



*State of New Hampshire
Department of Transportation*

Governor's Capital Budget Hearing

June 21, 2018

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION



Victoria F. Sheehan
Commissioner



William Cass, P.E.
Assistant Commissioner

June 21, 2018

His Excellency, Governor Christopher T. Sununu
Rooms 306-308, Legislative Office Building
Concord, N.H. 03301

Re: Department of Transportation Capital Budget FY 2020-2021

Dear Governor Sununu and members of the Advisory Committee:

Thank you for the opportunity to address the Governor's Office regarding the New Hampshire Department of Transportation's (NHDOT) Capital Budget requests. This request includes two separate sections of NHDOT's capital improvement projects. There are four General Funded project requests for Aeronautics, Rail and Transit totaling \$8.0M enabling New Hampshire to leverage \$80.8M of federal funds and twelve Highway Funded project requests totaling \$22.8M for fiscal years 2020-2021.

The Department's Highway Fund request includes equipment and other maintenance projects that are desperately needed for our operation's forces to be able to provide winter maintenance and ensure the safety of our citizens. Unfortunately, because the Highway Fund revenues are not adequate to support these needs, the Department has included these costs, that are typically operating costs, in our capital budget request. This is to address a short term need and the Department recognizes that continued bonding at the requested level is not sustainable in the long term.

NHDOT has a fleet replacement value of over \$95M with an estimated needed annual replacement of \$8.3M per year just to maintain the current condition. Over the past ten years the average annual investment in equipment was only \$5.0M including bonded funds (an average of \$3.5M in Highway operating funds). While appreciative of the additional bonded investment in equipment over the last two biennia, NHDOT continues to fall behind in replacement of integral equipment, like plow trucks. The backlog is estimated at approximately \$40M. The Department is still following the development of the VW settlement plan for New Hampshire. The requested capital funds will help maintain the current condition of the fleet or potentially used to leverage the VW funds, and begin to address the backlog.

Assuming level funded debt service to FY18-19 Budget, the Department estimates that the operating budget can support all projects from the capital budget. We estimate Highway Fund debt service including principal and interest to be \$12.0M in FY20 and \$13.0M in FY21.

General Funded Project Requests

The first General Funded project is a continuation of an established program to support the continued safety improvements and development of airports within the state that leverages federal funds for investments in local transportation systems. The Department is requesting \$4.1M in state appropriation to provide a five percent match when coupled with the local airport match (five percent not included in this request) to leverage \$73.5M of federal funds. This request includes 47 Federal Aviation Administration (FAA) Airport Improvement Program (AIP) projects for planning and infrastructure improvements to 12 public-use airports, and for certain NHDOT airport system wide projects, including improvements to the New Hampshire Aircraft Rescue and Fire Fighting Training Facility located in Concord, NH. The FAA provides 90 percent of the funding for airport infrastructure projects as part of this program. Airports that participate in this program include, Manchester-Boston Regional Airport, Lebanon, Portsmouth International Airport at Pease, Laconia, Boire Field (Nashua), Dillant-Hopkins (Keene), Dean Memorial (North Haverhill), Skyhaven Airport (Rochester), Concord, Claremont, Mt. Washington Regional Airport (Whitefield), and Berlin.

The second General Funded project request will provide \$0.9M for the Transit Bus Replacement program that will leverage \$7.3M in Federal funds. Without these state capital match funds, many transit projects would be delayed due to the inability to raise the required non-federal match on capital projects. This program provides matching funds to Federal funds for the acquisition of public transit vehicles and construction of bicycle and pedestrian infrastructure for local public transit agencies in Manchester, Nashua, Derry-Salem, Concord, Hanover-Lebanon, Laconia, Dover-Portsmouth, Berlin-Lancaster-Littleton, Claremont and Keene. This request also includes funding for non-profit agencies that provide transportation for elderly individuals and individuals with disabilities. Federal funds provide 80 percent of the capital needs and local funds provide 10 percent with the state capital match funds providing the remaining 10 percent. Public transportation provides access to jobs and critical services for New Hampshire residents, promoting economic development and mobility for all citizens. Requested funds will be used to match formula apportioned funds from the Federal Transit Administration grants program.

The third project request will provide \$0.98M for critical track maintenance of approximately 24 miles of tie replacement on three sections of state-owned Concord-Lincoln railroad line which is utilized under agreement by one freight railroad operator (New England Southern Railroad) and one tourist excursion railroad (Plymouth & Lincoln Railroad). These three sections are in the poorest condition and critically need tie replacement work. Work will include purchasing material, hiring contractors, installation of ties, and project supervision. The tie replacement work will include removing the old ties and properly disposing of them, installing the new cross ties and tamping the track. The ties being replaced were installed prior to the 1970's and this will be the first major tie replacement completed on the line in more than 45 years. This tie replacement is beyond the funding capacity of the Special Railroad Fund that is used for routine maintenance and repairs to the over 250 miles of active state-owned railroad lines.

The fourth request will provide \$2.0M for critical bridge maintenance repairs needed on four State-owned operating railroad lines (Concord-Lincoln, Mountain Division, Northern Railroad Line and Groveton Branch) to maintain safe freight and passenger operations. Bridge work will include

needed structural repairs to 41 state-owned bridges and installation of new bridge timbers and stringers, replacing deteriorated concrete on abutments and piers, repointing masonry abutments and other miscellaneous work around the bridges. The structural repairs are necessary to provide continued freight and passenger rail traffic on the State owned lines. Annual inspections of the 132 railroad bridges on the State Owned active lines noted deficiencies that need to be repaired for the bridges to remain in service. If the repairs are not made and conditions get worse, the bridges will have to be taken out of service per Federal Railroad Administration (FRA) regulations, thus taking the railroad line out of service. These major bridge repair efforts are beyond the funding capacity of the Special Railroad Fund that is used for routine maintenance and repairs to the over 250 miles of active state-owned railroad lines.

Total estimated debt service on the \$8.0M in General Funded capital project requests utilizing twenty year duration general obligation bonds at a 60 percent principal payback in the first ten years at 5% interest will peak at approximately \$0.9M in State Fiscal Year 2021.

Highway Funded Project Requests

With respect to the Highway Funded projects, the highest priority of the twelve projects is the request of \$5M for replacement of statewide fleet equipment that has exceeded its useful life of ten years or greater. NHDOT has split the request for equipment (additional request of \$5M is priority #10) because there are other needs across the Department that should also be addressed and cannot be deferred. In 2014, the Legislative Budget Assistant Performance Audit verified that the average age of the fleet had increased and the Department's equipment that was at or beyond the established replacement age had increased significantly. On average over 33% of the Department's fleet is at or beyond the replacement age. To support the Department's \$95M dollar fleet value, NHDOT estimates an investment of \$8.3M in the fleet annually is necessary to maintain current levels of fleet condition. With the under investment in fleet maintenance that has occurred due to budget constraints over a number of years, it is estimated that \$40M in total is needed to catch up to bring the fleet within its established replacement age. As the equipment has aged, breakdowns become more frequent, potentially affecting the Department's ability to operate efficiently and have equipment available when needed. This equipment is critical to winter plowing operations and summer work efforts across the state.

NHDOT's second priority is to construct an addition/renovation to the District 5 Highway Maintenance Patrol (Section PS527) facility in Manchester for \$1.8M. The current facility is under sized to meet current level of service requirements. The facility is not capable of storing current maintenance vehicles. The Fiscal Year 2018-2019 capital improvement project provided \$300,000 for design of this facility. The proposed addition can be sited on existing land.

The third project listed is a replacement brine system in Derry for \$200,000. This project will replace a 14 year old brine system at Highway Maintenance patrol section 528 in Derry. The current system has reached the end of service life. This new system is necessary to aid in the salt reduction efforts that are required per environmental commitments along the expanding I-93 corridor from Salem to Manchester.

The fourth proposed project is for statewide life safety improvements to patrol sheds and district office facilities of \$1.9M. The State Fire Marshalls Office (SFMO) is conducting Life Safety Inspections at all of our occupied facilities with results indicating deficiencies that will likely be consistent throughout our structures. The deficiencies have included issues with available egress, use of wood stoves, fire rated separation of certain areas, accommodation for safety breaks and additional minor issues. The improvements are necessary to comply with current codes and provide employees with a safe work environment. With close to 100 facilities, the improvement costs will exceed available operating resources.

The fifth project is for an office addition to Lancaster's district one office for \$660,000. The existing 2,880 sq. ft. facility is no longer adequate for supporting District One's highway maintenance functions. Necessary office space for maintenance supervisors, seasonal personnel, and the increased requirements for personnel training has dictated renovation of the existing training area with proper egress. The Department previously used the basement of the existing facility to meet these needs but that space does not meet the requirements of the Americans with Disabilities Act (ADA) and other life safety codes. The project includes a 1,500 sf addition to provide ADA improvements, office work stations, conference room and training areas.

The sixth priority project request will provide \$1.8M to construct as many salt sheds as available funding will allow (estimated 3-4). Currently the Department of Transportation cannot store a season's worth of salt at all identified patrol shed locations that also have structural issues. The Department also stores salt under many "pole" sheds that are at the end of their life. The replacement of these facilities will give the Department the capacity to store ample amounts of material and will save funds by providing the ability to purchase materials and store them when the best price is available. Environmental regulations also require that all salt be stored under cover.

The seventh project continues a program established in prior capital budgets: the program to replace underground fuel storage tanks. The New Hampshire Department of Transportation currently has 40 fuel sites that have underground storage tanks and appurtenances that are 25 years or older and at or nearing their life expectancy. As the sites get beyond the life expectancy of the tanks and components, the potential for environmental damage, compliance and extensive repairs increases considerably. Prior Capital Improvement Projects (CIP) provided funding to bring many sites into environmental compliance; this CIP request continues that effort to replace the oldest and highest risk sites and to make structural improvements to sites near mid-life to prolong their life span and to minimize potential environmental issues. The Department would perform tank top upgrades and reconstruct as many fuel sites as allowed by the available funding request of \$2.0M.

The eighth project requests \$1M for document management software. DoIT is currently implementing a Statewide Document Management System. The NHDOT portion of the project will integrate with both the DoIT document management system as well as various NHDOT systems. The NHDOT project will focus primarily on document and work flow management with a secondary focus on content, records, and contract management. The end result will be an increase in efficiency through a more integrated document management system in which employees can quickly find documents, manage work flows, and respond to legislative/public inquiries. NHDOT intends to consolidate this information, eliminate multiple systems and integrate with the DoIT document management solution.

The ninth priority project would provide \$2M for Phase 1 of a work order system. This project will purchase software that will enable NHDOT to more efficiently plan, execute, and report work that is performed by the Department to provide a transportation system that is well maintained, efficient, reliable and seamless. The software will heavily incorporate work flow, a mobile presence, and location information. The software will also integrate with various systems and enable system consolidation. Currently, NHDOT only has software to report work accomplishments. The current tool does not support work planning or provide a history of work associated with a particular asset, such as the last time a culvert was inspected. The current software does not adequately support a mobile environment and is not connected to GIS systems.

The tenth project is the second half of the equipment request of an additional \$5M as mentioned in Highway Funded priority #1.

The eleventh project is a vehicle wash building in Derry for \$700,000. The facility is needed to better comply with Department of Environmental Services (DES) requirements and for preventive maintenance of equipment related to salt and advanced rusting of equipment with the goal of extending the useful life of the equipment. The building would be sited on currently owned NHDOT property at the Derry 528 patrol facility.

The twelfth project is a vehicle wash building in Enfield for \$700,000. The facility is needed to better comply with Department of Environmental Services (DES) requirements and for preventive maintenance of equipment related to salt and advanced rusting of equipment with the goal of extending the useful life of the equipment. The building would be sited on currently owned NHDOT property at the District 2 Office in Enfield.

Total estimated debt service on the \$22.8M in Highway Funded project requests utilizing twenty year duration general obligation bonds at a 60 percent principal payback in the first ten years at 5% interest will peak at approximately \$2.7M in State Fiscal Year 2021. This debt service would be paid by the Highway Fund.

Thank you for your time and support of the Department's capital requests.

Sincerely,



Victoria F. Sheehan
Commissioner

**State of New Hampshire
Department of Transportation
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**STATE OF NEW HAMPSHIRE
CAPITAL IMPROVEMENT PROJECT REQUEST
FISCAL YEARS 2020-2021**

NAME

AGENCY Department of Transportation

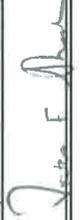
ACTIVITY / DIVISION Division of Aeronautics, Rail & Transit

Priority #	Project Name	Funding Source				Total
		General	Federal	Highway	Other	
1	5% Match for Federal Aviation Administration Projects	4,123,555	73,538,972			77,662,527
2	10% Match for Public Transit Bus Capital Projects	907,460				907,460
3	Repairs to State-owned Active Railroad Lines	984,000				984,000
4	Repairs to State-owned Railroad Bridges	2,000,000				2,000,000
5						0
6						0
7						0
8						0
9						0
10						0
11						0
12						0
13						0
14						0
15						0
Totals - Projects 1-15		8,015,015	73,538,972	0	0	81,553,987

Name: Victoria F. Sheehan

Title: Commissioner

Date: 4/6/2018



STATE OF NEW HAMPSHIRE

CAPITAL IMPROVEMENT PROJECT REQUEST

FISCAL YEARS 2020 - 2021

PRIORITY # 1

AGENCY	096	NAME	Department of Transportation
ACTIVITY / DIVISION	964010		Division of Aeronautics, Rail & Transit
PROJECT-TITLE / NAME			5% match for Federal Aviation Administration Projects

Capital Budget Request	
Site Acquisition (a)	
Site Improvement / Preparation (b)	
Construction (c)	69,896,274
Utilities (d)	
Architect / Engineering (e)	7,766,253
Computer Systems / Equipment (f)	
Hardware	
Software	
Training	
Service	
Furnish / Equipment (g)	
Other (h)	
Total Capital Budget Request	77,662,527

Other Information	
Total Square Footage:	
Estimated Useful Life:	20+

Related Annual Operating Budget Expenditures / Savings Estimates	
Expenditures	Savings
Permanent Personnel Services (a)	
Other Personnel Services (b)	
Current Expense (c)	
Equipment (d)	
Travel (e)	
Other (f)	
Total Expenditures / Savings Estimates	
Accounting Unit:	
Will these amounts be consistent each year?	

Capital Budget Criteria (See Instructions)	
Requirement Code:	A, B, C or D
Definition Code:	A, B, C, D, or X
Funding Percentages by Source:	G, F, H, O
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan. Project # 	

Project Justification (Be Concise)

The request will support the continued safety improvements and development of airports within the state by providing the 5% match for Federal Aviation Administration (FAA) funded airport improvement projects. The ratio of funds for each airport project is based upon 90% Federal Funding, 5% state share and a 5% local share (not included in this request). It is anticipated that funds from this project will be used at the following airports: Manchester, Lebanon, Portsmouth, Laconia, Nashua, Dean Memorial, Dillant-Hopkins, Skyhaven, Concord, Claremont, Mt. Washington, and Berlin. All projects are solicited from the respective sponsor as to need, economic feasibility and FAA and State priority. It is required that the entire non-federal share be provided to match these funds in order to accept the FAA funds. The airport's capital needs are evaluated through a periodic master planning process and identified with the FAA's National Priority Rating system. Based on anticipated short-term funding provided by the FAA, the projects to be funded in the upcoming biennium are identified using a mix of local, regional, and national funding priorities. The funding level for the FAA's grant program is determined by the U.S. Congress and the President in authorizing legislation and annual appropriation bills. Statewide projects are completed by the Department, therefore requires a 10% match (No local share). Statewide projects include matching FAA funding for the New Hampshire Aircraft Rescue and Fire Fighting (ARFF) training facility, Concord, NH. This project will have no effect on the State's utility consumption.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name: Patrick C. Herlihy, Director of Aeronautics, Rail and Transit

Name: Victoria F. Sheehan

Commissioner

Telephone Number: 603-271-2449

Date: 4/6/2018

Bureau of Aeronautics Capital Budget Request Information

This Capital Budget request will support the continued safety improvements and development of airports within the state by providing 5% of the required 10% match for the Federal Aviation Administration (FAA) Airport Improvement Projects (AIP) program. The ratio of funds for each airport project is based upon 90% Federal Funding, 5% state share and a 5% local share (not included in this request as these funds do not pass through NHDOT). It is anticipated that funds from this project will be used at the following federally eligible airports: Manchester, Lebanon, Portsmouth, Laconia, Nashua, Dean Memorial (Haverhill), Dillant-Hopkins (Keene), Skyhaven (Rochester), Concord, Claremont, Mt. Washington (Whitefield), and Berlin. All projects are solicited from the respective sponsor as to safety needs, economic feasibility, and FAA and State priorities. It is required that the entire non-federal share be provided to match these funds in order to accept the FAA funds. The airport's capital needs are evaluated through a periodic master planning process and identified with the FAA's National Priority Rating system. Based on anticipated short-term funding provided by the FAA, the projects to be funded in the upcoming biennium are identified using a mix of local, regional, and national funding priorities. The funding level for the FAA's grant program is determined by the U.S. Congress and the President in authorizing legislation and annual appropriation bills. Statewide projects are completed by the Department, therefore requires a 10% match (No local share). Statewide projects include matching FAA funding for the New Hampshire Aircraft Rescue and Fire Fighting (ARFF) training facility, Concord, NH.

This request includes 47 FAA AIP projects for planning and infrastructure improvements to 12 public-use airports, and for certain NHDOT airport system wide projects, including improvements to the New Hampshire Aircraft Rescue and Fire Fighting Training Facility located in Concord, NH.

As stated above, each project listed is determined through an FAA Airport Master Planning process that is conducted to outline projects over a 20-year period. The Airport Master Planning Process is a public process to develop a Capital Improvement Program (CIP) for each individual airport. The projects are then programmed in FAA's 5-year CIP. The projects are selected each year based upon safety needs, FAA priority, and funding capabilities. This funding is necessary to meet all mandated federal safety standards to operate a public-use airport.

Typical AIP projects included in this Capital Budget 2020/2021 request are as follows:

- Runway Rehabilitation
- Taxiway/Aprons
- Airport Obstruction Removal/ Lighting
- Land Acquisition/Easement Acquisition
- Snow Removal Equipment Purchase
- Install a Fuel Farm
- Master Planning and Environmental Studies
- Statewide Airport Planning Projects
- Airport Terminal Building Rehabilitation
- Perimeter Safety/Security Fence
- Airfield Pavement Maintenance
- Install Security/Perimeter Fence

The chart below outlines the amount of funds programmed for each airport.

Federal Aviation Administration Capital Improvement Program- State Capital Budget (2020-2021)				
	2020	2020	2021	2021
Airport	Federal Share	State Share	Federal Share	State Share
State Airport System	\$150,000	\$16,667	\$135,000	\$15,000
Berlin Regional Airport	\$0	\$0	\$200,000	\$11,111
Skyhaven Airport (Rochester)	\$230,000	\$12,778	\$300,000	\$16,667
Claremont Airport	\$250,000	\$13,889	\$560,000	\$31,111
Concord Airport	\$150,000	\$8,333	\$150,000	\$8,333
Dillant-Hopkins Airport (Keene)	\$1,606,600	\$89,256	\$1,968,600	\$109,367
Laconia Airport	\$1,830,000	\$101,667	\$1,186,772	\$65,932
Mt. Washington Regional Airport	\$200,000	\$11,111	\$600,000	\$33,333
Boire Field (Nashua Airport)	\$540,000	\$30,000	\$5,679,000	\$315,500
Dean Memorial Airport (North Haverhill)	\$450,000	\$25,000	\$144,000	\$8,000
Portsmouth International Airport at Pease	\$1,089,000	\$60,500	\$5,500,000	\$305,556
Manchester-Boston Regional Airport	\$27,000,000	\$1,500,000	\$3,600,000	\$200,000
Lebanon	\$16,020,000	\$890,000	\$3,600,000	\$200,000
NH Fire Academy	\$400,000	\$44,444	\$0	0
	\$49,915,600	\$2,803,645	\$23,623,372	\$1,319,910
Total Federal Share (2020-2021)	\$73,538,972			
Total State Share (2020-2021)	\$4,123,555			
Total Federal and State	\$77,662,527			

Outlined below are 3 major projects that are part of this request:

**Lebanon Municipal Airport
Runway Improvement Projects**

The airport has identified a set of safety improvements following the conclusion of many planning studies and environmental evaluations that will address the substandard Runway Safety Areas (RSAs) on both Runway 18-36 and Runway 7-25. The airport has proposed a phased approach to implementing a shift and extension to, and installation of Engineered Material Arresting Systems (EMAS) for, Runway 18-36, as well as threshold relocation and displacement to, and installation of EMAS for, Runway 7-25. Other associated improvements will also be made to the taxiways and navigational aids, and environmental mitigation will also be included.

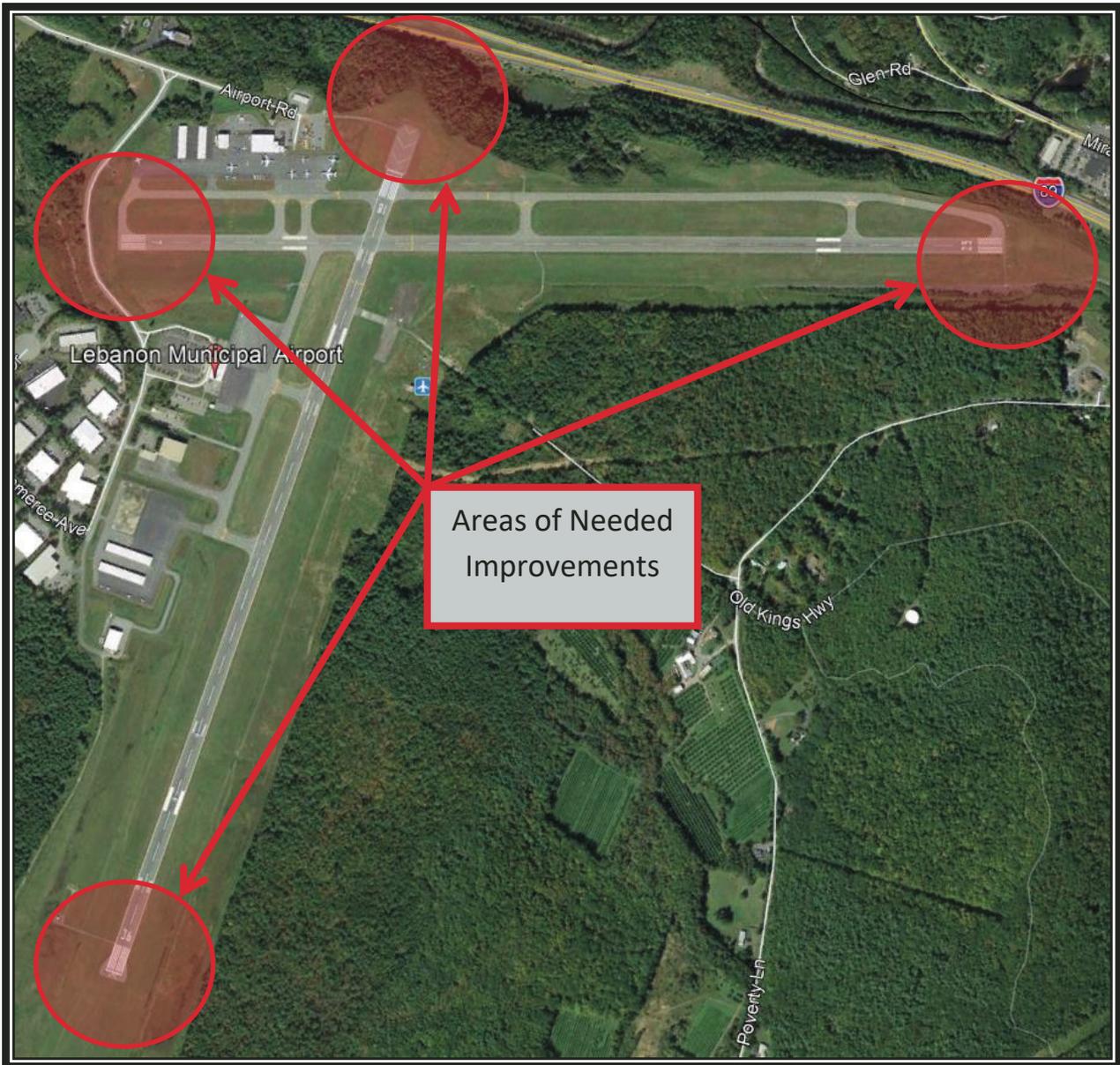


Figure 1: Lebanon Municipal Airport’s proposed runway improvements.

Manchester-Boston Regional Airport Runway Incursion Mitigation

The FAA has established a nationwide Runway Incursion Mitigation (RIM) Program. The program is designed to ameliorate problematic airfield geometry (a.k.a., “Hot Spots”) which are airfield decision points with a history of runway incursions. Projects identified in the RIM Program are FAA’s highest safety priority and need to be completed as soon as possible. FAA has identified Manchester-Boston Regional Airport as needing mitigation through the RIM Program. Manchester-Boston regional Airport completed a study in 2016 that identified two RIM areas, or “Hot Spots.” The airport will continue to address these Hot Spots through FY2020 and FY2021 by reconstructing these airfield pavements to be less problematic. The images below depict the areas of concern.



Figure 2: Manchester-Boston Regional Airport's Hot Spot #1 on the north end of Taxiway H.



Figure 3: Manchester-Boston Regional Airport's Hot Spot #2 on the south end of Taxiways P and U.

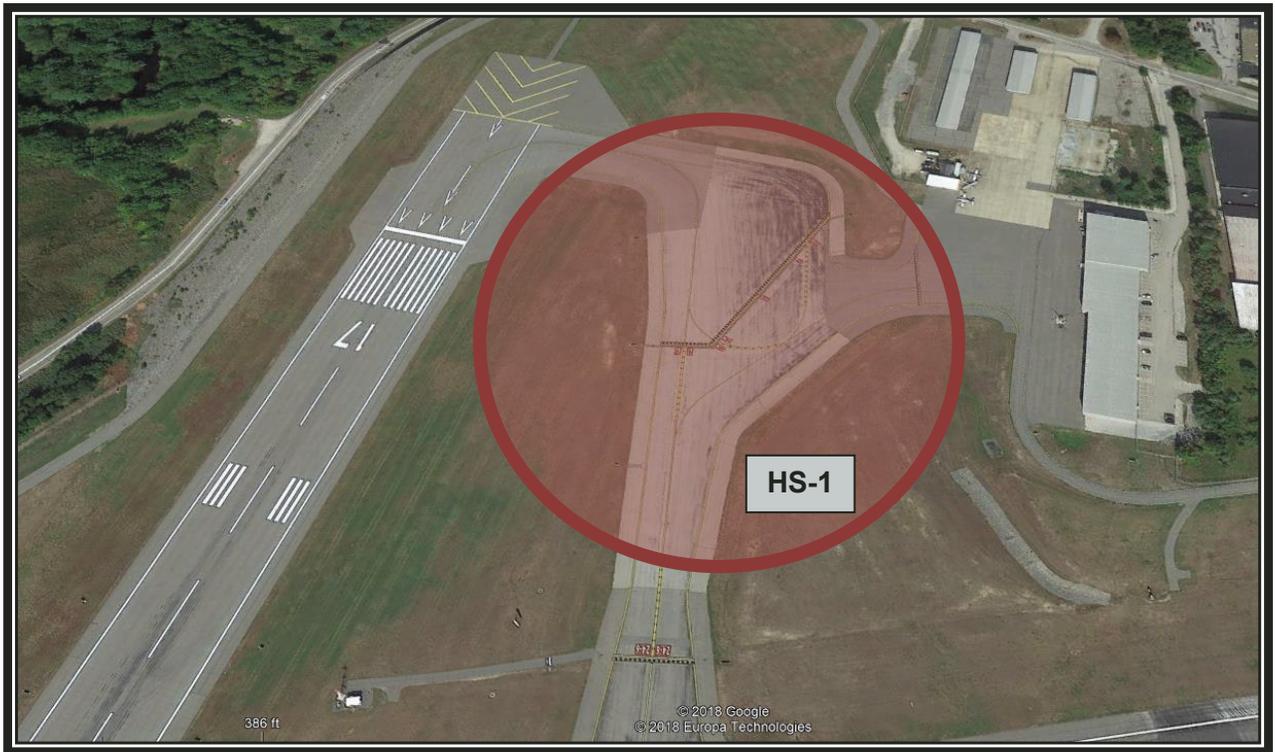


Figure 4: Manchester-Boston Regional Airport's Hot Spot #1 on the north end of Taxiway H.

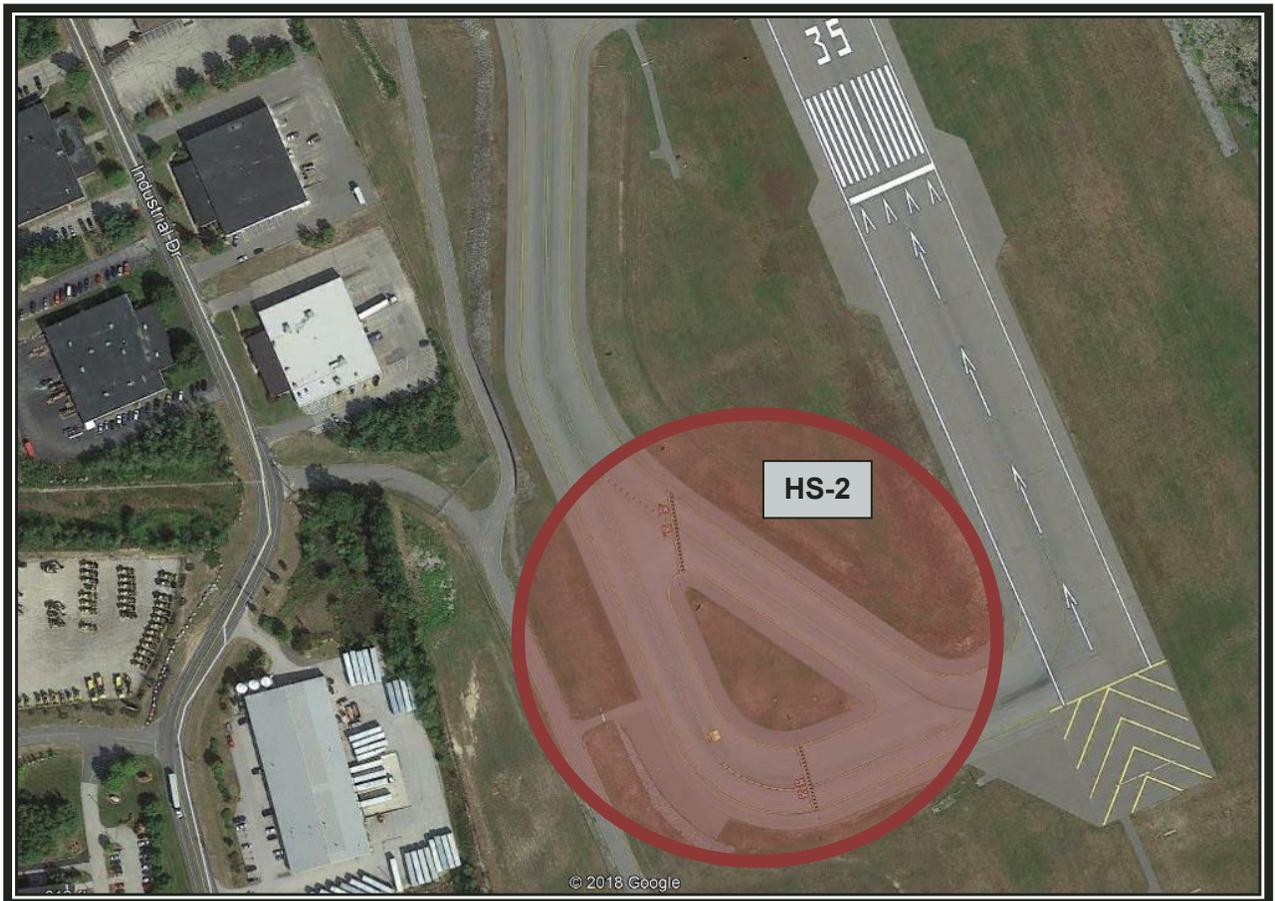


Figure 5: Manchester-Boston Regional Airport's Hot Spot #2 on the south end of Taxiways P and U.

**Nashua Airport- Boire Field
Parallel Taxiway Project**

Taxiway A at Nashua Airport – Boire Field is approximately 6,790'x40' and parallel to the single, Runway 14-32. It is a required airfield asset that allows aircraft to safely carryout taxiing maneuvers getting to and from the runway without needing to travel on the runway until it is necessary. Understanding that this airport has limited capacity to accommodate future aviation growth, in 2012, the airport relocated the runway 150' to the east which would allow for a future relocation of Taxiway A and a future increase in revenue-generating development space for hangars and aircraft tiedowns. This 2012 runway project provided a mill and overlay of Taxiway A as a pavement life-extension effort until project funding could be attained. Taxiway A was last reconstructed in 1991 and has exceeded its anticipated useful life. The reconstruction/relocation of Taxiway A has been on the airport's CIP for over a decade having been delayed due to other funding priorities at the airport and elsewhere in the NH aviation system.



STATE OF NEW HAMPSHIRE

CAPITAL IMPROVEMENT PROJECT REQUEST

FISCAL YEARS 2020 - 2021

PRIORITY # **2**

AGENCY	CODE	NAME
096	096	Department of Transportation
ACTIVITY / DIVISION	964010	Division of Aeronautics, Rail & Transit
PROJECT-TITLE / NAME		Public Transit Bus & Facility Matching Funds

Capital Budget Request

Site Acquisition (a)	
Site Improvement / Preparation (b)	
Construction (c)	
Utilities (d)	
Architect / Engineering (e)	
Computer Systems / Equipment (f)	
Hardware	
Software	
Training	
Service	
Furnish / Equipment (g)	907,460
Other (h)	
Total Capital Budget Request	907,460

Other Information

Total Square Footage:	
Estimated Useful Life:	7 years

Related Annual Operating Budget Expenditures / Savings Estimates

Expenditures	Savings
Permanent Personnel Services (a)	
Other Personnel Services (b)	
Current Expense (c)	
Equipment (d)	
Travel (e)	
Other (f)	
Total Expenditures / Savings Estimates	

Accounting Unit: _____
 Will these amounts be consistent each year? _____

Capital Budget Criteria (See Instructions)

Requirement Code:	A, B, C or D	B
Definition Code:	A, B, C, D, or X	C
Funding Percentages by Source:	G, F, H, O	F
G = General	F = Federal	G
H = Highway	O = Other	O
An Information Technology Project must be part of your IT Plan. Project #		⇨

Project Justification (Be Concise)

This request provides matching funds for the acquisition of public transit vehicles, facilities, and infrastructure, including bicycle & pedestrian infrastructure, for local public transit agencies in Manchester, Nashua, Dover-Portsmouth, Derry-Salem, Hanover-Lebanon, Claremont, and Berlin-Lancaster-Littleton. Federal funds provide 80% of the capital needs for transit projects listed above.

Federal funds provide at least 80% of the capital needs for transit projects listed above. The requested State Capital match will provide 10% (or 1/2 of the required match) and local funds will provide the remaining required match. State participation enables transit providers to leverage Federal capital funds for needed vehicle replacements and facility improvements that might not otherwise be available. Public transportation provides access to jobs and critical services for New Hampshire residents, promoting economic development and mobility for all citizens. Requested funds will be used to match formula apportioned funds from the Federal Transit Administration grants programs including FTA Section 5339 Capital Bus & Bus Facility Program funds and FTA Section 5307 Urbanized Area Formula Program funds. Without State Capital match many transit projects would be delayed due to the inability to raise the required non-federal match on capital projects. Funding for rural transit systems is included in the DOT Operating Budget GL Accounting Unit 2916; Public Transportation, Class 072: Grants Federal. Urban transit systems receive federal funds directly from the Federal Transit Administration and these federal and local matching funds for urban transit systems, totaling \$4,917,690 and are not in the DOT Operating Budget. This project will have no effect on the State's utility consumption.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name:	Patrick C. Herlihy, Director of Aeronautics, Rail and Transit	Telephone Number:	603-271-2449
Name:	Victoria F. Sheehan	Commissioner	Date:
			4/6/2018

2020-2021 Biennium: Public Transit Request

This request provides matching funds for the acquisition of public transit vehicles, facilities, and infrastructure, including bicycle & pedestrian infrastructure, for local public transit agencies in Manchester, Nashua, Dover-Portsmouth, Derry-Salem, Hanover-Lebanon, Claremont, and Berlin-Lancaster-Littleton. Federal funds provide 80% of the capital needs for transit projects listed above.

Federal funds provide at least 80% of the capital needs for transit projects listed above. The requested State Capital match will provide 10% (or ½ of the required match) and local funds will provide the remaining required match. State participation enables transit providers to leverage Federal capital funds for needed vehicle replacements and facility improvements that might not otherwise be available. Public transportation provides access to jobs and critical services for New Hampshire residents, promoting economic development and mobility for all citizens. Requested funds will be used to match formula apportioned funds from the Federal Transit Administration grants programs including FTA Section 5339 Capital Bus & Bus Facility Program funds and FTA Section 5307 Urbanized Area Formula Program funds. Without State Capital match many transit projects would be delayed due to the inability to raise the required non-federal match on capital projects. Funding for rural transit systems is included in the DOT Operating Budget GL Accounting Unit 2916; Public Transportation, Class 072: Grants Federal. Urban transit systems receive federal funds directly from the Federal Transit Administration and these federal and local matching funds for urban transit systems, totaling \$4,917,690 and are not in the DOT Operating Budget.

2020-2021 Biennium		State Capital Funds Requested	Local Match Required	Federal Funds Leveraged	Total Project Costs
CART	1 10&2 cutaway bus, 1 ADA van	\$ 14,000	\$ 14,000	\$ 112,000	\$ 140,000
COAST	4 35' & 40' heavy-duty buses, 3 <30' heavy-duty buses, 5 ADA accessible minivans, 2 used motor coaches, 12 bus shelters	\$ 256,380	\$ 256,380	\$ 2,051,040	\$ 2,563,800
Manchester Transit	6 30' medium-duty transit buses, 3 ADA low floor buses	\$ 268,030	\$ 268,030	\$ 2,144,240	\$ 2,680,300
Nashua Transit	Nashua Transit System (downtown) transit center rehabilitation	\$ 8,000	\$ 8,000	\$ 64,000	\$ 80,000
Advance Transit	2 30' heavy duty buses, 1 narrow body ADA bus, 1 light-duty ADA bus, 1 <35' medium-duty bus, 3 35' heavy-duty buses, 1 medium-duty 32 pax bus, 1 mobile vehicle lift	\$ 261,550	\$ 261,550	\$ 2,092,400	\$ 2,615,500
Southwestern Community Services	1 16&2 cutaway bus, 1 medium-duty 32 pax bus, 1 8&2 cutaway bus, covered bus parking/outbuilding	\$ 49,500	\$ 49,500	\$ 396,000	\$ 495,000
Tri-County Community Action Program (North Country Transit & Carroll County Transit)	2 8&2 cutaway bus, 2 22 pax bus	\$ 30,000	\$ 30,000	\$ 240,000	\$ 300,000
Intermodal infrastructure	Intermodal infrastructure that may include bicycle & pedestrian infrastructure improvements (including bicycle racks, passenger shelters, wayfinding signage, curbcuts for improved accessibility) and state-owned bus terminal repairs and improvements	\$ 20,000	\$ 20,000	\$ 160,000	\$ 200,000
Total		\$ 907,460	\$ 907,460	\$ 7,259,680	\$ 9,074,600

Total funds requested for the 2020-2021 Biennium:	\$907,460
Total vehicles requested for 2020-2021 Biennium:	41 (approximately)

2020-2021 Transit Capital Budget Request (Department of Transportation)



Advance Transit low-floor bus



Advance Transit paratransit bus



Advance Transit
Corrosion



Advance Transit
Corrosion

2020-2021 Transit Capital Budget Request (Department of Transportation)



COAST commuter coach style bus



COAST low-floor transit bus



COAST bus



COAST ADA Minivan

2020-2021 Transit Capital Budget Request (Department of Transportation)



MTA bus



MTA bus



MTA bus



MTA paratransit



Tri-County CAP bus



Tri-County CAP bus



Tri-County CAP bus > 200k



Tri-County CAP bus

2020-2021 Transit Capital Budget Request
(Department of Transportation)

2020-2021 Transit Capital Budget Request (Department of Transportation)



Southwestern Community Services bus



Southwestern Community Services bus corrosion

STATE OF NEW HAMPSHIRE

CAPITAL IMPROVEMENT PROJECT REQUEST

FISCAL YEARS 2020 - 2021

AGENCY	096	Department of Transportation
ACTIVITY / DIVISION	964010	Division of Aeronautics, Rail & Transit
PROJECT-TITLE / NAME		Repairs to State-owned Active Railroad Lines

PRIORITY # 3

Capital Budget Request	
Site Acquisition (a)	
Site Improvement / Preparation (b)	
Construction (c)	954,480
Utilities (d)	
Architect / Engineering (e)	29,520
Computer Systems / Equipment (f)	
Hardware	
Software	
Training	
Service	
Furnish / Equipment (g)	
Other (h)	
Total Capital Budget Request	984,000

Other Information	
Total Square Footage:	
Estimated Useful Life:	50 years

Related Annual Operating Budget Expenditures / Savings Estimates	
Permanent Personnel Services (a)	
Other Personnel Services (b)	
Current Expense (c)	
Equipment (d)	
Travel (e)	
Other (f)	
Total Expenditures / Savings Estimates	
Accounting Unit:	
Will these amounts be consistent each year?	

Capital Budget Criteria (See Instructions)	
Requirement Code:	A, B, C or D
Definition Code:	A, B, C, D, or X
Funding Percentages by Source:	G, F, H, O
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan. Project #	

Project Justification (Be Concise)

Critical repair work and capital funds are needed to perform tie replacement on three (3) sections of the state-owned Concord-Lincoln Railroad Line which is utilized under agreement by one freight railroad operator (New England Southern Railroad) and one tourist excursion railroad (Plymouth & Lincoln Railroad). Work will include purchasing material, hiring contractors, installation of ties, and project supervision. The tie replacement work will include removing the old ties and properly disposing of them, installing the new cross ties and tamping the track. The ties being replaced were installed prior to the 1970's and this will be the first major tie replacement completed on the line in more than 45 years. This major tie replacement project is beyond the limited funding capacity of the Special Railroad Fund that is used for routine maintenance and repairs to over 250 miles of active state-owned railroad lines and 160 bridges. This project will have no effect on the State's utility consumption.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name:	Patrick C. Herlihy, Director of Aeronautics, Rail and Transit	Telephone Number:	603-271-2449
Name:	Victoria F. Sheehan	Commissioner	Date: 4/6/2018

2020-2021 Biennium: Railroad Tie Replacement Project
(State-owned Concord – Lincoln Railroad Line)

Critical repair work and capital funds are requested to perform tie replacement on three (3) sections of the state-owned Concord-Lincoln Railroad Line which is utilized under agreement by one freight railroad operator (New England Southern Railroad) and one tourist excursion railroad (Plymouth & Lincoln Railroad). These three sections are in the poorest condition and critically need tie replacement work. Work will include purchasing material, hiring contractors, installation of ties, and project supervision. The tie replacement work will include removing the old ties and properly disposing of them, installing the new cross ties and tamping the track. The ties being replaced were installed prior to the 1970's and this will be the first major tie replacement completed on the line in more than 45 years.

This major tie replacement project is beyond the limited funding capacity of the Special Railroad Fund that is used for routine maintenance and repairs to over 250 miles of active state-owned railroad lines and 160 bridges. The Special Railroad Fund is budgeted at approximately \$600,000 per year and is expected to fund the maintenance of 250 miles of active state-owned railroad lines, 160 bridges, and emergency repairs to abandoned state-owned railroad lines. Special Railroad Funds are used to replace culverts, purchase track materials, complete minor track and bridge work, and replace small railroad at-grade crossings. The Special Railroad Fund money is severely inadequate to complete expensive repair projects and to maintain the State's railroad tracks to a condition that is required for any level of safety for tourist and freight service. State Capital Budget funds are therefore needed to make infrastructure repairs to this railroad line and maintain it to a safe operating condition before the Line further deteriorates and possibly causes closure to rail traffic.

Tie Replacement

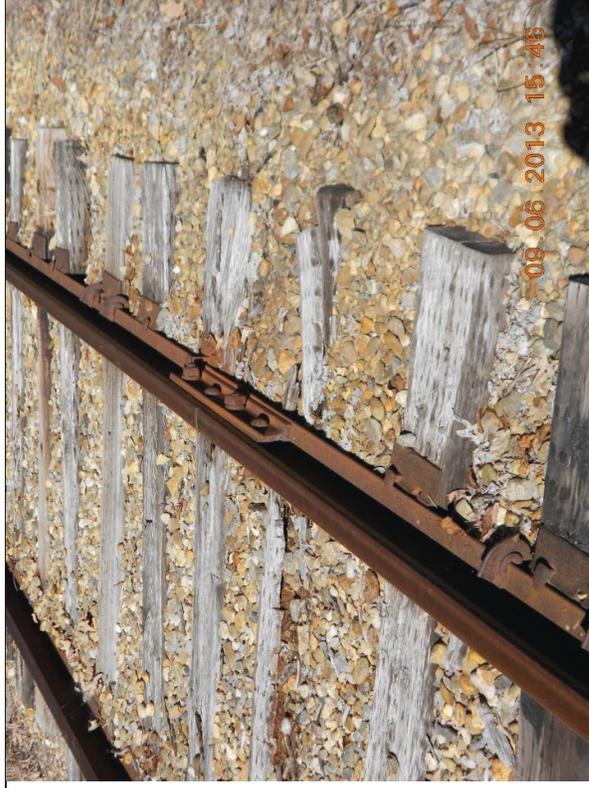
Concord – Lincoln Railroad Line

Tilton – Laconia	8 miles	300 ties/mile = 2,400 ties
Meredith – Plymouth	6 miles	300 ties/mile = 1,800 ties
Plymouth – Thornton	10 miles	400 ties/mile = <u>4,000 ties</u>
	TOTAL	8,200 ties

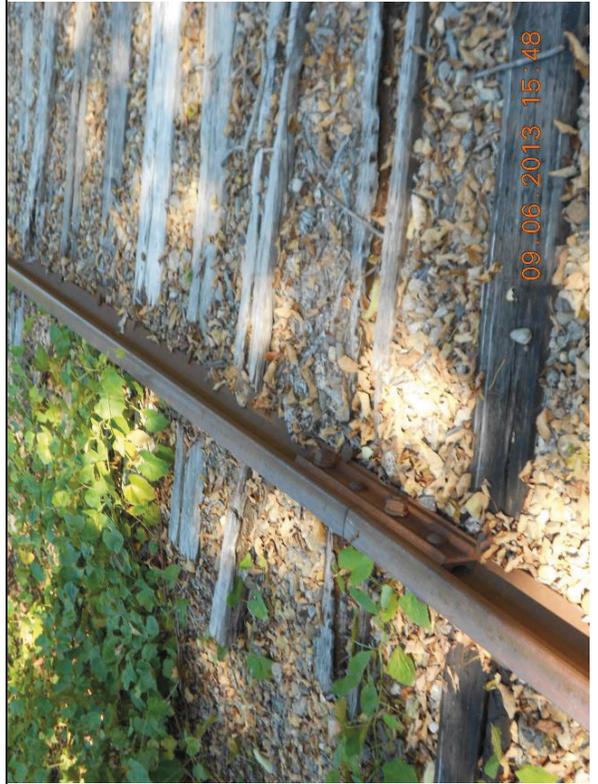
Installed Cost: \$120 per tie x 8,200 ties = \$ 984,000 total project cost

Construction (materials)	\$954,480	(97% total project cost)
Engineering (including inspection)	\$29,520	(3% total project cost)

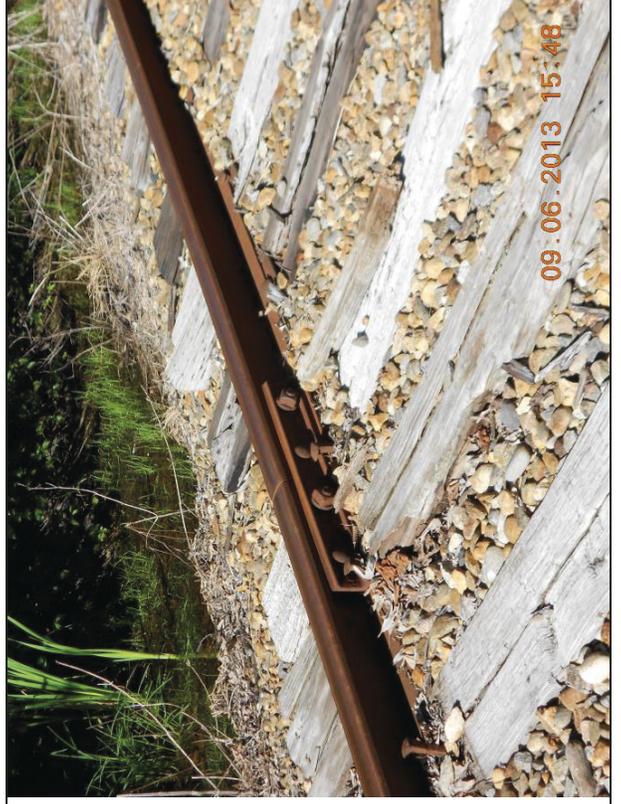
2020-2021 Railroad Capital Budget Request: State-owned Active Railroad Lines (Department of Transportation)



Concord-Lincoln: Rotted Ties (50+ years old)



Concord-Lincoln: Rotted Ties (60+ years old)



(Department of Transportation)

<p>Concord-Lincoln: Rotted Ties (60+ years old)</p> 	<p>Concord-Lincoln: Rotted Ties (50+ years old)</p> 
<p>Concord-Lincoln: Rotted Ties (60+ years old)</p>	<p>Concord-Lincoln: Undersized Rail & Rotted Ties (60+ years old)</p>

STATE OF NEW HAMPSHIRE
CAPITAL IMPROVEMENT PROJECT REQUEST
 FISCAL YEARS 2020 - 2021

PRIORITY #

AGENCY	CODE	NAME
Department of Transportation	096	Department of Transportation
ACTIVITY / DIVISION	964010	Division of Aeronautics, Rail & Transit
PROJECT-TITLE / NAME	Repairs to State-owned Active Railroad Bridges	

Capital Budget Request	
Site Acquisition (a)	
Site Improvement / Preparation (b)	
Construction (c)	1,900,000
Utilities (d)	
Architect / Engineering (e)	100,000
Computer Systems / Equipment (f)	
Hardware	
Software	
Training	
Service	
Furnish / Equipment (g)	
Other (h)	
Total Capital Budget Request	2,000,000

Other Information	
Total Square Footage:	
Estimated Useful Life:	50 years

Related Annual Operating Budget Expenditures / Savings Estimates	
Expenditures	Savings
Permanent Personnel Services (a)	
Other Personnel Services (b)	
Current Expense (c)	
Equipment (d)	
Travel (e)	
Other (f)	
Total Expenditures / Savings Estimates	
Accounting Unit:	
Will these amounts be consistent each year?	

Capital Budget Criteria (See Instructions)	
Requirement Code:	A, B, C or D
Definition Code:	A, B, C, D, or X
Funding Percentages by Source:	G, F, H, O
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan. Project #	

Project Justification (Be Concise)

Critical bridge maintenance repairs are needed on the four (4) State Owned operating railroad lines (Concord-Lincoln, Mountain Division, Northern Railroad Line, and the Groveton Branch) to maintain safe freight and passenger operations. Work will include engineering, purchasing of material, hiring contractors, construction, and project supervision. Capital Budget funds would make long overdue structural repairs to 41 bridges on the State-owned railroad lines listed above and include needed structural repairs to the bridges. The structural repairs are necessary to provide continued freight and passenger rail traffic on the State-owned lines. Annual inspections of the railroad bridges on the State-owned active lines noted deficiencies that need to be repaired for the bridges to remain in service and these requested funds would repair substandard conditions found during this and prior year inspections. If the repairs are not made and conditions worsen, then the bridges will have to be taken out of service per Federal Railroad Administration regulations, thus taking the railroad line out of service. The structural repairs are to the abutments, piers, beams, girders and bridge shoes. The total estimated cost to make the bridge repairs is \$2,000,000. These major bridge repairs are beyond the funding capacity of the Special Railroad Fund that is used for routine maintenance and repairs to the over 250 miles of active state-owned railroad lines. This project will have no effect on the State's utility consumption.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name: Patrick C. Herlihy, Director of Aeronautics, Rail and Transit

Telephone Number: 603-271-2449

Name: Victoria F. Sheehan

Commissioner

Date: 4/6/2018

2020-2021 Biennium: Railroad Bridge Repairs
(State-owned Active Railroad Bridges)

Critical bridge maintenance repairs are needed on the four (4) state-owned operating railroad lines (Concord-Lincoln, Mountain Division, Northern Railroad Line, and the Groveton Branch) to maintain safe freight and passenger operations. Capital Budget funds would make long overdue structural repairs to 41 bridges on the four state-owned railroad lines listed above and include needed structural repairs to the bridges. The structural repairs are to the abutments, piers, beams, girders and bridge shoes. The total estimated cost to make the bridge repairs is \$2,000,000. The structural repairs are necessary to provide continued freight and passenger rail traffic on the state-owned lines. Annual inspections of the railroad bridges on the state-owned active lines noted deficiencies that need to be repaired for the bridges to remain in service and these requested funds would repair substandard conditions found during this and prior year inspections.

Proposed work will include engineering, purchasing and installing new bridge timbers and stringers, replacing deteriorated concrete on abutments and piers, repointing masonry abutments and other miscellaneous work around the bridges, as well as, hiring contractors and construction and project supervision. The bridges identified as requiring repairs at this time based on our latest railroad bridge inspections are:

Concord-Lincoln Railroad Line	15 bridges over brooks & rivers
Mountain Division Railroad Line	20 bridges over brooks & rivers
Northern Railroad Line	1 bridge over Connecticut River
Groveton Branch Railroad Line	5 bridges over brooks

These needed bridge repairs are beyond the limited funding capacity of the Special Railroad Fund that is used for routine maintenance and repairs to over 250 miles of active state-owned railroad lines and 160 bridges. The Special Railroad Fund is budgeted at approximately \$600,000 per year and is expected to fund the maintenance of 250 miles of active state-owned railroad lines, 160 bridges, and emergency repairs to abandoned state-owned railroad lines. Special Railroad Funds are used to replace culverts, purchase track materials, complete minor track and bridge work, and replace small railroad at-grade crossings. The Special Railroad Fund money is severely inadequate to complete expensive repair projects, such as bridge repairs, and to maintain the State’s railroad tracks to a condition that is required for any level of safety for tourist and freight service. State Capital Budget funds are therefore needed to make railroad bridge repairs to approximately 41 state-owned railroad bridges. If needed repairs are not made and conditions worsen, then the bridges will have to be taken out of service per Federal Railroad Administration regulations, thus taking the railroad line out of service.

PROJECT EXPENSE BREAKDOWN

PROJECT COST BY RAILROAD LINE

Concord-Lincoln Railroad Line	15 bridges over brooks & rivers	\$850,000
Mountain Division Railroad Line	20 bridges over brooks & rivers	\$750,000
Northern Railroad Line	1 bridge over Connecticut River	\$200,000
Groveton Branch Railroad Line	5 bridges over brooks	\$200,000
TOTAL	41 bridges	\$2,000,000

Construction & materials	\$1,900,000	95% total project cost
Engineering (including inspection)	\$100,000	5% total project cost

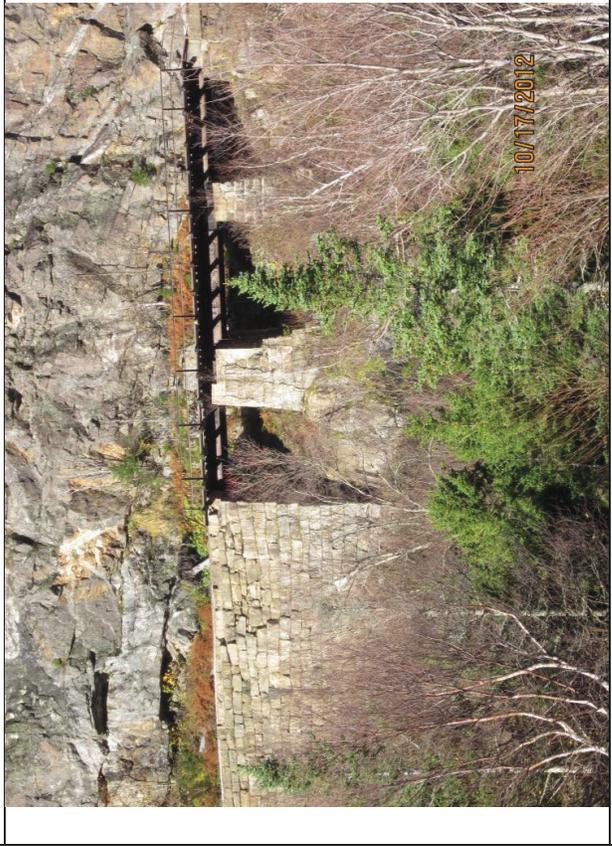
2020-2021 Railroad Capital Budget Request: State-owned Active Railroad Bridge Repairs



Concord-Lincoln Railroad Line: Corroded steel on River Road Bridge



Groveton Branch: Northumberland River requiring timber stringer & tie replacements

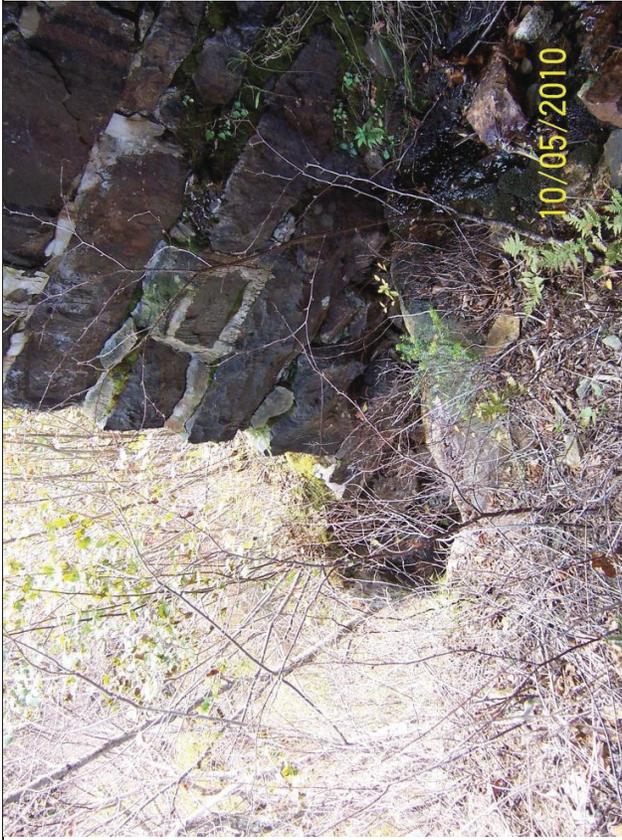


Mountain Division: The Girders Bridge requiring pier & abutment repairs



Mountain Division: The Girders Bridge pier requiring remortaring

2020-2021 Railroad Capital Budget Request: State-owned Active Railroad Bridge Repairs



Mountain Division: The Girders Bridge pier requiring foundation replacement



Mountain Division: The Girders Bridge close-up of crushed support timber



Mountain Division: Avalanche Brook Bridge requiring remortaring



Mountain Division: Cherry Mountain Bridge requiring bridge seat & abutment

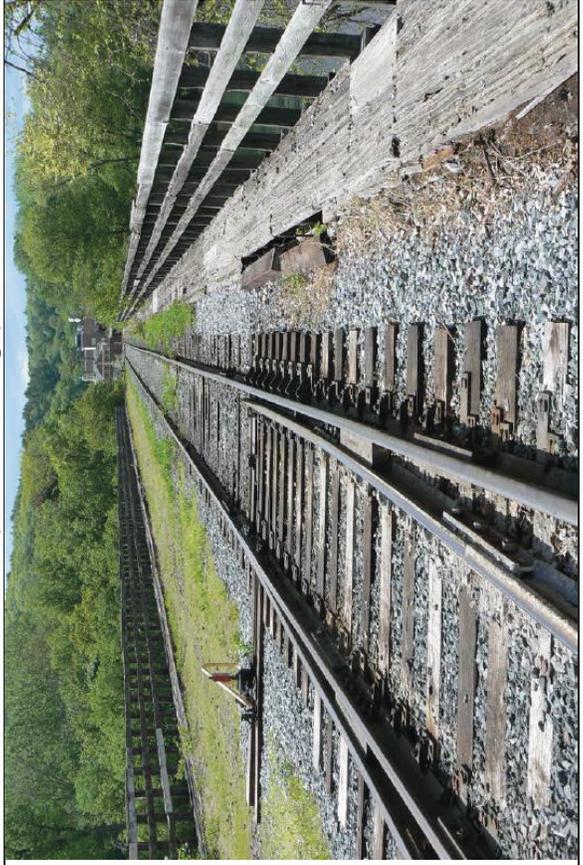
2020-2021 Railroad Capital Budget Request: State-owned Active Railroad Bridge Repairs



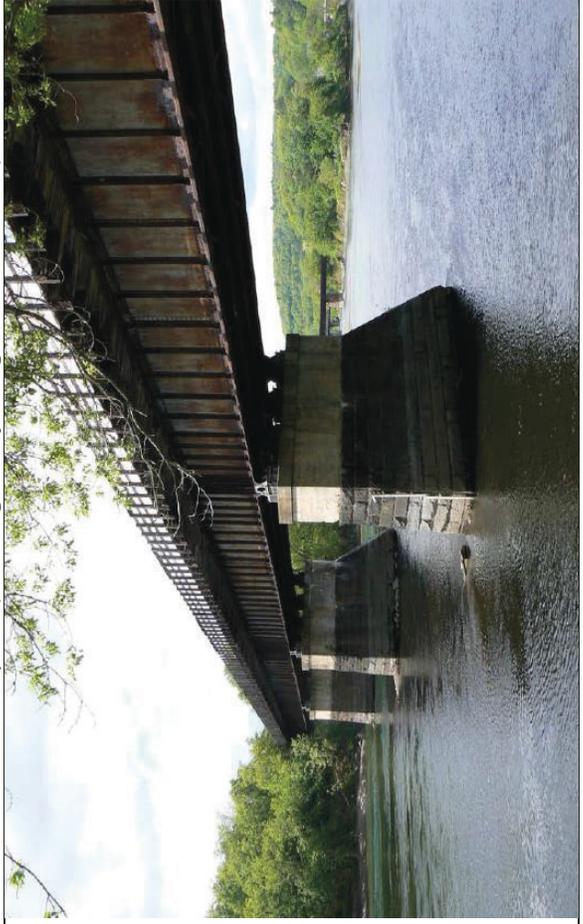
Mountain Division: Halfway Brook requiring foundation & abutment repairs (also salt damage)



Northern Railroad: Connecticut River Bridge requiring surface repairs and bridge shoe repairs (cleaning, readjusting & refabrication)



Northern Railroad: Connecticut River Bridge requiring surface repairs and



Northern Railroad: Connecticut River Bridge requiring replacement of

STATE OF NEW HAMPSHIRE
CAPITAL IMPROVEMENT PROJECT REQUEST
 FISCAL YEARS 2020-2021

NAME	
AGENCY	NH DEPARTMENT OF TRANSPORTATION
ACTIVITY / DIVISION	Operations

Priority #	Project Name	Funding Source			Total	
		General	Federal	Highway		Other
1	Statewide Equipment 2020			5,000,000	5,000,000	
2	Manchester 527 - Patrol Shed Addition/Renovation			1,800,000	1,800,000	
3	Derry 528 - Brine System			200,000	200,000	
4	Statewide - Life Safety Code Improvements			1,900,000	1,900,000	
5	Lancaster District Office - Addition			660,000	660,000	
6	Statewide - Salt Sheds			1,800,000	1,800,000	
7	Statewide - Underground Fuel Tank Replacement			2,000,000	2,000,000	
8	NHDOT Document Management Software			1,000,000	1,000,000	
9	NHDOT Work Order System Phase 1			2,000,000	2,000,000	
10	Statewide Equipment 2021			5,000,000	5,000,000	
11	Derry 528 - Vehicle Wash Building			700,000	700,000	
12	Enfield 224 - Vehicle Wash Building			700,000	700,000	
13						
14						
15					0	
Totals - Projects 1-15		0	0	22,760,000	0	22,760,000

Name: Victoria Sheehan Title: Commissioner Date: 4/6/13

STATE OF NEW HAMPSHIRE
CAPITAL IMPROVEMENT PROJECT REQUEST
 FISCAL YEARS 2020 - 2021

PRIORITY # 1

AGENCY	096	NAME	New Hampshire Department of Transportation
ACTIVITY / DIVISION	960515		Division of Operations
PROJECT-TITLE / NAME			Statewide Equipment 2020

Capital Budget Request		
Site Acquisition (a)		
Site Improvement / Preparation (b)		
Construction (c)		
Utilities (d)		
Architect / Engineering (e)		
Computer Systems / Equipment (f)		
Hardware		
Software		
Training		
Service		
Furnish / Equipment (g)		5,000,000
Other (h)		
Total Capital Budget Request		5,000,000

Other Information	
Total Square Footage:	
Estimated Useful Life:	

Related Annual Operating Budget Expenditures / Savings Estimates		
	Expenditures	Savings
Permanent Personnel Services (a)		
Other Personnel Services (b)		
Current Expense (c)		
Equipment (d)		
Travel (e)		
Other (f)		
Total Expenditures / Savings Estimates		

Accounting Unit: _____
 Will these amounts be consistent each year? _____

Capital Budget Criteria (See Instructions)			
Requirement Code:	A, B, C or D	B	
Definition Code:	A, B, C, D, or X	D	
Funding Percentages by Source:	G, F, H, O	H	100.00%
G = General	F = Federal		%
H = Highway	O = Other		%
An Information Technology Project must be part of your IT Plan. Project # _____			

Project Justification (Be Concise)

The Department of Transportation Equipment fleet has an estimated replacement value of approximately \$95.8 million. Depending on the equipment type the Department has set ideal trade parameters ranging from 6 years or 150,000 miles for a medium duty 1-ton truck, 12 years or 250,000 for a 10 wheel plow truck to 40 years or 12,000 hours for a stainless steel salt spreader. The Department estimates we should be spending \$8.24 million per year to keep up with our trade parameters. As of July 1, 2017 we have approximately \$39.95 million in equipment that has exceeded the trade parameters. This \$5 million investment will help meet that goal and will only be used for equipment with a useful life of 10 years or greater. The Department will be requesting adequate equipment funding as part of our Operating budget and the Department will reduce or withdraw this capital request as well as our Statewide Equipment 2021 request if our Operating budget is approved at adequate levels. This project will provide more fuel efficient equipment and will decrease the State's utility consumption.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name:	David Rodrigue - Director of Operations	Telephone Number:	271-1486
Name:	Victoria Sheehan	Commissioner	Date: 4/6/18

Mechanical Services									
Equipment Acquisition Appropriation/Investment History									
Fiscal Year	1/2 Ton Pick-up	3/4 Ton Pick-up	6-wheel Cab & Chassis	10-Wheel Cab & Chassis	Class 30 Appropriations	Actual Encumbrance	Lapse or Reductions	Alternative Funding	Comments
2000	\$12,623	\$18,656	\$37,678	\$61,866	\$5,111,258	\$5,108,744			
2001	\$12,369	\$18,885	\$37,638	\$58,422	\$4,946,491	\$4,946,174			
2002	\$12,597	\$15,615	\$41,417	\$60,143	\$5,573,156	\$5,574,531			
2003	\$11,880	\$16,753	\$50,195	\$78,815	\$7,282,539	\$7,277,488			
2004					\$4,458,464	\$0	\$4,458,464		Mandated Freeze - Governor Benson
2005	\$11,500	\$19,200	\$55,299	\$98,710	\$4,643,206	\$4,627,708			
2006	\$12,540	\$18,331	\$55,333	\$91,846	\$4,500,000	\$4,499,939			
2007	\$12,741	\$18,887	\$58,634	\$89,042	\$4,500,000	\$4,502,456			
2008					\$3,500,000	\$41,436	\$3,458,564		Internal lapse - Hwy. Fund Deficit
2009		\$19,890	\$71,988	\$117,916	\$3,500,000	\$2,127,373	\$1,372,627		Internal lapse - Hwy. Fund Deficit
2010	\$14,769	\$19,940	\$74,581	\$109,544	\$3,510,000	\$3,493,148			
2011	\$14,829	\$19,807	\$83,073	\$116,225	\$3,500,000	\$6,460,434			\$2.99 M Transferred from the Highway Fund
2012			\$87,391	\$116,225	\$2,702,384	\$2,702,218			
2013		\$22,100	\$93,727	\$117,670	\$2,937,985	\$2,602,832	\$335,000		Lapse - Chapter 223:19, II Laws of 2011
2014		\$21,570	\$92,269	\$124,673	\$2,500,000	\$2,694,753			\$205,000 Transferred from Org. 3035 Bureau of Construction
2015		\$24,716	\$90,220	\$125,600	\$2,800,000	\$3,941,801			\$1,142,000 Transferred from the Highway Fund
2016	\$18,712	\$24,668			\$2,000,000	\$6,990,327			\$5.0 M of Bonded Funds Were Added:
2017	\$19,121	\$25,278	\$90,998	\$123,009	\$2,000,000	\$4,316,682			Chapter 220, Laws of 2015 (HB25), 04-096-096-960030-82930000-034
2018	\$18,922	\$26,631			\$2,000,000	\$3,098,468			\$2,316,929 was transfers from FY2016 winter savings, Chapter
					\$27,450,369	\$38,428,036	\$1,707,627	\$22,549,927	\$10.0 Million - Fund 30, Class 34 - HB 25-FN-A-II-F (Capital)
									\$789,748 Federal DERA
									\$106,250 State DERA

The Department has establish target funding requests for equipment replacement to be approximately 10% of the fleet value per year. For Fiscal Year 2018, \$8.0 million was requested through normal appropriation & \$10 M in Capital request that exceeds 10% of the fleet replacement value (approx. \$95.8m) as of July 1, 2017. Over the past 10 years the Department's fleet investment was limited to \$38.4 million or 42% of the desired amount.

- Assumptions:**
- 1 Class 30 Appropriations = Original Appropriations through the Highway Fund : 04-96-96-960515-30050000-030
 - 2 Actual Expenditure amounts in each Fiscal Year may differ from Actual Encumbered amounts due to time required from the date a purchase order is issued to the date of delivery for each fleet unit.
 - 3 Fleet Value is calculated from the approx. replacement costs for all the active equipment.
 - 4 FY2018 Actual Encumbrance is effective as of 2/21/2018. A total of \$12.9 million is available.

Fleet Parameters:

Samples of Fleet: Age and Usage

As of July 1, 2017: Fleet of 1,231 units with a replacement value estimated to be \$95.8 million.

Description	Number	Value (millions)	Ave. Age (years)	AGE (years)				Usage (miles)			Usage (Hours)		
				# > 7	# > 10	# > 12	# > 15	# > 150K	# > 180K	# > 200K	# > 10K	# > 12K	# > 15K
Extra Heavy Trucks	70	\$15.5	10.1	44	36	27	14	12	6	5	5		
Heavy Trucks	260	\$39.4	8.3	128	97	55	26	53	22	6	23	1	
Medium Trucks	55	\$4.4	7.2	15	14	14	13	15	7	6	1		
Mobile Equipmen	154	\$20.1											
Graders	20	\$6.2	16.5	18	18	15	13				5	2	
Loaders	44	\$7.3	12.8	43	43	35	19				7	3	
Tractor/Loaders	27	\$1.8	16.3	27	23	23	23						
Totals				275	231	169	108	80	35	17	41	6	0
Light Duty Trucks													
1/2 Ton Pick-ups	101	\$1.9	6.2	30	23	9	3	37	16	4			
LDT1 - Other	7	\$166K	9.9	5	4			1	0	0			
3/4 Ton Pick-ups	160	\$4.4	3.9	11	8	4	3	25	6	5			
LDT2 - Other	23	\$767k	11.5	18	17	7	5	16	11	11			
Passenger Cars	112	\$2.0	6.2	44	42	0		37	15	3			
Vans													
<8 Passenger	5	\$130k	9.2	3	3			3	3	3			
9-20 Passenger	1	\$26K	15.3	1	1	1	1	1	1	1			
Totals				112	98	21	12	120	52	27			

Fiscal Year 2018 Fleet Statistics as of July 1, 2017
Replacement Evaluation Criteria
Attachment 3

Effective 7/1/2017, revised 7/26/2017		A	B	C	D	E	F	G	H	I	J	K
Category	Category Description	Expected Age	Expected Usage Primary	Expected Usage Secondary	# Units	Approx. Replacement Costs (Total Fleet) (D x H)	# Exceeds Life Age or Usage	% of Fleet Exceeding Parameters	Approx. Replacement Costs	Current Replacement Sub Totals (F x H)	Current Replacement Class Totals (Sum of I)	Target Funding Level / Yr. (D/A x H)
0963800	MECHANICAL SERVICES				1231		412	33%				
EHDT	Trucks_ExtraHeavy Duty >45000#				70	\$ 15,585,000	29	41%			\$ 7,505,000	
19009	HD CRANE-H400	15	8,000 H	250,000 M	1	\$ 250,000	1	100%	\$ 250,000	\$ 250,000		\$ 16,667
19010	BRIDGE INSPECTOR	15	8,000 H	250,000 M	1	\$ 675,000	1	100%	\$ 675,000	\$ 675,000		\$ 45,000
55012	OVER 5 TON TRUCKS	12	12,000 H	250,000 M	43	\$ 7,525,000	10	23%	\$ 175,000	\$ 1,750,000		\$ 627,083
55013	STRIPER TRUCKS	15	12,000 H	250,000 M	5	\$ 2,375,000	4	80%	\$ 475,000	\$ 1,900,000		\$ 158,333
55014	TRACTOR TRUCKS	15	12,000 H	250,000 M	3	\$ 450,000	2	67%	\$ 150,000	\$ 300,000		\$ 30,000
55051	KNUCKLE BOOM CRANE TRUCKS	15	10,000 H	250,000 M	12	\$ 3,360,000	6	50%	\$ 280,000	\$ 1,680,000		\$ 224,000
55053	BRINE TRUCKS	12	12,000 H	250,000 M	4	\$ 700,000	4	100%	\$ 175,000	\$ 700,000		\$ 58,333
61018	EDUCTORS	15	10,000 H	250,000 M	1	\$ 250,000	1	100%	\$ 250,000	\$ 250,000		\$ 16,667
HDT	Trucks_Heavy Duty > 20001#				260	\$ 39,410,000	72	28%			\$ 10,935,000	
55011	3 TO 5 TON TRUCKS	12	12,000 H	180,000 M	233	\$ 34,950,000	50	21%	\$ 150,000	\$ 7,500,000		\$ 2,912,500
55021	CAR CARRIERS/WRECKERS	15	180,000 M	12,000 H	1	\$ 150,000	0	0%	\$ 150,000	\$ -		\$ 10,000
55038	AERIAL TRUCK	12	12,000 H	200,000 M	2	\$ 550,000	1	50%	\$ 275,000	\$ 275,000		\$ 45,833
55054	CATCH BASIN CLEANING TRUCK	12	12,000 H	180,000 M	3	\$ 525,000	1	33%	\$ 175,000	\$ 175,000		\$ 43,750
55055	ATTENUATOR TRUCKS	12	12,000 H	180,000 M	18	\$ 2,700,000	18	100%	\$ 150,000	\$ 2,700,000		\$ 225,000
55056	SWAP BODY TRUCKS	12	12,000 H	180,000 M	1	\$ 175,000	1	100%	\$ 175,000	\$ 175,000		\$ 14,583
61022	PAINT VANS	15	180,000 M	12,000 H	1	\$ 110,000	1	100%	\$ 110,000	\$ 110,000		\$ 7,333
61033	MOBIL CORE DRILL	15	12,000 H	150,000 M	1	\$ 250,000	0	0%	\$ 250,000	\$ -		\$ 16,667
MDT	Trucks_Medium Duty > 10001#				55	\$ 4,400,000	32	58%			\$ 2,560,000	
55009	1 TO 1-1/2 TON TRUCKS	6	150,000 M	0 H	50	\$ 4,000,000	28	56%	\$ 80,000	\$ 2,240,000		\$ 666,667
55010	PATROL TRUCKS	10	12,000 H	150,000 M	5	\$ 400,000	4	80%	\$ 80,000	\$ 320,000		\$ 40,000
LDT1	Trucks_Light Duty < 10001#				108	\$ 2,085,000	47	44%			\$ 919,000	
55008	1/2 TON PICKUPS	7	150,000 M	0 N	101	\$ 1,919,000	42	42%	\$ 19,000	\$ 798,000		\$ 274,143
55016	CARGO/BOX TRUCKS - UP TO 8500 LBS	7	150,000 M	0 N	1	\$ 26,000	1	100%	\$ 26,000	\$ 26,000		\$ 3,714
55022	SUVS - UP TO 8500 LBS	7	150,000 M	0 N	2	\$ 40,000	1	50%	\$ 20,000	\$ 20,000		\$ 5,714
56001	VANS/BUSES - UP TO 8 PASSENGERS CAPACITY	7	150,000 M	0 N	4	\$ 100,000	3	75%	\$ 25,000	\$ 75,000		\$ 14,286
LDT2	Trucks_Light Duty > 8501#				183	\$ 5,167,000	49	27%			\$ 1,481,500	
55015	3/4 TON PICKUPS	7	150,000 M	0 N	160	\$ 4,400,000	31	19%	\$ 27,500	\$ 852,500		\$ 628,571
55017	CARGO/BOX TRUCKS - 8501 LBS TO 10000 LBS	10	150,000 M	0 N	5	\$ 130,000	3	60%	\$ 26,000	\$ 78,000		\$ 13,000
55023	SUVS - 8501 LBS TO 10000 LBS	10	150,000 M	0 N	13	\$ 390,000	11	85%	\$ 30,000	\$ 330,000		\$ 39,000
61027	UTILITY VEHICLES	10	150,000 M	0 N	3	\$ 195,000	3	100%	\$ 65,000	\$ 195,000		\$ 19,500
61028	ROAD ANALYSIS VEHICLES	10	150,000 M	0 N	2	\$ 52,000	1	50%	\$ 26,000	\$ 26,000		\$ 5,200
PASSAUT	Passenger Autos_				112	\$ 1,975,000	49	44%			\$ 887,000	
61024	COMPACT SEDANS	7	150,000 M	0 N	48	\$ 816,000	2	4%	\$ 17,000	\$ 34,000		\$ 116,571
61025	MID SIZE SEDANS	7	150,000 M	0 N	63	\$ 1,134,000	46	73%	\$ 18,000	\$ 828,000		\$ 162,000
61026	FULL SIZE SEDANS	7	150,000 M	0 N	1	\$ 25,000	1	100%	\$ 25,000	\$ 25,000		\$ 3,571
VB1	Vans & Buses_1 seats 9-20				1	\$ 26,000	1	100%			\$ 26,000	
56002	VANS/BUSES - 9 TO 20 PASSENGERS CAPACITY	10	150,000 M	0 N	1	\$ 26,000	1	100%	\$ 26,000	\$ 26,000		\$ 2,600
MEC	Mobile Equipment_Construction				154	\$ 20,137,000	123	80%			\$ 15,497,000	
11001	COMPRESSORS	10	7,500 H	0 N	24	\$ 384,000	24	100%	\$ 16,000	\$ 384,000		\$ 38,400
19008	YARD CRANES	15	6,500 H	0 N	5	\$ 675,000	4	80%	\$ 135,000	\$ 540,000		\$ 45,000
25001	MOTOR GRADERS	13	12,000 H	0 N	20	\$ 6,200,000	15	75%	\$ 310,000	\$ 4,650,000		\$ 476,923
25003	MAINTAINERS	12	10,000 H	0 N	1	\$ 240,000	1	100%	\$ 240,000	\$ 240,000		\$ 20,000
33002	WHEELED LOADERS	12	12,000 H	0 N	44	\$ 7,260,000	35	80%	\$ 165,000	\$ 5,775,000		\$ 605,000
43001	SELF PROPELLED SWEEPERS	10	9,000 M	100,000 H	2	\$ 600,000	2	100%	\$ 300,000	\$ 600,000		\$ 60,000
49001	TRACTOR/MOWERS	12	6,000 H	0 N	7	\$ 805,000	2	29%	\$ 115,000	\$ 230,000		\$ 67,083
49002	TRACTOR/LOADERS	12	6,000 H	0 N	27	\$ 1,755,000	23	85%	\$ 65,000	\$ 1,495,000		\$ 146,250
49003	TRACTOR/LOADER/BACKHOES	12	10,000 H	0 N	5	\$ 650,000	5	100%	\$ 130,000	\$ 650,000		\$ 54,167
49007	FORK LIFTS	12	6,000 H	0 N	3	\$ 150,000	3	100%	\$ 50,000	\$ 150,000		\$ 12,500
49013	SKID STEER LOADERS	12	5,000 H	0 N	9	\$ 495,000	4	44%	\$ 55,000	\$ 220,000		\$ 41,250
59001	TRAILER WELDERS	15	5,000 H	0 N	1	\$ 10,000	1	100%	\$ 10,000	\$ 10,000		\$ 667
61003	CORE DRILLS	15	12,000 H	0 N	5	\$ 900,000	3	60%	\$ 180,000	\$ 540,000		\$ 60,000
61020	BOILER AND STEAM CLEANER	20	10,000 H	0 M	1	\$ 13,000	1	100%	\$ 13,000	\$ 13,000		\$ 650
TRE	Trailers_Equipment -Flatbed				9	\$ 90,000	9	100%			\$ 90,000	
53002	TRAILERS	10	10,000 H	180,000 M	9	\$ 90,000	9	100%	\$ 10,000	\$ 90,000		\$ 9,000
TRENC	Trailers_Enclosed				2	\$ 50,000	0	0%			\$ 25,000	
53007	BOX TRAILERS	10	0 H	0 M	2	\$ 50,000	1	50%	\$ 25,000	\$ 25,000		\$ 5,000
AE	Associated Equipment_				277	\$ 6,915,000	1	0%			\$ 20,000	
61002	SLIDE-IN SPREADERS	40	12,000 H	0 N	275	\$ 6,875,000	0	0%	\$ 25,000	\$ -		\$ 171,875
61076	SELF PROPELLED SCISSORS LIFT	10	H	N	2	\$ 40,000	1	50%	\$ 20,000	\$ 20,000		\$ 4,000
					Total=	\$ 95,840,000				Total=	\$ 39,945,500	\$ 8,264,053
Notes:	Approx. acquisition costs paid to purchase the current fleet \$67.4 million											
	Approx. depreciated value of the current fleet \$26.3 million											
	Column J: Target Funding Level / Yr. represents a per year requirement for equipment replacement based on expected life.											
To catch up over time:												
1 yr	\$39,945,500											
5 yrs	\$7,989,100											
10 yrs	\$3,994,550											
15 yrs	\$2,663,033											

The Fleet Statistics Table establishes criteria for fleet vehicles to be evaluated for potential replacement. The table also provides estimated replacement cost based of category description. Actual fleet units replaced are determined by field evaluations.

Actual Unit Replacement:

While the Fleet Statistic spreadsheet shown above provides guidance as to which units need to be evaluated for potential replacement, the actual replacement can occur over a year from the date the appropriation is available. Shown below are the proposed trade unit's parameters that were effective July 1, 2017. Most of these units are still in operation until the replacement unit arrives.

Fiscal Year 2018 funded fleet acquisition replacements-Heavy Fleet

Fiscal Year 2018 DERA Funded Trade List															
CLASS	CAT DESC	COUNT	UNIT	ACT_COD	YEAR	MAKE	MODEL	DESC	LTD_USAGE	Type	Mtr 2	Type	Age	Expect Age	
STATE (EPA) DERA Funded Replacements (25% of purchase price)															
EHDT	TRACTOR TRUCKS	1	H0485	MECH	2000	INT	SF2574	2000 TRACTOR TRUCK/WRECKER	8,651	H	269,824	M	16.92	15	
TRACTOR TRUCK															
EHDT	KNUCKLE BOOM CRANE	1	H1636	BR/CRAN	2002	INT	SF2574/CRANE	OVER 5 TON TRUCK W/N100 CRANE & SWAPLOADER	8,223	H	96,105	M	15.58	12	
KNUCKLE BOOM CRANE - OVER 45000 LBS															
FEDERAL (EPA) DERA Funded Replacements (22.06% of purchase price)															
EHDT	STRIPER TRUCKS	1	H0568	STRIPER	1997	GMC	F7B064	1997 STRIPER TRUCK	152,473	M		N	19.25	15	
EHDT	STRIPER TRUCKS	2	H0538	STRIPER	1999	VOLVO	WX64 CABOVER	1999 STRIPER TRUCK	237,358	M		N	17.17	15	
STRIPER TRUCKS															
MEC	WHEELED LOADERS	1	H0826	MAINT	1999	JOHN DEERE	544H	2 1/2 CY 4WD WHEELED LOADER	11,453	H		N	18.17	12	
MEC	WHEELED LOADERS	2	H0824	MAINT	1999	JOHN DEERE	544H	2 1/2 CY 4WD WHEELED LOADER	10,704	H		N	18.00	12	
MEC	WHEELED LOADERS	3	H0726	MAINT	1999	JOHN DEERE	544H	2 1/2 CY 4WD WHEELED LOADER	10,507	H		N	18.00	12	
MEC	WHEELED LOADERS	4	H0777	MAINT	2001	JOHN DEERE	544H	2 1/2 CY 4WD WHEELED LOADER W/ACS COUPLER	12,385	H		N	15.92	12	
MEC	WHEELED LOADERS	5	H0797	MAINT	2001	JOHN DEERE	544H	2 1/2 CY 4WD WHEELED LOADER W/ACS COUPLER	11,529	H		N	15.92	12	
MEC	WHEELED LOADERS	6	H0855	MAINT	2001	JOHN DEERE	544H	2 1/2 CY 4WD WHEELED LOADER	11,428	H		N	15.83	12	
MEC	WHEELED LOADERS	7	H0714	MAINT	2003	KOMATSU	WA250-3	2 1/2 CY 4WD WHEELED LOADER W/ACS COUPLER	10,335	H		N	13.92	12	
MEC	WHEELED LOADERS	8	H0775	MAINT	2003	KOMATSU	WA250-3	2 1/2 CY 4WD WHEELED LOADER W/ACS COUPLER	9,945	H		N	13.92	12	
MEC	WHEELED LOADERS	9	H0701	MAINT	2003	KOMATSU	WA250-3	2 1/2 CY 4WD WHEELED LOADER W/ACS COUPLER	9,213	H		N	13.92	12	
MEC	WHEELED LOADERS	10	H0715	MAINT	2003	KOMATSU	WA250-3	2 1/2 CY 4WD WHEELED LOADER W/ACS COUPLER	8,759	H		N	13.92	12	
MEC	WHEELED LOADERS	11	H0796	MAINT	2003	KOMATSU	WA250-3	2 1/2 CY 4WD WHEELED LOADER W/ACS COUPLER	8,545	H		N	13.92	12	
MEC	WHEELED LOADERS	12	H0740	MAINT	2003	KOMATSU	WA250-3	2 1/2 CY 4WD WHEELED LOADER W/ACS COUPLER	9,941	H		N	13.75	12	
MEC	WHEELED LOADERS	13	H0717	MAINT	2003	KOMATSU	WA250-3	2 1/2 CY 4WD WHEELED LOADER W/ACS COUPLER	9,472	H		N	13.75	12	
MEC	WHEELED LOADERS	14	H0831	MAINT	2003	KOMATSU	WA250-3	2 1/2 CY 4WD WHEELED LOADER W/ACS COUPLER	8,519	H		N	13.75	12	
MEC	WHEELED LOADERS	15	H0823	MAINT	2003	KOMATSU	WA250-3	2 1/2 CY 4WD WHEELED LOADER W/ACS COUPLER	8,292	H		N	13.75	12	
MEC	WHEELED LOADERS	16	H0749	MAINT	2006	CAT	928GZ	3 CY 4WD WHEELED LOADER W/ACS COUPLER	8,344	H		N	10.67	12	
MEC	WHEELED LOADERS	17	H0806	MAINT	2006	KOMATSU	WA250-5	3 CY 4WD WHEELED LOADER W/ACS COUPLER	6,414	H		N	10.67	12	
MEC	WHEELED LOADERS	18	H0753	MAINT	2006	CAT	928GZ	3 CY 4WD WHEELED LOADER W/ACS COUPLER	6,337	H		N	10.67	12	
WHEELED LOADERS															
MEC	MOTOR GRADERS	1	H0751	MAINT	1998	JOHN DEERE	672CH	MOTOR GRADER	10,674	H		N	18.83	13	
GRADERS															

Fiscal Year 2018 funded fleet acquisition replacements-Light Fleet

Fiscal Year 2018 Light Fleet Trade List																	
CLASS	CAT	CAT DESC	BUREAU	LOCATIO	UNIT	ACT_COD	YEAR	MAKE	MODEL	DESC	IN_SERV	LTD_USA	Type	Mtr 2	Type	Age	
MDT	55009	1 TO 1-1/2	DISTRICT	406 - SWA	H1548	MAINT	2006	FORD	F450 DUM 1 1/2 TON	03/14/2006		175,690	M	6,728	H	11.33	
MDT	55009	1 TO 1-1/2	BRIDGE	N 266 - BRIC	H1344	BR/MAINT	2007	FORD	F450 4X4C CREW CA	11/21/2006		80,330	M	4,449	H	10.67	
MDT	55009	1 TO 1-1/2	BRIDGE	N 274 - BRIC	H1557	BR/MAINT	2008	FORD	F450 4X4C 4X4 REG C	08/20/2007		38,824	M	1,587	H	9.92	
MDT	55009	1 TO 1-1/2	TRAFFIC	54 - BURE	H0319	SIGNAL	2008	FORD	F450 SIGN 1 1/2 TON	12/14/2007		280,240	M	6,997	H	9.58	
55009 1 TO 1-1/2 TON TRUCKS																	
MDT	55010	PATROL T	DISTRICT	204 - NO.	H1505	MAINT	2002	FORD	F550 AER F550 4X4	07/25/2002		8,386	H	126,107	M	15.00	
MDT	55010	PATROL T	DISTRICT	525 - CAN	H1506	MAINT	2002	FORD	F550 AER F550 4X4	08/15/2002		10,470	H	199,957	M	14.92	
MDT	55010	PATROL T	DISTRICT	600 - DIST	H1503	MAINT	2002	FORD	F550 AER F550 W/A	01/23/2003		8,536	H	177,400	M	14.50	
55010 PATROL TRUCKS																	
LDT1	55008	1/2 TON P	CONSTRU	30 - BURE	H1974	NONMAIN	2007	FORD	F150	1/2 TON R	01/23/2007		169,907	M		N	10.50
LDT1	55008	1/2 TON P	CONSTRU	30 - BURE	H1972	NONMAIN	2007	FORD	F150	1/2 TON R	02/16/2007		167,883	M		N	10.42
LDT1	55008	1/2 TON P	TRAFFIC	54 - BURE	H1382	NONMAIN	2007	FORD	F150	1/2 TON R	04/24/2007		168,770	M		N	10.25
LDT1	55008	1/2 TON P	CONSTRU	30 - BURE	H1956	NONMAIN	2007	FORD	F150	1/2 TON R	04/04/2007		166,193	M		N	10.25
LDT1	55008	1/2 TON P	DISTRICT	300 - DIST	H1514	FLEET	2011	CHEVROL	C1500	1/2 TON R	04/27/2011		219,200	M		N	6.25
LDT1	55008	1/2 TON P	ENVIRON	16 - BURE	H0399	UTILITY	2011	FORD	F150	1/2 TON E	06/21/2011		236,011	M		N	6.08
LDT1	55008	1/2 TON P	DISTRICT	500 - DIST	H1564	MAINT	2011	FORD	F150	1/2 TON R	06/29/2011		194,250	M		N	6.08
LDT1	55008	1/2 TON P	DISTRICT	300 - DIST	H1927	MAINT	2011	FORD	F150	1/2 TON R	08/29/2011		215,728	M		N	5.92
LDT1	55008	1/2 TON P	DISTRICT	200 - DIST	H1365	MAINT	2011	FORD	F150	1/2 TON R	08/30/2011		191,712	M		N	5.92
55008 1/2 TON PICKUPS																	
LDT1	56001	VANS/BU	AERONAL	64 - AERC	H0064	PASSVAN	2006	DODGE	CARAVAN 2006 1/2 T	03/15/2006		129,684	M		N	11.33	
LDT1	56001	VANS/BU	TRAFFIC	54 - BURE	H0229	PASSVAN	2006	DODGE	CARAVAN 2006 1/2 T	03/30/2006		149,763	M		N	11.33	
LDT1	56001	VANS/BU	PLANNINC	46 - PLAN	H0255	FLEET	2006	DODGE	CARAVAN 1/2 TON P	03/16/2006		160,922	M		N	11.33	
56001 VANS/BUSES - UP TO 8 PASSENGERS CAPACITY																	
LDT2	55015	3/4 TON P	DISTRICT	302 - TAM	H1533	MAINT	2009	CHEVROL	2500HD/ X 3/4 TON E	09/15/2009		179,394	M		N	7.83	
LDT2	55015	3/4 TON P	DISTRICT	609 - NEW	H1569	MAINT	2009	CHEVROL	2500HD/ X 3/4 TON E	11/12/2009		166,856	M		N	7.67	
LDT2	55015	3/4 TON P	DISTRICT	527 - MAN	H0326	MAINT	2011	CHEVROL	2500HD	10/04/2010		170,880	M		N	6.75	
LDT2	55015	3/4 TON P	DISTRICT	507 - GOF	H0337	MAINT	2011	CHEVROL	2500HD	11/04/2010		171,850	M		N	6.67	
LDT2	55015	3/4 TON P	DISTRICT	109 - GOR	H1591	MAINT	2011	CHEVROL	2500HD	12/17/2010		167,500	M		N	6.58	
LDT2	55015	3/4 TON P	DISTRICT	215 - LEM	H1594	MAINT	2011	CHEVROL	2500HD	01/04/2011		178,340	M		N	6.50	
LDT2	55015	3/4 TON P	BRIDGE	N 262 - BRIC	H1967	BR/MAINT	2011	CHEVROL	2500HD	01/24/2011		175,903	M		N	6.50	
LDT2	55015	3/4 TON P	DISTRICT	314 - BELI	H1583	MAINT	2011	CHEVROL	2500HD	01/04/2011		170,204	M		N	6.50	
LDT2	55015	3/4 TON P	DISTRICT	600 - DIST	H0330	MAINT	2011	CHEVROL	2500HD	01/11/2011		168,567	M		N	6.50	
LDT2	55015	3/4 TON P	DISTRICT	200 - DIST	H1576	MAINT	2011	CHEVROL	2500HD	01/04/2011		159,697	M		N	6.50	
LDT2	55015	3/4 TON P	DISTRICT	607 - EXE	H1370	MAINT	2011	CHEVROL	2500HD	01/03/2011		158,475	M		N	6.50	
LDT2	55015	3/4 TON P	FUEL DIS	11 - FUEL	H1567	MAINT	2011	CHEVROL	2500HD	02/17/2011		215,117	M		N	6.42	
LDT2	55015	3/4 TON P	FUEL DIS	11 - FUEL	H1566	MAINT	2011	CHEVROL	2500HD	02/03/2011		198,600	M		N	6.42	
LDT2	55015	3/4 TON P	DISTRICT	525 - CAN	H0346	MAINT	2011	CHEVROL	2500HD	02/01/2011		174,250	M		N	6.42	
LDT2	55015	3/4 TON P	DISTRICT	510 - MILF	H1345	MAINT	2011	CHEVROL	2500HD	02/07/2011		161,725	M		N	6.42	
LDT2	55015	3/4 TON P	DISTRICT	611 - SO	H0320	MAINT	2011	CHEVROL	2500HD	02/01/2011		160,010	M		N	6.42	
LDT2	55015	3/4 TON P	DISTRICT	505 - BOW	H1921	MAINT	2011	FORD	F250 X-CA 3/4 TON E	08/25/2011		176,655	M		N	5.92	
LDT2	55015	3/4 TON P	DISTRICT	528 - DER	H0345	MAINT	2011	FORD	F250 X-CA 3/4 TON E	09/28/2011		227,555	M		N	5.83	
LDT2	55015	3/4 TON P	DISTRICT	303 - FREI	H1593	MAINT	2011	FORD	F250 X-CA 3/4 TON E	09/21/2011		171,005	M		N	5.83	
55015 3/4 TON PICKUPS																	
LDT2	55023	SUVS - 85	RIGHT OF	50 - BURE	H1378	SURVEY	2007	CHEVROL	SUBURBA 2007 CHE	03/05/2007		202,249	M		N	10.33	
LDT2	55023	SUVS - 85	RIGHT OF	50 - BURE	H0388	SURVEY	2003	CHEVROL	SUBURBA 2 SEAT C	08/13/2003		239,707	M		N	13.92	
55023 SUVS - 8501 LBS TO 10000 LBS																	
LDT2	61028	ROAD AN	MATERIAL	42 - BURE	H0097	NONMAIN	1994	FORD	E250 PRO PAVEMEN	09/22/1994			M		N		
61028 ROAD ANALYSIS VEHICLES																	
PASSAUT	61025	MID SIZE	RAIL	66 - ADM	H0065	FLEET	2005	CHEVROL	MALIBU	2005 MID	08/30/2005		137,262	M		N	11.92
PASSAUT	61025	MID SIZE	MECHAN	38 - BURE	H0086	POOL	2006	CHEVROL	MALIBU	2006 MID	06/15/2006		146,719	M		N	11.08
PASSAUT	61025	MID SIZE	TRAFFIC	54 - BURE	H0108	FLEET	2007	CHEVROL	MALIBU	2007 MID	11/21/2006		159,805	M		N	10.67
PASSAUT	61025	MID SIZE	RIGHT OF	50 - BURE	H0216	FLEET	2007	CHEVROL	MALIBU	2007 MID	11/13/2006		159,800	M		N	10.67
PASSAUT	61025	MID SIZE	ENVIRON	016 - BUR	H0227	FLEET	2007	CHEVROL	MALIBU	2007 MID	11/21/2006		158,309	M		N	10.67
PASSAUT	61025	MID SIZE	MECHAN	38 - BURE	H0205	POOL	2007	CHEVROL	MALIBU	2007 MID	11/14/2006			M		N	
PASSAUT	61025	MID SIZE	MECHAN	10 - COM	H0140	POOL	2007	CHEVROL	MALIBU	2007 MID	11/08/2006			M		N	
PASSAUT	61025	MID SIZE	BRIDGE	N 26 - BRIC	H0128	FLEET	2007	CHEVROL	MALIBU	2007 MID	12/07/2006		167,317	M		N	10.58
PASSAUT	61025	MID SIZE	RIGHT OF	50 - BURE	H0276	FLEET	2007	CHEVROL	MALIBU	2007 MID	12/27/2006		157,983	M		N	10.58
PASSAUT	61025	MID SIZE	CONSTRU	30 - BURE	H0269	FLEET	2007	CHEVROL	MALIBU	2007 MID	12/05/2006		155,165	M		N	10.58
PASSAUT	61025	MID SIZE	RIGHT OF	50 - BURE	H0106	FLEET	2007	CHEVROL	MALIBU	2007 MID	12/12/2006		153,977	M		N	10.58
PASSAUT	61025	MID SIZE	ENVIRON	16 - BURE	H0215	FLEET	2007	CHEVROL	MALIBU	2007 MID	01/09/2007		195,877	M		N	10.50
PASSAUT	61025	MID SIZE	RIGHT OF	50 - BURE	H0092	FLEET	2007	DODGE	MAGNUM	MID SIZE	01/18/2007		174,536	M		N	10.50
PASSAUT	61025	MID SIZE	CONSTRU	30 - BURE	H0166	FLEET	2007	CHEVROL	MALIBU	2007 MID	01/19/2007		150,058	M		N	10.50
PASSAUT	61025	MID SIZE	DISTRICT	300 - DIST	H0113	FLEET	2007	CHEVROL	MALIBU	2007 MID	02/15/2007		191,573	M		N	10.42
PASSAUT	61025	MID SIZE	DISTRICT	200 - DIST	H0134	FLEET	2007	CHEVROL	MALIBU	2007 MID	03/06/2007		187,647	M		N	10.33
PASSAUT	61025	MID SIZE	HIGHWAY	34 - BURE	H0206	FLEET	2007	CHEVROL	MALIBU	2007 MID	04/12/2007		147,362	M		N	
PASSAUT	61025	MID SIZE	COMMISS	10 - COM	H0002	FLEET	2007	CHEVROL	MALIBU	2007 MID	04/03/2007		143,268	M		N	
61025 MID SIZE SEDANS																	
VB1	56002	VANS/BU	MECHAN	38 - BURE	H0006	POOL	2002	CHEVROL	G20	3/4 TON 1	04/11/2002		199,761	M		N	15.25
56002 VANS/BUSES - 9 TO 20 PASSENGERS CAPACITY																	
TRE	53002	TRAILERS	MECHAN	7 - RIGGE	H0804	LOWBED	2000	ROGERS	SP35PL86 35 TON LC	08/21/2000		2,032	H	136,213	M	16.92	
TRE	53002	TRAILERS	BRIDGE	N 263 - BRIC	H1980	BR/MAINT	2003	CONTRAIL	C-10	10,000# T	09/16/2003		28,129	H	1	M	13.83
53002 TRAILERS																	

Repair Examples:



H319

2008 Ford F-450

252,755 miles

6,997 hours

In-service date 12/14/2007

Acquisition cost using re-mounted lift = \$50,418

Value based on M5 straight Line Depreciation: \$5,041.86

Cost of Heater Core Replacement: \$ 1,805 (Labor: \$1,403 = 34 hrs. & Parts \$401)

Age at heater core repair: 9.8 yrs.

Total Repair Costs to date including 2 replacement engines and 1 transmission: \$90,105.

*This vehicle is currently getting the engine rebuilt 3/12/2017.



H638

2002 International 6 wheeled Plow Truck

160,271 miles

9,457 hours

In-service date 02/27/2003

Acquisition cost = \$91,564.58

Value based on M5 straight Line Depreciation: \$8,138.76

Cost of Rust Repair & Floor Replacement: \$7,385 (\$5,323 -148 hrs. labor / \$2,061 Parts)

Age at Repair: 12.7 yrs.

Total cost of rust repairs: \$25,602 (\$14,273 labor \$11,328 parts)

Total Maintenance /Repair Costs to date: \$98,016 (Labor 1,508.23 hrs/\$44,154, Commercial charges \$6,965, Parts & Materials \$46,897)



H306

2008 Ford F-250 Extended Cab

In-service date 07/13/2007

Age/miles at Repair: 7.4 years 169,576 miles

Acquisition cost = \$19,381

Date of Surplus: 12/10/2015

Miles at Surplus: 203,944

Cost of rust repair: \$2,736.49 (\$2,536 (74 hrs) labor / \$207.5 Parts)

Total Maintenance/Repair Costs to date: \$16,314.47 (308 hrs. \$8,806 labor & \$7,507 Parts)

Value at time of repair: \$7,325 (NADA Rough Trade-in)



H209 (in-house repair)

2005 Chevy Malibu

In-service date 08/11/2005

Age/miles at Repair: 8.5 years 219,139 miles

Acquisition cost = \$13,234

Cost of rust repair: \$2,971 (\$2,017 (72hrs) labor / \$954 Parts)

Value at time of repair: \$350 (NADA Rough Trade-in)

H128 (external repair for body work)

2007 Chevy Malibu

In-service date 12/7/2006

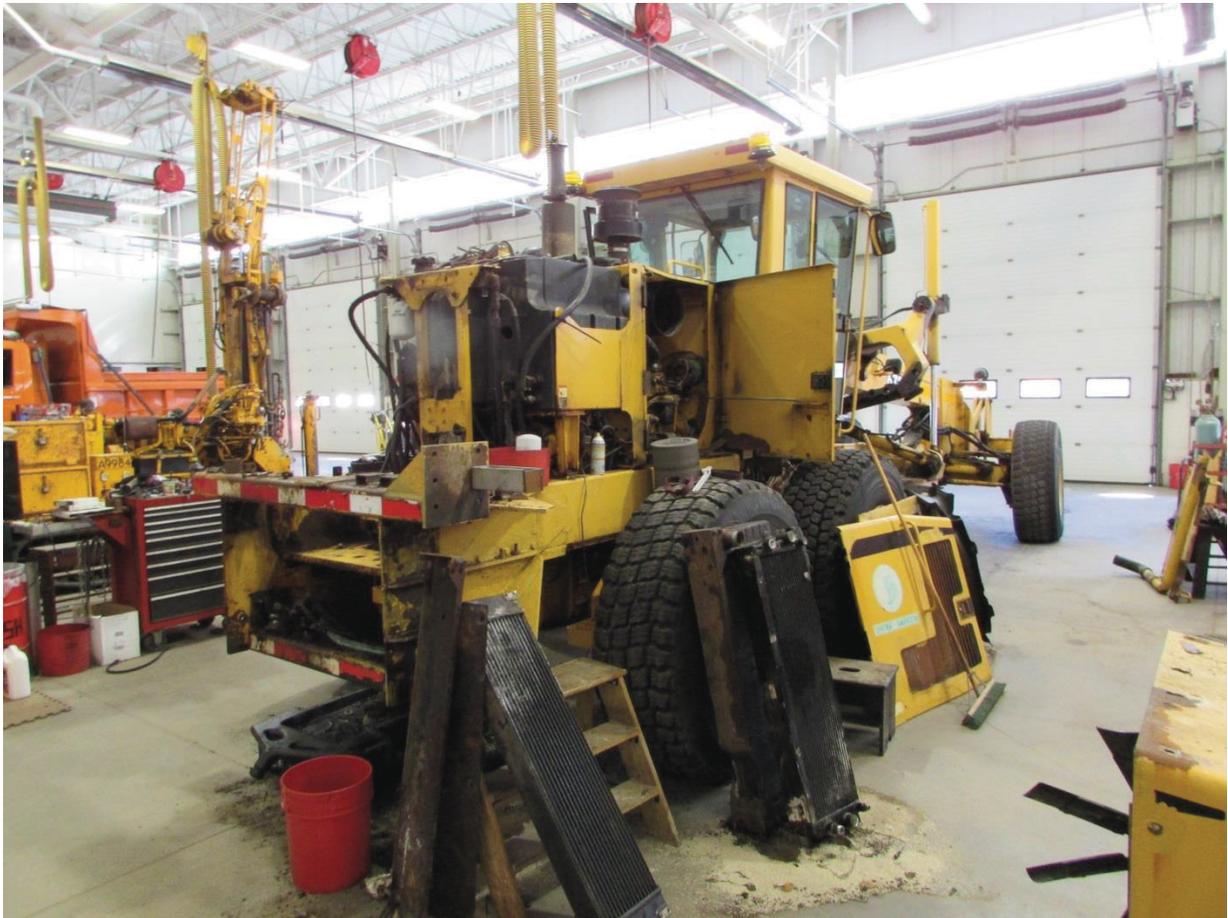
Age/miles at Repair: 8.3 years 148,628 miles

Acquisition cost = \$13,234

Cost of rust repair: \$2,541 (Private garage)

Cost of mechanical Repair: \$555 (\$303 – 11 hrs. labor & \$252 parts)

Value at time of repair: \$350 (NADA Rough Trade-in)







H750

2001 John Deere 672CH Motor Grader

3,805 hours

In-service date 12/12/2001

Acquisition cost = \$152,162

Value based on M5 straight Line Depreciation: \$30,433

Cost of Rust Repair & Radiator Replacement: \$20,940 (\$8,377 -228 hrs. labor / \$12,562 Parts)

Age at Repair: 14.8 yrs.

Total Maintenance /Repair Costs to date: \$106,798 (Labor 1,699 hrs/\$48,388, Commercial charges \$1,073, Parts & Materials \$57,337)



Comments: The municipal dump body was replaced with a flat bed due to corrosion.



Floor Replacement

H409

2002 International 7400 3-5 Ton Dump Truck

7,544 hours 143,162 miles

In-service date: 1/14/2003

Acquisition cost: \$86,616

Value based on M5 straight Line Depreciation: \$8,661

Date of Repair: 1/30/2017

Cost of Rust Repair: \$3,338.70 (\$2,968 -89 hrs. labor / \$370.55 Parts)

Age at Repair: 14.1 yrs.

Total Maintenance /Repair Costs to date: \$98,286 (Labor 1,845 hrs/\$55,574, Commercial charges \$70.5, Parts & Materials \$42,640)



H884

2003 Komatsu 250-3MC Loader

5,821 hours

In-service date: 10/14/2003

Acquisition cost: \$90,643

Value based on M5 straight Line Depreciation: \$18,128

Date of Repair: May 2017

Cost of Rust Repair: \$15,446.97 (\$15,331 -461 hrs. labor / \$115.76 Parts)

Age at Repair: 13.6 yrs.

Total Maintenance /Repair Costs to date: \$74,563 (Labor 1,425 hrs/\$42,361, Commercial charges \$2,134, Parts & Materials \$30,068)



H1409

1999 John Deere 310E Backhoe

12,005 hours

In-service date: 5/25/1999

Acquisition cost: \$51004

Value based on M5 straight Line Depreciation: \$10,444 (Actual value would be for salvage- say \$2,500)

Date of Repair: October 2017

Cost of Rust Repair: (Did not repair-Roll Over Protection System is unavailable)

Age at Repair: 18.4 yrs.

Total Maintenance /Repair Costs to date: \$66,108 (Labor 1,117 hrs/\$29,228, Commercial charges \$2,078, Parts & Materials \$34,801)

STATE OF NEW HAMPSHIRE

CAPITAL IMPROVEMENT PROJECT REQUEST

FISCAL YEARS 2020 - 2021

PRIORITY # 2

AGENCY	096	NAME	New Hampshire Department of Transportation
ACTIVITY / DIVISION	960515		Highway Maintenance District 5
PROJECT-TITLE / NAME			Manchester 527 - Patrol Shed Addition/Renovation

Capital Budget Request	
Site Acquisition (a)	
Site Improvement / Preparation (b)	175,000
Construction (c)	1,475,000
Utilities (d)	135,000
Architect / Engineering (e)	
Computer Systems / Equipment (f)	5,000
Hardware	5,000
Software	
Training	
Service	
Furnish / Equipment (g)	10,000
Other (h)	
Total Capital Budget Request	1,800,000

Other Information	
Total Square Footage:	4,000 SF addition
Estimated Useful Life:	25

Related Annual Operating Budget Expenditures / Savings Estimates	
Expenditures	Savings
Permanent Personnel Services (a)	
Other Personnel Services (b)	
Current Expense (c)	
Equipment (d)	
Travel (e)	
Other (f)	
Total Expenditures / Savings Estimates	
Accounting Unit:	
Will these amounts be consistent each year?	

Capital Budget Criteria (See Instructions)	
Requirement Code:	A, B, C or D
Definition Code:	A, B, C, D, or X
Funding Percentages by Source:	G, F, H, O
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan.	Project #

Project Justification (Be Concise)

Construct approximate 4,000sf addition and approximately 1,000sf of existing building renovation at District 5 Highway Maintenance Patrol Section PS527 facility in Manchester. Current facility is under sized to meet level of service requirements and is not capable of storing current maintenance vehicles. Some sections of the current facility do not meet current building codes and are considered obsolete, these areas will be renovated as part of the construction. The improvements will be sited on the existing property and include an addition/renovation of the existing office and crew areas of appropriate size for the 11-full time employees and up to 20 or more total people for winter maintenance. Also included is the addition of 2 truck storage bays for brine tanker trucks that are used to pre-treat roadways before a storm. This project will increase the State's utility Consumption.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name:	Richard Radwanski - District 5 Engineer	Telephone Number:	666-3336
Name:	Victoria Sheehan	Commissioner	Date: <u>4/6/18</u>

PROJECT NAME: Manchester 527 – Patrol Shed Renovation/Addition

1) Why the project is necessary:

The existing PS527 Manchester facility is under sized, to meet level of service requirements especially given the I-93 Expansion project. Current facility is not capable of storing current maintenance vehicles including brine trucks. Current facility does not meet modern building codes, is considered obsolete, and potentially unsafe. Recent facility improvements to reduce interior mold formation have significantly improved the facility’s energy efficiency. The proposed renovation/addition can be sited on the existing property. Utility and computer system upgrades are included.

2) What the project is replacing or adding on to:

This project will construct new crew quarters, bathrooms, foremen office, and two new vehicle storage bays for brine tanker trucks used to pre-treat roadways before a winter storm. The crew currently includes 11 full-time NH DOT District 5 employees which are supplemented for winter maintenance by up to 5 temporary NH DOT borrowed employees, and 8 hired trucks with an operator. The current facility is too small to allow for crew members to take a break without using space not intended for that purpose. The current facility has one bathroom which is not adequate for the regular crew size, and especially in the winter. Currently the foreman uses a closet as an office which is not secure or conducive for employee relations.

In the winter, the brine tanker trucks are stored inside at the PS511 Bedford facility to reduce the potential freeze-up of dispensing systems if stored outside. If a winter storm requires pre-treatment, then the crew needs to bring the operators to Bedford before the work can begin. Trucks equipped with dry rock salt pre-wet systems can freeze-up when stored outside. Newer plow trucks equipped with vehicle emissions controls can also have temperature related issues if not stored in an above freezing environment.

3) A brief description of what the project includes

The project will include right-sizing the crew quarters, bathrooms, foremen office to meet current building code requirements. Architectural/engineering analyses will define the addition dimensions and utility accommodations. This addition to the building can be made on the west end of the existing structure.

The addition of 2 truck storage bays to the east end of the current structure is also planned. These will match the current building size and configuration with each bay being approximately 20-feet by 50-feet with an overall addition of approximately 40-ft wide by 50-ft deep. Two overhead garage doors are proposed for each bay to allow for trucks to pull through reducing backing accidents.

No salt storage or spreader storage buildings, or fuel dispensing improvement are proposed.

4) Any back up information

Attached are recent photographs of the existing facility for reference.

PROJECT NAME: Manchester 527 – Patrol Shed Renovation/Addition



PS527 Manchester Perspective View Looking East



PS527 Manchester Perspective View Looking West

PROJECT NAME: Manchester 527 – Patrol Shed Renovation/Addition



PS527 Manchester Interior View Looking East



PS527 Manchester Interior View Looking West

PROJECT NAME: Manchester 527 – Patrol Shed Renovation/Addition



PS527 Manchester Interior View Supplemental Crew Quarters with Electrical Panels



PS527 Manchester Interior View Bathroom and crew quarters (for 11 DOT full-time employees + 10 additional employees in winter from hired equipment operators or borrowed NH DOT employees).

STATE OF NEW HAMPSHIRE

CAPITAL IMPROVEMENT PROJECT REQUEST

FISCAL YEARS 2020 - 2021

PRIORITY # 3

AGENCY	096	NAME
ACTIVITY / DIVISION	960515	New Hampshire Department of Transportation
PROJECT-TITLE / NAME		Highway Maintenance District 5 Derry 528 - Brine System

Capital Budget Request	
Site Acquisition (a)	
Site Improvement / Preparation (b)	
Construction (c)	110,000
Utilities (d)	
Architect / Engineering (e)	10,000
Computer Systems / Equipment (f)	
Hardware	
Software	
Training	
Service	
Furnish / Equipment (g)	80,000
Other (h)	
Total Capital Budget Request	200,000

Other Information	
Total Square Footage:	
Estimated Useful Life:	12

Related Annual Operating Budget Expenditures / Savings Estimates	
Expenditures	Savings
Permanent Personnel Services (a)	
Other Personnel Services (b)	
Current Expense (c)	36,000
Equipment (d)	
Travel (e)	
Other (f)	
Total Expenditures / Savings Estimates	36,000

Accounting Unit: 3007 Highway Maint.

Will these amounts be consistent each year?

Capital Budget Criteria (See Instructions)	
Requirement Code:	A, B, C or D
Definition Code:	A, B, C, D, or X
Funding Percentages by Source:	G, F, H, O
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan. Project # <input type="text"/>	

Project Justification (Be Concise)

Construct new Brine system (tank and shelter) at Highway Maintenance patrol section PS528 in Derry. Current system has reached the end of service life. New system is necessary to maintain current level of service on the expanding I-93 corridor from Salem to Manchester while continuing to limit salt usage to meet environmental commitments. This system will have little to no effect on the State's utility consumption.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name: Richard Radwanski - District 5 Engineer

Telephone Number: 666-3336

Name: Victoria Sheehan

Commissioner

Date: 4/18

1) Why the project is necessary:

The existing salt brine manufacturing system at the PS528 Derry Maintenance facility was originally installed in 2004 and has reached the end of its service life and needs to be replaced. District 5 utilizes salt brine or a blend of salt brine with other anti-icing materials, as discussed below, to help maintain the current winter maintenance service level along the I-93 corridor while helping to reduce annual rock salt usage. Salt brine is vital to the department's ability to minimize salt loading to watersheds within the corridor as the amount of lane miles increases due to the ongoing I-93 expansion project

Salt brine is currently mixed with other anti-icing materials, such as magnesium chloride, at an 80% salt brine to 20% magnesium chloride solution. This blend is used as a liquid anti-icing pretreatment on the roadway reducing frozen precipitation bonding to the roadway pavement, reducing snow pack, and reducing the annual usage of rock salt. The 80/20 blend is also used to pre-wet rock salt prior to roadway application which helps to activate the dry rock salt and minimize scatter.

2) What the project is replacing or adding on to:

This project will construct a new automated brine system at the existing Derry facility replacing the existing system that at this time can only be operated manually. The current building will remain and the new brine system installed within the building. The current system includes brine making vessels (2-2,500 gallon tanks), two 5,000 gallon storage tanks, three 2-inch pumps, stainless steel valved manifold, automation controllers, and miscellaneous plumbing fitting and fixtures used to make salt brine. Unfortunately, due to the corrosive environment, the automation controllers no longer operate, and many of the pumps and plumbing fixtures have failed and only items essential to manually make salt brine have been replaced.

3) A brief description of what the project includes

The project will include the brine making system, installation and any necessary building modifications to accommodate the new system. The brine system will include a salt brine maker, all motors and piping, automated salinity control, blending system, storage tanks and pumps/system for brine filling. All components of the brine system will be housed inside the building with at least two (2) storage tanks inside.

4) Any back up information

Attached is a manufacturer cut sheet of an automated brine system for reference and photos of current facility.



Photo 1: Derry Salt Brine Building – Brine system is located inside the building through the open garage door shown. Magnesium chloride and 80/20 blend storage tanks are located outside. Building to remain.



Photo 2: Pump components of existing brine system – Existing pump systems have reached end of service life and a new system is needed.



Photo 3: Henderson Brine Xtreme system installed, location unknown.

Photo from Henderson Website:

https://photos.google.com/share/AF1QipMEJTi7EkGrWdZV1UxMDyCO02uMLbsO4VDVCWqhGuWKNYrFliM_HfHEI6DG8PmypA/photo/AF1QipOT5J9ZaU66mSdbPef2D1p7Pkgi9uyYmknjtCzz?key=X1fSUxIMHpDUHVfTG43NFpqS1Q1OE9QcFhJXzF3



Henderson[®] Brine Xtreme[®] ULTIMATE

Professional Salt Brine Making, Blending & Truck Loading Solutions

Henderson's BrineXtreme is in a class all its own. BrineXtreme is a professional line of brine making, blending and truck fill systems. These industrial grade modular systems offer our customers reliable, accurate and budget friendly options when starting or expanding their brine making operations.

Brine production begins with our stainless steel (self cleaning) salt brine maker, highly customizable salinity control, flexible blending system and finally the transfer of brine to storage tanks or trucks. Our blending system can be added at any time, is field expandable and works effortlessly with both additives (calcium chloride, magnesium chloride, beet juice, etc...) and micro ingredients (dyes, anti-foam solutions, etc...) to produce custom salt brine mixtures.

BrineXtreme consistently delivers the optimum mixture of 23.3% salt concentration by weight as it reads the solution's density. This precise concentration allows the brine to perform in temperatures down to -6°F (-21°C).

Extreme weather calls for extreme solutions. The ability to deliver a preemptive strike against a potentially paralyzing winter storm is key in securing safe travel conditions. When you're ready for professional brine making and blending solutions, turn to...

The Dependable Ones™



SELF CLEANING BRINE MAKER

- Dimensions: 58"D x 126"W x 78"H
- Construction: 10 ga. 304 Stainless Steel hopper and frame
- Polypropylene auger for clean out of large solids, fully automated when paired with the salinity control
- Capacity: 5 cu. yd. with 8 cu. yd. option
- Production Rates: up to 9,600 GPH
- Mid-flow down design

SALINITY CONTROL

- Dimensions: 27"D x 115"W x 53"H
- Modular, stand alone or retrofit to existing equipment
- Salt density measurement accurately to 0.001 SG
- Production Rates: up to 160 GPM
- Total automation of salinity, salt tank, blending and brine tank levels
- NEMA 4x Cabinet

BLENDING SYSTEM

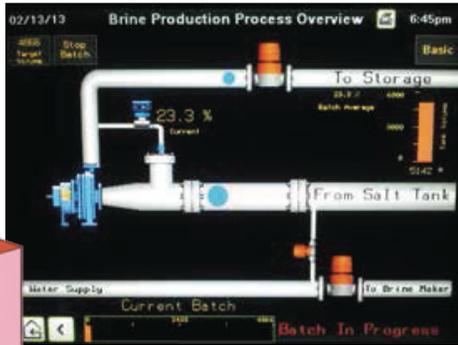
- Dimensions: 27"D x 147"W x 65"H
- 10.4" Color TFT touch screen
- Variable flow rates
- Blends brine with up to 4 additives
- Blends brine with up to 3 micro ingredients
- Fills up to 3 trucks simultaneously using an interactive LCD screen

All photos shown with optional equipment.

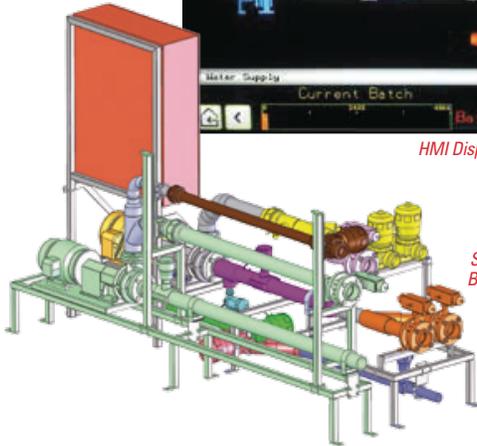
FEATURES & SPECIFICATIONS

AUTOMATED BRINE SALINITY CONTROL

Use with the BrineXtreme brine maker or upgrade your existing system



HMI Display while making brine



Salinity Control w/single Blending Module shown

FEATURES

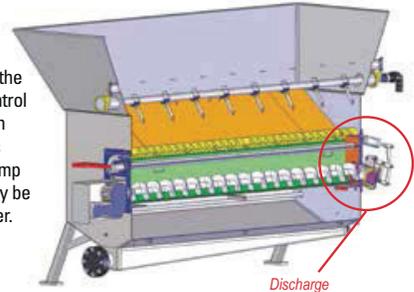
- Large color touch screen display with animated graphical views for easy operation and programming
- Modular design allows for simple field expansions or upgrades
- Automated tank agitation keeps products fresh
- Monitor storage tank volumes for inventory control
- Uses industrial pneumatic valves
- Water valve equipped with open and close ramping function which eliminates water hammer
- Uses solid state flow meters
- Simple maintenance with machine and performance diagnostics
- Redundant systems built-in for fail safe operation
- Remote access via LAN or Cellular
- Simple water flush clean out for fines
- Automated, continuous self cleaning for large solids
- Capable of up to 9,600 GPH continuous production
- Mid-flow down design

BENEFITS

- Consistent production of eutectic salt brine (23.3% salt concentration by weight)
- Enjoy unmatched production rates
- Inexpensive to produce at roughly \$0.10 per gallon
- Proven to cut annual rock salt consumption by as much as 30%
- Virtually eliminate manual labor associated with brine production
- Achieve and maintain safe public travel conditions faster
- Brine used as an anti-ice treatment greatly reduces frozen precipitation's ability to bond with road surfaces
- Brine used as a deicing treatment is the fastest way to burn off frozen precipitation
- Pre-wet rock salt with brine to reduce scatter during application
- Inject brine directly into spreader hopper where it can be mixed with rock salt prior to application, creating a hot or active salt slurry

SELF CLEANING BRINE MAKER

The BrineXtreme salt brine tank has the added feature of an integral polypropylene auger. When combined with the Automated Brine Salinity control the tank will clean itself when required. The auger removes debris from the 380 gallon sump to a discharge chute so it may be collected in a waste container.



Discharge

ON-DEMAND BLENDING & LOAD-OUT SYSTEMS

Custom blends when you need them and reduced material costs

The BrineXtreme system offers many benefits for loading your trucks. Custom blending is done at the truck fill point, reducing your storage tank requirements. Also different blending rates can be set for individual users or for the whole fleet depending on weather conditions. The system uses variable frequency pump drives and fully proportional control valves to balance flows for maximum efficiency. The desired blend ratios are maintained throughout the filling process. The BrineXtreme system can fill up to 3 trucks at once, if configured with multiple fill locations, to improve productivity. Truck fill output flow can vary based on programmed rates set for individual pieces of equipment in your fleet.



HMI Display while blending and loading

LOADING FEATURES

- Blend brine with up to 4 additives
- Blend brine with up to 3 micro ingredients
- Variable fill rate for faster turn around
- 20 - 400 GPM (depending on pump configuration)
- Accurate filling - 0.5% repeatability



TRUCK LOAD-OUT INTERFACE

Interactive and as easy to use as an ATM.

DATA LOGGING

The BrineXtreme system logs data based on events and summarizes all of the pertinent information at each event. The data can then be viewed on the machine, downloaded via LAN or USB, sent via email or text message, or printed at the machine. This allows for flexible management and monitoring.



© Henderson Products, Inc., a division of Douglas Dynamics, LLC, reserves the right in pursuit of continuous product improvement to change specifications used herein. As a custom manufacturer of truck bodies, truck equipment and brine systems, additional product options may be available that are not shown here.



1085 S. Third St., P.O. Box 40, Manchester, IA 52057
Toll Free: (800) 359-4970
www.hendersonproducts.com



HP-195 2.5M 10/15

**STATE OF NEW HAMPSHIRE
CAPITAL IMPROVEMENT PROJECT REQUEST
FISCAL YEARS 2020 - 2021**

PRIORITY # 4

AGENCY	CODE	NAME
New Hampshire Department of Transportation	096	
ACTIVITY / DIVISION	PROJECT-TITLE / NAME	
Highway Maintenance - Statewide	960515	Statewide - Life Safety Code Improvements

Capital Budget Request	
Site Acquisition (a)	100,000
Site Improvement / Preparation (b)	1,500,000
Construction (c)	150,000
Utilities (d)	150,000
Architect / Engineering (e)	
Computer Systems / Equipment (f)	
Hardware	
Software	
Training	
Service	
Furnish / Equipment (g)	
Other (h)	
Total Capital Budget Request	1,900,000

Other Information	
Total Square Footage:	
Estimated Useful Life:	25

Related Annual Operating Budget Expenditures / Savings Estimates	
Expenditures	Savings
Permanent Personnel Services (a)	
Other Personnel Services (b)	
Current Expense (c)	
Equipment (d)	
Travel (e)	
Other (f)	
Total Expenditures / Savings Estimates	
Accounting Unit:	
Will these amounts be consistent each year?	

Capital Budget Criteria (See Instructions)	
Requirement Code:	A, B, C or D
Definition Code:	A, B, C, D, or X
Funding Percentages by Source:	G, F, H, O
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan. Project #	↔

Project Justification (Be Concise)

Highway Maintenance has close to 100 patrol shed and district office facilities with many being constructed prior to current building and life safety codes. The State Fire Marshalls Office is conducting Life Safety Inspections at all of our occupied facilities with initial results indicating some deficiencies that will likely be consistent throughout our structures. Considering the number of buildings likely needing improvements to meet current codes, the cost will exceed available operating resources. This project will complete improvements necessary to comply with Life-Safety codes and violations noted within the SFMO's inspection reports. This project will increase the State's utility consumption.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name: Caleb Dobbins - State Maintenance Engineer	Telephone Number: 271-2693
Name: Victoria Sheehan	Date: 4/6/15

1) Why the project is necessary:

Highway Maintenance has close to 100 patrol shed and district office facilities with many being constructed prior to current building and life safety codes. The State Fire Marshalls Office (SFMO) is conducting Life Safety Inspections at all of our occupied facilities with initial results indicating some deficiencies that will likely be consistent throughout our structures. At this time the SFMO has inspected our district offices and a very small number of patrol sheds. The deficiencies have included issues with available egress, use of wood stoves, fire rated separation of certain areas and accommodation for safety breaks along with other more minor issues. Solutions to some of these issues will be difficult and costly to retrofit the existing buildings. Considering the number of buildings likely needing improvements to meet current codes, the cost will exceed available operating resources.

Overall the improvements are necessary to comply with current codes, provide DOT employees with safe work environments and to provide improved services to other agencies and the traveling public.

2) What the project is replacing or adding on to:

This project will complete life safety improvements to existing patrol shed and district office buildings. The buildings will range drastically in age, style of construction and quality of construction in some situations requiring more extensive work to electrical, plumbing and hvac systems to address the life safety issues.

3) A brief description of what the project includes

This project will complete improvements necessary to comply with Life-Safety codes and violations noted within the SFMO's inspection reports. With limited completed out of approximately 100 facilities, the project is still developing but is likely to include electrical work for emergency lighting and signage, fire rated systems around mechanical rooms, ensuring areas have proper egress, addressing wood stoves inside patrol sheds and other items as noted by the SFMO.

4) Any back up information

District Office Inspection Reports included for reference

Photos from State Fire Marshalls Office Inspections:



Photo 1– Areas for safety breaks without appropriate egress.



Photo 2: Wood stove in a maintenance facility



STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY
 John J. Barthelmes, Commissioner



Division of Fire Safety
OFFICE OF THE STATE FIRE MARSHAL
 J. William Degnan, State Fire Marshal

Office: 110 Smokey Bear Blvd, Concord, NH
 Mailing Address: 33 Hazen Drive, Concord, NH 03305
 603-223-4289, FAX 603-223-4294

FIRE & LIFE SAFETY INSPECTION REPORT

Date of Inspection: January 24, 2018
Date of Report: January 26, 2018
Inspection # 2180026

Occupancy: New Hampshire Dept. of Transportation
 District 1
 Lancaster NH

Owner: State of New Hampshire
 Attn. Daniel Fogg
 daniel.fogg@dot.nh.gov

Dear Mr. Fogg,

This report details the findings of the inspection conducted on January 24, 2018. Present at this inspection was Daniel Fogg, DOT Safety Coordinator and me. The building was inspected for compliance with the minimum standard for existing buildings in *NFPA 101, Life Safety Code, 2015 edition, and NFPA 1, Uniform Fire Code, 2009 edition, NFPA 70, 2014 edition*, as well as others. The building was inspected for fire and life safety concerns. Other problems with the building may need to be addressed that are outside the scope of this inspection. This report reflects the violations that I observed at the time of the inspection. Other violations may exist that were not observed at the time of the inspection. In summary, the buildings are classified as a business occupancy and an industrial occupancy. The buildings are not protected by an automatic fire sprinkler system. Below is a breakdown of the observed Fire Code Violations.



STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY

John J. Barthelmes, Commissioner

**Division of Fire Safety
OFFICE OF THE STATE FIRE MARSHAL**

J. William Degnan, State Fire Marshal



Office: 110 Smokey Bear Blvd, Concord, NH
Mailing Address: 33 Hazen Drive, Concord, NH 03305
603-223-4289, FAX 603-223-4294

Violations

NFPA 101: 7.4.1.1. Number of Exits. The number of means of egress from any balcony, mezzanine, story, or portion thereof shall be not less than two, except under one of the following conditions:

1. (1) A single means of egress shall be permitted where permitted in Chapters 11 through 43.
2. (2) A single means of egress shall be permitted for a mezzanine or balcony where the common path of travel limitations of Chapters 11 through 43 are met. *This is a non-sprinkled building and the exit is not on grade level, therefore 2 remote exits are required.*

NFPA 101: 7.10.1.2.1. Exit Signs. Exits other than main exterior exit doors that obviously and clearly are identifiable as exits shall be marked by an approved sign that is readily visible from any direction of exit access. *Exit signs with directional arrows are required in the basement in the electric room and by the furnace room.*

NFPA 101: 7.8.1.1. Illumination of Means of Egress. Illumination of means of egress shall be provided for every building and structure where required in Chapters 11 through 43. For the purpose of this requirement, exit access shall include only designated stairs, aisles, corridors, ramps, escalators, and passageways leading to an exit. For the purposes of this requirement, exit discharge shall include only designated stairs, aisles, corridors, ramps, escalators, walkways, and exit passageways leading to a public way. *There is no emergency lighting present on the exterior of the 107 Patrol, Cold Storage and Mechanical Services. Due to the existence of an automatic generator, normal lighting may be installed provided it is active during the times the buildings are occupied.*

NFPA 101 : 7.10.5.1. Illumination of Signs. Every sign required by [7.10.1.2](#), [7.10.1.5](#), or [7.10.8.1](#), other than where operations or processes require low lighting levels, shall be suitably illuminated by a reliable light source. Externally and internally illuminated signs shall be legible in both the normal and emergency lighting mode. *All of the exit signs located in the District Office, 107 Patrol, Cold Storage, and Mechanical Services are required to be illuminated.*

NFPA 101: 8.7.1.1. Hazard Separations. Protection from any area having a degree of hazard greater than that normal to the general occupancy of the building or structure shall



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be provided by one of the following means:

- (1)

Enclosing the area with a fire barrier without windows that has a 1-hour fire resistance rating in accordance with Section [8.3](#)

- (2)

Protecting the area with automatic extinguishing systems in accordance with Section [9.7](#)

- (3)

Applying both [8.7.1.1](#)(1) and (2) where the hazard is severe or where otherwise specified by Chapters [11](#) through [43](#). *The boiler room has been separated from the other areas however the enclosure needs to be completed by a 1 hour UL designed system including properly sealing of any penetrations.*

NFPA 1: 11.5.3. Portable Electric Heaters. The AHJ shall be permitted to prohibit use of portable electric heaters in occupancies and situations where such use or operation would present an undue danger to life or property. *Space heaters were observed throughout the facility. Space heaters are not permitted unless they are a medical necessity. If this is the case, a letter from a physician for the individual in question must be obtained and forwarded to the New Hampshire State Fire Marshal's Office where it will be kept on file. An unattended space heater was found operating in the Cold Storage Building.*

NFPA 70:110.26. Working Space. Requires 36" clearance in front of and 30" to the side of electric panels. *The proper spacing is not being maintained in the Mechanical Services break room.*

NFPA 1: 10.19.5.1. Equipment Rooms. Combustible material shall not be stored in boiler rooms, mechanical rooms, or electrical rooms. *Remove all combustible materials from the electric room in 107 Patrol.*

NFPA 1: 11.1.7.6. Extension Cords. Extension cords shall not be used as a substitute for permanent wiring. *Remove the extension cord from the large file room.*

NFPA 1: 11.1.10. Covers. All panel board and switch boards, pull boxes, junction boxes, switches, receptacles, and conduit bodies shall be provided with covers compatible with the box or conduit body construction and suitable for the conditions of use. *There is an uncovered switch box in the Cold Storage PPE room.*

NFPA 10: 6.1.3.4. Extinguisher Placement. Portable fire extinguishers other than wheeled extinguishers shall be installed using any of the following means: 1) securely on a hanger intended for the extinguisher 2) In the bracket supplied by the manufacturer 3) In a listed bracket approved for such purpose or 4) in cabinets or wall recesses. *The fire extinguisher located in the basement by the phone needs to be properly secured.*



STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY

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NFPA 96: 1.1.4. Commercial Cooking. This chapter shall not apply to facilities where all of the following are met:

- (1) Only residential equipment is being used.
- (2) Fire extinguishers are located in all kitchen areas in accordance with Section [13.6](#).
- (3) The facility is not an assembly occupancy.
- (4) The AHJ has approved the installation. *A fire extinguisher is required within 10 feet of the stove in the break room in 107 Patrol.*

Thank you for allowing me to perform this inspection. Please provide an action plan to correct these violations within 90 days of receipt of this report. If you have any additional questions or concerns, do not hesitate to contact the Fire Marshal's Office.

**Inspector Michael Matthy
NH State Fire Marshal's Office
110 Smokey Bear Blvd.
Concord, NH 03301
(603)223-4289
(603)223-4294 Fax**

*All buildings shall comply with the minimum requirements of the New Hampshire State Fire Code (RSA 153:5), (NH Code of Administrative Rules, Saf-C-6000). Adopted codes include NFPA 1, **Uniform Fire Code 2009 ed.**, NFPA 101, **Life Safety Code 2015 ed.**, and many others. This report reflects an inspection under one or more chapters of NFPA 101, NFPA 1 and possibly others. A copy of the New Hampshire State Fire Code is available for review, with prior notice, on normal business days from 8:15 a.m. to 4:15 p.m., at the Office of the State Fire Marshal.*

NH RSA 153:24 Penalty for Violation of Regulations:



STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY

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Whoever shall violate any rule or regulation of the state fire marshal issued pursuant to RSA 153:5 or RSA 153:14 I, shall be guilty of a violation if a natural person, or guilty of a misdemeanor if any other person. Each offense shall constitute a separate violation.

All penalties, fees, or forfeitures collected under the provisions of this chapter shall be paid into the treasury of the state.

If you believe that compliance with a stated code or rule provision item imposes an unreasonable hardship, you may apply for a variance from, or an exception to, the stated code or rule provision item, in writing, to the State Fire Marshal, in accordance with Saf-C 6006.03. Any alternative method of achieving compliance must provide protection which is equal to or exceeds the stated code or rule provision protection.

***APPEALS OF APPLICATION OF THE STATE FIRE CODE
FROM A NOTICE OF VIOLATION***

Exceptions or Variances

RSA 153:4-a (I) allows the State Fire Marshal to grant variances or exceptions to the State Fire Code.

(<http://www.gencourt.state.nh.us/rsa/html/XII/153/153-4-a.htm>)

Saf-C 6005.01 The title “Exceptions and Variances” provides the guidance and requirements for action by the State Fire Marshal to ensure the request provides a degree of safety substantially equivalent to the code section cited. (http://www.gencourt.state.nh.us/rules/state_agencies/saf-c6000.html)

Saf-C 6005.03 provides the format for application to the State Fire Marshal for a variance or exception.

(http://www.gencourt.state.nh.us/rules/state_agencies/saf-c6000.html)

Appeals of decisions of the State Fire Marshal

Any person aggrieved by the decision of the State Fire Marshal as provided above shall be entitled to a hearing with the Building Code Review Board rules pursuant RSA 155-A:11 and conducted in accordance to Bcr 200.



STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY

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(http://www.gencourt.state.nh.us/rules/state_agencies/bcr200.html)

Any person aggrieved by the decision of the Building Code Review Board shall be entitled to a hearing in Superior Court pursuant to RSA 155-A:12

(<http://www.gencourt.state.nh.us/rsa/html/XII/155-A/155-A-12.htm>)

(http://www.gencourt.state.nh.us/rules/state_agencies/bcr200.html).



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FIRE & LIFE SAFETY INSPECTION REPORT

Date of Inspection: January 31, 2018
Date of Report: February 7, 2018
Inspection # 2180047

Occupancy: New Hampshire Dept. of Transportation
District 2
Enfield, NH

Owner: State of New Hampshire
Attn. Jon Johnson
jon.johnson@dot.nh.gov

Dear Mr. Johnson,

This report details the findings of the inspection conducted on January 31, 2018. Present at this inspection was Jon Johnson, DOT Safety Coordinator and me. The building was inspected for compliance with the minimum standard for existing buildings in *NFPA 101, Life Safety Code, 2015 edition, and NFPA 1, Uniform Fire Code, 2009 edition, NFPA 70, 2014 edition*, as well as others. The building was inspected for fire and life safety concerns. Other problems with the building may need to be addressed that are outside the scope of this inspection. This report reflects the violations that I observed at the time of the inspection. Other violations may exist that were not observed at the time of the inspection. In summary, the buildings are classified as a business occupancy and an industrial occupancy. The buildings are not protected by an automatic fire sprinkler system. Below is a breakdown of the observed Fire Code Violations.



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Mailing Address: 33 Hazen Drive, Concord, NH 03305
603-223-4289, FAX 603-223-4294

Violations

NFPA 101: 7.10.1.2.1. Exit Signs. Exits other than main exterior exit doors that obviously and clearly are identifiable as exits shall be marked by an approved sign that is readily visible from any direction of exit access. *An exit sign with a directional arrow needs to be installed in the file area.*

NFPA 101: 7.8.1.1. Illumination of Means of Egress. Illumination of means of egress shall be provided for every building and structure where required in Chapters 11 through 43. For the purpose of this requirement, exit access shall include only designated stairs, aisles, corridors, ramps, escalators, and passageways leading to an exit. For the purposes of this requirement, exit discharge shall include only designated stairs, aisles, corridors, ramps, escalators, walkways, and exit passageways leading to a public way. *There is no emergency lighting present on the exterior of the old 224 Patrol, Welding Shop and Main Office. Due to the existence of an automatic generator, normal lighting may be installed provided it is active during the times the buildings are occupied.*

NFPA 101: 7.1.3.2.1. Exits. Where this Code requires an exit to be separated from other parts of the building, the separating construction shall have a minimum 1 hour fire resistance rating for three or fewer stories. *The stairs leading to the offices are required to have a 1 hour rating. The door and all attaching hardware leading to the main floor is not a rated door.*

NFPA 101: 7.2.1.8.1. Self Closing Devices. A door leaf normally required to be kept closed shall not be secured in the open position at any time and shall be self-closing or automatic-closing. *The fire door at the top of the stairs must remain closed at all times.*

NFPA 101: 7.9.2.1. Emergency Lighting. Emergency illumination shall be provided for a minimum of 1 1/2 hours in the event of failure of normal lighting. *The emergency lighting located in the break room is not functioning.*

NFPA 101 : 7.10.5.1. Illumination of Signs. Every sign required by [7.10.1.2](#), [7.10.1.5](#), or [7.10.8.1](#), other than where operations or processes require low lighting levels, shall be suitably illuminated by a reliable light source. Externally and internally illuminated signs shall be legible in both the normal and emergency lighting mode. *All of the exit signs located in the District Office, 224 Patrol, Old 224 Patrol, and the Welding Shop are required to be illuminated.*



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NFPA 101: 8.7.1.1. Hazard Separations. Protection from any area having a degree of hazard greater than that normal to the general occupancy of the building or structure shall be provided by one of the following means:

- (1)

Enclosing the area with a fire barrier without windows that has a 1-hour fire resistance rating in accordance with Section [8.3](#)

- (2)

Protecting the area with automatic extinguishing systems in accordance with Section [9.7](#)

- (3)

Applying both [8.7.1.1\(1\)](#) and (2) where the hazard is severe or where otherwise specified by Chapters [11](#) through [43](#). *The boiler room must be separated from the other areas by enclosing it with a 1 hour UL designed system to include properly sealing any penetrations with an approved method.*

NFPA 70:110.26. Working Space. Requires 36” clearance in front of and 30” to the side of electric panels. *The proper spacing is not being maintained in the 224 Patrol, the Welding Shop and the Garage.*

NFPA 1: 11.1.7.6. Extension Cords. Extension cords shall not be used as a substitute for permanent wiring. *Remove the extension cord from Jon’s office.*

NFPA 55: 7.1.9.4. Securing Compressed Gas Cylinders, Containers, and Tanks. Compressed gas cylinders, containers, and tanks in use or in storage shall be secured to prevent them from falling or being knocked over by corraling them and securing them to a cart, framework, or fixed object by use of a restraint. *A pressurized cylinder in the storage area needs to be properly secured.*

Thank you for allowing me to perform this inspection. Please provide an action plan to correct these violations within 90 days of receipt of this report. If you have any additional questions or concerns, do not hesitate to contact the Fire Marshal’s Office.

**Inspector Michael Matthy
NH State Fire Marshal’s Office
110 Smokey Bear Blvd.
Concord, NH 03301
(603)223-4289
(603)223-4294 Fax**



STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY

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*All buildings shall comply with the minimum requirements of the New Hampshire State Fire Code (RSA 153:5), (NH Code of Administrative Rules, Saf-C-6000). Adopted codes include NFPA 1, **Uniform Fire Code 2009 ed.**, NFPA 101, **Life Safety Code 2015 ed.**, and many others. This report reflects an inspection under one or more chapters of NFPA 101, NFPA 1 and possibly others. A copy of the New Hampshire State Fire Code is available for review, with prior notice, on normal business days from 8:15 a.m. to 4:15 p.m., at the Office of the State Fire Marshal.*

NH RSA 153:24 Penalty for Violation of Regulations:

Whoever shall violate any rule or regulation of the state fire marshal issued pursuant to RSA 153:5 or RSA 153:14 I, shall be guilty of a violation if a natural person, or guilty of a misdemeanor if any other person. Each offense shall constitute a separate violation.

All penalties, fees, or forfeitures collected under the provisions of this chapter shall be paid into the treasury of the state.

If you believe that compliance with a stated code or rule provision item imposes an unreasonable hardship, you may apply for a variance from, or an exception to, the stated

code or rule provision item, in writing, to the State Fire Marshal, in accordance with Saf-C 6006.03. Any alternative method of achieving compliance must provide protection which is equal to or exceeds the stated code or rule provision protection.

**APPEALS OF APPLICATION OF THE STATE FIRE CODE
FROM A NOTICE OF VIOLATION**

Exceptions or Variances

RSA 153:4-a (I) allows the State Fire Marshal to grant variances or exceptions to the State Fire Code.

(<http://www.gencourt.state.nh.us/rsa/html/XII/153/153-4-a.htm>)



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Saf-C 6005.01 The title "Exceptions and Variances" provides the guidance and requirements for action by the State Fire Marshal to ensure the request provides a degree of safety substantially equivalent to the code section cited. (http://www.gencourt.state.nh.us/rules/state_agencies/saf-c6000.html)

Saf-C 6005.03 provides the format for application to the State Fire Marshal for a variance or exception.

(http://www.gencourt.state.nh.us/rules/state_agencies/saf-c6000.html)

Appeals of decisions of the State Fire Marshal

Any person aggrieved by the decision of the State Fire Marshal as provided above shall be entitled to a hearing with the Building Code Review Board rules pursuant RSA 155-A:11 and conducted in accordance to Bcr 200.

(http://www.gencourt.state.nh.us/rules/state_agencies/bcr200.html)

Any person aggrieved by the decision of the Building Code Review Board shall be entitled to a hearing in Superior Court pursuant to RSA 155-A:12

(<http://www.gencourt.state.nh.us/rsa/html/XII/155-A/155-A-12.htm>)
(http://www.gencourt.state.nh.us/rules/state_agencies/bcr200.html).



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FIRE & LIFE SAFETY INSPECTION REPORT

Date of Inspection: February 6, 2018
Date of Report: February 7, 2018
Inspection # 2180048

Occupancy: New Hampshire Dept. of Transportation
District 4
Swanzey, NH

Owner: State of New Hampshire
Attn. Julie Kroupa
julie.kroupa@dot.nh.gov

Dear Ms. Kroupa,

This report details the findings of the inspection conducted on February 6, 2018. Present at this inspection was Julie Kroupa, DOT Safety Coordinator and me. The building was inspected for compliance with the minimum standard for existing buildings in *NFPA 101, Life Safety Code, 2015 edition, and NFPA 1, Uniform Fire Code, 2009 edition, NFPA 70, 2014 edition*, as well as others. The building was inspected for fire and life safety concerns. Other problems with the building may need to be addressed that are outside the scope of this inspection. This report reflects the violations that I observed at the time of the inspection. Other violations may exist that were not observed at the time of the inspection. In summary, the buildings are classified as a business occupancy and an industrial occupancy. The buildings are not protected by an automatic fire sprinkler system. Below is a breakdown of the observed Fire Code Violations.



STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY

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Violations

NFPA 101: 7.10.1.2.1. Exit Signs. Exits other than main exterior exit doors that obviously and clearly are identifiable as exits shall be marked by an approved sign that is readily visible from any direction of exit access. *An exit sign needs to be installed in the upper storage area of the District Office, and in the attic of Building 3.*

NFPA 101: 7.8.1.1. Illumination of Means of Egress. Illumination of means of egress shall be provided for every building and structure where required in Chapters 11 through 43. For the purpose of this requirement, exit access shall include only designated stairs, aisles, corridors, ramps, escalators, and passageways leading to an exit. For the purposes of this requirement, exit discharge shall include only designated stairs, aisles, corridors, ramps, escalators, walkways, and exit passageways leading to a public way. *Emergency lighting needs to be installed on the exterior of Building 3 and Building 4, the boiler room and in the attic space of Building 3.*

NFPA 101 : 7.10.5.1. Illumination of Signs. Every sign required by [7.10.1.2](#), [7.10.1.5](#), or [7.10.8.1](#), other than where operations or processes require low lighting levels, shall be suitably illuminated by a reliable light source. Externally and internally illuminated signs shall be legible in both the normal and emergency lighting mode. *The exit signs located in Building 3 and Building 4 need to be illuminated.*

NFPA 101: 8.3.5.1. Firestop Systems and Devices Required. Penetrations for cables, cable trays, conduits, pipes, tubes, combustion vents, exhaust vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a wall, floor, or floor ceiling assembly constructed as a fire barrier shall be protected by a firestop system or device. *Open penetrations were observed in the boiler room. These need to be sealed using an approved UL system.*

NFPA 72: 10.6.5.4 .Circuit Breaker Lock. Where a circuit breaker is the disconnecting means, a listed breaker locking device shall be installed. *A circuit breaker lock needs to be installed on the fire alarm breaker.*

NFPA 1: 13.1.7. Maintenance. All fire protection systems and devices shall be maintained in a reliable operating condition and shall be replaced or repaired where defective or recalled. *Provide an inspection report from most recent fire alarm inspection.*



STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY

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603-223-4289, FAX 603-223-4294

Thank you for allowing me to perform this inspection. Please provide an action plan to correct these violations within 90 days of receipt of this report. If you have any additional questions or concerns, do not hesitate to contact the Fire Marshal's Office.

**Inspector Michael Matthy
NH State Fire Marshal's Office
110 Smokey Bear Blvd.
Concord, NH 03301
(603)223-4289
(603)223-4294 Fax**

*All buildings shall comply with the minimum requirements of the New Hampshire State Fire Code (RSA 153:5), (NH Code of Administrative Rules, Saf-C-6000). Adopted codes include NFPA 1, **Uniform Fire Code 2009 ed.**, NFPA 101, **Life Safety Code 2015 ed.**, and many others. This report reflects an inspection under one or more chapters of NFPA 101, NFPA 1 and possibly others. A copy of the New Hampshire State Fire Code is available for review, with prior notice, on normal business days from 8:15 a.m. to 4:15 p.m., at the Office of the State Fire Marshal.*

NH RSA 153:24 Penalty for Violation of Regulations:

Whoever shall violate any rule or regulation of the state fire marshal issued pursuant to RSA 153:5 or RSA 153:14 I, shall be guilty of a violation if a natural person, or guilty of a misdemeanor if any other person. Each offense shall constitute a separate violation.

All penalties, fees, or forfeitures collected under the provisions of this chapter shall be paid into the treasury of the state.

If you believe that compliance with a stated code or rule provision item imposes an unreasonable hardship, you may apply for a variance from, or an exception to, the stated



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code or rule provision item, in writing, to the State Fire Marshal, in accordance with Saf-C 6006.03. Any alternative method of achieving compliance must provide protection which is equal to or exceeds the stated code or rule provision protection.

***APPEALS OF APPLICATION OF THE STATE FIRE CODE
FROM A NOTICE OF VIOLATION***

Exceptions or Variances

RSA 153:4-a (I) allows the State Fire Marshal to grant variances or exceptions to the State Fire Code.

(<http://www.gencourt.state.nh.us/rsa/html/XII/153/153-4-a.htm>)

Saf-C 6005.01 The title “Exceptions and Variances” provides the guidance and requirements for action by the State Fire Marshal to ensure the request provides a degree of safety substantially equivalent to the code section cited. (http://www.gencourt.state.nh.us/rules/state_agencies/saf-c6000.html)

Saf-C 6005.03 provides the format for application to the State Fire Marshal for a variance or exception.

(http://www.gencourt.state.nh.us/rules/state_agencies/saf-c6000.html)

Appeals of decisions of the State Fire Marshal

Any person aggrieved by the decision of the State Fire Marshal as provided above shall be entitled to a hearing with the Building Code Review Board rules pursuant RSA 155-A:11 and conducted in accordance to Bcr 200.

(http://www.gencourt.state.nh.us/rules/state_agencies/bcr200.html)

Any person aggrieved by the decision of the Building Code Review Board shall be entitled to a hearing in Superior Court pursuant to RSA 155-A:12

(<http://www.gencourt.state.nh.us/rsa/html/XII/155-A/155-A-12.htm>)

(http://www.gencourt.state.nh.us/rules/state_agencies/bcr200.html).



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FIRE & LIFE SAFETY INSPECTION REPORT

Date of Inspection: February 14, 2018
Date of Report: February 15, 2018
Inspection # 2180067

Occupancy: New Hampshire Dept. of Transportation
District 3
Gilford, NH

Owner: State of New Hampshire
Attn. Alan Hanscomb
ahanscom@dot.state.nh.us

Dear Mr. Hanscom,

This report details the findings of the inspection conducted on February 14, 2018. Present at this inspection was Alan Hanscom, Lane Evans, Wende Giorgi and Gary Bartlett from the Department of Transportation and me. The building was inspected for compliance with the minimum standard for existing buildings in *NFPA 101, Life Safety Code, 2015 edition, and NFPA 1, Uniform Fire Code, 2009 edition, NFPA 70, 2014 edition*, as well as others. The building was inspected for fire and life safety concerns. Other problems with the building may need to be addressed that are outside the scope of this inspection. This report reflects the violations that I observed at the time of the inspection. Other violations may exist that were not observed at the time of the inspection. In summary, the building is classified as a business occupancy. The building is not protected by an automatic fire sprinkler system. Below is a breakdown of the observed Fire Code Violations.



STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY

John J. Barthelmes, Commissioner

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603-223-4289, FAX 603-223-4294

Violations

NFPA 101: 7.10.1.2.1. Exit Signs. Exits other than main exterior exit doors that obviously and clearly are identifiable as exits shall be marked by an approved sign that is readily visible from any direction of exit access. *Exit signs are required in the attic, exiting the attic to the stairs, at the bottom of the stairs, and by the bathrooms with directional arrows where applicable.*

NFPA 101: 7.10.5.1. Illumination of Signs. Every sign required by [7.10.1.2](#), [7.10.1.5](#), or [7.10.8.1](#), other than where operations or processes require low lighting levels, shall be suitably illuminated by a reliable light source. Externally and internally illuminated signs shall be legible in both the normal and emergency lighting mode. *All exit signs need to be internally illuminated unless other means have been approved by the State Fire Marshal's Office.*

NFPA 101: 8.3.5.1. Firestop Systems and Devices Required. Penetrations for cables, cable trays, conduits, pipes, tubes, combustion vents, exhaust vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a wall, floor, or floor ceiling assembly constructed as a fire barrier shall be protected by a firestop system or device. *Open penetrations were observed in the boiler room. These need to be sealed using an approved UL system.*

NFPA 70: 700.16. Emergency Illumination. Where an emergency system is installed, emergency illumination shall be provided in the area of the disconnecting means required by [225.31](#) and [230.70](#), as applicable, where the disconnecting means are installed indoors. *The emergency lights in the electrical room need to be operational.*

NFPA 101: 8.7.1.1. Hazard Separations. Protection from any area having a degree of hazard greater than that normal to the general occupancy of the building or structure shall be provided by one of the following means:

- (1)
Enclosing the area with a fire barrier without windows that has a 1-hour fire resistance rating in accordance with Section [8.3](#)
- (2)
Protecting the area with automatic extinguishing systems in accordance with Section [9.7](#)
- (3)
Applying both [8.7.1.1](#)(1) and (2) where the hazard is severe or where otherwise specified by Chapters [11](#) through [43](#). *The boiler room ceilings need to be enclosed with an approved UL system that will provide the required 1 hour separation.*



STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY

John J. Barthelmes, Commissioner

**Division of Fire Safety
OFFICE OF THE STATE FIRE MARSHAL**

J. William Degnan, State Fire Marshal



Office: 110 Smokey Bear Blvd, Concord, NH
Mailing Address: 33 Hazen Drive, Concord, NH 03305
603-223-4289, FAX 603-223-4294

NFPA 10: 6.1.3.1. Extinguisher Placement. Fire extinguishers shall be conspicuously located where they are readily accessible and immediately available in the event of fire. *A fire extinguisher is required in the attic due to the fact that the travel distance exceeds 75 feet, and a fire extinguisher located by the back door needs to be relocated that is obstructed by computer screens.*

NFPA 10: Table 6.2.1.1 Fire Extinguisher Size and Placement for Class A Hazards

Criteria	Light Hazard Occupancy	Ordinary Hazard Occupancy	Extra Hazard Occupancy
Minimum rated single extinguisher	2-A	2-A	4-A
Maximum floor area per unit of A	3000 ft ²	1500 ft ²	1000 ft ²
Maximum floor area for extinguisher	11,250 ft ²	11,250 ft ²	11,250 ft ²
Maximum travel distance to extinguisher	75 ft	75 ft	75 ft

The fire extinguisher located in the break room needs to be a minimum 2-A rating.

NFPA 1: 11.1.7.6. Extension Cords. Extension cords shall not be used as a substitute for permanent wiring. *The extension cord located in the construction office needs to be removed.*

Thank you for allowing me to perform this inspection. Please provide an action plan to correct these violations within 90 days of receipt of this report. If you have any additional questions or concerns, do not hesitate to contact the Fire Marshal's Office.

**Inspector Michael Matthy
NH State Fire Marshal's Office
110 Smokey Bear Blvd.**



STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY

John J. Barthelmes, Commissioner



**Division of Fire Safety
OFFICE OF THE STATE FIRE MARSHAL**

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603-223-4289, FAX 603-223-4294

**Concord, NH 03301
(603)223-4289
(603)223-4294 Fax**

*All buildings shall comply with the minimum requirements of the New Hampshire State Fire Code (RSA 153:5), (NH Code of Administrative Rules, Saf-C-6000). Adopted codes include NFPA 1, **Uniform Fire Code 2009 ed.**, NFPA 101, **Life Safety Code 2015 ed.**, and many others. This report reflects an inspection under one or more chapters of NFPA 101, NFPA 1 and possibly others. A copy of the New Hampshire State Fire Code is available for review, with prior notice, on normal business days from 8:15 a.m. to 4:15 p.m., at the Office of the State Fire Marshal.*

NH RSA 153:24 Penalty for Violation of Regulations:

Whoever shall violate any rule or regulation of the state fire marshal issued pursuant to RSA 153:5 or RSA 153:14 I, shall be guilty of a violation if a natural person, or guilty of a misdemeanor if any other person. Each offense shall constitute a separate violation.

All penalties, fees, or forfeitures collected under the provisions of this chapter shall be paid into the treasury of the state.

If you believe that compliance with a stated code or rule provision item imposes an unreasonable hardship, you may apply for a variance from, or an exception to, the stated code or rule provision item, in writing, to the State Fire Marshal, in accordance with Saf-C 6006.03. Any alternative method of achieving compliance must provide protection which is equal to or exceeds the stated code or rule provision protection.

**APPEALS OF APPLICATION OF THE STATE FIRE CODE
FROM A NOTICE OF VIOLATION**

Exceptions or Variances

RSA 153:4-a (I) allows the State Fire Marshal to grant variances or exceptions to the State Fire Code.

(<http://www.gencourt.state.nh.us/rsa/html/XII/153/153-4-a.htm>)



STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY

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Saf-C 6005.01 The title "Exceptions and Variances" provides the guidance and requirements for action by the State Fire Marshal to ensure the request provides a degree of safety substantially equivalent to the code section cited. (http://www.gencourt.state.nh.us/rules/state_agencies/saf-c6000.html)

Saf-C 6005.03 provides the format for application to the State Fire Marshal for a variance or exception.

(http://www.gencourt.state.nh.us/rules/state_agencies/saf-c6000.html)

Appeals of decisions of the State Fire Marshal

Any person aggrieved by the decision of the State Fire Marshal as provided above shall be entitled to a hearing with the Building Code Review Board rules pursuant RSA 155-A:11 and conducted in accordance to Bcr 200.

(http://www.gencourt.state.nh.us/rules/state_agencies/bcr200.html)

Any person aggrieved by the decision of the Building Code Review Board shall be entitled to a hearing in Superior Court pursuant to RSA 155-A:12

(<http://www.gencourt.state.nh.us/rsa/html/XII/155-A/155-A-12.htm>)

(http://www.gencourt.state.nh.us/rules/state_agencies/bcr200.html).

**STATE OF NEW HAMPSHIRE
CAPITAL IMPROVEMENT PROJECT REQUEST**

FISCAL YEARS 2020 - 2021

PRIORITY # 5

AGENCY	096	NAME	New Hampshire Department of Transportation
ACTIVITY / DIVISION	960515		Highway Maintenance District 1
PROJECT-TITLE / NAME			Lancaster District Office - Addition

Capital Budget Request	
Site Acquisition (a)	
Site Improvement / Preparation (b)	50,000
Construction (c)	500,000
Utilities (d)	25,000
Architect / Engineering (e)	70,000
Computer Systems / Equipment (f)	5,000
Hardware	
Software	
Training	
Service	
Furnish / Equipment (g)	10,000
Other (h)	
Total Capital Budget Request	660,000

Other Information	
Total Square Footage:	1,500
Estimated Useful Life:	25

Related Annual Operating Budget Expenditures / Savings Estimates	
Expenditures	Savings
Permanent Personnel Services (a)	
Other Personnel Services (b)	
Current Expense (c)	
Equipment (d)	
Travel (e)	
Other (f)	
Total Expenditures / Savings Estimates	

Accounting Unit: _____
Will these amounts be consistent each year? _____

Capital Budget Criteria (See Instructions)	
Requirement Code:	A, B, C or D
Definition Code:	A, B, C, D, or X
Funding Percentages by Source:	G, F, H, O
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan. Project # _____	

Project Justification (Be Concise)

The existing 2,880 sq. ft. facility is no longer adequate for supporting District One's highway maintenance functions. Recent requirements for an addition for office space for Maintenance Supervisors, seasonal personnel, and the increased requirements for personnel training has dictated the need for additional space. This project will include an addition to the existing District 1 office with minor renovations and ADA improvements to the existing building as necessary to support existing operations and comply with current codes. This project is instrumental to provide the level of service expected by the traveling public as well as other agencies and municipalities. This project will increase the state's utility consumption.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name:	Philip Beaulieu - District 1 Engineer	Telephone Number:	788-4641
Name:	Victoria Sheehan	Commissioner	Date: 4/18

1) Why the project is necessary:

The existing 2,880 sq. ft. facility is no longer adequate for supporting District One's highway maintenance functions. Recent requirements for office space for Maintenance Supervisors, seasonal personnel, and the increased requirements for personnel training has dictated the need for additional office work stations and renovation of the existing training area with proper egress to meet ADA requirements. This project is instrumental in fulfilling the Departments' mission objective of providing improved service to other state agencies and the traveling public.

2) What the project is replacing or adding on to:

This project will provide an approximately 1500 sf addition to the existing District 1 office that was originally constructed in 1974. The current conference room for the district office is in the basement which is only accessible by interior stairs, so the district needs to hold any meetings requiring accommodations at other state facilities in the area.

3) A brief description of what the project includes

The project will include an approximately 1500 sf addition with minor renovation of existing office space and ADA improvements as necessary to provide additional office work stations, conference room and accessible training areas. Additions and renovations will be constructed to meet current building code requirements. Project will also include limited site work to accommodate the addition and any new entrances.

4) Any back up information



Photo 1: View of front corner of building at main visitors entrance



Photo 2: View of front corner of building opposite the parking area and main entrance. No access from outside of building to the basement.



Photo 3: View of the back corner of the building from the main parking area.

STATE OF NEW HAMPSHIRE

CAPITAL IMPROVEMENT PROJECT REQUEST

FISCAL YEARS 2020 - 2021

AGENCY	096	NAME	New Hampshire Department of Transportation
ACTIVITY / DIVISION	960515		Highway Maintenance - Statewide
PROJECT-TITLE / NAME			Statewide - Salt Sheds

PRIORITY # **6**

Capital Budget Request	
Site Acquisition (a)	
Site Improvement / Preparation (b)	150,000
Construction (c)	1,550,000
Utilities (d)	
Architect / Engineering (e)	100,000
Computer Systems / Equipment (f)	
Hardware	
Software	
Training	
Service	
Furnish / Equipment (g)	
Other (h)	
Total Capital Budget Request	1,800,000

Other Information	
Total Square Footage:	Varies
Estimated Useful Life:	25

Related Annual Operating Budget Expenditures / Savings Estimates		
	Expenditures	Savings
Permanent Personnel Services (a)		
Other Personnel Services (b)		40,000
Current Expense (c)		
Equipment (d)		
Travel (e)		
Other (f)		
Total Expenditures / Savings Estimates		40,000

Accounting Unit: **3007 Highway Maint.**

Will these amounts be consistent each year?

Capital Budget Criteria (See Instructions)	
Requirement Code:	A, B, C or D
Definition Code:	A, B, C, D, or X
Funding Percentages by Source:	G, F, H, O
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan. Project # <input type="text"/>	

Project Justification (Be Concise)

Currently the Department of Transportation cannot store a season's worth of salt at all patrol shed locations, many of the current sheds are in very poor condition, in some cases requiring temporary structural repairs. Ability to store ample amount of material will save funds due to being able to purchase materials and store them when the best price is available. Environmental regulations also require that all salt be stored under cover. Project includes design and construction of salt sheds statewide. This project will have no effect on the State's utility consumption.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name:	Caleb Dobbins - State Maintenance Engineer	Telephone Number:	271-2693
Name:	Victoria Sheehan	Commissioner	Date: <u>4/6/18</u>

1) Why the project is necessary:

The department currently cannot store a season's worth of salt at all patrol shed locations and some sheds are reaching the end of their useful life, requiring significant maintenance to maintain function and safety. The ability to store ample salt will save funds due to being able to purchase materials and store them when the best price is available. Environmental regulations also require that all salt be stored under cover.

The department's high arch gambrel design allows delivery of salt to generally occur within the shed due to high door opening, limiting the potential environmental impacts from salt operations. We are continuing to look at other styles of salt sheds including standard scissor truss gable end loading and fabric structures to construct right size structures for each site.

2) What the project is replacing or adding on to:

The project will construct new stand-alone salt buildings at different patrol shed locations throughout the state. In most situations the existing buildings will be demolished to accommodate the new structures, however in some locations the existing structure may remain depending on site layout and condition of the structure.

3) A brief description of what the project includes

The project will include construction of stand-alone salt buildings (4,000 sf to 11,500 sf) with lean-to cold storage and/or spreader rack bays on either side as additional alternates within the bidding process. The project will design and construct as many salt sheds as allowed by available funding while generally keeping with the following priority list:

- 1) D1 – Milan (106) – Shed is 45 years old and current capacity is only 500 tons. Annual usage (3-yr average) is around 700 tons per year. The limited capacity requires the shed to store some material outside to maintain an adequate amount of material on hand to respond to significant storm events. Replacement is critical to be able to store a years' worth of salt undercover and maintain function due to an aging building. Depending on funding this shed may be built in this biennium.
- 2) D2 – Orford – Shed is 42 years old and current capacity is 1700 tons. Annual usage is around 1700 tons per year. Replacement is critical to maintain function due to an aging building that is starting to have structural issues.
- 3) D2 – Bristol – Shed is 48 years old and current capacity is 1500 tons. Annual usage is around 2050 tons per year. Replacement is critical to be able to store a years' worth of salt undercover and maintain function due to an aging building.
- 4) D1 – Whitefield – Shed is 33 years old and current capacity is only 500 tons. Annual usage is around 900 tons per year. Replacement is critical to be able to store a years' worth of salt undercover.
- 5) D3 – Belmont - Shed is 26 years old and current capacity is 2500 tons. Annual usage is around 2400 tons per year. Replacement is critical to maintain function due to an aging building that is starting to have structural issues.
- 6) D4 – Chesterfield – Shed is 44 years old and in very poor condition, current capacity is only 150 tons.
- 7) D5 – Warner – Shed is 19 years old and current capacity is 3000 tons. Annual usage is around 4000 tons per year.

4) Any back up information

Most recent bid results have shown total construction costs up to \$106 per sf for the departments standard High Arch Gambrel Salt building. Based on these numbers we would estimate anywhere from \$410,000 to \$960,000 for construction depending on the size of the building and addition of side storage buildings.



Photo 1: Milan 106 – Front and side elevation. Building includes interior cables for support when loaded with salt.



Photo 2: Milan 106 – Sand fill used to hold failed rear wall in place and makeshift anchors keeping walls in place.



Photo 3: Orford 201 – Back of shed with temporary supports



Photo 4: Orford 201 – Existing roof system connections



Photo 5: Bristol 206 – Temporary braces holding side and rear walls in place.



Photo 6: Whitefield – Existing undersized salt shed.

STATE OF NEW HAMPSHIRE
CAPITAL IMPROVEMENT PROJECT REQUEST
 FISCAL YEARS 2020 - 2021

PRIORITY # 7

AGENCY	CODE	NAME
096	960515	New Hampshire Department of Transportation
ACTIVITY / DIVISION		Operations
PROJECT-TITLE / NAME		Statewide - Underground Fuel Tank Replacement

Capital Budget Request	
Site Acquisition (a)	
Site Improvement / Preparation (b)	
Construction (c)	1,875,000
Utilities (d)	
Architect / Engineering (e)	125,000
Computer Systems / Equipment (f)	
Hardware	
Software	
Training	
Service	
Furnish / Equipment (g)	
Other (h)	
Total Capital Budget Request	2,000,000

Other Information	
Total Square Footage:	
Estimated Useful Life:	30

Related Annual Operating Budget Expenditures / Savings Estimates	
Expenditures	Savings
Permanent Personnel Services (a)	
Other Personnel Services (b)	
Current Expense (c)	
Equipment (d)	
Travel (e)	
Other (f)	
Total Expenditures / Savings Estimates	

Accounting Unit:
 Will these amounts be consistent each year?

Capital Budget Criteria (See Instructions)	
Requirement Code:	A, B, C or D
Definition Code:	A, B, C, D, or X
Funding Percentages by Source:	G, F, H, O
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan. Project # 	

Project Justification (Be Concise)

The NH Department of Transportation currently has 41 fuel sites that have underground storage tanks (46 tanks) and appurtenances that are 25 years or older. As the sites get beyond the warranty and life expectancy of the tanks and components, the potential for environmental issues and extensive repairs increases considerably. Prior Capital Improvement Projects (CIP) provided funding to bring many sites into environmental compliance; this CIP request continues that effort to replace the oldest and highest risk sites and to make structural improvements to sites near mid-life to prolong those sites' life span and to minimize potential environmental issues. Currently, 4 sites are planned for scheduled replacement in this biennium with an average cost of \$380K. This project will have no effect on the State's utility consumption.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name:	Caleb Dobbins - State Maintenance Engineer	Telephone Number:	271-2693
Name:	Victoria Sheehan	Commissioner	Date: 4/6/18

1) Why the project is necessary:

The NH Department of Transportation currently has 40 fuel sites that have underground storage tanks and appurtenances that are 25 years or older. As the sites get beyond the warranty and life expectancy of the tanks and components, the potential for environmental issues and extensive repairs increases considerably. Prior Capital Improvement Projects (CIP) provided funding to bring many sites into environmental compliance; this CIP request continues that effort to replace the oldest and highest risk sites and to make structural improvements to sites near mid-life to prolong those sites' life span and to minimize potential environmental issues.

It is difficult and costly to assess condition of Underground Storage Tanks while sites are in operation and condition can vary greatly based on many factors over the life of the tank. DOT has had a tank fail around 20-years and other tanks removed around 25-years of age showing some corrosion that can lead to failure. The sites proposed for replacement will all be over 30-years old at the proposed time of replacement, except Lancaster which has already had a leak.

2) What the project is replacing or adding on to:

The project will continue the recapitalization plan of the existing fuel system by reconstructing new fuel sites at different patrol shed locations throughout the state. In most situations the existing fuel site will be removed to accommodate the new tank(s) and appurtenances.

3) A brief description of what the project includes

The project will include reconstruction of single product (diesel) and two product (unleaded and diesel) fuel sites. The desire is to perform tank top upgrades and reconstruct as many fuel sites as allowed by available funding, beginning in State Fiscal Year (SFY) 2020 and extending for 4-6 years while generally keeping with the following priority list:

- FS 106 – Milan – 30 Years Old (split tank)
- FS 29 – Lancaster – 27 Years Old
- FS 101 – Pittsburg Lower – 32 Years Old (split tank)
- PS 512 – Londonderry – 31 Years Old (combine with shed and salt shed construction)
- FS 403 – Marlow – 33 Years Old (split tank)
- FS 201 – Orford – 35 Years Old
- FS 408 – Hancock – 32 Years Old (split tank)
- FS 203 – Rumney – 33 Years Old
- FS 108 – Jefferson – 34 Years Old

*Age shown for sites above is the age at the proposed time of replacement

4) Any back up information



Photo 1: Lancaster Tank – Heavy corrosion on the inside of the tank caused leaks at about 20-years of age. Tank lining repair was completed in 2013 with 10-year expected life. Extensive testing required every 5-year thereafter.



Photo 2: Lancaster Pumps and Canopy.



Photo 3: Ashland – Tank removed in 2016 at 25-years old with corrosion present in the base of the tank.



Photo 1: Northwood – Example of a full replacement for a single dispenser site.

STATE OF NEW HAMPSHIRE
CAPITAL IMPROVEMENT PROJECT REQUEST
 FISCAL YEARS 2020 - 2021

PRIORITY # **8**

AGENCY	096	CODE	NAME
ACTIVITY / DIVISION	960015		New Hampshire Department of Transportation
PROJECT-TITLE / NAME			Executive Office NHDOT Document Management Software

Capital Budget Request	
Site Acquisition (a)	
Site Improvement / Preparation (b)	
Construction (c)	
Utilities (d)	
Architect / Engineering (e)	
Computer Systems / Equipment (f)	1,000,000
Hardware	
Software	
Training	
Service	
Furnish / Equipment (g)	
Other (h)	
Total Capital Budget Request	1,000,000

Other Information	
Total Square Footage:	
Estimated Useful Life:	14

Related Annual Operating Budget Expenditures / Savings Estimates	
Expenditures	Savings
Permanent Personnel Services (a)	
Other Personnel Services (b)	
Current Expense (c)	
Equipment (d)	
Travel (e)	
Other (f)	
Total Expenditures / Savings Estimates	
Accounting Unit:	
Will these amounts be consistent each year?	

Capital Budget Criteria (See Instructions)	
Requirement Code:	A, B, C or D
Definition Code:	A, B, C, D, or X
Funding Percentages by Source:	G, F, H, O
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan. Project # <input type="checkbox"/>	

Project Justification (Be Concise)

The DOT needs a modern and efficient means to retrieve and manage documents. This system will integrate with the core DoIT Enterprise Platform, funded in the 2018/2019 Capital Budget, to provide a complete document retrieval system to manage the thousands of documents generated by DOT each year. The main objective is through workflow management tools, promoting the enterprise efficiency and transparency of existing document management processes. The impact if not approved would be a lost opportunity on potential efficiency and innovation improvements to enterprise processes that could have great potential for future cost avoidance and possible savings.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name: Marie Mullen Telephone Number: 271-6829
 Name: Victoria Sheehan Commissioner Date: 4/6/18

Document Management Software

What is the project description?

DoIT is currently implementing a Statewide Document Management System. The NHDOT portion of the project will integrate with both the DoIT document management system as well as various NHDOT systems. The NHDOT project will focus primarily on document and work flow management with a secondary focus on content, records, and contract management. The end result will be an increase in efficiency through a more integrated document management system in which employees can quickly find documents, manage work flows, and respond to legislative/public inquiries.

Why the project is necessary?

NHDOT is a \$650 million state agency with over 1,600 employees with permanent and construction locations spread throughout the state. Every day NHDOT creates numerous electronic documents such as spreadsheets, emails, and word documents. These documents are stored in various places such as agency software, network drives, and email accounts. Finding documents can be difficult and there is a concern whether a document is the most updated version.

In addition to simply finding a document, it is difficult to manage the work flow of a document. Most documents go through a process of creation, review and revision, and approval. This work flow is important to ensure the document is clear and well thought out but takes time to manage effectively. Document work flow will reduce this time.

Beyond finding documents and managing work flows, implementing document management software will provide a single place to protect and store documents that all employees can share and quickly search. This feature will reduce NHDOT storage requirements. Currently one document can be duplicated and stored in multiple individual email accounts and network drives with each person wanting to keep a personal copy due to a lack of a centralized location. All of these duplicated documents are in turn each backed up as part of a nightly process. As such, what was a single document is stored multiple times due to lack of a document management system.

A single location will also improve public transparency such as right to know requests and litigation holds. The DOT receives frequent right to know requests that require significant effort due to the number of storage locations and duplicated documents. A document management system will reduce the amount of time to find relevant documents for these and other public requests.

What are the numbers?

NHDOT Capital Request

2020-2021	\$1,000,000
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What the project is replacing or adding onto?

Currently, NHDOT does not have a centralized work flow or document management system. NHDOT currently saves documents in a variety of places including print outs, multiple pieces of software, multiple network drives, and individual email accounts.

NHDOT currently utilizes Management Tracking System (MTS) for Governor& Council items and Track-IT for external constituent response. MTS was developed by an employee at the NH Department of Environmental Services. Retirement and single developer knowledge of the system is a concern and prevents enhancements or improvement to the functionality of the software. Track-IT has reached its end of service life and is no longer being supported by the vendor and would require the Department to invest in an upgrade. NHDOT intends to consolidate this information, eliminate multiple systems and integrate with the DoIT document management solution.

STATE OF NEW HAMPSHIRE

CAPITAL IMPROVEMENT PROJECT REQUEST

FISCAL YEARS 2020 - 2021

PRIORITY # 9

AGENCY	096	NAME	New Hampshire Department of Transportation
ACTIVITY / DIVISION	960015		Executive Office
PROJECT-TITLE / NAME			NHDOT Work Order System Phase 1

Capital Budget Request	
Site Acquisition (a)	
Site Improvement / Preparation (b)	
Construction (c)	
Utilities (d)	
Architect / Engineering (e)	
Computer Systems / Equipment (f)	2,000,000
Hardware	
Software	
Training	
Service	
Furnish / Equipment (g)	
Other (h)	
Total Capital Budget Request	2,000,000

Other Information	
Total Square Footage:	
Estimated Useful Life:	14

Related Annual Operating Budget Expenditures / Savings Estimates	
Expenditures	Savings
Permanent Personnel Services (a)	
Other Personnel Services (b)	
Current Expense (c)	
Equipment (d)	
Travel (e)	
Other (f)	
Total Expenditures / Savings Estimates	

Total Expenditures / Savings Estimates
Accounting Unit: _____
Will these amounts be consistent each year? _____

Capital Budget Criteria (See Instructions)	
Requirement Code:	A, B, C or D
Definit on Code:	A, B, C, D, or X
Funding Percentages by Source:	G, F, H, O
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan.	Project # _____

Project Justification (Be Concise)

The State of New Hampshire has invested tens of billions of dollars in transportation assets. In order to get the most return on this major investment, the DOT needs a modern and efficient means to track future, current, and past maintenance efforts for assets such as bridges, culverts, and guardrail. Similar to a well maintained car, transportation assets that are well maintained will last longer and will have improved safety and reliability during their useful lives. Phase 1 of the software will:

- Lower Costs & Improve Efficiency by ensuring that preventative maintenance is performed on the right asset at the right time. Reduce time spent creating annual work plans, reporting work accomplishments, and deriving budgets. Efficiency by grouping similar tasks for economies of scale and grouping tasks by a similar region to reduce time lost to travel.
- Retain Information by relying less on staff knowledge. Due to the lack of modern software, maintenance records consist of the collective staff knowledge in many cases. Over time, this collective knowledge is lost due to retirements. By retaining this information, the DOT can gain insight as to actual work costs and the effectiveness of particular work efforts.
- Improve Coordination through shared permits, equipment, and progression of work. This coordination will reduce staff time and interruptions to the traveling public.
- Improved Effectiveness by better prioritizing work efforts that affect the traveling public and, over time, identifying through data the most effective maintenance solutions. This project will have no effect on the State's utility consumption.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name: Jeff Harpring Telephone Number: (603) 271-6299

Name: Victoria Sheehan Commissioner Date: 4/6/18

Work Order Software

Brief project description

This project will purchase software that will enable NHDOT to more efficiently plan, execute, and report work that is performed by the Department to provide a transportation system that is well maintained, efficient, reliable and seamless. The software will heavily incorporate work flow, a mobile presence, and location information. The software will also integrate with various systems and enable system consolidation.

Why the project is necessary?

Every day the state's transportation network changes, guardrail is struck, culverts are repaired, and bridges need to be maintained. Some of this work needs to happen immediately, such as opening a closed road, while other work can wait. The amount and types of work are vast and geographically widespread covering every region of the state. For example, there are over 2,100 state owned bridges, 200,000 drainage structures, and 1,000 miles of guardrail. Not only is there a lot of work and assets to manage, but some work must be completed prior to other work starting, such as obtaining a wetland permit before replacing a culvert prior to resurfacing the road. Viewed as a whole, ensuring that work is done properly is highly complex. Managing this level of complexity at a statewide level is not currently possible with existing NHDOT tools.

Tools to track work already exist. Other DOTs have or are implementing these tools and businesses have already deployed them. NHDOT currently manually determines work that is scheduled, when it will be done, who is going to do it, and what is the priority. With the constrained balance of Highway funds always a concern, it is important that NHDOT find efficiencies in our work. Implementing work order software makes sense for NHDOT and will improve a variety of functions:

- Better prioritizing work throughout the state to provide a consistent level of service to the public.
- Improved efficiency by grouping all work in the same area thereby reducing employee travel time.
- Improved coordination and better project scheduling to ensure that all work is complete in an area prior to large investments, such as road resurfacing.
- Improved projects so that designers can review past maintenance issues and create new designs that permanently address these costly reoccurring problems.
- Knowing, at a statewide level, all the work that needs to be done and when it is scheduled.
- Creating performance metrics such as actual amount of time to fix a guardrail strike, providing guidance to field personnel as to the appropriate amount of time, and highlighting instances when the work took too long.
- Getting assets to last longer by ensuring preventative maintenance is scheduled and completed.

- Enhanced cost recovery for natural disasters and insurance claims.
- Greater transparency into field activities.
- Better communication between people who design work and people who actually do the work.
- Better inventory management to ensure that the work is not delayed due to a lack of materials.
- Less work to both derive future budgets and provide detailed work accomplishments.

For Work Order Software, these advantages have already been realized by many businesses and other DOTs. Because the SoNH spends a large amount of money on employee pay and benefits, even small efficiency improvements will make this software cost effective.

What are the numbers?

NHDOT Capital Request

2020-2021	\$2,000,000
2022-2023	\$2,000,000
Total	\$4,000,000

NHDOT Expenditures and Asset Value

- Approximately \$86 million in fiscal year 2017 for operations labor and benefits not including other ancillary costs such as the vehicles to support these operations staff.
- Billions of dollars in physical assets for bridges alone.
- Additional billions in other physical assets such as guardrail, pavement, culverts, signals and traveler information systems.

Due to these large annual outlays and significant investment, the software will pay for itself even if only small gains in efficiency or asset life are realized.

What the project is replacing or adding onto

Currently, NHDOT only has software to report work accomplishments. Work accomplishments are general so understanding exactly where the work occurred or the full nature of the work is not possible. The current system does not support work that needs to occur in the future or history of work for any particular asset such as the last time a culvert was inspected. The software does not adequately support a mobile environment and is not connected to GIS systems.

STATE OF NEW HAMPSHIRE

CAPITAL IMPROVEMENT PROJECT REQUEST

FISCAL YEARS 2020 - 2021

PRIORITY # 10

AGENCY	096	NAME	New Hampshire Department of Transportation
ACTIVITY / DIVISION	960515		Division of Operations
PROJECT-TITLE / NAME			Statewide Equipment 2021

Capital Budget Request	
Site Acquisition (a)	
Site Improvement / Preparation (b)	
Construction (c)	
Utilities (d)	
Architect / Engineering (e)	
Computer Systems / Equipment (f)	
Hardware	
Software	
Training	
Service	
Furnish / Equipment (g)	
Other (h)	
Total Capital Budget Request	5,000,000

Other Information	
Total Square Footage:	
Estimated Useful Life:	

Related Annual Operating Budget Expenditures / Savings Estimates	
Permanent Personnel Services (a)	
Other Personnel Services (b)	
Current Expense (c)	
Equipment (d)	
Travel (e)	
Other (f)	
Total Expenditures / Savings Estimates	
Accounting Unit:	
Will these amounts be consistent each year?	

Capital Budget Criteria (See Instructions)	
Requirement Code:	A, B, C or D
Definition Code:	A, B, C, D, or X
Funding Percentages by Source:	G, F, H, O
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan. Project # <input type="text"/>	

Project Justification (Be Concise)

The Department of Transportation Equipment fleet has an estimated replacement value of approximately \$95.8 million. Depending on the equipment type the Department has set ideal trade parameters ranging from 6 years or 150,000 miles for a medium duty 1-ton truck to 40 years or 12,000 hours for a stainless steel salt spreader. The Department estimates we should be spending \$8.24 million per year to keep up with our trade parameters. As of December 1, 2017 we were approximately \$39.95 million behind. This \$5 million investment will help meet that goal and will only be used for equipment with a useful life of 10 years or greater. This project will decrease the State's utility consumption. The Department will be requesting adequate equipment funding as part of our Operating budget and the Department will remove this capital request as well as our Statewide Equipment 2021 request if our Operating budget is approved at adequate levels.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name:	David Rodrigue - Director of Operations	Telephone Number:	271-1693
Name:	Victoria Sheehan	Commissioner	Date: 4/6/18

STATE OF NEW HAMPSHIRE

CAPITAL IMPROVEMENT PROJECT REQUEST

FISCAL YEARS 2020 - 2021

PRIORITY # 11

AGENCY	096	NAME	New Hampshire Department of Transportation
ACTIVITY / DIVISION	960515		Highway Maintenance District 5
PROJECT-TITLE / NAME			Derry 528 - Vehicle Wash Building

Capital Budget Request		
Site Acquisition (a)		
Site Improvement / Preparation (b)	50,000	
Construction (c)	325,000	
Utilities (d)	50,000	
Architect / Engineering (e)	75,000	
Computer Systems / Equipment (f)		
Hardware		
Software		
Training		
Service		
Furnish / Equipment (g)	200,000	
Other (h)		
Total Capital Budget Request		700,000

Other Information	
Total Square Footage:	1,500
Estimated Useful Life:	25

Related Annual Operating Budget Expenditures / Savings Estimates	
Expenditures	Savings
Permanent Personnel Services (a)	
Other Personnel Services (b)	
Current Expense (c)	10,000
Equipment (d)	
Travel (e)	
Other (f)	
Total Expenditures / Savings Estimates	10,000

Accounting Unit: 3007 Highway Maint.
 Will these amounts be consistent each year?

Capital Budget Criteria (See Instructions)	
Requirement Code:	A, B, C or D
Definition Code:	A, B, C, D, or X
Funding Percentages by Source:	G, F, H, O
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan.	Project # <input type="checkbox"/>

Project Justification (Be Concise)

Vehicle wash facility needed to better comply with DES requirements and for preventive maintenance of equipment. Would be sited on a currently owned NHDOT property at the Derry 528 patrol facility. This project will increase the state's utility consumption.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name:	Richard Radwanski - District 5 Engineer	Telephone Number:	666-3336
Name:	Victoria Sheehan	Commissioner	Date: <u>4/6/18</u>

DERRY VEHICLE WASH BUILDING

1) Why the project is necessary:

The department currently washes maintenance vehicles outside at designated locations at each maintenance facility located with required setbacks to sensitive environmental areas. A vehicle (Truck) wash facility is needed to comply with NPDES Phase II requirements, directing the resulting wash water to a municipal sewer system and reducing runoff to open drainage systems. The facility is critical to the department's ability to minimize salt loading to watersheds within the I-93 corridor by eliminating vehicle washing outside with the increased number of trucks needed to maintain current winter maintenance service levels along the corridor.

Vehicle washing is critical for preventative maintenance for the department's fleet during winter maintenance operations. Providing an automated wash system will allow the department to wash vehicles during winter conditions more often and more effectively than the current practice of manually washing equipment outside.

2) What the project is replacing or adding on to:

This project will construct a new automated vehicle wash facility at the existing Derry 528 patrol shed location and be connected to municipal water and sewer service.

3) A brief description of what the project includes

The project will include construction of a new wood framed drive-thru building (approximately 30'x50') with a concrete slab foundation. Vehicle wash system will be an automated touchless system with pre-treatment, pre-soak, undercarriage wash and jet wash cycles. Building to include floor drains and be connected to municipal water & sewer services.

4) Any back up information



Photo 1: An Example of a Truck Wash Bay Owned by Pennsylvania Turnpike Authorities
(www.tammermatic.com/Heavy-Duty-Wash/Applications/Truck/Salt)

Extensive research regarding the different options for wash bays have been done for Minnesota Department of Transportation in 2016: Snowplow Truck Washing Practices: Synthesis Report: http://clearroads.org/wp-content/uploads/dlm_uploads/FR_Synthesis_CR.16-S2-1.pdf. This report along with other similar other state DOTs research shows the benefits of in-house wash bays, and explores the recycle/reuse option available for the wash water.

STATE OF NEW HAMPSHIRE

CAPITAL IMPROVEMENT PROJECT REQUEST

FISCAL YEARS 2020 - 2021

PRIORITY #

AGENCY	096	NAME	New Hampshire Department of Transportation
ACTIVITY / DIVISION	960515		Highway Maintenance District 2
PROJECT-TITLE / NAME			Enfield 224- Vehicle Wash Building

Capital Budget Request		
Site Acquisition (a)		
Site Improvement / Preparation (b)	50,000	
Construction (c)	325,000	
Utilities (d)	50,000	
Architect / Engineering (e)	75,000	
Computer Systems / Equipment (f)		
Hardware		
Software		
Training		
Service		
Furnish / Equipment (g)	200,000	
Other (h)		
Total Capital Budget Request	700,000	

Other Information	
Total Square Footage:	1,500
Estimated Useful Life:	25

Related Annual Operating Budget Expenditures / Savings Estimates	
Expenditures	Savings
Permanent Personnel Services (a)	
Other Personnel Services (b)	
Current Expense (c)	10,000
Equipment (d)	
Travel (e)	
Other (f)	
Total Expenditures / Savings Estimates	10,000

Accounting Unit:
 Will these amounts be consistent each year?

Capital Budget Criteria (See Instructions)	
Requirement Code:	A, B, C or D
Definition Code:	A, B, C, D, or X
Funding Percentages by Source:	G, F, H, O
G = General	F = Federal
H = Highway	O = Other
An Information Technology Project must be part of your IT Plan.	Project # <input type="text" value="4"/>

Project Justification (Be Concise)

Vehicle wash facility needed to better comply with DES requirements and for preventive maintenance of equipment. Would be sited on a currently owned NHDOT property at the Enfield 224 patrol facility. This project will increase the state's utility consumption.

Preliminary Plans: Attach a schematic and location sketch when applicable on an 8-1/2" x 11" sheet.

Contact Name: Doug King - District 2 Engineer Telephone Number: 448-2654

Name: Victoria Sheehan Commissioner Date: 4/1/18

1) Why the project is necessary:

District 2 currently has one indoor wash bay, located in Sunapee at the 213 Patrol Facility. As a result, vehicles washed there arrive at the Mechanical Services Garage for service just as dirty. Sunapee is approx. 30-minutes from Mechanical Services Satellite Garage. Being dirty when trying to be serviced or fixed risks contaminating internal workings of the vehicles and is unpleasant and unsanitary for the mechanics. Sunapee is in the southern section of District 2 making it unrealistic for the northern crews to facilitate use.

The area currently utilized for outside washing has no wastewater collection system, and is appropriate for the interstate trucks, due to its size.

2) What the project is replacing or adding on to:

The proposed wash bay will consist of a new pull-through building 36'x40' situated in the state owned land behind DOT District 2 office. It will replace a 16'x36' outside wash area by the welding shop of District 2. The proposed wash bay will be available to be used by all District 2 vehicles. It will need its own water source and waste water-treatment system, along with a new connection to power and a heating unit.

3) A brief description of what the project includes

The project includes a 36'x40' building with two garage doors across from each other, each 16' wide to allow for the widest DOT owned equipment to pull in and through the wash bay. The wash water is to be collected in an underdrain that would bring the wash water to a system of chambers for removal of contaminants. The system needs to be corrosion resistant in order to withstand the salt concentration expected from washing plow trucks. A sand filter and/or a carbon filter are to be used alongside an oil/water separator and a sedimentation chamber. The treatment system is to remove oil/grease and dirt, but it will not remove the salt. The reuse of some of the treated wash water (now salt water) for brine is the next step of the process (7 other state DOT has such systems in use as of Sep. 2016: Snowplow Truck Washing Practices: Synthesis Report).

The construction will also include drilling a new well and installing a new leach field for any additional water.

4) Any back up information

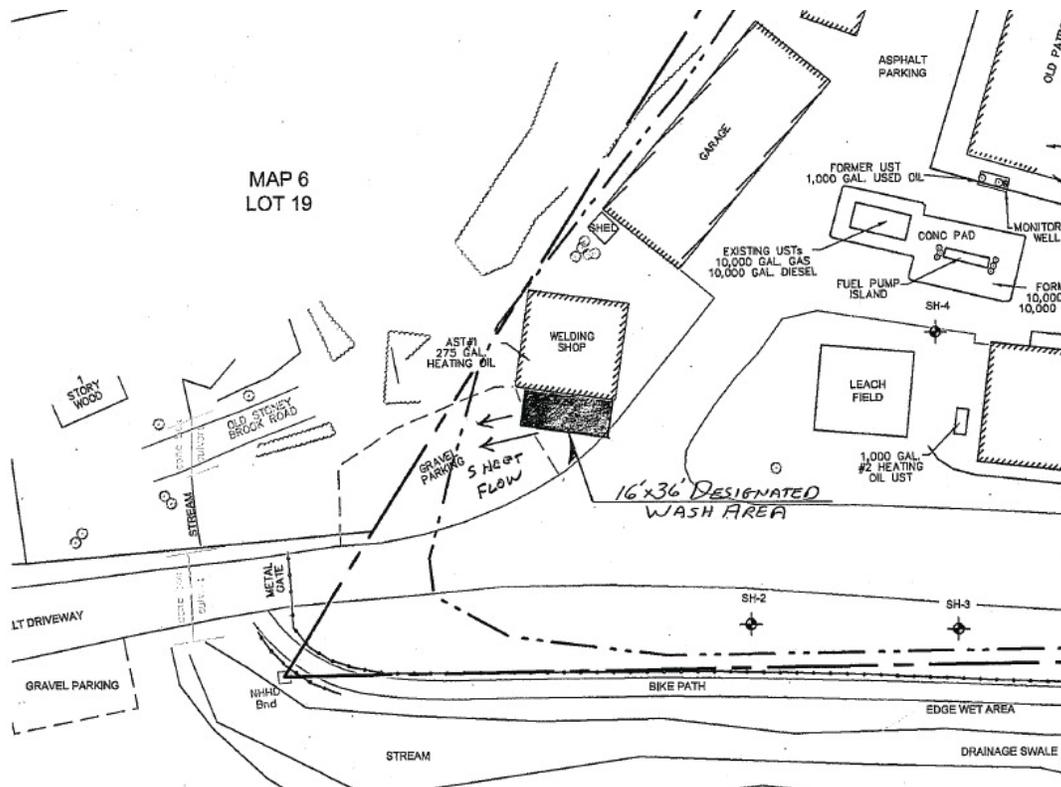


Photo 1: Location of Existing Vehicle Washing Area by Welding Shop.



Photo 2: Photo of Existing Shed Specific Vehicle Washing Area by Welding Shop.



Photo 3: An Example of a Truck Wash Bay Owned by Pennsylvania Turnpike Authorities (www.tammermatic.com/Heavy-Duty-Wash/Applications/Truck/Salt)

Extensive research regarding the different option for wash bays have been done for Minnesota Department of Transportation in 2016: Snowplow Truck Washing Practices: Synthesis Report: http://clearroads.org/wp-content/uploads/dlm_uploads/FR_Synthesis_CR.16-S2-1.pdf. This report along with other similar other state DOTs research shows the benefits of in-house wash bays, and explores the recycle/reuse option available for the wash water.