



TOWN OF TRURO NEW PUBLIC WORKS FACILITY



Project Update
June 18, 2025

AGENDA



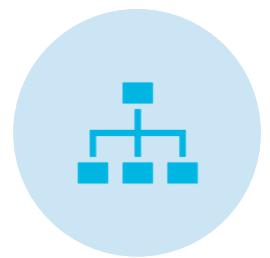
PROJECT SCHEDULE OVERVIEW
COMPLETED & NEXT STEPS



SCHEMATIC DESIGN
BASE VS. ALTERNATES



COST ESTIMATING
CONSTRUCTION + SOFT
= TOTAL PROJECT COSTS



COST-BENEFIT ANALYSIS
MECHANICAL SYSTEMS
ASHPs VS GSHPs

FULL SCHEDULE

WE ARE HERE



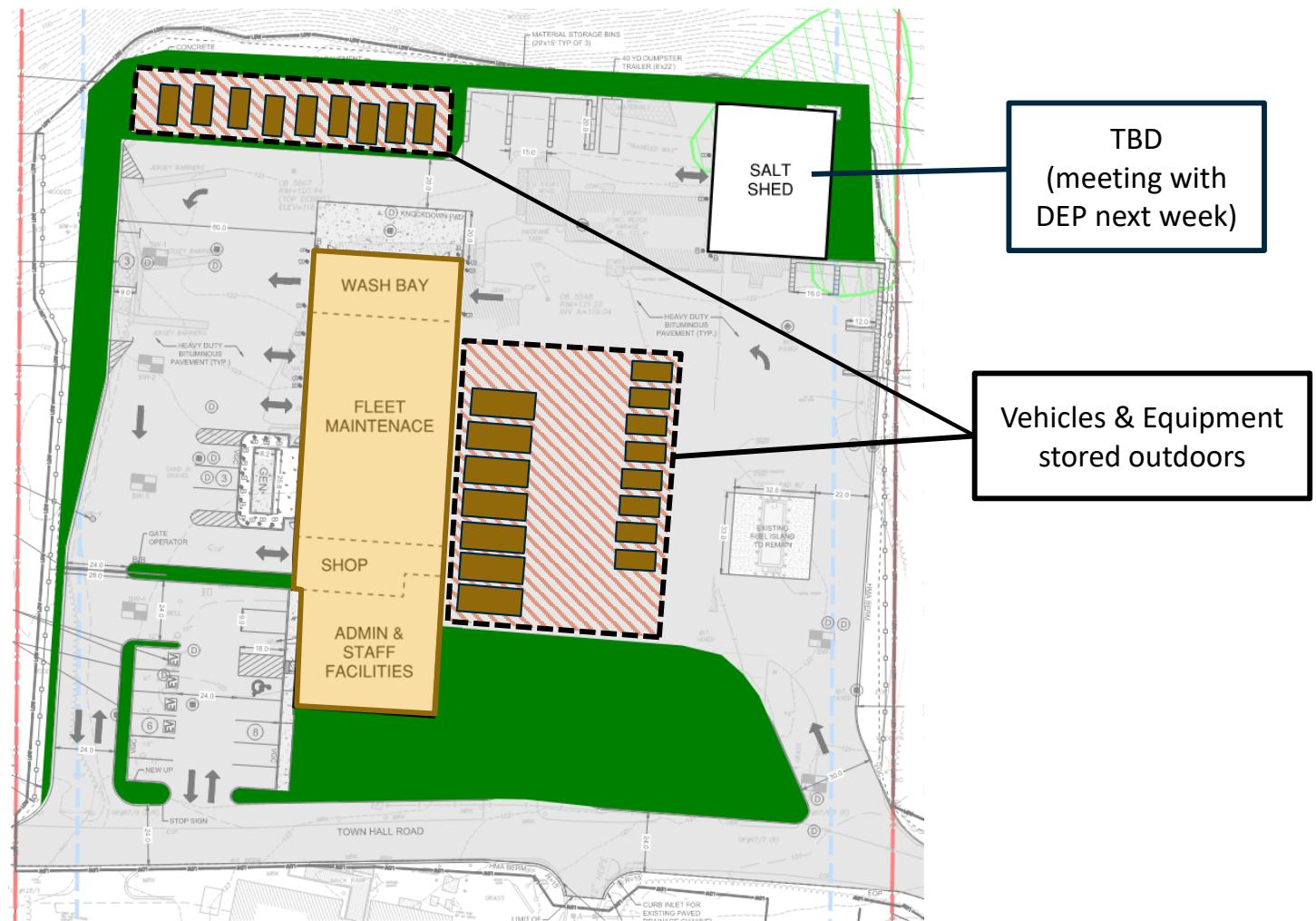
| PHASE | Study | Concept Design | Schematic Design | Design Development | Construction Documents | Bidding | Annual Town Meeting April 2026 |
|------------|-------|----------------|------------------|-----------------------|------------------------|-------------------|--------------------------------|
| Start Date | ✓ | ✓ | March 1, 2025 ✓ | Mid June 2025 | Early October 2025 | Early March 2026 | |
| Deadline | ✓ | ✓ | May 30, 2025 ✓ | End of September 2025 | End of February 2026 | End of April 2026 | |

NEXT STEP

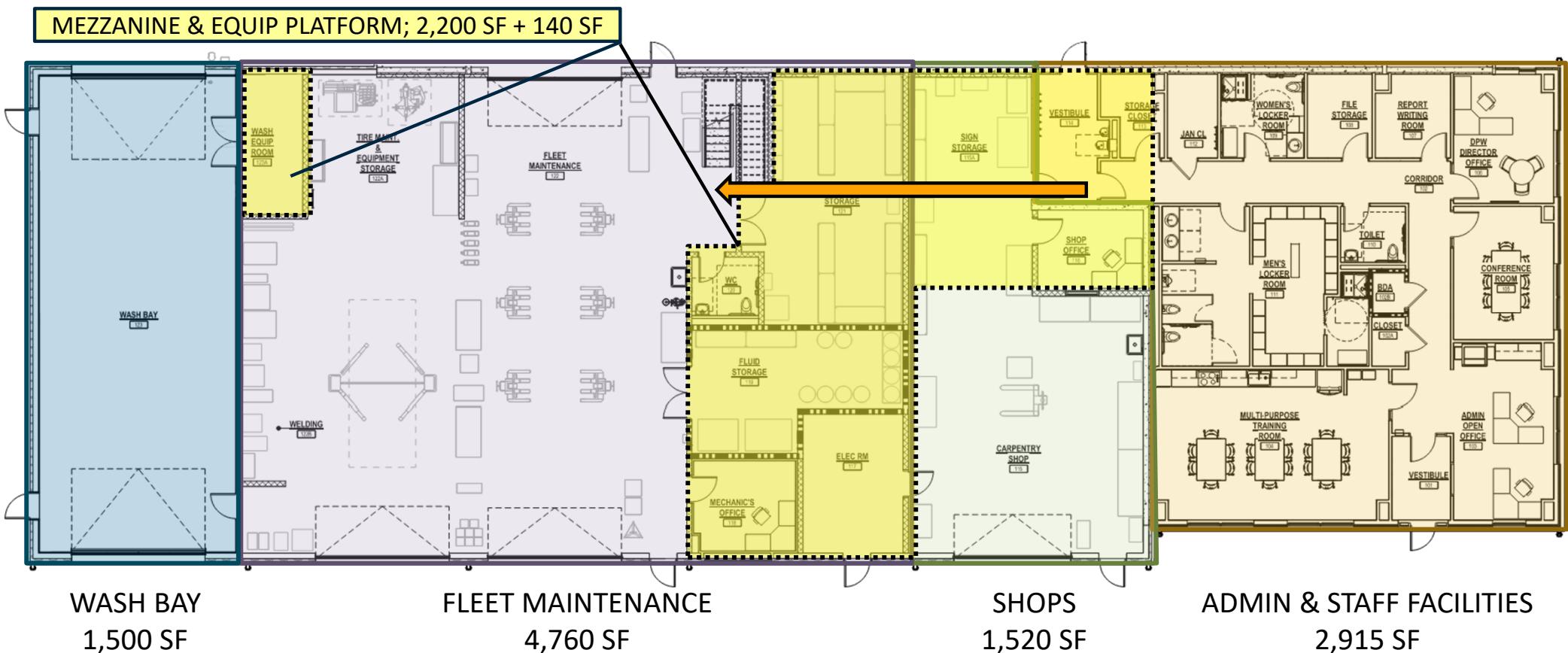
Design Development (DD); June thru September

- Confirm base design versus alternates
- MEP/FP and Structural engineers develop their drawings
- Coordination and problem solving
 - PFAS Cap (HRP) and Salt Shed coordination
 - Water well & water main project coordination
 - Fire tank & pump; sizing and location
 - Septic system
- DD will conclude with another milestone cost estimate

BASE SITE PLAN



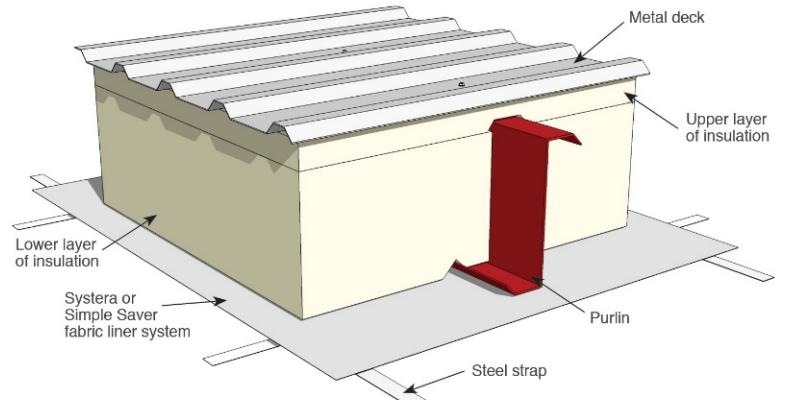
BASE FLOOR PLAN = 10,695 SF



DESIGN COMPONENTS



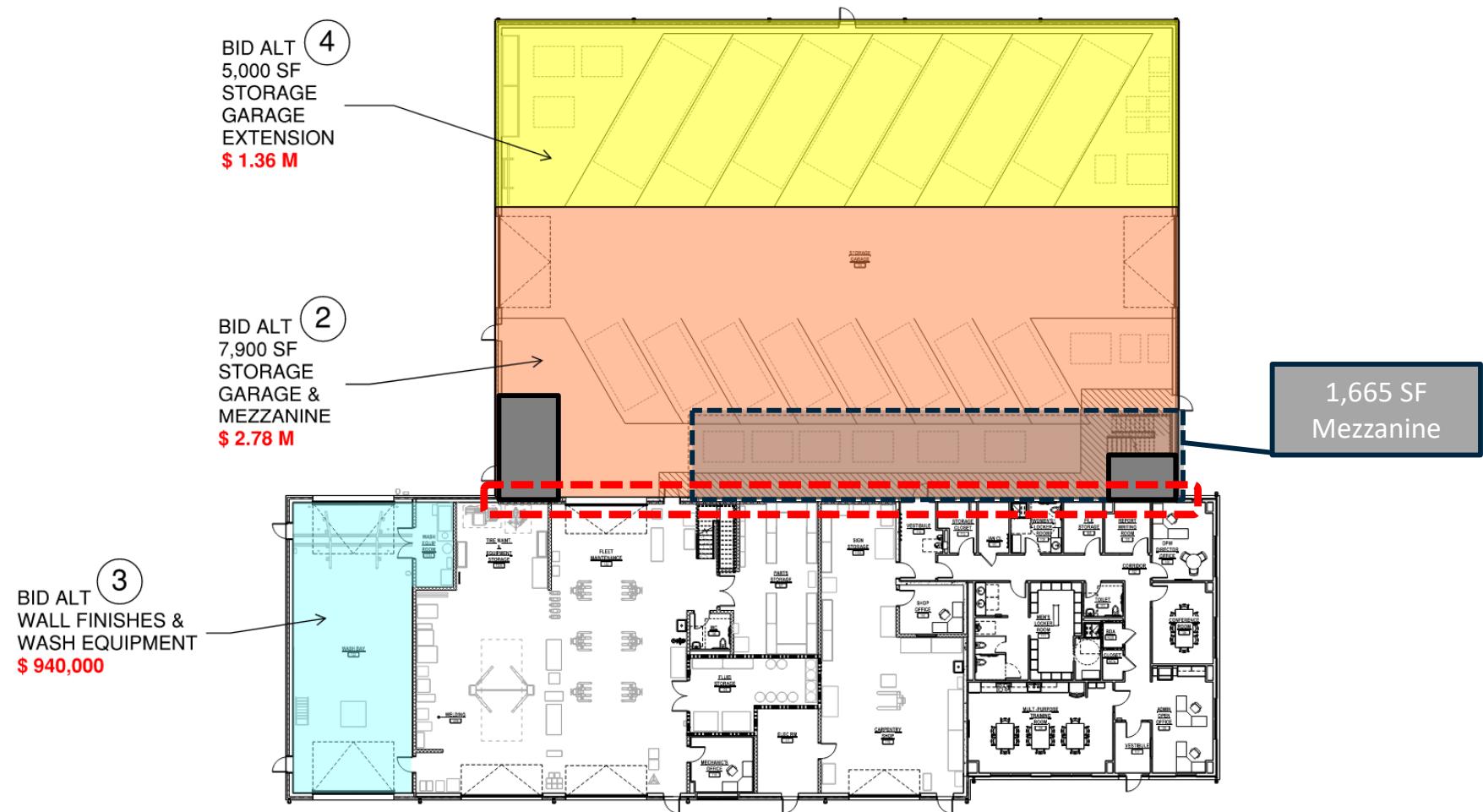
DESIGN COMPONENTS



SITE PLAN WITH ALTERNATES



FLOOR PLAN WITH ALTERNATES



DESIGN COMPONENTS



CONSTRUCTION COSTS

Independent Cost Estimators (Totora Consulting, Inc. & CostPro, Inc.)

- Two separate estimates with different approaches
 - i.e. one applied an Outer Cape Premium to the total construction costs, the other factored the premium into individual unit costs directly
- Schematic-level estimates are derived from a detailed breakdown of construction material and system components.
 - Each item is quantified (as linear feet, square feet, cubic yard, pounds, lump sum, acre, etc.) and multiplied by their respective unit cost.
- 3% mark up for tariffs
- Escalation out to Q1 of 2026, when bids will be received
- The estimates include construction costs for the water well and water main

SOFT COSTS & CONTINGENCIES

- Percentage-based A&E and OPM fees
- Percentage based A&E special services (i.e. incentives assistance)
- Allowance for Owner Contingency for potential scope modifications made by the town
- 5% Construction Contingency for potential unforeseen conditions which may be discovered during construction
- Allowances for items not yet defined/confirmed
 - i.e. Fixtures, Furnishings & Equipment, Commissioning, Utility Backcharges, Temporary Facilities, Moving Costs, etc.
- Also includes allowance for the engineering of the water well & water main

TOTAL PROJECT COSTS

Construction (hard) Costs + Soft Costs and Contingencies = Total Project Costs

| | Base Pricing | Base Price + Pricing Alternates |
|---|-----------------|---------------------------------|
| Construction Costs | ± \$ 19,500,000 | ± \$ 25,695,370 |
| Soft Costs & Contingencies ** | ± \$ 7,217,550 | ± \$ 7,217,550 |
| Opinion of Probable Total Project Costs | ± \$ 26,717,550 | ± \$ 32,912,920 |
| 2024 Appropriation | (\$ 2,800,000) | (\$ 2,800,000) |
| Total Remaining Appropriation | ± \$ 23,917,550 | ± \$ 30,112,920 |

** Soft Cost & Contingencies are based on full design and build out for budgeting & planning purposes.

- Alternate 1 – Detached Canopy = \$ 1,105,000
- Alternate 2 – 7,900 SF Storage Garage & 1,665 SF Mezzanines = \$ 2,784,600
- Alternate 3 – Wash Bay Wall Finishes & Vehicle Wash Equipment = \$ 937,100
- Alternate 4 – 5,000 SF Storage Garage = \$ 1,368,670

Total Construction Costs of all Alternates = \$ 6,195,370

COST-BENEFIT ANALYSIS; INPUTS

- The analysis compared two mechanical systems in consideration:

Air Source Heat Pumps (ASHP)

Ground Source Heat Pumps (GSHP)

- The study period for analysis was 30 years
- The following inputs go into the life-cycle cost analysis:

Capital Costs
Incentives & Tax Credits

Energy Consumption
Utility Rates

Solar Energy

Annual Maintenance
Replacement Costs

- The analysis results in a total life-cycle cost over that 30 year timeframe
- The analysis also includes GHG Emissions associated with both systems

COST-BENEFIT ANALYSIS; FULL BUILD OUT

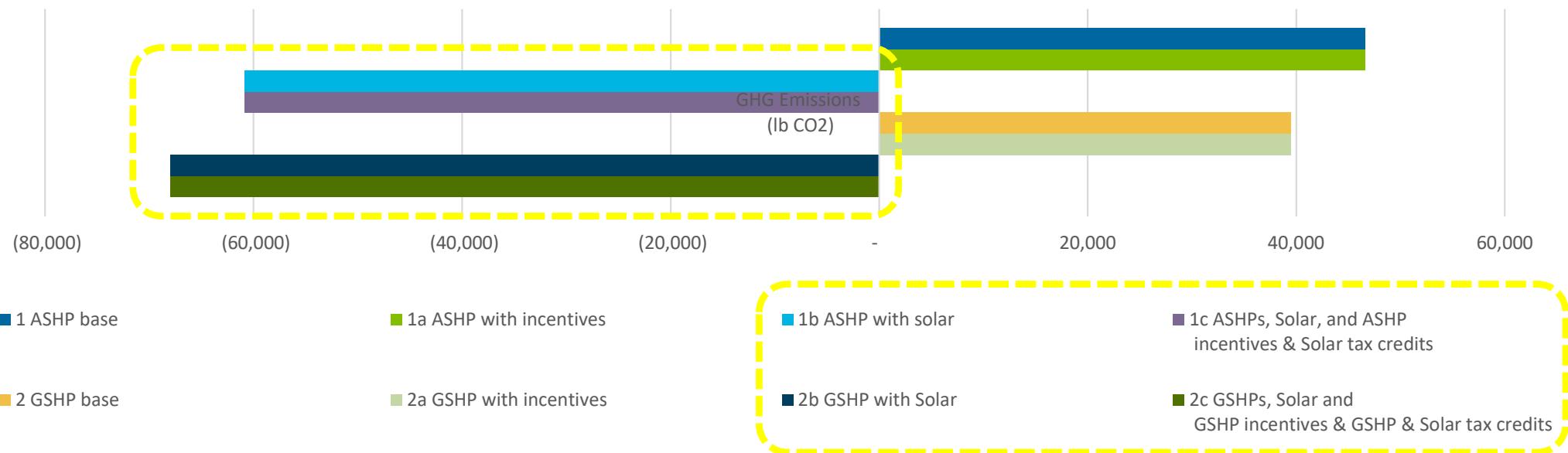
| Option | System | Gross Capital Investment | MassSave Heat Pump Adder Incentive | 30% IRA Federal Tax Credit | Net Investment | Annual Elec. Cons. (kWh) | Annual Electric Cost | Combined Utility Cost | Annual Utility \$/s.f. | Annual kBTU/s.f. (EUI) | Annual Maint. Cost | Annual Expense | Total Life-Cycle Costs | GHG Emissions (lb CO2) |
|--------|---|--------------------------|------------------------------------|----------------------------|----------------|--------------------------|----------------------|-----------------------|------------------------|------------------------|--------------------|----------------|------------------------|------------------------|
| 1 | ASHP | \$ 3,000,000 | | | \$ 3,000,000 | 86,730 | \$ 25,152 | \$ 25,152 | \$ 1.07 | 12.5 | \$ 15,000 | \$ 40,152 | \$ 7,703,863 | 46,591 |
| 1a | ASHP with Incentives | \$ 3,000,000 | \$ 80,000 | | \$ 2,920,000 | 86,730 | \$ 25,152 | \$ 25,152 | \$ 1.07 | 12.5 | \$ 15,000 | \$ 40,152 | \$ 7,573,189 | 46,591 |
| 1b | ASHP with Incentives & Solar | \$ 3,850,000 | \$ 80,000 | | \$ 3,770,000 | (113,270) | \$ (22,654) | \$ (22,654) | \$ (0.96) | (16.4) | \$ 20,000 | \$ (2,654) | \$ 6,483,337 | (60,849) |
| 1c | ASHPs, Solar, ASHP incentives & Solar Tax Credits | \$ 3,850,000 | \$ 80,000 | \$ 255,000 | \$ 3,515,000 | (113,270) | \$ (22,654) | \$ (22,654) | \$ (0.96) | (16.4) | \$ 20,000 | \$ (2,654) | \$ 6,066,814 | (60,849) |
| 2 | GSHP | \$ 4,250,000 | | | \$ 4,250,000 | 73,460 | \$ 21,303 | \$ 21,303 | \$ 0.90 | 10.6 | \$ 18,000 | \$ 39,303 | \$ 9,182,237 | 39,463 |
| 2a | GSHP with Incentives | \$ 4,250,000 | \$ 135,000 | | \$ 4,115,000 | 73,460 | \$ 21,303 | \$ 21,303 | \$ 0.90 | 10.6 | \$ 18,000 | \$ 39,303 | \$ 8,961,725 | 39,463 |
| 2b | GSHP with Incentives & Solar | \$ 5,100,000 | \$ 135,000 | | \$ 4,965,000 | (126,540) | \$ (25,308) | \$ (25,308) | \$ (1.07) | (18.3) | \$ 23,000 | \$ (2,308) | \$ 7,948,012 | (67,977) |
| 2c | GSHPs, Solar, GSHP Incentives, and GSHP & Solar Tax Credits | \$ 5,100,000 | \$ 135,000 | \$ 1,530,000 | \$ 3,435,000 | (126,540) | \$ (25,308) | \$ (25,308) | \$ (1.07) | (18.3) | \$ 23,000 | \$ (2,308) | \$ 5,448,876 | (67,977) |

COST-BENEFIT ANALYSIS; KEY RESULTS

| Option | System | Gross Capital Investment | Net Investment | Total Life-Cycle Costs | GHG Emissions (lb CO2) |
|--------|---|--------------------------|----------------|------------------------|------------------------|
| 1 | ASHP | \$ 3,000,000 | \$ 3,000,000 | \$ 7,703,863 | 46,591 |
| 1a | ASHP with Incentives | \$ 3,000,000 | \$ 2,920,000 | \$ 7,573,189 | 46,591 |
| 1b | ASHP with Incentives & Solar | \$ 3,850,000 | \$ 3,770,000 | \$ 6,483,337 | (60,849) |
| 1c | ASHPs, Solar, ASHP Incentives, and Solar Tax Credits | \$ 3,850,000 | \$ 3,515,000 | \$ 6,066,814 | (60,849) |
| 2 | GSHP | \$ 4,250,000 | \$ 4,250,000 | \$ 9,182,237 | 39,463 |
| 2a | GSHP with Incentives | \$ 4,250,000 | \$ 4,115,000 | \$ 8,961,725 | 39,463 |
| 2b | GSHP with Incentives & Solar | \$ 5,100,000 | \$ 4,965,000 | \$ 7,948,012 | (67,977) |
| 2c | GSHPs, Solar, GSHP Incentives, and GSHP & Solar Tax Credits | \$ 5,100,000 | \$ 3,435,000 | \$ 5,448,876 | (67,977) |

GHG EMISSIONS COMPARISON

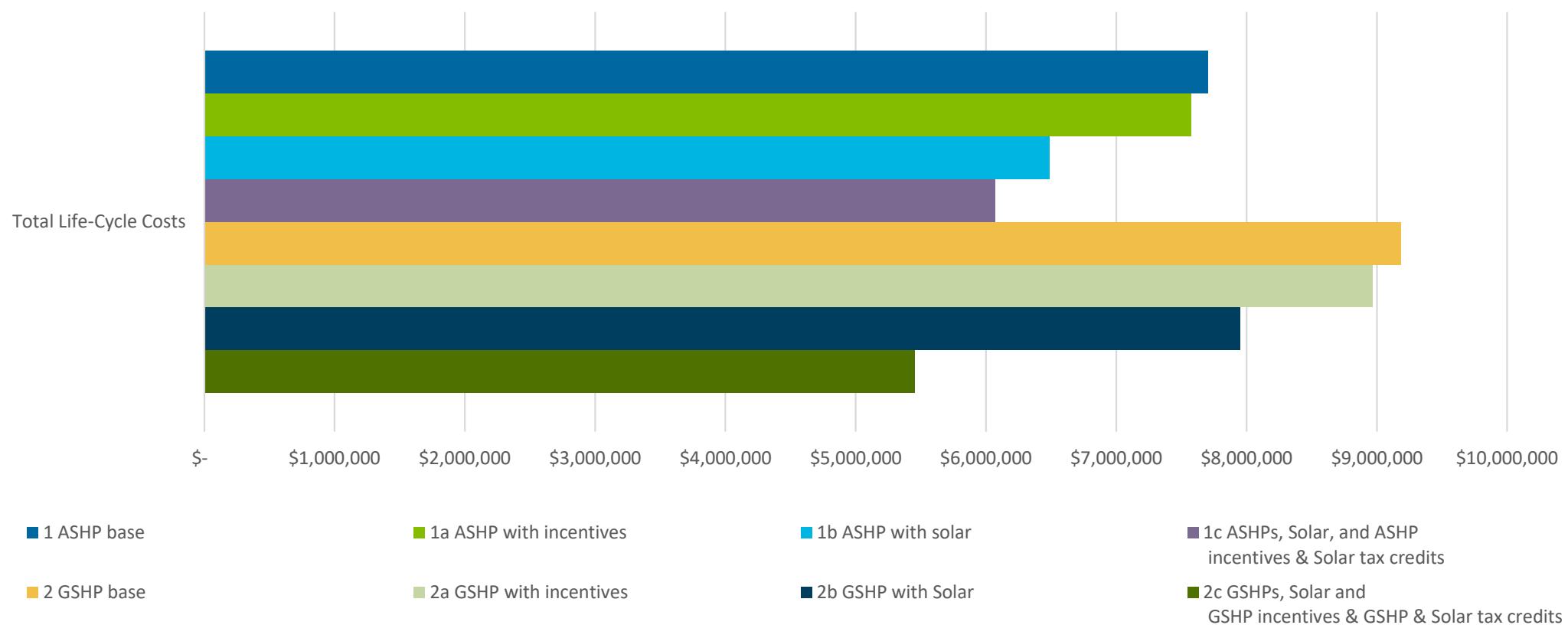
GHG Emissions Comparison



60,000 lb CO₂ is the equivalent of 3.7 home's energy use for one year

TOTAL LIFE CYCLE COSTS

ASHP vs GSHP over 30 years



OPEN DISCUSSION





transform your environment