



Arlington
Public
Schools

DEPARTMENT OF FACILITIES AND OPERATIONS

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MEMORANDUM

TO: Dr. Francisco Durán, Superintendent

FROM: Cathy Lin, Interim Assistant Superintendent, Facilities and Operations

SUBJECT: **School Board Follow-Up 21.65**
Update on FY 2022 CIP Design Studies

DATE: April 30, 2021

Please provide a summary of the design studies completed to support the FY 2022 Capital Improvement Plan

The attached document summarizes the FY 2022 CIP design studies per the January 21, 2021 School Board direction.

Summary of FY 2022 CIP Design Studies per January 21, 2021 School Board Direction

Jeffrey Chambers, Director
Design and Construction

School Board Follow-Up
April 30, 2021

- On January 21, 2021, the [School Board provided direction](#) which defines the projects for the Superintendent to include in the proposed FY 2022 Capital Improvement Plan (CIP).
- Based on the direction staff completed a series of design studies related to:
 - Kitchen renovations;
 - Main entry vestibule enhancements;
 - Air quality and HVAC improvements; and
 - The Heights Building Phase 2.
- Discussions related to options for additional high school seats and improvement at the Arlington Career Center are ongoing and not addressed in this document.

- For most studies two estimates were prepared: one from a professional cost estimator and one from a construction manager. The two estimates were reconciled prior to completion.
- Estimates were based on 2021 prices and escalated into the future for fourteen (14) years at rates recommended by the estimating professionals. Unless noted otherwise costs shown are 2021 prices without escalation.
- This document summarizes the design studies and final total project cost estimates. Costs included are the higher of the two estimates, where applicable.

05...Kitchen Renovations

16...Main Entry Vestibule Enhancements

19...Air Quality and HVAC Improvements

42...The Heights Building Phase 2

Kitchen Renovations

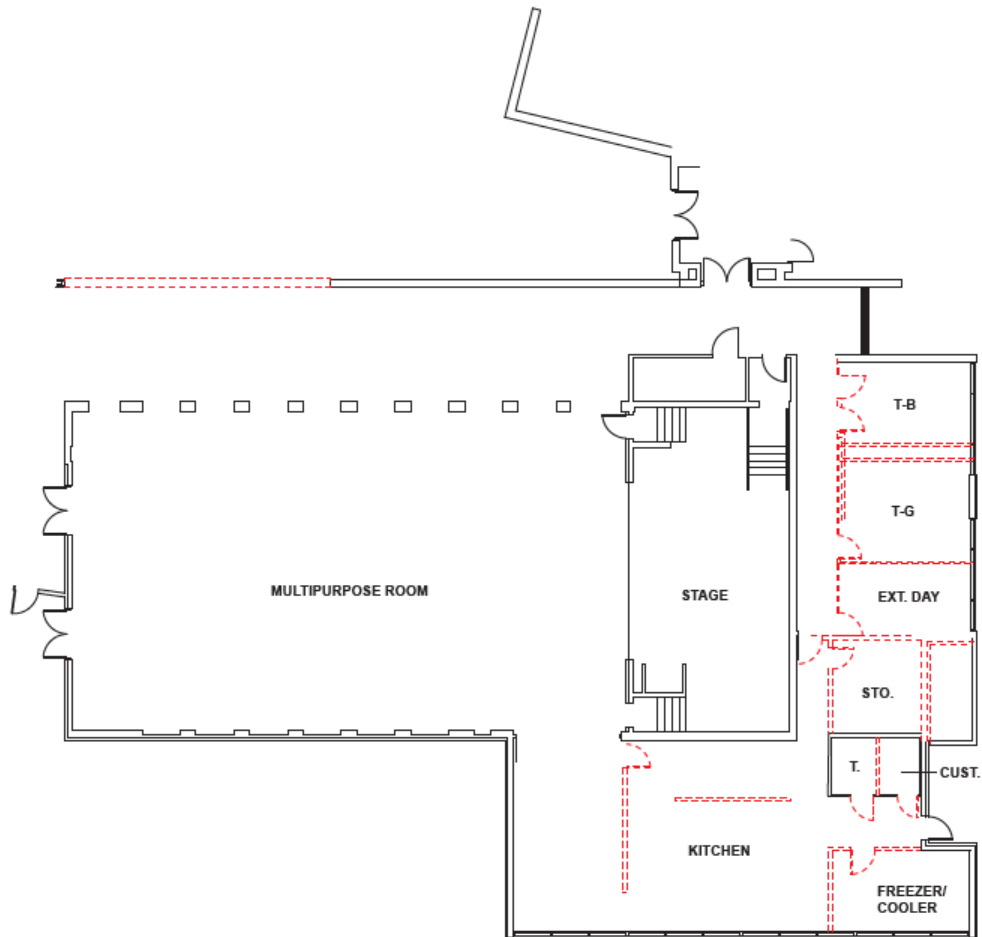
- Food & Nutrition Services Staff identified eight sites where kitchen renovations are most urgently needed.
- An architect and food service specialist evaluated each site and provided a plan for a complete kitchen and serving line modernization to meet current APS standards and best practices.
- Except for Randolph Elementary School, a modest addition is required at all sites because sufficient spaces is not available within the existing building.
- Conceptual plans were reviewed by Food & Nutrition Services Staff.

Summary of Kitchen Renovation Design Studies

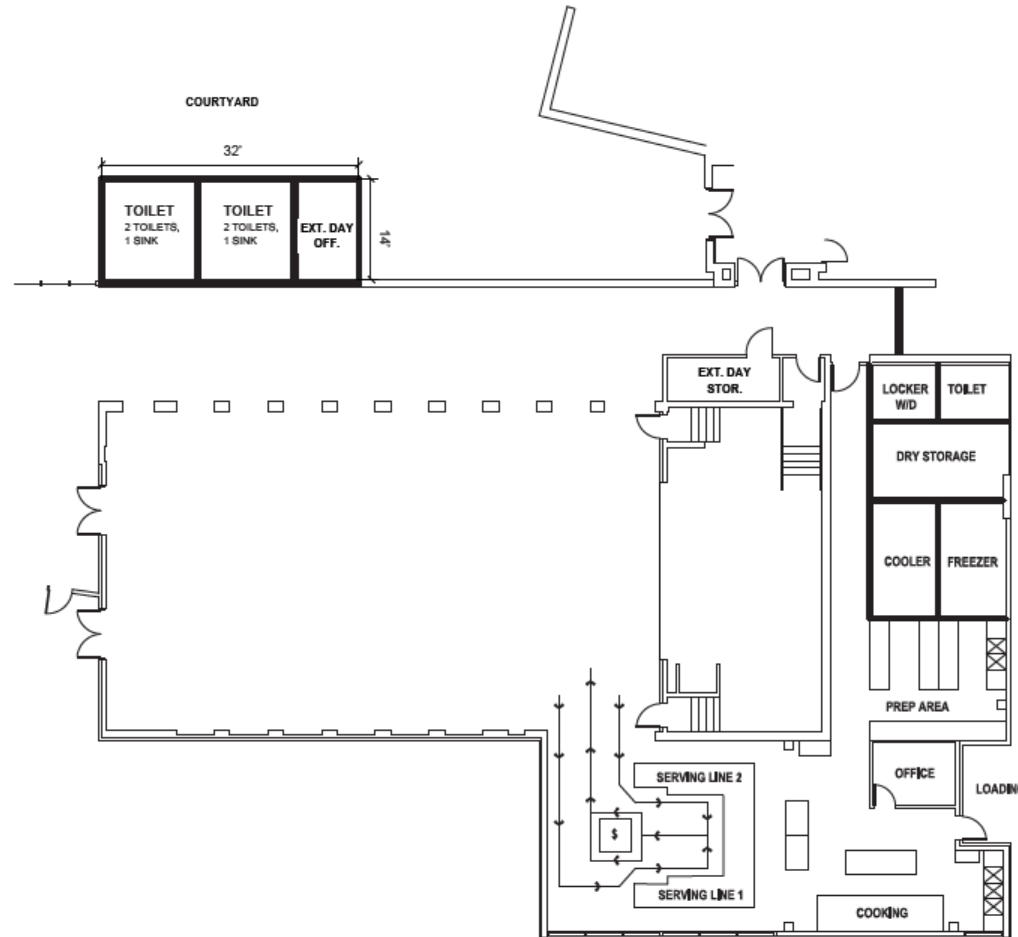
	Ashlawn ES	Barret ES	Campbell ES	Carlin Springs ES	Drew ES	Randolph ES	Science Focus ES	Swanson MS
CBRE/Heery Total Project Cost	\$2,302,426	\$2,714,068	\$2,949,369	\$2,316,619	\$2,665,030	\$2,077,817	\$2,421,470	\$2,657,554
Downey & Scott Total Project Cost	\$2,511,975	\$2,646,532	\$2,951,247	\$2,343,012	\$2,646,062	\$2,029,418	\$2,509,731	\$2,438,960
Estimate Source (Costs shown below are the greater of the 2 estimates)	Downey & Scott	CBRE/Heery	Downey & Scott	Downey & Scott	CBRE/Heery	CBRE/Heery	Downey & Scott	CBRE/Heery
Estimate Delta (% difference between the 2 estimates)	6.3%	2.6%	0.1%	1.1%	0.7%	2.4%	3.5%	9.0%

2021	Completion - Total Project Cost (M)	\$2.51	\$2.71	\$2.95	\$2.34	\$2.67	\$2.08	\$2.51	\$2.66
	Escalation Year 1	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
2022	Completion - Total Project Cost (M)	\$2.64	\$2.85	\$3.10	\$2.46	\$2.80	\$2.18	\$2.64	\$2.79
	Escalation Year 2	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
2023	Completion - Total Project Cost (M)	\$2.77	\$2.99	\$3.25	\$2.58	\$2.94	\$2.29	\$2.77	\$2.93
	Escalation Year 3	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
2024	Completion - Total Project Cost (M)	\$2.91	\$3.14	\$3.41	\$2.71	\$3.09	\$2.41	\$2.91	\$3.08
	Escalation Year 4	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
2025	Completion - Total Project Cost (M)	\$3.05	\$3.29	\$3.59	\$2.84	\$3.25	\$2.53	\$3.05	\$3.23
	Escalation Year 5	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
2026	Completion - Total Project Cost (M)	\$3.17	\$3.43	\$3.73	\$2.96	\$3.38	\$2.63	\$3.17	\$3.36

Ashlawn Elementary School

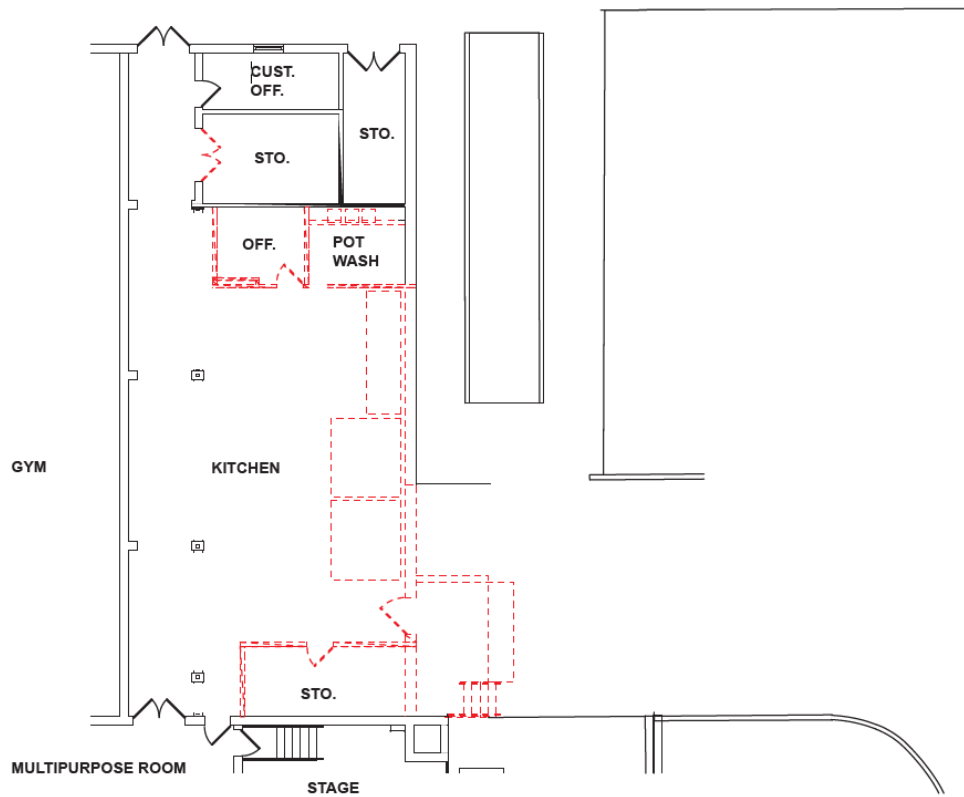


**ASHLAWN ELEMENTARY SCHOOL
PROPOSED DEMOLITION**
EXISTING KITCHEN 1535 SF



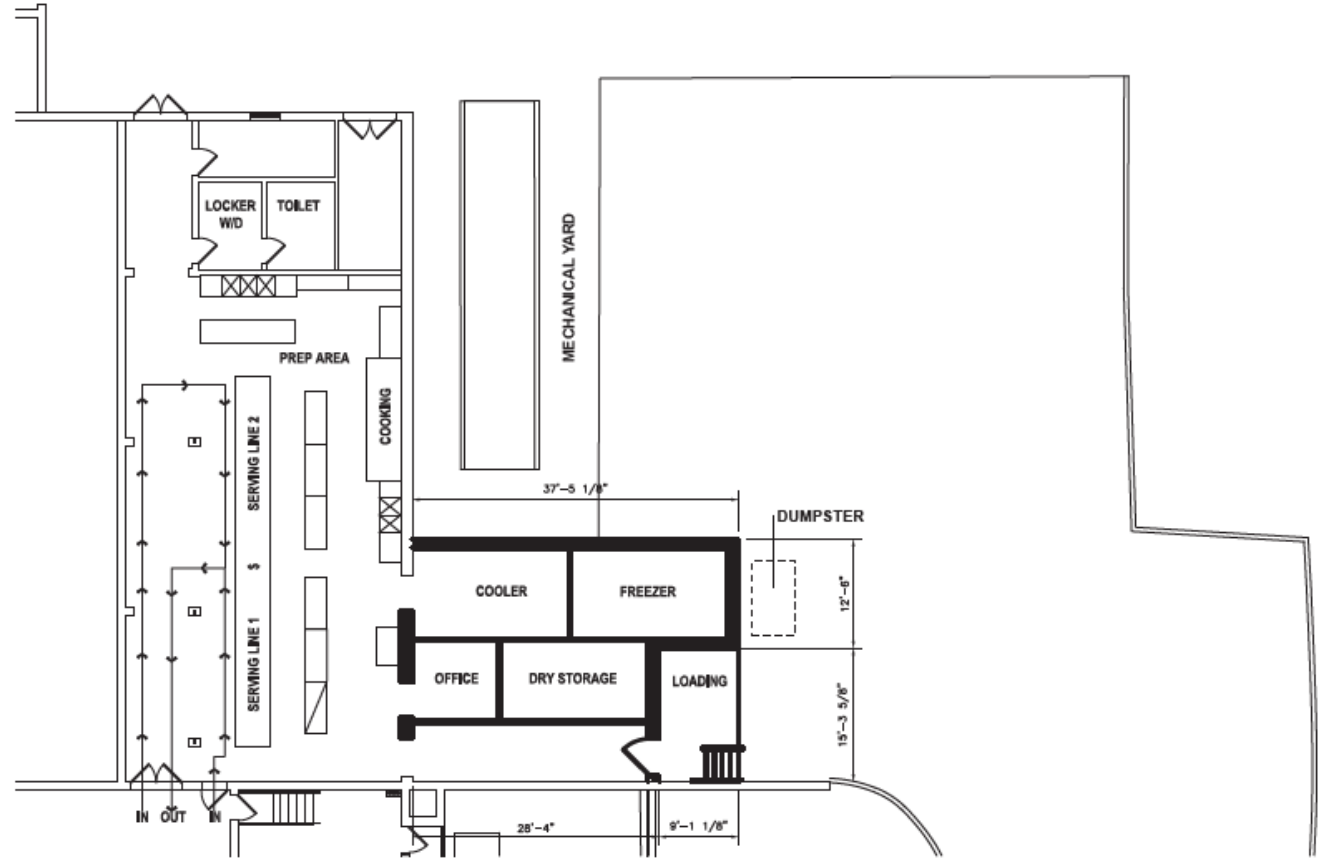
**ASHLAWN ELEMENTARY SCHOOL
PROPOSED**
PROPOSED KITCHEN 2409 SF
PROPOSED ADDITION 440 SF

DEMOLITION
 NEW CONSTRUCTION





**BARRETT ELEMENTARY SCHOOL
PROPOSED DEMOLITION**

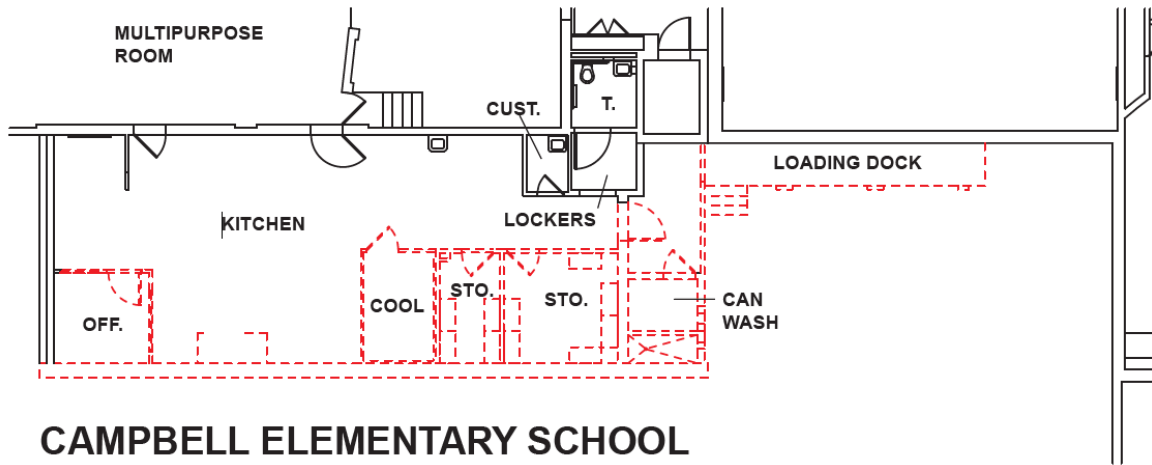
EXISTING KITCHEN 1834 SF
(INCLUDES CORRIDOR TO DOORS)



**BARRETT ELEMENTARY SCHOOL
PROPOSED**

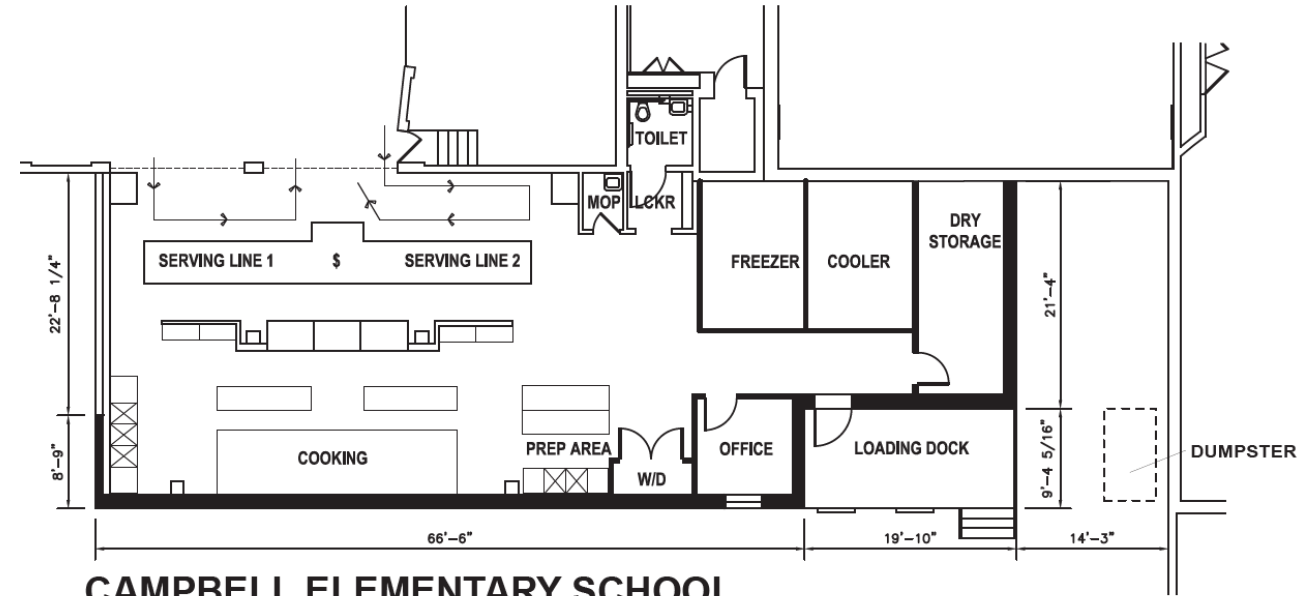
PROPOSED KITCHEN 2800 SF

 DEMOLITION
 NEW CONSTRUCTION



CAMPBELL ELEMENTARY SCHOOL PROPOSED DEMOLITION

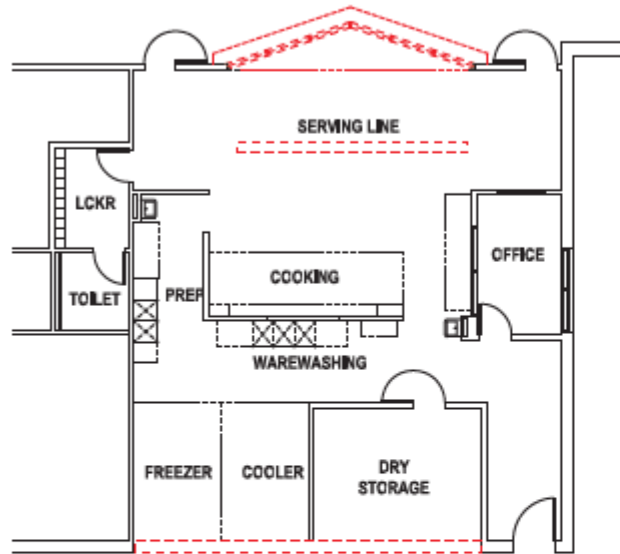
EXISTING KITCHEN 1250 SF



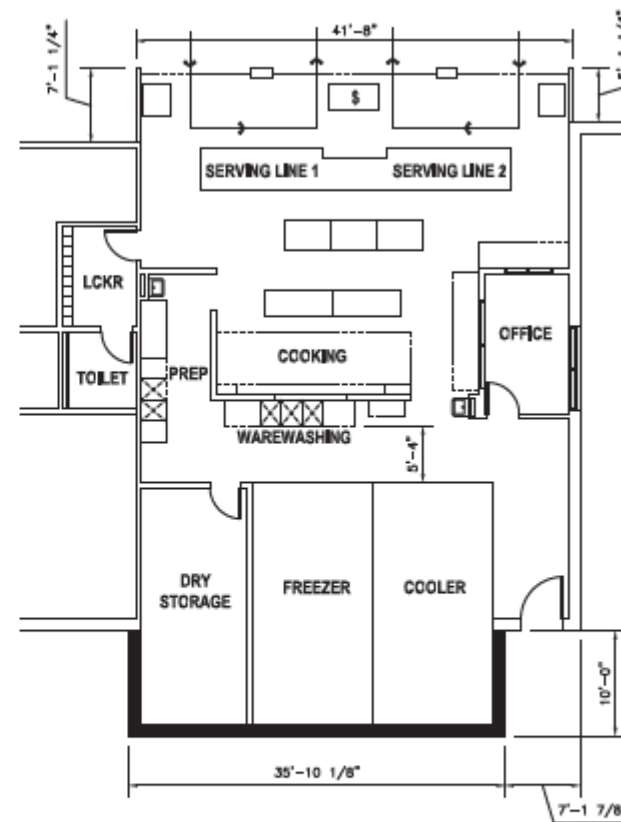
CAMPBELL ELEMENTARY SCHOOL PROPOSED LAYOUT

EXISTING KITCHEN 2440 SF



DEMOLITION
 NEW CONSTRUCTION

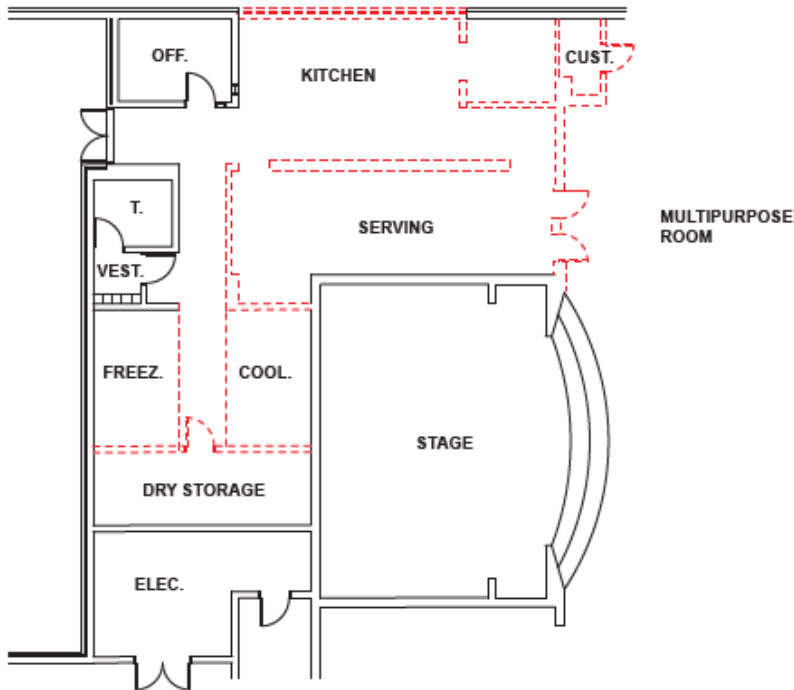


**CARLIN SPRINGS ELEMENTARY SCHOOL
PROPOSED DEMOLITION**
EXISTING KITCHEN 1964 SF

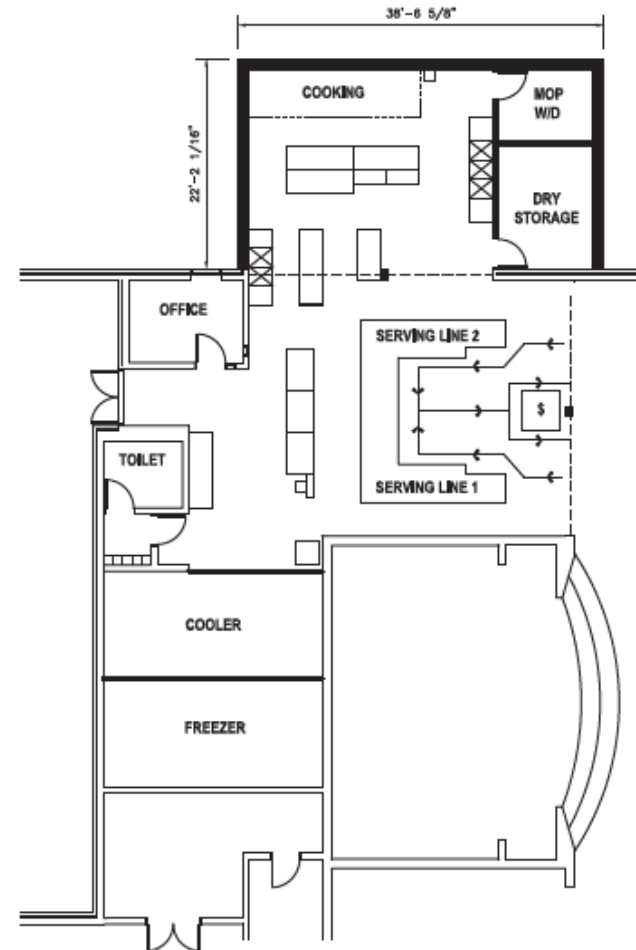


**CARLIN SPRINGS ELEMENTARY SCHOOL
PROPOSED LAYOUT**
KITCHEN 2,745 SF



 DEMOLITION
 NEW CONSTRUCTION

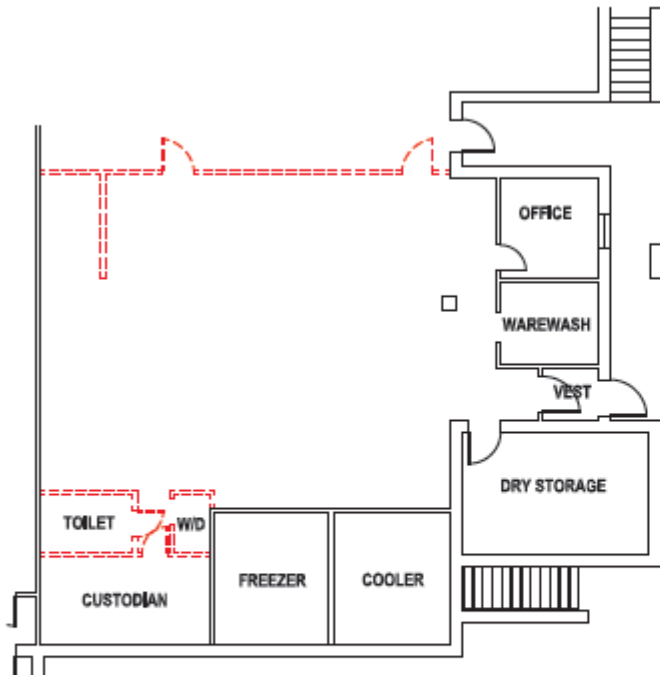


**DREW ELEMENTARY SCHOOL
PROPOSED DEMOLITION**
EXISTING KITCHEN 1890 SF



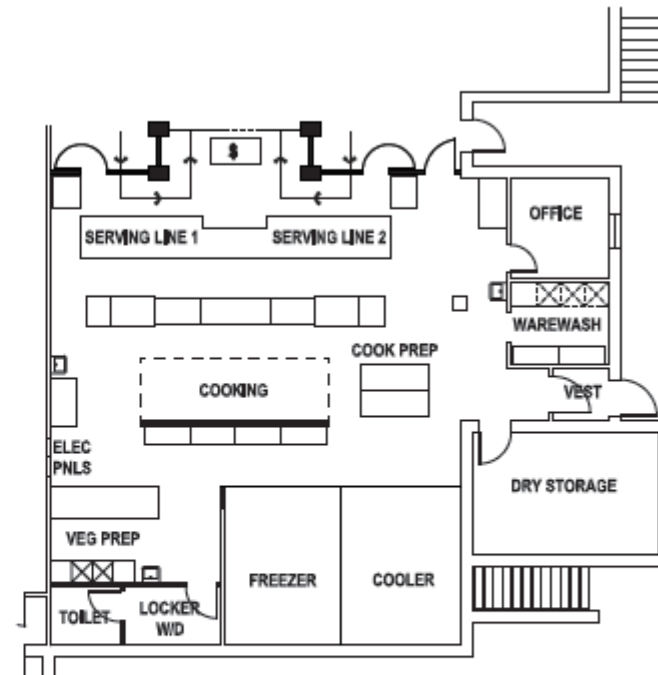
**DREW ELEMENTARY SCHOOL
PROPOSED**
PROPOSED KITCHEN 2700 SF

 DEMOLITION
 NEW CONSTRUCTION





**RANDOLPH ELEMENTARY SCHOOL
PROPOSED DEMOLITION**

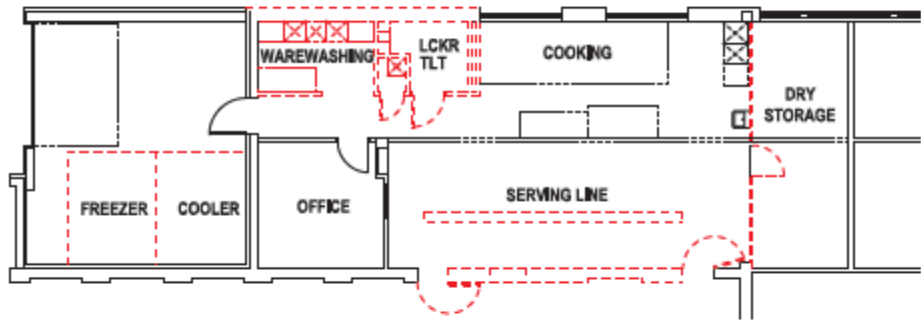
EXISTING KITCHEN 2175 SF



**RANDOLPH ELEMENTARY SCHOOL
PROPOSED LAYOUT**

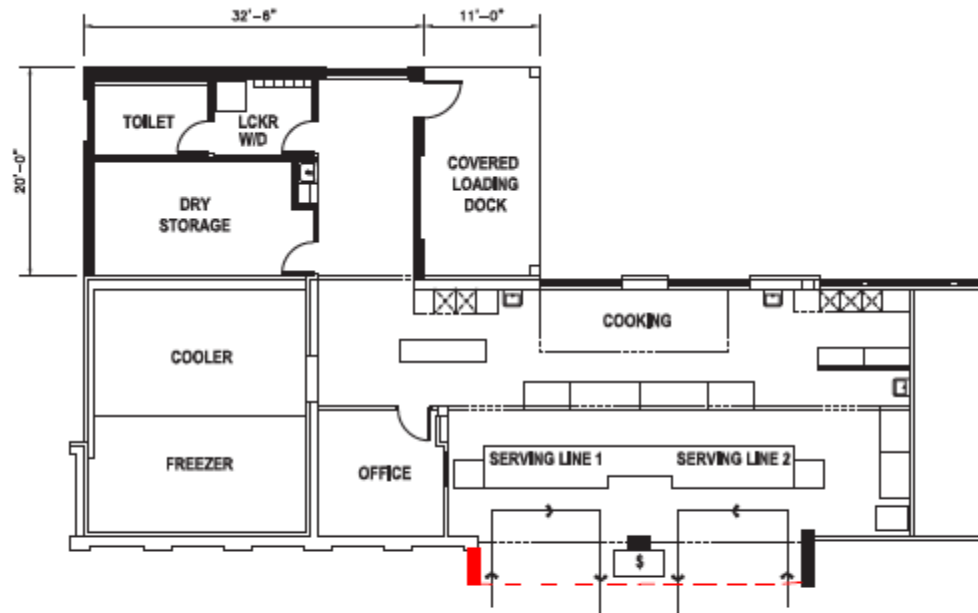
KITCHEN 2305 SF

 DEMOLITION
 NEW CONSTRUCTION





**SCIENCE FOCUS ELEMENTARY SCHOOL
PROPOSED DEMOLITION**

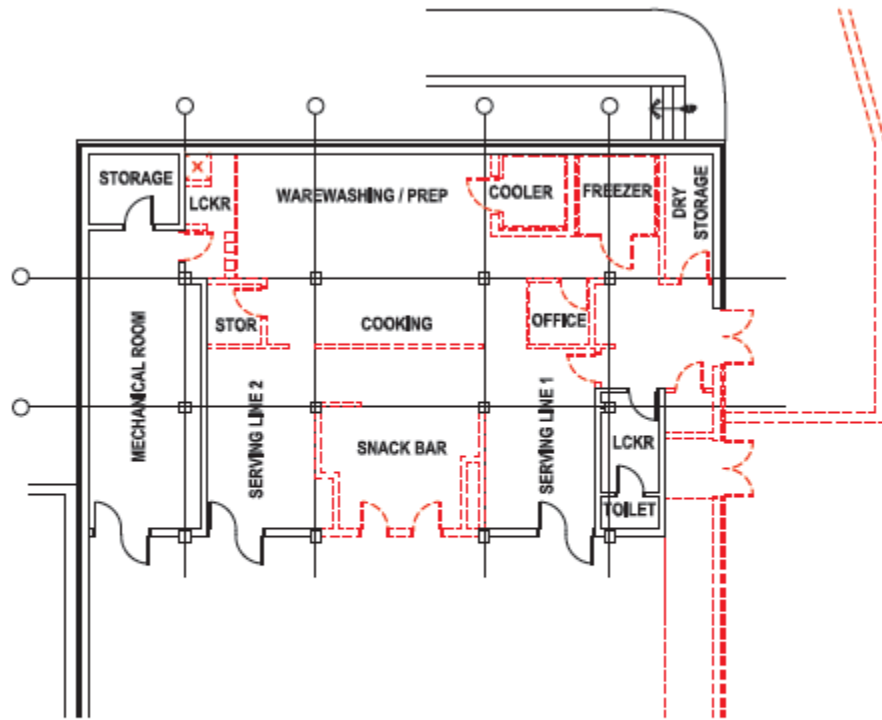
EXISTING KITCHEN 1837 SF



**SCIENCE FOCUS ELEMENTARY SCHOOL
PROPOSED LAYOUT**

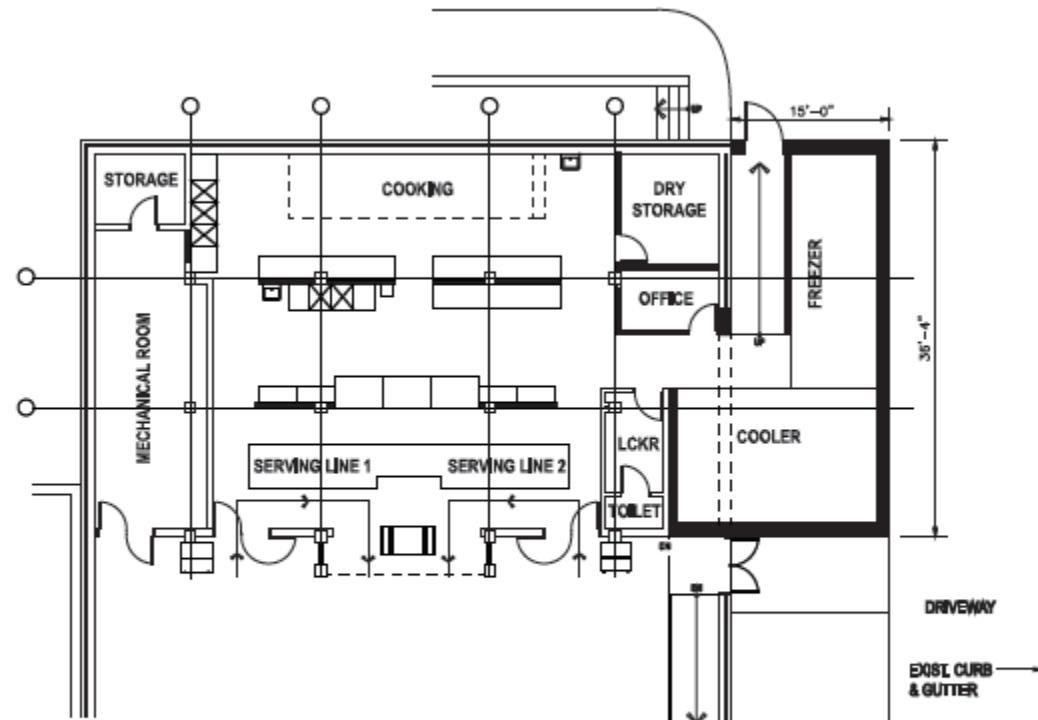
KITCHEN 2432 SF

 DEMOLITION
 NEW CONSTRUCTION





**SWANSON MIDDLE SCHOOL
PROPOSED DEMOLITION**

EXISTING KITCHEN 1592 SF



**SWANSON MIDDLE SCHOOL
PROPOSED LAYOUT**

KITCHEN 2131 SF

 DEMOLITION
 NEW CONSTRUCTION

Main Entry Vestibule Enhancements

- For several years APS has been systematically renovating main entry vestibules to meet current safety and security standards.
- For development of the FY 2022 CIP, staff studied main entry vestibule renovations at 10 locations.
- Conceptual plans were reviewed by Safety, Security, Risk and Emergency Management staff.

Summary of Main Entry Vestibule Enhancements

	Campbell ES	Hoffman-Boston ES	Jamestown ES	Kenmore MS	Langston	Long Branch ES	Nottingham ES	Science Focus ES	Swanson MS	Tuckahoe ES
CBRE/Heery Total Project Cost	\$251,482	\$243,914	\$229,815	\$221,494	N/A	\$267,185	\$221,822	\$267,101	\$314,822	\$245,686
Downey & Scott Total Project Cost	\$274,709	N/A	N/A	N/A	N/A	N/A	N/A	\$245,421	\$346,113	N/A
APS Total Project Cost	N/A	N/A	N/A	N/A	\$149,500	N/A	N/A	N/A	N/A	N/A
Estimate Source (Costs shown below are the greater of the 2 estimates)	Downey & Scott	CBRE/Heery only	CBRE/Heery only	CBRE/Heery only	APS	CBRE/Heery only	CBRE/Heery only	CBRE/Heery	Downey & Scott	CBRE/Heery only
Estimate Delta (% difference between the 2 estimates)	8.5%	N/A	N/A	N/A	N/A	N/A	N/A	8.8%	9.0%	N/A

2021	Completion - Total Project Cost (M)	\$0.27	\$0.24	\$0.23	\$0.22	\$0.15	\$0.27	\$0.22	\$0.27	\$0.35	\$0.25
	Escalation Year 1	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
2022	Completion - Total Project Cost (M)	\$0.28	\$0.25	\$0.24	\$0.23	\$0.16	\$0.28	\$0.23	\$0.28	\$0.37	\$0.26
	Escalation Year 2	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
2023	Completion - Total Project Cost (M)	\$0.30	\$0.26	\$0.25	\$0.24	\$0.17	\$0.30	\$0.24	\$0.30	\$0.39	\$0.28
	Escalation Year 3	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
2024	Completion - Total Project Cost (M)	\$0.31	\$0.28	\$0.27	\$0.25	\$0.17	\$0.31	\$0.25	\$0.31	\$0.41	\$0.29
	Escalation Year 4	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
2025	Completion - Total Project Cost (M)	\$0.33	\$0.29	\$0.28	\$0.27	\$0.18	\$0.33	\$0.27	\$0.33	\$0.43	\$0.30
	Escalation Year 5	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
2026	Completion - Total Project Cost (M)	\$0.34	\$0.30	\$0.29	\$0.28	\$0.19	\$0.34	\$0.28	\$0.34	\$0.44	\$0.32

Air Quality and HVAC Improvements

- Based on evaluations of existing HVAC systems conducted at all APS facilities in fall 2020, a mechanical engineering firm developed several options for improvements at nineteen (19) facilities.
- Improvements are categorized by:
 - Increase in ventilation – renovate the system to upgrade ventilation required by the current building code.
 - Increase in filtration – renovate the system to achieve MERV-13 filtration.
- Scope to improve ventilation and filtration vary widely based on characteristics of the existing systems and sometimes require complete system replacement.
- Long Branch, Hoffman-Boston, and Barrett facilities meet current ventilation requirements, but were estimated due to the age of the existing systems.

- General recommendation is to address ventilation and filtration improvements concurrent with system replacement. Replacement timeline is based on an assumed system life of 25-30 years.
- Criteria for system replacement will include:
 - Ensuring ventilation is provided to meet existing building code requirements; and
 - Achieving a minimum of MERV-13 filtration.

Summary of Total Project Costs and Timeline

By Age of System	Facility	Installation Date of Existing System	Ventilation Total Project Cost (in 2021 \$M)	Filtration Total Project Cost (in 2021 \$M)	Recommended Timeline
1	Williamsburg	1990	\$8.60	\$22.44	1 - 5 years
2	Barcroft	1991	\$6.03	\$10.44	1 - 5 years
3	Montessori	1992	\$5.13	\$9.21	1 - 5 years
4	Jamestown	1992/2002	\$4.65	\$12.58	1 - 5 years
5	Swanson	1994/2003	\$10.61	\$21.47	1 - 5 years
6	Ashlawn	1994/2013	\$3.80	\$1.74	1 - 5 years
7	Long branch	1995	\$5.22	\$11.31	1 - 5 years
8	Oakridge	1998	\$4.12	\$3.24	1 - 5 years
9	Hoffman Boston	1999	\$3.28	\$13.51	1 - 5 years
10	Drew	2000	\$3.46	\$17.48	6 - 10 years
11	Arlington Traditional	2002	\$2.47	\$12.90	6 - 10 years
12	Thomas Jefferson	2009	\$11.42	\$0.38	11 - 15 years
13	Washington Liberty	2009	\$11.29	\$0.00	11 -15 years
14	Taylor	2011	\$0.97	\$0.26	11 - 15 years
15	Wakefield	2011	\$11.71	\$0.17	11 - 15 years
16	Barrett	2014	\$5.06	\$5.23	16 - 20 years
17	Abingdon	Mostly 2016	\$3.32	\$18.82	16 - 20 years
18	Dorothy Hamm	2018	\$4.19	\$9.28	21 - 25 years
19	Gunston	2018	\$7.94	\$2.70	21 - 25 years
TOTAL			\$113.27	\$173.16	

- Installation date of existing HVAC system: 1990
- Ventilation and enhanced filtration costs are stand alone costs, but ventilation cost would be lower if both were done at same time, since replacement FCUs would not be required.

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Add DOAS and replace existing classroom HVAC (ducted FCUs)	\$8.60	1 – 5 years
Upgrade filtration to achieve MERV 13	Replace existing FCU system with WSHP system (FCU cannot be retrofit with MERV-13)	\$22.44	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 1991
- Ventilation and enhanced filtration costs are stand alone costs, but ventilation cost would be lower if both were done at same time, since replacement FCUs would not be required.

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Add DOAS and replace existing classroom HVAC (console FCUs)	\$6.03	1 – 5 years
Upgrade filtration to achieve MERV 13	Replace existing FCU system with WSHP system (FCU cannot be retrofit with MERV-13)	\$10.44	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 1992
- Cost provided for enhanced filtration also includes the ventilation upgrade due to the existing HVAC system type (current ventilation and room HVAC systems are a coupled system).

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Increase ventilation to classrooms and replace existing classroom HVAC (console FCUs)	\$5.13	1 – 5 years
Upgrade filtration to achieve MERV 13	Replace existing FCU system with WSHP system (FCU cannot be retrofit with MERV-13)	\$9.21	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 1992/2002
- Cost provided for enhanced filtration also includes the ventilation upgrade due to the existing HVAC system type (current ventilation and room HVAC systems are a coupled system).

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Increase ventilation to classrooms and replace existing classroom HVAC (console FCUs)	\$4.65	1 – 5 years
Upgrade filtration to achieve MERV 13	Replace existing FCU system with WSHP system (FCU cannot be retrofit with MERV-13)	\$12.58	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 1994/2003
- Cost provided for enhanced filtration also includes the ventilation upgrade due to the existing HVAC system type (current ventilation and room HVAC systems are a coupled system).

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Increase ventilation to classrooms and replace existing classroom HVAC (console FCUs)	\$10.61	1 – 5 years
Upgrade filtration to achieve MERV 13	Replace existing FCU system with WSHP system (FCU cannot be retrofit with MERV-13)	\$21.47	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 1994/2013
- Ventilation and enhanced filtration costs are additive.

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Adds or modifies DOAS	\$3.80	1 – 5 years
Upgrade filtration to achieve MERV 13	Replace console FCUs in classrooms and retrofit existing 40 WSHP with new filter banks and filters. Cost excludes replacement of existing equipment.	\$1.74	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 1995
- Ventilation and enhanced filtration costs are stand alone costs, but ventilation cost would be lower if both were done at same time, since replacement FCUs would not be required.

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Replace existing DOAS and existing classroom HVAC (ducted FCUs)	\$5.22	1 – 5 years
Upgrade filtration to achieve MERV 13	Replace existing FCU system with WSHP system (FCU cannot be retrofit with MERV-13)	\$11.31	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 1998
- Ventilation and enhanced filtration costs are stand alone.

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Replace existing classroom HVAC (4-pipe, ducted Make Up Air Unit system)	\$4.12	1 – 5 years
Upgrade filtration to achieve MERV 13	Replace existing console FCU system with WSHP system (FCU cannot be retrofit with MERV-13) and upgrade ducted HVAC system	\$3.24	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 1999
- Ventilation and enhanced filtration costs are additive

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Replace existing ventilation system in-kind and add heat recovery to 7 Makeup Air Units	\$3.28	1 – 5 years
Upgrade filtration to achieve MERV 13	Replace existing FCU system with WSHP system (FCU cannot be retrofit with MERV-13)	\$13.51	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 2000
- Ventilation and enhanced filtration costs are additive

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Correct ventilation to several classrooms and enlarge central systems; add DOAS in art and music rooms	\$3.46	6 – 10 years
Upgrade filtration to achieve MERV 13	Replace existing FCU system with WSHP system (FCU cannot be retrofit with MERV-13)	\$17.48	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 2002
- Ventilation and enhanced filtration costs are stand alone costs, but ventilation cost would be lower if both were done at same time, since replacement FCUs would not be required.

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Replace HVAC system serving several classrooms and replace DOAS serving other classrooms	\$2.47	6 – 10 years
Upgrade filtration to achieve MERV 13	Replace existing FCU system with WSHP system (FCU cannot be retrofit with MERV-13)	\$12.90	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 2009
- Ventilation and enhanced filtration costs are additive

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Replace/upsized 10 Air Handling Units	\$11.42	11 – 15 years
Upgrade filtration to achieve MERV 13	Retrofit existing 34 Air Handling Units with new filter banks and filters. Costs exclude replacement of existing equipment.	\$0.38	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 2009
- Ventilation and filtration costs are additive

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Replace/upsized existing equipment, revise airflow to classrooms, and add dampers/ductwork to 8 air handling units	\$11.29	11 – 15 years
Upgrade filtration to achieve MERV 13	N/A, existing equipment already achieves MERV-13. Costs exclude replacement of existing equipment.	\$0.00	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 2011
- Ventilation and filtration costs are additive

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	De-couple ventilation and HVAC, running ventilation direct to rooms	\$0.97	11 – 15 years
Upgrade filtration to achieve MERV 13	Retrofit existing WSHP with new filter banks and filters. Cost excludes replacement of existing equipment.	\$0.26	

DOAS – Dedicated Outdoor Air System
 FCU – Fan Coil Unit
 WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 2011
- Ventilation and filtration costs are additive

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Replace/upsized existing DOAS and revised air distribution to spaces	\$11.71	11 – 15 years
Upgrade filtration to achieve MERV 13	Retrofit existing WSHP with new filter banks and filters. Cost excludes replacement of existing equipment.	\$0.17	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 2014
- Ventilation and enhanced filtration costs are stand alone costs, but ventilation cost would be lower if both were done at same time, since replacement FCUs would not be required.

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Add DOAS and replace existing classroom HVAC (console FCUs)	\$5.06	16 – 20 years
Upgrade filtration to achieve MERV 13	Replace classroom HVAC and retrofit existing equipment with new filter banks and filters	\$5.23	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: mostly 2016
- Ventilation and filtration costs are stand alone, but not additive. If pursued at the same time total cost to address ventilation and filtration would be cost noted for filtration.

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Add DOAS and Variable Refrigerant Flow system to several classrooms	\$3.32	16 – 20 years
Upgrade filtration to achieve MERV 13	Complete HVAC replacement to include DOAS and WSHP system	\$18.82	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 2018
- Ventilation and filtration costs are additive

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Replace existing DOAS	\$4.19	21 – 25 years
Upgrade filtration to achieve MERV 13	Complete classroom HVAC replacement with overhead air distribution FCUs and upgraded filter banks and filters	\$9.28	

DOAS – Dedicated Outdoor Air System

FCU – Fan Coil Unit

WSHP – Water Source Heat Pump

- Installation date of existing HVAC system: 2018
- Ventilation and filtration costs are additive

	Recommended Scope	Total Project Cost (in 2021 \$M)	Recommended Timeline
Upgrade ventilation to meet current building code	Replace multi-zone Rooftop Units with DOAS and WSHP	\$7.94	21 – 25 years
Upgrade filtration to achieve MERV 13	Upgrade existing console WSHP with new filter banks and filters.	\$2.70	

DOAS – Dedicated Outdoor Air System
 FCU – Fan Coil Unit
 WSHP – Water Source Heat Pump

The Heights Building Phase 2

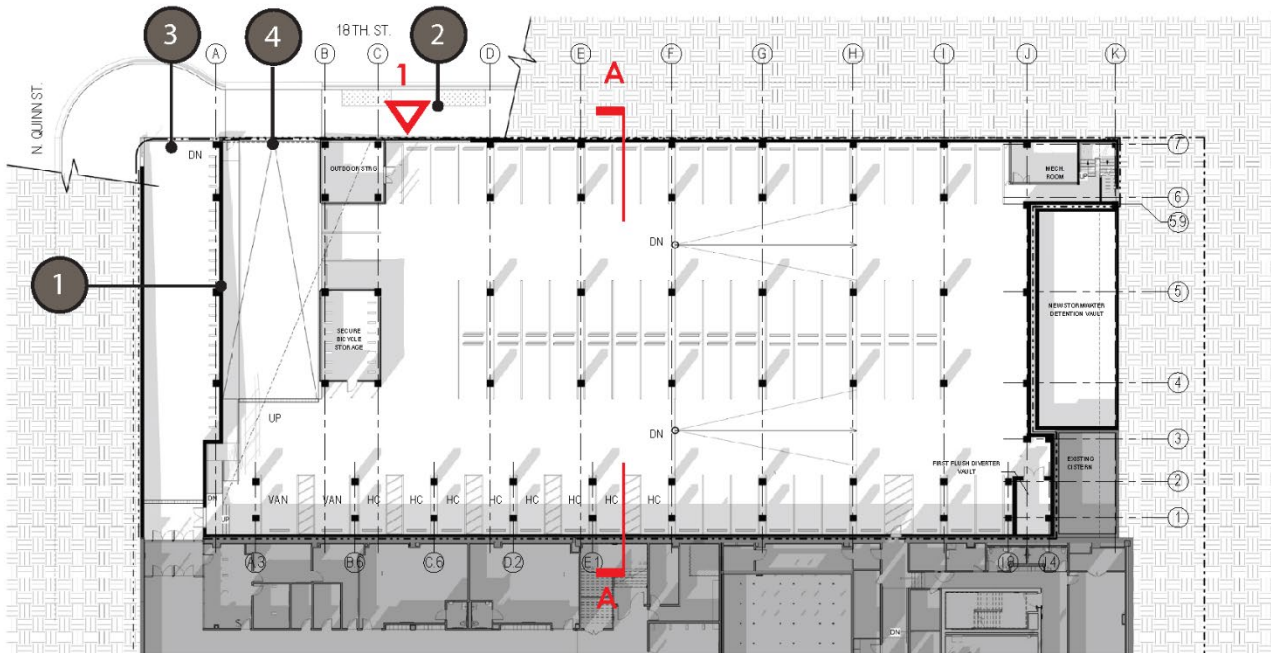
- Per School Board direction staff completed a design study to provide accessibility and short-term parking needs at The Heights Building.
- An architecture and engineering team evaluated four options:
 - Option A – an underground garage with 75 parking spaces and artificial turf field above.
 - Option C – an underground garage with 24 parking spaces and artificial turf field above.
 - Option D1 – extend temporary natural grass field to cover where the temporary fire station will be removed. No parking included.
 - Option D2 – Provide surface parking for 20 spaces, including pick-up and drop-off areas where the temporary fire station will be removed.

Summary of The Heights Building Phase 2

	Option A	Option B	Option C	Option D1	Option D2
CBRE/Heery Total Project Cost	\$12,920,418	N/A	\$10,244,380	\$3,539,768	\$3,560,275
Downey & Scott Total Project Cost	\$11,078,907	N/A	\$9,624,211	\$3,517,866	\$3,350,564
Estimate Source (Costs shown below are the greater of the 2 estimates)	CBRE/Heery	N/A	CBRE/Heery	CBRE/Heery	CBRE/Heery
Estimate Delta (% difference between the 2 estimates)	16.6%	N/A	6.4%	0.6%	6.3%

2021	Completion - Total Project Cost (M)	\$12.92	N/A	\$10.24	\$3.54	\$3.56
	Escalation Year 1	5.0%	N/A	5.0%	5.0%	5.0%
2022	Completion - Total Project Cost (M)	\$13.57	N/A	\$10.75	\$3.72	\$3.74
	Escalation Year 2	5.0%	N/A	5.0%	5.0%	5.0%
2023	Completion - Total Project Cost (M)	\$14.24	N/A	\$11.29	\$3.90	\$3.92
	Escalation Year 3	5.0%	N/A	5.0%	5.0%	5.0%
2024	Completion - Total Project Cost (M)	\$14.96	N/A	\$11.85	\$4.10	\$4.12
	Escalation Year 4	5.0%	N/A	5.0%	5.0%	5.0%
2025	Completion - Total Project Cost (M)	\$15.70	N/A	\$12.45	\$4.30	\$4.33
	Escalation Year 5	4.0%	N/A	4.0%	4.0%	4.0%
2026	Completion - Total Project Cost (M)	\$16.33	N/A	\$12.94	\$4.48	\$4.50

The Heights Building – Option A



1-Concrete Structure
2-New Sidewalk

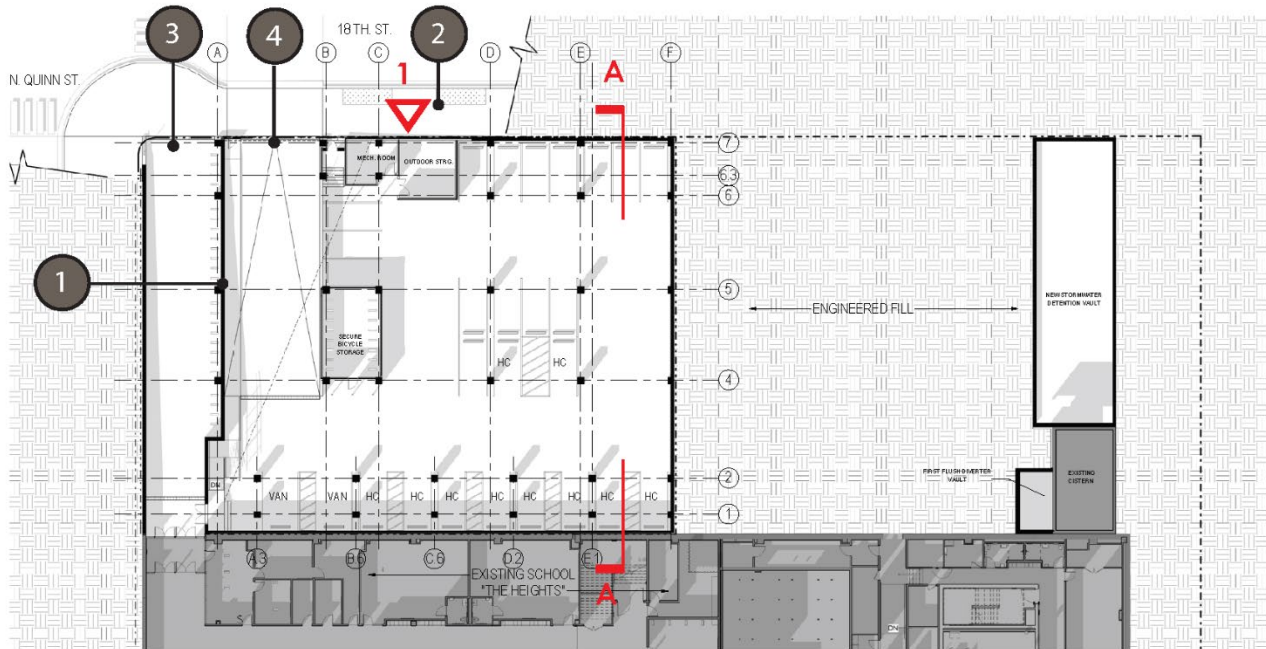
3-Pedestrian Entry
4-Vehicular Entry

Garage Level Plan



Bird's Eye View

The Heights Building – Option C



- 1-Concrete Structure
- 2-New Sidewalk
- 3-Pedestrian Entry
- 4-Vehicular Entry

Garage Level Plan

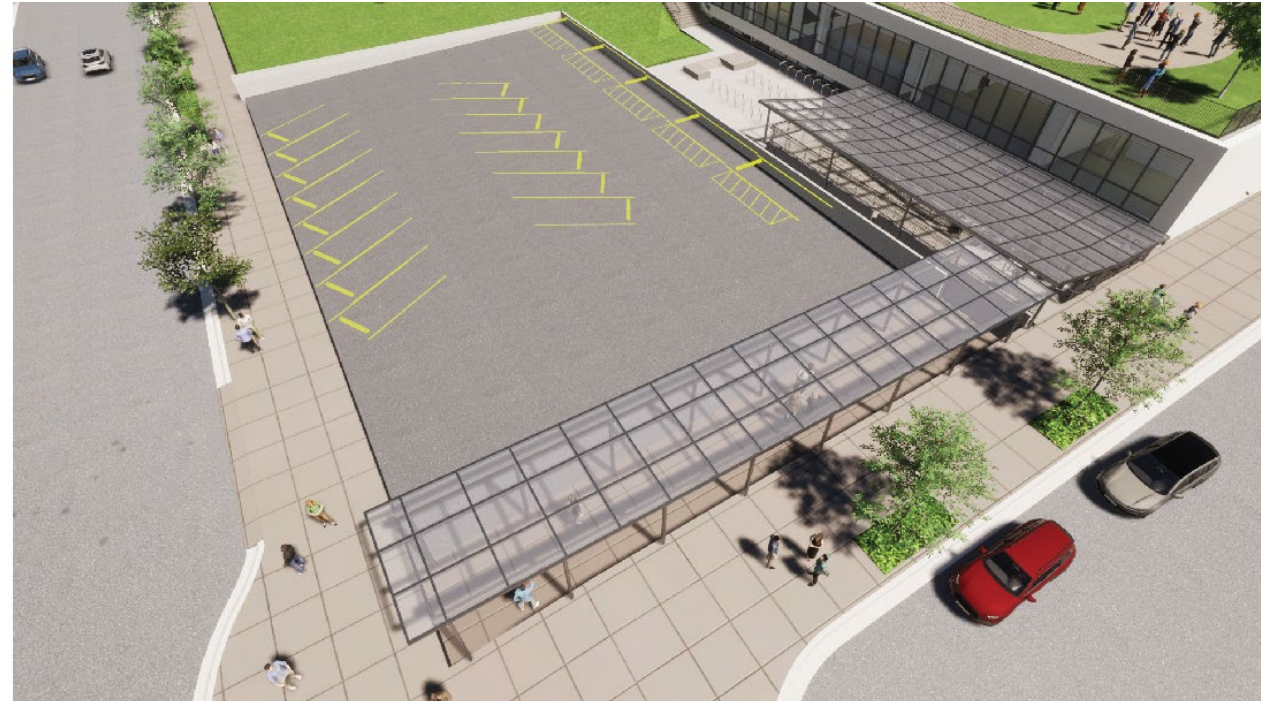


Bird's Eye View

The Heights Building – Options D1 and D2



Option D1 – Bird's Eye View



Option D2 – Bird's Eye View

Thank You