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## NEEDHAM FACILITIES MASTER PLAN STUDY



Municipal Resources, Inc.



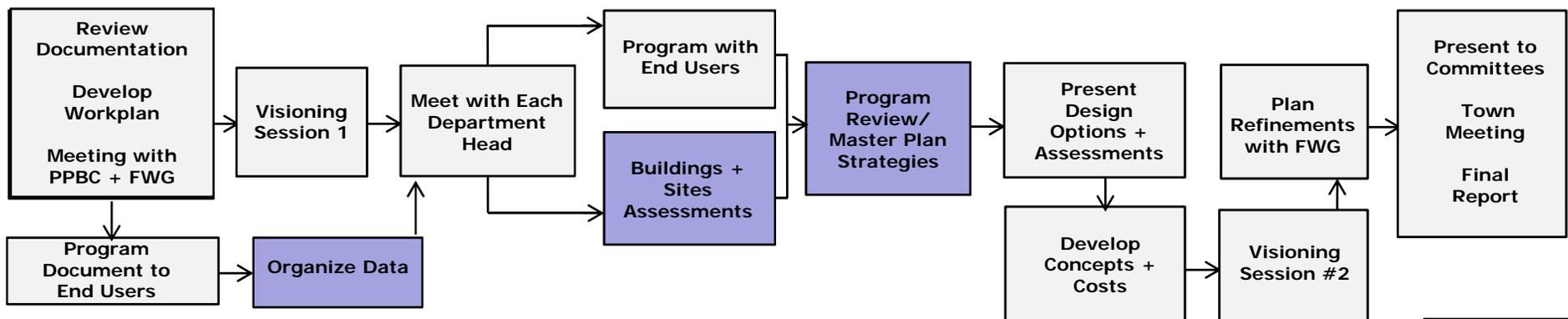
## AGENDA: FACILITY WORKING GROUP – MEETING #1B

- Schedule
- Overview of Visioning Session Comments
- Overview of Department Programs
  - Department of Public Works
  - Police and Fire
- Next Steps



## PROGRAMMING PROCESS: POLICE + FIRE, PUBLIC WORKS

- Programming Process continues
  - Met with department head and selected staff
  - Detailed program review is ongoing
  - Room Data are continually being revised to reflect comments
- Building assessments: Architectural and Structural
- Pending – Meeting with Commission Heads and Town Manager
- Develop Program/Master Plan strategies with FWG



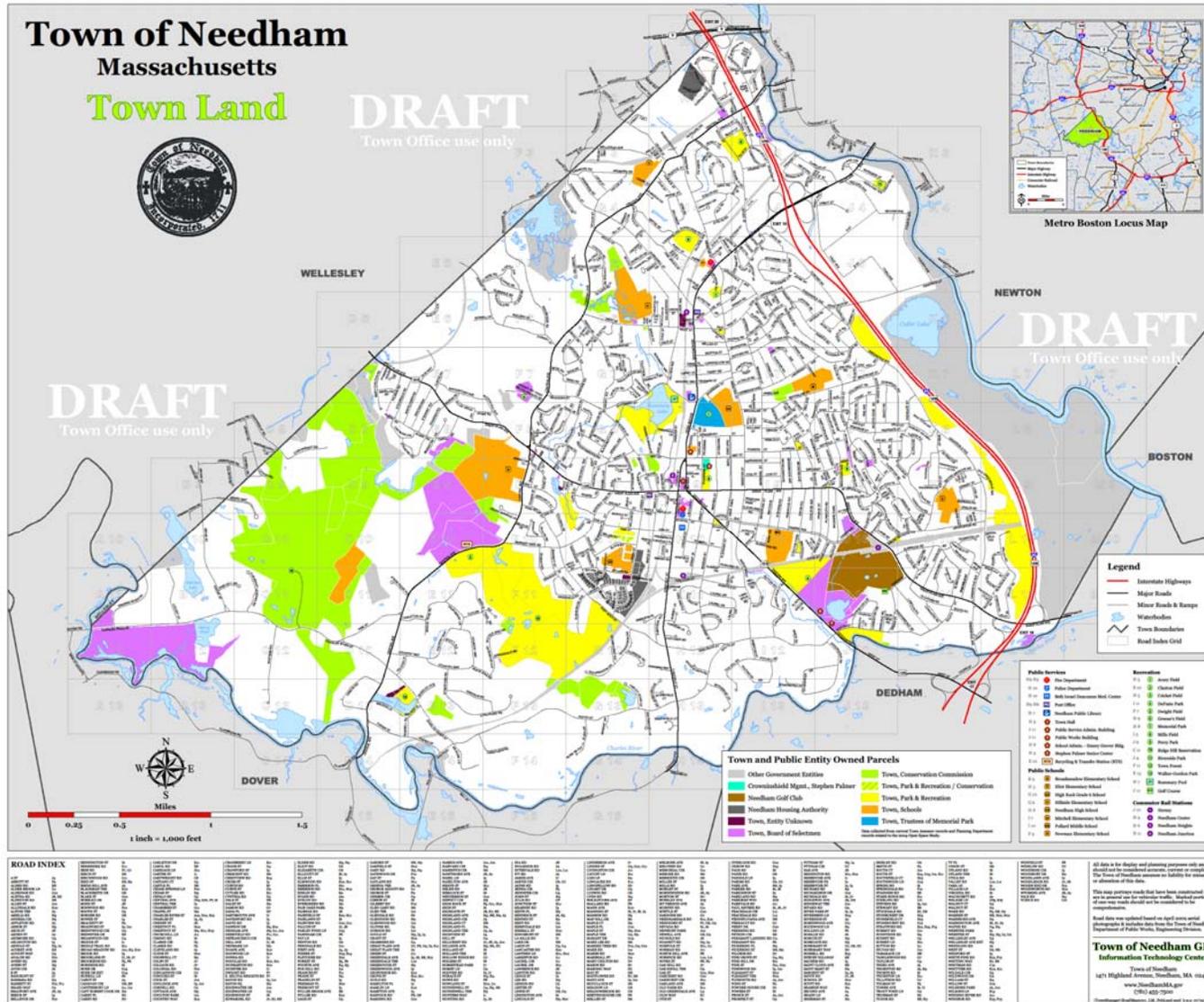
## FWG SCHEDULE + OBJECTIVES

- March + April Mtgs. 1B + 1C: Update of programming + assessments
  - Summary of structural and architectural findings
  - Programming details for Public Works, Fire and Police Departments
  - FWG comments on programming, concepts and approach

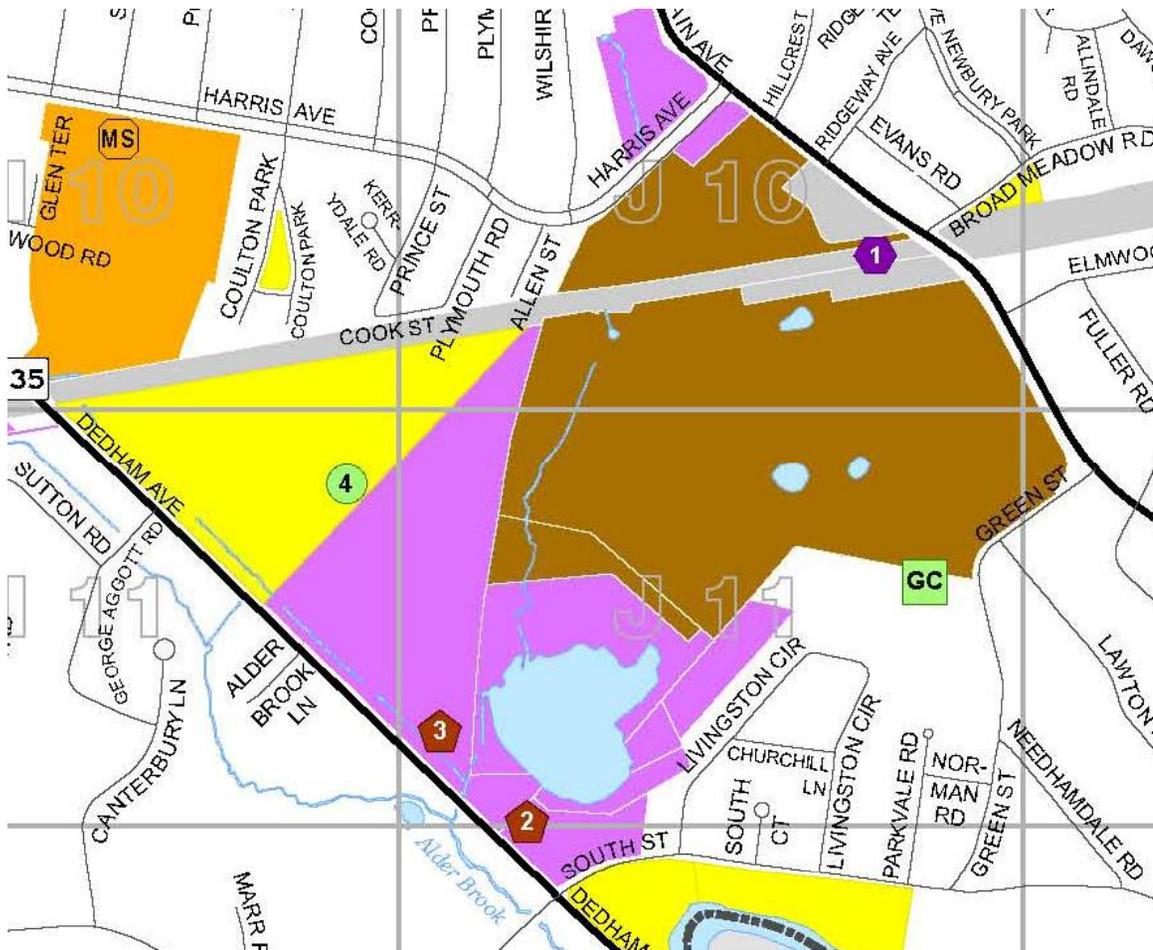
TASK:

Months	December	January	February	March	April	May	June	July	August	September	October	November
Collect documentation, workplan + schedule												
Analyze Documents	1	2										
Meeting with FWG		1A	1A	1B	1C	1D	1E	1F	1G	1H		
Visioning Session		2			2A							
PPBC Meetings	3				3A		3B			3C		
Selectman Meetings				4			4A			4B		
Programming; Site Assessments		5A 5B 5C 5D										
Programming Review												
Design Options + Assessments												
Plan Refinements												
Presentations to FWG + Committees; Coordinate capital project funding												
Final Report + Town Meeting												

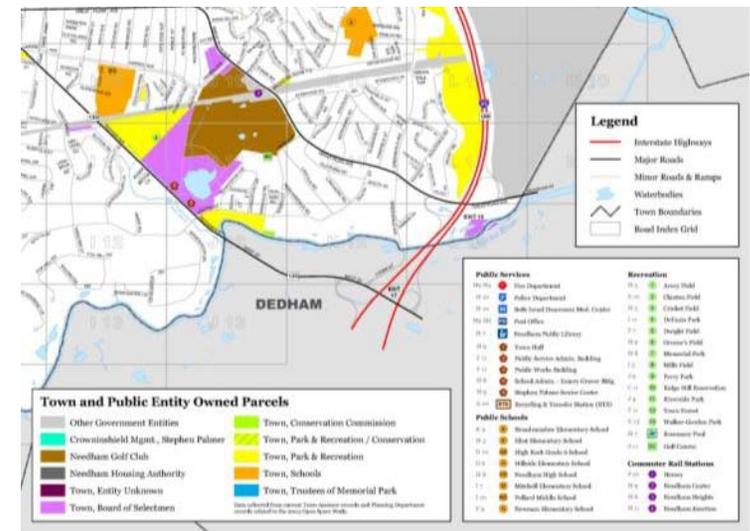
TOWN LAND MAP



## TOWN LAND MAP: DETAIL AT DEDHAM AVENUE SITE



- Jurisdictional issues at Dedham Ave Site
  - Board of Selectmen
  - Park + Recreation
  - School



## OVERVIEW OF VISIONING

- What have we learned from the responses and what are some broad conclusions that we have reached
- Will the responses be reflected in the concepts
- How do we describe and articulate the challenges of a Master Plan to the Community at large
  - The Master Plan is a framework for future decisions
  - The Master Plan needs to have built in flexibility
  - The Master Plan is not absolute
  - The Master Plan must be responsive when something changes

## OVERVIEW OF VISIONING

- *Q1 Previous Master Plan: Surprises or concerns*
  - Cost estimates – how well they tracked to the actual projects
  - **Importance of swing or temporary space**
  - **Limited alternative sites available in Town**
  - Should programming be focused on how needs should be handled or how they most probably will be handled
  - **Need for Public input**
  - **Establish priorities; how flexible should/must plan be**
  - Projects were balanced and constituents were pleased

## OVERVIEW OF VISIONING

- *Q2 What do you see as obstacles*
  - Financial: ability to finance projects
    - Town wanting more than we can afford; realistic expectations
  - **Lack of available land and facilities**
    - Capacity of sites
    - Lack of available land to relocate or expand
    - Value of current open spaces
  - **Maintaining an open minded approach**
    - Territorial attitudes
    - Improve communications
    - Building agreement and consensus
  - Setting Priorities
    - Order by urgency
    - How will needs be balanced

## OVERVIEW OF VISIONING

- *Q3 Needs or limitations suggest simple or radical changes: what are the “sacred” land or buildings*
  - Open minded approach
    - **Look at everything**
    - **Public should be heard**
  - Safety of citizens
  - Fire and Police in the downtown
  - Playing fields and green spaces
    - Spaces that define a neighborhood
    - Town forest, Ridge Hill, Rosemary Lake
  - Neighborhood schools
  - Historic Buildings and land
  - DPW
  - No sacred sites

## OVERVIEW OF VISIONING

- *Q4 What do think the citizens believe should be highest priority*
  - Schools: upgrade, renovate, replace, relocate
  - DPW: solve this issue
  - Police and Fire
  - Land, fields and roads
    - Preserve open space; Environmental planning
  - Financial
    - Affordable solutions; Value for tax dollar expended
    - **Development of a sound plan**
  - Community: communication and inclusion of all age groups
  - Sustainability
  - No priority
  - Recreation

## OVERVIEW OF VISIONING

- *Q5A.1 View of location of DPW*
  - **RTS**
  - **Stay at present location**
  - **Hillside**
  - Other sites: Greendale, Nike, Claxton Field
- *Q5A.2 Use of RTS*
  - Not in scope
  - Best use should be explored
- *Q5A.3 Use of Dedham Ave*
  - School
  - Recreation
  - Natural resources

## OVERVIEW OF VISIONING

- *Q5B.1 View of School Projects Synergies*
  - Synergies: combine schools
  - Recreation and school complex
  - Build large enough schools for other programming
- *Q5B.2 View of School Projects Location of Administration*
  - At Emery Grover
  - With other schools
  - New land acquisitions
  - Executive offices
  - Ridge Hill
  - DeFazio
  - Police and Fire
  - Other

## OVERVIEW OF VISIONING

- *Q5C View of Police and Fire/shared site*
  - **Stand alone**
  - School administration
  - **Other Public Facilities**
  - Community Center
  - Parking lot

## OVERVIEW OF VISIONING

- *Q5D View of Rosemary Lake alternate sites*
  - **Current site**
  - **Ridge Hill/Nike**
  - Private
  - DeFazio
  - Claxton Field
  - School Property
  - Millis Field
  - Town Forest
  - Other

## OVERVIEW OF VISIONING

- *Q5E View of Nike and Ridge Hill Sites*
  - **Swap land**
  - **Keep as open space**
  - Community or Recreational Center/pool
  - **Passive recreation**
  - **School administration**
  - Other
- *Open Discussion*

## DEPARTMENT OF PUBLIC WORKS

- Existing structures: +/- 45,400 GSF not including PSAB Building
  - Hollis Building: +/-38,000 GSF: buildings, enclosed and open sheds
  - New vehicle building under construction: 4,998 GSF
  - 486 Dedham (Former Water Pumping Station) = 2,400 GSF on main floor
  - PSAB Building = 21,777 GSF



## DEPARTMENT OF PUBLIC WORKS

- Storage of vehicles, equipment + materials is located throughout Town; some are co-located with other departments at Ridge Hill, Memorial Field, Claxton and Cricket Fields. There is storage at the RTS. The DPW would prefer to maintain space at some facilities such as at fields and parks because this is where the equipment/materials are primarily used. Some remote storage is difficult to access.
  - Vehicles and equipment stored indoors protect these valuable assets and help improve localized site conditions
  - Some storage areas are under the control of other departments and are subject to change as Towns needs change



## DEPARTMENT OF PUBLIC WORKS

- Vehicles, equipment + materials stored for regular use by DPW

OTHER EXISTING STORAGE LOCATIONS	SF
Defazio Storage Area A	9,652
Defazio Storage Area B	2,200
Defazio Salt Shed	4,063
Daley Building	10,425
Alden Road Pump Station	620
Charles River WTP	160
Reservoir B Pump Station Garage	1,000
St. Mary's Pump Station	415
Winter Rental	1,500
Cricket Field	1,500
Claxton Field	1,000
Cage at Defazio	5,899
Memorial Field *Estimate	+3,000
Ridge Hill Reservation Garages and Barn *Estimate	+3,000
Material Bins at Dedham Ave *Estimate	+3,000
<b>TOTAL</b>	<b>47,434</b>

**DEPARTMENT OF PUBLIC WORKS:  
Other Storage examples**



**DEPARTMENT OF PUBLIC WORKS:  
Other Storage examples**



## DEPARTMENT OF PUBLIC WORKS

- Materials handling areas: storage of stock materials such as sand + gravel and areas to store materials removed during street sweeping, catch basin cleanout or asphalt repairs and from Town construction sites needs should be defined and controlled
  - Currently stored at DPW site near original salt shed + RTS
  - Areas of cold storage, sander bodies + spreaders, pipes + manhole covers etc. should be located to secure and maintain stock and to be nearby other equipment needed to complete the project



## DEPARTMENT OF PUBLIC WORKS: ARCHITECTURAL EXISTING CONDITIONS

- Open stair as means of egress from the second floor does not meet code
- Interior stair from second floor is not enclosed



## DEPARTMENT OF PUBLIC WORKS: ARCHITECTURAL EXISTING CONDITIONS

- Egress doors are unmarked
- Egress door in maintenance shop is blocked by equipment



## DEPARTMENT OF PUBLIC WORKS: ARCHITECTURAL EXISTING CONDITIONS

- No fire suppression system
- The building envelope does not meet current energy code
- No accessible means to the second floor
- No accessible toilets



## DEPARTMENT OF PUBLIC WORKS: ARCHITECTURAL EXISTING CONDITIONS

- Vehicle Storage and Maintenance bay clear heights are inadequate
  - Garage is 60' width vs 98', height should be minimally 17' clear of structure or systems, 470 Dedham is 18' to top of building
- Maintenance : Should have minimum 6-7 bays (current at 3), storage for fluids, tires and parts and supplies
- Shops: Should provide adequate work and consolidated storage areas



## DPW at 470 DEDHAM: STRUCTURAL EXISTING CONDITIONS

- DPW Building: original structure circa 1960, 2nd floor addition circa 1965
  - The building consists of a 1-story vehicle storage area (60'x191') + a 2-story vehicle maintenance/locker room/office area (60'x191'+ 60'x148')
  - A perennial stream/channel is located against the building foundation along the south side
  - First floor is slab on grade
  - Masonry bearing walls supporting steel roof on vehicle storage bay. Two-storey portion is steel frame, with masonry infill walls
  - No seismic restraints in the structural system



## DPW at 470 DEDHAM: STRUCTURAL EXISTING CONDITIONS

- DPW Building: original structure circa 1960, 2nd floor addition circa 1965
  - High watertable
  - Covered shed structure is located to the west. It has a CMU bearing wall + concrete foundation along its rear + steel framing along front



## **DPW at 470 DEDHAM: STRUCTURAL**

- Renovation or Rebuilding Issues:
  - Existing CMU bearing walls within the vehicle storage area appear unreinforced based upon a review of existing plans
  - If the building is renovated it will require that masonry walls be analyzed for code-prescribed seismic loads. It is unlikely these walls will be able to resist these loads without some level of retrofit
  - To meet code, it would likely be more cost-effective to remove and replace these walls with a reinforced CMU wall system or steel framing
    - This will modify more than 30% of the total building structure thus creating a “substantial structural alteration” triggering the entire building to be reviewed for wind and seismic loads
    - This will likely require replacement/strengthening of CMU walls, installation of new steel bracing and foundations, and strengthening of existing floor and roof decks

## **DPW at 470 DEDHAM: STRUCTURAL**

- Renovation or Rebuilding Issues:
  - Raising the roof of the existing maintenance bay is impractical and would trigger other expensive retrofits
  - Due to high groundwater, the Town should raise the vehicle storage slab elevation
  - Foundation walls are not suitable for bearing plates that would be required from a new structure
  - Foundation would not support the thrust of a pre-engineered building
  - New foundations could be built, but the south wall next to the stream channel must stay in place. A new wall could be poured next to the existing; it must go to the bottom of existing footings (8' or 9')
  - If a new building is built next to the existing, it must be physically separated and if it is higher than the existing, the existing must be reinforced for snow drifts

## DEPARTMENT OF PUBLIC WORKS: DRAFT Results of Programming Sessions

- Consolidated Program assumes complete relocation from Dedham Avenue

DIVISION	GSF	TOTAL GSF
Administration - Shared	4,668	
Administration	2,398	
Administration - Operations	2,099	
Administration - Engineering	4,629	
Operations – Employee Support	3,812	
Operations – Garage/Maintenance	16,767	
Operations - Shops	6,778	
Operations – Wash Bay/ Vehicle Storage + Prep	36,426	
Building Support	2,291	
SUBTOTAL		<b>79,867</b>
Other Departments in PSAB		8,905
TOTAL		<b>88,772</b>

## DEPARTMENT OF PUBLIC WORKS: DRAFT Results of Programming Sessions

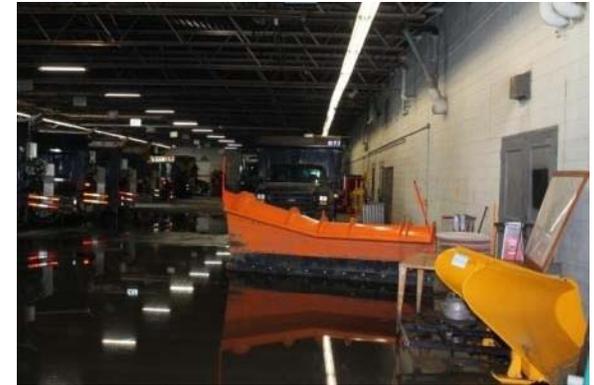
- Non-Consolidated Program assumes remaining at Dedham Avenue

DIVISION	GSF	TOTAL GSF
Administration - Shared	359	
Administration	0	
Administration - Operations	1,647	
Administration - Engineering	0	
Operations – Employee Support	4,028	
Operations – Garage/Maintenance	16,767	
Operations - Shops	6,778	
Operations – Wash Bay/ Vehicle Storage + Prep	36,426	
Building Support	1,758	
SUBTOTAL		<b>67,764</b>
Other Departments in PSAB		0
TOTAL		<b>67,764</b>

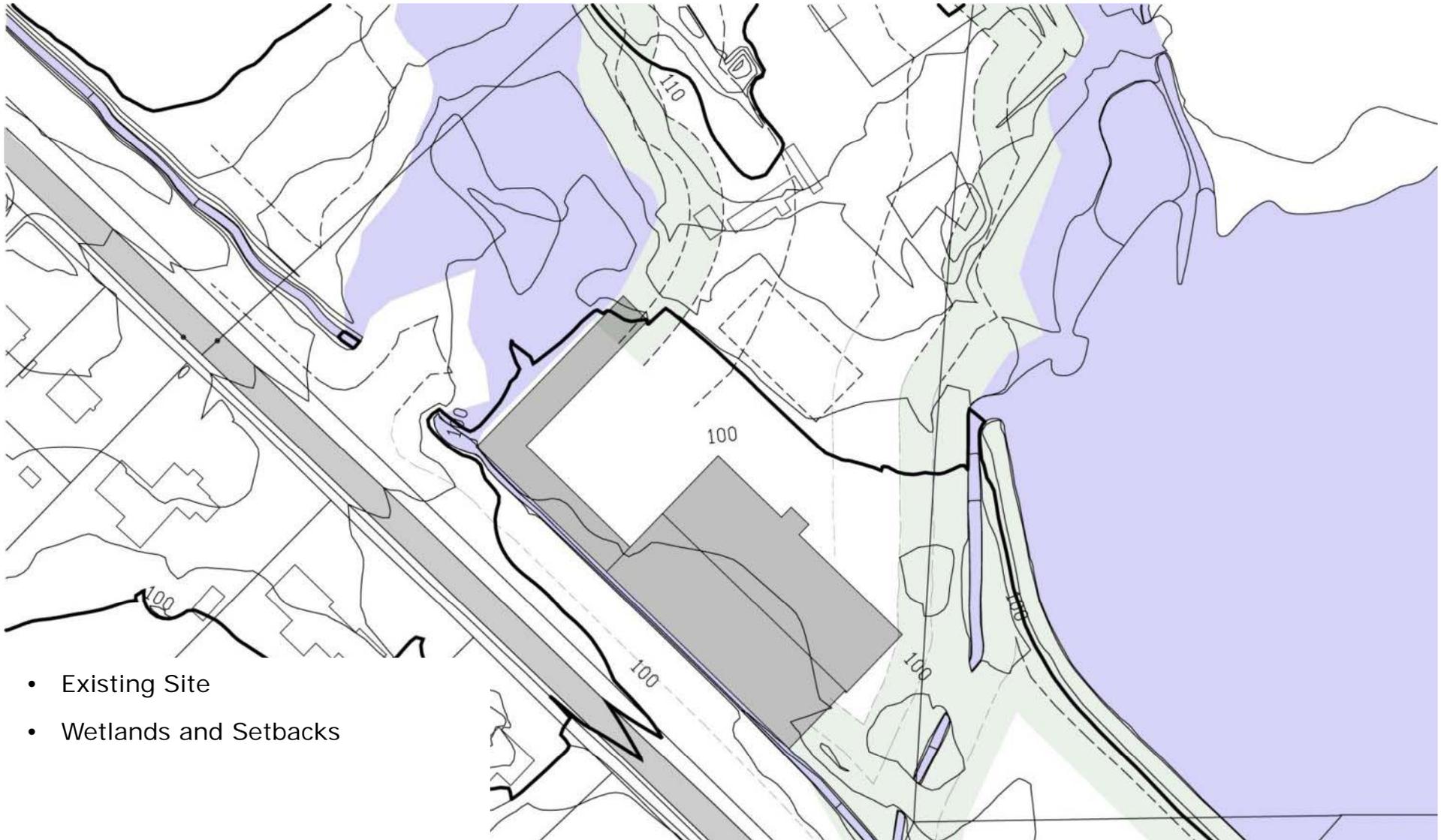
**DEPARTMENT OF PUBLIC WORKS**



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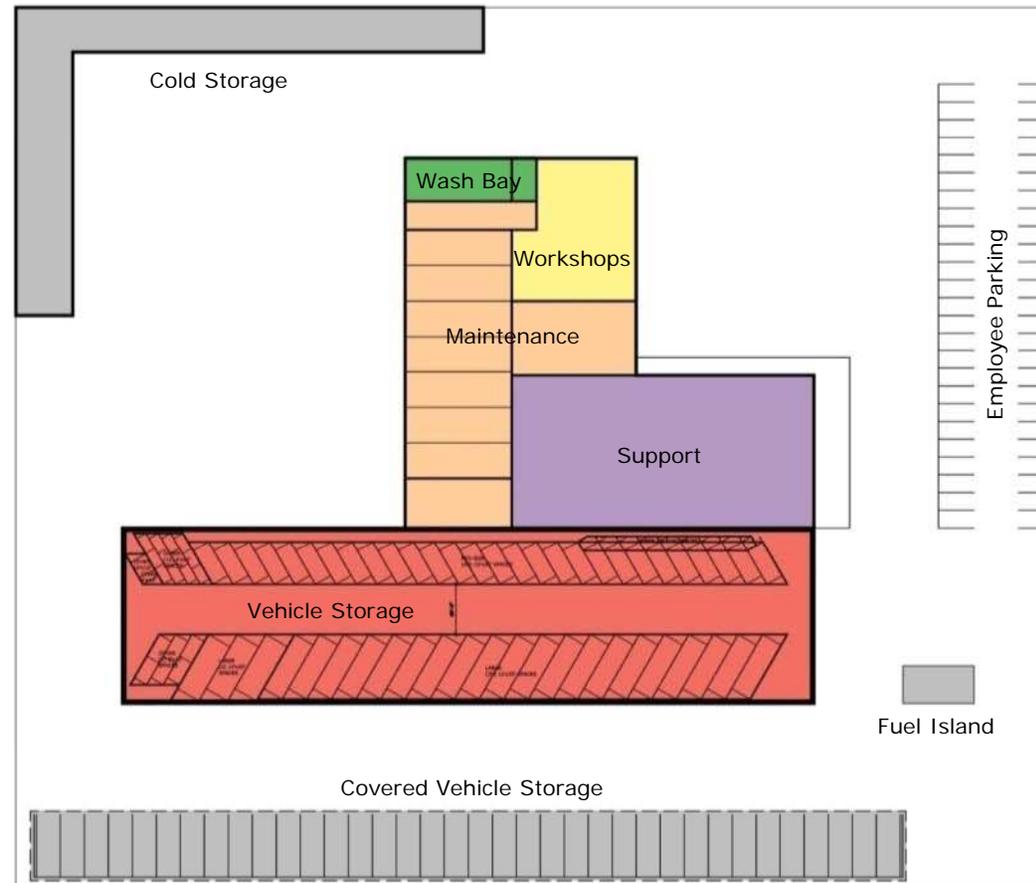
## DEPARTMENT OF PUBLIC WORKS: PRELIMINARY OPTIONS



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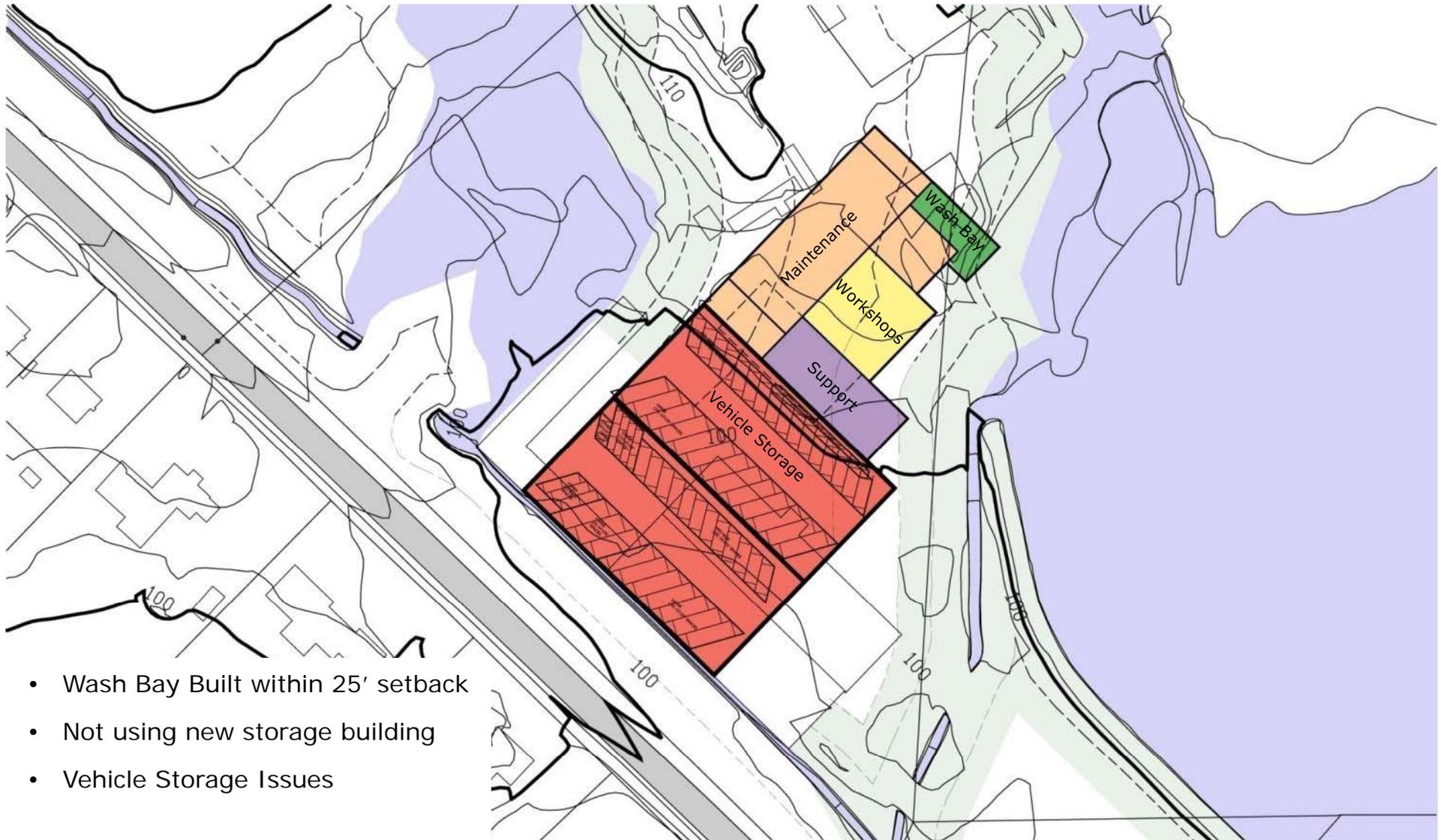


## DEPARTMENT OF PUBLIC WORKS: PRELIMINARY – OPTION ‘NEW’



- 'New' Site +/- 6.6 acres
- Includes: Cold Storage, (36) Covered Vehicle Parking, Fuel Island, (50) Employee Parking spots

## DEPARTMENT OF PUBLIC WORKS: PRELIMINARY – OPTION 1



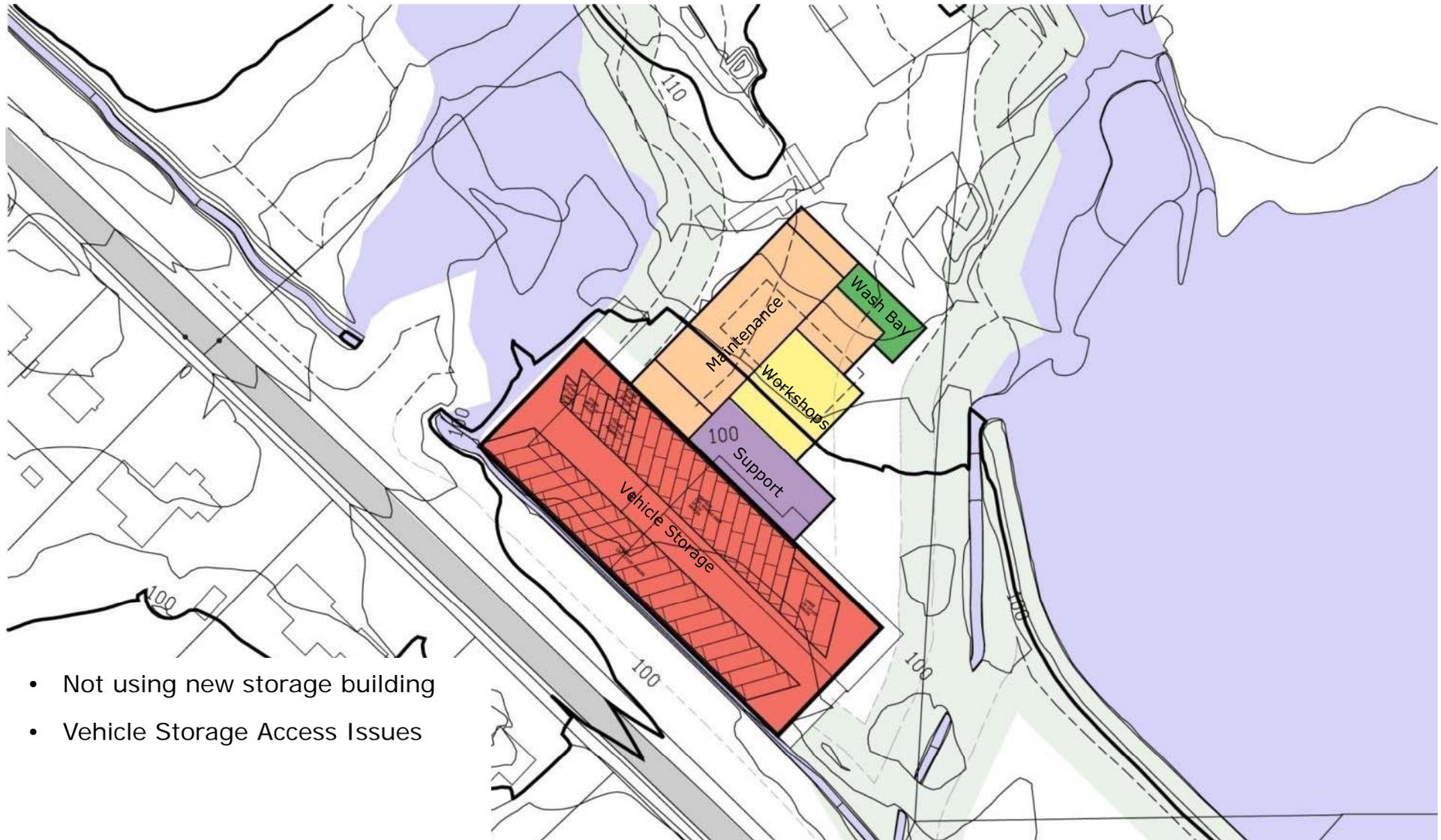
- Wash Bay Built within 25' setback
- Not using new storage building
- Vehicle Storage Issues

## DEPARTMENT OF PUBLIC WORKS: PRELIMINARY – OPTION 2



- Vehicle Storage over setback
- Not using new storage building
- Vehicle Storage Access Issues

## DEPARTMENT OF PUBLIC WORKS: PRELIMINARY – OPTION 3



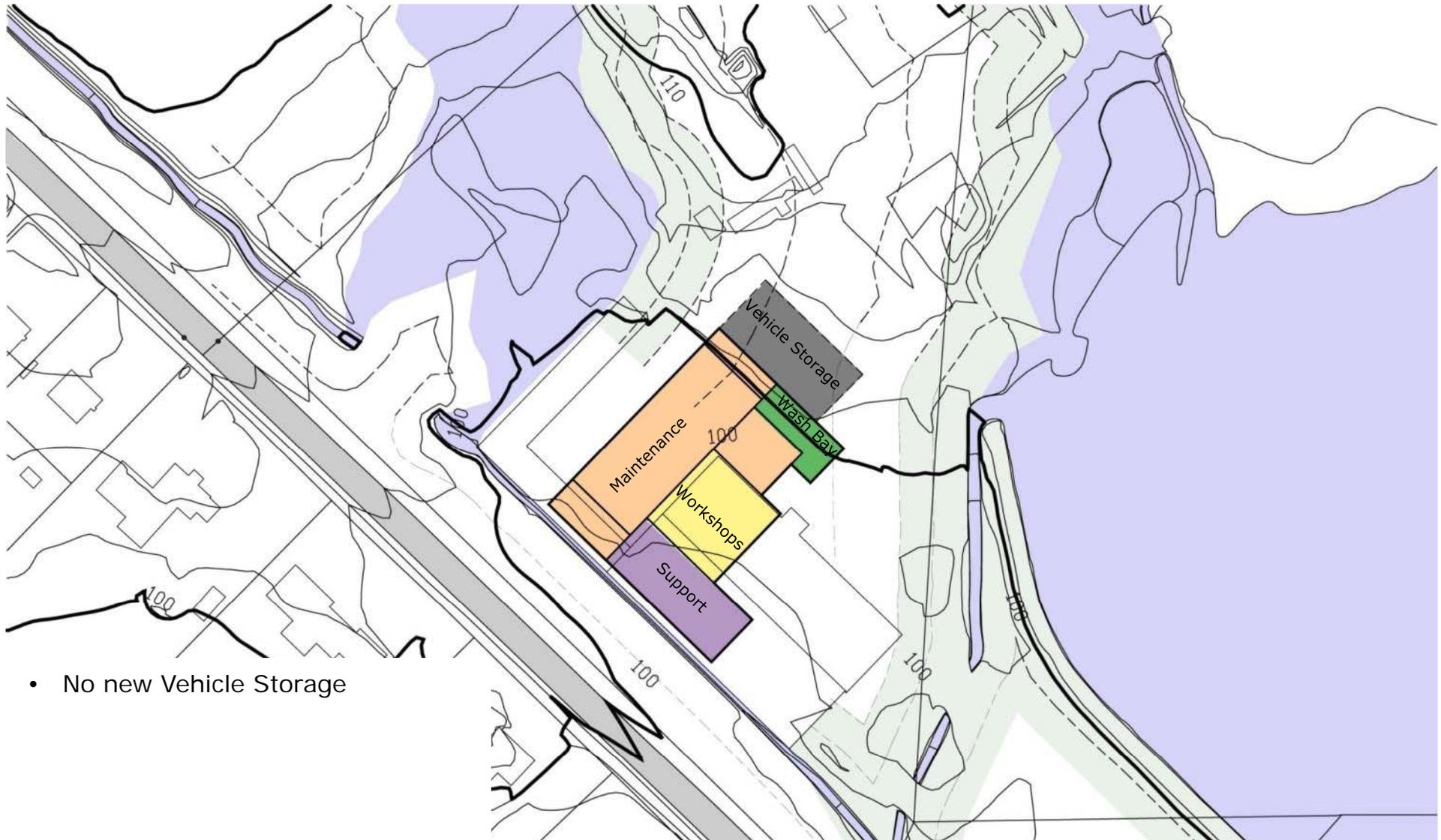
- Not using new storage building
- Vehicle Storage Access Issues

## DEPARTMENT OF PUBLIC WORKS: PRELIMINARY – OPTION 4



- Vehicle Storage over setback
- Less than 40' from new storage building. 4' Grade change.
- Vehicle Storage Access Issues

## DEPARTMENT OF PUBLIC WORKS: PRELIMINARY – OPTION 5



- No new Vehicle Storage

## POLICE AND FIRE DEPARTMENTS

- Current Station #1: +/- 31,145 SF
  - Police: +/- 13,095 SF
  - Fire: +/- 11,634 SF
  - Shared: +/- 6,416 SF
- Station #2: +/- 9,630 SF
- Programming Needs: Dependent on storage of vehicles + equipment
- Changes may trigger full upgrade



## POLICE AND FIRE DEPARTMENTS: ARCHITECTURAL EXISTING CONDITIONS

- Current building is undersized for current vehicles and equipment
  - Organization of spaces does not reflect current police and fire operational needs
  - Shared resources: Departments prefer a joint FD + PD dispatch, waiting area and EOC
  - No sallyport - persons under arrest must be brought across open parking area; no holding area; booking area too small and too much prisoner access to personnel and equipment



## POLICE AND FIRE DEPARTMENTS: ARCHITECTURAL EXISTING CONDITIONS

- Apparatus bay is too low, Openings are too low
- Accessible entry does not meet current AAB regulations
- Spaces are generally too small to fit current programmatic needs



## POLICE AND FIRE DEPARTMENTS: ARCHITECTURAL EXISTING CONDITIONS

- Inadequate Storage
- Inadequate parking
- Building is inaccessible to second floor (no elevator)



## POLICE AND FIRE DEPARTMENTS: ARCHITECTURAL EXISTING CONDITIONS

- Inadequate booking area
- Inadequate evidence area
- Potential sally port but steps to access to booking
- Suspect entry is very public



## POLICE AND FIRE DEPARTMENTS: SITE

- Site requirements
  - Visitor Parking: 24 hrs; prime 7am to 10pm
  - Personnel Parking: overlapping shifts for both departments
  - Dumpster
  - Impound area (currently in wash bay)
  - Emergency generator
- Movement of emergency vehicles: Fire and Police Vehicles must be able to move quickly and effortlessly from site
- Overall site circulation is poor



## POLICE AND FIRE DEPARTMENTS: STRUCTURAL EXISTING CONDITIONS

- Police/Fire Building: original structure circa 1930, additions circa 1989
  - The majority of structural systems were covered by finishes
  - Based upon a review of existing plans:
    - 1930 structures: The original structures are 2-story with a mixture of load-bearing brick masonry and steel columns. The 2nd floor structure within the fire station is concrete waffle-slab. The roofs are framed with a mixture of steel and wood. The structures have at least partial basements with concrete foundation walls



## **POLICE AND FIRE DEPARTMENTS: STRUCTURAL EXISTING CONDITIONS**

- Police/Fire Building: original structure circa 1930, additions circa 1989
  - Based upon a review of existing plans:
    - Additions: generally 2-stories with loading-bearing reinforced CMU and brick veneer or steel columns; second floor structure is steel joist with concrete-on-metal deck; roofs are framed with steel joists supporting metal roof deck
    - The additions have at least partial basements with concrete foundation walls
  - The original building was designed prior to seismic code requirements. The additions were designed after seismic requirements were added to the code.
  - It is unknown if the original building was upgraded for lateral loading when the addition was done

## **POLICE AND FIRE DEPARTMENTS: STRUCTURAL**

- Renovation or Rebuilding Issues:
  - If a new building is built next to the existing, it must be physically separated and if it is higher than the existing, the existing must be reinforced for snow drifts
  - Confirm that upgrade for lateral loading was completed when the addition was done
  - Some review of existing conditions to confirm assumptions

## POLICE + FIRE DEPARTMENTS: Results of Programming Sessions

- Program assumes remaining on site

DIVISION	GSF	TOTAL GSF
Public Areas - Shared	658	
PD + FD Shared	3,069	
SUBTOTAL		<b>3,727</b>
PD: Operations + Support	13,478	
PD: Operations - Detention	2,217	
PD: Administration	5202	
SUBTOTAL		<b>20,897</b>
FD: Operations	10,723	
FD: Administration	3,201	
FD: Staff Support	2,911	
SUBTOTAL		<b>16,835</b>
Building Support		<b>2,614</b>
TOTAL		<b>44,073</b>

## POLICE AND FIRE DEPARTMENTS



**POLICE AND FIRE DEPARTMENTS**

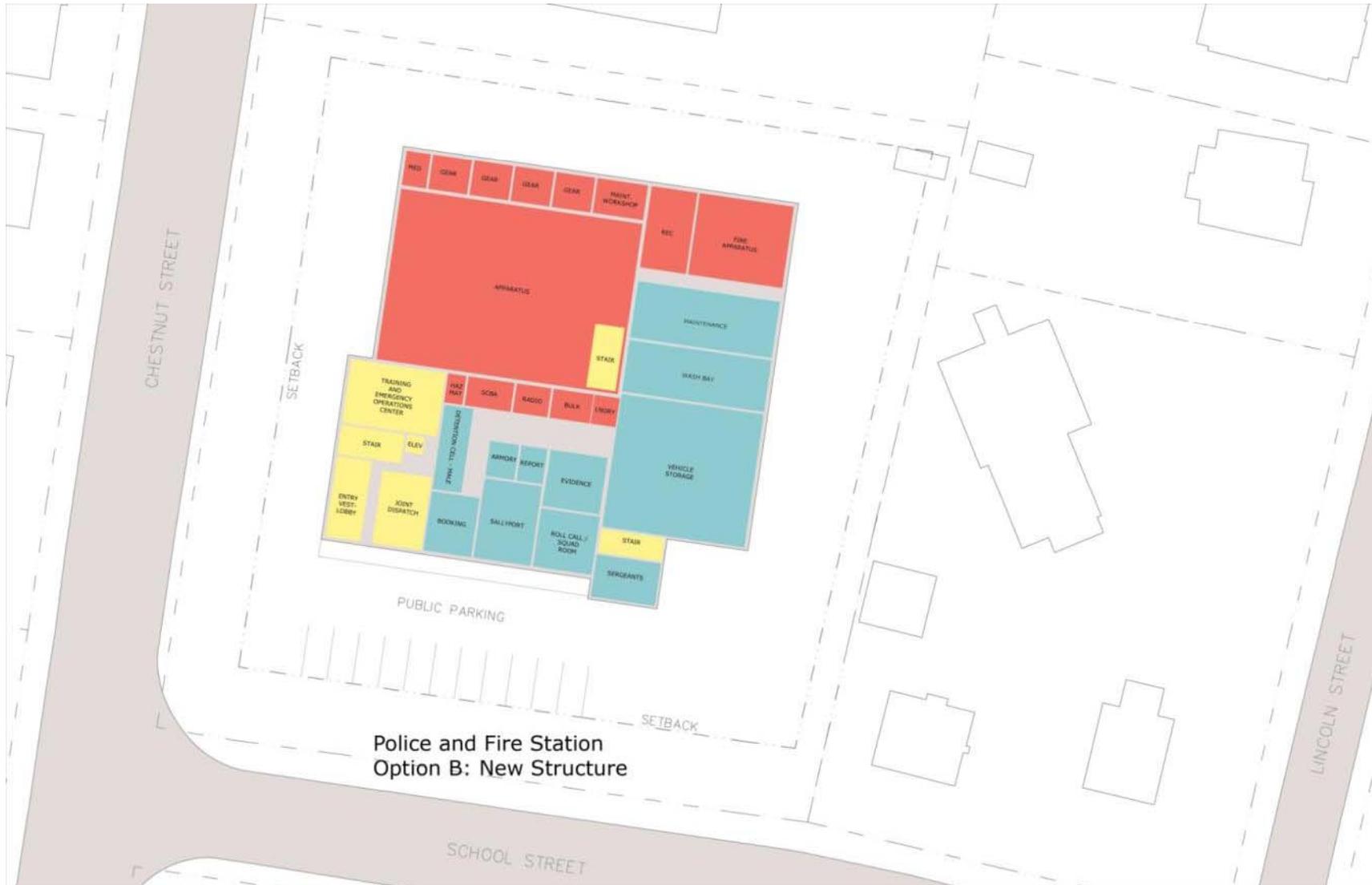


# POLICE AND FIRE DEPARTMENTS: PRELIMINARY OPTIONS



Police and Fire Station Site  
Option A: Re-use Existing Structure

## POLICE AND FIRE DEPARTMENTS: PRELIMINARY OPTIONS

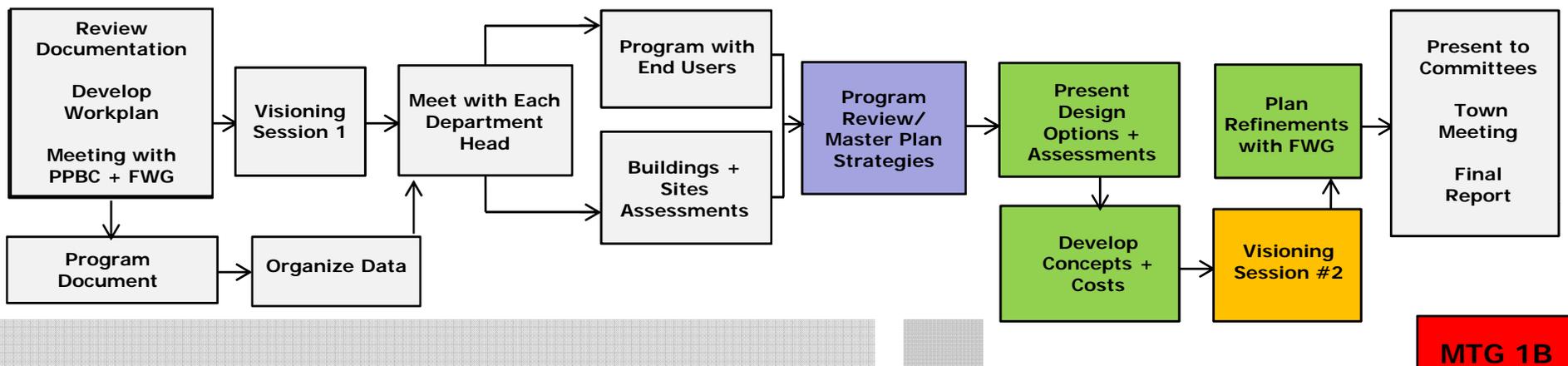


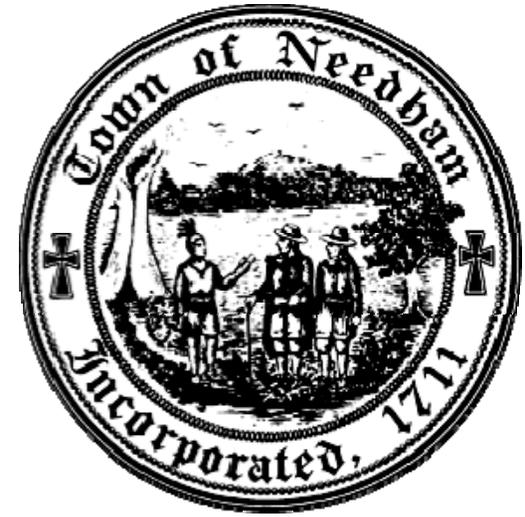
## **NEXT STEPS FOR OPTION DEVELOPMENT and REFINEMENT**

- Consider renovation versus new construction – define premium for both
- Fine tune programming documents for DPW
  - Vehicles, Maintenance, Materials Storage
- Fine tune programming documents for FD/PD
  - Vehicle Storage
- Options for DPW Site:
  - Smaller Program – where does remainder of program relocate to
  - New Site
- Options for FD/PD Site:
  - Reuse versus new construction
  - New construction with no phasing versus new construction with phasing
  - Other building options for use of site (plan for future)

## NEXT STEPS

- Development of concepts for review with end users and Town personnel
- Present concept design options to FWG for further review and discussion
  - Strategize on options and other possible concepts
- Finalized concepts and develop associated costs
- Visioning Session #2: Town to determine focus of this meeting
- Revise accordingly with Facility Working Group





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**THANK YOU**