



10-Year Capital Asset Need: *Taking care of what we have.*

October 2021

m DEPARTMENT OF
NATURAL RESOURCES

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capital asset need

The Minnesota Department of Natural Resources (DNR) requires \$184,000,000 annually over the next 10 years from all funds in order to maintain and renew the capital assets under its custodial control. The condition of DNR's capital assets will continue to decline, and maintenance costs will increase, each year this amount is not invested.



goal

Restore and maintain all capital assets to "fair" or better condition within 10 years.

OVERVIEW

DNR's three-pronged mission of working with Minnesotans to conserve and manage the state's natural resources, provide outdoor recreation opportunities, and provide for commercial uses of natural resources in a way that creates a sustainable quality of life depends upon a wide range of facilities and infrastructure, both built and natural. This report focuses on the needs related to the built assets under DNR's custodial control. There are obvious facilities, like campgrounds at state parks and boat ramps at popular fishing lakes. There is also less obvious infrastructure, like monitoring wells, which provide basic information on groundwater resources. Minnesotans rely on DNR's facilities and infrastructure to support the quality of life they expect.

This is the third update of the DNR 10-Year Capital Asset Need Report since it was originally produced in 2015. DNR capital assets consist of any structure with a minimum life cycle of 20 years. A wide range of capital assets are addressed in this report, including buildings, roads, trails, bridges, water and wastewater systems, fish hatcheries, a forest nursery, and dams. This document summarizes the condition of DNR's built infrastructure and identifies the funding needed to bring these capital assets up to "fair" or better condition within 10 years. The intent is for all capital assets to be safe, functional, and accessible, supporting employee productivity and modeling the way for environmental sustainability and energy use.

This report conveys the DNR's most complete and accurate capital asset need assessment to date, reflecting our commitment to continuous improvement. The report now accounts for 311 dams that are managed by the DNR and includes a more accurate accounting of water and wastewater systems. The Current Replacement Value (CRV) and deferred maintenance cost estimates for roads and trails have also been improved using the state's asset management software and cost models.

2021 DNR CAPITAL ASSET FACTS

Current Replacement Value
\$2.9 billion

Deferred Maintenance
\$681.8 million

REPORT METHODOLOGY

This report uses a standardized framework to identify DNR's total annual capital asset investment need for "built" assets (e.g., buildings, forest roads, campgrounds, fish hatcheries, boat ramps). DNR's first Capital Asset Need Report was completed in 2015 and established a framework and methodology for the report that has been carried forward to the present update.

Asset inventories are the foundation of this report. They are used for determining a CRV for each type of asset and calculating or estimating the cost of deferred maintenance based on the condition of the assets. The tools and resources used to inventory and assess capital assets vary across the types and classes of assets. DNR inventories and assesses buildings and bridges using commercial asset management

software (ARCHIBUS and Cartegraph). Other assets, such as roads, are inventoried using specialized in-house databases and geographic information system applications. Depending upon the tools used the level of precision in inventory data varies. DNR invests in continuous improvement of asset inventories and condition assessment processes. For example, DNR completed an exhaustive inventory of wastewater systems in the past year, which will allow the use of ARCHIBUS tools to further refine the CRVs and deferred maintenance of those wastewater treatment systems in the coming year.

STATE TRAIL IMPROVEMENT EXAMPLE

Before: Damaged trail being rebuilt, Sakatah Singing Hills State Trail between Elysian and Waterville.



After: Repaired portion of the Sakatah Singing Hills State Trail between Elysian and Waterville.



The capital asset framework builds on the inventory to quantify the three primary components of the annual Capital Asset Need, as follows:

- **Preventative maintenance:** 0.15 to 0.65 percent of the aggregate CRV, by asset type. The percentages are based on industry standards and DNR operating experience.
- **Renewal and replacement:** 1.46 to 8.0 percent of the aggregate CRV, by asset type. The percentages are based on the expected life cycle of each asset type, adjusted to account for the age and condition of DNR's portfolio of capital assets.
- **Deferred maintenance catch-up:** 10 percent of the accumulated deferred maintenance of the asset type. DNR's asset management software calculates deferred maintenance for buildings and bridges. Deferred maintenance is estimated on an aggregate basis for other asset types based on the professional judgement of program managers and technical experts responsible for those assets. Because it would not be feasible to address all deferred maintenance in a single bonding cycle, DNR has established a goal of catching up on deferred maintenance over 10 years. Therefore the annual deferred maintenance need is one tenth of the total deferred maintenance.

BUILDING IMPROVEMENT EXAMPLE

Before: Old Temperance River State park shower building prior to replacement.



After: Temperance River State Park new shower building.



STATUS OF DNR'S ASSETS TODAY

The CRV of DNR capital assets is \$2.94 billion, with a deferred maintenance backlog of \$682 million. Historically, Minnesota has not invested sufficient resources to manage and maintain DNR capital assets in an acceptable condition for sustained use. For example, appropriations to the DNR for Natural Resource Asset Preservation (NRAP) have averaged \$9.2 million per year from 2011 to 2020. While significant, this is considerably less than the DNR's annual capital asset management need of \$184 million. As a result, the deferred maintenance backlog continues to grow.

The costs of deferred maintenance compound over time due to accelerated asset deterioration and an increased proportion of repair work being completed on an emergency basis. Addressing the deferred maintenance backlog will both enhance the usability of current facilities and reduce the risk of more costly renewal and replacement obligations in the future.

The annual capital asset management need includes preventative maintenance, replacing or rehabilitating assets at the end of their lifecycle (renewal and

replacement) and addressing deferred maintenance backlogs. Appendix C details the assumed preventative maintenance standards and lifecycles for each asset class.

TOTAL DNR CAPITAL ASSET NEED

Asset preservation funding is needed to address health and safety, building integrity, Americans with Disabilities Act (ADA) compliance, code violations, environmental sustainability, improving work conditions, and improving public access to and use of DNR-administered facilities.

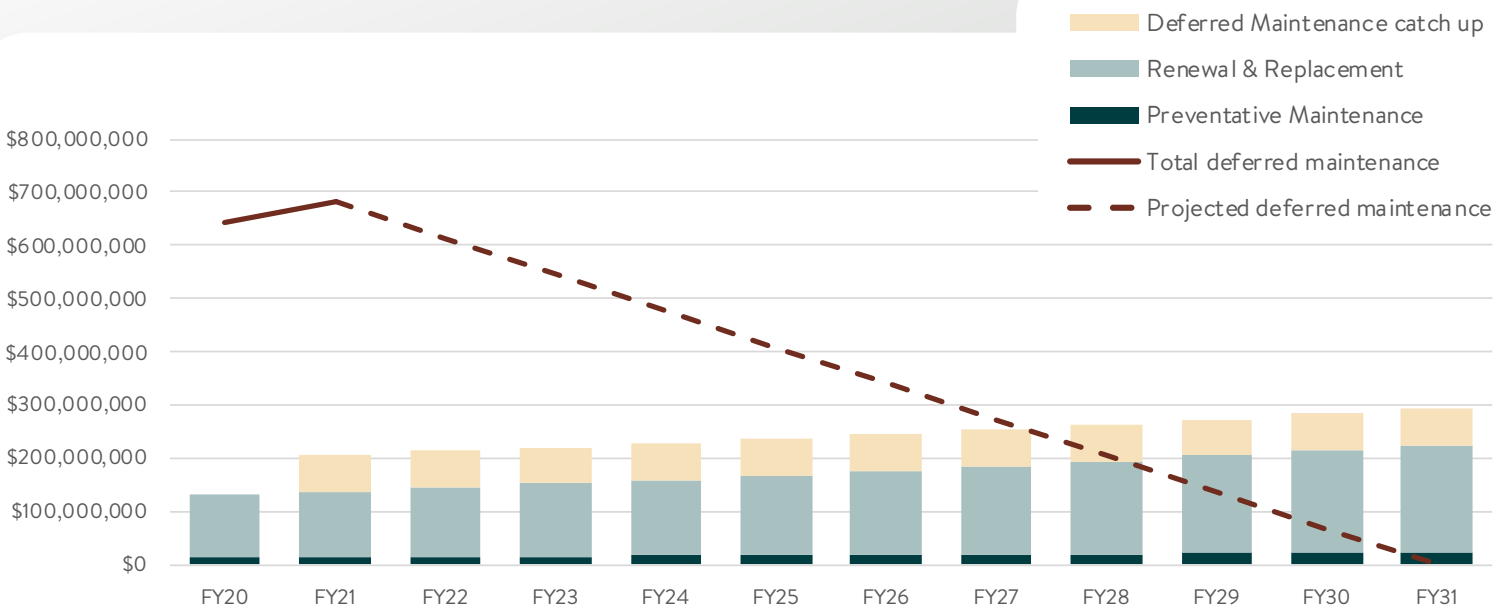
DNR Capital Asset Preservation Need (See Appendix C for details)

Current Replacement Value	Deferred Maintenance
\$2,942,000,000	\$682,000,000

Preventative Maintenance	Renewal and Replacement	Deferred Maintenance Catch-Up (2021-2030)	Annual Total
\$13,000,000	\$104,000,000	\$68,000,000	\$184,000,000

Future prediction of Preventative Maintenance, Renewal and Replacement, and Deferred Maintenance Catch-Up if fully funded annually over the next 10 years

This graph shows deferred maintenance declining to zero in 10 years and the annual investments needed to achieve this result.



WHAT DNR IS ACCOMPLISHING

Recent NRAP and Betterment of Buildings bonding appropriations:

2012	\$17,000,000
2014	\$10,000,000
2017	\$15,000,000
2018	\$32,581,000
2019	\$3,419,000
2020	\$20,000,000

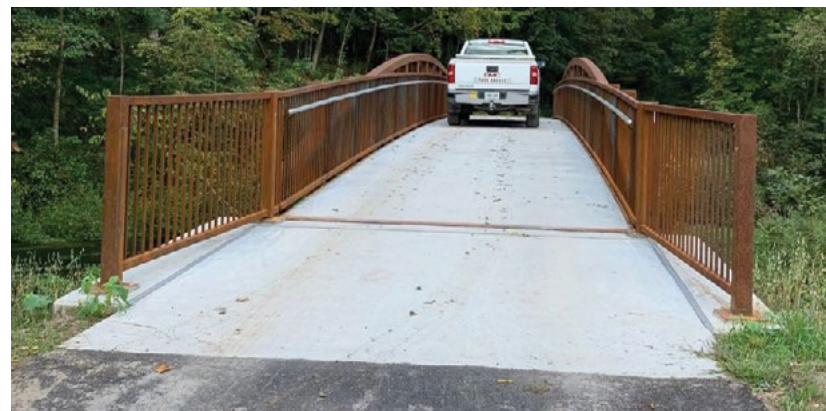
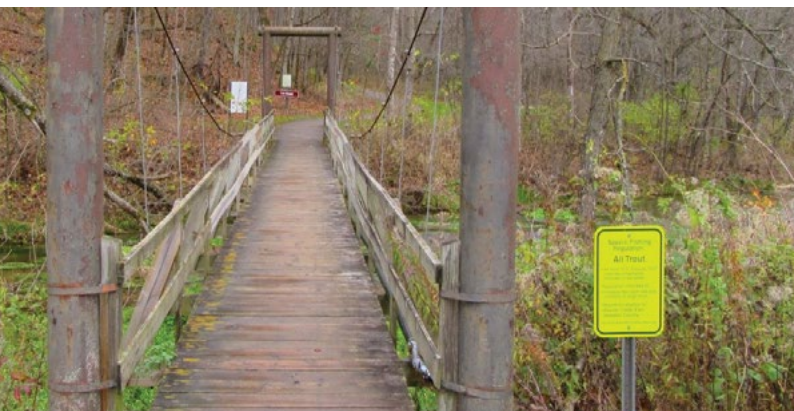
NRAP funds are bond proceeds appropriated to DNR for preservation of existing assets under Minnesota Statutes 84.964. Many NRAP projects are multi-year efforts that involve pre-design, design and construction. Betterment of Buildings funds are bond proceeds appropriated to DNR to acquire, design, construct, and expand buildings. New construction and expansion of use do not qualify for NRAP funding; therefore, building betterment funds are needed to significantly improve or replace buildings that are not accessible, are unsafe, no longer serve their intended purpose, or have reached the end of their useful life.

In addition to NRAP and Betterment of Buildings funding, DNR annually invests \$5.2 million in a Facilities Management Account (FMA) authorized by Minnesota Statutes 84.0857. DNR divisions are assessed FMA fees based on the buildings they occupy. The FMA funds are used for smaller projects, and non-bondable maintenance and repair projects. These projects include basic building repairs such as replacing broken light switches, furnace and water heater replacements, and projects to meet accessibility or health and safety standards. Operation of facilities, such as the cost of

snow removal and utilities, is the responsibility of the custodial divisions and is not funded through FMA. FMA also serves as a reserve fund for emergencies.

Examples of current or recently completed projects using NRAP and Betterment of Buildings funding include:

- Replacement of the wastewater treatment system for Itasca State Park – \$3,500,000
- Forestry roads and bridges – \$3,190,000
- Addressing unacceptable and poor building components (roofs, windows, etc.) – \$4,100,000
- Wildlife roads and water control structures – \$1,350,000
- Hibbing area office heating and ventilation system replacement – \$1,200,000
- Sakatah-Singing Hills State Trail rehabilitation – \$2,100,000
- Whitewater State Park replacement of failed septic systems – \$700,000
- Whitewater State Park rehabilitation of Cedar Hill campground – \$2,000,000
- Talcot Lake Wildlife Management Area shop replacement – \$1,300,000
- Lanesboro hatchery building replacement – \$5,200,000
- Cloquet Forestry office replacement – \$1,678,000
- Grand Rapids regional headquarters HVAC system replacement – \$2,500,000



Before (left) and after (right) a bridge replacement at Beaver Creek Valley State Park to address a failing and obsolete structure. The new bridge provides greater maintenance efficiency and public safety/access benefits.

ACCESSIBILITY AND ADA COMPLIANCE

DNR advances diversity, equity, and inclusion by striving to ensure its facilities, lands, and engagement processes are welcoming and accessible to all Minnesotans, including those with disabilities. When a built asset is rehabilitated or replaced, the facility or feature is brought into compliance with current ADA requirements. All new construction is likewise designed to comply with the ADA.

However, resources are not available to proactively replace infrastructure that does not meet current ADA requirements but is in otherwise fair or good condition. As a result, few DNR-managed assets are fully accessible based on today's standards. In 2018, DNR commissioned a survey of two state parks in the greater Twin Cities Metro Area to comprehensively evaluate the accessibility needs throughout the parks. The combined cost to alter, retrofit, or replace park buildings and infrastructure to achieve full mobility-related accessibility in just those two state parks was more than \$13 million. With 75 state park and recreation areas, and 245 field offices, the cost to make all DNR-managed facilities fully accessible is substantial—and is well beyond reach at current funding levels.



Aerial view of walkway to Fort Snelling State Park building entrance. The sidewalk exceeds ADA grade standards.



Main entrance of Waterville Fisheries office. The entrance is non-accessible.



Public entrance of Williams Forestry office. Sidewalk and stairs do not meet ADA requirements.

BUILDINGS

Building data is derived from ARCHIBUS, the state enterprise-wide facility management database. DNR conducts Facility Condition Assessments (FCAs) on all owned buildings using the Department of Administration’s statewide enterprise methodology. Based on the FCAs, ARCHIBUS calculates the CRV and deferred maintenance.

DNR currently owns and manages 2,902 buildings. Twenty-two percent (641) of DNR buildings have a Facility Condition Index (FCI) rating of “1-crisis” or “2 poor,” with a deferred maintenance backlog of almost \$61 million. See the below Building

Assessment FCI Rating table for the condition ratings of all buildings, using the 5-point FCA scale. DNR-owned buildings include 245 buildings where our staff report to work. Twenty of the report-to-work buildings are in crisis or poor condition. The needed annual investments for owned buildings and related infrastructure is currently estimated to be approximately \$30 million per year. In future reports, we plan on transitioning to a modified measure of our deferred maintenance, which will provide a more precise estimate of our long-term need and better align with enterprise assumptions.

Building Assessment FCI Rating results as of March 5, 2021. This is only for buildings (does not include site infrastructure).

Measure	Total	Excellent Condition (0.00 - 0.05)	Good Condition (0.05 - 0.15)	Fair Condition (0.15 - 0.30)	Poor Condition (0.30 - 0.50)	Crisis Condition (0.50 - 1.00)
Buildings Assessed	2,902	260	899	1,102	450	191
Gross Square Feet	3,390,475	194,800	963,026	1,311,145	414,516	506,988
Current Replacement Value	\$644,038,126	\$43,793,742	\$201,527,800	\$274,941,668	\$79,622,206	\$44,152,710
Deferred Maintenance	\$144,376,439	\$1,259,229	\$22,264,062	\$59,605,655	\$29,035,381	\$32,212,111

Number of DNR-owned buildings, by building type

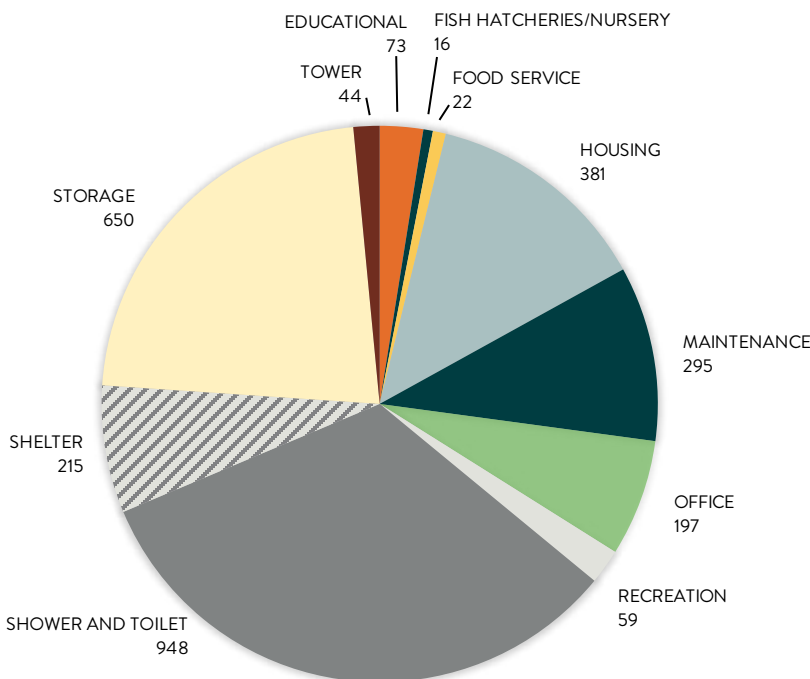
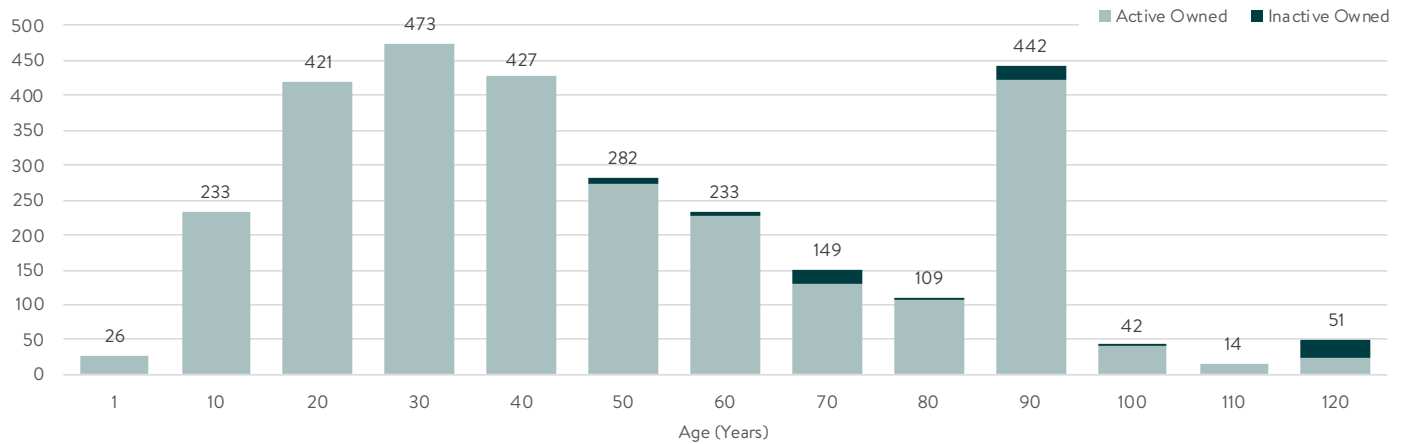


Chart above: The number of DNR-owned buildings by building type includes: 948 shower and toilet, 215 shelters, 650 storage, 44 towers, 73 education, 1 nursery, 15 fish hatcheries, 22 food service, 381 housing, 295 maintenance, 197 offices, and 59 recreational buildings.

The average age of DNR-owned buildings is 45 years, compared to 40 years for all state-owned buildings. Many buildings are historic and date from the 1930s or earlier. The age structure of DNR’s buildings leads to a significant portion of DNR’s capital needs. The accumulation of deferred maintenance is more significant in older buildings, and many buildings are at the end of their expected useful life, where renewal or replacement is required. Further, the design of many buildings reflects out-of-date standards and needs from the time when they were built. DNR’s older buildings are often functionally obsolete and not fully accessible. Addressing functionality and accessibility can significantly increase the cost of renovations since often a building’s existing configuration needs to be altered.

BUILDINGS continued from page 11

Age distribution of DNR-owned buildings



The graph above shows the age distribution of DNR-owned buildings.

BUILDING COMPONENT CONDITION EXAMPLES



Tettegouche State Park historic camp lodge roof in crisis condition.



Fort Ridgely State Park campground picnic shelter with rotting supporting timbers.



General Andrews South garage metal overhead door.



The Zimmerman Forestry Office is rated as "crisis" condition.

BUILDING COMPONENTS

Buildings include multiple components such as foundations, walls, roofs, doors, heating and cooling systems, plumbing and interior finishes. The average DNR FCA addresses 16 separate components. DNR currently has 398 building components rated in

crisis condition with a deferred maintenance cost of nearly \$20 million, and 1,637 building components rated in poor condition with a deferred maintenance cost of nearly \$32 million.

Building components, by condition and associated deferred maintenance costs

Building Components	Excellent Condition	Excellent Deferred Maintenance	Good Condition	Good Deferred Maintenance	Fair Condition	Fair Deferred Maintenance	Poor Condition	Poor Deferred Maintenance	Crisis Condition	Crisis Deferred Maintenance	Building Components Total	Deferred Maintenance Total
Basement Construction	138	\$20,150	537	\$511,878	70	\$958,204	14	\$293,524	1	\$2,359	760	\$1,786,115
Conveying	2	\$702	4	\$88,031	5	\$389,221	0	\$0	0	\$0	11	\$477,953
Electrical	566	\$348,421	1,488	\$4,552,431	795	\$7,224,118	79	\$2,479,931	24	\$470,360	2,952	\$15,075,260
Equipment	58	\$31,670	204	\$670,138	233	\$2,889,683	27	\$715,527	3	\$27,997	525	\$4,335,014
Exterior Enclosure	522	\$222,460	2,430	\$4,899,479	2,524	\$12,606,567	587	\$10,165,422	123	\$4,089,935	6,186	\$31,983,862
Fire Protection	5	\$9,132	15	\$148,879	1	\$2,517	0	\$0	0	\$0	21	\$160,528
Foundation	675	\$411,069	1,425	\$4,267,062	542	\$4,649,913	74	\$2,369,306	41	\$4,868,454	2,757	\$16,565,803
HVAC	318	\$101,937	930	\$2,065,642	485	\$4,820,869	70	\$1,014,088	24	\$1,207,571	1,827	\$9,210,106
Interior Construction	255	\$116,647	1,042	\$2,892,952	975	\$7,043,166	91	\$2,526,223	13	\$257,777	2,376	\$12,836,764
Interior Finishes	389	\$153,063	1,740	\$3,022,440	1,958	\$6,945,434	196	\$3,826,697	44	\$454,978	4,327	\$14,402,613
Plumbing	188	\$108,610	849	\$1,608,476	837	\$5,234,324	96	\$1,945,376	21	\$693,018	1,991	\$9,589,804
Roofing	820	\$302,014	2,394	\$4,156,308	1,553	\$7,300,392	366	\$4,694,733	99	\$7,383,534	5,232	\$23,836,981
Renewable Energy	26	\$41,940	23	\$322,050	2	\$33,304	2	\$1,289,290	0	\$0	53	\$1,686,584
Special Construction	104	\$78,325	69	\$478,056	48	\$942,289	20	\$376,124	2	\$74,135	243	\$1,948,930
Stairs	22	\$11,722	89	\$151,631	103	\$246,645	15	\$51,383	3	\$18,739	232	\$480,120
Grand Total	4,088	\$1,957,861	13,239	\$29,835,451	10,131	\$61,286,647	1,637	\$31,747,622	398	\$19,548,859	29,493	\$144,376,438

SITE INFRASTRUCTURE

Buildings rarely stand alone. An accessible and functional building requires additional site infrastructure. Depending on the building, this may include items such as parking lots, sidewalks, lighting, fences, gates, and utilities. Current estimates of annual Preventative Maintenance, Renewal and

Replacement, and Deferred Maintenance Catch-Up needs are \$2.4 million for site infrastructure at DNR facilities. However, much of the existing site infrastructure is not yet included in ARCHIBUS and therefore these cost estimates do not represent the full site infrastructure need.

Buildings, renewable energy systems and related infrastructure (parking lots, fences, gates, sidewalks, utilities, etc.)

Number of Assets	Current Replacement Value	Deferred Maintenance	Annual Preventative Maintenance	Annual Renewal and Replacement	Annual Deferred Maintenance Catch-Up (2021 - 2030)	Annual Total
2,943	\$682,258,126	\$148,198,439	\$4,240,523	\$11,377,497	\$14,819,844	\$30,437,863

SITE INFRASTRUCTURE CONDITION EXAMPLES



Two Harbors Headquarters parking lot.



Whitewater State Park Cedar Hills campground guard rail failure.



Hibbing air tanker base ramp in crisis condition.



This deep crack at the Hibbing air tanker base ramp is unsafe for taxiing aircraft.

WATER AND WASTEWATER SYSTEMS

DNR buildings are often located outside of municipal service areas, making wells and onsite water and wastewater treatment systems necessary. Many of these systems are near or past their useful life and need attention. The average useful life for a water or wastewater system is 40 years.

DNR currently operates seven domestic wastewater treatment systems and six industrial wastewater treatment systems that are large enough to require a National Pollutant Discharge Elimination System (NPDES) or State Disposal System discharge permit. These permits are issued by the Minnesota Pollution Control Agency (MPCA). MPCA relies on a scoring system to prioritize funding for wastewater treatment systems in need of replacement or significant rehabilitation. While this prioritization approach is part of a program to provide financial assistance for municipal wastewater treatment systems, DNR applies the same scoring system to its wastewater facilities to get a comparable sense of the urgency of its wastewater replacement/rehabilitation projects. Six DNR-operated systems scored a 40 or higher on MPCA's prioritization scale. A score of 40 or higher indicates the facility in question has a high risk of environmental impacts and needs immediate attention. The highest-scoring DNR system (i.e., the highest risk) is the wastewater system at Myre-Big Island State Park, which has a score of 68.

In addition to larger permitted wastewater systems, DNR manages hundreds of individual, on-site septic systems at DNR facilities. Many of these systems have reached or exceeded their useful life.

DNR's water supply infrastructure includes both wells and distribution systems. The advanced age of many of these systems results in frequent distribution line failures. These are expensive repairs and can be disruptive to operations.

In addition, these aging systems are often designed to outmoded standards (including hazardous confined spaces), and have been expanded in a piecemeal fashion over decades. This results in significant safety, operational and maintenance challenges. Fort Snelling State Park is an example of a site where multiple water line breaks occur annually.

DNR needs at least \$4.1 million annually to maintain and catch up on deferred maintenance on its water and wastewater systems. In addition to this annual need, a number of wastewater systems are not fully in compliance with current state standards and must be replaced.

These include wastewater treatment systems at Itasca, Myre-Big Island, and Scenic state parks, as well as a number of small septic systems across the state.

DNR currently has several high-priority water and wastewater system projects underway or in need of funding. Below are a few examples:

- Scenic State Park, wastewater system replacement; funded and in process – \$3 million
- Itasca State Park, wastewater pond replacement; funded and in process – \$3.3 million
- Itasca State Park Douglas Lodge water and wastewater lines replacement, not yet funded – \$3.5 million
- Myre-Big Island State Park, wastewater system replacement via connection to the City of Albert Lea system – \$3.4 million

Large domestic wastewater treatment system MPCA scores

DNR Site	MPCA Score
Myre-Big Island State Park	68
Itasca State Park	65
Lake Bronson State Park	55
Father Hennepin State Park	48
Sibley State Park	45
Blue Mounds State Park	40
Scenic State Park	33

WATER AND WASTEWATER SYSTEMS continued from page 15

Water and Wastewater Systems

Number of Assets	Current Replacement Value	Deferred Maintenance	Annual Preventative Maintenance	Annual Renewal and Replacement	Annual Deferred Maintenance Catch-Up (2021 - 2030)	Annual Total
577	\$96,000,000	\$11,520,000	\$576,000	\$2,400,000	\$1,152,000	\$4,128,000

WATER AND WASTEWATER SYSTEM CONDITION EXAMPLES

GENERAL ANDREWS STATE FOREST SITE



Septic holding tanks area poor condition prior to repair.



Septic piping poor condition prior to repair.



Septic replacement under construction.

FORT SNELLING STATE PARK



Water main break.

BRIDGES

DNR owns and maintains 503 pedestrian and vehicle bridges statewide. For the purposes of DNR’s asset management program, a bridge is defined as a structure with a span length of at least 20 feet; this includes large culverts. DNR bridges provide safe crossings of rivers, streams, roads, and trails for recreational, commercial, resource management, and emergency response purposes.

Bridges are located on all types of DNR-administered lands. Of the 503 bridges DNR owns and maintains, 128 serve state parks, recreation areas, and scientific and natural areas (SNAs); 47 are located in state forests, including bridges on forest roads; 23 support wildlife and fisheries access and activities; 296 are trail bridges; and 9 have “other” or multiple purposes.

DNR’s bridge engineers provide asset management services for DNR-owned bridges. These services include periodic inspections, data management, recommendations on routine maintenance requirements, and project management of repair, replacement and new bridge construction. DNR uses the standard bridge inspection protocols as established by the American Association of State Highway and Transportation Officials and the Minnesota Department of Transportation.

The types of bridges DNR owns include modern steel light-duty bridges, wide-span concrete culverts, and retired railroad and highway bridges that are well over 100 years old. The typical service life of a bridge is 50 years; the average age of DNR bridges is more than 43 years.

In the past two years, DNR has experienced significant issues with a number of aging bridges, resulting in mandatory closures to traffic or the imposition of weight restrictions. In particular, the High Falls Bridge at Tettegouche State Park must be replaced as soon as possible due to age and corrosion of the suspension cables. In 2019, the vehicle bridge at Tettegouche State Park connecting the visitor center to the campground required an emergency repair after a bent gusset plate was discovered during a routine inspection. This bridge is 97 years old and has a fracture-critical structure. DNR is currently working with the Minnesota Department of Transportation to develop a permanent solution to maintain campground access. Replacement, which could cost nearly \$10 million, would be the safest option as it would keep internal park traffic clear of the busy Highway 61.

Bridges

Number of Assets	Current Replacement Value	Deferred Maintenance	Annual Preventative Maintenance	Annual Renewal and Replacement	Annual Deferred Maintenance Catch-Up (2021 - 2030)	Annual Total
503	\$94,400,096	\$11,278,329	\$152,070	\$2,978,021	\$1,127,833	\$4,257,924

BRIDGE CONDITION EXAMPLES



Picture above: Alborn-Pengilly Railroad Trail
Middle: Banning State Park
Picture below: Wild Indigo Prairie SNA



ROADS AND TRAILS

Forestry, Parks and Trails, and Fish and Wildlife are the primary divisions managing roads and trails.

ROADS

DNR is responsible for 4,633 miles of roads that provide access within state forests, state parks and wildlife management areas. Roads typically have an expected useful life between 15 and 25 years, suggesting a need to rehabilitate about 180 miles per year.

TRAILS

Statewide, DNR is responsible for 2,535 miles of trails, of which 803 miles are paved. Paved trails need to be rehabilitated on a 25-year cycle. Gravel trails need to be rehabilitated at a minimum on a 15-year cycle, suggesting a need to rehabilitate about 32 miles of paved trail and 115 miles of gravel trail each year. However, the growing backlog of deferred maintenance on paved trails in particular means that over 100 miles of paved trails are in immediate need of rehabilitation. Rehabilitation of paved trails costs about \$261,000 per mile.

Roads and trails (333 miles of paved roads, 4,300 miles of gravel roads, 2,535 miles of trails, and over 7,000 associated culverts)

Number of Assets	Current Replacement Value	Deferred Maintenance	Annual Preventative Maintenance	Annual Renewal and Replacement	Annual Deferred Maintenance Catch-Up (2021 - 2030)	Annual Total
7,168 miles; 7,001 culverts	\$1,080,116,120	\$345,056,164	\$2,696,261	\$45,150,394	\$34,505,616	\$82,352,271

ROADS AND TRAILS CONDITION EXAMPLES



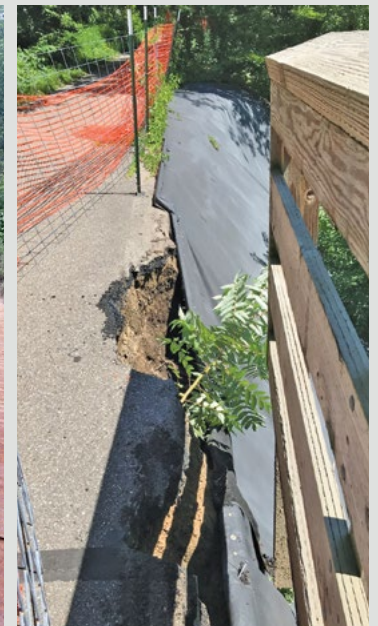
Harlis Forestry road washout damage.



Wild River State Park road deterioration.



Trails culvert washout.



Sakatah-Singing Hills State Trail failure.

PUBLIC WATER ACCESSES

Recreational boating is a \$3.1 billion economic engine in the state (source: National Marine Manufacturers Association, 2018). This important economic and recreational activity is largely enabled by public water accesses maintained by DNR and local units of government.

DNR maintains 1,691 state public water access sites (PWAs). The typical expected useful life of a PWA is 15-25 years, depending on the roadway and parking

surface materials used. In addition, many PWAs were constructed prior to passage of the ADA and Minnesota’s focus on preventing the spread of aquatic invasive species (AIS). These older PWAs need re-configuration/replacement to provide space for boat washing and AIS inspection, incorporate shoreline buffers, enhance accessibility, and meet current stormwater management requirements. A total annual investment of \$20.1 million is needed to recapitalize and sustain DNR-managed PWAs.

DNR-managed Public Water Accesses (279 paved, 1,100 gravel and 311 grass/vegetated PWAs)

Number of Assets	Current Replacement Value	Deferred Maintenance	Annual Preventative Maintenance	Annual Renewal and Replacement	Annual Deferred Maintenance Catch-Up (2021 - 2030)	Annual Total
1,691	\$263,178,800	\$31,581,456	\$1,655,487	\$15,304,796	\$3,158,146	\$20,118,428

PUBLIC WATER ACCESSES CONDITION EXAMPLES



Lake Alexander west access prior to rehabilitation.



Lake Alexander west rehabilitated access.



German Lake PWA pavement repair needs.



Lake Rachel PWA gravel rehabilitation needs.

LAKE SUPERIOR SMALL CRAFT HARBORS, MARINAS, AND PROTECTED ACCESSES

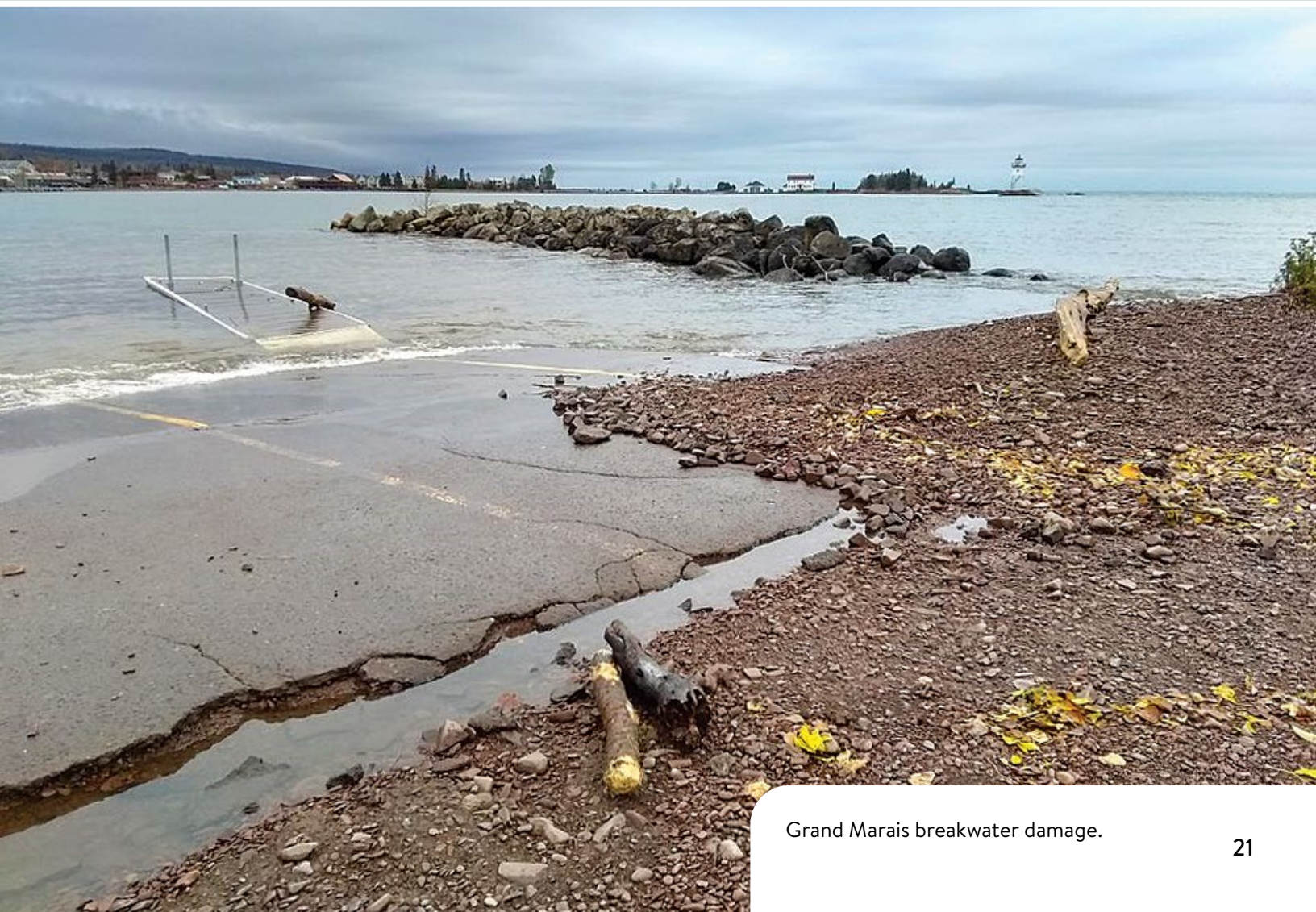
Small craft harbors, protected water accesses, and marinas provide safe access to Lake Superior for recreational watercraft and small commercial

vessels. Deferred maintenance catch-up is \$2 million annually, with a total annual investment need of nearly \$6 million.

Marinas, small craft harbors and protected accesses

Number of Assets	Current Replacement Value	Deferred Maintenance	Annual Preventative Maintenance	Annual Renewal and Replacement	Annual Deferred Maintenance Catch-Up (2021 - 2030)	Annual Total
10	\$82,000,000	\$20,500,000	\$533,000	\$3,280,000	\$2,050,000	\$5,863,000

MARINA ACCESS CONDITION EXAMPLE



Grand Marais breakwater damage.

CAMPSITES, GROUP CAMPS, RECREATION AREAS AND DAY-USE AREAS

DNR manages over 5,000 campsites at state parks, state recreation areas and forest recreation areas, as well as 102 group camps and 64 day-use areas. Many of these facilities are more than 50 years old and in need of major renovations to address deferred maintenance, conform to current standards, and meet changing recreational needs of the public. Renewal and replacement focuses on public safety,

ADA accessibility, electrical upgrades, and providing pull-through campsites. Often, building renovation or replacement to provide modern bathroom and shower facilities occur at the same time that a campground is rehabilitated. The average lifecycle for a campsite is 25 years. The total annual investment needed is \$15.7 million to rehabilitate an average of 200 campsites that are past their expected useful life.

Campsites, etc. (4,356 park campsites, 102 group camps, 764 forest campsites and 64 day-use areas)

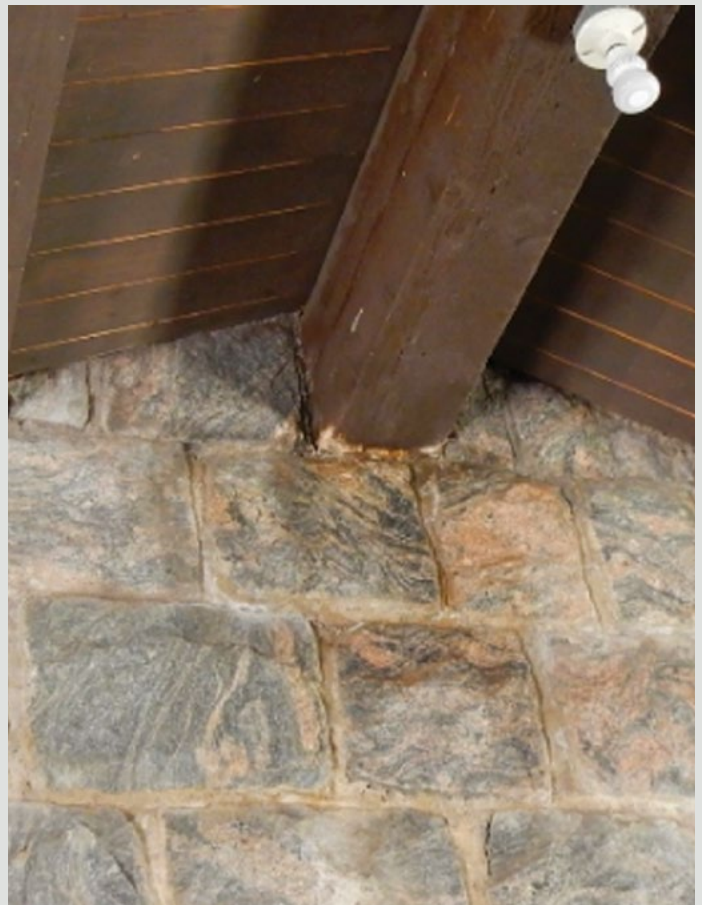
Number of Assets	Current Replacement Value	Deferred Maintenance	Annual Preventative Maintenance	Annual Renewal and Replacement	Annual Deferred Maintenance Catch-Up (2021 - 2030)	Annual Total
5,286	\$222,370,500	\$37,351,270	\$1,445,408	\$10,555,820	\$3,735,127	\$15,736,355

CAMPSITES, GROUP CAMPS, RECREATION AREAS AND DAY-USE AREAS CONDITION EXAMPLES

St. Croix State Park Riverview campground shower building.



Fort Ridgely State Park day-use area shelter ceiling wood beam rot.





More than 1 million people camped and more than 9 million people visited state parks and recreation areas in 2019.



These examples of inadequate and aging campground water and electrical infrastructure illustrate system-wide needs.



FISH HATCHERIES

DNR operates four cold and 11 warm water fish hatcheries. In the last decade, disease and invasive species have become a much greater concern for hatcheries. As a result, they require more sophisticated equipment and maintenance. Each of these 15 hatcheries plays a unique role in providing the many species and strains of fish stocked across the state.

Some of the DNR hatcheries were constructed in the 1950s and are still operating with original equipment. Many are in need of significant repairs and upgrades. The most pressing needs include:

- Biosecurity upgrades to protect against fish diseases and aquatic invasive species
- Antiquated water piping and control systems are on the verge of failure, risking hundreds of thousands of fish each year
- Dike systems for pond-raised fish
- Employee safety-related repairs
- Pond, raceway, and rearing-unit maintenance
- Energy efficiency upgrades

In response, DNR completed feasibility studies in 2018 and 2019 on four hatcheries. The studies assess the current conditions and recommend improvements to ensure that the hatcheries are meeting current needs and will be able to function as needed into the future. The feasibility studies identified \$58.8 million in needed improvements to address critical issues related to biosecurity, aging infrastructure, and staff safety.

DNR received a bonding appropriation in 2018 that allowed us to address critical employee safety issues and failing infrastructure at Lanesboro Hatchery through the replacement of the office and nursery building. Construction of the new building was completed in fall 2021.

The Waterville Hatchery is the priority for the next major renovation. It receives a significant number of visits from the public and serves as the “face of the DNR” cool water fish production program. Waterville Hatchery is a critically important component of the state’s walleye, northern pike and muskellunge management programs. Waterville hatchery produces

FISH HATCHERY CONDITION EXAMPLES

Waterville Hatchery staff picking up muskies in pond due to poor drainage.



Waterville Hatchery fry tank in poor condition.



about 35 million walleye fry, 200,000 walleye frylings, 25,000 walleye fingerlings, 1.5 million northern pike fry, and 4,000 muskie fingerlings annually. Northern pike and walleye are stocked in southern Minnesota, while muskie are stocked statewide.

The aging infrastructure is failing and/or unusable and threatens to severely reduce the state's capacity to raise walleye and muskellunge. In addition, the source water is listed as infested with Eurasian watermilfoil. The result is fish from this facility can only be stocked in waters with Eurasian watermilfoil. We would like to add additional water sources to reduce our reliance on the infested water source, as well as increase our ability to treat the infested source water to eliminate invasive species.

New London and Crystal Springs hatcheries also have critical infrastructure needs that need to be addressed urgently to ensure continuation of operations:

- New London Hatchery has failing pond kettles, dikes, and pond drainage systems and is in need of enhancements to prevent the spread of AIS. New London Hatchery produces walleye and muskie for stocking across the state.
- Crystal Springs has antiquated water piping and control systems that are on the verge of failure. Crystal Springs Hatchery raises brook, rainbow and lake trout for stocking across the state.



Fishing contributes **\$2.4 billion annually** to Minnesota's economy.

Stocking hatchery-raised fish significantly enhances fishing in Minnesota by providing angling opportunities that would not otherwise exist.

Unsafe Waterville Hatchery fish raceway.

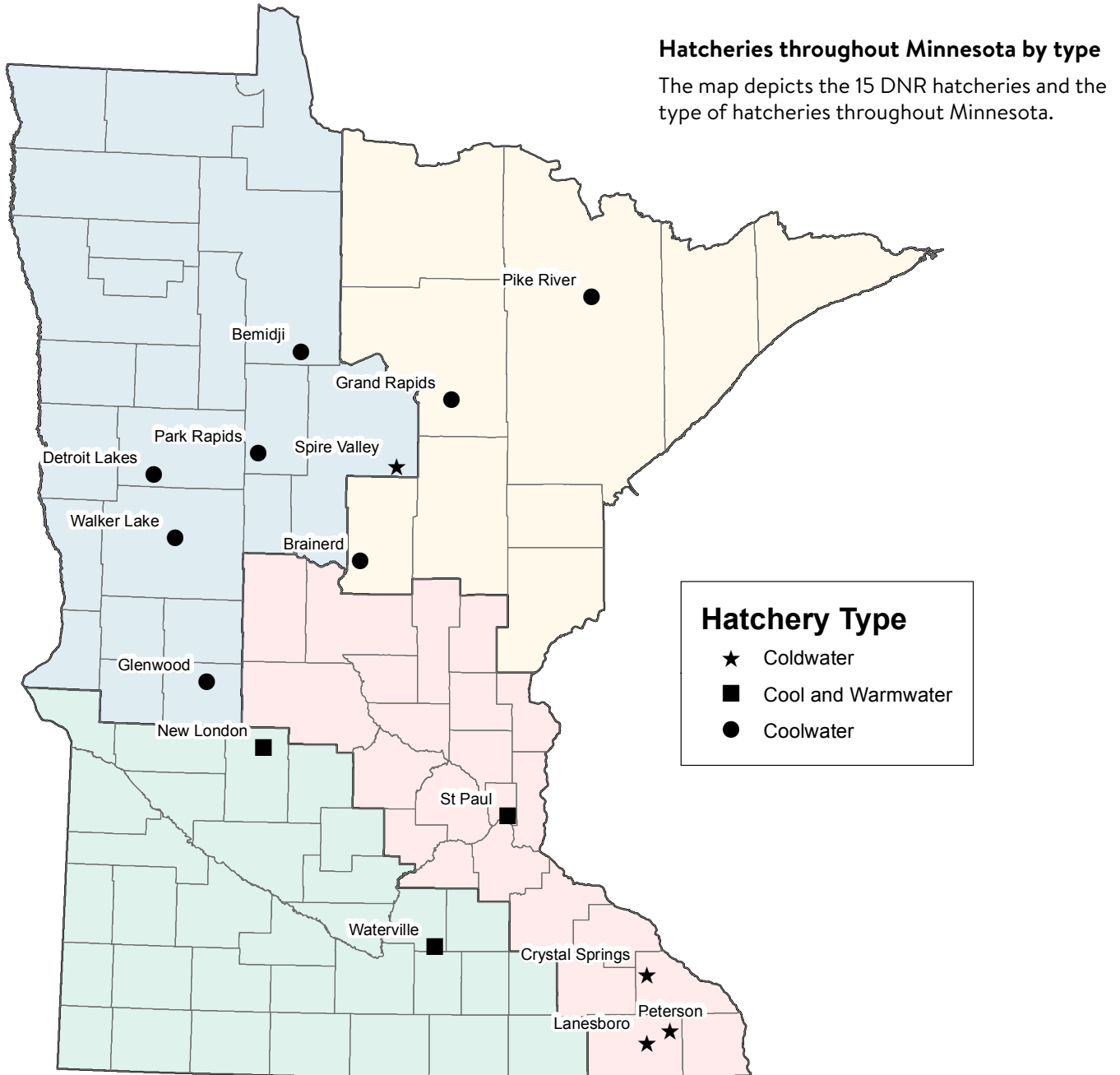


Failing dike road at New London Hatchery.



Hatcheries

Number of Assets	Current Replacement Value	Deferred Maintenance	Annual Preventative Maintenance	Annual Renewal and Replacement	Annual Deferred Maintenance Catch-Up (2021 - 2030)	Annual Total
15	\$111,000,000	\$13,200,000	\$721,500	\$4,440,000	\$1,332,000	\$6,493,500



TREE NURSERY

Since 1933, Minnesota's State Forest Nursery has provided over 1 billion healthy, native tree and shrub seedlings for Minnesota plantings.

At the Badoura State Forest Nursery, many facilities are at or beyond their expected useful life or inadequate to meet current needs. For example, the seed extraction equipment that DNR relies on to provide Minnesota-native seed for aerial seeding and tree seedling production is beyond its useful life.

Seedling and seed storage coolers are inadequate and reaching the end of their useful life. Multiple mechanical systems, including pinecone processing equipment and HVAC systems, are in poor condition and need replacement. Funding is needed for modernization and facility improvements to increase operational efficiency and meet anticipated seed source, seed extraction, seedling, and seed storage capacity needs now and into the future.

BADOURA STATE FOREST NURSERY



Pack house.



Cone shed.



Extractory equipment.



Pack house cooler in poor condition.

DAMS

The DNR manages 311 dams with a CRV of \$116.3 million. Minnesota Rules define a dam as an artificial barrier that impounds more than 15 acre-feet of water and is greater than 6 feet high.

Repair, replacement and removal of dams have historically been funded through state general obligation bonding. Funds are distributed based on an integrated dam safety project priority list that the DNR develops and submits to the legislature every other year. Bonding funds have also been granted to local government units for dam rehabilitation projects.

Most DNR-managed dams were built in the 1930s under the Works Progress Administration. State-owned dams are on average 70 years old. There is a growing need to rehabilitate these dams as the majority are beyond their expected useful life.

HAZARD CLASSIFICATION OF DNR-MANAGED DAMS

Hazard classification is based on the potential consequences of a dam failure. It is not reflective of the condition of the dam or the likelihood of failure.

Hazard classification of DNR-managed dams

DNR Dams	Classification
2	High Hazard - Failure would probably cause loss of life or serious economic loss
12	Significant Hazard - Failure would cause limited economic loss, but no loss of life
297	Low Hazard - Failure would cause only minor losses

Dams

Number of Assets	Current Replacement Value	Deferred Maintenance	Annual Preventative Maintenance	Annual Renewal and Replacement	Annual Deferred Maintenance Catch-Up (2021 - 2030)	Annual Total
311	\$116,310,000	\$39,693,000	\$174,465	\$4,652,400	\$3,969,300	\$8,796,165

DAM CONDITION EXAMPLES



High Island Lake dam failure.



Warren Lake dam failure.

WATER CONTROL STRUCTURES

In addition to managing dams, DNR manages more than 1,400 structures that control water levels on state land and public waters but do not meet the definition of a dam under Minnesota Rules. The average expected useful life for a water control

structure is 35 years. The total annual investment needed to address water control structures is \$4.4 million, which would provide sufficient funding to replace an average of 30 water control structures each year that have reached their end of life.

Water Control Structures

Number of Assets	Current Replacement Value	Deferred Maintenance	Annual Preventative Maintenance	Annual Renewal and Replacement	Annual Deferred Maintenance Catch-Up (2021 - 2030)	Annual Total
1,403	\$162,748,000	\$19,529,760	\$244,122	\$2,180,823	\$1,952,976	\$4,377,921

WATER CONTROL STRUCTURE CONDITION EXAMPLES



Silver Lake, LeSueur County, water control structure in crisis condition.



Perkins Lake water control structure failure.



Wolf Lake WMA aging control valve for ponds.



Wolf Lake WMA water control structure discharge pipe.

MONITORING WELLS

Monitoring wells (also called observation wells) are placed in various aquifers across the state to monitor groundwater levels and provide long-term groundwater level data. The resulting data are used for water supply planning for community, industry, and agricultural uses. The data are also key to inform permitting decisions, help determine water availability, and assist in mitigating conflicts over water use. Over the past 11 years, the state has made substantial investments in expanding the well

monitoring network to address increasingly complex water management questions. Maintenance of existing wells is also critical to meeting these needs. The cost to maintain and repair existing wells is usually much less than the cost to replace them. The typical expected useful life for a monitoring well is 25 years. The total annual investment needed is \$1.5 million to replace an average of 38 wells each year and repair hundreds.

Monitoring Wells

Number of Assets	Current Replacement Value	Deferred Maintenance	Annual Preventative Maintenance	Annual Renewal and Replacement	Annual Deferred Maintenance Catch-Up (2021 - 2030)	Annual Total
1,130	\$28,250,000	\$3,390,000	\$70,625	\$1,130,000	\$339,000	\$1,539,625

MONITORING WELL EXAMPLES



Monitoring well on state forest land in Aitkin County in poor condition.



Monitoring well in need of replacement.



APPENDICES

APPENDIX A: DEFINITIONS

Active Owned Buildings

Owned buildings that are in use by DNR.

Current Replacement Value (CRV)

CRV is a calculated dollar amount of what the estimated cost is to replace an asset. CRV is based on industry standard costs for basic labor, materials and equipment.

Deferred Maintenance

Costs accrued when funds have not been sufficient to complete necessary routine maintenance.

Deferred Maintenance Catch-Up

Total of the deferred maintenance divided by 10 years. Costs noted are the annual need.

Expected Useful Life (EUL)

A statistical representation of the number of years that an asset should be able to function satisfactorily before it requires major overhaul or replacement.

Facility Condition Assessment (FCA)

Industry term that describes the process of a qualified group of trained industry professionals performing an analysis of the condition of a group of facilities that may vary in terms of age, design, construction methods, and materials. The industry professionals are typically engineers of various disciplines and skilled-trade technicians, and sometimes architects.

Facility Condition Index (FCI) Rating

A measure of relative condition. FCI is calculated as the deferred maintenance costs divided by the CRV, and then based on the result assigning a rating of crisis, poor, average, good or excellent.

Inactive Owned Buildings

Buildings currently owned by DNR that are not in use or scheduled for demolition.

Operational Costs

Activities required for the use of the asset on a daily basis. Facility operational expenses include janitorial, grounds maintenance, security, telecom, water, sewer, and utilities.

Preventative Maintenance

Proactive maintenance activities performed to maintain the asset in satisfactory condition.

Renewal and Replacement

Costs to restore and modernize when the asset has reached the end of its EUL. Largely a function of obsolescence, change in use, or changes to codes and policies. Estimates are based on a percentage of CRV using average industry standards. This typically involves demolition and replacement of facilities, or major renovation and reconstruction.

APPENDIX B: DATA SOURCES

Buildings and Miscellaneous Site Infrastructure

Division: Operation Services
Contact: Mark Lindquist, Buildings and Sustainability Maintenance Manager
Database: ARCHIBUS

Water and Sewer Systems

Division: Operation Services
Contact: Jarrett Purdue, Design and Construction Manager
Database: ARCHIBUS

Bridges

Division: Operation Services, Forestry, Parks and Trails, Fish and Wildlife
Contact: Jarrett Purdue, Design and Construction Manager
Database: Cartegraph

Roads

Division: Operation Services, Forestry, Parks and Trails, Fish and Wildlife
Contact: Andrew Arends, Forestry Section Manager, Bob Welsh, Acquisition and Development Manager, Jamie Gangaware, Fish and Wildlife Operations and Development Supervisor, Jarrett Purdue, Design and Construction Manager
Database: GISWISKI, WAHMA, ARCHIBUS

Trails

Division: Forestry, Parks and Trails, Fish and Wildlife
Contact: Andrew Arends, Forestry Section Manager, Bob Welsh, Acquisition and Development Manager, Jarrett Purdue, Design and Construction Manager
Database: GIS

Public Water Accesses

Division: Parks and Trails, Fish and Wildlife, Forestry
Contact: Bob Welsh, Acquisition and Development Manager, Jamie Gangaware, Fish and Wildlife Operations and Development Supervisor,
Database: GIS, WAHMA

Small Craft Harbors, Marinas and Protected Accesses

Division: Parks and Trails
Contact: Bob Welsh, Acquisition and Development Manager, Jason Peterson, Landscape Architecture Supervisor
Database: Historical construction information, recent assessment and feasibility studies

Campsites, Group Camps, Rec Areas and Day-Use Areas

Division: Parks and Trails
Contact: Bob Welsh, Acquisition and Development Manager
Database: GIS, US eDirect datacubes

Hatcheries

Division: Fish and Wildlife
Contact: Paula Phelps, Hatchery Program Manager
Data source: Hatcheries – MN State Fish Hatcheries Information document for 2009 legislative. Expert knowledge Nurseries – Historical construction information. Hatchery Feasibility Study 2018

Nursery

Division: Forestry
Contact: Andrew Arends, Forestry Section Manager

Water Control Structures

Division: Fish and Wildlife, Ecological and Water Resources
Contact: Jamie Gangaware, Fish and Wildlife Operations and Development Supervisor Jason Boyle, State Dam Safety Engineer
Database: ArcGIS

Monitoring Wells

Division: Ecological and Water Resources
Contact: Joy Loughry, Water Monitoring and Surveys Unit Supervisor
Data system: Hydstra



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