





# **Lexington Town Meeting *of April 25, 2007***

## ***New Department of Public Works Facility***

### **Department of Public Works**

- Administration
- Engineering
- Building Maintenance (School and Municipal Facilities)
- Water/Sewer
- Equipment Maintenance
- Highways
- Public Grounds

### **Agenda**

- Our Charge from Town Meeting of December 6, 2006
- Review and Confirmation Process and Results
- Project Design
- Energy & Sustainability
- Cost, Debt Assumption and Project Schedule
- DPW Function and Community Impact

## **Our Charge from December 6, 2006 Town Meeting**

The Board of Selectmen asked that we perform a multi-step process

- An 8 week period of time was set to review and confirm the size and scope of the project
- Additional focus on program, public presence and energy analysis
- Working Group members included the Board of Selectmen, Permanent Building Committee, Design Advisory Committee, Energy Conservation Committee, Capital Expenditures Committee and Appropriations Committee as well as the Town Manager, DPW Director and Operations Manager
- At the beginning of this process Town Meeting members and residents were encouraged to submit questions to help the committee focus on community concerns

## Review and Confirmation Process

- Working sessions were held for the project on at least a weekly basis.
- Meetings included the entire integrated design team to make sure items were considered or not overlooked during this process
- DPW functions and operations were examined
- The building and site plans were made more efficient
- The revised plans were accepted and approved by Town & School Management
- Multiple presentations were made to the Board of Selectmen, Design Advisory Committee, Energy Conservation Committee, and Town Meeting members

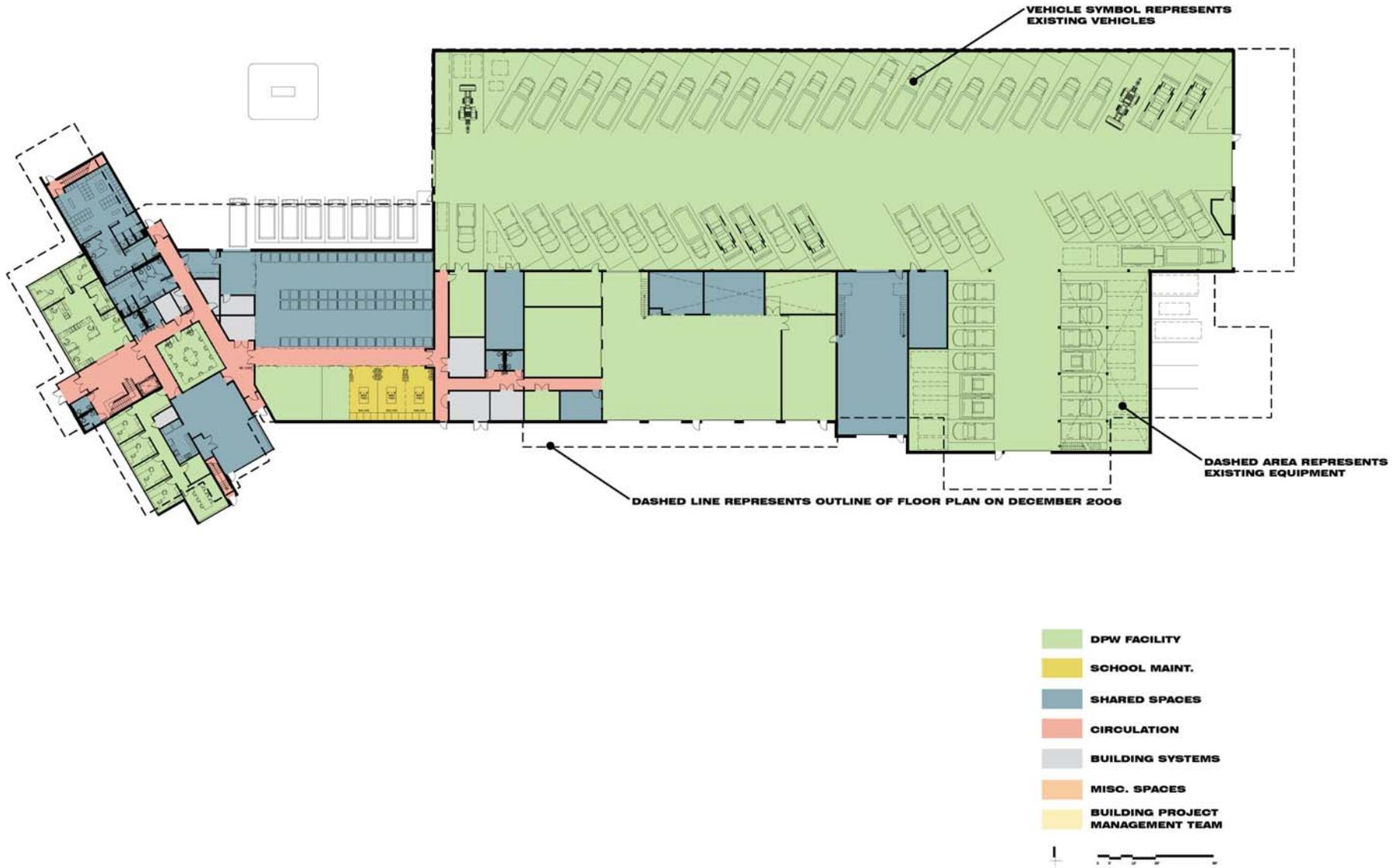
## Review and Confirmation Results

	Dec 2006	Change	April 2007 Plans
<b>Administration</b> <ul style="list-style-type: none"> <li>Reduction in voting area, conference space, locker size</li> </ul>	17,649 gsf	(1,465) gsf 8%	16,184 gsf
<b>Central Storage &amp; Shops</b> <ul style="list-style-type: none"> <li>Reduced specialized storage + consolidate pallet racks</li> </ul>	12,310 gsf	(2,653) gsf 22%	9,657 gsf
<b>Vehicle Staging/Prep Area</b> <ul style="list-style-type: none"> <li>Reduced + reconfigured number of vehicles garaged</li> </ul>	45,443 gsf	(4,433) gsf 10%	41,010 gsf
<b>Maintenance &amp; Shops</b> <ul style="list-style-type: none"> <li>Reduced bay length in vehicle maintenance</li> </ul>	10,299 gsf	(1,429) gsf 14%	8,870 gsf
<b>Wash Bay</b> <ul style="list-style-type: none"> <li>Slight increase in area due to reconfiguration</li> </ul>	2,703 gsf	93 gsf 3%	2,796 gsf
<b>Cold Storage</b> <ul style="list-style-type: none"> <li>Relocated and simplified</li> </ul>	6,100 gsf	(1,897) gsf 31%	4,203 gsf
<b>Mezzanines</b> <ul style="list-style-type: none"> <li>Reconfigured layout</li> </ul>	6,379 gsf	(2,042) gsf 32%	4,337 gsf
<b>Total</b>	100,883 gsf	(13,826) gsf 14%	87,057 gsf

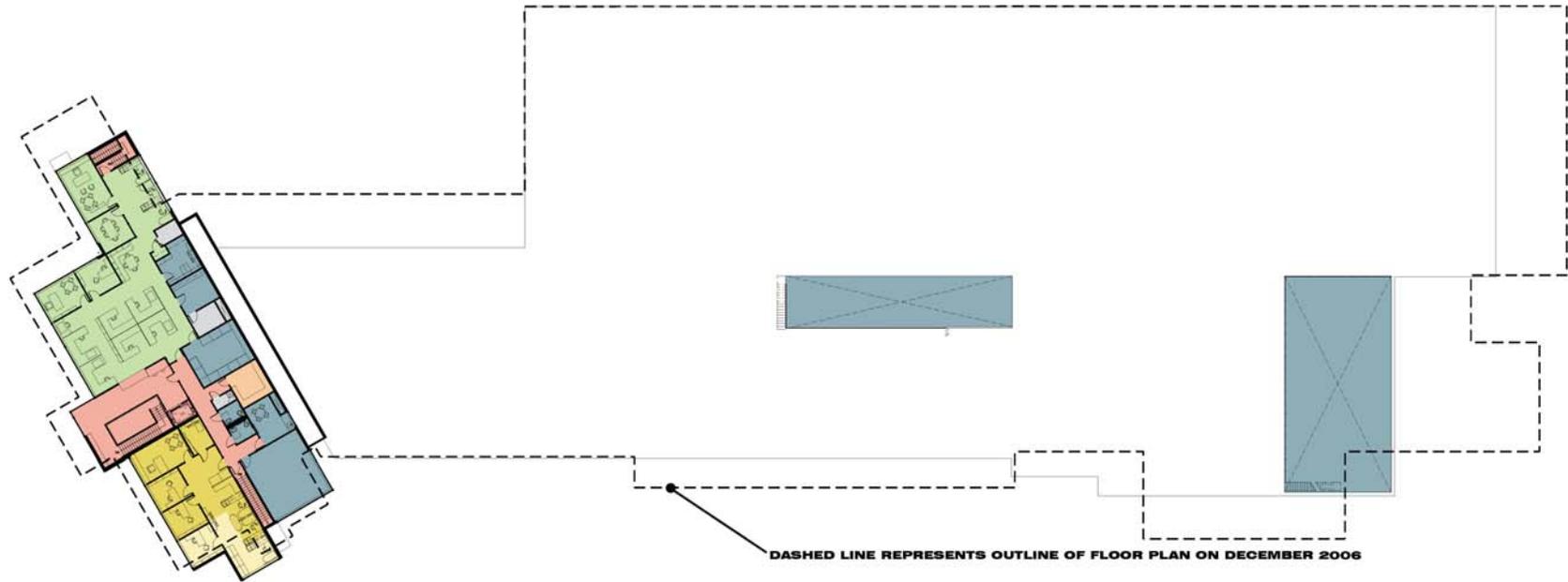
## Review and Confirmation Results

- Operational analysis showed that housing vehicles and equipment in a minimally heated area is cost effective
- Energy consumption and estimated annual energy costs were refined
- Functional layout for improvement of operations was not compromised
- The use of a pre-engineered structure for vehicle staging was not found to be cost effective in this building design
- Neighborhood issues and concerns were quantified and addressed
- Building design was revised and simplified

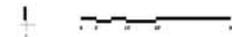
# Proposed First Floor Plan



# Proposed Second Floor Plan



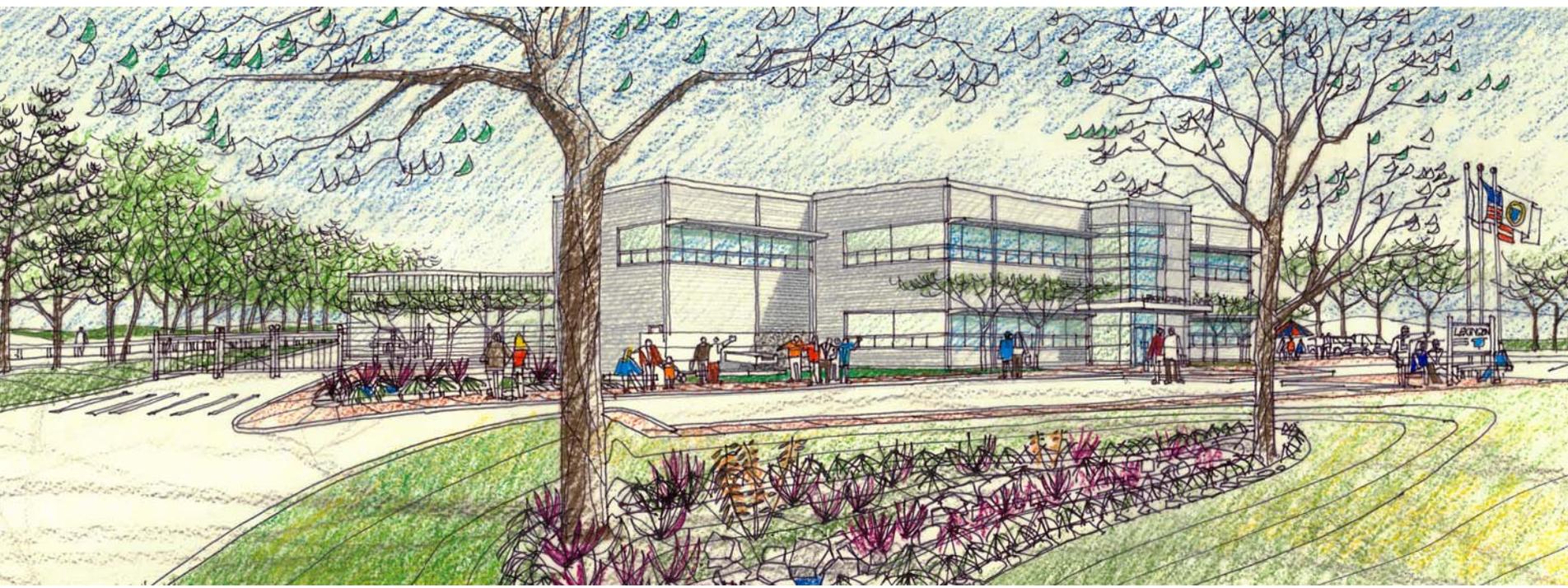
- DPW FACILITY
- SCHOOL MAINT.
- SHARED SPACES
- CIRCULATION
- BUILDING SYSTEMS
- MISC. SPACES
- BUILDING PROJECT MANAGEMENT TEAM

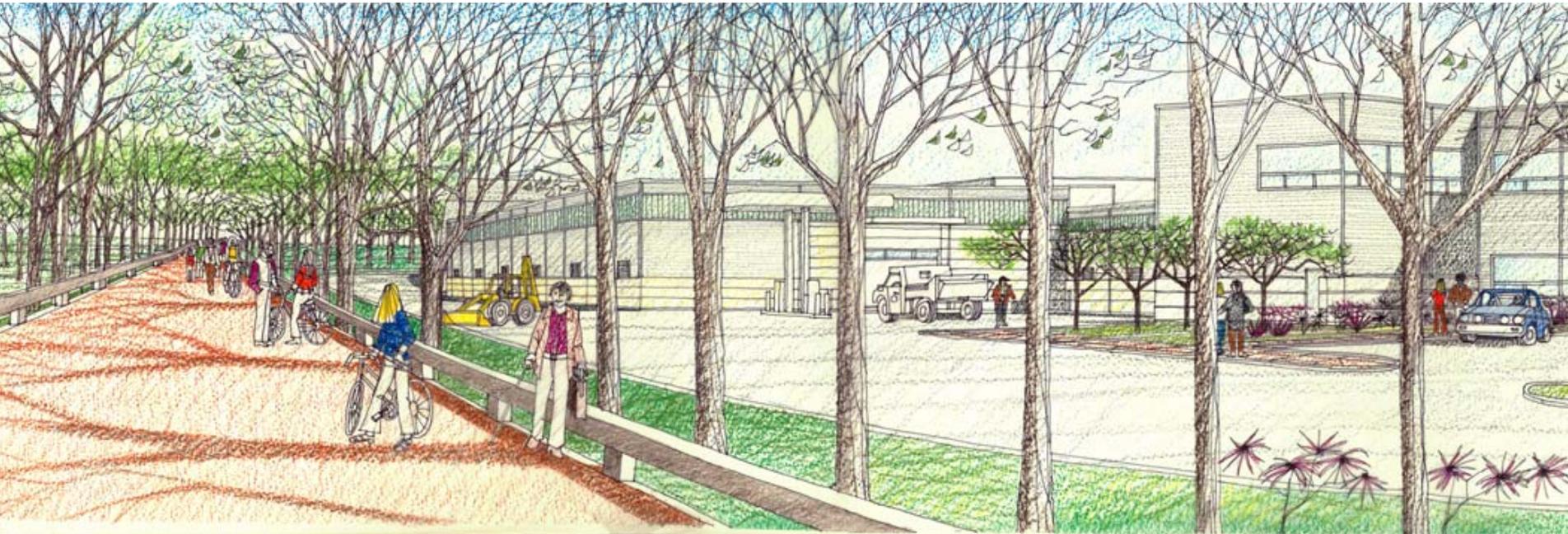


# Proposed Site Plan



# Rendering from Bedford Street





## **ENERGY:**

- Reduce annual energy consumption by increasing levels of energy performance
- Develop a Commissioning Plan and incorporate into design documents
- Exceed Massachusetts Energy Code insulating requirements improving energy efficiency

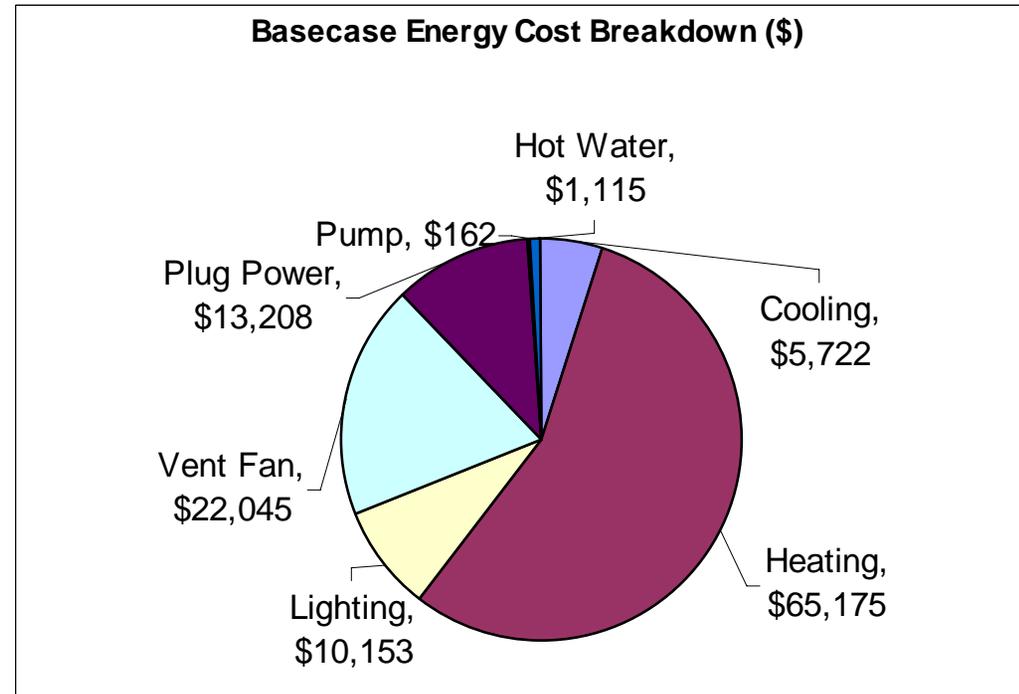
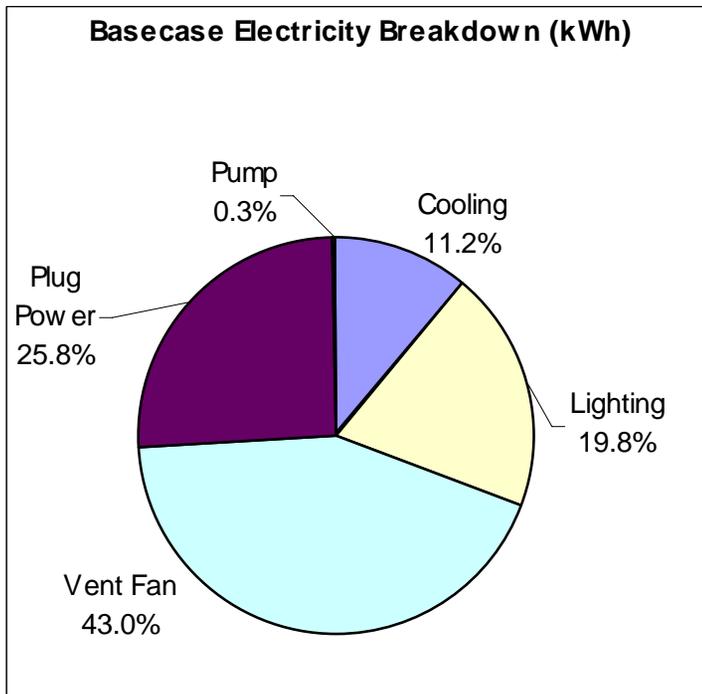
## Energy and Sustainable Design

The focus from the beginning of the project was to create a facility that would be energy efficient and sustainable

- The project team used energy modeling as a design tool
- Sebesta Blomberg & Associates
  - Independent Commissioning agent
  - Utilized DOE 2.1 software for the three energy models completed
- The latest energy model, completed in April 2007, outlines an estimated annual energy cost of \$117,579, an \$11,000 reduction from the previous model for a total reduction from the initial model of \$80,088
- The reduction in operating costs stem from an increase in insulating values and building system refinements

## Energy and Sustainable Design

- These charts show the breakdown of specific elements within the energy model and their total represents the annual energy consumption and cost.



## Energy & Sustainable Design

The design team worked with the Energy Conservation Committee towards energy goals for the project

- The design reduces the annual energy consumption by 30% from our previous base model.
- Documents have been submitted to NSTAR for potential rebates for energy efficient lighting fixtures and layouts
- Fans and pump motors are specified premium efficiency or have high efficiency variable speed fans & pump motors
- The facility takes advantage of daylighting to reduce artificial lighting, including vehicle staging/prep area and maintenance
- The vehicle staging/prep area can be minimally heated using infrared heating, which heats objects not the air

## Energy & Sustainable Design

- The vehicle staging/prep area is ventilated only if CO/CO2 limits are exceeded and utilizes natural ventilation during warmer months to reduce CO/CO2 levels
- Water consumption has been reduced through low flow fixtures, efficient hot water heaters, recycling of water from the wash bay, and rain water harvesting
- All HVAC systems have energy recovery features
- Renewable technologies have been investigated and along with potential grants, will continue to be pursued to find cost effective solutions to energy consumption



### **SUSTAINABLE SITES:**

- We are restoring native habitat by removing evasive plant species
- Use bio-retention and constructed wetlands to control and treat stormwater
- Roofing materials have a high solar reflectance to reduce heat island effect

### **INDOOR ENVIRONMENTAL QUALITY:**

- Reduce indoor air quality problems resulting from the construction process
- Specify low emitting adhesives, sealants, paints, coatings and carpets
- Provide natural daylighting and views from occupied spaces



### **MATERIALS & RESOURCES:**

- Management of the demolition of the existing facility to divert from disposal in landfills and incinerators
- Specify materials that have been extracted, harvested or manufactured, within 500 miles of project

### **WATER EFFICIENCY:**

- Specify native plant species to reduce or eliminate the need for irrigation
- Harvest roof water for reuse in the wash bay and in tanker trucks
- Use low flow fixtures throughout the facility reducing water consumption

## Energy and Sustainable Design – Stormwater Management

Stormwater from site and building is managed in several ways:

- Constructed wetlands
- Bio-retention basins
- Rain gardens
- Green roof
- Underground storage & infiltration system
- Rain harvesting of rooftop water for reuse in wash bay, street sweeper & tanker trucks

## Project Cost

### HARDCOSTS

Building, Site & Contingency 1Q2007\$	\$20,700,000
Salt/Sand Shed 1Q2007\$	\$400,000
Abatement	\$200,000
Escalation to 3Q2007 Bid	\$750,000
Fixtures, Furniture & Communications	\$290,000

### SOFTCOSTS

Professional Services: A/E Commissioning, Legal, etc	\$2,990,000
Lexington Project Management	\$140,000
Phasing Allowance	\$200,000
State Permits	\$30,000

### CONTINGENCIES

Construction	\$1,100,000
Project	\$670,000

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### PROJECT COST

**\$27,470,000**

## Financing Projections and Debt Service

### Debt Assumptions

- Project Cost = \$27.5 million
- Term of Debt = 20 years
- Interest Rate = 4.5%

### Cost Allocations (Estimated)

- Water Fund – 16.6%
- Wastewater Fund – 6.6%
- General Fund – 76.8%

Based on Average Single Family Home assessed at \$729,000

	Tax Impact	Rate Impact	Total
FY2009	\$ 160	\$ 52	\$ 212
FY2014	\$ 146	\$ 46	\$ 192
FY2019	\$ 124	\$ 40	\$ 164
FY2024	\$ 102	\$ 34	\$ 136
FY2028	\$ 87	\$ 29	\$ 116

## Project Schedule

- Town Meeting Action April 25, 2007
  
- Debt Exclusion
  - Beginning of June 2007
  
- Bidding & Negotiations
  - Bidding Begins July 2007
  - Award Contract Fall 2007
  
- Construction
  - Construction Start Fall 2007
  - Completion of Construction Spring 2009

## **DPW Function and Community Impact**

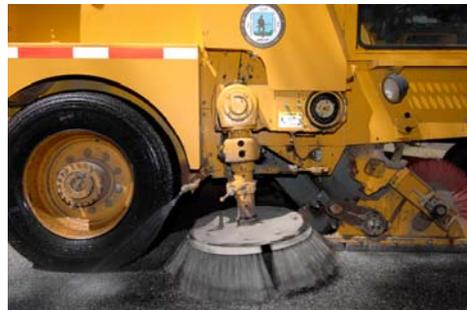
The entire Town benefits from the work the DPW performs 24 hours per day, 7 days a week, 365 days a year and the impact of your decision will be noticed:

- DPW Administration, Operations and Engineering will be in one location improving efficiencies
- Space layouts will improve communication within divisions and enhance supervision
- The improvement in the flow of vehicles in and out of the site and buildings as well as the orientation of the daily work areas are designed to reduce the impact on the neighbors
- Improved maintenance of vehicles and equipment will protect the Town's valuable assets

## DPW Function and Community Impact

- If vehicles are stored outside response time to emergencies will increase
- The safety of the employees will be compromised if the work of prep, staging, performing safety checks or cleaning vehicles is not under cover and employees are subjected to rain, snow or other storm events
- If storage of vehicles is not inside, as they always have been, daily start up with noise, light and pollution will affect the neighborhood
- Sustainability issues, including energy, have been given full consideration including solar and wind orientation, noise issues, light spill, parking layouts, planting schemes, water management, construction waste and recycling













To see the latest information on the DPW project please go to the DPW website at <http://ci.lexington.ma.us/dpw/dpw.htm>

[DPW Energy Model Memo January 22, 2007](#)

[DPW Energy Model Memo April 18, 2007](#)

[Board of Selectmen Presentation April 18, 2007](#)

[DPW Project Narrative and FAQ Handout April 11, 2007](#)

[Plans of First Floor](#)

[Plans of Second Floor](#)

[Rendition of Facility 1](#)

[Rendition of Facility 2](#)

[Rendition of Facility 3](#)

[Rendition of Facility 4](#)