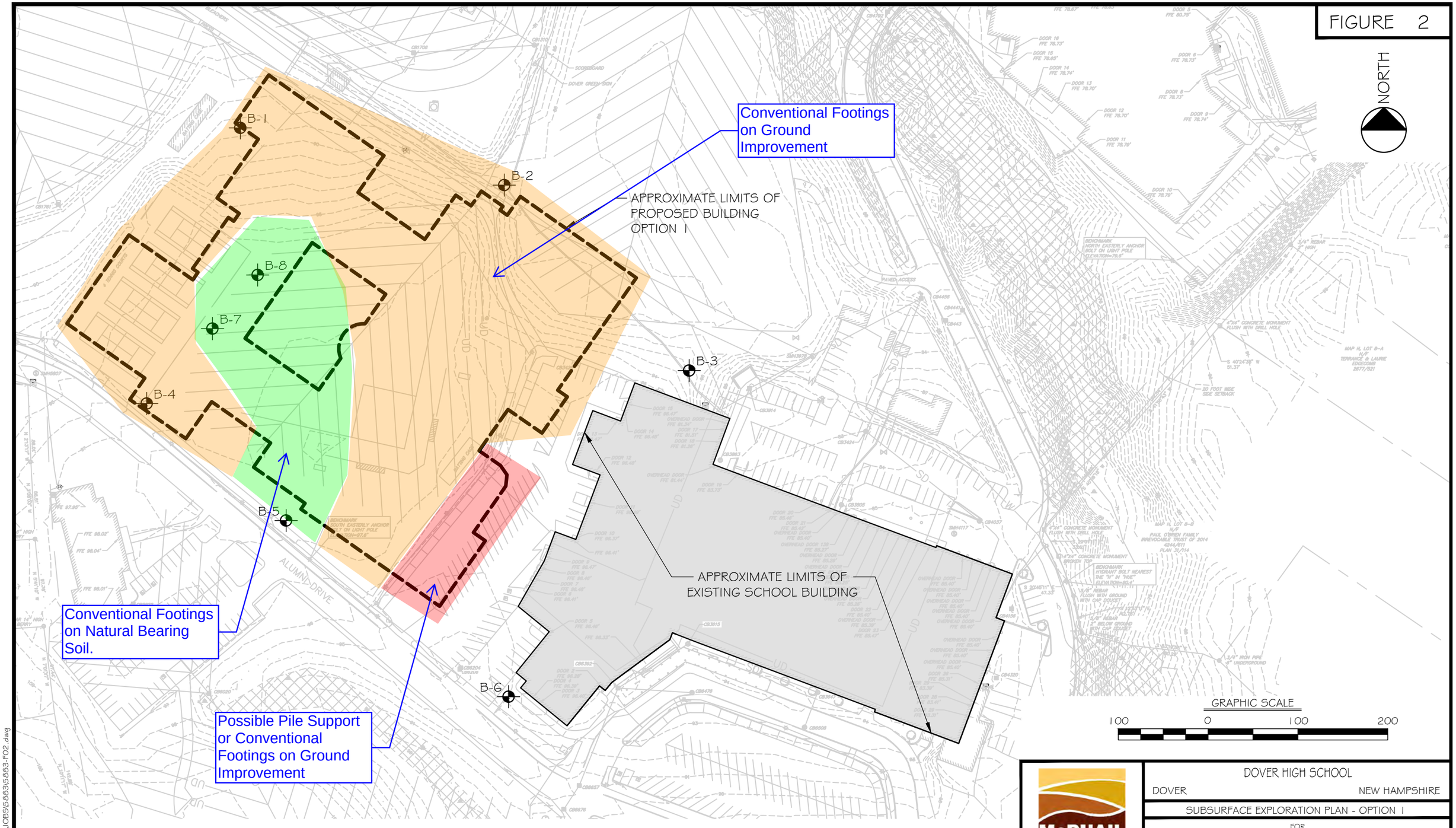
(4) Underground Cable T.V. as Shown. Contact Mr. John Ladd, Continental Cable, Dover, N.H. (603) 742-2224.

(5) N.E. Telephone is from Service Off Bellamy Road Info. from Mr. Don Brunk (603) 742-8318

(6) P.S.C.O. Sewe Line as with N.E. Telephone of Bellamy Road. Field Checked by Mr. Don Brunk & Mr. Don Emery (P.S.C.O. (603) 335-4727)

(7) Underground Cable Between Outdoor Lighting Lamp Posts. Locations Not Known Per Dover High Maintenance Supervisor.

FIGURE 2



LEGEND

⊕ — APPROXIMATE LOCATION OF BORING PERFORMED BY NEW ENGLAND BORING ON MAY 4 AND 5, 2015 FOR McPHAIL ASSOCIATES, LLC

REFERENCE: THIS PLAN WAS PREPARED FROM A 40-SCALE DRAWING ENTITLED "BOUNDARY SURVEY" DATED FEBRUARY 23, 2015 BY SEBAGO TECHNICS

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617/868-1423 (Fax)
www.mcphailgeo.com

DOVER HIGH SCHOOL

DOVER NEW HAMPSHIRE

SUBSURFACE EXPLORATION PLAN - OPTION 1

FOR

HMFH ARCHITECTS, INC.

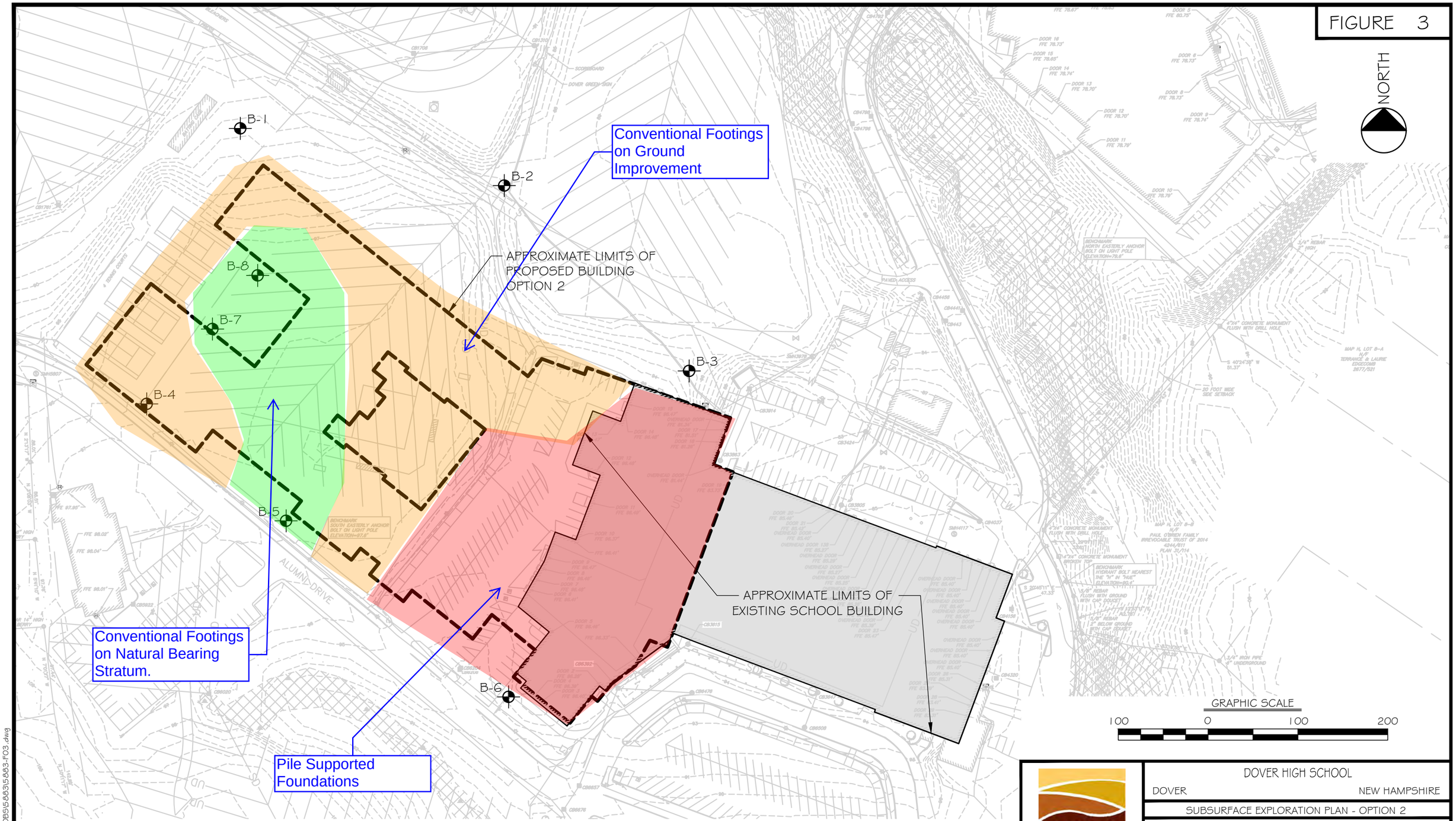
BY

McPHAIL ASSOCIATES, LLC

Date: MAY 2015	Dwn: F.G.P.	Chkd: J.S.H.	Scale: 1" = 100'
Project No: 5883			

FILE NAME: H:\acad\JOBS\5883\5883-FO2.dwg

FIGURE 3



LEGEND

⊕ — APPROXIMATE LOCATION OF BORING PERFORMED BY NEW ENGLAND BORING ON MAY 4 AND 5, 2015 FOR McPHAIL ASSOCIATES, LLC

REFERENCE: THIS PLAN WAS PREPARED FROM A 40-SCALE DRAWING ENTITLED "BOUNDARY SURVEY" DATED FEBRUARY 23, 2015 BY SEBAGO TECHNICS

McPHAIL ASSOCIATES, LLC
Geotechnical and Geoenvironmental Engineers
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www.mcphailgeo.com

DOVER HIGH SCHOOL

DOVER NEW HAMPSHIRE

SUBSURFACE EXPLORATION PLAN - OPTION 2

FOR

HMFH ARCHITECTS, INC.

BY

McPHAIL ASSOCIATES, LLC

Date: MAY 2015	Dwn: F.G.P.	Chkd: J.S.H.	Scale: 1" = 100'
Project No: 5883			

FILE NAME: H:\Acad\JOBS\5883\5883-F03.dwg

FIGURE 2

NORTH

B-1

B-2

B-3

B-4

B-5

B-6

B-7

B-8

APPROXIMATE LIMITS OF PROPOSED BUILDING OPTION 1

APPROXIMATE LIMITS OF EXISTING SCHOOL BUILDING

+80

+85

+90

+90

+85

+80

+70

+60

+50

+70

+60

+50

CONTOUR OF BEARING SURFACE BASED ON LINEAR INTERPOLATION BETWEEN BORINGS.

GRAPHIC SCALE

100 0 100 200

LEGEND

— APPROXIMATE LOCATION OF BORING PERFORMED BY NEW ENGLAND BORING ON MAY 4 AND 5, 2015 FOR McPHAIL ASSOCIATES, LLC

REFERENCE: THIS PLAN WAS PREPARED FROM A 40-SCALE DRAWING ENTITLED "BOUNDARY SURVEY" DATED FEBRUARY 23, 2015 BY SEBAGO TECHNICS

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DOVER HIGH SCHOOL

DOVER NEW HAMPSHIRE

SUBSURFACE EXPLORATION PLAN - OPTION 1

FOR

HMFH ARCHITECTS, INC.

BY

McPHAIL ASSOCIATES, LLC

Date: MAY 2015	Dwn: F.G.P.	Chkd: J.S.H.	Scale: 1" = 100'
Project No: 5883			

FILE NAME: H:\AcadJOBS\5883\5883-F02.dwg

PRELIMINARY FOUNDATION ENGINEERING REPORT

DOVER HIGH SCHOOL

DOVER, NEW HAMPSHIRE

MAY 14, 2015

Prepared For:

HMFH Architects, Inc.
130 Bishop Allen Drive
Cambridge, MA 02139

PROJECT NO. 5883.2.00

McPHAIL ASSOCIATES, LLC
2269 Massachusetts Avenue
Cambridge, MA 02140
www.mcphailgeo.com
(617) 868-1420

May 14, 2015

HMFH Architects, Inc.
130 Bishop Allen Drive
Cambridge, MA 02139

Attention: Mr. Pip Lewis, AIA

Reference: Dover High School; Dover, New Hampshire
Preliminary Foundation Engineering Report

Ladies and Gentlemen:

Enclosed herein is our Preliminary Foundation Engineering Report for the proposed new Dover High School to be located on the existing high school campus located in Dover, New Hampshire. The geotechnical services were conducted in accordance with our proposal to HMFH Architects, Inc. (HMFH) for preliminary geotechnical engineering services dated December 10, 2014.

Purpose and Scope

Based on two preliminary building layouts provided to us by HMFH, the purpose of our preliminary design study are to obtain initial subsurface information across the proposed building sites and to identify preliminary foundation design considerations associated with the proposed redevelopment of the school facility.

Available Information

Information provided to McPhail Associates, LLC by HMFH included an Existing Conditions Survey entitled “Boundary Survey” dated February 23, 2015 and prepared by Sebago Technics, proposed new building scope options entitled “Base Rehabilitation”, “Reno Add Option”, and “New Construction” dated May 6, 2015, and historic building plans consisting of building plans and borings of the building construction dated 1965 and 1966, eastern building addition from 1989, and southwestern building addition from 2002.

Existing Site Conditions

The Dover High School campus occupies an irregularly shaped site that is bounded by Dover Middle School and the Bellamy River to the north, Durham Road to the southeast, residential properties to the south and Bellamy Road to the west. Currently, the campus is occupied by the existing high school building which is located on the southeastern quadrant of the site with parking areas immediately surrounding and to the south of the existing school. The school fronts to the south onto Alumni Drive which crosses the southern half of the site. Athletic fields are located to the north and west of the existing building. A

separate small school building is located to the southwest of the main high school structure on the south side of Alumni Drive.

Ground surface slopes gently from southwest to the north and east. Ground surface is between approximately Elevation +95 and +100 along Alumni Drive to the west of the existing school and slopes down to about Elevation +80 to the north and to the southeast of the existing school. Directly surrounding the existing high school building, the grades to the south and west of the building are between Elevation +90 and +95 and at about Elevation +85 along the north and east sides of the building. The existing school has two above-grade levels and a partial single below-grade level which is benched into the existing slope. The first floor slab level is understood to be about Elevation +96 and the basement level is at about Elevation +85.

Elevations presented herein are based on the topographic survey provided in the above referenced "Boundary Survey."

Proposed Development

The proposed development schemes currently under consideration consist of three options. The first is to renovate the existing school building which would require temporary structures currently proposed to be located the west of the existing building. The second option is the renovation of the western end of the existing building, demolition of the eastern end of the existing building, and the construction of a new addition to the west of the existing building. Lastly, the third option involves the demolition of the existing school and the construction of a new school building to the west of the existing school. The approximate location of both new construction options are shown on the enclosed Figures 2 and 3. Figure 2 indicates the proposed footprint of the new school building and Figure 3 indicates the footprint of the renovation and new addition.

Both new construction options will consist of a two-level structure and are not anticipated to have below-grade space. The lowest level slab is anticipated to be generally coincident with the existing school first floor level which is at about Elevation +96.

Investigation Procedures

Our preliminary subsurface investigation consisting of eight (8) soil borings was conducted at the site on May 4 and 5, 2015. The boreholes were performed by New England Boring Contractors of Derry, New Hampshire under contract to McPhail Associates, LLC (McPhail). Logs of the soil borings prepared by McPhail are contained in Appendix B and approximate locations of the explorations are as indicated on the enclosed Subsurface Exploration Plan, Figure 2.

The subsurface explorations were monitored by a representative of McPhail who performed field layout, prepared field logs, obtained and visually classified soil samples, monitored

groundwater conditions in the completed explorations, made adjustments to the exploration locations to facilitate access and to avoid damaging the playing fields and determined the required exploration depths based upon the actual subsurface conditions encountered. Field locations of the subsurface explorations were determined by taping from existing site features identified on the referenced site plan provided to us.

The borings were performed using a truck-mounted drill rig and advanced using both hollow stem augers and NW casing with the wet-rotary drilling method to depths ranging from 4.2 to 50 feet below the existing ground surface. Standard 1-3/8-inch I.D. split-spoon samples and standard penetration tests were generally obtained at 5-foot intervals of depth in accordance with the standard procedures described in ASTM D1586.

Subsurface Conditions

Detailed descriptions of the subsurface conditions encountered within each of the boreholes are presented on the boring logs contained in Appendix B. Following is a discussion of the generalized subsurface conditions across the site which are inferred primarily from the recent explorations, and also from our knowledge of local site geology, and is presented relative to each of the three development options discussed above.

Beneath the existing surface treatments consisting of bituminous pavement or landscaping with topsoil, each of the borings encountered a granular fill deposit. The fill was observed to generally consist of a loose to dense, brown, sand and gravel, with some silt, few cobbles and trace amounts of red brick and concrete. The fill deposit varies from about 2 to 10 feet in thickness.

Below the fill deposit, the borings encountered either a marine clay deposit, alluvial deposit, glacial till, or bedrock.

The marine deposit was encountered at boring B-6 located adjacent to the southwest corner of the existing school. The marine deposit was observed to consist of a stiff to very stiff mottled yellow and blue-gray silty clay with trace amounts of sand seams which transitions with depth to a very soft, sensitive, blue-gray silty clay. The surface of the marine clay was encountered at a depth of 5 feet corresponding to Elevation +90.1 and was observed to be 43.2 feet in thickness.

Where encountered, an alluvial deposit was encountered directly below the fill deposit at borings B-2 through B-5 at depths of 3 to 9 feet below the existing ground surface corresponding to Elevation +95.4 at boring B-4 and Elevation +83.1 at boring B-3. The alluvial deposit was observed to consist of a very loose to compact light brown stratified silt and fine sand with a trace to some clay and a trace of gravel. Trace organic fibers were also observed in the alluvial deposit. The alluvial deposit was observed to vary from 4 to 7 feet in thickness.

Beneath the fill deposit in borings B-1, B-7 and B-8, and below either the alluvial or marine deposits in borings B-2 through B-6, each of the borings encountered a glacial till deposit. The glacial till deposit was observed to consist of a loose to very dense, brown to light gray, silty sand and gravel with numerous cobbles and occasional boulders. The surface of the glacial till was observed to vary between depths of 3.1 feet at boring B-8 and 48.2 feet at boring B-6. With the exception of boring B-1, each of the borings was terminated within the glacial till deposit on either a boulder or the possible surface of the underlying bedrock. In boring B-1, the glacial till deposit was observed to be 4.5 feet in thickness.

In boring B-1, a highly to severely fractured, moderately to severely weathered bedrock deposit was encountered. The surface of the weathered bedrock was observed at a depth of 14.5 feet corresponding to Elevation +75.3. Boring B-1 was terminated upon auger refusal at 20.4 feet below the existing ground surface.

Groundwater was observed in the completed boreholes at depths varying from 4 to 26 feet below the existing ground surface. It is anticipated that groundwater is perched on the surface of the relatively impervious marine clay, alluvial and glacial till deposits. It is anticipated that future groundwater levels across the site may vary from those reported herein due to factors such as normal seasonal changes, periods of heavy precipitation, and alterations of existing drainage patterns.

Preliminary Foundation Design Recommendations

Due to the uncontrolled nature of the surficial fill deposit and the very loose nature of the alluvial deposit, it is recommended that support of the proposed building will require the building loads to be transferred to the surface of the underlying glacial till or bedrock surface. With the exception of the deep marine deposit encountered in boring B-6, the borings indicated the surface of the undisturbed natural glacial till deposit at depths less than 13.5 feet below the existing ground surface. Due to the relatively shallow depth to the glacial till deposit across the northern and western halves of the building, a conventional footing foundation system is considered most economically feasible in these areas. It is anticipated that a combination of conventional footings bearing either directly on the undisturbed glacial till deposit or on the existing fill and alluvial soils which have been improved with a ground improvement system such as aggregate piers would be necessary.

For preliminary design purposes we recommend that foundation support for the proposed structure be provided by a conventional spread footing foundation system in conjunction with slab-on-grade construction for the lowest level slab. Spread footings are anticipated to bear in the glacial till or bedrock deposits, or on the fill and alluvial deposits improved with aggregate piers, and should be proportioned utilizing a maximum design bearing pressure of two (2) tons per square foot.

Where the very soft marine clay is present in the area of boring B-6, it is anticipated that a pile foundation system extending to the surface of the glacial till or bedrock will be necessary for support of the proposed building. The type and design capacity of the pile

foundation system would be a function of the proposed building loads. Additionally, the need for a pile foundation would likely be greater and more extensive with the renovation/addition scheme as it extends more into the area of boring B-6 in combination with our understanding that portions of the existing school are pile supported. Alternatively, the new building option is located farther to the west of the school than the addition option and therefore may have either less or no piles depending on the extent of the soft clay deposit.

Ground Improvement

In general, an aggregate pier (AP) cavity is created by driving a specially designed 12 to 16-inch diameter mandrel and tamper foot using a large static force augmented by dynamic vertical impact energy. The APs may also be installed utilizing an auger system to create the cavity and a tamper foot to compact the introduced material. A sacrificial cap is placed at the bottom of the tamper foot to prevent soil from entering. This method of advancement eliminates spoils as all penetrated soils are displaced laterally.

After driving to the design depth, the aggregate is placed inside the mandrel and the mandrel is lifted, leaving the sacrificial cap at the bottom of the cavity. In general, the tamper foot is lifted approximately three feet and then driven and vibrated back down two feet, forming a one-foot thick compacted lift. This process is repeated to the top of the cavity, forming the AP. The compaction densifies the aggregate and increases the lateral stress in the soil matrix beneath the proposed buildings. Thus, the potential for significant settlement is reduced by improving the unsuitable soils to a stiffer composite soil matrix. Based on the results of the explorations, the APs would extend into the glacial till deposit and range up to about 15 to 20 feet in length.

The above described method for AP installation consisting of a mandrel typically produces negligible excess soil spoils. The auger installation method, however, will generate excess soil spoils which will require either on-site reuse of off-site disposal.

Since ground improvement techniques such as APs are typically provided by a design-build consultant, detailed design calculations should be submitted to the Architect for review prior to the beginning of construction. A detailed explanation of the design parameters for capacity and settlement calculations should be included in the design submittal. The design submittal should also include a testing program to demonstrate the capacity of the elements. All calculations and drawings should be prepared and sealed by a Professional Engineer licensed in the State of New Hampshire, and retained by the Contractor who is to perform the work.

The following general criteria should be utilized in the design of APs:

1. APs should extend at least to the surface of the glacial till deposit;
2. The maximum allowable bearing pressure supported on an AP reinforced ground surface which extends to the glacial till deposit should be equal to or less than 2 tons per square- foot (TSF);

3. Estimated long-term settlement for footings should be less than 1-inch;
4. Estimated long-term differential settlement of adjacent footings should be less than 1/2-inch; and
5. A modulus load test should be performed on one of the APs to 150 percent of the maximum design stress.

To control potential cosmetic cracking of the lowest-level slab within areas where the fill and alluvial deposits remain below the slab-on-grade, APs can be installed in a grid pattern for support of the slab. Typically, the APs are installed on an approximately 10-foot square grid which would be designed by the AP Contractor.

General Foundation Recommendations

The lowest-level slab within the conventional footing foundation portion of the building should consist of a conventional slab-on-grade. However, where the proposed building is supported by a pile foundation system, the lowest-level slab should be designed as a structurally-framed slab.

Underslab and perimeter drainage should be provided where the lowest-level slab is greater than 12 inches below the finished exterior grade. If necessary, the underslab drainage system should drain by gravity to a drain line.

Additional subsurface explorations will be necessary to further delineate the areas of the proposed building which will require ground improvement and pile foundations.

Final Comments

Based on our current understanding of the project scope, it is recommended that McPhail Associates, LLC. be retained to prepare a final foundation engineering report once the details of the proposed school are finalized. The final report would provide final foundation recommendations based on the specific project design requirements.

It is also recommended that McPhail Associates, LLC be retained to provide design assistance to the design team during the final design phase of this project. The purpose of this involvement would be to review the structural foundation drawings and foundation notes for conformance with the recommendations herein, and to generate or review the earthwork specification section for inclusion into the Contract Documents for construction.

We trust that the above preliminary information is sufficient for your present requirements. Should you have any questions concerning the recommendations presented herein, please do not hesitate to call us.

Very truly yours,

McPHAIL ASSOCIATES, LLC

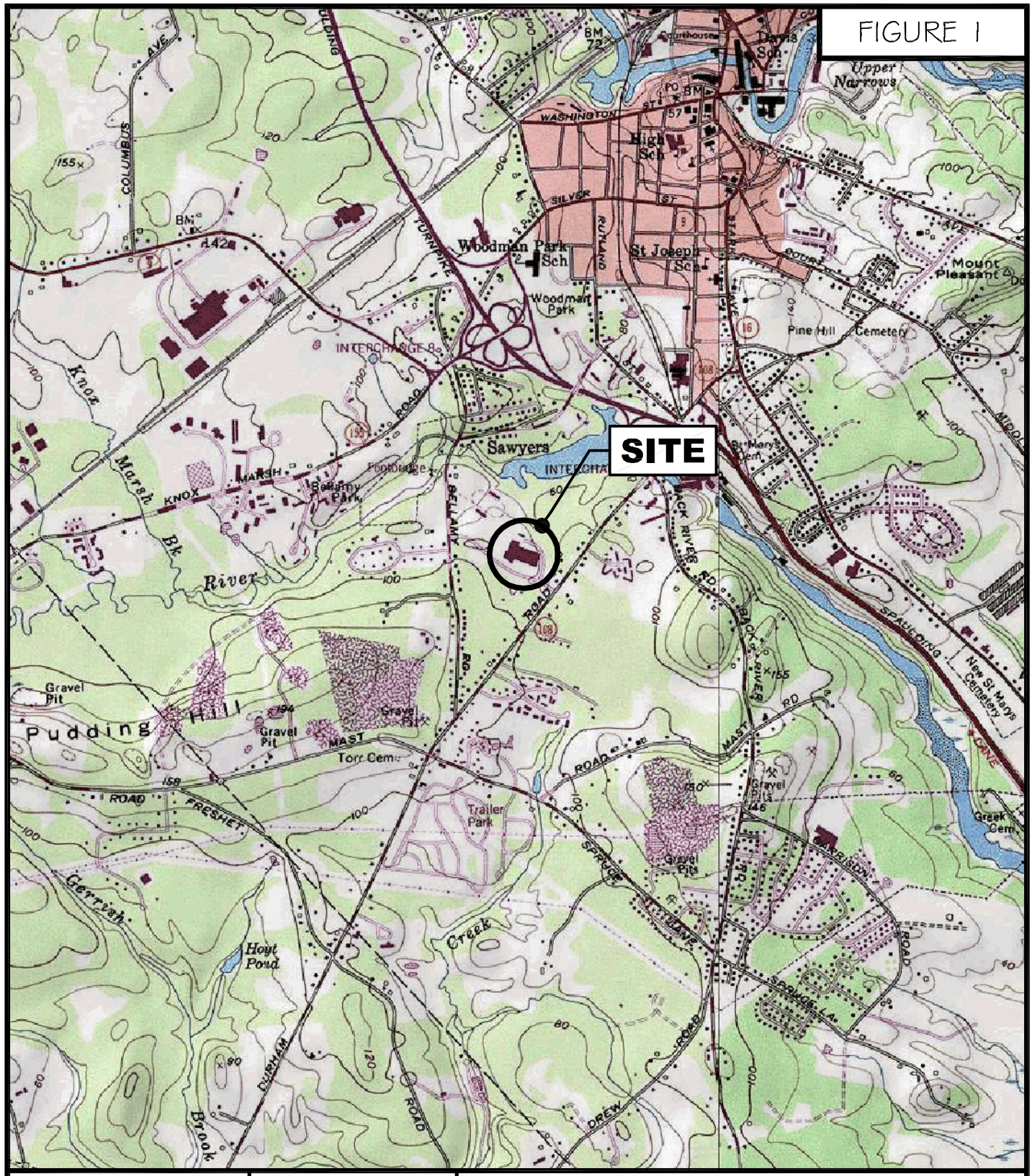
Jason S. Huestis

Ambrose J. Donovan, P.E.

F:\WP5\REPORTS\5883 PFER 051415.docx

JSH/ajd

FIGURE 1



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N

SCALE 1:25,000

PROJECT LOCATION PLAN

DOVER HIGH SCHOOL

DOVER NEW HAMPSHIRE

FIGURE 2

NORTH

B-1

B-2

B-3

B-4

B-5

B-6

B-7

B-8

APPROXIMATE LIMITS OF PROPOSED BUILDING OPTION 1

APPROXIMATE LIMITS OF EXISTING SCHOOL BUILDING

GRAPHIC SCALE

100 0 100 200

LEGEND

— APPROXIMATE LOCATION OF BORING PERFORMED BY NEW ENGLAND BORING ON MAY 4 AND 5, 2015 FOR McPHAIL ASSOCIATES, LLC

REFERENCE: THIS PLAN WAS PREPARED FROM A 40-SCALE DRAWING ENTITLED "BOUNDARY SURVEY" DATED FEBRUARY 23, 2015 BY SEBAGO TECHNICS

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DOVER HIGH SCHOOL

DOVER NEW HAMPSHIRE

SUBSURFACE EXPLORATION PLAN - OPTION 1

FOR

HMFH ARCHITECTS, INC.

BY

McPHAIL ASSOCIATES, LLC

Date: MAY 2015	Dwn: F.G.P.	Chkd: J.S.H.	Scale: 1" = 100'
Project No: 5883			

FILE NAME: H:\Acad\OB\5883\5883-F02.dwg

FIGURE 3

NORTH

B-1

B-2

B-3

B-4

B-5

B-6

B-7

B-8

APPROXIMATE LIMITS OF PROPOSED BUILDING OPTION 2

APPROXIMATE LIMITS OF EXISTING SCHOOL BUILDING

GRAPHIC SCALE

100 0 100 200

LEGEND

— APPROXIMATE LOCATION OF BORING PERFORMED BY NEW ENGLAND BORING ON MAY 4 AND 5, 2015 FOR McPHAIL ASSOCIATES, LLC

REFERENCE: THIS PLAN WAS PREPARED FROM A 40-SCALE DRAWING ENTITLED "BOUNDARY SURVEY" DATED FEBRUARY 23, 2015 BY SEBAGO TECHNICS

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DOVER HIGH SCHOOL

DOVER NEW HAMPSHIRE

SUBSURFACE EXPLORATION PLAN - OPTION 2

FOR

HMFH ARCHITECTS, INC.

BY

McPHAIL ASSOCIATES, LLC

Date: MAY 2015	Dwn: F.G.P.	Chkd: J.S.H.	Scale: 1" = 100'
Project No: 5883			

FILE NAME: H:\Acad\JOBS\5883\5883-F03.dwg

APPENDIX A:

LIMITATIONS

LIMITATIONS

This preliminary report has been prepared on behalf of and for the exclusive use of HMFH Architects, Inc. for specific application to the proposed Dover High School development to be located at 25 Alumni Drive in Dover, New Hampshire in accordance with generally accepted soil and geotechnical engineering practices. No other warranty, expressed or implied, is made.

The recommendations contained in this report are for preliminary pricing and design purposes only. Final subsurface exploration program and foundation engineering analyses will be required for the design and construction of the proposed project. In the event that any changes in nature, design, or location of the proposed construction are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by McPhail Associates.

The preliminary analyses and recommendations presented in this report are based upon the data obtained from the preliminary subsurface explorations performed at the approximate locations indicated on the enclosed plan. If variations in the nature and extent of subsurface conditions between the widely spaced explorations become evident during the course of construction, it will be necessary for a re-evaluation of the recommendations of this report to be made after performing on-site observations during the construction period and noting the characteristics of any variations.

APPENDIX B:

BORING LOGS B-1 THROUGH B-8
PREPARED BY MCPHAIL ASSOCIATES, LLC

Project: Dover High School
Location: 25 Alumni Drive
City/State: Dover, New Hampshire

Job #: 5883.2.00
Date Started: 5-4-15
Date Finished: 5-4-15

Boring No.
B-1

Contractor: New England Boring
Driller/Helper: Brad and John
Logged By/Reviewed By: L. Brown
Surface Elevation (ft): 89.8

Casing Type/Depth (ft): 2.25" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8 in Split Spoon
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
5-4-15	11	78.8	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
			0.5 / 89.3	(TOPSOIL)	2	S-1	6/6	0.0-0.5	1	Very loose, brown, loamy SILT, some sand, gravel, trace roots.
1	89				16	S-1A	18/9	0.5-2.0	4 9 7	Compact, brown, SAND and GRAVEL, some silt, few cobbles, trace concrete.
2	88									
3	87									
4	86									
5	85			(FILL)						
6	84				55	S-2	24/10	5.0-7.0	23 36 19 16	Very dense, gray to brown, sandy GRAVEL, some silt, few cobbles.
7	83									
8	82									
9	81									
10	80		10.0 / 79.8							
11	79				57	S-3	24/13	10.0-12.0	6 10 47 21	Very dense, brown, silty SAND and GRAVEL, trace clay, few cobbles.
12	78			(GLACIAL TILL)						
13	77									
14	76		14.5 / 75.3							
15	75				26	S-4	10/10	15.0-15.8	13 100/4"	Very dense, gray to brown, fractured sandy GRAVEL, trace silt, numerous cobbles.
16	74									
17	73									
18	72			(WEATHERED BEDROCK)						
19	71									
20	70		20.4 / 69.4		0	S-5	1/1	20.0-20.1	100/1"	Very dense, gray to brown, fractured sandy GRAVEL, trace silt, numerous cobbles.
21	69									
22	68									
	67									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Auger refusal in weathered bedrock at 20.4'.

Weather: P. Cloudy

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Dover High School
Location: 25 Alumni Drive
City/State: Dover, New Hampshire

Job #: 5883.2.00
Date Started: 5-4-15
Date Finished: 5-4-15

Boring No. B-2

Contractor: New England Boring
Driller/Helper: Brad and John
Logged By/Reviewed By: L. Brown
Surface Elevation (ft): 89.7

Casing Type/Depth (ft): 2.25" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8 in Split Spoon
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
5-4-15	4	85.7	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
1	89				10	S-1	24/15	0.0-2.0	3 5 5 7	Compact, brown, silty SAND, trace to some gravel, trace roots.
2	88			(FILL)						
3	87		3.0 / 86.7							
4	86									
5	85									
6	84				8	S-2	24/21	5.0-7.0	4 4 4 4	Loose, stratified, light brown, sandy SILT, trace clay.
7	83			(ALLUVIUM)						
8	82									
9	81									
10	80		10.0 / 79.7							
11	79				36	S-3	17/14	10.0-11.4	6 30 100/5"	Very dense, brown, silty SAND and GRAVEL, numerous cobbles.
12	78			(GLACIAL TILL)						
13	77									
14	76		13.9 / 75.8							
15	75									
16	74									
17	73									
18	72									
19	71									
20	70									
21	69									
22	68									
	67									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Auger refusal on boulder or possible bedrock surface 13.9'.

Weather: P. Cloudy

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Dover High School	**Job #:**	5883.2.00
Location:	25 Alumni Drive	**Date Started:**	5-5-15
City/State:	Dover, New Hampshire	**Date Finished:**	5-5-15

Boring No.

B-3

Contractor: New England Boring
Driller/Helper: Brad and John
Logged By/Reviewed By: L. Brown
Surface Elevation (ft): 92.1

Casing Type/Depth (ft): 2.25" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8 in Split Spoon
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
5-5-15	15	77.1	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
			0.5 / 91.6	(TOPSOIL)						
1	91				8	S-1	24/12	0.0-2.0	2 4 4 7	Loose, brown, silty SAND, some gravel, trace roots.
2	90									
3	89									
4	88									
5	87			(FILL)						
6	86				10	S-2	24/17	5.0-7.0	10 7 3 3	Compact, brown, gravelly SAND, trace concrete, brick fragments.
7	85									
8	84									
9	83		9.0 / 83.1							
10	82				2	S-3	24/15	10.0-12.0	1/12" 1 1	Very loose, stratified, brown sandy SILT with interbedded, mottled yellow and blue-gray silty CLAY, trace organic fibers.
11	81			(ALLUVIUM)						
12	80									
13	79		13.5 / 78.6							
14	78			(GLACIAL TILL)						
15	77		15.4 / 76.7		0	S-4	3/3	15.0-15.3	100/3"	Very dense, gray, silty SAND and GRAVEL, numerous cobbles, trace clay.
16	76									
17	75									
18	74									
19	73									
20	72									
21	71									
22	70									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Auger refusal on boulder or possible bedrock surface 15.4'.

Weather: P. Cloudy

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Dover High School
Location: 25 Alumni Drive
City/State: Dover, New Hampshire

Job #: 5883.2.00
Date Started: 5-5-15
Date Finished: 5-5-15

Boring No.
B-4

Contractor: New England Boring
Driller/Helper: Brad and John
Logged By/Reviewed By: L. Brown
Surface Elevation (ft): 97.4

Casing Type/Depth (ft): 2.25" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8 in Split Spoon
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
5-5-15	8.5	88.9	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
0	97		0.5 / 96.9	(TOPSOIL)	4	S-1	6/6	0.0-0.5	2	Loose, brown, sandy SILT, trace gravel and roots.
1	96		2.0 / 95.4	(FILL)	7	S-1A	18/12	0.5-2.0	3 3 4	Loose, orange to brown, silty fine SAND, some gravel, trace organic fibers.
2	95									
3	94									
4	93									
5	92			(ALLUVIUM)	11	S-2	24/24	5.0-7.0	4 5 6 9	Stiff, mottled, yellow and blue-gray silty CLAY, with interbedded stratified fine SAND and SILT seams, trace organic fibers, gravel.
6	91									
7	90									
8	89		8.5 / 88.9							
9	88									
10	87				5	S-3	24/12	10.0-12.0	3 2 3 4	Loose, brown, SAND and GRAVEL, some silt, few fractured cobbles.
11	86			(GLACIAL TILL)						
12	85									
13	84									
14	83		14.3 / 83.1							
15	82									
16	81									
17	80									
18	79									
19	78									
20	77									
21	76									
22	75									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Auger refusal on boulder or possible bedrock at 14.3'.

Weather: P. Cloudy

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Dover High School	**Job #:**	5883.2.00
Location:	25 Alumni Drive	**Date Started:**	5-4-15
City/State:	Dover, New Hampshire	**Date Finished:**	5-4-15

Boring No.

B-5

Contractor: New England Boring
Driller/Helper: Brad and John
Logged By/Reviewed By: L. Brown
Surface Elevation (ft): 98.5

Casing Type/Depth (ft): 2.25" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8 in Split Spoon
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
5-4-15	N/A	0.0	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
0	98		0.5 / 98.0	(TOPSOIL)	2	S-1	6/5	0.0-0.5	1	Very loose, brown, loamy SILT, some fine sand, trace gravel, roots.
1	97				17	S-1A	18/8	0.5-2.0	5 10 7	Compact, brown, silty SAND and GRAVEL, few cobbles, trace roots.
2	96			(FILL)						
3	95									
4	94		5.0 / 93.5							
5	93				22	S-2	24/19	5.0-7.0	4 8 14 43	Compact, brown, stratified, silty fine SAND, trace gravel, clay, single cobble bottom 6".
6	92			(ALLUVIUM)						
7	91									
8	90		9.0 / 89.5							
9	89		9.2 / 89.3	(GLACIAL TILL)	0	S-3	2/0	9.0-9.2	100/2"	Very dense, brown, sandy GRAVEL, cobbles.
10	88									
11	87									
12	86									
13	85									
14	84									
15	83									
16	82									
17	81									
18	80									
19	79									
20	78									
21	77									
22	76									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Auger refusal on boulder or possible bedrock surface at 9.2'.

Weather: P. Cloudy

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Dover High School
Location: 25 Alumni Drive
City/State: Dover, New Hampshire

Job #: 5883.2.00
Date Started: 5-4-15
Date Finished: 5-5-15

Boring No.
B-6

Contractor: New England Boring
Driller/Helper: Brad and John
Logged By/Reviewed By: L. Brown
Surface Elevation (ft): 95.1

Casing Type/Depth (ft): 4" NW Casing
Casing Hammer (lbs)/Drop (in): 300 lb/24 in
Sampler Size/Type: 1 3/8 in Split Spoon
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
5-4-15	26	69.1	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
1	94				10	S-1	24/15	0.0-2.0	2 3 7 7	Compact, brown SAND, some gravel, trace silt and asphalt fragments.
2	93			(FILL)						
3	92									
4	91									
5	90		5.0 / 90.1		16	S-2	24/19	5.0-7.0	3 7 9 14	Very stiff, mottled yellow and blue-gray silty CLAY, trace fine sand seams, trace organic fibers.
6	89									
7	88									
8	87				26	S-3	24/22	10.0-12.0	7 10 16 23	Very stiff, mottled yellow and blue-gray silty CLAY, trace fine sand seams, trace organic fibers.
9	86									
10	85									
11	84									
12	83									
13	82									
14	81			(MARINE DEPOSIT)						
15	80				18	S-4	24/24	15.0-17.0	6 8 10 11	Very stiff, blue-gray silty CLAY, trace fine sand.
16	79									
17	78									
18	77									
19	76									
20	75				3	S-5	24/24	20.0-22.0	1 2 1 2	Soft, blue-gray silty CLAY.
21	74									
22	73									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Casing advanced to 50' but roller bit unable to be advanced beyond 48.2' due to loss of drilling fluid.

Weather: P. Cloudy

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Dover High School	**Job #:**	5883.2.00
Location:	25 Alumni Drive	**Date Started:**	5-4-15
City/State:	Dover, New Hampshire	**Date Finished:**	5-5-15

Boring No.

B-6

Contractor: New England Boring
Driller/Helper: Brad and John
Logged By/Reviewed By: L. Brown
Surface Elevation (ft): 95.1

Casing Type/Depth (ft): 4" NW Casing
Casing Hammer (lbs)/Drop (in): 300 lb/24 in
Sampler Size/Type: 1 3/8 in Split Spoon
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
5-4-15	26	69.1	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
24	71									
25	70				0	S-6	24/24	25.0-27.0	WOR/18" 1	Very soft, blue-gray silty CLAY. Moisture content 34.5%.
26	69									
27	68									
28	67									
29	66									
30	65				0	S-7	24/24	30.0-32.0	WOR/24"	Very soft, sensitive, blue-gray silty CLAY. Moisture content 39.8%.
31	64									
32	63									
33	62									
34	61									
35	60			(MARINE DEPOSIT)						
36	59				0	S-8	24/24	35.0-37.0	WOR/24"	Very soft, sensitive, blue-gray silty CLAY.
37	58									
38	57									
39	56									
40	55									
41	54				0	S-9	24/24	40.0-42.0	WOR/24"	Very soft, sensitive, blue-gray silty CLAY, trace fine sand lenses.
42	53									
43	52									
44	51									
45	50								WOR/24"	Very soft, blue-gray silty CLAY, trace fine sand and gravel. Moisture content 31.7%.

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Casing advanced to 50' but roller bit unable to be advanced beyond 48.2' due to loss of drilling fluid.

Weather: P. Cloudy

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Dover High School	**Job #:**	5883.2.00
Location:	25 Alumni Drive	**Date Started:**	5-4-15
City/State:	Dover, New Hampshire	**Date Finished:**	5-5-15

Boring No.

B-6

Contractor: New England Boring
Driller/Helper: Brad and John
Logged By/Reviewed By: L. Brown
Surface Elevation (ft): 95.1

Casing Type/Depth (ft): 4" NW Casing
Casing Hammer (lbs)/Drop (in): 300 lb/24 in
Sampler Size/Type: 1 3/8 in Split Spoon
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
5-4-15	26	69.1	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
47	48			(MARINE DEPOSIT)	0	S-10	24/24	45.0-47.0		
48	47		48.2 / 46.9							
49	46			(GLACIAL TILL)						
50	45		50.0 / 45.1							
51	44									
52	43									
53	42									
54	41									
55	40									
56	39									
57	38									
58	37									
59	36									
60	35									
61	34									
62	33									
63	32									
64	31									
65	30									
66	29									
67	28									
68	27									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Casing advanced to 50' but roller bit unable to be advanced beyond 48.2' due to loss of drilling fluid.

Weather: P. Cloudy

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project:	Dover High School	**Job #:**	5883.2.00
Location:	25 Alumni Drive	**Date Started:**	5-5-15
City/State:	Dover, New Hampshire	**Date Finished:**	5-5-15

Boring No.

B-7

Contractor: New England Boring
Driller/Helper: Brad and John
Logged By/Reviewed By: L. Brown
Surface Elevation (ft): 97.2

Casing Type/Depth (ft): 2.25" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8 in Split Spoon
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
5-5-15	N/A	0.0	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
	97		0.5 / 96.7	(TOPSOIL)	27	S-1	24/18	0.0-2.0	2 6 21 20	Compact, orange-brown silty SAND and GRAVEL, trace roots, glass fragments, few cobbles.
1	96									
2	95			(FILL)						
3	94		3.4 / 93.8							
4	93		4.2 / 93.0	(BOULDER/GLACIAL TILL)						
5	92									
6	91									
7	90									
8	89									
9	88									
10	87									
11	86									
12	85									
13	84									
14	83									
15	82									
16	81									
17	80									
18	79									
19	78									
20	77									
21	76									
22	75									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Auger refusal on boulder or possible bedrock at 4.2'.

Weather: P. Cloudy

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Project: Dover High School
Location: 25 Alumni Drive
City/State: Dover, New Hampshire

Job #: 5883.2.00
Date Started: 5-5-15
Date Finished: 5-5-15

Boring No. B-8

Contractor: New England Boring
Driller/Helper: Brad and John
Logged By/Reviewed By: L. Brown
Surface Elevation (ft): 97.4

Casing Type/Depth (ft): 2.25" HSA
Casing Hammer (lbs)/Drop (in): N/A
Sampler Size/Type: 1 3/8 in Split Spoon
Sampler Hammer (lbs)/Drop (in): 140 lb/30 in

Groundwater Observations

Date	Depth	Elev.	Notes
5-5-15	N/A	0.0	

Depth (ft)	Elev. (ft)	Symbol	Depth/EL to Strata Change (ft)	Stratum	Sample N-Value	Sample No.	Sample Pen./Rec. (in)	Sample Depth (ft)	Sample Blows Per 6"	Sample Description and Boring Notes
0	97		0.5 / 96.9	(TOPSOIL)						
1	96			(FILL)	20	S-1	24/15	0.0-2.0	2 7 13 20	Compact, light brown, silty SAND and GRAVEL, few cobbles.
2	95									
3	94		3.1 / 94.3							
4	93			(GLACIAL TILL)						
5	92				0	S-2	4/4	5.0-5.3	100/4"	Very dense, dark brown SAND and GRAVEL, some silt, numerous cobbles.
6	91									
7	90									
8	89		8.2 / 89.2							
9	88									
10	87									
11	86									
12	85									
13	84									
14	83									
15	82									
16	81									
17	80									
18	79									
19	78									
20	77									
21	76									
22	75									

GRANULAR SOILS	
BLOWS/FT.	DENSITY
0-4	V.LOOSE
4-10	LOOSE
10-30	COMPACT
30-50	DENSE
>50	V.DENSE

COHESIVE SOILS	
BLOWS/FT.	CONSISTENCY
<2	V.SOFT
2-4	SOFT
4-8	FIRM
8-15	STIFF
15-30	V.STIFF
>30	HARD

SOIL COMPONENT

DESCRIPTIVE TERM	PROPORTION OF TOTAL
"TRACE"	0-10%
"SOME"	10-20%
"ADJECTIVE" (eg SANDY, SILTY)	20-35%
"AND"	35-50%

SOIL CONTAINING THREE COMPONENTS EACH OF WHICH COMPRISE AT LEAST 25% OF THE TOTAL ARE CLASSIFIED AS "A WELL-GRADED MIXTURE OF"

Notes:
Auger refusal on boulder or possible bedrock at 8.2'.

Weather: P. Cloudy

McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
TEL: 617-868-1420
FAX: 617-868-1423

Appendix A.3

Phase I Environmental Site Assessment Report

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

DOVER HIGH SCHOOL
25 ALUMNI DRIVE

DOVER, NEW HAMPSHIRE

MAY 14, 2015

Prepared For:

HMFH Architects, Inc.
130 Bishop Allen Drive
Cambridge, MA 02139

PROJECT NO. 5883

McPHAIL ASSOCIATES, LLC
2269 Massachusetts Avenue
Cambridge, MA 02140
www.mcphailgeo.com
(617) 868-1420

May 14, 2015

HMFH Architects, Inc.
130 Bishop Allen Drive
Cambridge, MA 02139

Attention: Mr. Pip Lewis, AIA

Reference: Dover High School, 25 Alumni Drive; Dover, NH
Phase I Environmental Site Assessment Report

Ladies and Gentlemen:

Enclosed herewith is our Phase I Environmental Site Assessment Report prepared for the property identified as Dover High School located at 25 Alumni Drive in Dover, New Hampshire (the "subject site"). The general site locus is shown on the enclosed **Figure 1,** and the boundaries of the subject site are shown on the enclosed **Figure 2**.

This report was prepared by McPhail Associates, LLC in accordance with our contract dated January 13, 2015 and the subsequent authorization HMFH Architects Inc. These services are subject to the limitations in **Appendix A**.

This Environmental Site Assessment was conducted in general accordance with the provisions contained in the ASTM E 1527-13 Standard Guide for Environmental Site Assessments: Phase I Environmental Site Assessment Process, referenced to in 40 CFR Part 312 (the All Appropriate Inquiries Rule). The objective of the environmental assessment was to identify the potential presence of Recognized Environmental Conditions (RECs), Historical RECs (HREC) and/or Controlled RECs (CREC) at the subject site or at surrounding properties that may potentially pose a threat to the subject site.

Our scope of services for this Phase I Environmental Site Assessment (ESA) consisted of the following: (i) an assessment of the subject site history relative to the possible presence of oil and hazardous materials; (ii) a visual reconnaissance of the subject site and surrounding area; (iii) a search of information from the offices of the City of Dover, New Hampshire for records of permits issued for the storage and/or use of oil or hazardous materials at the subject site; (iv) a search of Federal databases and records, including the National Priorities List, the CERCLA List and the RCRIS Handlers List by EDR Inc.; (v) a review of the New Hampshire Department of Environmental Services (NHDES) database relative to incidents involving releases of OHM on or in the vicinity of the subject site; and (vi) assessing the above and documenting the results in a Phase I ESA Report.

Excluded from the scope of work are the following: (i) a title search, (ii) an environmental lien search, (iii) a subsurface investigation of soil, groundwater and/or soil gas, and (iv) an assessment for the potential presence of asbestos containing materials, mold, mildew, lead-based paint, PCBs, and naturally occurring gases such as radon.

The approximately 54-acre subject site is comprised of two (2) parcels identified as 25 Alumni Drive and Bellamy Road with corresponding IDs of H0012-000000 and H0017-000000, respectively. The two parcels are transected by Bellamy Road. Currently, the subject site is occupied by Dover High School, which is comprised of eight main buildings and athletic fields including soccer, football, baseball, softball, and lacrosse playing fields, a track, and tennis courts. Asphalt-paved parking lots surround the school buildings in the southeastern portion of the subject site. Two (2) additional asphalt-paved parking areas are located in the northwestern portion of the subject site near Bellamy Road.

Historical records indicate that the subject site was undeveloped prior to the development of the public school. The areas surrounding the subject site have historically been occupied mostly by residential properties.

No indication of a release of oil and/or hazardous material was observed at the subject site during our site reconnaissance. Surficial observations of readily observable portions of nearby properties did not identify RECs with respect to the subject site.

A search of information from the City of Dover Tax Assessment Office, City of Dover Inspectional Services Division, City of Dover Health Department, City of Dover Fire Department, and City of Dover City Manager's Office for records of permits issued for the storage and/or use of oil or hazardous materials at the subject site did not indicate the presence of an REC.

EDR's review of local, state and federal databases indicated that the subject site was listed in eight (8) of the databases searched. A review of the online New Hampshire DES on-line OneStop database identified the historical presence of USTs and subsurface contamination located at the subject site. Based on a review of these records, groundwater contamination associated with two (2) former 550-gallon waste oil USTs and one (1) oil/water separator is considered an HREC with respect to the subject site. Further, two (2) 750-gallon USTs were indicated to have historically been present at the subject site. Given that, during the course of this assessment, no information was identified which detailed the location or removal of these 750-gallon USTs, they are considered to be an REC with respect to the subject site.

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-13 for the property with the address of 25 Alumni Drive (the "subject site"), located in Dover, New Hampshire. Any exceptions to, or deletions from, this practice are described in the Data Gaps Section of this report. This assessment has identified no recognized environmental conditions in connection with the subject site except for the following: (1) the current or former presence of two (2) 750-gallon USTs indicated to have been installed at the subject site in 1964 and permanently closed in 1989. The release associated with NHDES Project Numbers 15029 and 16847 discovered during the removal of two (2) 550-gallon waste oil USTs and closure of one (1) oil/water separator is considered an HREC with respect to the subject site.

We recommend a Phase II assessment consisting of a geophysical survey and, pending the findings of this survey, a subsurface assessment which includes the collection and analysis of soil and groundwater samples to further evaluate the possible presence and/or impact of two (2) 750-gallon USTs at the subject site.

Very truly yours,

McPHAIL ASSOCIATES, LLC

Nicholas D. Hodge

Kevin D. Jordan

Ambrose J. Donovan, P.E., L.S.P.

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INTRODUCTION

This report documents the results of our Phase I Environmental Site Assessment for the property identified as Dover High School located at 25 Alumni Drive located in Dover, New Hampshire (the "subject site").

These services were performed and this report was prepared in accordance with our contract dated January 13, 2015 and the subsequent authorization of HMFH Architects, Inc. (HMFH). These services are subject to the limitations in **Appendix A**.

PURPOSE AND SCOPE

The assessment was conducted for the above mentioned property in accordance with the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Assessments: Phase I Environmental Site Assessment Process (ASTM E 1527-13) as referenced in 40 CFR Part 312 (the All Appropriate Inquiries Rule).

Our scope of services for this Phase I ESA consisted of the following: (i) an assessment of the subject site history relative to the possible presence of oil and hazardous materials; (ii) a visual reconnaissance of the subject site and surrounding area; (iii) a search of information from the offices of the City of Dover and New Hampshire DES for records of permits issued for the storage and/or use of oil or hazardous materials at the subject site; (iv) a search of Federal databases and records, including the National Priorities List, the CERCLA List and the RCRIS Handlers List by EDR Inc.; (v) a review of the New Hampshire Department of Environmental Services (NHDES) OneStop database relative to incidents involving releases of OHM on or in the vicinity of the subject site; and (vi) assessing the above and documenting the results in a Phase I Environmental Site Assessment (ESA) Report.

Tasks excluded from our Phase I Environmental Site Assessment scope of work consisted of but were not limited to a title search, an environmental lien search, an assessment for the presence of lead-based paint, mold, mildew, asbestos-containing materials or other naturally occurring pollutants such as radon gas. No attempt was made to check on the compliance of present or past owners of the site with federal, state or local laws and regulations except as documented herein.

The objective of the Phase I Environmental Site Assessment, as defined in the ASTM E 1527-13 Standard, is to identify the potential presence of Recognized Environmental Conditions (RECs), Historical RECs (HREC) and/or Controlled RECs (CREC) at

the subject site or at surrounding properties that may potentially pose a threat to the subject site.

The term REC is defined by ASTM E 1527-13 as "the presence or likely presence of any hazardous substance or petroleum products in, on, or at a property; (1) due to a release to the environment, (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment". The term HREC is defined by ASTM E 1527-13 as "a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls". The term CREC is defined by ASTM E 1527-13 as "a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority..., with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls".

Our professional opinion is based solely on the scope of the work conducted and pertains to the subject site limits as shown on **Figure 2** and defined herein.

SITE AND LOCUS DESCRIPTION

The approximately 54-acre subject site is comprised of two (2) parcels identified as 25 Alumni Drive and Bellamy Road with corresponding IDs of H0012-000000 and H0017-000000, respectively. The two parcels are transected by Bellamy Road. Currently, the subject site is occupied by Dover High School, which is comprised of eight buildings and athletic fields including soccer, football, baseball, softball, and lacrosse playing fields, a track, and tennis courts. Asphalt-paved parking lots surround the school buildings in the southeastern portion of the subject site. Two (2) additional asphalt-paved parking areas are located in the northwestern portion of the subject site near Bellamy Road.

The subject site latitude and longitude are 43° 10' 38.64" N and 70° 53' 13.56" W, and the Universal Transverse Mercator (UTM) coordinates are 346,622.7 meters east and 4,782,028.5 meters north in Zone 19. In general, the area within 500 feet of the subject site is occupied by residential properties.

SITE ENVIRONMENTAL SETTING

Based upon topographic maps provided by EDR, surface topography in the vicinity of the subject site is indicated to generally slope downward to the north towards the Bellamy River, which was shown to abut the subject site to the north, and the Bellamy River Reservoir. According to information supplied by EDR of Shelton, Connecticut, parts of the northernmost portion of the subject site along the Bellamy River are shown to be in the 100-year and 500-year floodplain.

Indicated on the OneStop Program GIS Map is conservation land located on the northwestern portion of the subject site. No areas designated as solid waste sites (landfills) are noted as being located within 1,000 feet of the site. As noted in the New Hampshire DES Records Review section of this report, groundwater at the subject site was documented to generally flow in a northerly direction towards the Bellamy River.

The OneStop Program GIS Map is included in **Appendix B.** Topographic Maps provided by EDR are included in **Appendix C.**

SITE HISTORY

Our research into the history of the subject site included review Aerial Photographs, Topographic Maps, and City Directories supplied by EDR. Copies of the Aerial Photographs and Topographic Maps are included in **Appendix C**. EDR indicated the subject site to be an unmapped property with regard to Sanborn Maps.

The subject site was indicated to be vacant on the 1951 Aerial Photograph and the 1956 Topographic Map. Aerial Photographs and Topographic Maps indicated that the current school, located on the southeastern portion of the subject site, was indicated to have been built between 1956 and 1973. During subject site reconnaissance, Mr. Jeffrey White indicated that the school was built in 1967, with an addition added to the original structure in 1989. The remaining portions of the subject site on the 1973 Aerial Photograph were indicated to be vacant. According to the 1986 Aerial Photograph, the baseball and softball fields were located in the central portion of the site. According to Aerial Photographs, the tennis courts in the central portion of the subject site were added between 1986 and 1990. Historical Topographic Maps supplied by EDR indicated that surface topography in the vicinity of the subject site generally slopes downward to the north towards the Bellamy River. Historical City Directories provided by EDR indicated that the subject site with the address of 25 Alumni Drive has been occupied by such entities as Dover High School,

Dover District Athletics, Dover City Alternative School, and City of Dover School Department.

EVALUATION OF DATA FAILURE

In accordance with ASTM E 1527-13, Article 8.3.2 and Article 8.3.2.1 the uses of the property shall be identified back to the property's first developed use, or back to 1940, whichever is earlier, and the maximum interval between historical sources is 5 years. During the time period between the initial development of the subject site to the present time, some intervals between historical sources exceeded 5 years; therefore, data failure was encountered. However, the indicated use of the subject site between sources was consistent and, therefore, the data failure is not considered to constitute a significant data gap.

INTERVIEW WITH USER OF REPORT

As part of our research into the historical use of the subject site, an interview was conducted with Ms. Laura M. Taylor, Business Administrator at Dover School District in accordance with the User Questionnaire contained in Appendix X.3 of ASTM E 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. A copy of the User Questionnaire was provided to Ms. Taylor by email and returned to us. According to Ms. Taylor's knowledge of the property, there are no environmental cleanup liens filed or recorded against the subject site, nor any activity and use limitations, engineering controls, land use restrictions, or institutional controls in place or recorded in a registry under federal, state or local law. Further, Ms. Taylor indicated that, to her knowledge, the property has been used as farmland in the past. Ms. Taylor also indicated that she was recently informed of the historical presence of underground storage tanks at the subject site. Information provided in the User Questionnaire by Ms. Taylor has been incorporated into this report. A copy of the completed User Questionnaire is provided in **Appendix B**.

SITE RECONNAISSANCE

A visual reconnaissance of the subject site and surrounding properties was performed on December 10, 2014 by a representative of McPhail Associates LLC. Mr. Jeffrey White, Facilities Director with the Dover School District, accompanied McPhail during our site reconnaissance. Mr. White indicated that he has been associated with the subject site for approximately 2 years. Mr. White indicated that Dover High School building was originally built in 1967 and that the Career Technical Center (CTC), which is located on the eastern portion of the school, was

built as an addition in 1989. Observations of readily visible portions of adjacent and nearby properties were also made. However, in general, these observations were made from outside the boundaries of these properties. The extent of the subject site is shown on **Figure 2**. Photographs taken during our site reconnaissance are included in **Appendix B**.

Subject Site

Main School Building Interior

The subject site was observed to be occupied by a two to three-story structure utilized as Dover High School. The western portion of the building is mainly occupied by the gymnasium, auditorium, and classrooms, while the eastern portion of the building is occupied by classrooms, a library, administrative offices, cafeteria, kitchen, and the CTC, which was observed to consist of vocational spaces such as auto shops and woodworking. Mr. White indicated that two (2) custodial closets were located on each floor of the building. Custodial closets were generally observed to consist of a wash sink and various cleaning supplies. No odors or staining were observed in the custodial closets observed during our site reconnaissance.

Classrooms observed during site reconnaissance were generally observed to consist of desk, chairs, storage cabinets, and tile floors. No odors or staining were noted in classrooms observed during site reconnaissance. Communal student bathrooms and private faculty bathrooms were observed to be located on each floor. No odors or staining were noted in the bathrooms observed during site reconnaissance. Two science prep rooms were observed in the eastern portion of the building which were utilized to store lab chemicals used during science classes. Mr. White indicated that the school uses a process called "micro chemistry" which dilutes laboratory chemical prior to their discharge to the municipal sewer system.

A kitchen area on the second level of the CTC building was observed to consist of various commercial kitchen utilities, including gas ranges, ovens, wash stations, and tables with wash sinks. Mr. White indicated that the room is used for student cooking classes. Ancillary rooms including a laundry room with a washer and dryer, a pantry, and a custodial closet were observed to be connected to the kitchen. Mr. White indicated that no dry cleaning is conducted at the subject site. Several floor drains were observed within the kitchen area. No odors or staining were

observed in the vicinity of these floor drains. Two approximately 5-gallon, unlabeled plastic jugs filled with a dark liquid were observed in the corner of the kitchen. Mr. White was unsure what the contents of the containers were. No odors or staining were observed in the vicinity of these containers. In summary, no RECs were observed within the student kitchen area.

The gymnasium in the western portion of the school was observed to have several associated rooms, including an equipment storage area, locker rooms, showers, a weight room, and an athletic trainer's room. Several floor drains were observed in the locker rooms and showers. No odor or staining were observed in the vicinity of these floor drains or in the gymnasium area.

A store room adjacent to the boiler room of the school was observed to contain various maintenance materials, including hardware and tools. Mr. White indicated that the subject site buildings are heated via gas-fired boilers. The boiler room was observed to contain three (3) 400-gallon hot water tanks, compressed air tanks, three 9.9 million BTU gas-fired boilers, sprinkler utilities, and a unit which supplies steam for the kitchen. Several buckets and cans of paint were also observed to be located in the boiler room. The floors of both the boiler room and store room were observed to consist of a concrete slab noted to be in good condition. Several floor drains observed in the boiler room were not observed to exhibit odors or staining in their vicinity.

The lower level of the eastern portion of school was observed to contain a wood shop, an auto repair shop, an auto body shop, art rooms, a robotics/engineering lab, a greenhouse, biology lab, cosmetology classroom, dog grooming classroom, a nursing classroom, and a loading dock. Mr. White indicated that waste material produced in the CTC is periodically taken off-site by Safety-Kleen Systems, Inc.

The auto repair shop was observed to contain an approximately 275-gallon waste oil AST, several approximately 5-gallon waste oil containers, hydraulic lifts, and storage of various automotive parts, oils, lubricants, and oily solid waste. The floor of the auto repair shop was observed to consist of a concrete slab in good condition. The slab was observed to be covered with a grey sealant material. De minimis staining was noted on several small areas of the concrete slab. The waste oil AST was observed to be in good condition with no visible leaking or staining identified in its vicinity. No staining was identified in the vicinity of the hydraulic

lifts. A flammables cabinet in the auto repair shop was observed to contain various bottles of motor oil and lubricants. In summary, no RECs were identified in the auto repair shop during our April 27, 2015 site reconnaissance.

The auto body shop was observed to contain various paints and thinners which were generally observed to be stored in ventilated flammables cabinets or a ventilated paint room. Several features were observed to have been filled with concrete within the concrete slab in the auto body shop. It is possible these features are former floor drains which drained to the former oil/water separator which was reportedly closed from the subject site in 2005, as described in the NHDES Records Review section of this report. The concrete slab in the auto body shop was observed to be in good condition with no visible cracks. De minimis staining was noted in several areas of the concrete slab in the auto body shop. In summary, no RECs were identified in the auto body shop of the school building at the subject site.

Remaining areas of the CTC included art rooms, where various paints, art supplies, and a kiln for firing clay were stored; a greenhouse which contained several bottles of pesticides and herbicides within a flammables cabinet; a cosmetology classroom which stored sterilization fluids such as barbcide, as well as a washer and dryer; a dog grooming classroom; a nursing classroom; and a loading dock. In summary no odors or staining potentially indicative of an REC were identified in these areas.

The kitchen for preparing student lunches was observed to be located in the western portion of the building adjacent to the cafeteria. The kitchen was observed to consist of a serving area, wash stations, dry food storage, gas-fired ranges, ovens, and various other cooking supplies. No odors or staining potentially indicative of a release of OHM were identified in the kitchen.

In summary, no RECs were identified in the main school building at the subject site.

Secondary Buildings

Secondary buildings at the subject site include an animal barn, a maintenance garage, concession stands, a building with supplementary classrooms, and several storage sheds/garages which house athletic equipment. The maintenance garage was observed to be located on the northwestern portion of the subject site adjacent to the eastern side of Bellamy Road. The

maintenance garage was observed to be utilized for storage of landscaping equipment, including lawnmowers and units to paint lines on the athletic fields. Mr. White indicated that the garage is heated via a gas-fired hanger heater on the ceiling. Other materials observed to be stored in the maintenance garage included 5-gallon buckets of paint, motor oil, engine oil, herbicides, and gasoline/diesel canisters. With the exception of the paints, these materials were generally observed to be stored in flammables cabinets. The floor of the maintenance garage was observed to consist of a concrete slab in good condition with no major cracking. One floor drain which was located in the slab was observed to have been sealed. De minimis staining was noted on several areas of the concrete slab. In summary, no RECs were identified in the maintenance garage.

The supplementary school building was indicated by Mr. White to have been built in 2002 and to be utilized for classroom space for troubled students. Two gas-fired boilers were observed on the roof of the building which Mr. White indicated heated the building. No odors or staining which would be considered to indicate the presence of an REC were identified in the supplementary school building.

In summary, no RECs were identified in the secondary buildings at the subject site which were observed during our April 27, 2015 site reconnaissance.

Exterior

The exterior of the subject site was generally observed to be occupied by asphalt-paved parking areas, athletic fields, tennis courts, and wooded areas. Readily accessible areas of the exterior of the subject site were observed as part of our site reconnaissance. In general, asphalt-paved parking areas were observed to be in fair to good condition with some cracking, patches, and de minimis staining. A parking lot in the northwestern portion of the subject site abutting Bellamy Road was observed to be a recreational parking area for a disc golf course which abuts the subject site to the northwest. Athletic fields were generally observed to be in good condition with no visible signs of stressed vegetation observed. Readily accessible wooded areas observed during our site reconnaissance did not exhibit evidence of stressed vegetation, odors, or staining.

Two (2) pad-mounted transformers were observed in the central and southeastern portions of the subject site, respectively. The

concrete pads associated with the transformers were observed to be in good condition. Mr. White indicated that the transformer located in the southeastern portion of the subject site was a replacement for the original transformer which failed and caught fire in 2004. No odors, staining, or signs of stressed vegetation were identified in the vicinity of these transformers.

In summary, no indications of the presence of RECs were identified during out subject site reconnaissance conducted on April 27, 2015.

Adjacent and Nearby Properties

The subject site was observed to be bounded by New Hampshire Route 108 and residential properties to the southeast, a middle school and the Bellamy River to the northeast and north, the Bellamy River and Bellamy Park Disc Golf Course to the northwest, and residential properties to the southwest and south.

No visible evidence of staining or spills of OHM was observed on adjacent or surrounding properties.

In summary, no surficial indications of the presence of RECs were observed on adjacent or nearby properties.

MUNICIPAL AND STATE RECORD REVIEW

McPhail completed a municipal records review pertaining to information relevant to the potential use, storage, generation, or disposal of OHM at the subject site and surrounding properties. Our records review included on-line research and requests made both in person and via telephone to the City of Dover Tax Assessment Office, City of Dover Inspectional Services Division, City of Dover Health Department, City of Dover Fire Department, and City of Dover City Manager's Office. The New Hampshire DES Online Database of Underground Storage Tanks was also reviewed.

1. City of Dover Tax Assessment Office

According to the Tax Assessment Office of the City of Dover, the subject site is listed as two (2) parcels with listed addresses of 25 Alumni Road and Bellamy Road, with property IDs of H0012-000000 H0017-000000, respectively. The Assessors database indicates that the subject site is currently owned by the City of Dover and has a plan area of approximately 2,379,700 square feet

(54.83 acres). A copy of the on-line Tax Assessment office information is included in **Appendix D**.

2. City of Dover Inspection Services

An in-person review of the City of Dover Inspection Services files was conducted on April 27, 2015 for the address of 25 Alumni Drive. Permits reviewed generally pertained to minor alterations to subject site structures or construction of new structures. Specifically, records indicated that a "football shed" was constructed in 2003 and indicated that the Animal Barn was constructed in 2008. In summary, our review of records at the City of Dover Inspection Services office did not identify records pertaining to the storage, use, or release of OHM at the subject site.

3. City of Dover Health Department

A request for records held by the City of Dover Health Department related to the storage, use, or release of OHM at the subject site with the address of 25 Alumni Drive was made via telephone on April 26, 2015. According to a representative of the Inspection Services office, which is the primary contact for the Health Department, the Health Department files contained no records pertaining to the storage, use, or release of OHM at the subject site. Records held for the office were indicated to pertain to non-environmental records such as food inspections.

4. City of Dover Fire Department

A request for records held by the City of Dover Fire Department related to the storage, use, or release of OHM at the subject site with the address of 25 Alumni Drive was made via telephone on April 26, 2015. According to Chief Richard Driscoll, records pertaining to USTs are held by the State of New Hampshire, and are not kept by the City of Dover. Chief Driscoll, who indicated that he has worked for the Fire Department for 34 years, indicated that he was unaware of any incidents of a release of OHM at the subject site.

5. City of Dover City Manager's Office

A request for records pertaining to the storage, use, or release of OHM was made to the City Manager's Office on March 9, 2015. A response on March 10, 2015 from Ms. Colleen Bessette indicated

that the Environmental Programs Consultant, Dean Peschel, was not aware of any environmental records for the subject site.

6. New Hampshire DES On-Line Database of Underground Storage Tanks (USTs)

Our review of the NHDES Underground Storage Tank (UST) Registry Online Database on March 9, 2015 did not identify records of current use of USTs at the subject site with the address of 25 Alumni Drive. However, the NHDES UST database indicated the historical presence of two (2) 15,000-gallon No. 4 heating oil, two (2) 750-gallon USTs, one of which was indicated to contain No. 2 heating oil, one (1) 500-gallon "used/waste oil" UST and one (1) 550-gallon "used/waste oil" UST at the subject site. The database indicated that one (1) of the 15,000-gallon USTs was installed on January 1, 1966 and was permanently closed on August 18, 1989. The second 15,000-gallon UST was indicated by the database to have been installed on August 22, 1989 and be permanently closed on June 24, 2002. The 750-gallon USTs were indicated to have been installed on January 1, 1964 and permanently closed on August 1, 1989 and June 1, 1989, respectively.

The database indicated that the 500-gallon UST was installed on September 1, 1989 and removed on June 29, 2005. The 550-gallon UST was indicated to have been installed on November 11, 1911 and removed on June 29, 2005. Given that the school was not built until 1967, and that the subject was indicated to have been used as farmland prior to the construction of the school, the installation date of 1911 is believed to be erroneous. Further, a NHDES document entitled "Notification for Underground Storage Tank Systems" dated August 4, 2005 indicated that two (2) 550-gallon tanks were installed on September 1989. The two (2) 15,000-gallon USTs and 550-gallon USTs are discussed further in the NHDES Records Review section of this report. Given that no records were identified during this assessment which detailed the location or removal of the two 750-gallon USTs indicated to have been present at the subject site, and that an undocumented release of petroleum from these tanks could have affected subsurface conditions at the subject site, the historical presence of two (2) 750-gallon USTs is considered an REC with respect to the subject site.

ENVIRONMENTAL DATABASE REPORT

Research of Federal and State records was conducted by EDR Inc. of Shelton, Connecticut, and is summarized in a database report dated January 26, 2015. The report includes a records search of federal and state database information indicating potential environmental matters within ASTM-established minimum search distances. A copy of the EDR database report is included in **Appendix E**.

Based upon information provided in the EDR report, the subject site was listed in eight (8) databases searched by EDR: New Hampshire Site Remediation and Groundwater Hazard Inventory Listing of All Sites (NH ALLSITES); New Hampshire UST; Facility Index System/Facility Registry System (FINDS); New Hampshire Recovered Government Archive Leaking Underground Storage Tank (NH RGA LUST); Conditionally Exempt Small Quantity Generator (RCRA-CESQG); Aerometric Information Retrieval System Facility Subsystem (US AIRS); Federal Insecticide, Fungicide, and Rodenticide Act/Toxic Substances Control Act (FTTS); and Historical FTTS (HIST FTTS). The EDR Report indicated that no violations were identified for the subject site with regard to the RCRA-CESQG and US AIRS databases. Therefore, the inclusion of the subject site in the RCRA-CESGQ and US AIRS databases is not considered an REC with respect to the subject site. Further, given that the subject site is listed in the FINDS database based on its inclusion in the US AIRS database, inclusion of the subject site in the FINDS database is not considered an REC with respect to the subject site. The inclusion of the subject site in the FTTS and HIST FTTS sites database pertains to the use of pesticides on athletic fields at the subject site. The use of pesticides and herbicides at the subject site consistent with their labeling not considered an REC with respect to the subject site. The inclusion of the subject site in the NH ALLSITE, New Hampshire UST, and NH RGA LUST databases is discussed further in other sections of this report.

Based upon information provided by EDR, there are no U.S. Environmental Protection Agency (EPA) National Priorities List (NPL) sites, Proposed NPL sites, or Delisted NPL sites located within one mile of the subject site. In addition, the databases reviewed by EDR indicated that there are no CERCLIS sites located within 0.5 miles of the subject site. The EDR report indicates that there is one (1) CERCLIS-NFRAP site located approximately 2,200 feet west of the subject site, based on database updated October 25, 2013. The site is indicated to be Electrocraft New Hampshire Inc. with the listed address of 1 Progress Drive. Given the distance of this facility from the subject site, this CERCLIS-NFRAP

site is not considered likely to pose a threat of impact to the subject site and, therefore, is not considered an REC with respect to the subject site.

The EDR report indicated that there is no Resource Conservation and Recovery Act (RCRA) Treatment, Storage, and Disposal Facility (TSDF) located within 0.5-miles of the subject site, based on the database updated June 10, 2014.

The EDR report further indicated that there are no Large Quantity Generators (LQG) or Small Quantity Generators (SQG) of hazardous waste located within 0.25-miles of the subject site, as indicated by the Resource Conservation and Recovery Information System (RCRIS) database last updated June 10, 2014.

The EDR report indicated that there is one (1) Conditionally Exempt Small Quantity Generator (CESQG) located within 0.25-miles of the subject site. The site, which was identified as Airex Corp. with a listed address of 15 Lilac Lane, is located approximately 1,100 feet to the west-southwest of the subject site. Given that the EDR report did not identify instances of violations associated with this RCRA-CESQG site, hence it is not considered likely to pose a threat of impact to the subject site and, therefore, is not considered to be an REC with respect to the subject site.

The EDR report further indicated that there are four (4) Resource Conservation and Recovery Act Non-Generator (RCRA-NonGen) sites located within 0.25-miles of the subject site, based on the database last updated on June 10, 2014. According to the EDR report, there are no violations on record for these listed sites. Given that no violations were reported, these RCRA-NonGen sites are not considered likely to pose a threat of impact to the subject site and, therefore, are not considered RECs with respect to the subject site.

EDR further reported that there are no state Solid Waste Facility/Landfill Sites within 0.5-miles of the subject site, based upon a state file updated as of November 4, 2014.

EDR also reported the presence of (1) Exclusive Historic Gas Stations (US Hist Auto Stat) within 0.5-miles of the subject site, according to the EDR database. This database compiles an electronic list of business directories and classifies High Risk Historical Records identifying current or historical automotive shops, service stations, and gasoline stations which may have

included gasoline filling operations. The site, with the listed address of 26 Bellamy Road is located approximately 1,300 feet to the north-northwest of the subject site. The gas station is located on the opposite side of the Bellamy River. Given the distance from the subject site and its location on the opposite side of the Bellamy River, this US Hist Auto Stat site is not considered likely to pose a threat of impact to the subject site and, therefore, is not considered an REC with respect to the subject site.

The EDR report further indicates that there are no Regulated Drycleaning Facilities (DRYCLEANERS) and EDR Exclusive Historic Cleaners sites within 0.25-miles of the subject site.

The databases reviewed by EDR indicated there are no Manufactured Gas Plant (MGP) sites located within 1-mile of the subject site.

A review of EDR's list of "orphan sites"—that is, those sites with inadequate address information—did not indicate additional release sites in close proximity to the subject site.

SITE REGULATORY STATUS

The current New Hampshire DES database, updated through March 9, 2015 indicated that the subject site located at 25 Alumni Drive in Dover, New Hampshire is listed as an Initial Response Spill Site, Ether Contaminated Site, and Leaking Motor Oil Storage Site, corresponding to Site Number 198603029. These listings are discussed further in the New Hampshire DES Records Review section below.

NEW HAMPSHIRE DES RECORDS REVIEW

According to the EDR review of state databases, the majority of DES listed disposal sites are either located at distances greater than 0.25-miles from the subject site, and/or are down-gradient or cross-gradient with respect to the subject site. These sites are not considered likely to pose a threat of impact to the subject site. However, the following release sites were further evaluated for their potential to impact the subject site.

1. **Subject Site, Dover High School, 25 Alumni Drive; NHDES Site #: 198603029, Project #: 15029 and 16847**

According to a report entitled "Tank Closure Summary, NHDES #0110183, Dover High School, Dover, New Hampshire" dated July 9, 2002 and prepared by Lakes Region Environmental Contractors,

Inc. (LREC), a 15,000-gallon UST was removed from the subject site on June 24, 2002. Another 15,000-gallon UST was reportedly removed from this location on August 18, 1989, three days prior to the installation of the second 15,000-gallon UST. LREC indicated that the 15,000-gallon UST contained No. 4 heating oil and was "properly cleaned" and "appeared to be intact" during its removal. The report indicated that lines associated with the UST were cleaned, removed from the ground, and capped with cement where they met the boiler room of the school building. Headspace screening conducted by LREC in the vicinity of the UST reportedly did not identify total volatile organic compounds (TVOC) concentrations above 1 part per million (ppm). One (1) composite sample was reportedly collected by LREC and submitted for laboratory analysis. The report indicated that "the presence of regulated compounds" were not identified above NHDES Method 1 Soil Standards. LREC indicated that, given that no indication of a release was identified with respect to the UST, the tank grave was subsequently backfilled. Given that laboratory analysis of soil from the tank grave identified no petroleum contamination in the tank grave, the former presence of two 15,000-gallon USTs at the subject site is not considered an REC with respect to the subject site.

2. **Subject Site, Dover High School, 25 Alumni Drive; NHDES Site #: 198603029, Project #: 15029 and 16847**

According to the NHDES OneStop Online Database, Project Number 15029 is associated with a leaking Motor Oil Storage Tank (MOST) located on the subject site with the address of 25 Alumni Drive. According to a report entitled "Underground Storage Tank Closure Report for Dover High School, SAU 11, 25 Alumni Drive, Dover New Hampshire 03038" dated June 30, 2005 and prepared by Les A. Cartier and Associates, Inc. (LACA), two (2) 550-gallon waste oil USTs and associated piping were removed from the subject site on June 29, 2005 and an oil/water separator was closed in place. The LACA report indicated that the USTs were in "good condition with no signs of failure." Given that groundwater was encountered in the base of one of the UST excavations, LACA reportedly collected an aqueous sample which was submitted for laboratory analysis. The report indicated that a soil sample was collected from the base of the second UST excavation. According to the LACA report, "some contamination" was identified with respect to the samples collected from the site. The LACA report also indicated that the oil/water separator and associated floor

drains located in the automotive shops were decommissioned as part of the UST closure activities.

According to a report entitled "Level I Site Investigation Report, Dover High School – 25 Alumni Drive, Dover, New Hampshire" dated February 2006 and prepared by R.W. Gillespie & Associates, Inc. (RWGA), a soil and groundwater investigation was conducted at the subject site to address contamination identified during the closure of the above-mentioned USTs and oil/water separator in 2005. According to the report, groundwater was documented to generally flow to the north and northwest towards the Bellamy River. The report indicated that RWGA installed four (4) groundwater monitoring wells in the vicinity of the former USTs and oil/water separator. Two (2) rounds of groundwater sampling conducted one month apart from each other were reportedly conducted from the installed wells. RWGA indicated that results of the groundwater sampling identified "low to trace levels" of VOCs were detected below New Hampshire Ambient Groundwater Quality Standards (AGQS). The RWGA report indicated that only the gasoline fuel additive Methyl tert Butyl Ether (MtBE), identified in monitoring well MW-1, was found to exceed the applicable AGQS. The RWGA report indicated that results of analysis of soil samples did not identify contaminants of concern above their applicable NHDES Risk Characterization and Management Policy (RCMP) Method 1 cleanup standards, with the exception of arsenic. However, given that the arsenic was detected at a location outside the limits of the petroleum-contaminated identified at the site, RWGA considered the arsenic to be naturally-occurring.

According to a Closure Plan prepared by NHDES dated October 30, 2007, additional groundwater analysis was to be required for MW-1 at the subject site in November of 2007 and April of 2008. NHDES indicated that, if the groundwater data did not indicate levels of metals, MtBE and other oxygenates above the applicable AGQS, the site would be closed.

According to a letter report entitled "Transmittal of Groundwater Monitoring Results – April 2008 Event" dated May 5, 2008, prepared by R. W. Gillespie & Associates, Inc., and associated with the subject site under Project Number 16847, the testing during the April 2008 sampling determined that no VOCs or RCRA 8 metals exceeded AGQS.

A letter entitled "Certificate of No Further Action" prepared by the NHDES dated May 16, 2008 indicated that project numbers 15029

and 16847 have been closed due to all sources of groundwater contaminate having been eliminated. Given that these sources have been eliminated and that the April 2008 groundwater sampling data did not indicate levels of contaminants above applicable AGQS, contamination associated with the removal of two (2) 550-gallon USTs and closure of one (1) oil/water separator are not considered likely to pose a threat of impact to the subject site. The former presence of two 550-gallon USTs and an oil/water separator are considered HRECs with respect to the subject site.

3. **Subject Site, Dover High School, 25 Alumni Drive; NHDES Site #: 198603029, Project #: 14465**

According to a document entitled "Record of Telephone Conversation" dated February 25, 2005 and prepared by Mr. David Leathers of the NHDES Waste Management Division, this spill, which corresponds to NHDES Project #14465, pertains to a leak of approximately 40 to 45 gallons of hydraulic oil which occurred at the subject site on February 25, 2005. The document indicated that the spill originated from a ladder truck from the Dover Fire Department. According to the document, Speedy Dry was applied to the spilled oil and was cleaned up by Dover Public Works. According to the document, the spill occurred to asphalt and '"no water was impacted" by the spill. Given that this spill was cleaned up and that no water was impacted, this spill is not considered likely to pose a threat of impact to the subject site and, therefore, is not considered to be an REC with respect to the subject site.

4. **Hanscom Residence, 129 Durham Road; NHDES Site #: 200908027, Project #: 21815**

The Hanscom Residence site is located approximately 600 feet to the south-southeast of the subject site. According to records obtained from the NHDES OneStop Online Database, Project number 21815 is associated with a release of petroleum discovered during the removal of a 500-gallon #2 heating oil UST. The report entitled "Initial Response Action Report" prepared by Ransom Environmental Consultants, Inc. (Ransom) dated September 9, 2010 indicated that the soil impacted by the release was removed and placed in a container. According to the report, a soil sample was collected from the sidewalls of the excavation. The Ransom report indicated that groundwater was encountered in the excavation at a depth of approximately eight (8) feet below ground surface. According to the report, a total of 14.12 tons of

petroleum impacted soil were transported to Environmental Soil Management, Inc. (ESMI) of Loudon, New Hampshire. The excavation was backfilled with clean soil. Groundwater flow direction at the site was not determined.

According to the report, the results of laboratory analysis did not detect VOCs or PAHs above the laboratory method detection limits in the soil sample; however, results identified naphthalene above the applicable AGQS in the groundwater sample collected from the excavation.

In a response to the Initial Response Action Report (IRAR) submitted by Ransom, the NHDES issued a "Request for Groundwater Quality Assessment" dated November 5, 2010. The NHDES reported that Hanscom Residence was responsible for the discharge and required groundwater monitoring.

According to a report entitled "Groundwater Quality Assessment" prepared by Ransom Environmental Consultants, Inc. dated March 3, 2011, three (3) groundwater monitoring wells were installed at 129 Durham Road. Reportedly, the results from the subsequent groundwater sampling indicated that VOCs and PAHs were not detected above laboratory method detection limits in samples collected from the wells.

In a response to the Groundwater Quality Assessment, the NHDES issued a "Certificate of No Further Action" dated September 29, 2011. The NHDES reported that all sources of groundwater contamination have been eliminated from the site.

Given that sources of groundwater were reported to have been eliminated from the site and that NHDES indicated that no further action was required, the release associated with Project # 21825 is not considered likely to pose a threat of impact to the subject site and, therefore, is not considered to be an REC with respect to the subject site.

DATA GAPS

In accordance with ASTM E 1527-13, the Phase I report shall identify and comment on any significant data gaps that affect the ability of the environmental professional to identify RECs. There were no significant data gaps identified during the completion of this assessment.

SUMMARY AND CONCLUSIONS

A Phase I Environmental Site Assessment Report has been completed for the property with the address of 25 Alumni Drive in Dover, New Hampshire. The purpose of this report was to document the physical characteristics of the subject site with regard to whether there has been a release or threat of release at the site of oil or hazardous materials. This report has been prepared in a manner which is consistent with the ASTM E1527-13 standard for Phase I ESA reporting.

The approximately 54-acre subject site is comprised of two (2) parcels identified as 25 Alumni Drive and Bellamy Road with corresponding IDs of H0012-000000 and H0017-000000, respectively. The two parcels are transected by Bellamy Road. Currently, the subject site is occupied by Dover High School, which is comprised of eight main buildings and athletic fields including soccer, football, baseball, softball, and lacrosse playing fields, a track, and tennis courts. Asphalt-paved parking lots surround the school buildings in the southeastern portion of the subject site. Two (2) additional asphalt-paved parking areas are located in the northwestern portion of the subject site near Bellamy Road.

Historical records indicated that the subject site was undeveloped prior to the development of the public school. The areas surrounding the subject site have historically been occupied mostly by residential properties.

No indication of a release of oil and/or hazardous material was observed at the subject site during our site reconnaissance. Surficial observations of readily observable portions of nearby properties did not identify RECs with respect to the subject site.

A search of information from the City of Dover Tax Assessment Office, City of Dover Inspectional Services Division, City of Dover Health Department, City of Dover Fire Department, and City of Dover City Manager's Office for records of permits issued for the storage and/or use of oil or hazardous materials at the subject site did not indicate the presence of an REC.

EDR's review of local, state and federal databases indicated that the subject site was listed in eight (8) of the databases searched. A review of the online New Hampshire DES on-line OneStop database identified the historical presence of USTs and subsurface contamination located at the subject site. Based on a review of these records, groundwater contamination associated with two (2) former 550-gallon waste oil USTs and one (1) oil/water separator

is considered an HREC with respect to the subject site. Further, two (2) 750-gallon USTs were indicated to have historically been present at the subject site. Given that, during the course of this assessment, no information was identified which detailed the location or removal of these 750-gallon USTs, they are considered to be an REC with respect to the subject site.

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-13 for the property with the address of 25 Alumni Drive (the "subject site"), located in Dover, New Hampshire. Any exceptions to, or deletions from, this practice are described in the Data Gaps Section of this report. This assessment has identified no recognized environmental conditions in connection with the subject site except for the following: (1) the current or former presence of two (2) 750-gallon USTs indicated to have been installed at the subject site in 1964 and permanently closed in 1989. The release associated with NHDES Project Numbers 15029 and 16847 discovered during the removal of two (2) 550-gallon waste oil USTs and closure of one (1) oil/water separator is considered an HREC with respect to the subject site.

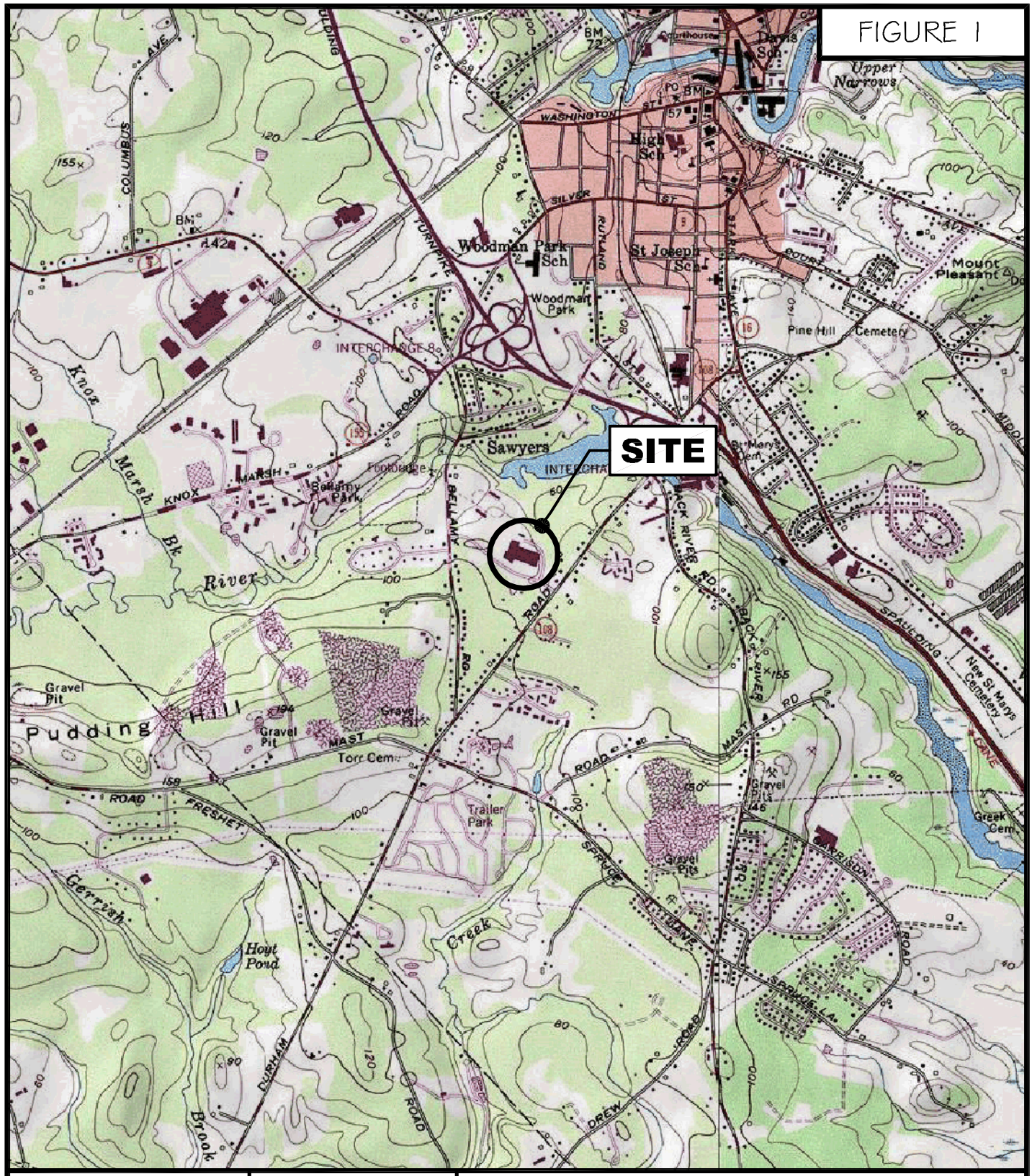
We recommend a Phase II assessment consisting of a geophysical survey and, pending the findings of this survey, a subsurface assessment which includes the collection and analysis of soil and groundwater samples to further evaluate the possible presence and/or impact of two (2) 750-gallon USTs at the subject site.

ENVIRONMENTAL PROFESSIONAL STATEMENT

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in Section 312.10 of 40 CFR 312. Further, I have the specific qualifications based on education, training and experience to assess a property of the nature, history, and setting of the subject site. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in CFR Part 312.

Ambrose J. Donovan, P.E., L.S.P.
Environmental Professional

FIGURE 1



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www.mcphailgeo.com

N

SCALE 1:25,000

PROJECT LOCATION PLAN

DOVER HIGH SCHOOL

DOVER NEW HAMPSHIRE

NORTH

APPROXIMATE LIMITS OF SUBJECT SITE

APPROXIMATE LIMITS OF DOVER HIGH SCHOOL

BELLAMY RIVER

DAM

BELLAMY ROAD

ALUMNI DRIVE

DURHAM ROAD (ROUTE 108)

DURHAM ROAD (ROUTE 4)

OAKLEY DRIVE

REFERENCE: THIS PLAN WAS PREPARED FROM A 40-SCALE DRAWING ENTITLED "BOUNDARY SURVEY" DATED FEBRUARY 23, 2015 BY SEBAGO TECHNICS

GRAPHIC SCALE

120 0 120 240 480

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DOVER HIGH SCHOOL

DOVER NEW HAMPSHIRE

SITE PLAN

FOR

HMFH ARCHITECTS, INC.

BY

McPHAIL ASSOCIATES, LLC

Date: MAY 2015	Dwn: F.G.P.	Chkd: K.D.J.	Scale: 1" = 120'
Project No: 5883			FIGURE 2

APPENDIX A:

LIMITATIONS

LIMITATIONS

The purpose of this report was to assess the physical characteristics of the property located at the address of 25 Alumni Drive in Dover, New Hampshire. The site assessment was performed in general conformance to ASTM E1527-13 Standard Practice - Phase I Environmental Site Assessment.

No attempt was made to check on the compliance of present or past owners of the site with federal, state or local laws and regulations except as otherwise documented herein. Further, our scope of services did not include a title search or assessment for the presence at the subject site of lead-based paint, asbestos-containing material, PCBs, mold, or naturally-occurring gases such as radon. No chemical testing of soil or groundwater was conducted.

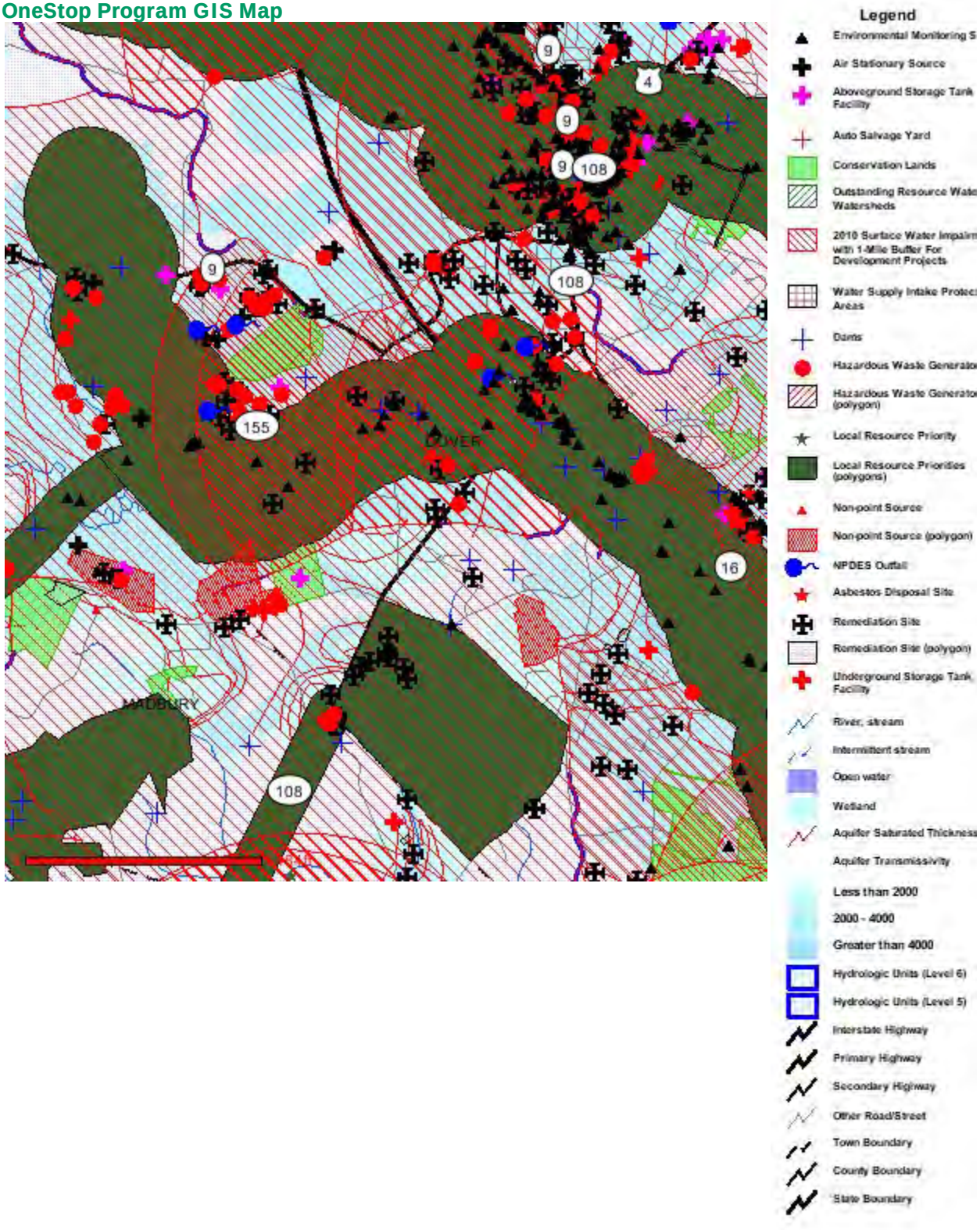
The site observations were made under the conditions stated in this report. The conclusions presented in the text are based solely on the scope of work conducted and on the observations stated in the report.

This study and report have been prepared on behalf of and for the exclusive use of HMFH Architects solely for use in an environmental assessment of the above referenced property. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party nor used in whole or in part by any other party without prior written consent of McPhail Associates, LLC. This report has been prepared in accordance with current generally accepted geoenvironmental practices. No other warranty, expressed or implied, is made.

APPENDIX B:

NHDES ONESTOP GIS MAP
USER QUESTIONNAIRE
PHOTOGRAPHS

OneStop Program GIS Map



Map Scale = 1 : 59267 (1" = 0.9 miles or 4939 feet)

The information contained in the OneStop Program GIS is the best available according to the procedures and standards of each of the contributing programs and of the GIS. The different programs are regularly maintaining the information in their databases. As a result, the GIS may not always provide access to all existing information, and it may occasionally contain unintentional inaccuracies. The Department can not be responsible for the misuse or misinterpretation of the information presented by this system.

SPECIAL NOTE

Local Resource Protection Priorities (LRPP) were determined through correspondence between the Regional Planning Commissions and municipal boards and officials. The source of local input varies from municipality to municipality. The resources identified in the LRPP are valued locally for their natural or cultural significance, and are not assigned priorities. Landowners' preferences for resource protection have not been determined.

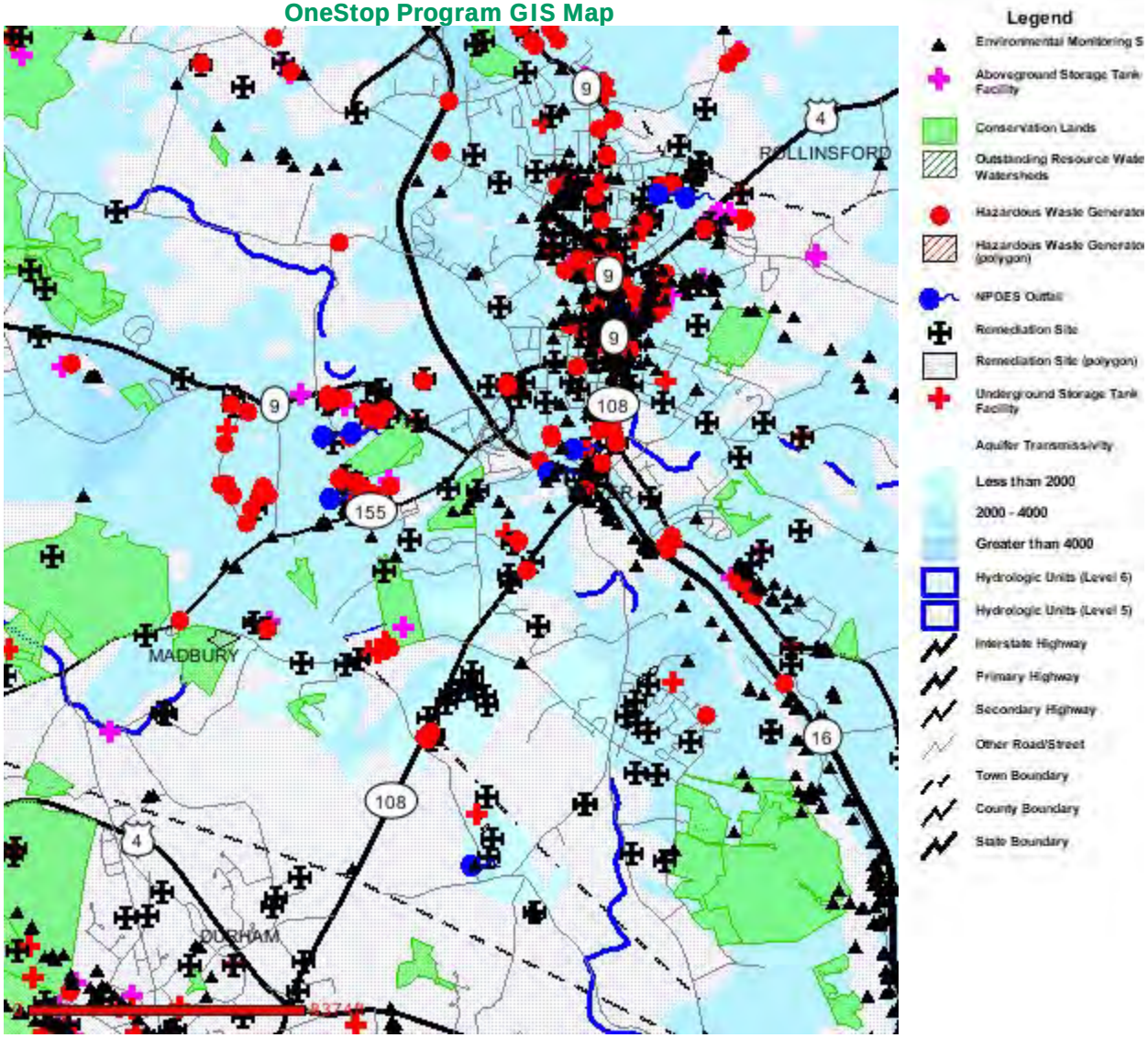
Map prepared 3/9/2015 3:00:26 PM

Developed in cooperation with NH GRANIT

New Hampshire Department of Environmental Services

OneStop Program GIS

OneStop Program GIS Map



Map Scale = 1 : 93063 (1" = 1.5 miles or 7755 feet)

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Map prepared 3/9/2015 3:09:02 PM

Developed in cooperation with NH GRANIT

E 1527 – 13

X3. USER QUESTIONNAIRE

INTRODUCTION

Property Address:
Dover High School; 25 Alumni Drive, Dover, NH

Job No: 5883

In order to qualify for one of the Landowner Liability Protections (LLPs) offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the "Brownfields Amendments"), the *user* must conduct the following inquiries required by 40 CFR 312.25, 312.28, 312.29, 312.30, and 312.31. These inquiries must also be conducted by EPA Brownfield Assessment and Characterization grantees. The *user* should provide the following information to the *environmental professional*. Failure to conduct these inquiries could result in a determination that "*all appropriate inquiries*" is not complete.

Please include an explanation of any affirmative answers.

1. Environmental liens that are filed or recorded against the *property* (40 CFR 312.25).

Did a search of *recorded land title records* (or judicial records where appropriate) identify any environmental liens filed or recorded against the *property* under federal, tribal, state or local law? Please select

If YES, please explain. None that we are aware of.

2. Activity and use limitations that are in place on the *property* or that have been filed or recorded against the *property* (40 CFR 312.26(a)(1)(v) and (vi)).

Did a search of *recorded land title records* (or judicial records where appropriate) identify any AULs, such as *engineering controls*, land use restrictions or *institutional controls* that are in place at the *property* and/or have been filed or recorded against the *property* under federal, tribal, state or local law? Please select

If YES, please explain. None that we are aware of.

3. Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28).

Do you have any specialized knowledge or experience related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former *occupants* of the *property* or an *adjoining property* so that you would have specialized knowledge of the chemicals and processes used by this type of business? Please select

If YES, please explain. N/A

4. Relationship of the purchase price to the fair market value of the *property* if it were not contaminated (40 CFR 312.29). Does the purchase price being paid for this *property* reasonably reflect the fair market value of the *property*? Please select

If you concluded that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the *property*? Please select

If YES, please explain. N/A

5. Commonly known or *reasonably ascertainable* information about the *property* (40 CFR 312.30).

Are you aware of commonly know or *reasonably ascertainable* information about the *property* that would help the *environmental professional* to identify conditions indicative of releases or threatened releases? For example:

(a) Do you know the past uses of the *property*? Please select
If YES, please explain. FARMING

(b) Do you know of specific chemicals that are present or once were present at the *property*? Please select
If YES, please explain. NO

(c) Do you know of spills or other chemical releases that have taken place at the *property*? Please select
If YES, please explain. NO

(d) Do you know of any environmental cleanups that have taken place at the *property*? Please select
If YES, please explain. NO

6. The degree of obviousness of the presence or likely presence of contamination at the *property*, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).

Based on your knowledge and experience related to the *property* are there any *obvious* indicators that point to the presence or likely presence of releases at the *property*? Please select

If YES, please explain. NO

? UNDERGROUND STORAGE TANKS ?
↳ INFORMED OF RECENTLY

PLEASE RETURN COMPLETED QUESTIONNAIRE TO McPHAIL ASSOCIATES, LLC AS SOON AS POSSIBLE. IF YOU NEED ADDITIONAL SPACE FOR ANY QUESTION, PLEASE ATTACH A SECOND PAGE.

COMPLETED BY: Please enter your name & title here.

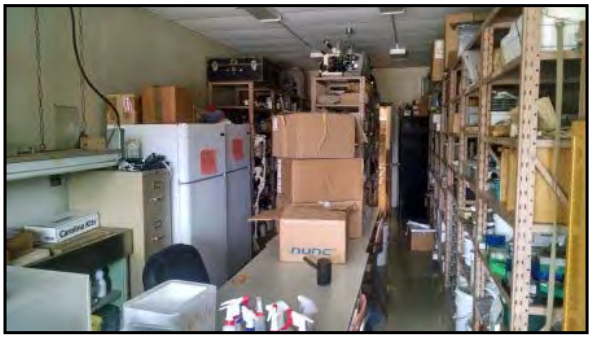
SIGN: Karen M. Taylor Business Administrator **DATE:** 4-3-2015

Exterior of Dover High School.

Career Technical Center (CTC) building.

Science prep room.

Science prep room.



Science prep room.

Typical classroom at Dover High School.

Science prep room.

Typical classroom at Dover High School.

Typical classroom at Dover High School.

Typical cleaners stored in custodial closet.

Typical wash basin in custodial closet.

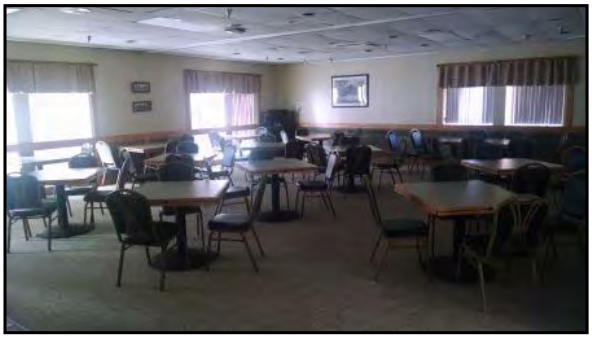
Cafeteria at Dover High School.

Hallway in Dover High School.

Nurse's Office.

Typical classroom at Dover High School.

Lobby near CTC kitchen area at Dover High School.



Function room adjacent to CTC kitchen area.

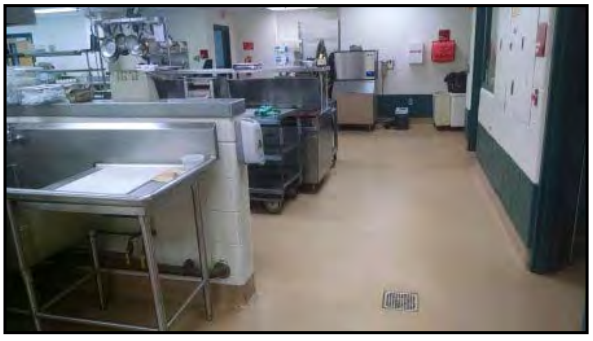
Floor drain in CTC kitchen.

Ovens and floor drain in CTC kitchen.

CTC kitchen.

CTC kitchen.

Custodial closet in CTC kitchen.

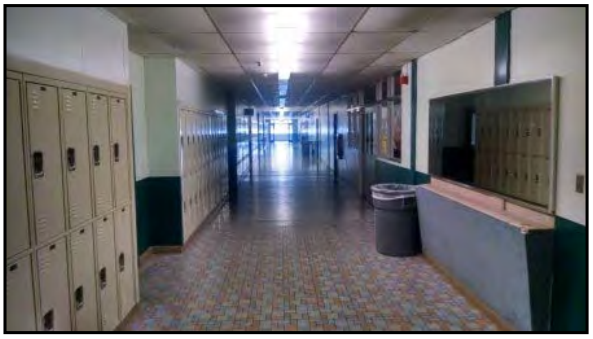


CTC kitchen.

Laundry unit in CTC kitchen.

Pantry in CTC kitchen.

Unlabeled containers in CTC kitchen.



Typical hallway in Dover High School.

Cleaners in custodial closet.

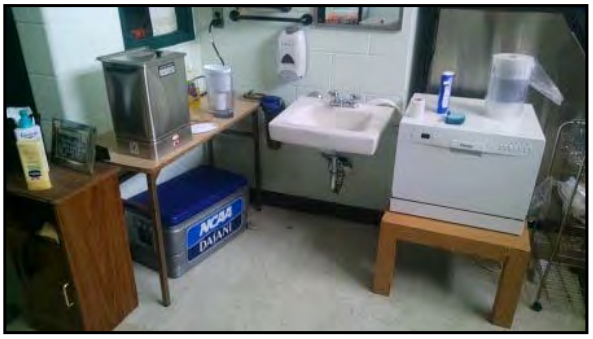
Equipment storage near gymnasium.

Showers near gymnasium.

Locker room near gymnasium.

Weight room near gymnasium.

Athletic trainer's office.



Athletic trainer's office.

Athletic trainer's office.

Store room adjacent to boiler room.

Store room adjacent to boiler room.

Store room adjacent to boiler room.

Boiler room at Dover High School.

Air tanks in boiler room.

Floor drain adjacent to boiler.

Boiler room at Dover High School.

Paints in boiler room at Dover High School.

Boiler room at Dover High School.

Boiler room at Dover High School.

Wood shop in CTC building.

Storage cabinet in wood shop.

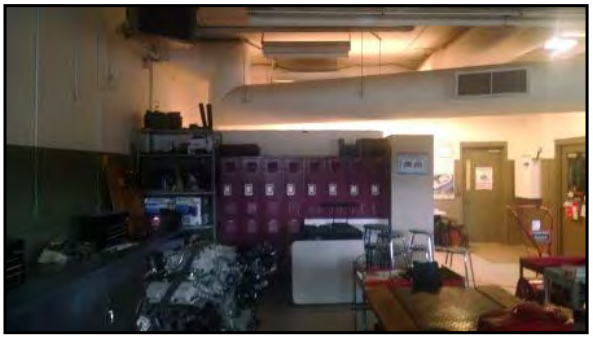
Waste oil AST in auto shop in CTC Building.

Behind the waste oil AST in auto shop in CTC Building.

Under the waste oil AST in auto shop in CTC Building.

Waste oil AST in auto shop in CTC Building.

Engines in auto shop.



Auto shop in CTC Building.

Auto shop in CTC Building.

Auto shop in CTC Building.

Hydraulic lift in auto shop.

Under hydraulic lift in auto shop.

Oily solid waste receptacle in auto shop.

Parts cleaning unit in auto shop.

Auto shop in CTC Building.

Auto shop in CTC Building.

Oils and lubricants in auto shop.

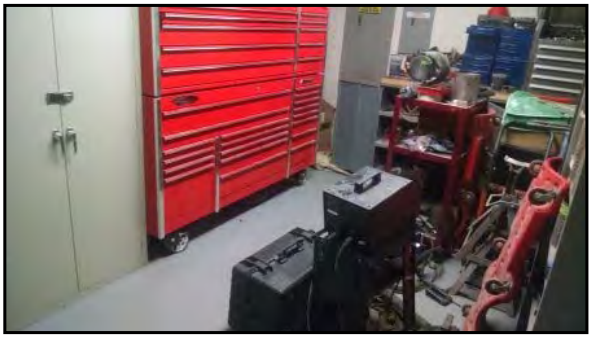
Hydraulic lift in auto shop.

Materials stored in flammables cabinet in auto shop.

Materials stored in flammables cabinet in auto shop.

Hydraulic lift in auto shop.

Locked cabinets in storage area of auto body shop in the CTC Building.



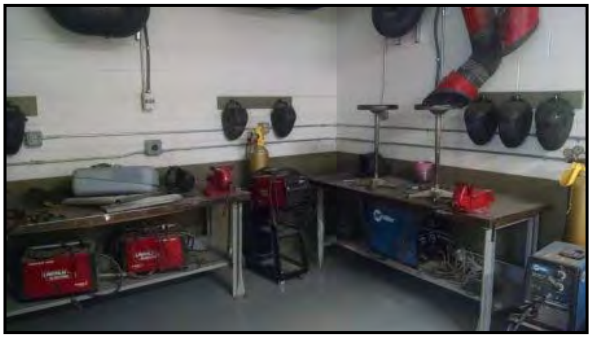
Storage area of auto body shop.

Auto body shop.

Auto body shop.

Possible abandoned floor drain in auto body shop.

Auto body shop.



Auto body shop.

Auto body shop.

Floor drain in auto body shop.

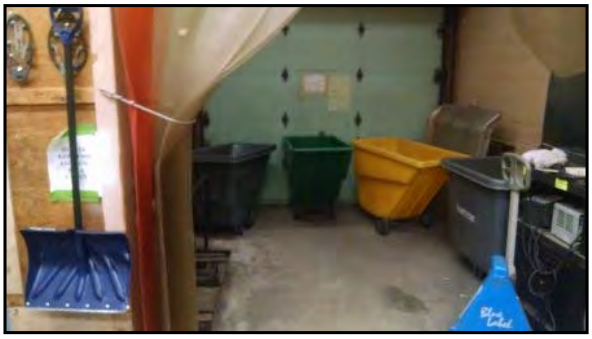
Paint storage room in auto body shop.

Paint storage room in auto body shop.

Ancillary room of of auto body shop.

Flammables cabinet in auto body shop.

Loading dock.



Loading dock.

Loading dock.

Kiln in art classrooms.

Paints stored in art classrooms.

Engineering/robotics classroom.

Engineering/robotics classroom.

Engineering/robotics classroom.

Engineering/robotics classroom.

Biology classroom in CTC Building.

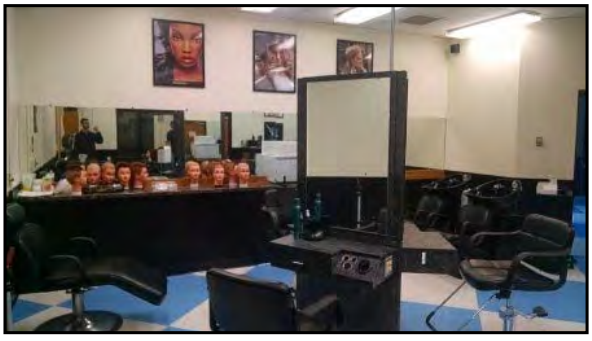
Flammables cabinet in biology classroom containing pesticides/herbicides.

Greenhouse located in CTC Building.

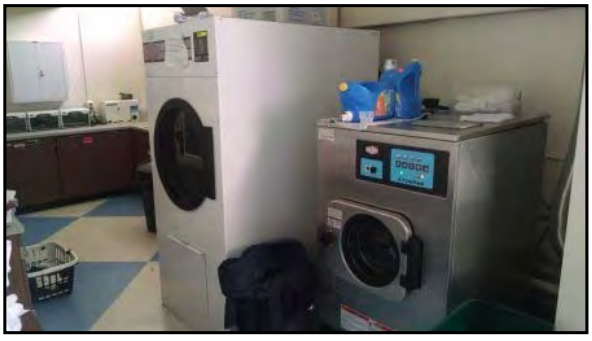
Greenhouse located in CTC Building.

Dog grooming classroom in CTC Building.

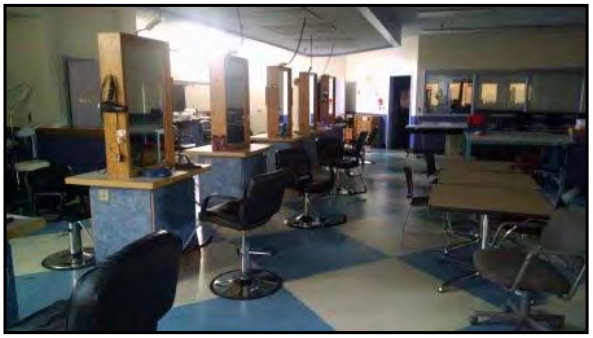
Dog grooming classroom in CTC Building.



Cosmetology lab in CTC Building.



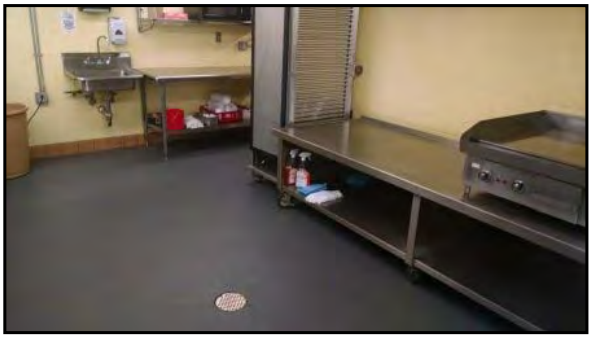
Laundry in cosmetology lab in CTC Building.



Cosmetology lab in CTC Building.

Cosmetology lab in CTC Building.

Nursing classroom in CTC Building.



Kitchen in Dover High School building.

Kitchen in Dover High School building.

Kitchen in Dover High School building.

Kitchen in Dover High School building.

Kitchen in Dover High School building.

Kitchen in Dover High School building.

Kitchen in Dover High School building.

Cafeteria.

"Transformer room" in Dover High School.

Animal Science Building.

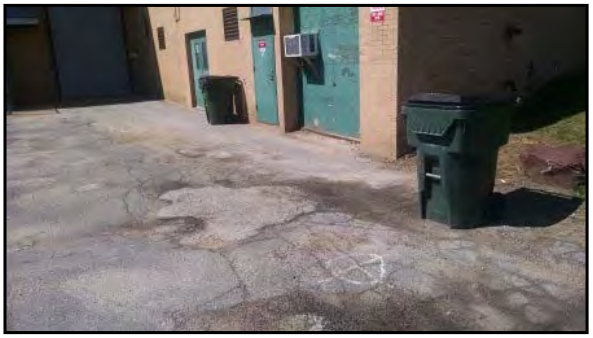
Animal Science Building.

Animal Science Building.

Exterior of Dover High School boiler room.

Rear of CTC Building.

Storage garage.



De minimis staining outside the boiler room.

Athletic field.

Concession stand.

Concession stand.

Athletic field.

Pad-mounted transformer near athletic field in northern portion of site.

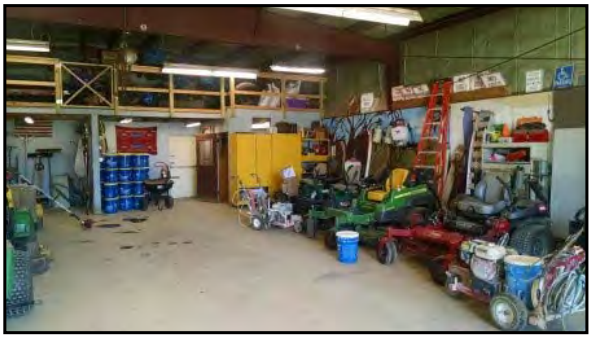
Pad-mounted transformer near athletic field in northern portion of site.

Access road in central portion of subject site.

Maintenance garage.

Maintenance garage.

Maintenance garage.



Maintenance garage.

Maintenance garage.

Maintenance garage.

Maintenance garage.

Oils and lubricants stored in the Maintenance garage.

Paints stored in the Maintenance garage.

Flammables cabinet stored in the Maintenance garage.

Flammables cabinet stored in the Maintenance garage.

Flammables cabinet stored in the Maintenance garage.

Plugged floor drain in the Maintenance garage.

Bellamy River northwest of the subject site.

Wooded area on the northern portion of the subject site.

Equipment shed adjacent to Bellamy Road.

Pole-mounted transformer.

Athletic field.

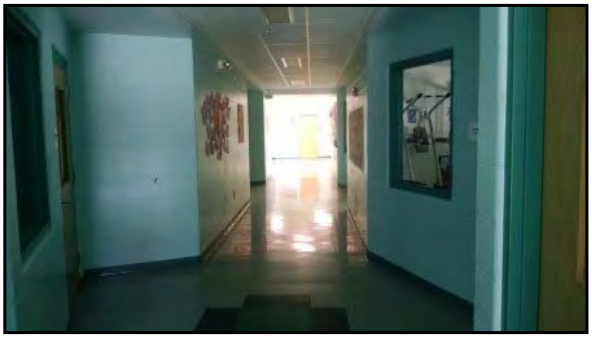
Athletic field.

Athletic field.

Secondary classroom building.

Maintenance closet in secondary classroom building.

Kitchen area in secondary classroom building.



Main hallway in secondary classroom building.

Gas-fired boiler on roof of secondary classroom building.

Gas-fired boiler on roof of secondary classroom building.

Athletic field.

View of the main Dover High School building from the roof of the secondary classroom building.

Tennis courts.

Athletic field.

Pad-mounted
transformer.

Greenhouse and exterior of the CTC Building.

Wooded area in the northern portion of the subject site.

Wooded area in the northern portion of the subject site.

Bellamy River to the north of the subject site.

Wooded area in the northern portion of the subject site.

Bellamy River to the north of the subject site.

Animal yard adjacent to Animal Science Building.

Bellamy Park Disc Golf Course to the northwest of the subject site.