



Town of Truro New Public Works Facility



Feasibility Study - Update Presentation

February 08, 2022

Town of Truro
New Public Works Facility

High-Level Recap of the Feasibility Study

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Public Works Responsibilities

Town of Truro New Public Works Facility

The DPW touches the lives of the residents everyday by maintaining the infrastructure that the community relies on including...

- Town roads ←
- Storm drainage system ←
- Street sweeping
- Sidewalks
- Roadside brush cutting
- Public buildings ←
- Vehicle Maintenance
- Beaches ←
- Transfer Station operations
- Management of capital improvement projects ←



Town of Truro

New Public Works Facility

The DPW touches the lives of the residents everyday by maintaining the infrastructure that the community relies on including...

On call 24 hours a day to handle incidents & emergencies including:

- Snow and ice removal operations
- Hurricane / windstorm cleanup
- Flooding
- Removal of road hazards
- Oil spills / accidents
- Emergency road repairs
- Emergency response / consequence management
- The support of other emergency departments



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Why Does the Town Need a New Facility?

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Why does the Town need a new Public Works facility?

- Operating out of multiple buildings ranging from 40 - 70 years old
- Responsibilities have increased significantly but facility has not
- The facilities no longer serve the needs of the Town
- Facility does not meet current codes
- Large portion of multi-million dollar fleet is stored outdoors impacting vehicle life expectancy, maintenance costs, and operations
- Efficiency of operations and employee safety are negatively impacted



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Facility Programming

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Proposed Program

<u>Space Needs Assessment</u>	<u>Initial Needs</u>	<u>Rev 1</u>	<u>Rev 2</u>
• Office / Office Support	2,035 SF	1,525 SF	1,300 SF
• Employee Facilities	2,144 SF	1,936 SF	1,700 SF
• Workshops	3,929 SF	3,192 SF	2,900 SF
• Vehicle Maintenance	7,279 SF	5,532 SF	5,400 SF
• Wash Bay	1,750 SF	1,350 SF	1,350 SF
• Vehicle & Equipment Storage	19,551 SF	18,953 SF	16,958 SF
Subtotal:	36,689 SF	32,487 SF	29,608 SF
		11.5% Reduction	19.3% Reduction

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Site Selection Process

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Site Selection Process

- Worked with the Town to identify potential sites

- Site 1** – 340/344 Route 6 (Town owned)
- Site 2** – 5 Town Dump Road Transfer Station (Town owned)
- Site 3** – Lot 104 Route 6 Adjacent State Parcel (State owned)
- Site 4** – 24 Town Hall Road Existing DPW Site (Town owned)



- Conducted a screening analysis of the parcels

- Size** – Prepared conceptual generic “test-fit” site plans to determine if site can meet DPW operational requirements.
- Environmental Receptor Maps** – Prepared receptor maps to identify potential permitting restrictions which could hinder development.

- Site 1 – 340/344 Route 6 passed the size and environmental receptor map screening



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Site Selection Process

- Site 1 – 340/344 Route 6
 - Size: **Passed**
 - Environmental Receptors: **Passed**



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Project Inquiries & Responses

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Summary of Project Inquiries & Responses

- Look at rotation or reconfiguration of the propose DPW facility on the current DPW/Town Hall parcel to avoid the existing well.
- Explore well relocation from the DPW to Snow's Field or to abutting parcels.
- Explore possible relocation of the salt storage structure to alternate locations.
- Complete a cost-benefit analysis on indoor vs. outdoor vehicle storage
- Report back on the evaluation criteria used to assess the sites.
- Explore variance and regulatory options that might open up other sites.
- Review cell tower fall zone and potential impact to the proposed concept.

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Summary of Project Inquiries & Responses

- Review if Zone II restrictions would impact siting at the Safety Facility.
- Discussion related to next steps including traffic and other studies at proposed Rt 6 site.
- Discussion of costs and operational impacts associated with moving 8,000 – 9,000 SF of storage to another location.
- Discussion related to actual functional requirements of the DPW.
- Site prep costs for each of the proposed sites.
- Public discussion related to long-term regionalization plans for the DPW.
- Endangered species / priority habitat status for all proposed sites and how this would inform storage, chemicals, and site options.

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Summary of Project Inquiries & Responses

- Environmental reports on current site, Snow's Field, Former Jack's Gas, and MassHighway site on Route 6.
- Updated Cost Estimate.

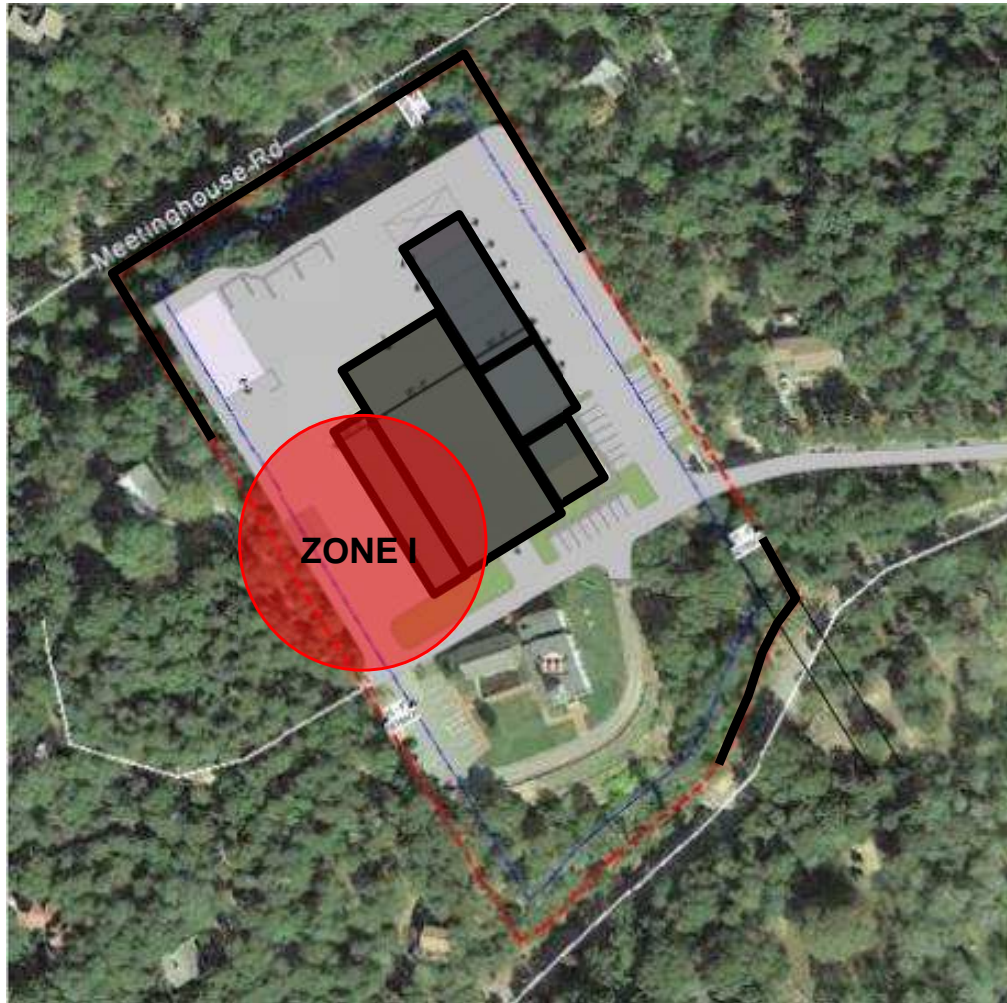
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**Look at rotation or reconfiguration of
the propose DPW facility on the current
DPW/Town Hall parcel to avoid the
existing well**

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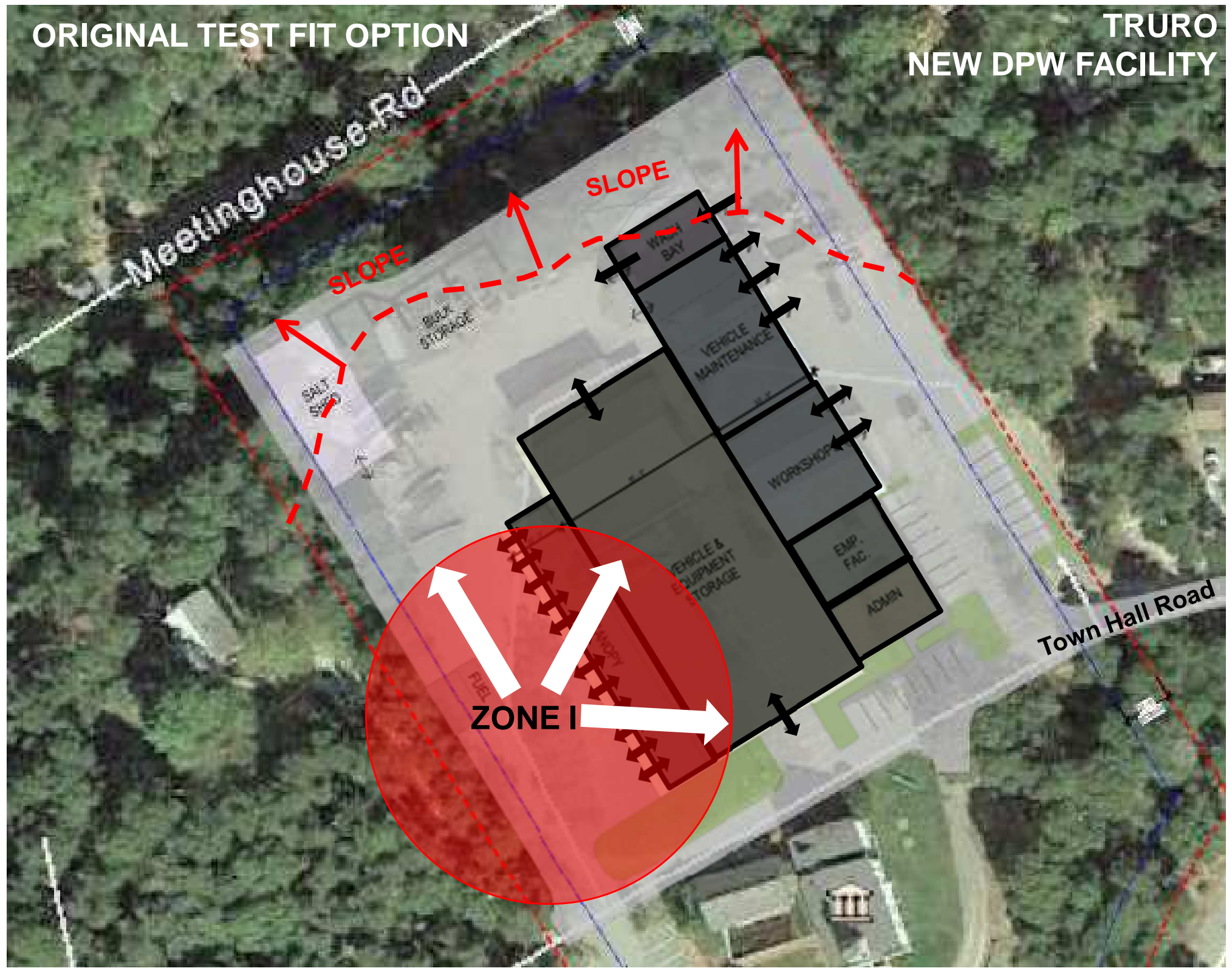
Site Selection Process

- Site 4 – 24 Town Hall Road
 - Size: **Passed**
 - Environmental Receptors: **Failed**



ORIGINAL TEST FIT OPTION

TRURO
NEW DPW FACILITY



Meetinghouse Rd

SLOPE

SLOPE

ZONE I

Town Hall Road

West Bay

VEHICLE MAINTENANCE

WORKSHOP

VEHICLE & EQUIPMENT STORAGE

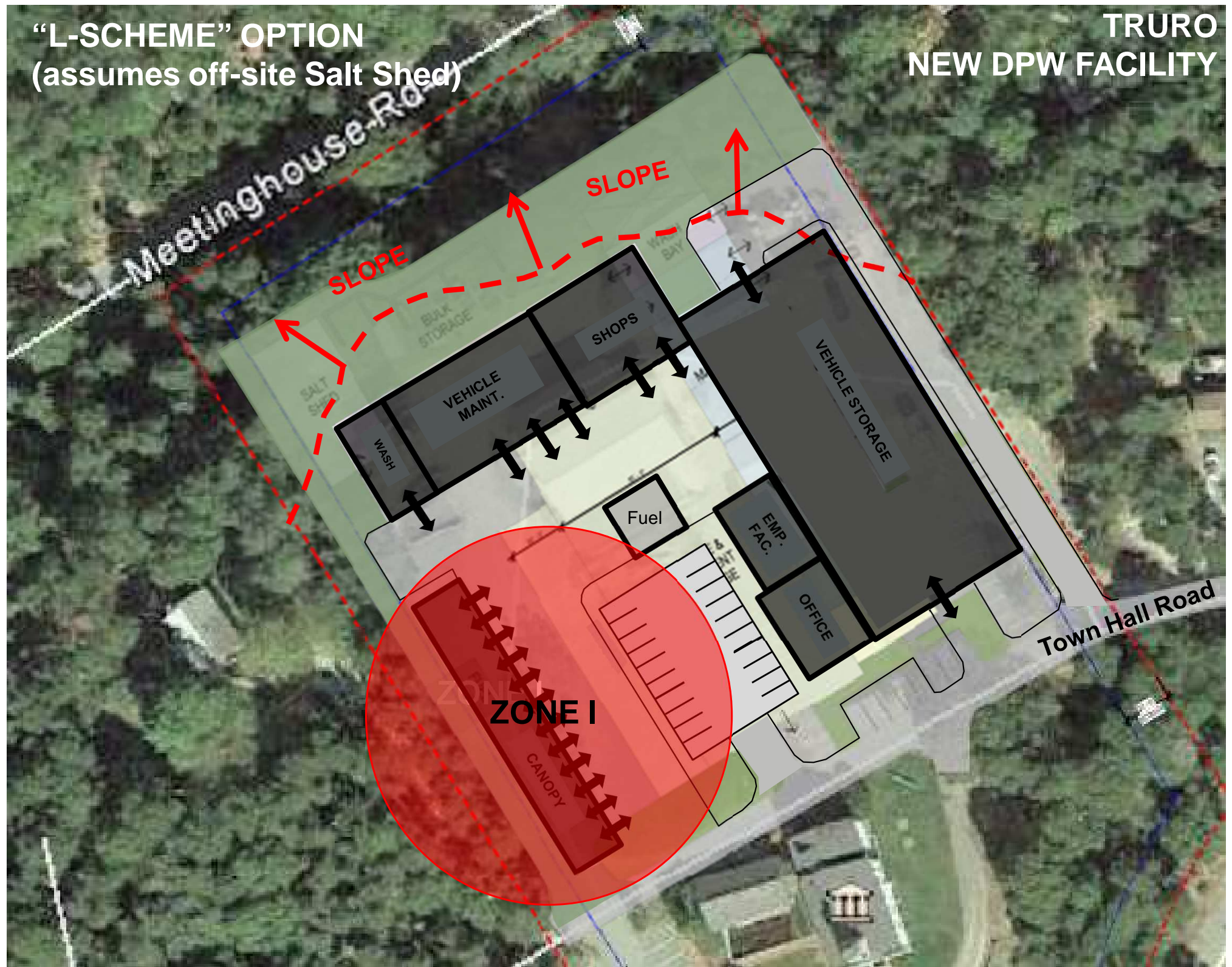
EMP. FAC.

ADMIN

FUEL

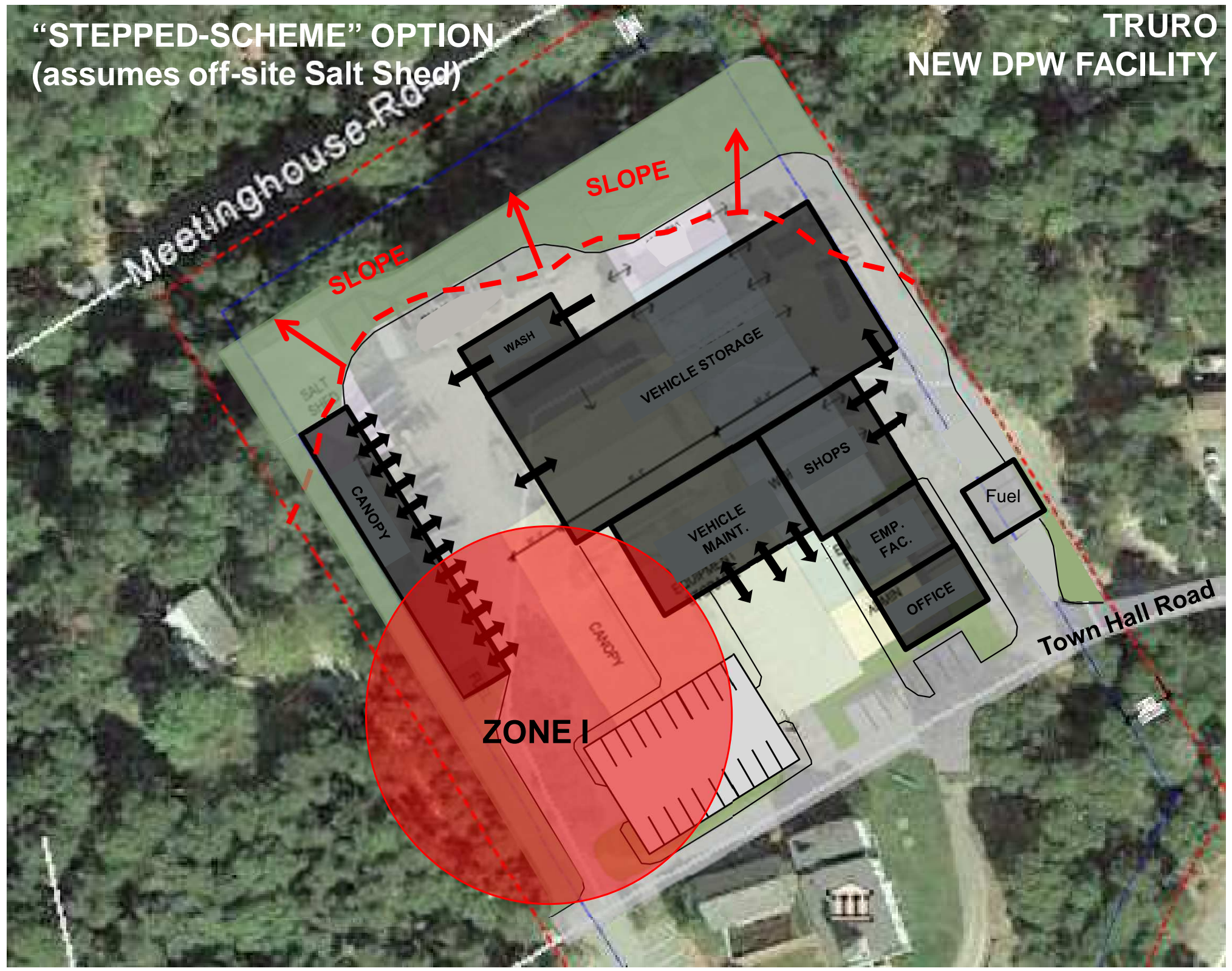
“L-SCHEME” OPTION
(assumes off-site Salt Shed)

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“STEPPED-SCHEME” OPTION
(assumes off-site Salt Shed)

**TRURO
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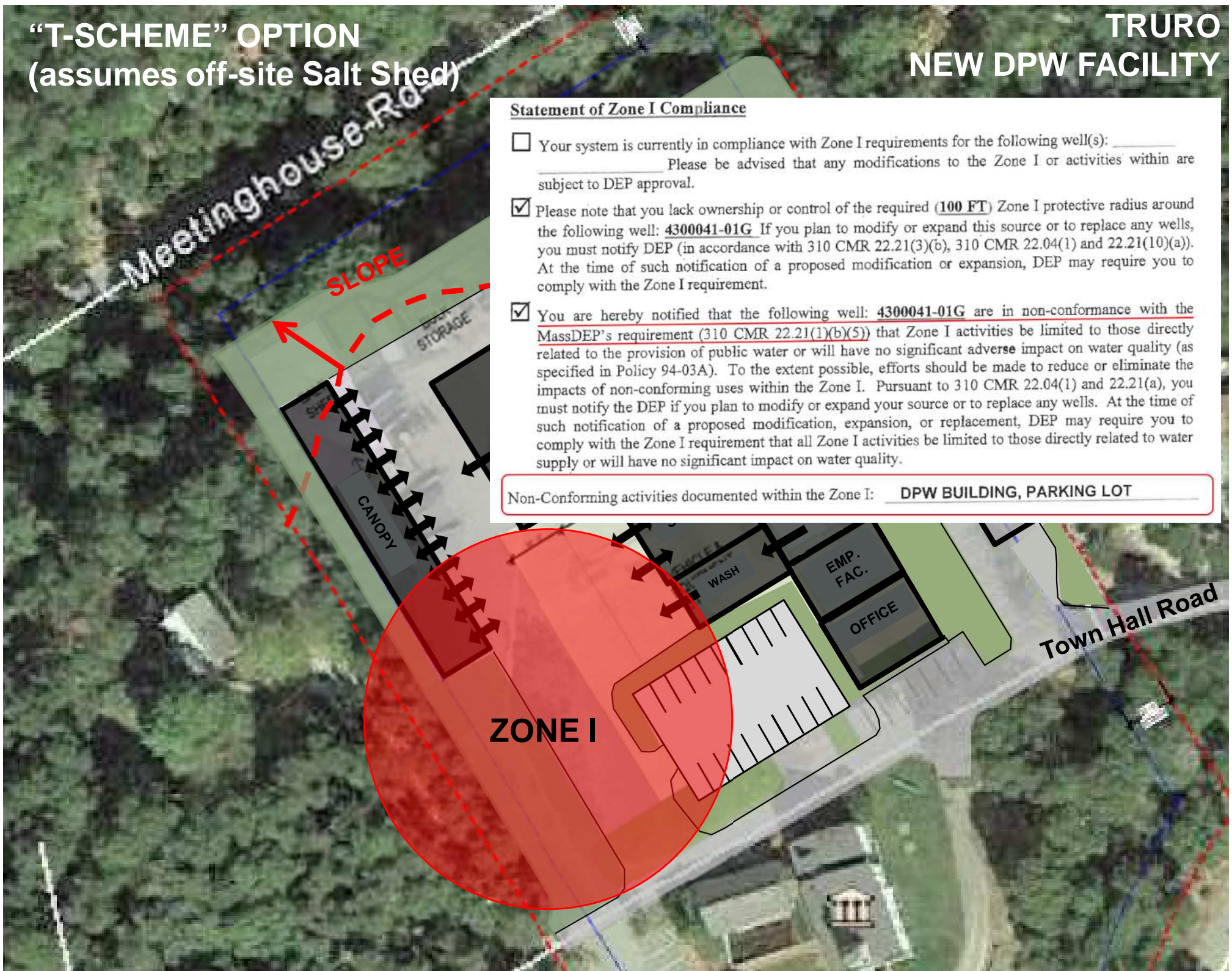
"T-SCHEME" OPTION (assumes off-site Salt Shed)

TRURO NEW DPW FACILITY

Statement of Zone I Compliance

- Your system is currently in compliance with Zone I requirements for the following well(s): _____ Please be advised that any modifications to the Zone I or activities within are subject to DEP approval.
- Please note that you lack ownership or control of the required (**100 FT**) Zone I protective radius around the following well: **4300041-01G** If you plan to modify or expand this source or to replace any wells, you must notify DEP (in accordance with 310 CMR 22.21(3)(b), 310 CMR 22.04(1) and 22.21(10)(a)). At the time of such notification of a proposed modification or expansion, DEP may require you to comply with the Zone I requirement.
- You are hereby notified that the following well: **4300041-01G** are in non-conformance with the MassDEP's requirement (310 CMR 22.21(1)(b)(5)) that Zone I activities be limited to those directly related to the provision of public water or will have no significant adverse impact on water quality (as specified in Policy 94-03A). To the extent possible, efforts should be made to reduce or eliminate the impacts of non-conforming uses within the Zone I. Pursuant to 310 CMR 22.04(1) and 22.21(a), you must notify the DEP if you plan to modify or expand your source or to replace any wells. At the time of such notification of a proposed modification, expansion, or replacement, DEP may require you to comply with the Zone I requirement that all Zone I activities be limited to those directly related to water supply or will have no significant impact on water quality.

Non-Conforming activities documented within the Zone I: **DPW BUILDING, PARKING LOT**



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Project Inquiries & Responses

- *Explore well relocation from the DPW to Snow's Field or to abutting parcels*
 - A formal well relocation analysis was not completed and was not part of the initial scope of work
 - Historic documentation for Snow's Field was reviewed
 - Snow's Field had been showing a gradual increase in levels of 1,1,1-trichloroethane which was a concern to MADEP at the time
 - The Town would need to secure separate funding to support further investigation of this or any other potential site for a new well
 - Any evaluation of alternate locations should also take into consideration impacts and costs associated with a new pumping system, pipe conveyance system (including easements), potential treatment system, and water storage (if necessary)



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Project Inquiries & Responses

- *Explore possible relocation of the salt storage structure & fuel island to alternate locations*
 - A remotely located salt and/or fuel operation is not a preferred option for Public Works. Remote facilities create operational inefficiencies.
 - Increase in response times during storm events
 - Segregated operations creating staff inefficiencies
 - Increase travel times to access remote locations
 - Additional costs for duplicate support facilities (code required employee spaces)



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Project Inquiries & Responses

Complete a cost-benefit analysis on indoor vs. outdoor vehicle storage

- Question – can the town save money and reduce the site size needed for a new facility by reducing the size of the storage garage?
- Response - The analysis determined that the cost to store vehicles outdoors over the life of a building is approximately double the cost to construct, operate, and maintain a new vehicle/equipment storage

Cost to Construct Storage Garage

- Construction
- Maintenance
- Operation

VERSUS

Cost Associated with Exterior Storage

- Increased Vehicle Maintenance
- Decrease in Vehicle Life Expectancy
- Non-Productive Labor
- Operational impacts
- Employee Safety & Environmental

Analyses has shown that it will cost 2 times more to store equipment outdoors over the life of a building

Item	Description	Cost Over the Life of the Building (50 Years)
1	Construction Cost of a New 16,958 SF Storage Garage + 5,100 SF Canopy	\$ 6,377,748
2	Building Maintenance Costs	\$ 1,150,487
3	Heating, Ventilation, and Electrical Costs	\$ 2,211,304
Total Costs Associated with Building and Maintaining a Storage Garage:		\$ 9,739,539
4	Additional Vehicle Maintenance Costs Associated with Exterior Storage	\$ 4,882,219
5	Additional Costs Associated with Vehicle Life Expectancy Reduction	\$ 6,060,113
6	Site Development Costs for Exterior Storage	\$ 702,181
7	Exterior Storage Area Maintenance Costs	\$ 1,352,147
8	Cold Weather Costs for Vehicles Stored Outdoors (non-productive labor)	\$ 2,376,297
9	Storm Event Costs for Vehicles Stored Outdoors (non-productive labor)	\$ 335,477
10	Engine Block Heater Usage Costs	\$ 578,792
11	Security Loading & Unloading of Vehicles (non-productive labor)	\$ 1,098,580
12	Vehicle Staging Non-Productive Labor Costs	\$ 77,324
13	Reduced Employee Safety Costs	\$ 198,266
14	Environmental Impacts	\$ 716,879
15	Increase in Vehicle Maintenance Costs Due to Delays in Preventative Maint.	\$ 744,139
Costs Associated with Storing Vehicles Outdoors:		\$ 19,122,415
Additional Costs Incurred By the Town if Vehicles and Equipment are Stored Outdoors:		\$ 9,382,876

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Project Inquiries & Responses

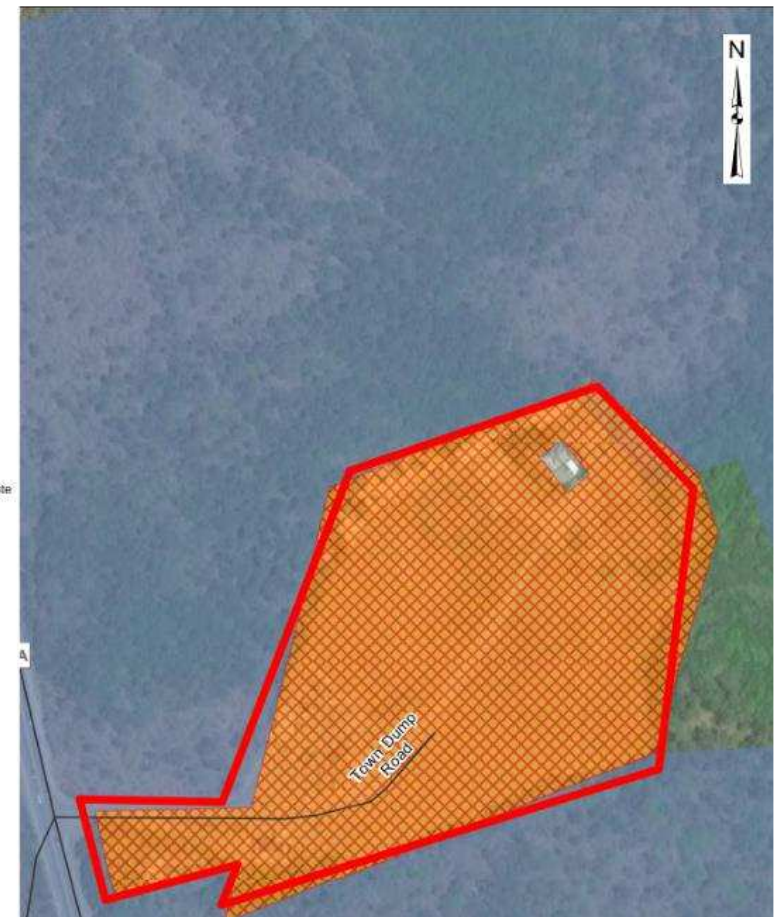
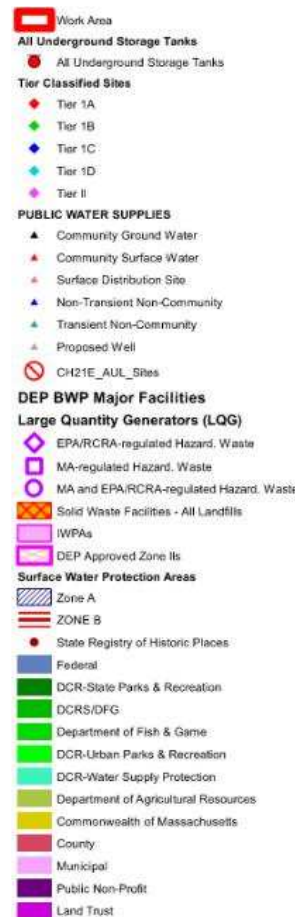
- *Impacts associated with outdoor/cold storage:*
 - Cold storage results in diesel fuel becoming more viscous. This contributes to no-start conditions as well as generates an excessive amount of exhaust due to incomplete combustion of the fuel source.
 - Vehicle warm-up times will be increased dramatically resulting in an increase in non-productive labor. It is estimated that the warm-up time will be increased by 15 to 20 minutes per vehicle each day based on actual field tests.
 - Any vehicle with a water source will need to be drained and filled each day resulting in an increase in non-productive labor.
 - Condensate in the air tanks for the vehicle compressed air braking systems can potentially freeze requiring the tanks to be defrosted prior to operating.
 - Specialty equipment requiring heated storage will not function properly (e.g. emulsion pothole repair equipment, etc.).
 - Excess wash water will freeze which can potentially damage vehicle parts such as salt/sand conveyor belts.
 - Cold storage results in the hydraulic oil becoming more viscous. This overstresses hydraulic pumps which in turn damages or reduces the life expectancy of the pumps.
 - Cold storage reduces the flexibility of the hydraulic hoses. Rigid hoses coupled with viscous hydraulic oil increases the potential for damaged or broken hydraulic hoses.
 - Increase in response times due to no start conditions and increased warm-up periods.
 - Snowpack on vehicles will not melt. This requires vehicles to be “defrosted” before vehicles are placed back into service or before maintenance activities can be performed.
 - Salt/Sand product in spreader bodies will freeze which can damage the spreader system. This will require all salt/sand product to be loaded or unloaded each day.

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Project Inquiries & Responses

- *Report back on the evaluation criteria used to assess the sites*
 - As reported at the February 2022 Select Board meeting, the process consisted of a “Screening” process, not a Comprehensive Environmental Evaluation
 - Screening process considered impacts associated with:
 - Vernal pools
 - Streams
 - FEMA flood zones
 - ACEC areas
 - NHESP habitats
 - Water supply areas
 - Landfills
 - MCP and RCRA restricted areas

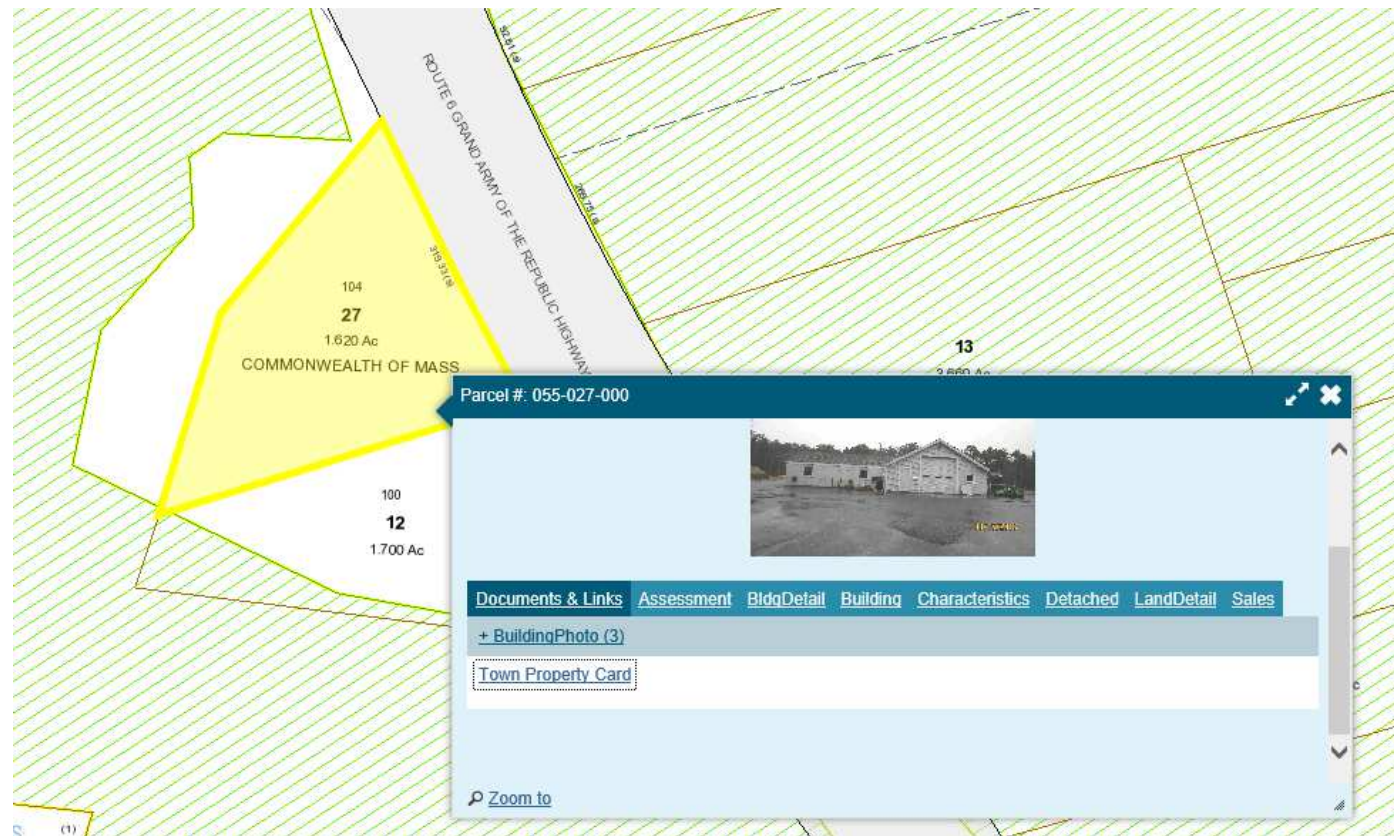


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Project Inquiries & Responses

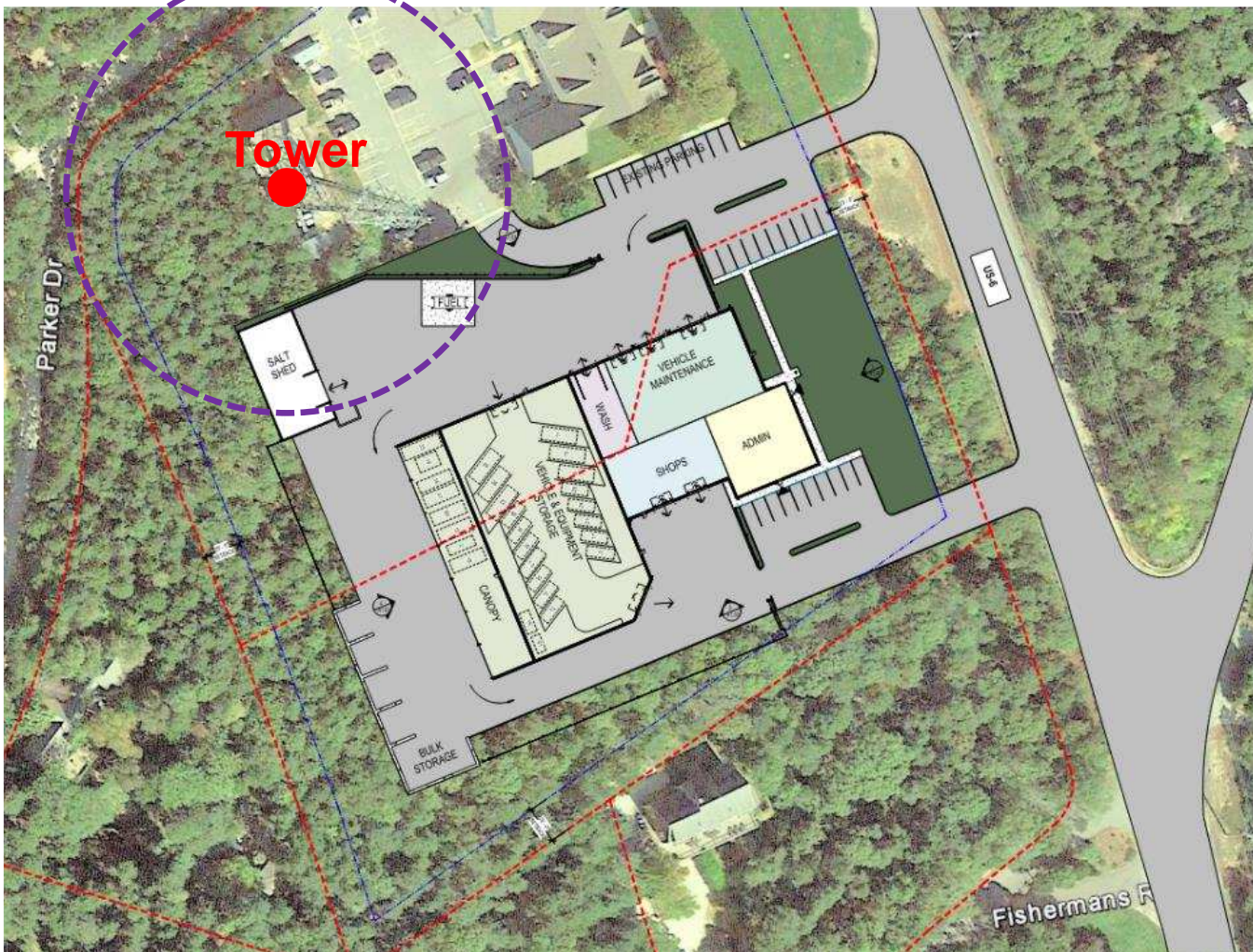
- *Explore variance and regulatory options that might open up other sites*
 - This question appeared to be geared towards the Mass Highway site – specifically siting the salt and fuel operations at this site
 - As stated in the February 2020 meeting, the Town had previously approached the State and was told that they were not interested in sharing the site



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Project Inquiries & Responses

- Review cell tower fall zone and potential impact to the proposed concept
 - The initial concept was developed for testing of overall site size
 - Once a final site is selected, concepts will undergo further design to maximize efficiencies, maximize cost effectiveness, and address all permitting requirements

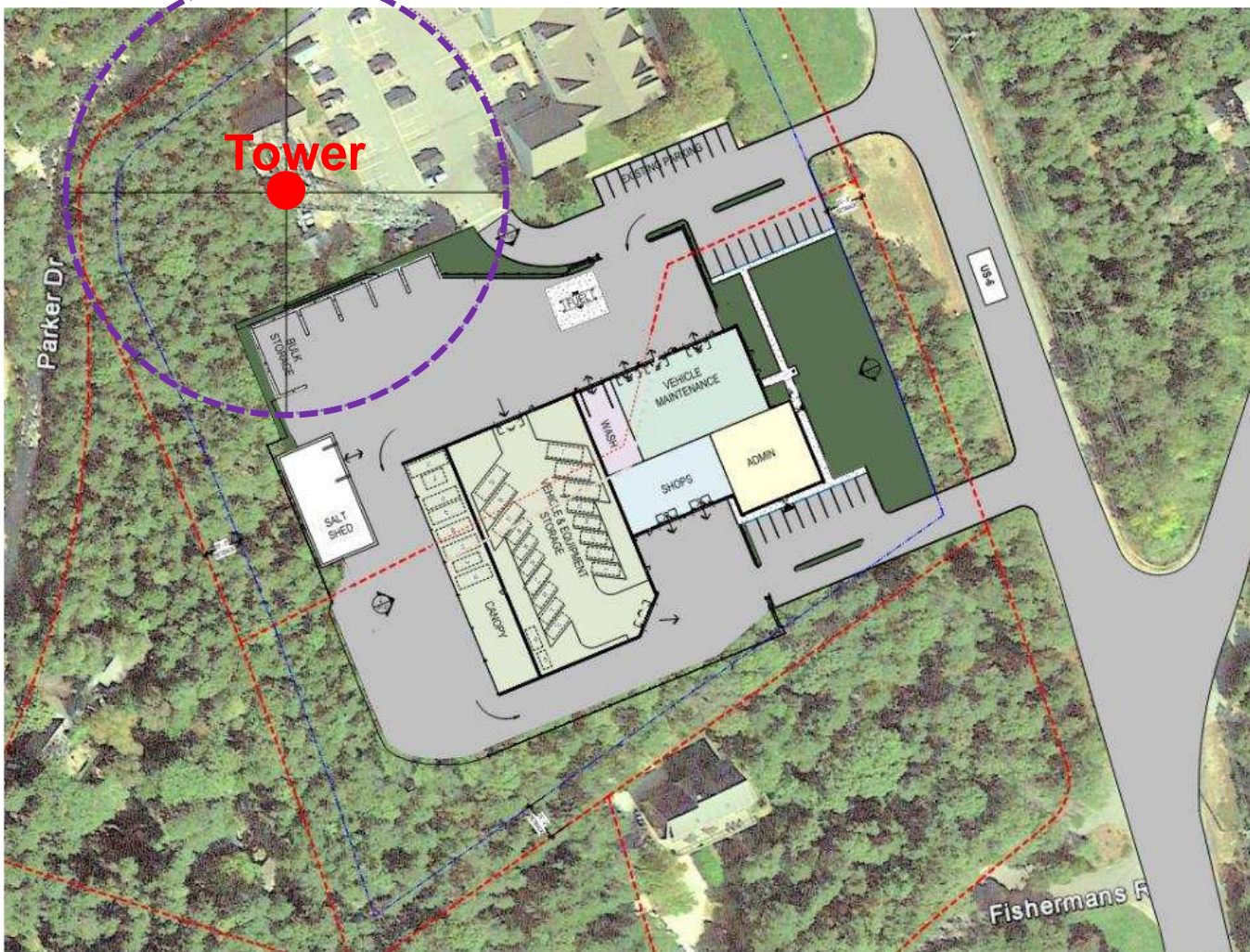


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Project Inquiries & Responses

- Review if Zone II restrictions would impact siting at the Safety Facility
 - The following uses are restricted within a Zone II:
 - Storage of sludge
 - Storage of septage
 - Storage of sodium chloride/chemicals for ice & snow removal (unless within structure to prevent contaminated runoff)
 - Storage of fertilizers (unless in proper storage containers)
 - Storage of animal manures (unless in proper storage containers)
 - Storage of liquid hazardous / liquid petroleum (unless aboveground and on impervious surfaces)
 - Removal of soil within 4 feet of historic water table
 - Rendering impervious more than 15% or 2,500 SF unless a system for artificial recharge is provided

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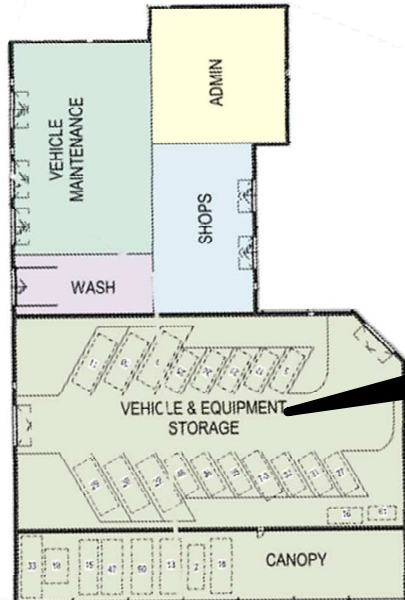
Storage of Hazardous Material and Liquid Petroleum Products

- Separate 2-hr fire rated room
- Double walled tanks and/or spill containment pallets
- Overfill alarms on tanks
- Designed in accordance with 527 CMR Fire Prevention Regulations
- 8"-thick concrete floor with sump capable of storing 125% of the combined volume of fluids in the room
- Sump is alarmed to notify Fire Department if liquid enters the sump



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Floor Drain System



Any drips or spills from vehicles stored inside will be collected in a closed floor drain system and discharged to a Massachusetts State approved gas, oil, and sand separator which will discharge to a MADEP registered wastewater tight tank preventing runoff from reaching the surrounding environment

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Vehicle Wash System



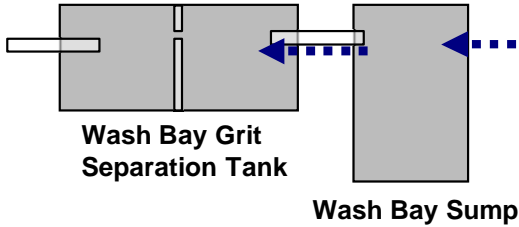
Wash Equipment Room



Fully Enclosed Wash

Trench Drain

Overflow to Tight Tank via
State Approved Sand/Gas
Separator

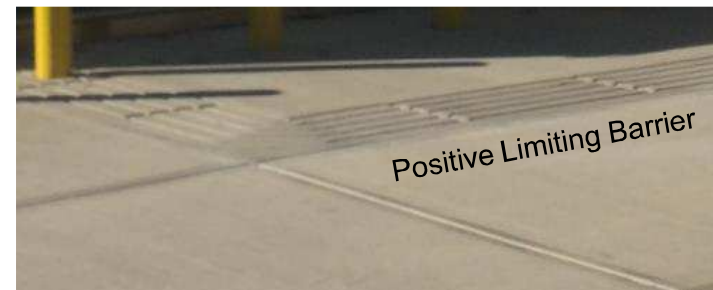


**NOTE – No
Discharge to
Stormwater
System**

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Proposed Fueling System

- Double walled leak detected above-ground storage tank (AST)
- Tank is vehicle impact, projectile, and blast resistant tank meeting or exceeding U.L. 2085
- Tank will be protected with concrete filled steel bollards and/or steel guardrail barriers to prevent incidental impact of the tank
- The tank will be installed on a 12" thick impervious reinforced concrete pad surrounded by an 8" thick impervious reinforced concrete fueling area surface.
- All construction and control joints will be sealed with petroleum resistant sealant.
- The fueling area surface pad includes a positive limiting barrier (contain minor spills of up to 10 gallons)



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Enclosed Salt Storage

- The salt shed is a fully enclosed structure designed to store salt indoors
- There will be no exterior storage of salt
- Salt is stored on an impervious hot mix asphalt floor
- The structure has been designed to allow the salt to be delivered directly inside the salt shed (no exterior dumping and moving required)

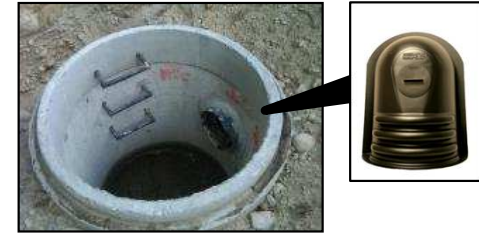


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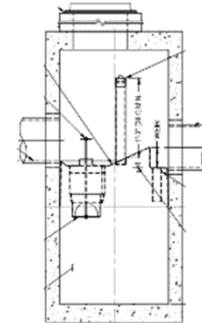
Proposed Stormwater Management System



DEEP SUMP HOODED CB's



HYDRODYNAMIC SEPARATORS



UNDERGROUND INFILTRATION CHAMBERS



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Project Inquiries & Responses

- *Discussion related to next steps including traffic and other studies at proposed Rt 6 site*
 - Traffic studies and mitigating design measures addressing the results of traffic study(ies) will be completed at later stages of the project as required through permitting, or as requested by the Town
- *Noise and environmental impacts on adjacent properties*
 - A new facility provides more enclosed space for DPW vehicles which mitigates the impacts of sound.
 - Vehicles would be stored indoors, reducing 'hard' vehicle startups and reducing noises from backup alarms.
 - Buildings would be placed in a manner to shield abutters from any yard area noises.
 - Such yard operations also get minimized in modernized DPW facilities.
 - Additional site amenities such as berms, fencing, and vegetated buffers also will be considered to mitigate the impacts to adjacent neighborhoods with the design of a new facility

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Project Inquiries & Responses

- *Discussion of costs and operational impacts associated with moving 8,000 – 9,000 SF of storage to another location*
 - Locating a portion of DPW vehicle and equipment storage to a remote location would create an operational disadvantage due to:
 - Inefficiencies of time (increase in non-productive labor to ferry staff between sites each day to access equipment)
 - Increase design, construction, and operational costs
 - Duplicate employees support spaces at each location to meet current codes
- *Discussion related to actual functional requirements of the DPW*
 - Completed three rounds of space needs assessment/adjustments
 - Reduce program by approximately 20%
 - Any further reductions will impact operations

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Project Inquiries & Responses

- *Site prep costs for each of the proposed sites*
 - Site costs will be further evaluated and refined during future design phases of the project. If an alternate viable site is identified, then the site development costs for all viable sites can be developed and compared.
- *Public discussion related to long-term regionalization plans for the DPW*
 - This issue will need to be addressed by the Select Board
- *Endangered species / priority habitat status for all proposed sites and how this would inform storage, chemicals, and site options*
 - The environmental receptors reviewed for the potential sites identified one site (5 Town Dump Rd) with potential natural endangered and rare species habitat.
 - In all cases, a new facility would provide improved and compliant storage of chemicals, and compliant treatment of stormwater (as mentioned earlier)
 - Permitting of a new facility will be in compliance with current regulations

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Project Inquiries & Responses

- Environmental reports on current site, Snow's Field, Former Jack's Gas, and Mass Highway site on Route 6
 - Completed an initial screening to determine the viability of each site from a size and environmental receptor perspective
 - Assessments were based on a high-level review of available published information for each site
 - This process is typical at the initial stage of any site selection process
 - Further evaluation of sites which do not pass this initial screening for size does not provide any further value to the process since these sites are not suitably sized to support a new facility
 - Based on the results of the pre-screening process, a more comprehensive assessment of any viable sites will be completed in the next phase of the project
 - Weston & Sampson evaluated the adjacent privately owned parcel (Parcel 100 on Route 6 – Jack's Gas), and it was determined that this site was also insufficiently sized to support DPW operations
 - We will be preparing test fit options for the Walsh Property in the near future

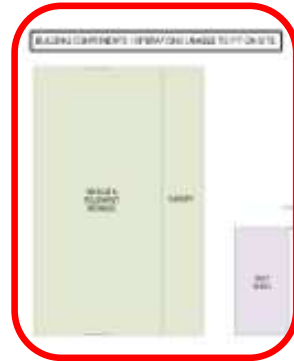
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Project Inquiries & Responses

Program that does not fit

PROGRAM - SQUARE FOOTAGE:

OFFICE SPACE	11,000 SF	
WORKSHOP	11,000 SF	
STORAGE	11,000 SF	
TRUCK BAY	11,000 SF	
MECHANICAL	11,000 SF	
OFFICE & STORAGE	11,000 SF	



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Project Inquiries & Responses

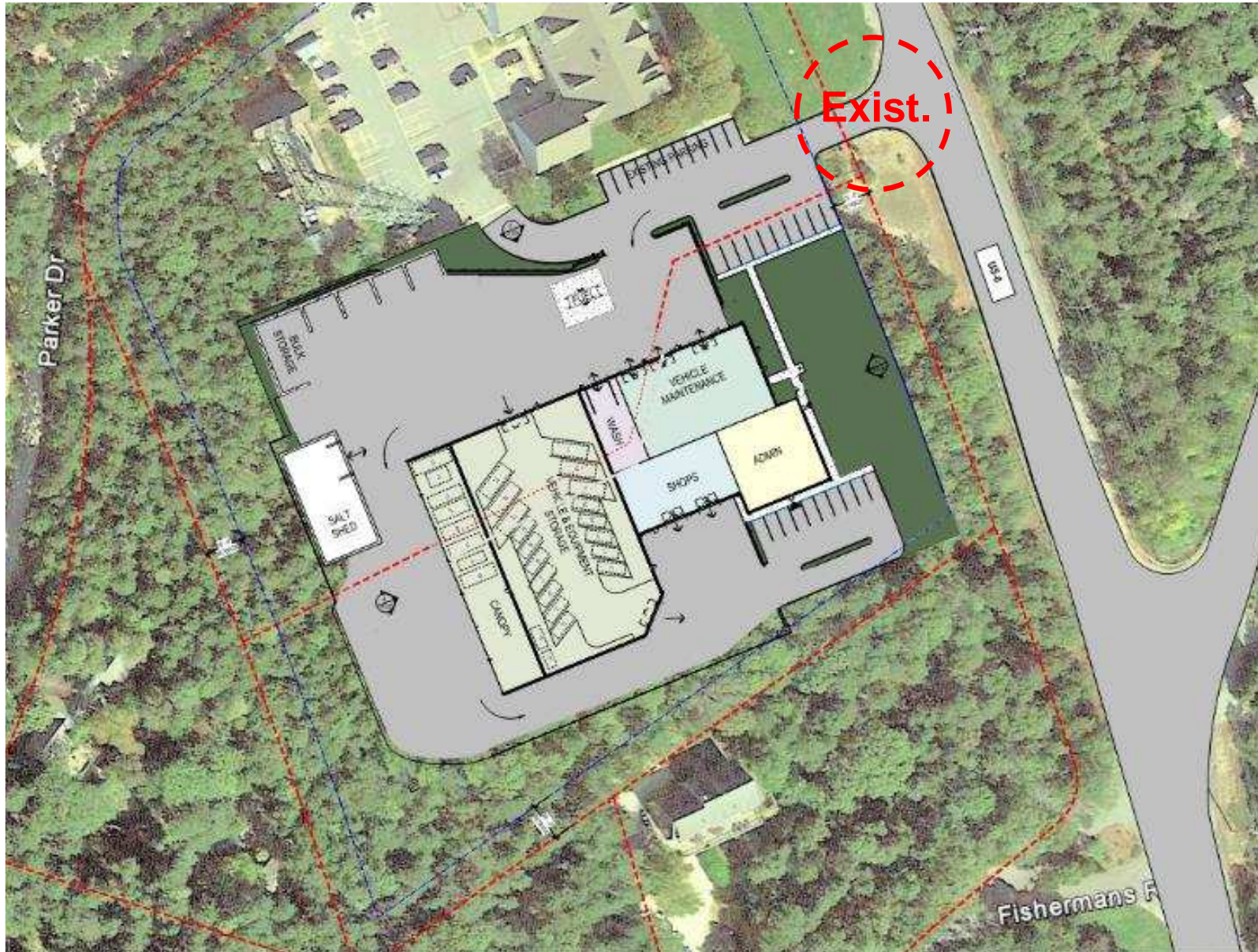
Driveway Access Modifications



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Project Inquiries & Responses

• Driveway Access Modifications

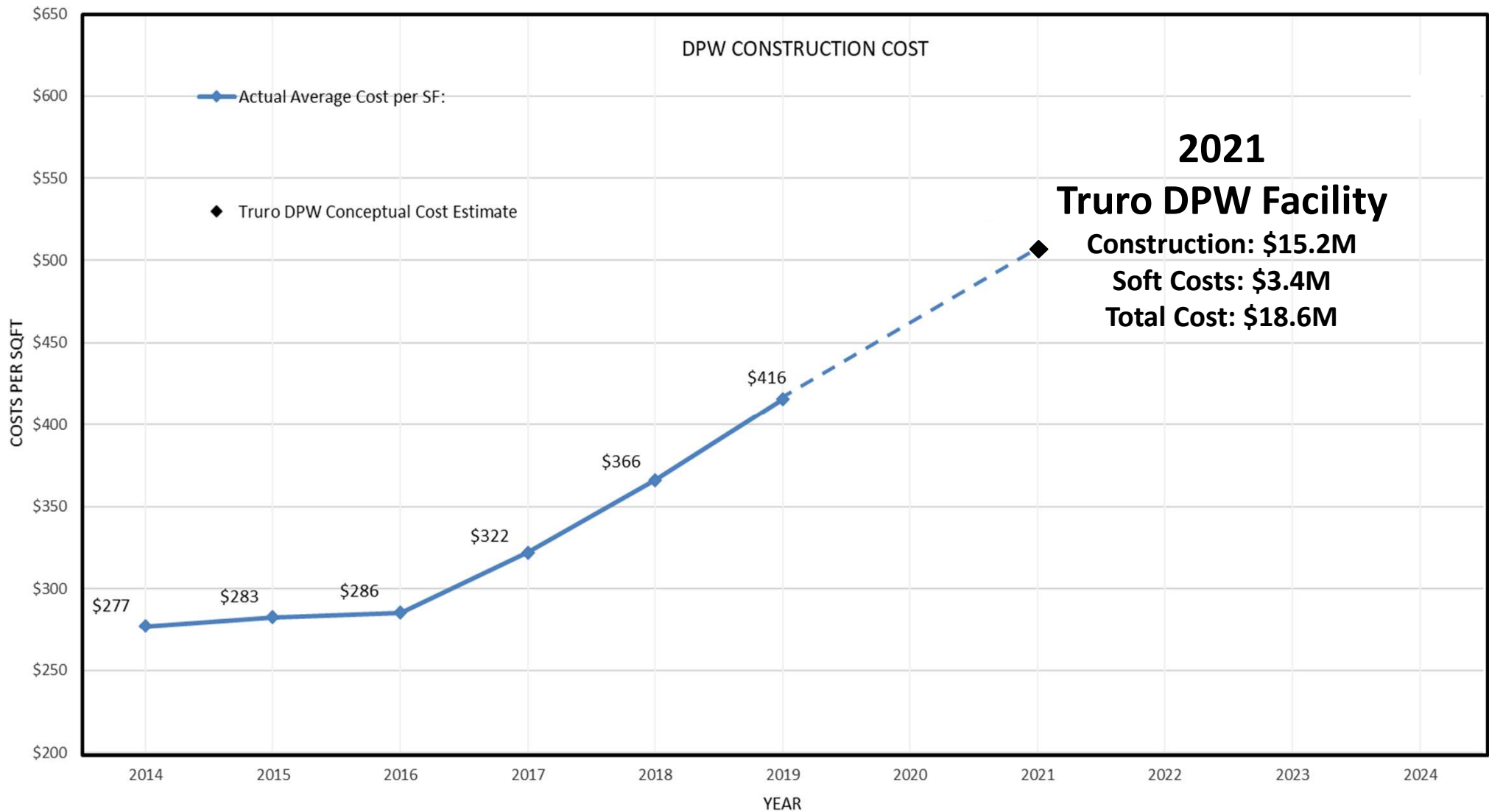


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Anticipated Costs

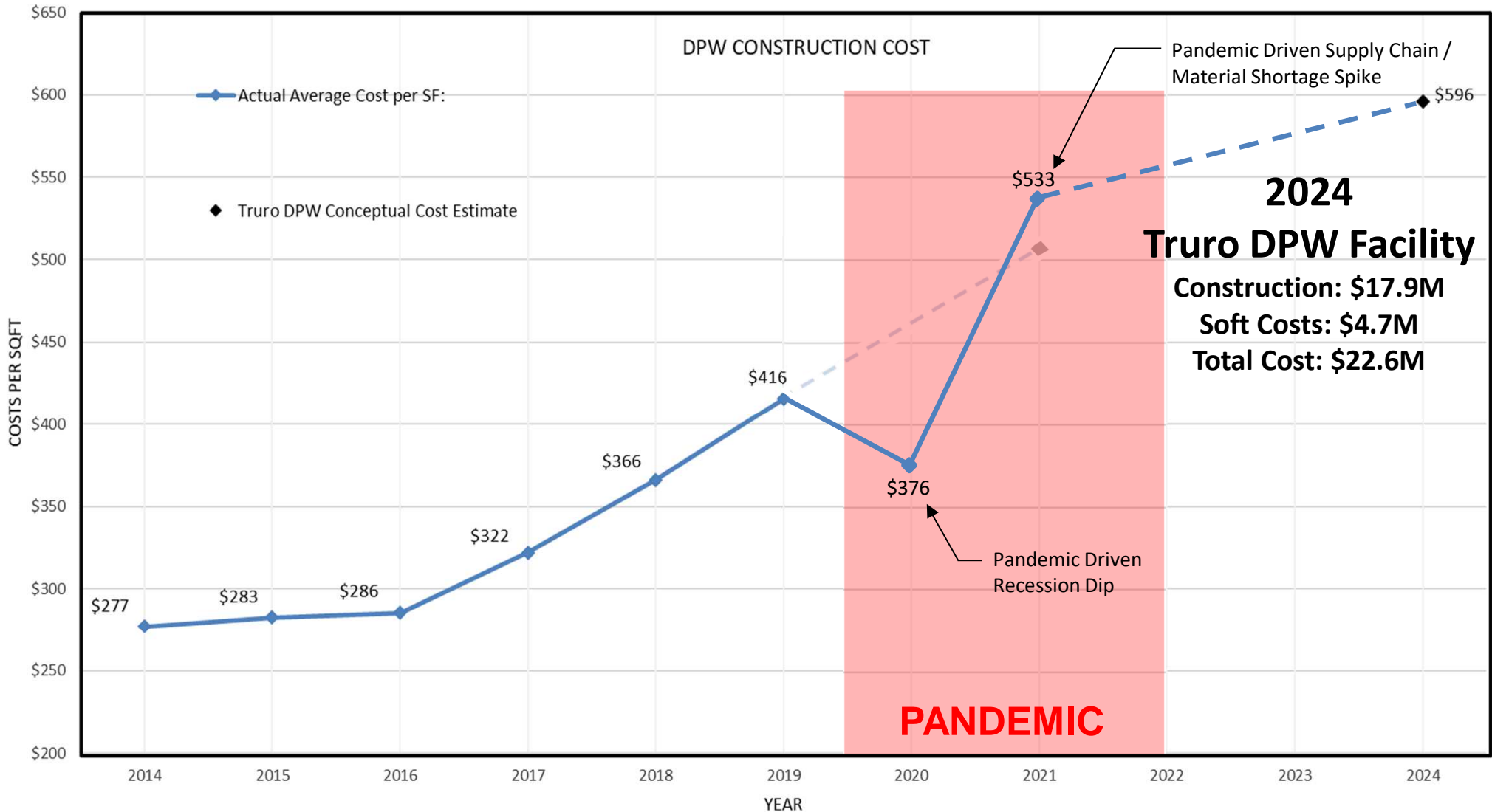
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2019 Cost Estimate (escalated to 2021)



Town of Truro New Public Works Facility

2019 Cost Estimate (escalated to 2021)



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Questions