MINNESOTA OFF-ROAD VEHICLE STRATEGIC MASTER PLAN

December 2025

DEPARTMENT OF NATURAL RESOURCES

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List of Abbreviated Terms and Acronyms

AARP	Appleton Area Recreational Park
ATV	All-terrain Vehicle
B2B	Border-to-Border Touring Route
CNF	Chippewa National Forest
DNR	Department of Natural Resources
GIA	Grant-in-Aid
GIS	Geographic Information Systems
IROHVSRA	Iron Range Off-Highway Vehicle State Recreation Area
LGU	Local Government Unit
MEPA	Minnesota Environmental Policy Act
MNDOT	Minnesota Department of Transportation
MRS	Minimum Road System
MVUM	Motor Vehicle Use Map
NEPA	National Environmental Policy Act
NFS	National Forest System
NOHVCC	National Off-Highway Vehicle Conservation Council
OHM	Off-highway Motorcycle
OHV	Off-highway Vehicle
ORV	Off-road Vehicle
RMV	Recreational Motor Vehicle
SNF	Superior National Forest

TAP	Travel Analysis Plan
TAR	Travel Analysis Report
USFS	United States Forest Service

OFF-ROAD VEHICLE EXECUTIVE SUMMARY

The mission of the Minnesota Department of Natural Resources (DNR) is: “to work with Minnesotans to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life.”

A core tenet of the DNR’s mission is to work with Minnesotans to provide diverse outdoor recreation opportunities that uphold the interdependent values of a healthy environment, sustainable economy, and quality of life. Toward that end, the DNR helps plan, fund, build and maintain a network of motorized and non-motorized trails that support outdoor recreation experiences, economic diversification, and healthy and active lifestyles.

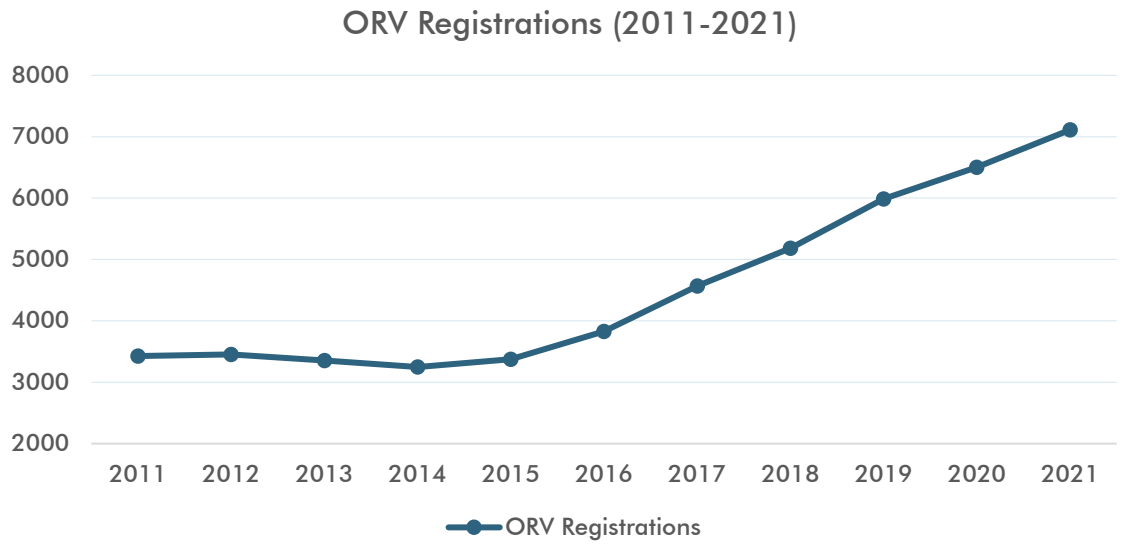
The following Minnesota Off-Road Vehicle (ORV) Strategic Master Plan is the result of a planning process that evaluated the existing ORV trail system and its opportunities, constraints and economic impact. This ORV strategic master plan is intended to be used in concert with the other off-highway vehicle strategic master plans and the accompanying Minnesota Off-highway Vehicle Strategic Master Plans Overview document to help guide motorized recreation management efforts into the future. The planning process included multiple public engagement opportunities, a robust spatial analysis and a public perception questionnaire. The plan concludes with a series of strategies concerning future trail maintenance, development, policy and regulations, education and stewardship, marketing and promotion, and coordination and collaboration. Importantly, this plan does not provide future trail alignments but instead provides information about the needs and opportunities in each region of Minnesota.

Each chapter of the plan is briefly summarized on the following pages.

Existing Off-Road Vehicle Trail System

This chapter includes information about the existing ORV trail system, including its origins, current management practices, types of trails, user preferences and guiding policies. Also included in this chapter is a quantitative and qualitative analysis of the existing ORV trail system that identifies the trail mileage, driving distance, trail types and access to services. Registration data is used in this analysis to illustrate growth in recreational off-road driving (as seen in Figure ES.1) and the counties that have high or low ORV use relative to ORV registration origin. The chart below illustrates the growth in ORV registrations between 2011 and 2021.

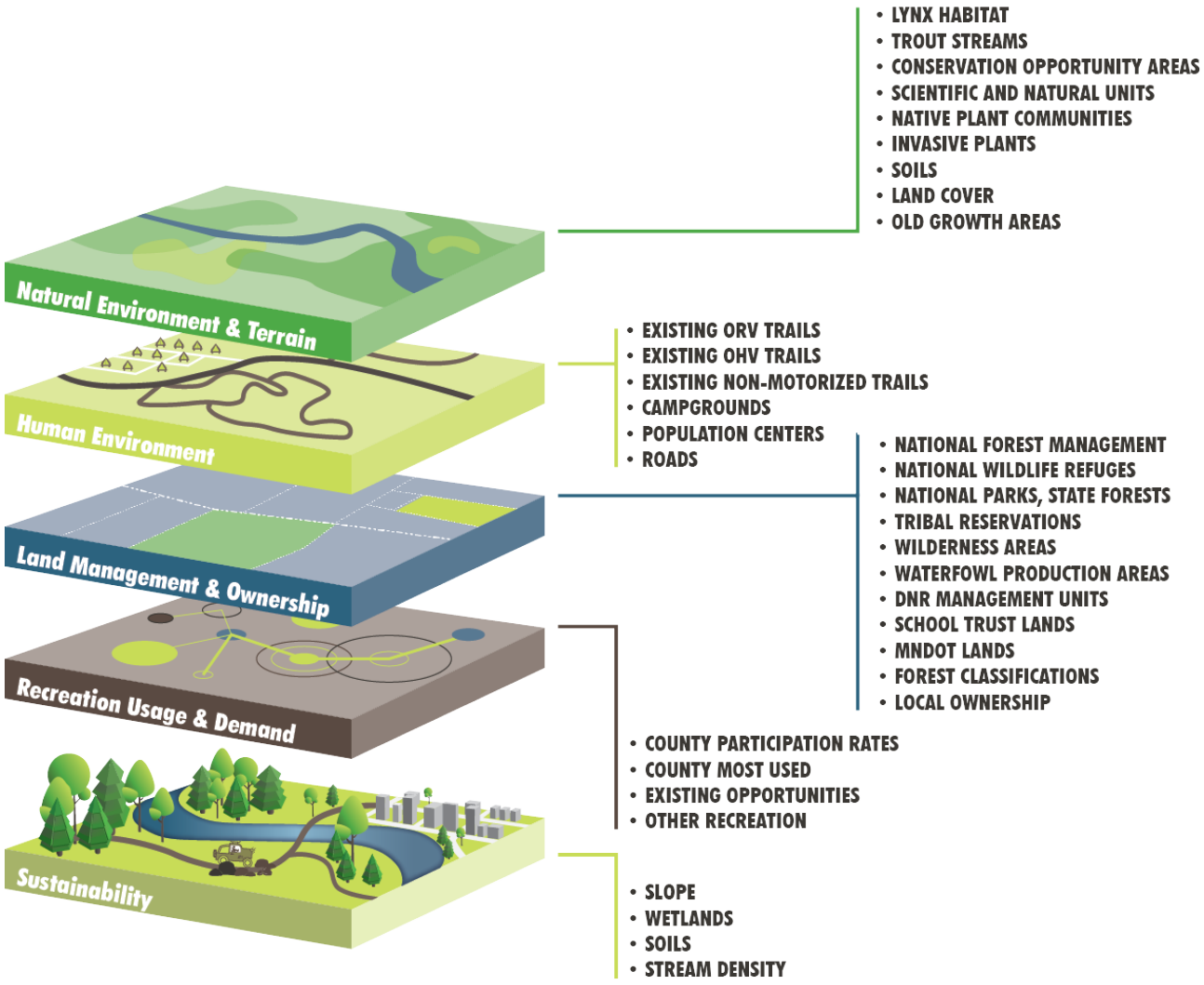
FIGURE ES.1 RECREATIONAL ORV REGISTRATIONS



Opportunities and Constraints Analysis

This chapter contains the methodology and results of a statewide spatial analysis that used multiple data sources to determine potential ORV opportunity areas based on five major facets: natural environment sensitivity and terrain, human environment suitability (factors such as proximity to population centers, existing trail systems and campgrounds), land management and ownership, recreation usage and demand factors, and sustainability. The figure below illustrates the data used in this analysis.

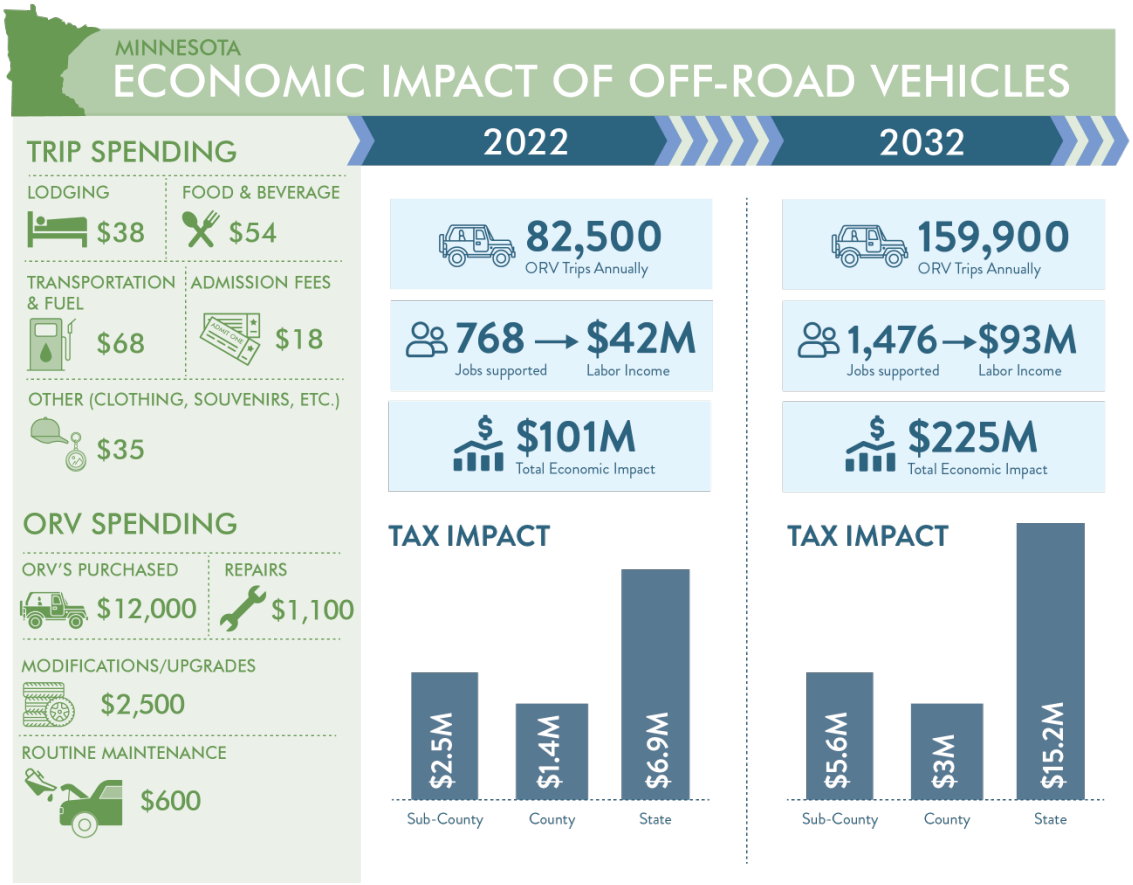
FIGURE ES.2 SPATIAL ANALYSIS DATA LAYERS



Economics of ORV Use in Minnesota

This chapter includes an analysis of the economic impact that ORV activity generates within Minnesota. Four main data points were used in this modeling exercise: the average number of ORV trips per person, the number of registered ORV users, an ORV trip spending profile and the average annual cost to purchase and maintain an ORV. The graphic below illustrates the data inputs as well as the results of this economic impact analysis. This chapter also includes case studies of two cities in Minnesota that have embraced motorized recreation to support economic development goals.

FIGURE ES.3 ORV ECONOMIC IMPACT SUMMARY INFOGRAPHIC



Project Development Information and Guidance

This chapter provides information about the development process for both forms of ORV projects the DNR oversees; grant-in-aid trails and state-designated trails. This chapter also provides information and guidance concerning ongoing trail maintenance and sustainable trail design as well as case studies about how different states manage motorized vehicle recreation.

Future Strategies

This chapter describes strategies for future ORV trail maintenance and development with an understanding that there is not capacity for unlimited growth in the trail system. This chapter also provides recommendations for various facets of ORV trail management and development including connectivity, coordination and collaboration, and education and stewardship.

Summary

The aim is for this plan to be used by those who have critical roles in ORV trail management including DNR staff and, more broadly, those with an overall interest in OHV activity. Such partners and stakeholders include, but are not limited to, local units of government, ORV clubs, ORV users, non-profit environmental and outdoor recreation advocacy groups, local industry and other recreational users and user groups. This plan will be used to provide direction and guidance for ORV trail system management as well as a resource for stakeholders and partners when planning ORV trail maintenance and development.

1 INTRODUCTION

1.1 Purpose of the Plan

The purpose of the Minnesota Off-road Vehicle (ORV) Strategic Master Plan is to provide direction and guidance to the Minnesota Department of Natural Resources (DNR) and partners in their efforts to plan, fund, develop and maintain a sustainable network of ORV trails that support outdoor recreation experiences, environmental stewardship, economic diversification, and healthy and active lifestyles. The strategic master plan is intended to provide important information to all ORV stakeholders in Minnesota so that county and local governments, ORV clubs and user groups, environmental advocacy and stewardship organizations, and all others interested in the ORV program can have a clear understanding of the processes and policies surrounding ORVs and the possibilities for collaboration, feedback and support.

1.2 Sustainability

This plan aims to keep sustainability at the forefront of the ORV program. A sustainable ORV trail should allow users to enjoy riding in a safe way that also minimizes adverse impacts to the plants, animals and ecosystems they are traveling among. A sustainable ORV trail network is a system that is in balance with other recreational uses of public lands, avoids and mitigates any natural resource impacts and reflects the popularity of motorized recreation while also understanding there is a limited scope and scale of maintainability in regard to all trail systems, including ORV trails.

1.3 Scope of the Plan and Analysis

The geographic scope of the ORV strategic master plan includes ORV opportunities within the state of Minnesota. This includes ORV trails and opportunities on private land, lands management by local governments, state-managed land and in national forests. The content of this strategic master plan is intended to be similarly comprehensive.

The ORV strategic master plan includes a description and analysis of the existing ORV trail system in Minnesota, a discussion of the public engagement for this project and a summary of public perception of ORVs from a representative sample of Minnesota residents (see Appendix E). The strategic master plan also presents an opportunities and constraints analysis and a series of recommendations that examine future ORV route and trail opportunity zones as well as areas to avoid, overall connectivity and trail development, policy and regulation, education and stewardship, usership/promotion/marketing, and coordination and collaboration.

The ORV strategic master plan was developed from the fall of 2020 through 2025. This plan was informed by interdisciplinary reviewers within the DNR, extensive public engagement, existing conditions research and spatial analysis that considered multiple factors.

1.4 ORV Definition

As of 2025, Minnesota Statutes (M.S.) 84.797, subdivision 7 defines ORVs as motorized recreational vehicles capable of cross-country travel on natural terrain. Common ORVs registered in Minnesota include vehicles such as off-road capable trucks, Jeeps and rock crawlers and are distinct from other motorized recreational vehicle classes. Vehicles not considered ORVs include snowmobiles, all-terrain vehicles (ATVs), motorcycles, off-highway motorcycles (OHMs), watercraft or aircraft. Four-wheel motorized vehicles with a total width of 50 inches or less from outside of tire rim to outside of tire rim are considered Class 1 ATVs. Class 2 ATVs include vehicles with total width greater than 50 inches but not more than 65 inches, and ORVs include any motorized recreational vehicle larger than 65 inches from outside of tire rim to outside of tire rim.

As with any recreational sport, there is a spectrum of ORV users in terms of experience and interests. Some users enjoy challenging terrain that is full of obstacles, often called rock crawling. Others prefer more mild terrain that is accessible to a wider range of off-road vehicles. This often entails gravel roads, state forest roads and minimum maintenance roads and is often referred to as "soft-roading" or "light wheeling." Yet another segment of users enjoy "overlanding" where they expand upon soft-roading and travel long distances to visit remote locations, usually being self-sufficient and remaining self-contained. All of these types of off-roading are done on a trail or route that has been designated or designed for this type of activity, which is why many users prefer to call the activity 'wheeling' instead of off-roading. These forms of off-roading will be explored in more depth in section 2.3.1.

1.5 DNR Planning Process

1.5.1 DNR Mission and OHV Program Objectives

The DNR's mission is to "work with Minnesotans to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life." The Off-highway Vehicle (OHV) program, which includes ORV, ATV and OHM recreation, is one of many programs within the DNR that is tasked with fulfilling the DNR's mission. The OHV program provides motorized recreational opportunities for all Minnesotans and provides funding for trail maintenance and development. The OHV program is predicated on the concept of "managed use on managed trails" which means the program aims to provide enjoyable opportunities for a broad spectrum of trail users in a manner that reduces trail user conflicts and increases compliance.[1]

The 2023-2027 DNR Strategic Plan outlines four broad goals that are structured around helping "sustain and build nature-based recreational opportunities, increase the health and vitality of ecological systems, strengthen communities, and support a wide range of natural resource-dependent economic activities."[2] Goal 2 of the plan envisions an outdoor recreation system that meets the needs of new and existing participants so all benefit from nature.

The ORV Vision Questionnaire completed for this planning process helps reach Goal 2 of the DNR Strategic Plan by asking Minnesotans what they would like to see in future ORV programs. From this questionnaire, the DNR can identify potential barriers to ORV recreation, trail development priorities, management priorities and planning considerations. This questionnaire also helps identify what users

[1] OHV Program, 2022a
[2] DNR, 2023

envision a high-quality ORV trail system to be as well as what is currently missing in terms of trails, programming, management and access.

1.5.2 Minnesota DNR Planning

The DNR's recreation planning processes take a number of forms, varying in their scope and application. Strategic plans like the Minnesota State Parks and Trails System Plan and this ORV plan are developed to provide general direction and high-level strategies. These plans focus on the development of clear goals and priorities for allocation of limited resources across recreation types and facilities in an ever-changing recreational landscape. Master plans for specific facilities, such as the Taconite State Trail, seek to accomplish similar goals but with narrower scope and deeper analysis of the factors that drive management of those facilities and the modes of recreation they support. The common goal shared by all DNR plans is to provide a framework for consistent, transparent decision-making over the life of a plan and to support implementation of the goals and priorities identified in each plan, as well as the DNR's mission.

The DNR planning process emphasizes stakeholder and partner engagement and makes every effort to incorporate the most reliable, up-to-date information on developments in recreation and resource management. Stakeholder and partner engagement is critical to integrating the knowledge and values of those with an interest in each plan into the final product. Stakeholders and partners who provide input on DNR recreation plans include, but are not limited to:

- Community leaders
- Park and trail users and organized groups
- DNR staff within and outside of the Parks and Trails division
- Resource managers and subject matter experts
- Conservation and environmental groups
- Community park and economic development committees
- Tribal government officials
- Local, state and federal elected officials
- State and federal agencies (including national forests)
- Members of the public

As important as the final plan is, the stakeholder engagement process is itself an opportunity to build collaborative relationships that can provide lasting benefits well beyond implementation of the plan.

1.5.3 OHV Planning

OHV planning applies the broader DNR planning framework to support riding opportunities and guide sustainable management of existing trails and facilities as well as the development of new OHV trails. A new OHV trail is generally defined as one not currently enrolled in a state-managed or state-funded program, such as the Grant-in-Aid (GIA) system. The process seeks to provide an OHV trail system that not only meets the needs of users but also minimizes impacts on natural and cultural resources and ensures OHV use exists sustainably with other land uses and recreation types.

In order to realize these goals, DNR planners take a multidisciplinary approach to identifying opportunities for strategic improvement and development of the OHV trail system. Factors that are considered are summarized in the paragraphs below.

Natural and Cultural Resources

Resource considerations play a critical role in OHV trail development and management. The planning process provides the opportunity to inventory natural and cultural resources and encourage avoidance and minimization of impacts to those resources. Natural resource considerations may include, but are not limited to, habitat, endangered and rare species, water quality, aesthetics/sound, and climate change. Cultural resources considerations may include, but are not limited to, cultural sites, earthworks and areas of traditional cultural significance. Not all public lands are suited to OHV trails when the sustainability of natural and cultural resources are considered.

Trail User Preferences

OHV trail user preferences evolve as vehicle technology, user demographics and trends within the sport change over time. The needs of non-OHV trail users also change over time and OHV planning considers these changes in concert with OHV trail user preferences. Public participation in OHV planning provides an opportunity for DNR to gather insights from all trail users about the kinds of opportunities they prefer and perceived gaps in Minnesota's trail systems.

Terrain

Depending on the circumstances, areas with elevation change can provide high-quality, sustainable OHV riding opportunities, or they may impact natural resources in an unsustainable manner and prove too difficult to develop and maintain. Planning provides an opportunity to identify areas with terrain that is suitable for OHV trails while highlighting the need for careful trail layout and design.

Human Environment

OHV trails exist among a mosaic of population centers, roads, public and private lands with a variety of management goals, and a whole host of other elements of the human environment, including other recreational trail users. The DNR has a responsibility to provide recreation opportunities for all trail users—the OHV planning process provides opportunities to assess how OHV use interacts with, and could be enhanced by, various human elements.

Land Ownership

Most OHV trails traverse public lands with trails across private land or local roads acting as connecting routes. The availability of public land suitable for OHV use is an important consideration of trail development opportunities and is considered alongside DNR's responsibility to provide diverse recreation opportunities.

Trail planning, design, construction, maintenance and management are all important, interconnected processes that contribute to a high-quality OHV trail system. Planning provides critical baseline information and insights that guide the other processes.

1.5.4 DNR State Forest Trail Planning

State forests are some of the most popular OHV recreation destinations in Minnesota. OHV riding opportunities range from single track OHM trails to forest roads that support a wide range of motorized recreation, including ORVs. In the mid-2000s, DNR embarked on a planning process, referred to as Phase I State Forest Trail Planning, through which all state forests were designated as closed, limited or managed for OHV recreation. These designations were as follows:

- Closed Forests: OHV use was not allowed.
- Limited Forests: OHV use was allowed only on designated routes.
- Managed Forests: OHV use was allowed on all routes unless signed as closed.

Phase I also included designation of some of the existing routes in limited and managed forests as open or closed for ORV, ATV or OHM use or a combination thereof. Non-motorized trails, such as equestrian routes and hunter walking trails, were also designated through this process.

Phase II of this process, which is ongoing, is an opportunity to take a closer look at each state forest or specific units within each state forest to designate new trails or uses, close unsustainable trails and reroute trails that would benefit from alignment changes.

The objectives of forest trail planning are:

- Close unsustainable trails where impacts cannot be avoided or mitigated.
- Connect trails to other destinations, local communities and existing trails.
- Provide a variety of experience levels.
- Avoid ecologically sensitive areas.
- Address major safety concerns and user conflicts.
- Identify and evaluate potential new trail opportunities.

More information on state forest trail planning can be found on the DNR's State Forest Trail Planning webpage.

1.6 Strategic Master Planning Process Participants

A number of individuals and groups were involved in the creation of the ORV strategic master plan, both within and external to the DNR. Examples of their involvement include developing and reviewing the plan, participating in stakeholder and partner engagement sessions, and participating in an electronic questionnaire.

1.6.1 DNR Divisions and Minnesota IT Services

This strategic master planning project was led by OHV program staff in the DNR's Division of Parks and Trails. There was additional participation from Parks and Trails regional acquisition and development specialists as well as ecologists, forest health specialists, environmental review specialists, land managers, and other subject matter experts from the following divisions and departments during various stages of the planning and review processes:

- Ecological and Water Resources
- Enforcement
- Fish and Wildlife
- Forestry
- Lands and Minerals
- Operations Services
- Minnesota IT Services (MN.IT)

1.6.2 Consultant Team

The DNR retained the services of SE Group, a consulting firm that specializes in community engagement and recreation planning, to complete the ORV strategic master plan. In addition, SE Group worked with Corona Insights to help deliver the project to DNR. Corona Insights provides survey expertise to administer the statewide Minnesota driver survey for the Minnesota Department of Public Safety and completes other survey work in Minnesota and nationally.

1.6.3 External Partners

The Minnesota 4 Wheel Drive Association (MN4WDA) and its member clubs were instrumental in engaging with ORV users throughout the planning process. Their members' efforts to promote project questionnaires/meetings and provide input into the process were invaluable.

An extensive number of stakeholders and organizations from across the state participated in small group sessions and provided their input and feedback on emerging themes as the process progressed. These sessions were in addition to extensive online public engagement. Many individual participants also engaged and contributed to planning processes. A list of stakeholders and interested parties invited to participate, including local and federal governments, is included in Appendix A.

1.7 ORV Strategic Master Plan Public Engagement

1.7.1 Public Engagement Opportunities

Project Website

One of the primary public engagement tools utilized for this project was a Storymap website. The Storymap was updated throughout the project to include information about the engagement process, upcoming opportunities to provide input, and maps and analysis information.

Visioning Questionnaire

A public visioning questionnaire was used to identify ORV use patterns and trends, trip characteristics and spending, needs and opportunities for improvement, and management and planning input from local clubs and trail administrators. This questionnaire was available for both ORV users and non-users to provide feedback about their vision for the future of the ORV trail system. Over 1,400 Minnesotans responded to the questionnaire. The questionnaire was available between November 18, 2020, to February 28, 2021.

ORV Club Engagement

The MN4WDA was an important project partner throughout the planning process. An MN4WDA Summit was held after the Public Visioning Summit to kick off the project with club leadership and all interested

members. The MN4WDA helped the planning team craft appropriate questionnaire questions and provided information about key concerns and opportunities they saw within the ORV trail system needs.

Stakeholder and Agency Discussions

A series of stakeholder discussions were conducted with tourism organizations, conservation and environmental advocacy groups, local government representatives and land managers around the state. These meetings included an overview of the questionnaire results and analysis methodology as well as open-ended conversation about key issues and considerations each group had concerning ORV activity and trail development. The following is a summary of the participating organizations — see Appendix A for a comprehensive list.

- Iron Range Resources and Rehabilitation
- Nature Conservancy
- Superior National Forest
- Chippewa National Forest
- Sierra Club
- Parks and Trails Council of Minnesota
- Greater Minnesota Parks and Trails Commission
- Izaak Walton League
- DNR Forestry
- DNR Safety and Conservation Program
- DNR Parks and Trails
- Destination marketing representatives
- Municipal land administrators
- Metropolitan Council

While specific questions varied by group, key topics included existing ORV trail opportunities, trail development and maintenance funding, environmental review, compliance and user behavior, and the trail development process.

1.7.2 ORV Visioning Questionnaire Highlights

The ORV Visioning Questionnaire helped identify ORV use patterns and trends, trip characteristics and spending, management priorities and planning considerations. The questionnaire was available between November 18, 2020, to February 28, 2021. Full results of the questionnaire can be found in Appendix D.

Use Patterns and Trends

In the summer months, most ORV users reported off-roading weekly or once or twice a month. In the winter, use drops significantly with 21 percent of respondents stating they do not use their ORVs in the winter. Those who do stated they mostly use their ORV to go ice fishing.

On average, ORV users reported riding approximately 41 miles per outing, although 12 percent of respondents stated they drive over 100 miles per outing. ORV users reported traveling an average of 3.1

hours to visit destination ORV areas, and only 19 percent of respondents stated there are adequate off-roading opportunities within an hour of where they live.

Over half of ORV users stated they typically wheel or drive on state forest roads and around half of ORV users stated they frequently visit state recreation areas and national forest roads. Most ORV users stated they find touring routes, overlanding and soft roading/light wheeling most enjoyable. ORV users stated they want to see more touring routes, soft roading/light wheeling trails and rock crawling areas. Several respondents also stated a desire for more intermediate-level trails that can help ORV users gain technical skills.

Popular ORV destinations include the Iron Range OHV State Recreation Area, Nemadji State Forest, Spider Lake, Appleton Area Recreational Park and Superior National Forest. ORV users stated they enjoyed those areas because of the diversity of trail experiences, scenic qualities and group riding opportunities.

Non-OHV Users

It is important to consider the needs of all public land users and advocates when providing recreational opportunities on public land. The ORV Visioning Questionnaire was completed primarily by people who currently use an ORV; however, around 20 percent of respondents stated they do not currently use an ORV for work or recreation. Respondents who stated they do not currently and have never used an ORV for recreation cited reasons such as high entry costs (12 percent), the lack of people to go with (9 percent) and safety concerns (9 percent). Other commonly cited reasons included the far distance to trail systems and the lack of information on where to go. Write-in responses in the "Other" category included comments citing environmental impacts.

Important planning considerations for respondents who do not use ORVs included identifying ways that existing and future ORV trails could minimize impacts to wildlife, soil and water. Other planning considerations ranked very important included minimizing social impacts such as sound levels and traffic, sustainable trail design, increased enforcement of regulations and appropriate environmental review of ORV trails. Many write-in comments echoed these priorities and demonstrated concern for environmental degradation, sound levels and wildlife impacts.

Trip Characteristics and Spending

Approximately two-thirds of questionnaire respondents who use ORVs stated they take overnight trips where the primary purpose is wheeling an average of once a month. When staying overnight, 38 percent of respondents stated they typically RV or trailer camp at a public or private campground. 26 percent stated they tent camp at a public or private campground, and 22 percent stated they stay at an inn, vacation rental or a hotel.

ORV users reported taking an average of 11.6 trips per year where the primary purpose is wheeling. When traveling for ORV recreation, ORV users reported spending an average of $212.80 per person per day.

Management Priorities

Most ORV users reported being satisfied with ORV trail and program management and ORV trail experiences, but many (44 percent) stated they are somewhat or very dissatisfied with the development of new ORV trail opportunities. Non-ORV users indicated a concern for safety and a preference to enhance enforcement as a management priority.

ORV users reported strong support for management investments such as trailhead map improvements, on-trail signage improvements, the development of ORV play areas, toilet facilities and the development of additional campsites accessible to ORV users.

Planning Considerations

Planning considerations that ORV users who responded to the questionnaire found very important included increased funding for ORV route and trail development, enhanced recreational tourism opportunities, more off-road trails and parks closer to home, and increased regulation enforcement. Write-in comments included a strong focus on trail development, proximity of trails to existing users and education. Non-ORV users indicated sound and environmental impacts are concerns they would like to see addressed through planning processes.

1.8 How to Use This Plan

1.8.1 All Readers

The ORV strategic master plan is intended to serve as a foundational document for ORV trail management and funding priorities in the state of Minnesota. It represents the best available data on the existing ORV trail system and current use patterns, the various types of ORV routes, trails and users in Minnesota, the economic and community impacts resulting from ORV use, and the management policies and procedures that apply to ORV recreation. As such, the ORV strategic master plan can serve as a reference document that encapsulates these elements in a single narrative. It is intended to provide transparency regarding the DNR's ORV program and to create a shared language and understanding of ORV trail management that can serve DNR staff, ORV clubs, ORV users and all others interested in ORV trail management and activities.

1.8.2 MN DNR and OHV Program Staff

The ORV strategic master plan is intended to support and inform the ongoing work of the DNR and its OHV program staff regarding ORV trail management. While much of the background information included in this document is fundamental to the day-to-day operations of the DNR and OHV program staff, the strategies in the Future Strategies chapter can inform future management and decision-making.

1.8.3 Stakeholders and Partners

The ORV strategic master plan is intended to report the current state of ORV activities in Minnesota effectively and accurately and to identify opportunities to enhance the functionality of the existing system with specific attention to the needs of both ORV users and other public land users. The plan is intended to focus interest/considerations regarding new trail development on areas with the most benefit to recreational ORV users and least potential for conflicts with other user groups or impacts to natural resources. This information can support ORV users and clubs in their day-to-day operations, individual club planning and advocacy around ORV activities. Additionally, this plan can help inform local and regional efforts to develop, maintain and manage ORV opportunities. ORV clubs and local ORV users can help initiate GIA projects and other local efforts to address identified trail opportunity zones in this plan. The ORV strategic master plan's economic impact analysis can also help support conversations with local government and tourism representatives around ORV activity.

The ORV strategic master plan is intended to create value for all those interested or involved in ORV activities and ORV trail maintenance and development in Minnesota. For example, the strategic master plan's project development flowcharts in Chapter 5 are aimed at clarifying the ORV project development process to make it easier for all parties to track ORV projects through each stage of development, signaling when and how various stakeholders and partners can engage in the process (DNR, local/county government, tribal partners, tourism, conservation and environmental organizations, user groups, etc.). In particular, the plan offers practical tools to help clubs and local governments align with DNR expectations for planning, applying for GIA funding and partnering effectively with DNR staff throughout each phase of

trail development and maintenance. A key aim of the ORV strategic master plan is to provide clarity and transparency to all stakeholders and partners so they all can have constructive and ongoing dialogue around improving processes and collaboration throughout the state.

2 EXISTING ORV TRAIL SYSTEM IN MINNESOTA

2.1 History of ORV Use in Minnesota

2.1.1 Origins of Recreational Motor Vehicle Use in Minnesota

In a sense, off-roading is the oldest form of driving in Minnesota, predating highway driving in the state. Prior to the funding and construction of the trunk highway system, which was established in 1920, automobile routes through Minnesota were rustic motor trails. Because railroad travel was the primary mode of transportation at the time, roads were not maintained for high-volume travel and resembled the packed dirt OHV trails of today.[3]

Prior to the state highway system, Minnesota possessed a network of marked trails that were maintained and promoted by private associations of "boosters." These trails, which included the Jefferson Highway and the Mississippi River Scenic Highway, enabled recreational driving through the state. The Jefferson Highway passed several historical and cultural landmarks in Minnesota, such as the State Capitol and the Cathedral of St. Paul. The route also passed through Itasca State Park — Minnesota's first state park — crossing the headwaters of the Mississippi River.[4]

While these motor trails were long and scenic, Minnesotans also needed a network of well-maintained roads to transport goods and materials. In the 1910s, groups of bicyclists and then motorists formed the "Good Roads" movement, which advocated for usable roads that would meet the transportation needs of commerce and agriculture in Minnesota. In 1916, pressure from this lobby led to a federal highway bill that funded new road networks in states and compelled each state to form an agency to oversee this funding and development. The following year, the Minnesota legislature passed a highway bill forming the Minnesota Department of Highways, tasked with forming and maintaining a trunk highway system for the state. The increased availability and quality of roads and highways through the state helped make the personal automobile Minnesota's dominant mode of transportation.[5]

Off-road driving became popular as a recreational activity following World War II, which generated a large surplus of light off-road vehicles. Once this surplus waned, Jeep started to produce equivalent vehicles for civilians and other companies followed suit. In 1984, the Minnesota legislature enacted a law requiring a three-year registration fee for three-wheel off-road vehicles, among other requirements. In 1986, this law was expanded to include recreational vehicles and ATVs. In 1993, the DNR recognized ORV use as a recreational activity and began designating and mapping OHV/ORV trails.

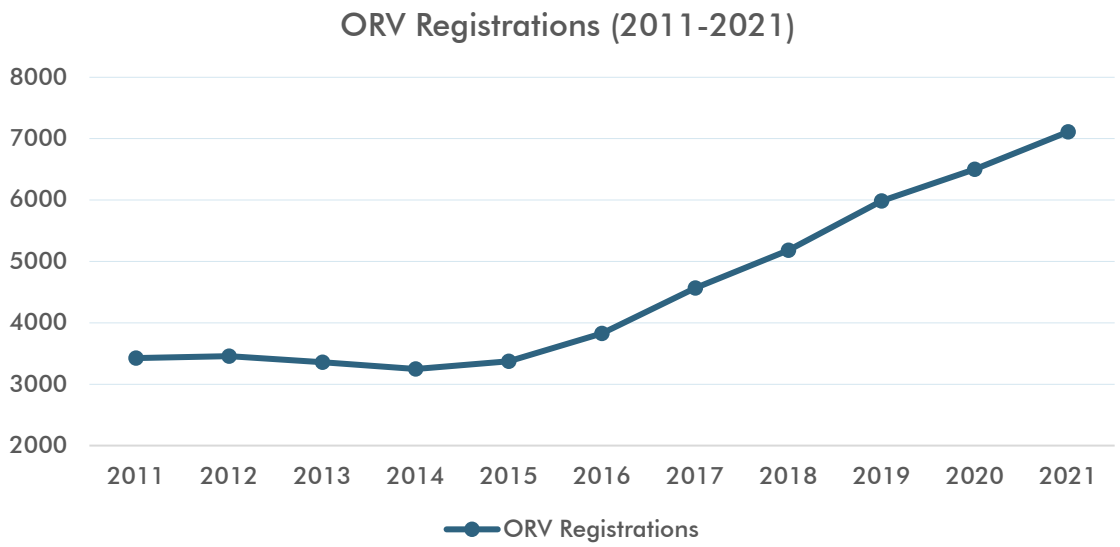
2.1.2 ORV Registration Growth

Between 1986 and 1998, there was a 60 percent increase in ORV registrations in Minnesota.[6] Between 2011 and 2021, total registrations increased by 108 percent. According to insight gained during the public

[3] Streetsmn, 2018
[4] MNOPEDIA, 2018
[5] MNOPEDIA, 2020
[6] Forest Service, 2004

engagement processes of this plan, the development of ORV trails and facilities has not necessarily kept pace with the increase in demand for the activity, placing increased pressure on the existing system and public lands.

FIGURE 2.1 ANNUAL ORV REGISTRATIONS (2011-2021)



Environmental advocates have expressed concern regarding the impacts of OHVs/ORVs on soils and vegetation, user conflicts and sound impacts[7] on other recreationalists and wildlife, pollution from vehicle exhaust and the role of ORVs in erosion and the spread of invasive plant species. Illegal uses (e.g., cross-country ORV use) have had negative impacts on environmental resources. In response, agencies such as the DNR have made concerted efforts to avoid trail construction in environmentally sensitive areas, to provide guidance on sustainable trail construction in order to minimize impacts, to educate ORV users about regulations and best practices and promote environmental stewardship through partnership with organizations such as PlayCleanGo and Tread Lightly!.

2.1.3 ORV Organizations

MN4WDA is the largest ORV group in Minnesota. A non-profit organization founded in 1987, MN4WDA's mission is "creating new opportunities for off-road vehicles, educating the public about off-road recreation and fighting anti-ORV legislation."[8] The organization is also focused on improving public perception of off-roading, which club leaders consider important for the continued viability of the sport. The organization holds several events throughout the year, encourages volunteerism and maintains several regional chapters within the state.

Local clubs have also played a key role in trail development, safety training and education, and popularization of the activity. On a national level, the National Off-Highway Vehicle Conservation Council (NOHVCC) partners with organizations and agencies around the country to promote resources for trail development and responsible OHV use.

[7] Conservation officers are charged with enforcing the noise-emission standards for vehicles found in Minnesota Rules, part 6102.0040, subp. 4.
[8] MN4WDA, 2022

2.2 Current ORV Trail System Management

2.2.1 DNR's OHV Program

At the statewide level, recreational ORV use in Minnesota is managed by the DNR Division of Parks and Trails along with the Enforcement Division and involves collaboration with all divisions in the DNR. The OHV Program within Parks and Trails was developed to provide motorized recreational opportunities for all Minnesotans in a sustainable manner. The program provides trail maintenance and development through grants to local governments such as counties, cities and townships. The program also oversees DNR-managed trails in state forests. The OHV Program is predicated on the concept of "managed use on managed trails," which means that by providing enjoyable opportunities for multiple types of trail users, there will be fewer trail user conflicts and increased compliance with laws and regulations.[9]

The OHV Program has six dedicated staff positions, including an OHV Consultant, an OHV Planner and regional OHV Acquisition and Development Specialists. The OHV Program is also supported by day-to-day operations of DNR staff working in other programs and divisions across the agency such as the OHV Enforcement Recreational Vehicle Coordinator in the Enforcement Division. Many conservation officers, communication specialists and staff in other divisions are also highly involved in delivery and management of the ORV Program as well as collaborating with partners outside of the DNR.

In addition to internal staffing and external partnerships, the OHV Program collaborates closely with other DNR divisions and units, including the Environmental Review Unit, which administers the DNR's obligations under the environmental review requirements of Minnesota Statutes Chapter 116D (Minnesota Environmental Policy Act, MEPA) and Minnesota Rules Chapter 4410. This collaboration helps ensure that OHV trail development and management align with state and federal environmental review requirements.

The Environmental Review Unit plays a key role in evaluating proposed projects under MEPA. Its role includes determining what level of environmental review is required and coordinating the review process with relevant programs to identify potential impacts and measures to mitigate them through project design, permitting or other means. Through this and related interdivisional partnerships — including coordination with programs that administer the Wetlands Conservation Act (WCA), the Minnesota Endangered Species Act, and the Public Waters Work Permit Program — the DNR works to ensure that OHV projects meet environmental standards, protect natural resources and support sustainable recreation across Minnesota's public lands.

2.2.2 Trail Ambassador Program

The Trail Ambassador (TA) Program is an important component of the DNR's OHV Program, supporting safe and responsible riding across Minnesota's designated trail systems. Established through legislation in 2007 (MS 84.9011) and managed by the DNR Division of Enforcement in collaboration with Parks and Trails and Forestry, the program trains volunteers to educate trail users, monitor trail conditions and promote environmental stewardship. Trail Ambassadors receive formal training in OHV laws, program policies, volunteer expectations, risk management, trail monitoring, invasive species identification, GPS use and effective public engagement. This volunteer-based program plays an important role in fostering positive trail experiences and helping protect Minnesota's natural resources.

2.2.3 ORV Registrations and Management Considerations

All ORVs operated on DNR-designated trails, grant-in-aid ORV trails or in state recreation areas must be registered with the DNR. As a result, registration totals may include out-of-state residents but may not

[9] OHV Program 2022a

capture Minnesota residents who ride only on private land. Additionally, some owners of highway-licensed vehicles may also engage in off-road recreation without obtaining an ORV trail registration, particularly when using areas such as private venues or routes like state forest roads where registration is not required which may result in underreported ORV participation.

In 2020, there were 6,390 ORV registrations, with 98 percent of those from Minnesota residents. North Dakota residents were the largest group of out-of-state registrants with 39, followed by Wisconsin with 22. The number of registrations has been increasing steadily at an average rate of 14 percent per year over the last 5 years. Comparatively, OHM and ATV registrations have increased at a rate of 2.9 percent and 2.5 percent annually. To note, the number of ORV registrations in 2020 was significantly below that for OHMs and ATVs, with 14,734 and 323,956 registrations respectively.

Figure 2.2 shows where registrations are located by zip code. Notably, registrations in the state are concentrated in the Twin Cities metro area and DNR Central Region (click here for a map of DNR's administrative regions). Nearly 60 percent of Minnesota resident registrations are from Central Region residents (see Table 2.1). Many of the metro area counties have lower number of registrations relative to their populations, along with many southern Minnesota counties. Counties with the highest rates of registrations relative to population are Le Sueur, Pope, Grant, Mille Lacs, Cass, Roseau, Lake of the Woods and Koochiching (Figure 2.3).

When registering, users are also asked to name the county where they most frequently use their ORV. For example, while 716 Hennepin County residents have registered ORVs, only 126 stated that they most frequently use their ORV in Hennepin County.[10] Figure 2.4 shows the ratio of registration origin to county most used. Counties with a ratio above 100 percent — such as St. Louis County, Lake of the Woods County and Swift County — are destinations for ORV enthusiasts. Counties with lower ratios — including Hennepin County and Ramsey County — have residents that often travel out of the county for ORV recreation.

[10] There are no designated ORV routes or trails in Hennepin County but many ORVs are highway licensed.

FIGURE 2.2 MINNESOTA ORV REGISTRATION LOCATIONS (ZIPCODE)

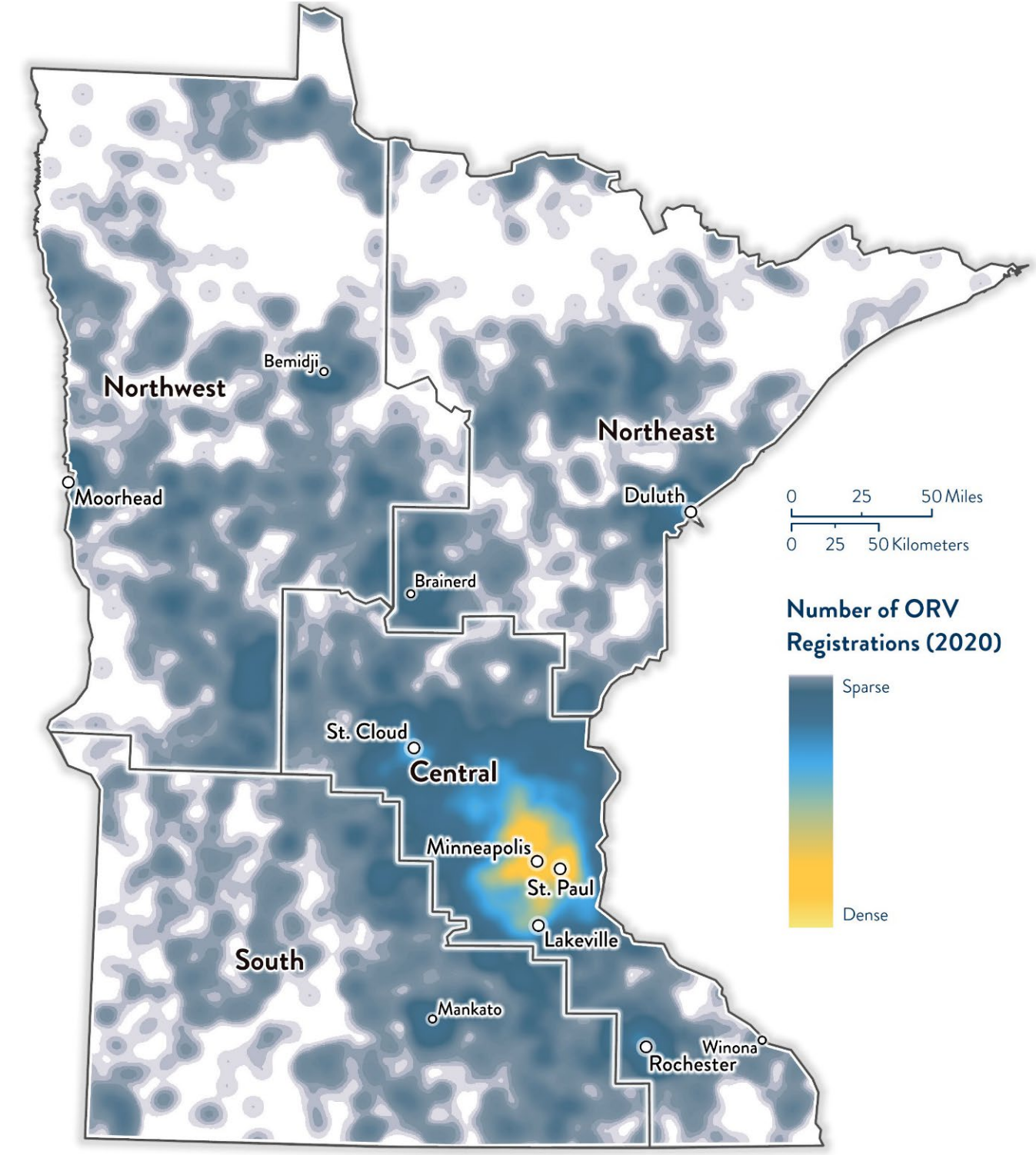


FIGURE 2.3 MINNESOTA ORV REGISTRATION PER 10,000 COUNTY RESIDENTS (2020)

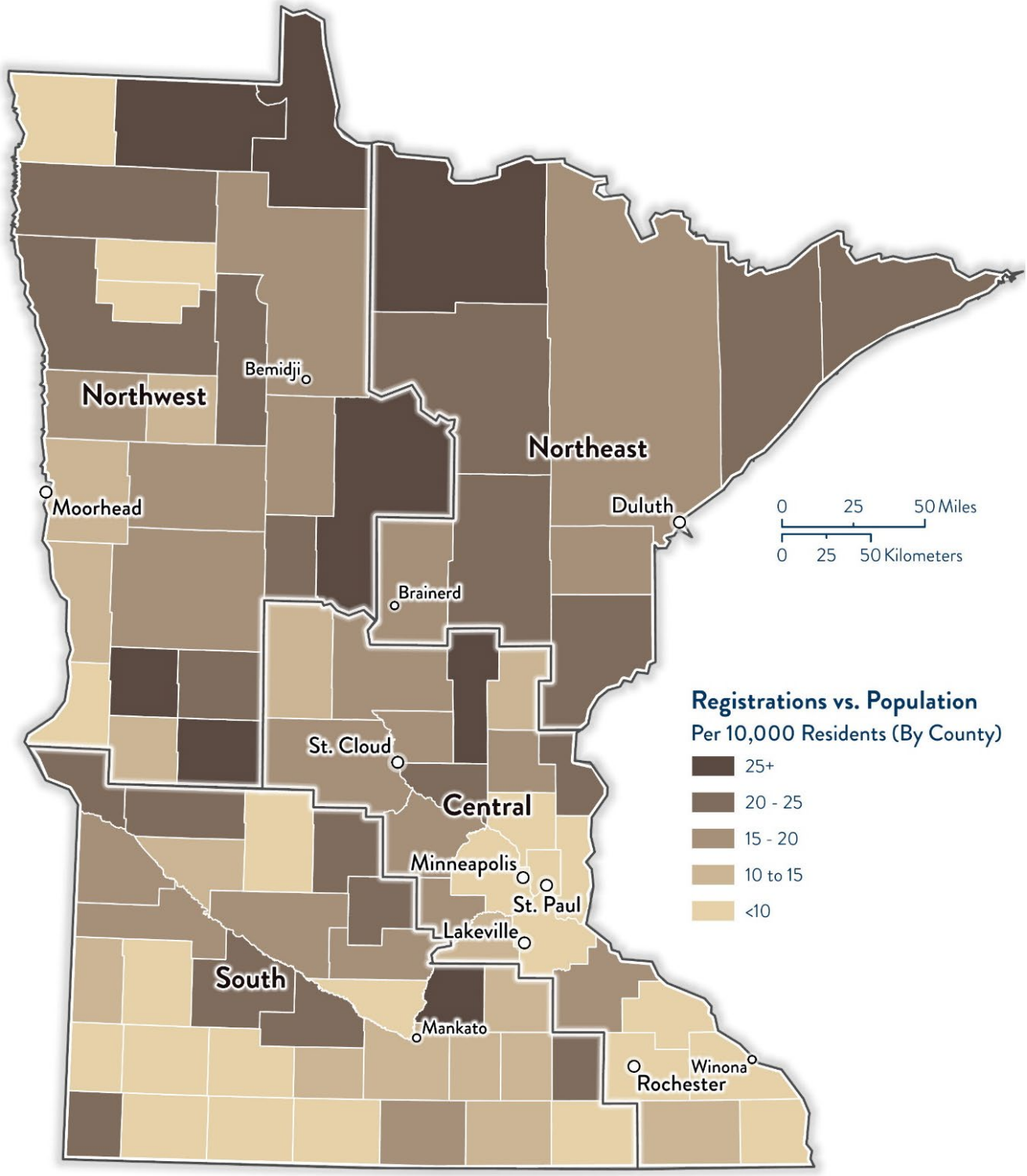


FIGURE 2.4 MINNESOTA ORV COUNTY OF USE RELATIVE TO REGISTRATIONS (2020)

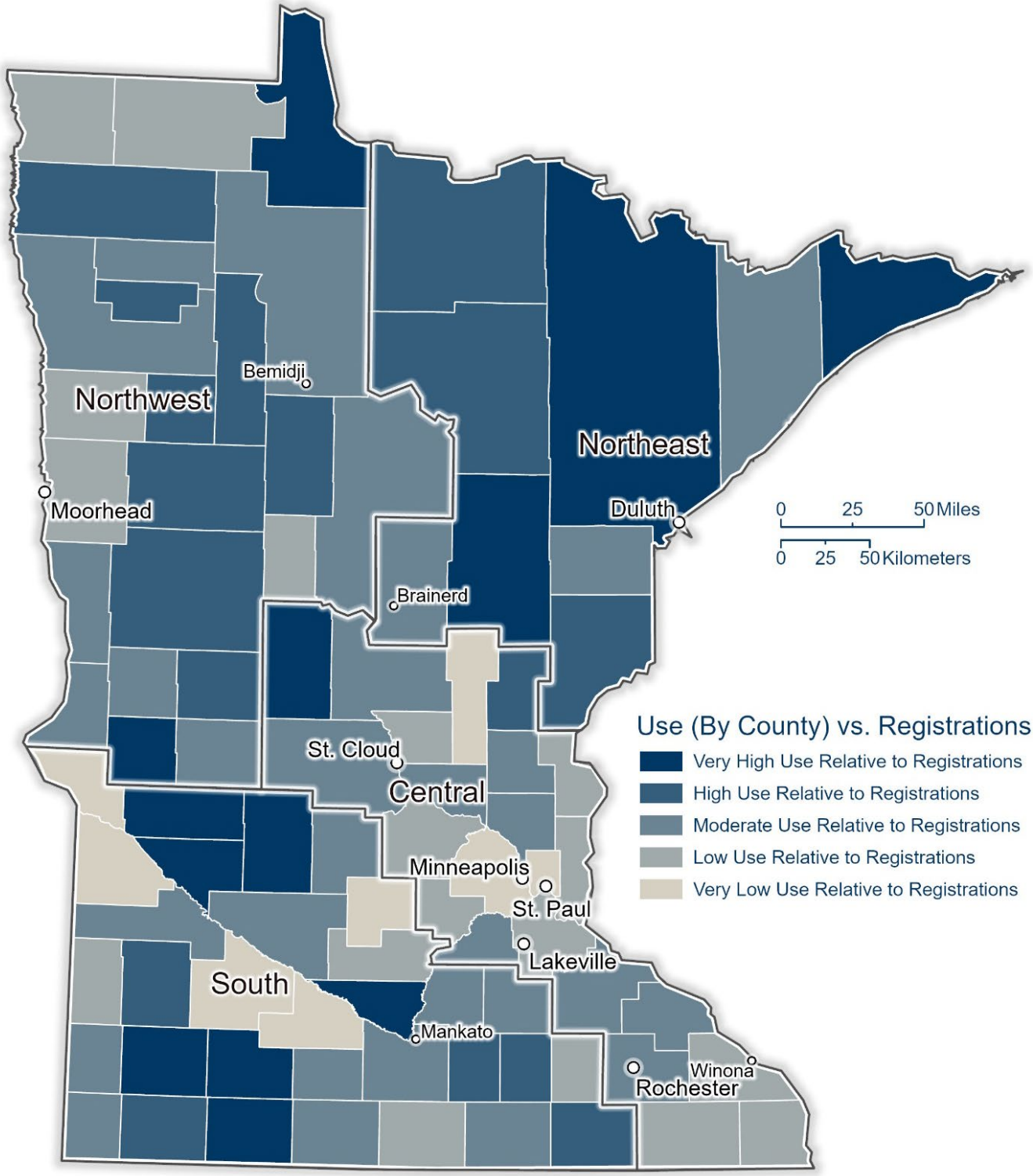


Table 2.1 Comparison of ORV Registrations by DNR Region

	DNR Region			
	Northeast	Northwest	Central	South
DNR Region Population	411,183	459,794	3,998,967	759,257
Percent of State Population	7.3	8.2	71	13.5
ORV Registrations (2020)	862	1,064	4,213	966
Percent of total ORV Registrations (2020)	12.1	15	59.3	13.6
Existing Public ORV areas	7	7	0	1
Percent Public Land	66.3	19.1	7.2	2.1

2.2.4 ORV Program Funding and Policy

Program Funding

To ensure the long-term sustainability and efficacy of the DNR's OHV Program, it is important to understand how ORV Program funding levels compare with existing and projected ORV usership in the state as well as funding levels for similarly positioned statewide OHV programs.

ORV program funding in Minnesota is provided through the Off-road Vehicle account of the Consolidated Natural Resources Fund (M.S. 16A.531, Subd. 2). The ORV account funds ORV program management, trail maintenance and development (for GIA trails as well as trails maintained by the DNR), and enforcement which includes conservation officers and sheriff patrols. Expenditures in this account have increased significantly from $176,676 in 1999 to $1,051,749 in 2023. This growth in ORV program funding is generally in line with the growth experienced in registrations and usership experienced over this same period (see Figure 2.1).

Gas Tax Summary

In Minnesota, the price for each gallon of gasoline sold includes the state gasoline tax. In 2022, Minnesota's gas tax rate was 28.5 cents per gallon. Gas tax revenue from highway fuel consumption is deposited into the Highway User Tax Distribution Fund for construction and maintenance of transportation infrastructure including roads, bridges, highways and railways. Gas tax revenue attributed to unrefunded non-highway fuel consumption[11] is then distributed to specific accounts within the Natural Resource Fund. The percentage that each off-highway vehicle account is allocated is outlined in state statute and was determined using a formula that considers factors such as the number of registered OHVs and the number of miles traveled in a typical outing.[12] The ORV account is allocated approximately 0.164 percent of revenue from the Highway User Tax Distribution Fund.

[11] Unrefunded non-highway fuel use is a portion of the gas tax that is attributed to non-highway purposes, such as agricultural and recreational vehicles, which is determined by M.S. 296A.18.
[12] Apportionment Of Tax; Deposit of Proceeds, 2021

Off-Highway Vehicle Grant-in-Aid Program

Minnesota's OHV Grant-in-Aid (GIA) Program is a cost-share program that facilitates the maintenance and development of OHV trails.[13] The program is funded by vehicle registration fees, trail pass fees and gas tax appropriations. GIA proposals are required to have a local government sponsor to support and participate in project development. Proposals can include trail development and maintenance projects as well as site planning, trail improvement projects and land acquisition. Proposals for new trails are accepted by the DNR year-round and considered on a rolling basis. Maintenance proposals for existing trail systems are due annually by November 30. More information about the proposal process is available in the Off-Highway Vehicle Grant-In-Aid Manual found on the DNR website. The manual outlines the application process for existing trails — as well as new trails — riding areas or reroutes greater than one mile. The manual also provides information on fiscal management and allowable expenses.

In 2021, the DNR started an improvement project to review the GIA program and make sure it was working well for all involved. The improvement review included engagement with OHV organizations, club members, local governments and other stakeholders (e.g., non-motorized trail user groups, conservation groups) to identify what could be improved. Outcomes of this process included updated reimbursement amounts that better reflect existing construction and maintenance costs as well as the addition of an application for winter trail grooming, plowing and maintenance costs.

Off-Highway Vehicle Regulations (2024)

The 2024 OHV Regulations document summarizes state laws and rules related to OHV operation and management in Minnesota and aligns with the objectives and priorities of the DNR OHV Program. These include preventing the spread of invasive species, safety considerations and education, protection of wetlands and other sensitive areas, minimizing user conflicts and promoting sustainable, sanctioned uses of OHVs. The regulations document also summarizes relevant OHV regulations and general operation restrictions. In addition, the document outlines limits on OHV use for certain geographic areas, including the seven-county metro area, state forests and the Chippewa and Superior National Forests. These laws and restrictions provide an important regulatory framework that informed the development of this strategic master plan.

Relevant State Statutes

Minnesota Statute (M.S.) Section 84.777 Off-Highway Vehicle Use of State Lands Restricted

This statute prohibits the unrestricted use of off-highway vehicles on state land administered by the commissioner of natural resources, as well as state forest land administered by a county. On these certain state lands, OHVs are to travel only on trails designated, posted and mapped for OHV use.

In recommending opportunities for ORV trails, this strategic master plan considered this restriction and provision regarding mapped trails.

M.S. Section 84.780 Off-Highway Vehicle Damage Account

This statute created an account in the Natural Resources Fund dedicated to the repair or restoration of property "damaged by the illegal operation of off-highway vehicles or the operation of off-highway vehicles in an unpermitted area."

[13] OHV Program, 2022b

M.S. Section 84.803 Off-Road Vehicles Account; Receipts and Allocations.

This statute establishes an off-road vehicle account for the State of Minnesota, intended to fund an education and training program, administration and enforcement of laws affecting ORV use, grant-in-aid programs to support ORV trail construction and maintenance, and grants to local law enforcement agencies for enforcement and public education related to ORVs. The ORV account funds may also be spent on the maintenance of certain forest roads, including county roads in a designated trail system within state forest boundaries.

M.S. Section 84.8045 Restrictions on Off-Road Vehicle Trails

This statute prohibits the use or development of DNR lands in Cass, Crow Wing and Hubbard Counties for trails primarily for ORV except by approval by the legislature or in designated ORV use areas. In recommending opportunities for ORV trails, this strategic master plan considered this restriction on trail development in these counties.

M.S. Section 84.9011 Off-Highway Vehicle Safety and Conservation Program

This statute authorizes "a program to promote the safe and responsible operation of off-highway vehicles in a manner that does not harm the environment" to be administered by the commissioner of natural resources.

This strategic master plan aims to reflect the values of safety and conservation expressed in this statute.

M.S. Section 85.018 Trail Use; Vehicles Regulated, Restricted

This statute prohibits the recreational use of ORVs on trails intended for ATVs or non-motorized travel and on snowmobile trails from December 1 to April 1. The statute outlines the need for a permit for any exceptions to this rule.

In recommending opportunities for ORV trails, this strategic master plan considered these restrictions on the operations of ORVs in the state of Minnesota.

2.2.5 National Forest Motorized Vehicle Use Guidance

Many OHV trails in Minnesota are either adjacent to, cross or are proposed to utilize federal lands. The sections below provide overviews of key United States Forest Service (USFS) policies that affect OHV trails on federal lands in Minnesota. These trends and objectives are particularly relevant to this strategic master plan, which seeks to identify areas of opportunity and suitability for OHV trail development.

Chippewa and Superior National Forest Plans (2004); 2017 Chippewa National Forest Monitoring and Evaluation Report; 2017 Superior National Forest Monitoring and Evaluation Report

The state of Minnesota contains two national forests, the Chippewa National Forest (CNF) and Superior National Forest (SNF). Both national forests contain land important for habitat connectivity and scenic resources important for recreation. The Chippewa National Forest Plan and Superior National Forest Plan, both adopted in 2004, provide an overview of existing natural resources and describe desired future conditions, objectives, standards and guidelines for the national forests' natural and cultural resources. The forest plans analyze the current management for each forest and outline management directions for specific management areas "to ensure that ecosystems are capable of providing a sustainable flow of beneficial goods and services to the public."[14] The plans list desired conditions, objectives and standards for various motorized and non-motorized uses of the forest, including Recreational Motor Vehicles (RMVs).

[14] Forest Service, 2004

RMVs include ATVs, OHMs and ORVs.[15] The plans allow for a maximum of 90 additional OHV trail miles to the designated national forest trail system.[16] These management recommendations were informed by multiple management tools.

In the management of both the Chippewa and Superior National Forests, there is a long-standing effort to reduce the overall road network through the decommissioning of roadways within the forests. For example, in the CNF, there is an objective to decommission and close roads "not necessary for long-term resource management." In the CNF, 200 miles of road were decommissioned between 2007-2017, fulfilling Objective-TS-8 in the 2004 Chippewa National Forest Plan. About half of the miles decommissioned within the CNF occurred between 2014 and 2017. In the SNF, 105.6 miles of road were decommissioned between 2009 and 2017. Importantly, only some of these roads are open to public use as many are service roads. However, this trend toward decommissioning reflects an overall desire to maintain a "minimum road system" within the forests, particularly in the CNF.[17] USFS surveys also show a significant decrease in recreation use of Chippewa National Forest between 2007-2017.

Travel Management Planning on National Forests

In 2005 the USFS established a roads management strategy when the Travel Management Rule was enacted. The goal of the road management strategy is to identify a transportation system that is both environmentally and financially sustainable in relation to each forest's function and operation. Under these rules, each National Forest System (NFS) unit must identify a minimum road system (MRS) necessary to support safe and efficient travel, administrative functions, and the utilization and protection of NFS lands within the forest.

Through the identification of an MRS, a Travel Analysis Process (TAP) is needed. The TAP identifies various opportunities in which each specific national forest can meet current and future management objectives through providing information that incorporates ecological, social and economic concerns into existing and future road-related decisions. In doing this TAP, each forest is required to complete a Travel Analysis Report (TAR). This TAR helps the forest service determine subsequent National Environmental Policy Act (NEPA) decisions, site-specific road-related projects, and cumulative impacts related to the entire transportation system. The TARs are suitable for 20-year planning before re-assessment and analysis needs to take place.[18]

The public facing documents of the TAP and TARs are Motor Vehicle Use Maps (MVUM). These maps identify roads, trails and areas open to motor vehicle use by vehicle class and time of year. They are accessible through the specific forest's website.

Chippewa National Forest Forest-wide Travel Analysis Report (2015)

The process to create a Forest-wide TAR is extensive. For the CNF, it involved a 13-year long process. The process included a Forest-wide Roads Analysis in 2002, a Forest Plan Revision in 2004, an Off-Highway Vehicle Road Travel Access Project in 2006–2007, publication of Motorized Vehicle Use Maps in 2008, a Watershed Condition Framework in 2011, a pilot study of 20 randomly selected roads using a TAP spatial

[15] The U.S. Forest Service defines an off-highway vehicle (OHV) as "any motor vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain" (36 CFR § 212.1). An all-terrain vehicle (ATV) is defined as "a type of off-highway vehicle that travels on three or more low-pressure tires; has handle-bar steering; is less than or equal to 50 inches in width; and has a seat designed to be straddled by the operator" (Forest Service Manual 7705).
[16] O-RMV-1 of the Plan (O-RMV-1, page 2-43) for Superior National Forest and O-RMV-2 of the Plan (O-RMV-2, page 2-42) for the Chippewa National Forest
[17] Forest Service, 2004
[18] Forest Service, 2005

tool in 2012, and final production of the TAR in 2015. All of the studies that were completed prior to the 2015 publication helped inform and determine opportunities and needs as identified in the TAR.

The TAP to produce the TAR for the CNF consisted of six specific steps: setting up the analysis; describing the situation; identifying issues; assessing benefits, problems and risks; describing opportunities and priorities; and reporting findings. The framework the TAR utilizes to differentiate roads within CNF system is a 'road maintenance level.' The road maintenance level is separated into five different categories, with five being roads that are maintained to the highest degree of user comfort and one being basic custodial care (mostly closed roads). The category that ORVs fall into would be road maintenance level two — high clearance vehicles. There is a total of 1,692 miles of these routes within the CNF system; however, the Soo Line Trail is the only designated motorized trail for OHV use within the CNF system and is not open to ORV use. This trail connects Cass Lake to Remer and then extends from the forest to Moose Lake, MN.[19]

Superior National Forest Forest-wide Roads Study Report (Travel Analysis Report) (2015)

Similar to the CNF, an extensive process took place to complete the TAR for the SNF, starting with a Forest-wide Roads Analysis completed in 2002. The TAP process to produce the TAR for the SNF consists of the same six steps that the CNF TAP does. The outcome of the TAP serves as a list of potential opportunities for how certain aspects of the forest transportation system are managed to address both administrative and public issues and interests. Additionally, similar to the CNF, the SNF categorizes roads based off of a road maintenance level on a scale of one to five. These trails are identified on the eight different MVUMs for the forest. There are a total of 984 miles of road maintenance level two roads, designed for high-clearance vehicles, that may be appropriate for ORV use. There are also no designated motorized areas in the forest. The Forest Service noted in a 2015 report that funding levels made it hard to implement management objectives and improvement projects related to road and travel needs.[20]

Chippewa and Superior National Forest Plans Motorized Vehicle Use Maps (MVUM)

The USFS updates MVUMs for the Chippewa and Superior National Forests on an annual basis. These maps, which are segmented into regions, are available online or in print for OHV users to consult when planning a trip to one of Minnesota's national forests.

This strategic master plan reviewed these maps as part of an analysis of existing ORV trail riding opportunities in Minnesota.

2.3 Types of ORV Routes, Trails and Desired User Experiences

As part of an existing conditions assessment, this strategic master plan identified types of ORV trails and desired user experiences in Minnesota. This analysis focused on the location and character of trails as well as user types, which enabled an assessment of the needs of the current ORV trail system, divided by types of trails and users.

2.3.1 Types of ORV Routes and Trails

There are many types of ORV trails and experiences, including touring routes, overlanding, soft roading/light wheeling, rock crawling, rock bouncing, rock racing and mudding. Some trails are multi-use, while some have specified designated uses. Some trails may be administered by the DNR, by local sponsors such as counties, cities or townships through the GIA Program, by local governments outside the program, or by private entities.

[19] Forest Service, 2015a
[20] Forest Service, 2015b

Some ORV trails are closed-loop systems, while others run from point-to-point. Touring routes (sometimes referred to as "overlanding") provide longer distance experiences with the opportunity to stay overnight as part of the trip. Scenic driving along dirt roads or informal roads is also considered a type of off-roading or wheeling.

Different types of trails and features are suited to different vehicle types — for example, a standard 4x4 Jeep can tackle a wide variety of terrain and some moderate obstacles. More specialized equipment may be required to handle mud holes, rock crawls and other technical features on a trail designed specifically for ORVs. OHV trails are often tailored to a particular vehicle type — ORV trails tend to be slightly wider than trails intended for ATVs or OHMs. Since ORVs tend to be the heaviest OHV type, they result in high compaction and relatively low displacement to the trail compared to other types of OHVs, and ORV trails are designed to accommodate these demands. As with trails for other types of recreation, ORV trails vary in terrain and difficulty. Flat and open trails are more suitable for beginners, while narrow and winding trails are more challenging and suitable for experienced users.

2.3.2 Types of Desired ORV User Experiences

As with any recreational sport, there is a spectrum of ORV users in terms of experience and interests. Some users enjoy challenging terrain that is full of obstacles, while others prefer more mild terrain that is accessible to a wider range of off-road vehicles. Although less common, people who enjoy recreational driving on scenic dirt roads can be considered ORV users.

Some ORV users own their vehicles, while others lease. There are many types of ORVs, each built for different terrain. Many ORV users customize their vehicles by adding suspension lifts, winches, bumpers, tires or other modifications to improve performance on different terrain and obstacles. As noted in the Minnesota Regulations for OHVs, a Class 1 or Class 2 ATV can be considered an ORV if a user places tracks on it.

2.3.3 Types of Uses/Obstacles

Some of the uses described below are not allowed on DNR-managed public lands and are only permitted on purpose-built trails, such as those at the Iron Range Off-Highway Vehicle State Recreation Area (IROHVSRA), or on private land.

Rock Crawling

Rock crawling is a form of off-road driving that involves terrain with large obstacles such as boulders and steep pitches. Rock crawling is typically done at slow speeds with modified vehicles. Drivers are often assisted by spotters when rock crawling to help identify obstacles.

Rock Bouncing

Rock bouncing is a form of off-roading that involves driving across a series of boulder-enriched trails. Rock bouncing vehicles are purpose-built and have large tires, high horsepower engines and plush suspension systems to handle jumps and compression. Rock bouncing opportunities are very limited in Minnesota.

Water Fording

Water fording involves any form of water crossing ranging from small streams to ponds or lakes. Depending on water depth, vehicle modifications may be required to avoid water damage to the drivetrain, lubrication systems or filter systems. Modifications include extending breather hoses and adding a snorkel system. Where applicable, water fords are specifically designed and managed to limit impacts to waterways. Water fording opportunities are very limited in Minnesota.

Hill Climbing

Hill climbing is traversing routes and trails with a steep grade to challenge both the driver and the ORV's components. Hill climbing opportunities are limited in Minnesota, primarily occurring at the IROHVSRA.

Mudding

Mudding is a form of off-roading that involves driving through patches of mud or "holes". Mudding areas can be natural or manmade. Mudding can be a highly technical form of off-road driving due to inconsistent traction and sub-surface variation. Drivers need to regulate their speed in order to safely navigate the mud and avoid getting stuck or sinking. Where applicable, mudding areas are specifically designed and managed to limit environmental impacts. Mudding opportunities are limited in Minnesota.

Overlanding

Overlanding typically involves self-reliant and long-distance travel into remote areas. Vehicles contain supplies needed for the duration of the trip. Overlanding trips include a combination of off-roading and camping. Overlanding routes can involve a variety of trail types and obstacles.

Soft Roading/Light Wheeling

Soft roading is a term for off-roading routes that require little to no vehicle modifications to safely travel. Soft roading routes include dirt roads and minimum maintenance forest roads.

2.4 Existing ORV Trail System Review

This review examines the existing ORV trail opportunities in Minnesota, both public and private. As listed on the OHV page on the DNR website in 2024, there are 94 state and grant-in-aid trails open to OHV use in the state of Minnesota in addition to state forest trails. Only a portion of total trails are open to ORVs.

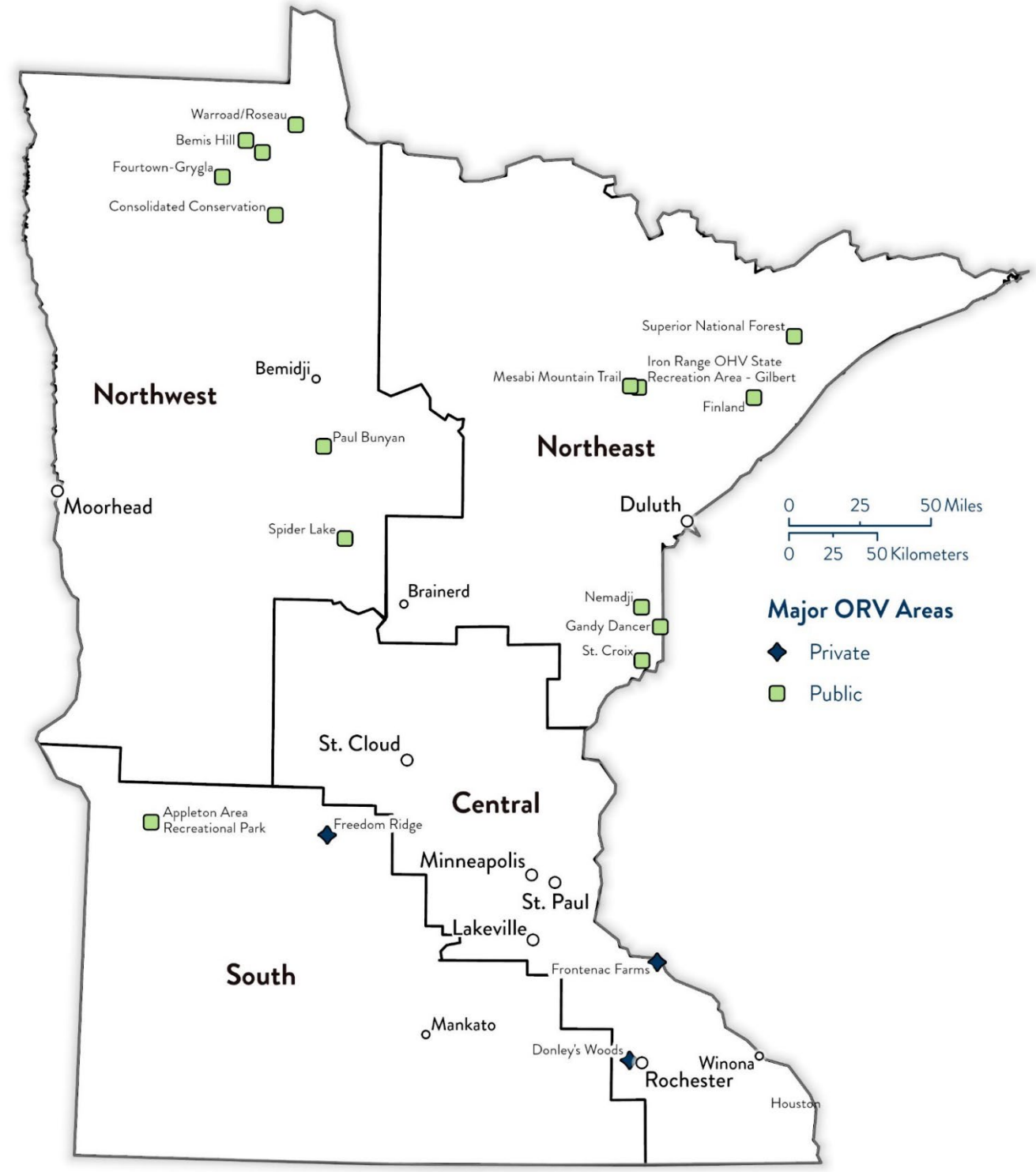
ORV trails and routes exist on public and private land in Minnesota. State forests in Minnesota fall into three categories for motor vehicle use and OHV use (closed, limited and managed), each with a different set of limitations on use (see 1.5.4). On national forest land, motor vehicle access is permitted on roads and trails designated as open to OHVs and highway-licensed vehicles on the corresponding MVUM, which is updated annually. County forests have developed regulations for OHV trail use on an individual basis.

Many ORV trails are shared with other OHVs, though some are dedicated to ORVs specifically. The greatest concentration of ORV trails is in northern Minnesota, with one of the most popular areas being the IROHVSRA in Gilbert. The recreation area, which contains 1,200 acres of former mine lands, has 36 miles of OHV trails. Other popular locations include the Nemadji State Forest trail system, the Spider Lake trail system in the Foot Hills State Forest, Appleton Area Recreational Park (AARP), and the 170-mile Fourtown-Grygla Trail. There is one ORV-only trail system in the state, located near Gilbert. The AARP and the IROHVSRA also have trails that are ORV only, but the entire areas are not ORV only. There are several trails open to all types of OHVs located in different regions of the state, including the northwestern part of the state (Bemis Hill) and along the border of Wisconsin (Gandy Dancer).

A new Border-to-Border Touring Route (B2B) is being implemented in Minnesota, which will extend from the border with North Dakota to Lake Superior. This will provide a quality adventure touring route — an ORV experience that is in high demand but not currently available in Minnesota. The route will consist entirely of roads currently open for public use, including state and national forest roads as well as township, county and state roads. Many of these roads feature dirt, gravel or other rugged surfaces. Maps, signs or other roadside markers would indicate the route. Only highway-licensed vehicles currently allowed on these roads will be able to travel the entire B2B.

While there are many miles of roads and trails open to ORVs in the state, this review focuses on 19 primary OHV trail networks with ample, connected mileage that attract ORV use. These areas are shown in Figure 2.5.

FIGURE 2.5 EXISTING ORV TRAIL AREAS



**Mille Lacs ORV Park is not shown. The park was in the proposal phase at the time this map was prepared and has since opened.*

The following table (Table 2.2) lists the primary ORV areas in Minnesota. Region 1 refers to the northwest portion of the state, Region 2 to the northeast portion of the state, Region 3 to the central, metro, and southeast portion of the state, and Region 4 to the southern and southwest portion of the state (see Figure 2.5).

Table 2.2 Primary Off-Road Vehicles Areas in Minnesota

Name	Status	Land Manager	DNR Region	Type
Appleton Area Recreational Park	Public	County	Region 4	OHV Park
Beltrami State Forest	Public	DNR	Region 1	Touring routes
Bemis Hill	Public	DNR	Region 1	Touring routes
Donley's Woods	Private	Private	Region 3	Private
Finland State Forest	Public	DNR	Region 2	Touring Routes
Fourtown-Grygla	Public	County	Region 1	Transportation Routes
Freedom Ridge	Private	Private	Region 4	ORV-only Park
Frontenac Farms	Private	Private	Region 3	ORV-only Park
Gandy Dancer	Public	DNR	Region 2	Touring Routes
Iron Range OHV State Recreation Area	Public	DNR	Region 2	OHV Park
Mille Lacs ORV Park*	Public	County	Region 3	ORV-only Park
Mesabi Mountain Trail	Public	Local Trails Club	Region 2	ORV-only Trail
Nemadji State Forest	Public	DNR	Region 2	Shared Use Trails
Paul Bunyan State Forest	Public	DNR	Region 1	Touring Routes
Spider Lake (Foot Hills State Forest)	Public	DNR	Region 1	Shared Use Trails
St. Croix State Forest	Public	DNR	Region 2	Shared Use Trails
Superior National Forest	Public	U.S. Forest Service	Region 2	Touring Routes
Warroad/Roseau	Public	DNR	Region 1	Touring Routes

** Mille Lacs ORV Park is included in this table but is not shown in* Figure 2.5. *At the time* Figure 2.5 *was prepared, the park was proposed and has since opened.*

The private areas listed here are located on private land and are open to the public for specific weekends and events each year. While they are not open to the public at all times, they are an important part of the state's ORV trail and route offerings, particularly for the southern part of the state.

Many Minnesotans participate in off-road opportunities outside the state. In particular, many in the Twin Cities region travel to Wisconsin for ORV opportunities at Trollhaugen Outdoor Recreation Area and Apple

Valley Farms Off-road Park. These areas are excellent venues for events and are located 1-2 hours from the Twin Cities. While these venues will continue to be a nearby offering for Twin Cities residents, providing more convenient opportunities for Twin Cities residents could encourage more in-state activity and economic impact.

ATV and OHM opportunities in Minnesota are far more extensive than the ORV opportunities. While all user groups can use the hundreds of miles of national and state forest roads, the state lists only 267 miles of public trails open to ORVs. Comparatively, there are 2,551 miles of public trails open to ATVs and 1,758 miles open to OHMs. Relatedly, registrations for ATVs and OHMs are significantly higher than ORV registrations at 323,956 and 14,734 respectively. There are also more clubs and organizations devoted to OHM and ATV advocacy and participation.

2.4.1 ORV Riding Locations

Existing ORV offerings are largely concentrated in the northern portion of the state, in DNR regions 1 (Northwest) and 2 (Northeast). The northern portion of the state has a significantly higher proportion of public land and most opportunities located in the southern portion of the state are on private land. The following chart (Figure 2.6) shows relative mileage by region.

FIGURE 2.6 RELATIVE ORV TRAIL MILEAGE BY DNR REGION

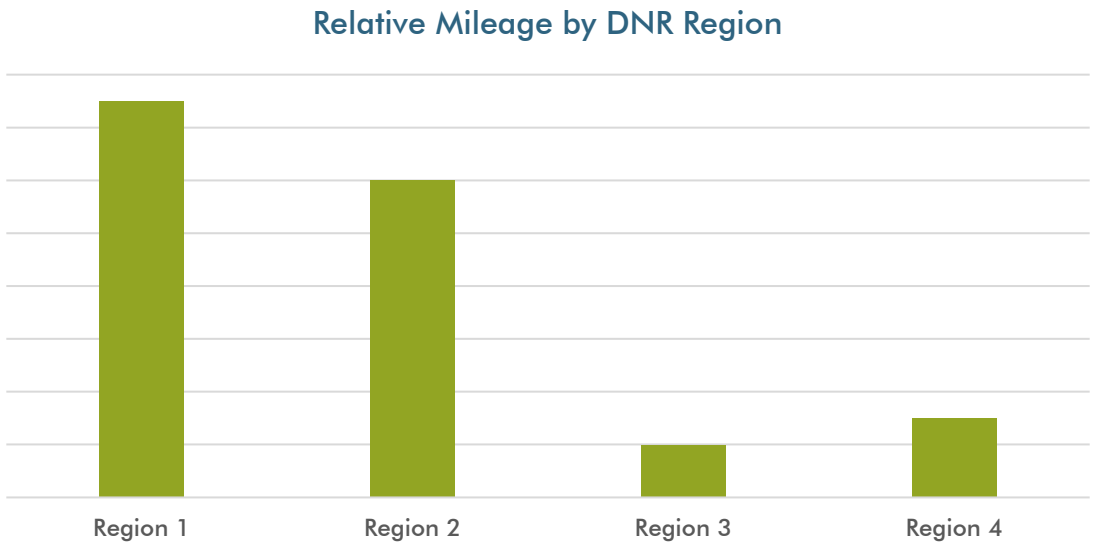
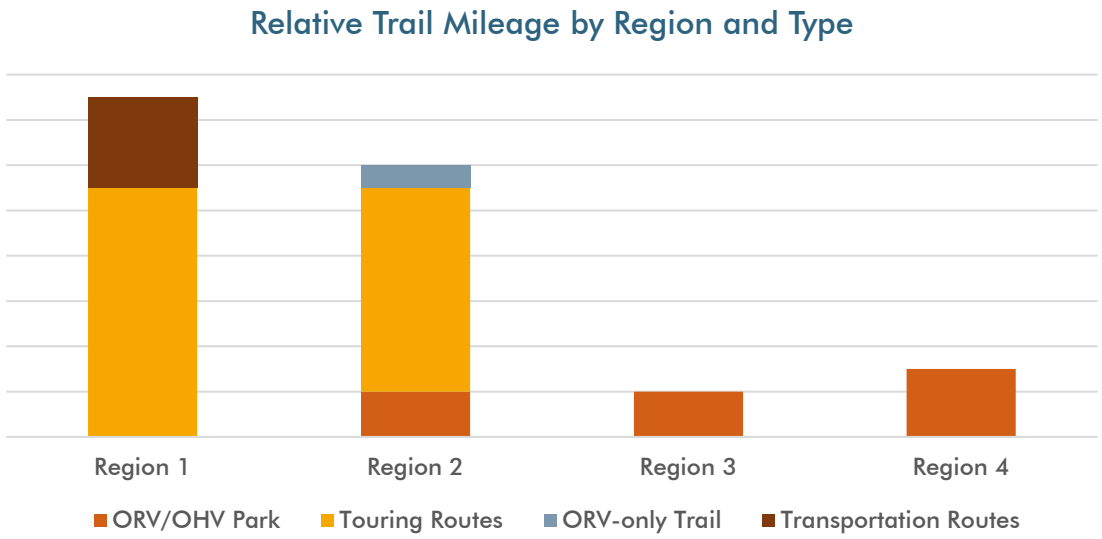


Figure 2.7 shows the breakdown of this mileage by opportunity type.

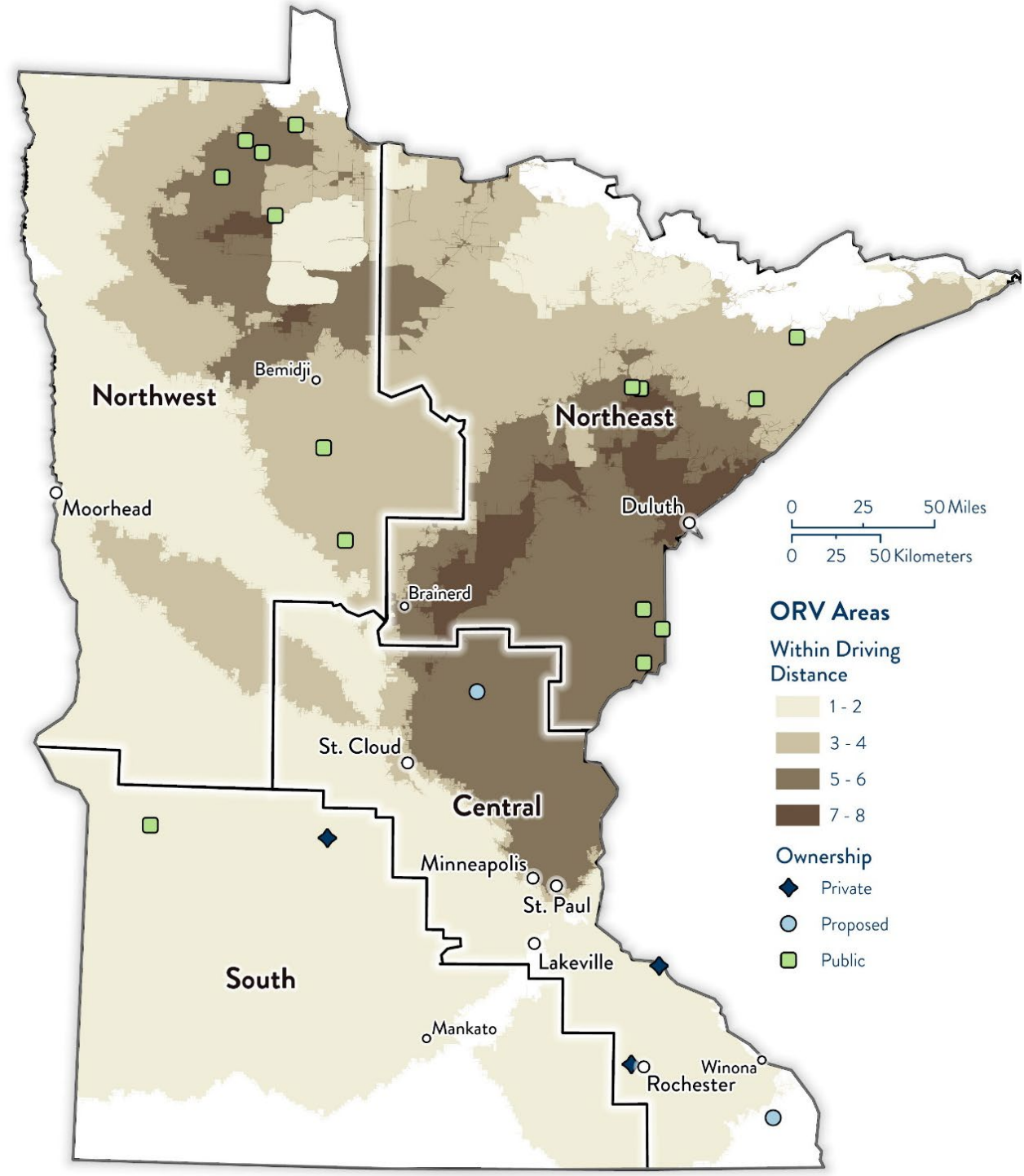
FIGURE 2.7 RELATIVE ORV TRAIL MILEAGE BY DNR REGION AND TYPE



Notably, while Region 1 and Region 2 have the most relative trail mileage, much of that is mileage is part of touring routes.

ORV participants are generally willing to travel further for ORV opportunities with more extensive offerings, such as the IROHVSRA. Using a 'willingness to drive' factor for each primary ORV area (3 hours for extensive offerings, 1 hour for limited offerings), Figure 2.8 shows the number of ORV areas within driving distance across the state. Northern portions of the state vary between 3 to 8 areas within driving distance, with many offerings proximate to the Duluth area, Brainerd and Warroad. Given the less technical offerings in and around the Nemadji State Forest and good interstate connectivity, residents of the Twin Cities and northern suburbs are within driving distance of 5 to 6 ORV areas. ORV participants who live in the southern portion of the state are within driving distance of up to 2 ORV areas.

FIGURE 2.8 ORV TRAIL AREAS WITHIN DRIVING DISTANCE

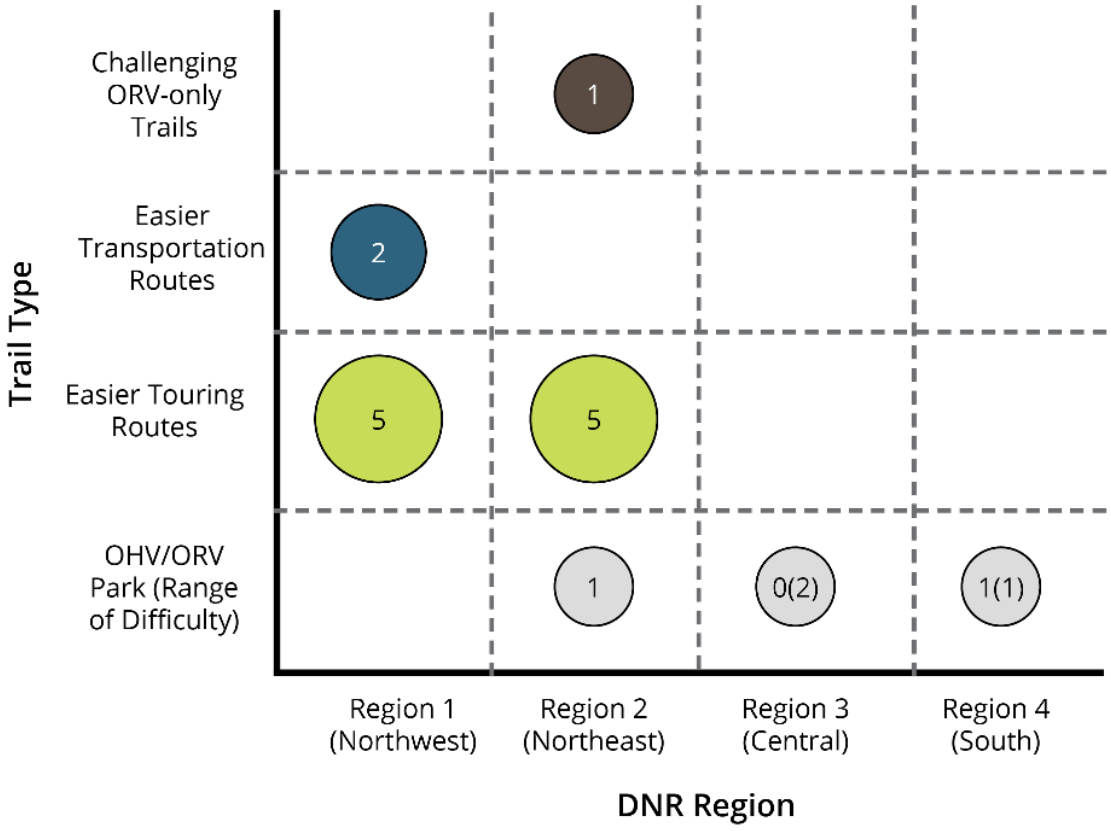


2.4.2 Trail Type and Difficulty

The ORV offerings in Minnesota are primarily flatter, easier touring routes, particularly in terms of total mileage. A range of difficulty is available at the IROHVSRA, AARP and some private areas. The Mesabi Mountain Trail is also a more challenging offering.

Figure 2.9 shows the number and type of ORV areas by region and trail type as of 2021. The number of private areas is listed in parentheses.

FIGURE 2.9 TRAIL TYPE BY DNR REGION



This figure shows how opportunities are relatively concentrated in the northern portion of the state, with limited public offerings and touring routes in the central and southern regions. There are limited challenging ORV-only trails and OHV/ORV parks outside of Region 2, with only 1 public offering elsewhere in Minnesota.

2.4.3 Community Connectivity

The following table lists nearby communities for each of the ORV opportunity areas and if ORV rentals/service and camping are available in the nearby area. Nearly every area has camping nearby, but proximate ORV rentals/service are more limited. For many of the areas, the nearby communities are relatively small and have limited facilities and services.

Table 2.3 Off-Road Vehicles Area Community Connectivity

Name	Status	Adjacent Community	ORV Rentals/Service	Camping (Y/N)
Appleton Area Recreational Park	Public	Appleton, MN	No	Yes
Beltrami State Forest	Public	Warroad, MN	No	Yes
Bemis Hill	Public	Roseau, MN	Yes	Yes
Consolidated Conservation	Public	Roseau, MN	Yes	Yes
Donley's Woods	Private	Rochester, MN	No	Yes
Finland State Forest	Public	Finland, MN	No	Yes
Fourtown-Grygla	Public	Grygla, MN	No	No
Freedom Ridge	Private	Atwater, MN	No	Yes
Frontenac Farms	Private	Frontenac, MN	No	Yes
Gandy Dancer	Public	Nickerson, MN	No	Yes
Iron Range OHV State Recreation Area	Public	Gilbert, MN	No	Yes
Mille Lacs Project*	Public	Mille Lacs, MN	Yes	Yes
Mesabi Mountain Trail	Public	Eveleth, MN	Yes	Yes
Nemadji State Forest	Public	Nickerson, MN	No	Yes
Paul Bunyan State Forest	Public	Laporte, MN	No	Yes
Spider Lake (Foot Hills State Forest)	Public	Pine River, MN	No	Yes
St. Croix State Forest	Public	Danbury, WI	No	Yes
Superior National Forest	Public	Finland, MN	No	Yes
Warroad/Roseau	Public	Warroad, MN	No	Yes

** Mille Lacs ORV Park is included in this table but is not shown in* Figure 2.5. *At the time* Figure 2.5 *was prepared, the park was proposed and has since opened.*

3 OPPORTUNITIES AND CONSTRAINTS ANALYSIS

3.1 Analysis Methodology

As part of the ORV strategic master plan development, SE Group conducted a spatial analysis to inform future exploration of ORV trail opportunities in Minnesota. Public input and feedback guided the weighted factors in the following sections. The determination of opportunities was based on five factors: natural environment sensitivity, terrain, human environment suitability, land management and ownership, and recreation usage and demand (see Appendix B). Potential opportunities were identified on a regional scale in the state, but no specific trail alignments were determined. In general, this analysis highlights areas within the state where natural resource, human, terrain, land management, and recreation usage and demand factors suggest potential future opportunities for ORV use, as well as areas that may be less favorable. Considerable additional analysis, including applicable environmental review, is necessary before a new trail can be built or designated in an area of opportunity.

This spatial analysis involved layering of spatial data in ArcGIS to consider the suitability of specific areas for possible ORV opportunities based on five identified factors. For example, a wetland layer was included in the analysis since the presence of wetlands in an area presents a constraint to or incompatibility with new ORV trails due to both the sensitivity of these natural features and the increased trail construction costs that would be necessary to provide a safe route while avoiding impacts to the resource. Another included data layer was land management policies, which may or may not allow off-road vehicle use. All of the data used in this process was from state and federal geographic information system repositories or from inventories developed as part of this strategic master plan. Staff within the DNR and the Minnesota Geospatial Information Office played an active role in the selection of appropriate data layers.

The analysis itself was conducted using geographic rasters, which are a matrix of cells organized into rows and columns (or a grid) where each cell contains a value representing the information inside the cell, such as the number of ORV registrations. Throughout this analysis, cell values were classified, weighted and summed together in order to arrive at an overall score. This level of analysis is appropriate for identifying areas of opportunity, rather than specific trail alignments.

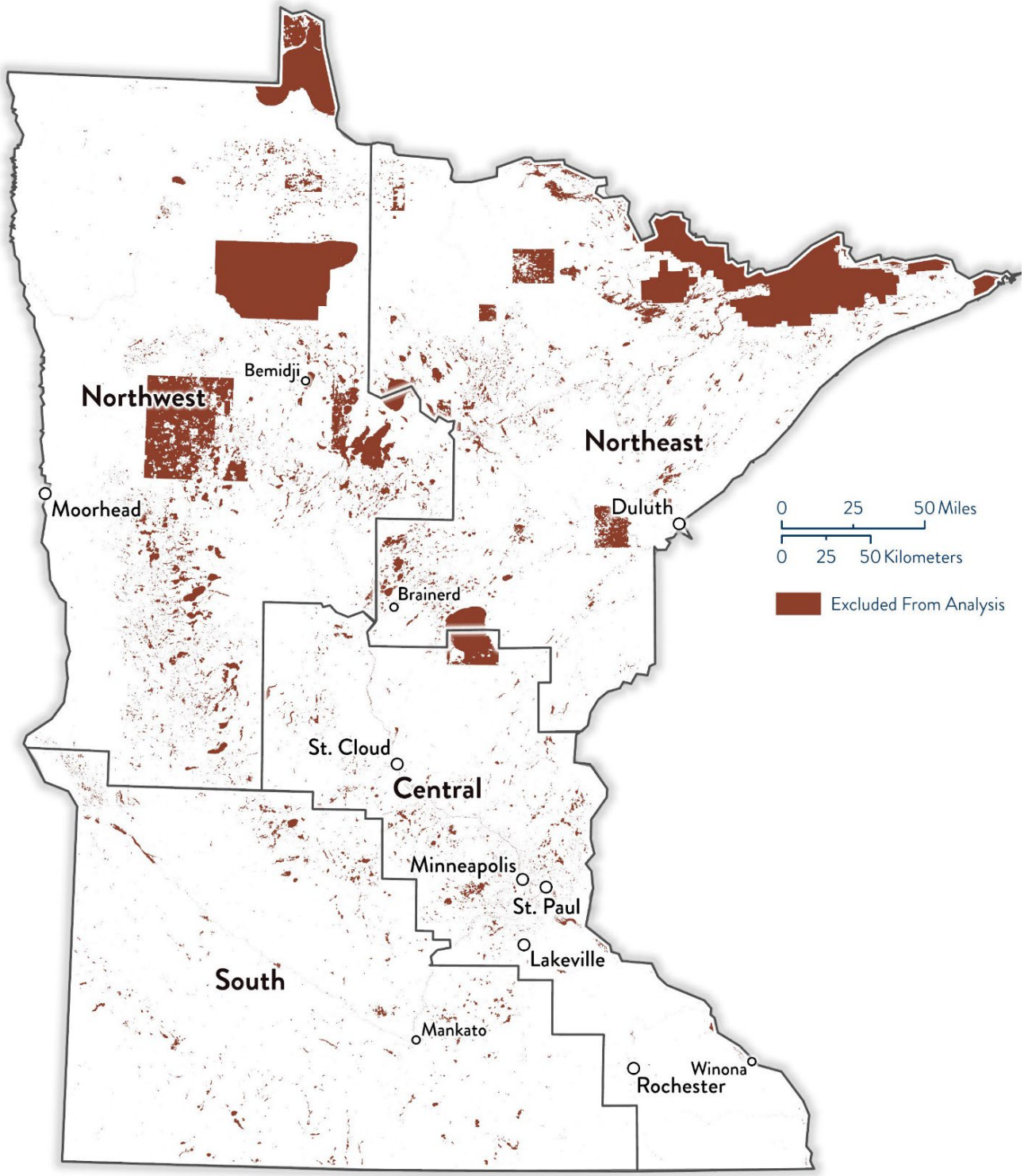
The analysis is intended to be used by the DNR and interested partners to identify areas to focus attention and consideration of new trail opportunities as well as areas to avoid. The DNR will also consider the following analysis when identifying or evaluating proposals for new trails but notes that specific on-the-ground analysis will continue to be useful in identifying proper conditions for trail opportunities and will vary from high-level analysis.

3.1.1 Geographic Scope

The geographic scope of this analysis was all lands in the state of Minnesota except the Boundary Waters Canoe Area Wilderness, lands in tribal ownership, open water and areas of high-intensity development where larger population centers lead to fewer available lands for OHV trails (e.g., seven-county metro area, Rochester, St. Cloud, Duluth). In later stages of the analysis, other factors that would preclude new

ORV trail development (e.g., state parks, wetlands) were excluded as well. The geographic scope map is included as Figure 3.1.

FIGURE 3.1 SPATIAL ANALYSIS GEOGRAPHIC SCOPE



3.2 Natural Resource Analysis

The consideration of the suitability of an area for ORV trails must depend on ensuring the trail use remains balanced with important statewide environmental protection and stewardship policies and best practices. This analysis identified areas where the presence of high-priority wildlife habitat, wetlands, sensitive native plant communities and other natural environment factors (see Table 3.1 for full list) limit suitability for new ORV trail development. Each factor was weighted relative to how influential it is on the suitability of an area for new ORV trail development. A high relative weight indicates an area that is very ill-suited for new ORV trail development, while a low weight indicates areas that are better suited for new ORV trail development. The factors included in this analysis, the criteria used and how they were weighted are included in Table 3.1.

The Wildlife Habitat and Conservation Opportunity Areas are DNR-developed layers that combine habitat data for several species, vegetation data and other natural resource data to summarize conditions/sensitivity in a statewide context.

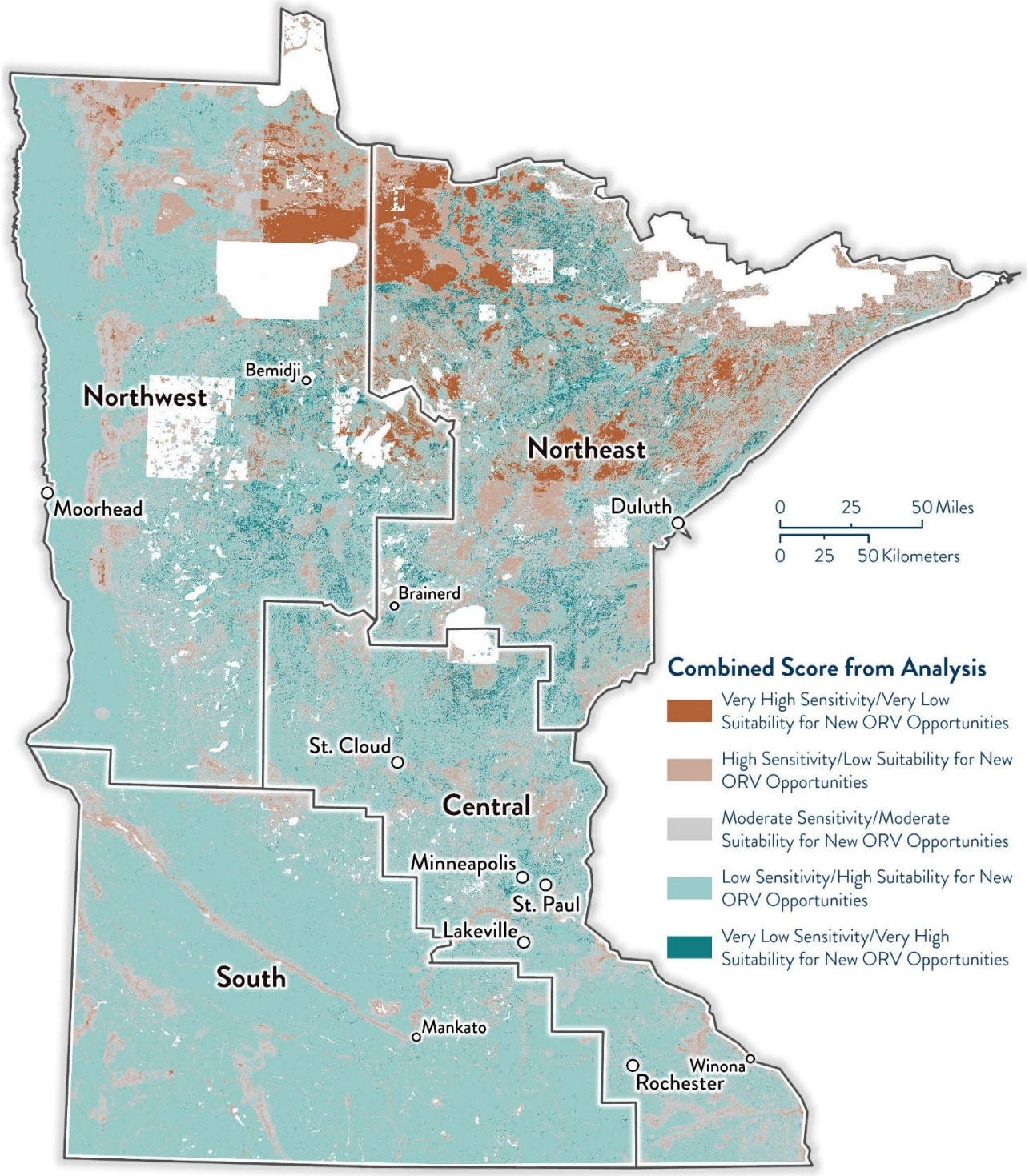
Table 3.1 Natural Resource Analysis Factors

Factor	Criteria	Relative Weight
Wetlands	Presence	High
Soil Erosion	Potential for erosion	High
Native Plant Communities	Conservation status	Medium-High
Old-Growth Areas	Within areas	Medium-High
Land Cover	*	Medium
Trout Streams	Presence within buffer	Medium
Wildlife Habitat	Habitat quality	Medium
Invasive Plants	Presence	Medium
Moose Range	Within range	Low
Lynx Critical Habitat	Within range	Low
Conservation Opportunity Areas	Within areas	Low

*Forested land cover types were scored highly, while wetland or developed land cover types were scored poorly.

Figure 3.2 shows the suitability of areas across the state for new ORV opportunities, based on natural resource sensitivity. Brown-toned areas are more sensitive, while green-toned areas are less sensitive. Less sensitive areas are presumed to be better-suited for new ORV trail opportunities, although site resource conditions need to be examined prior to and during any trail development proposal process. Areas with low natural resource sensitivity include the Iron Range, northern portions of St. Louis County and the Bemidji area. Areas with high natural resource sensitivity include the Minnesota River Valley, Lake Superior coastline, St. Croix State Forest area and the area surrounding Savannah Portage State Park.

FIGURE 3.2 NATURAL RESOURCE ANALYSIS



3.3 Terrain

The shape of the landscape plays an important role in determining the potential for new ORV trail development. If the terrain is excessively steep, trail development may be limited by erosion concerns and construction feasibility. Conversely, very flat terrain can present drainage challenges, contribute to water pooling and encourage higher speeds. In many cases, moderate elevation change — especially where soils, slope and surface conditions support natural drainage — can improve both trail sustainability and rider experience by allowing for more engaging, curvilinear design.

A terrain analysis was conducted to evaluate the topography for sustainable, interesting ORV trail opportunities. This analysis considered both the change in elevation and the range of slopes that would support ORV trails for a variety of ability levels. Both elevation range and slope were evaluated relative to a broader land area rather than for the 30-meter cell used elsewhere in this analysis. For elevation, the metric was the range of elevation within a 1-mile radius of a given cell. The greater the range in elevation, the more positively the cell was scored.

Slope was considered in three ways. Singular areas with very steep slopes (greater than 40 percent) were scored negatively given the challenge of building sustainable trails on such slopes. The average slope with a 0.5-mile radius circle of a given cell was considered against general grade standards for the construction of ORV trails. The standard deviation of slopes within this 0.5-mile radius area was used to measure the variety in the terrain, with more varied and undulating terrain considered more favorably for the ORV user experience.

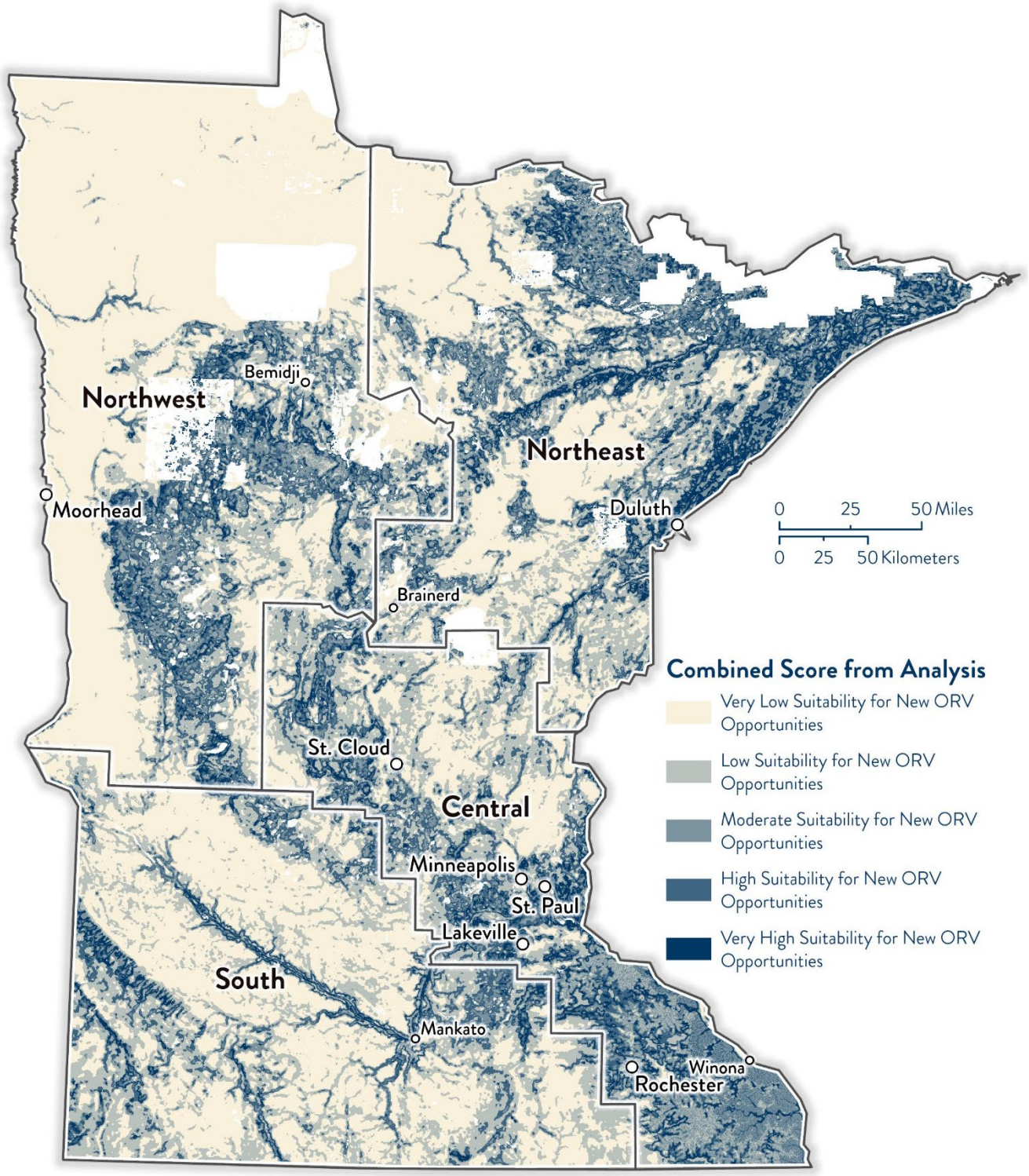
Table 3.2 lists the factors considered in the terrain analysis, criteria, and relative weight.

Table 3.2 Terrain Analysis Factors

Factor	Criteria	Relative Weight
Elevation Range (1-mile radius)	Greater range in elevation	Medium-Low
Slope (30-meter cell)	Potential for erosion/challenging build (>40 percent slope)	Medium-High
Average slope (0.5-mile radius)	Grades suitable for ORV trail construction, slightly oriented towards more intermediate/advanced opportunities	Medium

Figure 3.3 shows the suitability of the topography across Minnesota to new ORV trail opportunities. Darker areas have slopes and elevation ranges that would align with interesting, sustainable ORV trail opportunities and include the Frontenac area, the Minnesota River Valley, Detroit Lakes, Fergus Falls, Mesabi Range, Lake Superior coastline and a few smaller areas close to the Twin Cities. Prior to development, any future project must go through applicable site-specific environmental review. On-the ground conditions will likely differ from the conditions identified in this high-level analysis.

FIGURE 3.3 TERRAIN SUITABILITY ANALYSIS



3.4 Human Environment Analysis

The human environment analysis considered how factors such as population, residential proximity, existing OHV and non-motorized recreation opportunities, and other development influence the suitability of new ORV trail opportunities. This analysis is oriented towards providing opportunities that are accessible, proximate to population centers and expand ORV opportunities to new areas of the state. Other considerations include proximity to campgrounds as well as ensuring sufficient distance from non-motorized recreation opportunities and the existing road network to enhance safety and avoid user conflicts.

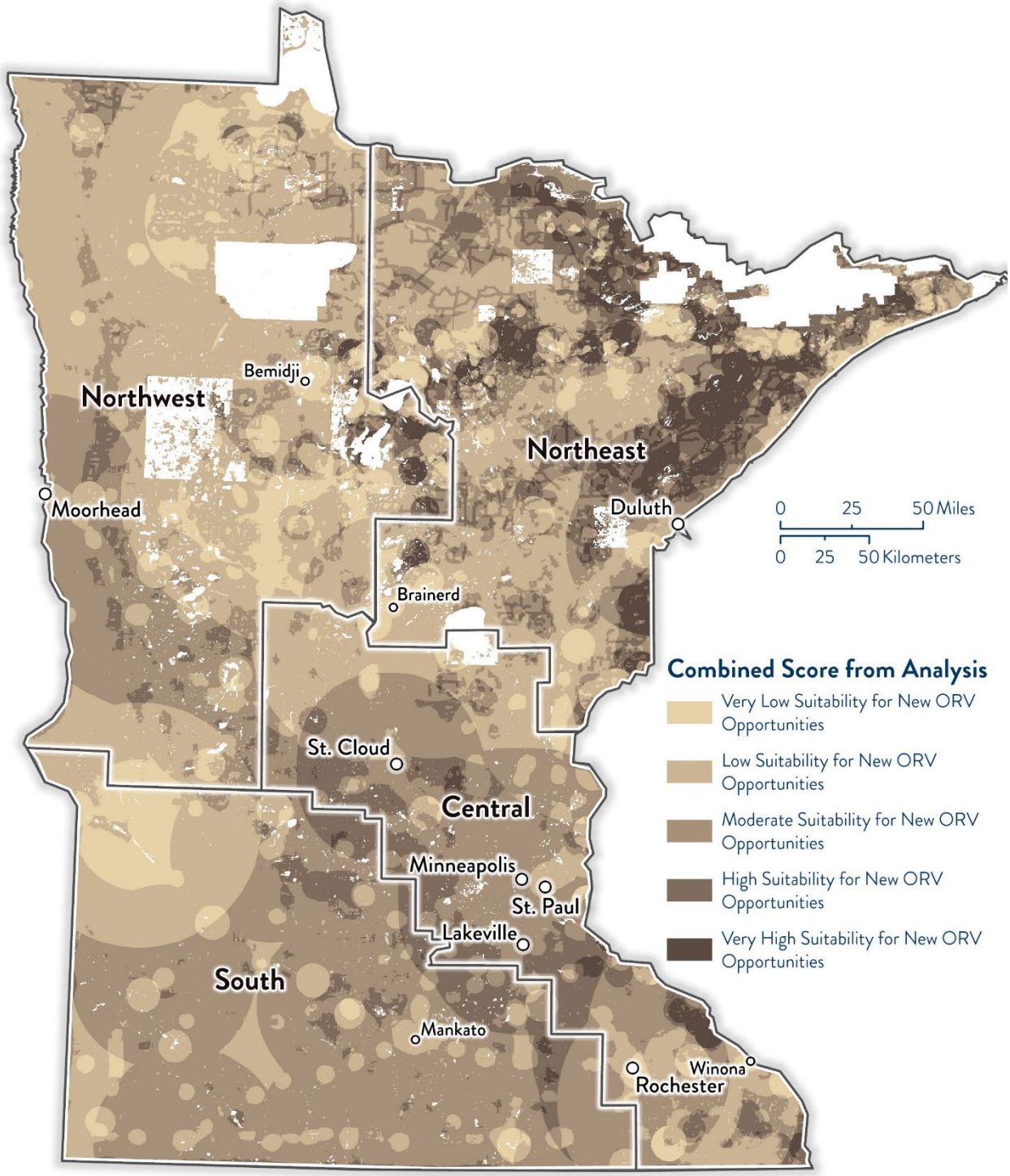
Table 3.3 lists factors considered in human environment analysis, criteria and relative weight.

Table 3.3 Human Environment Analysis Factors

Factor	Criteria	Relative Weight
Campgrounds (state and national forest)	Proximity to existing forest campgrounds (esp. those with ingress/egress)	Medium
Motorized Opportunities (state trails, national forest routes, DNR or grant-in-aid trails)	Distance from existing opportunities — better distributing opportunities across the state	Medium
Non-Motorized Opportunities (state trails, national forest trails, Minnesota trails)	Distance from existing opportunities — maintaining distance between motorized and non-motorized opportunities	Medium
Population	Proximity to large population centers (>50,000 people) and medium population centers (>10,000 people)	Medium-High
Road Density	Lower density road network that provides space to develop new opportunities	Medium
Road Access	Proximity to existing roads	Low

Figure 3.4 shows where human environment elements better support new ORV trail opportunities. Darker areas have proximate campgrounds, road access, and population and would distribute ORV opportunities across the state while limiting conflict with non-motorized recreation opportunities. Identified areas include the western suburbs of the Twin Cities, Wabasha area, areas north of Duluth, St. Croix State Forest area and Northern St. Louis County.

FIGURE 3.4 HUMAN ENVIRONMENT ANALYSIS



3.5 Land Ownership and Management Analysis

The land ownership and management analysis examined how all land within the state is owned and managed in the context of motorized recreation opportunity development and permitting. This analysis considered management direction for both state and federal lands. Several areas where future opportunities are highly unlikely were scored negatively and weighted to effectively preclude them from consideration. This includes state forests designated as closed, state parks and management areas of national forests that do not support new ORV trail opportunities.

Management directions used in this analysis were derived from forest plans of the Chippewa and Superior National Forests, DNR guidance, state statues and state or county policy regarding restrictions on ORV use or new trails (e.g., state parks), and state recreation area management plans.

Table 3.4 lists the factors considered in the land ownership and management analysis and the management criteria. These factors were not weighted as there was no overlap among the land management factors considered here.

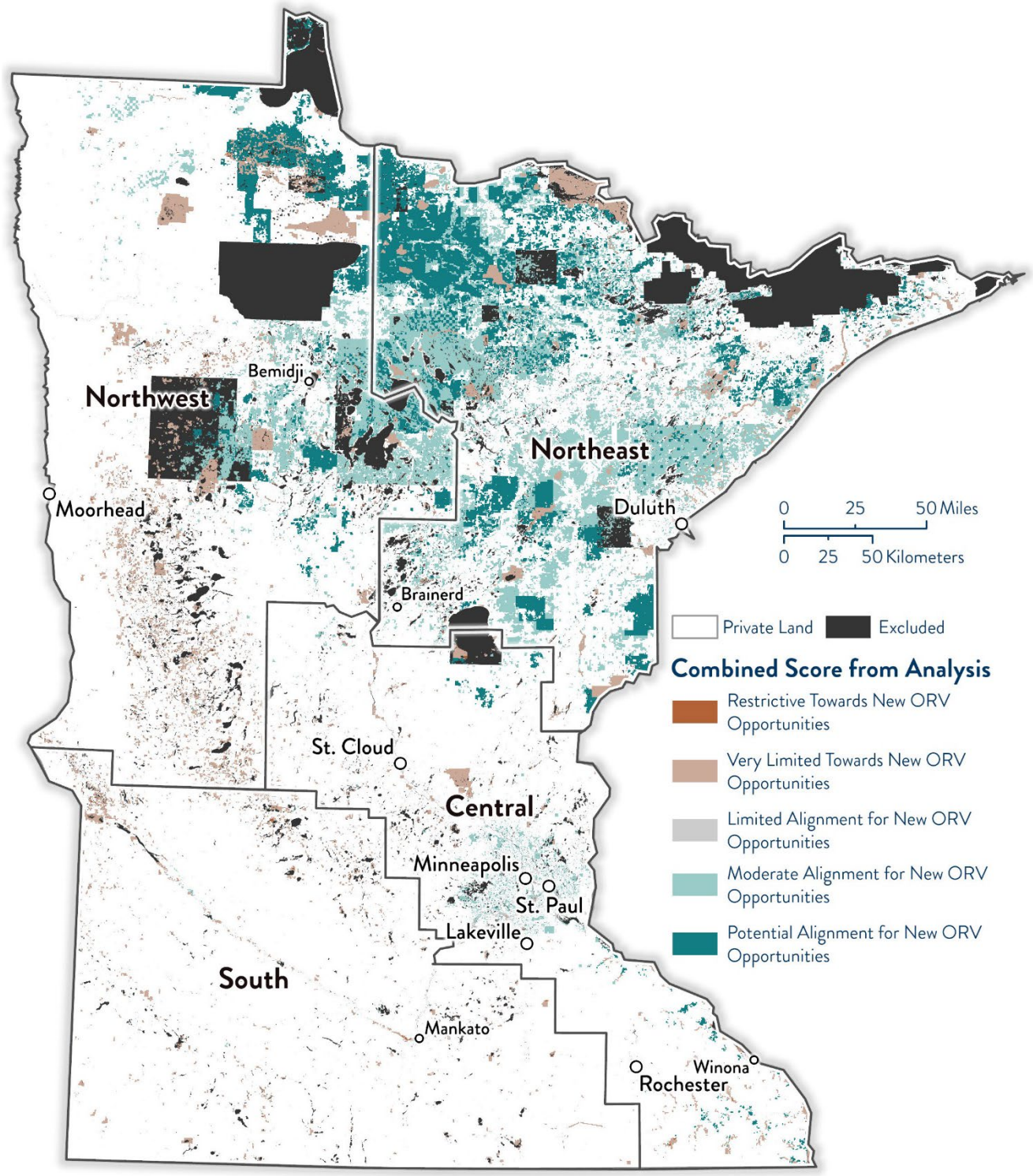
Table 3.4 Land Management Analysis Factors

Factor	Criteria	Relative Weight
Superior National Forest	Dependent on Management Plan	High
Chippewa National Forest	Dependent on Management Plan	High
Voyageurs National Park	ORV opportunities restricted	High
National Wildlife Refuges, Waterfowl Production Areas and Wildlife Management Areas	ORV opportunities restricted	High
MNDOT Land (7-county Metro Area)	Open to new ORV opportunities	High
State Parks and Waysides	ORV opportunities restricted	High
State Recreation Areas	Dependent on the Management Plan	High
Scientific and Natural Area Units	ORV opportunities restricted	High
Aquatic Management Areas	ORV opportunities restricted	High
DNR-managed Ecological and Water Resources	ORV opportunities restricted	High
Other DNR-managed lands	Open to new ORV opportunities	High

Factor	Criteria	Relative Weight
State Forests	Open to new ORV opportunities (Limited/Managed forests); Not open to new ORV opportunities (Closed forests)	High
School Trust Lands	Open to new ORV opportunities	Low
County Land	Varies by county	Medium
Other land	Generally restrictive	Low

Figure 3.5 shows where land ownership and management are better aligned for new ORV trail opportunities. Green-toned areas are likely more open to new ORV opportunities than brown-toned areas. Private land is shown in white. While private land could be secured to develop new ORV opportunities, it would likely require a lengthy process. Prior to development, any future project must go through applicable site-specific environmental review. On-the ground conditions will differ from high-level analysis conditions.

FIGURE 3.5 LAND OWNERSHIP AND MANAGEMENT ANALYSIS



3.6 Recreation Usage and Demand Analysis

The recreation usage and demand analysis incorporated registration data to understand where ORV users reside and where they most often recreate.

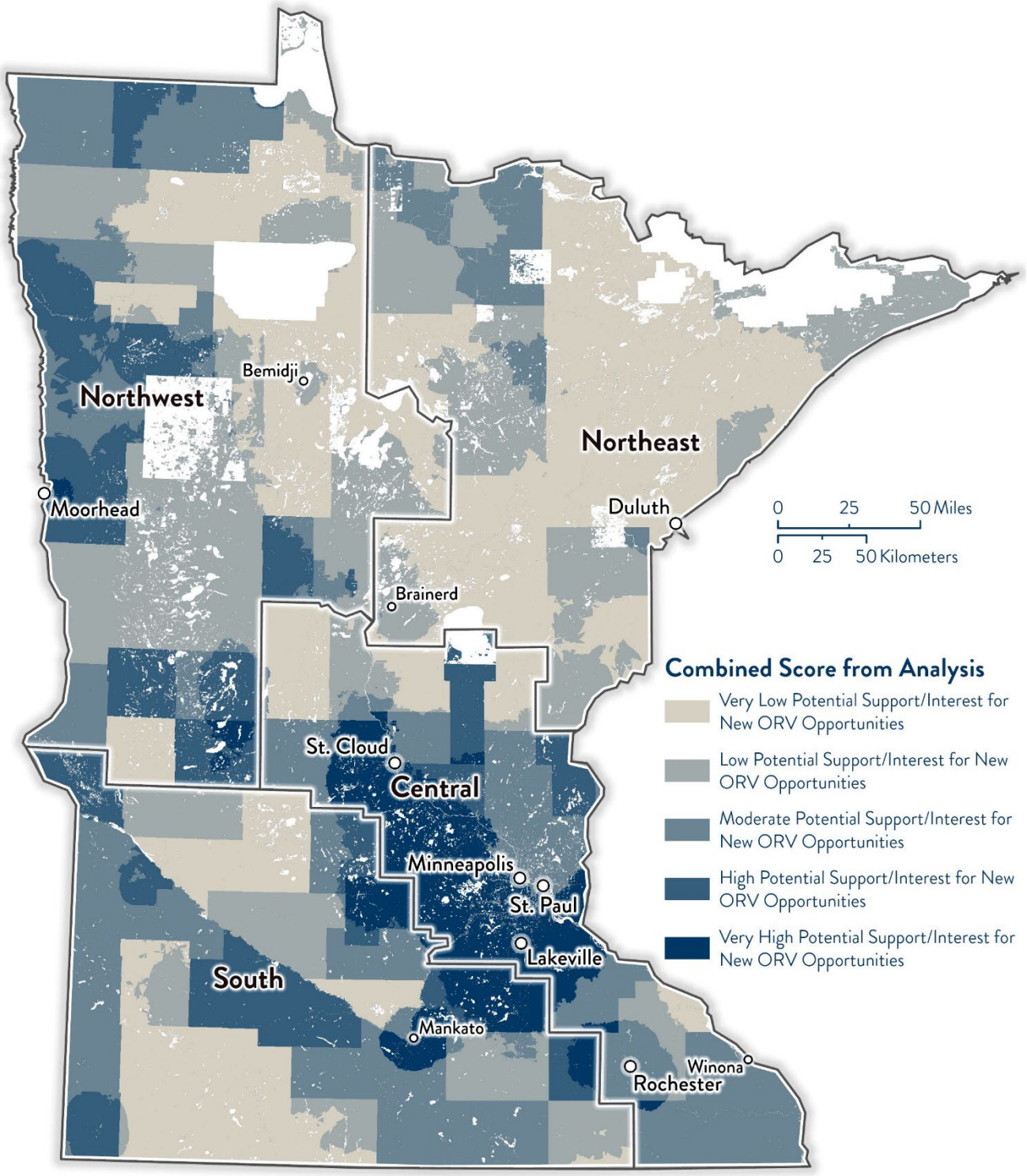
ORV registration data by zip code was examined by the following criteria: total registrations, registrations per 10,000 county residents and county most used compared to registrations in that county. In addition, the population's proximity to the major ORV areas was considered. Areas of the state where registrations are high per 10,000 residents, but opportunities are low, were indicated as highly opportune areas. Areas of the state where existing registrations are low per 10,000 residents and proximity to opportunities are low were indicated as opportune areas.

Table 3.5 Recreation Usage and Demand Analysis Factors

Factor	Criteria	Relative Weight
Registrations	Greater density of registrations by land area	Medium
Registrations per 10,000 residents	Higher registrations per 10,000 residents in a county	Low
County most used compared to registrations	Few people list their resident county as the county most used for ORV recreation	Medium
Registrations relative to existing opportunities	Areas with low existing registrations and low opportunities; Areas with high existing registration and low opportunities	High

Figure 3.6 shows where usage and demand factors suggest greater potential interest or support for new ORV trail opportunities. Darker areas are more likely to have greater interest or support for new opportunities. Areas identified for further evaluation include the Twin Cities suburbs, St. Cloud, the Roseau area, Mankato and Rochester. Notably, St. Louis County and other northern portions of the state do not score high, likely related to the level of existing opportunities and population. From this analysis, we know there is interest in "nearer-to-home" opportunities, and this analysis helps point to where "home" is for many users. Prior to development, any future project must go through applicable site-specific environmental review and on-the-ground conditions will differ from high-level analysis conditions.

FIGURE 3.6 RECREATION USAGE AND DEMAND ANALYSIS



4 THE ECONOMICS OF RECREATIONAL ORV USE IN MINNESOTA

4.1 Current Economic Impact of ORV Recreation

The following analysis estimates the economic impact that ORV recreation generates within the state of Minnesota. Economic impact models were created for existing ORV recreation as well as estimated future ORV recreation. This section also provides information that communities may use when considering whether, or the extent to which, ORV-based recreation fits into their economic development efforts. It should be noted that a direct comparison between economic impacts of ORVs and economic impacts of other recreational activities was not in the scope of this plan. There are some areas of potential conflict or incompatibility of ORV trails/recreational use with other recreational uses (such as state parks or horse trails) that also provide economic benefits, and it is important to keep these tradeoffs and limitations in mind when considering the economic impact of recreational ORV use.

4.1.1 Economic Impact Inputs

Spending associated with travel for the purpose of ORV recreation generates economic activity in the state. Money spent on lodging, dining, gas and groceries supports local economies, helps create jobs and generates tax revenue. Economic impacts of existing and future ORV activity were projected using a computer-based spending throughput model called IMPLAN. IMPLAN modeling requires the estimation of trip frequency and trip spending in order to simulate the effect of recreational ORV activity on the economy in terms of sales, employment, labor income and tax revenues. Four main data points were used to estimate economic impact: the average number of ORV trips per person, the number of registered ORV users, the activity specific trip spending profile (Table 4.1) and the average annual cost to purchase and maintain an ORV (Table 4.2).

The public visioning questionnaire (Appendix D) asked ORV users about trip characteristics including duration, frequency and spending estimates on expenditures such as lodging, dining and fuel. Using this information, it is estimated that ORV users take an average of 11.6 trips per year where ORV recreation is the primary purpose of trips. It should be noted that the public visioning questionnaire was not a random survey of ORV users so actual averages could be bigger or smaller. In 2021, there were 7,111 registered ORVs in Minnesota, which amounts to approximately 82,500 trips per year.

Table 4.1 Average Trip-Related Spending Per Person Per ORV Recreation Trip (2022 Dollars)

Trip Spending Category	Average Spending (Per Trip)
Lodging/Camping Fees	$37.65
Food and Beverage	$54.49
Transportation (fuel and parking fees)	$67.50
Admission/Fees	$18.06
Other (clothing, souvenirs, etc.)	$35.10
Total	**$212.80**

Table 4.2 Average ORV Spending Per Person Per Year (2022 Dollars)

ORV Spending Category	Average Spend (Per Year)
ORVs purchased	$12,130
Repairs	$1,167
Modifications/Upgrades	$ 2,584
Routine Maintenance	$636
Total	**$16,517**

4.1.2 Economic Impact Results

The estimated annual economic impact of ORV-related spending in Minnesota under the existing conditions is detailed in Table 4.3. To best discuss ORV recreation-related spending impact, it is important to define common economic impact terms first. Direct output refers to economic activity stemming from the first round of spending/dollars generated within a specific space due to the presence of an activity or changes in expenditures made by consumers as the result of an activity. For example, purchasing a vehicle from a dealership is direct output. Indirect output refers to business-to-business purchases taking place in a region stemming from the initial purchase and additional economic demand that is placed upon supplying industries as well as inter-industry transactions. Dealerships purchasing parts from an aftermarket parts supplier in order to service customer vehicles is an example of indirect impact. Secondary impacts refer to both indirect outputs as well as induced effects (which are activities that stem from household spending from the people involved in direct and indirect impacts). An example of this would be dealership employees spending their salary at local businesses like restaurants or grocery stores. Value added refers to a business' or industry's total output minus intermediate expenses, and output refers to the total value of a business' production including intermediate expenses.

Recreational trip and ORV spending generates an estimated $53.6 million in direct output, $17 million in indirect output and $30 million in secondary impact for a total economic impact of $101 million. Approximately $20 million in federal, state, county and sub-county tax revenue is generated each year by ORV spending (Table 4.4). ORV recreation also supports 768 full-time-equivalent (FTE) jobs each year. The economic impact figures below are based on public engagement responses.

Table 4.3 Total Estimated Annual Economic Impact (2022 Dollars)

	Employment (FTEs)	Labor Income	Value Added	Output
Direct	493	$25,803,600	$35,462,800	$53,630,100
Indirect	95	$6,064,900	$9,317,100	$17,867,400
Secondary	181	$10,107,100	$17,393,600	$30,081,800
Total	**768**	**$41,975,600**	**$62,173,500**	**$101,579,300**

Table 4.4 Total Estimated Annual Tax Impact (2022 Dollars)

	Sub-county	County	State	Federal	Total
Direct	$1,994,300	$1,082,300	$5,075,700	$5,564,000	$13,716,300
Indirect	$163,700	$89,000	$596,400	$1,280,000	$2,129,000
Secondary	$414,200	$225,000	$1,308,700	$2,219,000	$4,166,900
Total	**$2,572,100**	**$1,396,300**	**$6,980,800**	**$9,062,900**	**$20,012,300**

4.2 Future Economic Impact of ORV Recreation

4.2.1 Future ORV Economic Impact Inputs

Future economic impact was estimated for 2032, approximately 10 years in the future. Assuming an 8 percent growth rate in the number of registered ORVs in Minnesota — which is consistent with growth trends between 2011 and 2021 — there will be approximately 13,243 registered ORV's in 2030. For the purposes of the modeling exercise, trip frequency was held constant and spending inputs were adjusted for inflation assuming a 2.5 percent average annual rate of inflation. Using the same approach to the trip frequency calculations, 13,243 registered vehicles amount to approximately 153,900 trips per year.

4.2.2 Future ORV Recreation Economic Impact Results

ORV activity in Minnesota under 2032 projected conditions is detailed in Table 4.5. Trip and ORV spending is projected to generate $121 million in direct output, $38 million in indirect output and $65 million in secondary impact for a total economic impact of $225 million. Approximately $43 million in federal, state, county and sub-county tax revenue is projected to be generated each year by ORV recreation (Table 4.6). ORV recreation also is projected to support 1,476 full-time-equivalent jobs each year.

Table 4.5 Projected Annual Economic Impact (2032 Dollars)

	Employment (FTEs)	Labor Income	Value Added	Output
Direct	947	$58,125,200	$79,972,900	$120,972,600
Indirect	183	$13,186,400	$20,223,600	$38,861,800
Secondary	347	$21,864,500	$37,670,400	$65,177,700
Total	**1,476**	**$93,176,000**	**$137,866,800**	**$225,012,100**

Table 4.6 Projected Annual Tax Impact (2032 Dollars)

	Sub-county	County	State	Federal	Total
Direct	$4,359,200	$2,365,800	$11,084,300	$12,095,000	$29,904,300
Indirect	$357,900	$194,600	$1,304,900	$2,802,500	$4,659,800
Secondary	$901,000	$489,400	$2,846,400	$4,826,200	$9,063,000
Total	**$5,618,100**	**$3,049,800**	**$15,235,500**	**$19,723,800**	**$43,627,100**

4.3 Community Case Studies

4.3.1 Gilbert, MN

Gilbert, MN is a city of 1,788, located in the Iron Range region of northeastern Minnesota. The main job sectors in Gilbert include health services, manufacturing and retail. The community is located just south of Virginia, MN, one of the more populous communities in the Iron Range. Gilbert is home to the first OHV recreation area in the state, the Iron Range Off-Highway Vehicle State Recreation Area (IROHVSRA). In 2015, the IROHVSRA was named one of the top four off-road parks in Minnesota by The News Wheel, an online off-roading publication.

Motorized Trails and Facilities

The IROHVSRA is Gilbert's main recreational asset and draw for visitors. Located on the site of a former mine, the area contains exciting terrain that has been called a "four-wheeler's dream" by the Mesabi Times, a local paper. The 3,600-acre area includes 36 miles of OHV trails and opportunities of varying levels of difficulty for ATVs, OHMs and ORVs. The park includes a wash station, a thorough network of well-marked trails and several play features. Managed by the DNR, the recreation area is open seven days a week between May and October, closed during Minnesota firearms deer hunting season and open weekends during the winter. Camping is not allowed within the recreation area. Vehicle registration is required to use the trails at the recreation area.

The IROHVSRA is supported by Iron Range Offroad, a business that hosts trainings, classes and events for users around the state. They are a member of several organizations, including Tread Lightly! and the MN4WDA. This business takes advantage of the different difficulty levels of trails at the recreation area to teach both new and experienced off-roading enthusiasts how to operate their vehicles safely and enjoyably.

In Eveleth and Gilbert, off-roading opportunities and associated amenities, such as campgrounds, are well-connected. The IROHVSRA connects to the nearby community of Eveleth via the Genoa Trail (open to ATVs

and OHMs) and offers connections to the nearby Sherwood Forest Campground in Gilbert. This area is nearby the Mesabi Mountain Trail, an ORV-only recreation area. The Mesabi Mountain Trail is open year-round. There are several other off-roading opportunities in the Gilbert area, including a 22-mile multi-use trail that connects the communities of Biwabik, Aurora and Hoyt Lakes through the Superior National Forest (open to ATVs and OHMs).

Recreation and Economic Development

As noted on ironrange.org, the region's tourism website, Gilbert and Eveleth have excellent access to off-roading opportunities and they both possess services (restaurants, camping and lodging) for visitors. Eveleth is also home to Five Seasons Sports, which provides repair and automotive service for OHVs. As a small community with few industries, Gilbert relies on visitation to its OHV facilities to support its retail businesses.

4.3.2 Appleton, MN

Appleton, MN is a city of 1,485, located in Swift County in southwestern MN. Located on the Pomme de Terre River, the community is known for its recreational opportunities. Primary job sectors in Appleton include agriculture, health services, education and manufacturing. The Appleton Area Recreational Park (AARP), which is located 2 miles north of the center of town, is a key recreational asset for the community. Like the IROHVSRA, the AARP was named one of the top four off-road parks in Minnesota by The News Wheel in 2015.

Motorized Trails and Facilities

The AARP is a 330-acre park open to ATV, OHM and ORV use. The park contains 10 miles of ORV-specific trails and is proximate to amenities such as Appleton Lions Campground and local businesses. The park contains several play features, including jumps, a water hole, sand dunes and rock crawls. In addition, the facility features a hiking path, play areas for children and picnic areas. The park is open during daylight hours, seven days a week, year-round. Admission to the park is free, but vehicle registration is required to use the trails at the recreation area. Camping is not permitted within the park. The AARP hosts the annual Prairie Thunder Off-Road Rally, organized by the Prairie Thunder off-roading group. This group and the rally event are sponsored by several local businesses.

Policies and Regulations

The AARP is managed by Swift County. The Swift County park ordinance for AARP, which was approved in 2011, establishes the allowed and prohibited uses within the park. The county also allows the operation of ATVs, mini-trucks, utility task vehicles and motorized golf carts on county roadways within Swift County. The intent of this policy is to "provid[e] an economic benefit to Swift County citizens by allowing operation of [alternative] vehicles… to access our cities, businesses, golf courses, parks, and trails". The county requires drivers to obtain a Swift County Special Vehicle Use Permit to operate these vehicles on county roadways. The City of Appleton allows ATVs to travel on city streets, provided that the driver obtains a free license from the city. The city website includes a dedicated page for the OHV park. This page contains comprehensive information about the OHV park, including the amenities available, allowed uses and park maps. The page also provides links and resources to register OHVs with the DNR and a link to the Swift County webpage for the AARP. The county's webpage includes a link to a list of places to stay, including the Appleton Municipal Campground and the Prairie West RV Park, both located in Appleton. The list of lodging opportunities also includes hotels and campgrounds in surrounding communities, including Ortonville, Montevideo, Benson and Morris.

Recreation and Economic Development

As noted in the City of Appleton's 2017 Comprehensive Plan, Appleton's recreational assets increase quality of life for residents and have an important role to play in the community's future economic development. The plan contains several goals related to recreation and off-roading, including a goal to support the OHV Park and an annual event held there, and a goal to support and promote Appleton as a "regional recreation center" for off-roading, fishing, disc golf and other outdoor activities.

4.4 Economic Impact Conclusions

Spending associated with ORV recreation in Minnesota generates an estimate of $101 million annually. ORV recreation also generates approximately $20 million in federal, state, county and sub-county tax revenue and supports an estimated 768 full-time equivalent jobs. The economic impact of ORV recreation is not distributed evenly throughout the state, as ORV activity is concentrated in the northern regions of the state. The case studies presented here identify communities that have developed ORV recreation opportunities and likely see positive economic impact as a result of ORV user visitation and spending.

Although a direct comparison between the economic impacts of ORVs and the economic impacts of other recreational activities was not in the scope of this plan, it generally can be concluded that outdoor recreation is a powerful economic development and economic diversification tool. This tool is being utilized by many communities looking to attract visitors, increase quality of life and create jobs. As with any economic development strategy, however, it is important that the specific development activities align with community goals and values identified through community engagement and planning initiatives.

5 PROJECT DEVELOPMENT

5.1 Project Development Process and Flowcharts

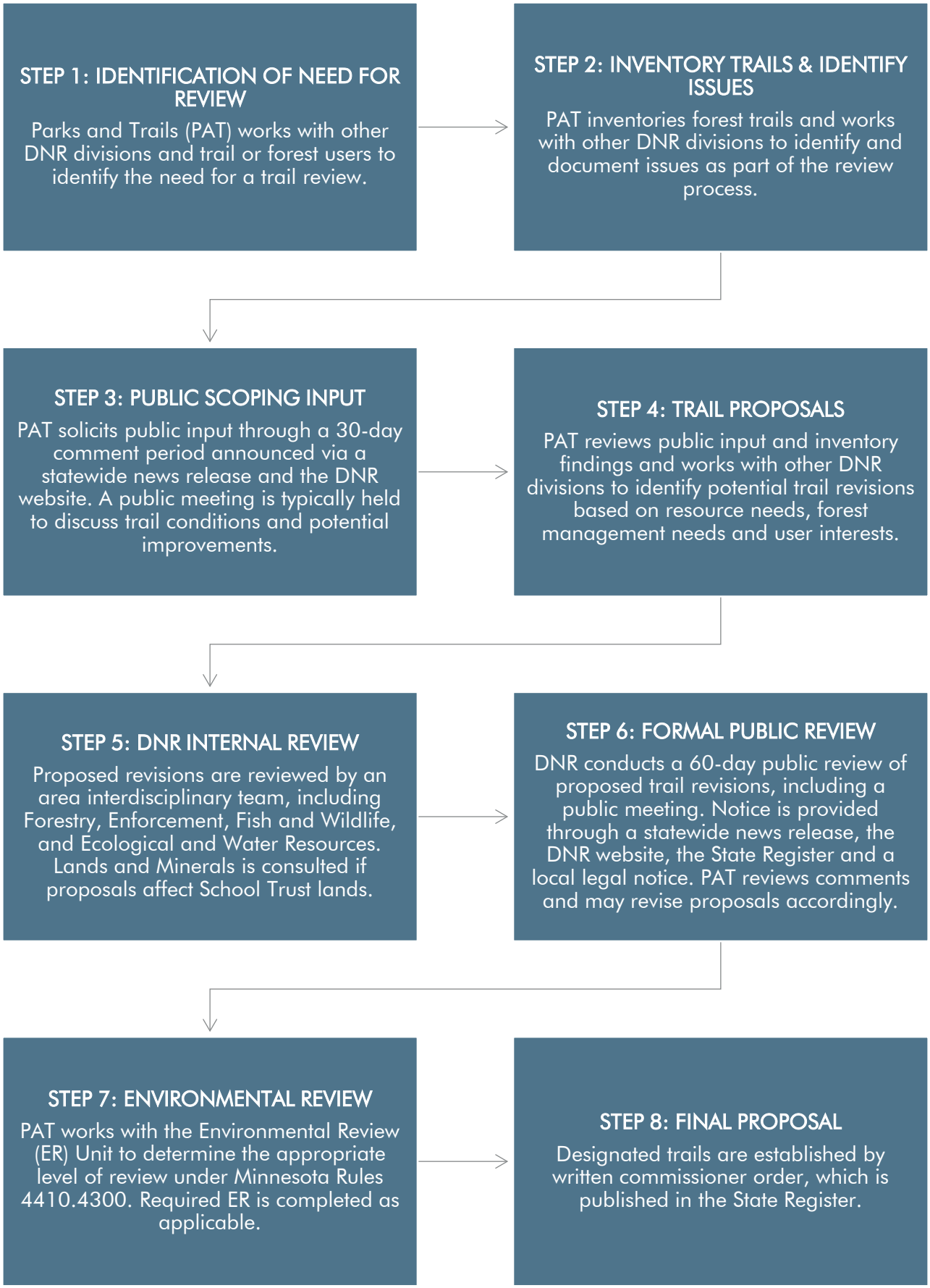
When the DNR oversees a new ORV project, the project development process usually comes in two forms: GIA trail development projects and state-designated trail development projects. Each process has a clear set of steps so all interested stakeholders and partners involved in project review, management and development can track projects from their respective inception to implementation. These steps are demonstrated in the flow charts below (5.1.1 and 5.1.2). These steps aim to provide clarify and transparency so all interested parties can openly communicate regarding project development, process improvements and overall collaborative efforts.

The DNR intends to use all project guidance in the steps demonstrated in the flowcharts. Such an approach produces a consistent system of names and step numbers to refer to for the various stages of project development. It also assists in project communication and messaging, making it easier for all stakeholders to track projects through various stages of development. The processes in the flowcharts are similarly used in other areas of OHV project development (ATV, OHM, etc.) managed by the DNR.

The DNR has developed a seven-step process to review and implement new trail applications for the GIA program, which is shown in section 5.1.1 below. The DNR also reviews state forest trails for sustainability, connectedness and user experience. State forest trail planning can evaluate forest trails and determine if new trails should be considered for connectivity. Parks and Trails leads these evaluations and conducts both internal and external reviews. This process is outlined below in section 5.1.2. The DNR Commissioner designates or undesignates state forest trails through a commissioner's order.

5.1.1 Grant-in-Aid Trails Project Process Flowchart

5.1.2 State-Designated Trails Project Process Flowchart



5.2 Suggested Sustainable Trail Design Guides and Reference Materials

The following trail design guides and reference materials represent the best available guidelines for developing ORV trails that are physically, ecologically and economically sustainable. Collectively, these guidelines provide a comprehensive reference for agencies, trail advocates and other stakeholders. Policy makers can also use these resources as they consider various types of trail development projects. The limitation of these guidelines is that each trail is unique and requires site-specific evaluation to determine the most appropriate design approach. In some cases, refinements or adjustments to the guidelines will be warranted to ensure that the health, safety and welfare of the public is not compromised. While these guidelines are an important reference, they are not a substitute for in-the-field analysis required to make informed decisions about the design and development of a specific ORV trail.

Trail Planning, Design, and Development Guidelines by the Minnesota Department of Natural Resources, Parks and Trails Division (DNR)

Released in 2007, this 300-page publication provides a comprehensive "how-to" guidebook for developing all types of recreational trails and has become a trail design "go-to" throughout Minnesota and the United States. The guidelines and best practices are intended to aid Minnesota land managers in applying new, innovative and environmentally sustainable approaches to trail planning, design and construction. The document can be downloaded from the DNR website.

Trail Construction & Maintenance Notebook by the United States Department of Agriculture, Forest Service (USFS)

First published in 1996 and updated in 2007, the USFS's *Trail Construction & Maintenance Notebook* is a quick, pocket-sized encapsulation of sustainable trail design guidance. Focusing on Forest Service policies and direction, it is a practical guide for trail work that is small and readable. The document can be downloaded from the USFS section of the U.S. Department of Agriculture website.

Designing Sustainable Off-Highway Vehicle Trails, by the United States Department of Agriculture, Forest Service (USFS)

Released in 2013, this guide provides a collection of tools for the construction and management of OHV trails. The guide brings together resources from a variety of sources, including the U.S. Department of Agriculture, Forest Service, the U.S. Department of the Interior, National Park Service, private trail management organizations, the State of Alaska and others. The author developed some of the tools based primarily on experience managing OHV trails in Alaska. The document can be downloaded from the American Trails website.

Great Trails: Providing Quality OHV Trails and Experiences, by the National Off-Highway Vehicle Conservation Council (NOHVCC)

The theme of Great Trails is "balancing the needs of the recreationists with protection of resources." It helps land managers understand that trail planning, design, construction, maintenance and management are not five separate processes but rather one continuous process referred to in the book as "The Great Trail Continuum." The guide stresses the importance of providing trails for users that are fun, challenging and sustainable. The document can be downloaded from the NOHVCC website.

Minnesota Grant-in-Aid Program Manual, by the Minnesota Department of Natural Resources (DNR)

The GIA Program Manual includes many helpful guidelines for trail design, construction and maintenance. It summarizes key trail design information from two other trail development guides: Minnesota Trail Planning, Design and Development Guidelines, and Great Trails: Providing Quality OHV Trails and Experiences. The GIA Program Manual identifies planning constraints such as steep slopes and agricultural lands that affect trail design and other design features that may affect speed, trail sustainability and erosion. It also includes invasive species management expectations and references the DNR invasive species guidance. The manual can be downloaded on the DNR website.

5.2.1 Guiding Principles for Sustainable Trails

The guiding principles discussed below are reflected in each of the suggested trail design guides and reference materials above. Application of these principles will minimize the impact of trails on natural resources and sensitive ecological systems. Importantly, the application of these guiding principles must be balanced against the need to locate trails where they will be of high recreational value to the targeted users, who often want to be close to nature, enjoy beautiful scenes and observe wildlife. This is an important consideration and underscores the need for resource managers and trail designers to work together to determine which values are most important for any given situation.

- Guiding Principle #1: Avoid sensitive ecological areas and critical habitats.
- Guiding Principle #2: Develop trails in areas already influenced by human activity.
- Guiding Principle #3: Provide buffers to avoid/protect sensitive ecological and hydrologic systems.
- Guiding Principle #4: Use natural filtration and best practices for stormwater management.
- Guiding Principle #5: Provide ongoing stewardship of the trails and adjoining natural systems.
- Guiding Principle #6: Ensure that trails remain sustainable.
- Guiding Principle #7: Formally decommission and restore unsustainable trail corridors.

5.3 Developing ORV Projects on the Iron Range

Mining activity has been part of life in northern Minnesota for over 100 years. While there are still many active mining operations throughout the Iron Range, there are also many areas where mineland reclamation is taking place and new recreational opportunities could be explored. The paved Mesabi bicycle trail, Giants Ridge Ski Area and the Minnesota Discovery Center are all examples of recreational venues developed through mineland reclamation. The IROHVSRA in Gilbert is another excellent example of mineland reclamation supporting recreational development. This sort of development allows for the utilization of previously disturbed lands while creating a unique recreational opportunity and celebrating the regional heritage of the Iron Range.

While there is the potential for possible reactivation of the lands for future mining activity, recreational trails present an excellent opportunity for interim economic development on these lands as they are much easier to relocate than other forms of development such as buildings, factories and roads.

6 FUTURE STRATEGIES

This strategic master plan aims to bring clarity to maintenance and development of the ORV trail system in Minnesota. Many of the strategies for future opportunities discussed in this chapter are already incorporated into day-to-day DNR operations.[21] The strategies included in this chapter are incorporated to provide transparency for all those interested in ORV recreation in Minnesota. It is important to recognize that capacity for growth in any trail system is limited due to many factors ranging from maintenance and management needs, a need to balance use types and user levels, limitations in funding and an acknowledgement that not every location is suitable for all types of OHV recreation. There are also certain types of opportunities that are more conducive to private enterprise than to the public trail system. As ideas and opportunities arise for new ORV trails, the DNR will carefully evaluate all of these considerations and strategies outlined in this chapter and engage with a variety of stakeholders before determining if a specific proposal/opportunity would meet an identified need and align well with the existing trail system.

6.1 Trail Maintenance

For any trail system to be sustainable, adequate maintenance must be a priority. It is important to understand current maintenance needs and to respond to them in a timely manner. Maintenance funding is limited, and before adding new trails it is critical to be sure there are sufficient resources to take good care of the trails we already have. Clubs are pivotal in monitoring trails and evaluating them for maintenance needs and in communicating those needs with the DNR and other stakeholders.

The DNR works with user groups, clubs and trail users on a regular basis to make sure maintenance issues are understood and addressed. Holding seasonal user group meetings helps in facilitating ongoing conversations regarding trail maintenance; this practice should continue. It is also important to communicate internally regarding trail maintenance needs. The OHV program should continue to work closely with regional specialists, area offices and divisional staff to ensure maintenance needs are understood and addressed.

The DNR (together with the LGU and club for trails in the GIA program) to monitor trails and address any maintenance concerns. For designated trails, the DNR will explore developing a schedule prior to the start of the riding season to monitor the trail throughout the season. For GIA trails, the DNR should work with the LGU and club to identify maintenance priorities and a monitoring schedule.

The DNR has a roving maintenance crew that can assist with larger OHV trail projects. The roving crew consists of experienced trail builders with specialized equipment to perform maintenance projects. DNR area supervisors can request the roving crew for specific projects. For GIA trails, most maintenance is performed by ORV clubs, with 90 percent of costs reimbursed through the GIA Program. A club may request DNR assistance, including the roving crew, for major projects or storm clean up.

[21] During their analysis, SE Group developed considerations and opportunities broken out by DNR region which are detailed in Appendix C.

6.1.1 Trail Maintenance Strategies:

- Communicate maintenance needs by regularly meeting internally and externally with user groups, clubs and LGUs. These efforts can be led by OHV program staff.
- Develop best management practices that support sustainable trail conditions (e.g., water mitigation measures), reduce erosion and protect natural resources (e.g., invasive species prevention and management).
- Develop a trail monitoring schedule at the beginning of a riding season.
- Continue to monitor trails in state forests and update signage as needed to reflect changes in conditions, such as those resulting from logging or other forest management activities.

6.2 Connectivity

Connectivity within the ORV trail system was highly prioritized by ORV users in the visioning questionnaire. Improved connectivity between riding areas can enhance the overall user experience, improve the efficiency of the statewide trail system (i.e., reduce the potential for redundancies by connecting areas with different offerings in terms of ability level or type of experience) and reduce user density in individual riding areas by creating defined connection paths that can help reduce instances of user created trails.

Enhancing connectivity throughout the statewide ORV route and trail system should be an overarching goal for new ORV development and re-route projects. New connectivity corridors should be pursued between riding areas and challenge parks (such as the IROHVSRA) within each region. New connections between riding areas/challenge parks and nearby downtowns/shopping districts can — if desired by the community — be prioritized to enhance local recreational access and economic development opportunities.

Connectivity strategies can be planned for slightly differently than other ORV opportunities in terms of desired experiences and terrain suitability — these projects may sometimes focus more on access between "Point A" and "Point B" than on the recreational experiences of the trail—but all the guidelines for resource suitability, resource protection and trail sustainability still apply. Options to enhance and reclassify existing and previously disturbed corridors that already traverse the landscape such as former rail corridors, transmission rights-of-way or highway rights-of-way should be explored where possible.

The Border-to-Border Touring Route (B2B) will provide a quality adventure touring route — an ORV experience that is in high demand but not currently available in Minnesota. The route will consist entirely of roads currently open for public use, including state and national forest roads as well as township, county and state roads. Many of these roads feature dirt, gravel or other rugged surfaces. Maps, signs or other roadside markers will indicate the route. Only highway-licensed vehicles currently allowed on these roads will be able to travel the entire B2B. Connections between the B2B and existing ORV opportunities and riding areas can be prioritized for future ORV development, as could new ORV projects that can connect into the B2B.

The B2B generally follows an east-west corridor spanning the state from the North Dakota border to the shores of Lake Superior. A similar touring route that generally connects the Twin Cities area to either the B2B or other riding destinations in the north could also be explored. This would help address the long distances most ORV users in Minnesota are traveling to access opportunities, making the journey to more expansive northern riding areas "part of the fun."

6.2.1 Connectivity Strategies:

- Place greater emphasis on maintaining and improving existing trails than on creating new trail systems.
- Prioritize the development of connections between riding areas and other points of interest to enhance local recreational access and economic development opportunities. Strategic connections between existing riding areas can greatly enhance user experience and increase trail mileage with relatively low upfront investment.
- Prioritize connections between the B2B and existing ORV opportunities and riding areas.
- Explore feasibility of other ORV touring routes in the state similar to the B2B.

6.3 Grant-in-Aid Process Modernization

As noted previously in this plan, GIA is a partnership between the DNR and a local government unit (LGU) such as a county, city or township. Typically, the LGU will partner with a club to assist with trail construction and maintenance. Proposals are often initiated by a club, which then finds an LGU to act as the project sponsor. The LGU, in partnership with the club, then submits an application for the proposed GIA trail to the DNR. Detailed information regarding the GIA Program and New Project Applications can be found on the MN DNR OHV webpage and in Chapter 5 of this plan. Although the official partnership is between the DNR and the LGU, the communications between the DNR and the club are just as crucial to a successful GIA trail. Throughout the proposal review process, the DNR, LGU and club each have important roles in submitting, reviewing and processing a New Project Application. Until recently, each party mailed hand-written, hard copy forms to the others to move the process along and it was difficult at times for the LGUs, clubs and other interested parties to know the status of any given application.

In 2021, the DNR started an improvement process to review the GIA Program, increase efficiency and ensure the program was working well for stakeholders and members of the public. The process included engagement with OHV organizations (MN4WDA, ATV Association of Minnesota and Amateur Recreational Motorcycle Club Association) and club members to identify what could be improved. Outcomes of this process include updated reimbursement amounts that better reflect existing construction and maintenance costs as well as the addition of an application for winter trail grooming, plowing and maintenance costs. This improvement process could be further expanded to include a project notification system intended to notify people who opt-in to receive OHV-related updates. Such an improvement process could also lead to enhanced alignment of project review with strategic master plan goals.

6.3.1 GIA Modernization Strategies:

- Consider utilizing an online project proposal interface where all parties can see the status of the project, who has reviewed the information and who is the next reviewer.
- Monitor the GIA proposal process and ensure that the information from proposals is being digitally recorded. Information gleaned from proposals can help guide future management actions.
- Encourage clubs to work closely with DNR staff in early stages of the GIA proposal process to ensure the proposal is complete.
- Evaluate the possibility of requiring GIA proposals to include multiple trail alignment alternatives or a larger corridor within which a preferred alignment could be identified after review of site-specific conditions and considerations.

6.4 Coordination and Collaboration Opportunities

The overarching goal of the OHV Program's stakeholder and partner engagement and coordination should be to support participatory and collaborative planning in the program's projects and activities. Coordination and collaboration involves external stakeholders and partners and internal cross-disciplinary review. The goal is to provide clear information available to all partners on how the engagement process is going to be carried out. It is important to emphasize the importance of listening to the pros and cons of any idea or viewpoint as such an active listening process often leads to a greater understanding of multiple interests.

To ensure the DNR's three-part mission is achieved, collaboration across DNR divisions and subject matter experts must be pursued throughout the ORV maintenance and development process. The DNR OHV Program identifies specific staff/positions within each division to be involved in various points of a given project, which is referred to as 'interdisciplinary review'.

6.4.1 Coordination and Collaboration Strategies:

- Provide clear access to information for ongoing/new projects and activities.
- Continue to prioritize interdisciplinary review across DNR divisions early in the GIA proposal review process and for any DNR-led projects.
- Provide mechanisms for clubs, LGUs and others interested in ORV recreation to share their contact information with the DNR to be notified of press releases and announcements concerning various ORV-related projects and activities.
- Prioritize DNR staff and recreation provider relationships with ORV clubs by encouraging attendance at annual meet ups, maintenance workshops, virtual monthly meetings, etc.
- Increase volunteer maintenance capacity by encouraging volunteer attendance at annual trail maintenance workshops and communicate training needs and requirements (e.g., chainsaw certification, best practices for managing invasive species) to potential volunteers.
- Partner with Explore Minnesota and local destination marketing organizations to create more user-oriented maps and trail friendly business materials that can encompass relevant businesses, services, lodging, downtowns and shopping districts.
- Engage early and often with local and county leadership; also include LGU staff involved in economic development, permitting, planning, lands management, and roads and transportation.
- Build upon and update over time the existing contact database of stakeholders, collaborators and partners to include specific contacts at local and county government, conservation groups, economic development and tourism entities, user groups, land managers, local businesses and other parties interested in ORV development.
- Identify practical ways to coordinate with agency partners on long-term OHV monitoring, with the goal of informing adaptive management and sharing relevant findings.

6.5 Policy and Regulations

Policy and regulations, along with education, are the primary mechanisms land management agencies can use to manage recreational activities. Accordingly, the DNR has developed a system to deliver clear and consistent communication of policies and regulations across the agency and to stakeholders. It is also

important to address trespass issues involving trails that are adjacent to or travel through private land (with landowner permission). Using an adaptive management approach to land and resource management, the DNR can continually review and modify ORV policy and regulations over time to ensure recreation activities are properly managed on public land and on public land adjacent to private land.

6.5.1 Policy and Regulations Strategies:

- Continue to communicate vehicle classifications and regulations, such as noise limits, youth operation, etc., as simply and easily as possible and seek to have multiple channels and/or presentations that include printed regulations, interactive websites, signage and other means.
- Institute programs where restoration projects can be identified and applied for by DNR staff, county and local partners, or interested residents and organizations.
- Create an interdisciplinary team to identify criteria for prioritizing restoration projects.
- Encourage productive reuse of previously disturbed lands and existing roads.
- Prioritize trail development in previously disturbed areas, such as inactive mining lands.
- Make use of existing roads that could be suitable as trails. Avoid using existing roads that would not be suitable and would create erosion issues, such as certain logging roads.
- Emphasize law enforcement initiatives for violations that occur off-trail, in wetlands, in streams and along lakeshores.
- Consider the creation of an ORV Trail Ambassador program to encourage safe and ethical wheeling on public trails and to monitor trail conditions.

6.6 Understanding and Responding to Use Trends

Understanding use patterns and addressing evolving trends in recreational use is critical to effectively managing ORVs. Tracking ORV registrations, developing a trail use assessment program that utilizes trail traffic counters and conducting post-ride or intercept surveys with users will be important strategies in understanding trends and adapting management strategies over time.

6.6.1 Strategies for Responding to Use Trends:

- Continue to partner with MN4WDA and other local clubs to conduct on-going trail traffic monitoring.
- Explore feasibility of providing additional maps, information, toilet facilities and campsites at wheeling locations.
- Create a clear process for requesting, evaluating and conducting allowable motorized events on state managed lands.

6.7 ORV Communications

The DNR continues to pursue opportunities to improve communications with users through all of its messaging, particularly with regard to maps and other navigation information. An integrated and consistent graphic style for the ORV program with consistency across websites, trailhead and on-trail signage, project plans/documents, regulation books and other materials could improve overall communications. More information about the GIA Program could be shared with Minnesota residents to raise awareness about the program generally.

The results presented in Appendix E and the opportunities and constraints analysis presented in Chapter 3 reflect a general lack of awareness of ORVs as a distinct recreational activity within the general public. These analyses found significant opportunities to raise awareness about ORVs, share information about their sustainable use and potentially shift the overall public perception of ORVs in Minnesota. However, as a state agency responsible for managing public lands for a wide range of recreational activities and other ecological and non-recreational values, the DNR is not in a position to engage in a public perception campaign for ORVs. Such a campaign would need to be organized and conducted by MN4WDA, clubs and/or other interested partners. MN4WDA, tourism partners, ORV retailers and businesses, and other interested parties could also partner together to promote and market Minnesota and local riding areas as ORV tourism destinations in the state, region and nation.

6.7.1 ORV Communications Strategies:

- Promoting the GIA Program
  - Share information about project development, benefits of recreation, landowner liability, etc.
  - Support collaborative efforts between clubs and local landowners.
- Improving Mapping and Navigation Information
  - Conduct ongoing assessments of users' informational needs, particularly pertaining to maps and navigation.
  - Make mapping and other public data available to others for use in local/regional trail maps and websites.
  - Partner with Explore Minnesota and local destination management organizations to create more user-oriented maps.
- Create a trail advisory group with representatives from a variety of motorized and nonmotorized trail users, including ORV users, to provide input to the DNR as we manage public lands for multiple uses and to improve communication among user groups.

6.8 ORV Education and Stewardship

Education is a critical element of enhancing stewardship at the local, state and even national level. The Division of Enforcement provides the bulk of ORV recreation-oriented education in Minnesota, but there are opportunities for improving education and information-sharing with the ORV community. There are also opportunities to encourage stewardship and empower greater conservation of natural resources through better information.

6.8.1 ORV Education and Stewardship Strategies:

- Continue to provide videos and other educational information on vehicle classification, wheeling etiquette, regulatory compliance and stewardship.
- Promote awareness of sustainable trail practices and the trail design guidelines referenced in Chapter 5.
- Collaborate with other DNR divisions and natural resource specialists to share public data on wildlife, habitat, natural communities and sustainable trail best practices with users through partnerships with MN4WDA and local clubs.

- Add stewardship-focused questions to GIA New Project Applications to help the DNR continue to ensure sustainability and stewardship in any proposed operations.
- Identify ways to easily communicate differences in all OHV types (ORVs, ATVs, OHMs, etc.) and vehicle classifications targeted at both users and non-users.

6.9 Summary

It is important to continue to emphasize that maintenance and the ongoing review of Minnesota's current ATV trail system are important to the system's sustainability. It should also be reiterated that ecological impact is at the forefront of sustainability considerations and is paramount to the DNR. Being sure to consider the role that connections to neighboring communities and existing trails can play in local economies and user enjoyment of ORV trails can also guide key decisions regarding ORV trail development. Planning can help ensure a sustainable and enjoyable recreation system for all Minnesotans to explore while simultaneously promoting responsible ORV trail management and best riding practices through education, outreach and stewardship.

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APPENDIX A: STAKEHOLDERS AND PARTNERS INVITED TO PARTICIPATE

- 4x4 Unlimited
- Action Sports
- Aitkin County Economic Development
- Amateur Riders Motorcycle Association (ARMCA)
- Arrowhead Regional Development Commission
- ATV Association of Minnesota (ATV MN)
- Backcountry Hunters and Anglers
- Bagley Motor Sports
- Bemidji Sports Centre
- Bike MN
- Bluffton Hardware
- Cannon Power Sports
- Chopper City Sports
- Conservation MN
- Cook County Joint Economic Development Authority
- County, City and Township Government
- Cross Thread Offroad
- Cuyuna Lakes Mountain Bike Crew
- Dan's Mobile Repair
- Derby 4 Wheel Drive
- Duluth Audubon Society
- Duluth Foot Trails Alliance
- Environment MN
- Environmental Initiative
- Environmental Law and Policy Center
- Explore Minnesota
- Extreme Terrain
- Five Seasons Sports
- Forest History Center
- Freedom Ridge
- Fresh Energy
- Friends of Sax-Zim Bog
- Friends of the Minnesota Valley
- Frontenac Farms Off Road Park
- Frontier Powersports
- Guided Overland Adventure Tours
- Honor the Earth
- Howling for Wolves
- Iron Range Tourism
- Iron Rock Off Road
- Izaak Walton League
- Lake Vermilion Resort Association
- Lakes Area Powersports
- Lakeville Off-Road
- Legacy of Nature Alliance
- Mille Lacs Area Tourism Council
- Minnesota 4 Wheel Drive Association
- Minnesota Association of Land Commissioners

- Minnesota Center for Environmental Advocacy
- Minnesota Deer Hunters Association
- Minnesota Environmental Partnership
- Minnesota Environmental Partnership
- Minnesota Nordic Ski Association
- Minnesota Off-Road Cyclists
- Minnesota Public Lands Coalition
- Minnesota Recreational Trail Users Association (MRTUA)
- Minnesota Trail Riders Association (Equestrian)
- MN Land Trust
- MN USA Snowmobile
- MN350
- Motorized vehicle associations
- Nature Conservancy
- North Country Trail Association
- Northeast Minnesotans for Wilderness
- Northern Drivetrain
- Northstar Powersports
- Parks & Trails Council of Minnesota
- Parks & Trails Legacy Advisory Committee
- Power Lodge Brainerd
- Power Lodge Mille Lacs
- Proctor Tourism
- Public land organizations
- Ray's Sport & Marine
- Regional Chamber of Commerce members
- Save Our Bluffs
- Save the Boundary Waters
- Sidco 4x4
- Sierra Club North Star Chapter
- St. Paul Audubon Society
- Superior Hiking Trail Association
- The Belwin Conservancy
- The Nature Conservancy in Minnesota
- The Shop
- The Wildlife Research Institute
- Tousley Motorsports
- Trail Administrators for trail systems across the state
- Trust for Public Land
- Two Harbors / Lake County
- Upper Minnesota Valley Regional Development Commission
- Visit Ely
- Visit Grand Rapids
- Voyageurs Conservancy
- Wilderness in the City
- Women's Environmental Institute
- Zeus Off Road

Note: A public project website was available for all members of the public to gain insight and updates regarding the strategic master planning process.

APPENDIX B: SPATIAL ANALYSIS DATA

Geographic Scope Determination

- NLCD Land Cover
- National Wilderness Areas
- MN DNR Regions
- Tribal Land Data

Natural Environment Analysis

- National Wetland Inventory for Minnesota
- State Designated Trout Streams
- MNWAP Wildlife Action Network Habitat Mapping
- NLCD Land Cover
- MN DNR Native Plant Communities
- USA Soils Erosion Hazard
- FS Lynx Critical Habitat
- MN DNR Moose Habitat
- MN DNR Conservation Opportunity Areas

Terrain Analysis

- Lidar Elevation Data for Minnesota (slope, elevation range)

Human Environment Analysis

- Campgrounds (FS and MN DNR Mapping)
- Minnesota Trails – Division of Parks and Trails
- MN State Recreation Areas
- MN Roads
- ESRI Population Data
- MN Townships
- National Forest System Trails
- National Forest System Roads
- Motor Vehicle Use Map: Roads
- Motor Vehicle Use Map: Trails
- MN State Recreation Area Activities

Ownership and Land Management

- State Parks and Waysides
- State Recreation Areas
- Administrative Forest Boundaries
- MN Scientific and Natural Area Units
- Superior National Forest Management Areas
- Chippewa National Forest Management Areas
- Waterfowl Production Areas
- National Wildlife Refuge System
- State Surface Interests Administered by DNR or by Counties
- State Forest Statutory Boundaries and Management Units
- School Trust Lands
- State Administered Lands - DNR Management Units
- MNDOT Land (7-County Metro)

Recreation Usage and Demand Factors

- ESRI Population Data
- MN Registration Data
- MN ORV Strategic Master Plan Representative Sample Survey Results (see Appendix E)

APPENDIX C: SE GROUP'S ANALYSIS OF REGIONAL OPPORTUNITIES

Central Region Opportunities

Home to the Twin Cities metropolitan area, the central region has both the most ORV demand in the state and the most urbanized landscape and constraints. Future ORV opportunities in this region could focus on smaller challenge parks, shorter ORV routes and experiences in places where they can fit into the urban and suburban context of the region.

Northeast Region Opportunities

The northeast region is more rural, with vast areas of remote national forests, state lands and minelands across the Iron Range. This region offers high terrain suitability for ORV use, but also presents natural resource constraints that must be addressed through careful planning and analysis. Priorities in this region could emphasize the development of ORV challenge areas that include a range of trail experiences such as skills areas, hill climbs and rock crawling.

Northwest Region Opportunities

While the northwest region is also less urbanized than the central region, its terrain and land use patterns differ significantly from those of the northeast, creating distinct challenges for ORV development. Agricultural and tribal lands are more prevalent in this region, which may require additional coordination with landowners, stakeholders and interested parties. Priority opportunities could focus on building partnerships to develop small ORV destinations that serve as regional base camps for users of the Border-to-Border touring route.

Southern Region Opportunities

The southern region has relatively fewer state and public lands compared to other three regions, and its terrain is less suitable for ORV use. While these limitations make it more difficult to identify new ORV opportunities, they do not preclude their development. Identifying suitable locations for new trails and routes will require targeted planning. Additionally, there may be a need to acquire more public lands in the region to enhance recreational opportunities, within which designated ORV areas could be established.

APPENDIX D: VISIONING QUESTIONNAIRE RESULTS

Questionnaire Summary

The Minnesota ORV Public Visioning Questionnaire received 1,428 responses of which 870 (61 percent) were complete and 558 (39 percent) were partial or incomplete. The questionnaire was open from November 18, 2020, to February 28, 2021 and was taken primarily by Minnesota residents, although it was answered by some non-residents who were interested in providing feedback on their experience with ORV's in Minnesota. This questionnaire was initially announced and launched on November 18–directly after the Public Visioning Summit. The questionnaire was advertised on a variety of platforms including MN4WDA social media, the project website, MNDNR news releases and newsletters, and Outdoors Weekly — a news website that posts information updates on recreation in Minnesota, Wisconsin and the Dakotas.

Key Findings

DEMOGRAPHIC: Questionnaire respondents were predominantly white males between the ages of 30 and 50.

CLUB MEMBERSHIP: Of the respondents who stated they currently use an ORV, about half stated they are a member of an ORV club or organization.

SEASONALITY: Most respondents wheel or off-road significantly less in the winter months, with many respondents stating they use their ORV to go ice fishing, but otherwise prefer snowmobiling. However, around a quarter of respondents stated they still wheel once or twice a month in the winter.

EXPERIENCE: The majority of respondents rate their off-roading experience positively, with 32 percent responding "excellent" and 48 percent responding "good".

PROXIMITY: Most off-roaders travel out of their home county to find ORV opportunities, with an average travel time of over 3 hours to reach frequented destinations. Only around 20 percent of respondents stated there are adequate ORV opportunities within an hour of where they live.

FAVORITE PLACES: Respondents identified their favorite places to wheel or off-road as places that offer a diverse set of trail experiences, scenic qualities and group riding opportunities.

TRAIL EXPERIENCES: Most wheelers stated they find touring routes, overlanding and soft roading/light wheeling most enjoyable. Mudding, rock racing and rock bouncing appeal to a smaller subset of wheelers.

MANAGEMENT ACTIONS: Many respondents supported management items such as including maps of ORV areas/trails at trailheads/access points, signs indicating trail difficultly and length, ORV play areas, toilet facilities and additional campsites.

PLAN CONSIDERATIONS: Top rated plan considerations included increased funding for ORV route and trail development, enhanced recreation opportunities for ORVs and increased access to nature and the outdoors. For non-ORV users, top plan considerations included reduced impacts to wildlife, sound and soil.

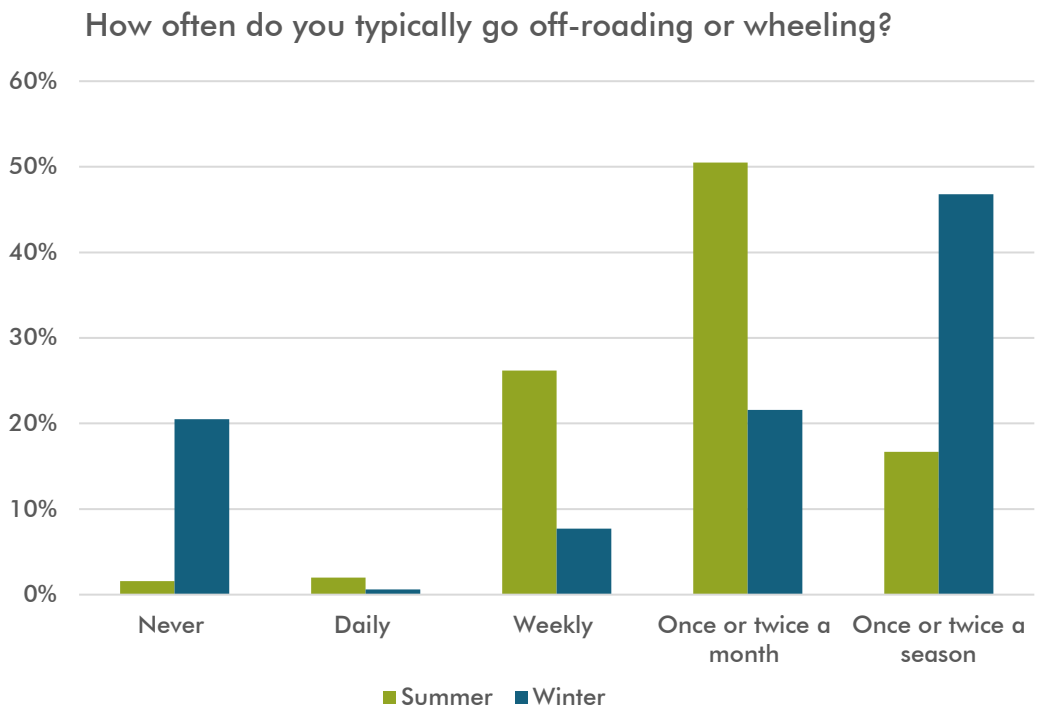
Respondent Demographics

- **GENDER:** 78 percent male, 20 percent female, 2 percent no response or other
- **AGE:** Most respondents were between the ages of 30 and 50, with only about 11 percent between 18-29. 24 percent of respondents were over 60.
- **RACE:** Respondents to this questionnaire were predominately white (89 percent). 2 percent of respondents stated they were two or more races, and 6 percent of respondents preferred not to give a response. 2.5 percent of respondents stated their ethnicity as Asian, Black or African American, Native American, or Native Hawaiian or Pacific Islander.
- **INCOME:** 5 percent of respondents reported a household income of less than $35,000. 30 percent of respondents reported a household income between $35,000 and $75,000. 36 percent of respondents reported a household income between $75,000 and $125,000. 29 percent of respondents reported a household income of over $125,000.
- **RESIDENCY:** 94 percent of respondents live in Minnesota, 3.4 percent in Wisconsin and 1 percent in North Dakota.
- **COUNTY:** Respondents from 79 different counties in Minnesota participated in this questionnaire. The counties most represented were:
    - Hennepin County (13 percent)
    - Dakota County (7.6 percent)
    - Anoka County (7 percent)
    - St. Louis County (6 percent)
    - Washington County (4 percent)
    - Ramsey County (4 percent)
    - Olmsted County (4 percent)

ORV Users

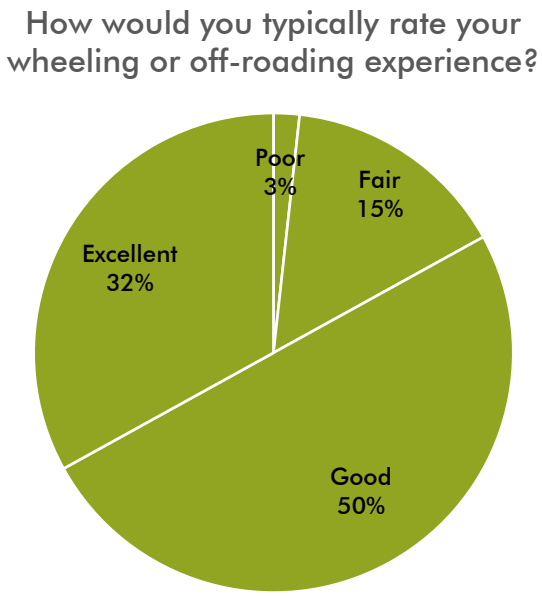
User Profile

- **ORV PARTICIPATION:** 80 percent of questionnaire respondents stated they currently use an ORV.
    - Of the 20 percent who stated they do not currently use ORV's, 46 percent (n=130) stated they had at one point used an ORV for recreation.
    - 48 percent of those who currently use an ORV stated they are a member of an ORV club or organization (n=413).
    - Of those who are club members, 38 percent stated their club maintains trails through the GIA Program, and 24 percent stated their club does not currently but would like to do so.
- **USE FREQUENCY (SUMMER):** In the summer months, wheelers reported off-roading typically about once or twice a month (50 percent). 26 percent stated they off-road weekly, and 16 percent state they off-road once or twice a summer. Write-in comments included interest in going more if trails were closer and suggested that ORV use may be higher during hunting season in the fall.
- **USE FREQUENCY (WINTER):** 20 percent of respondents stated that they do not go wheeling in the winter months, 46 percent stated they go once or twice during the season, and 21 percent stated they go once or twice a month. Write in comments spoke to a lack of opportunity to off-road in the winter, that they use their ORV to go ice fishing or that they prefer snowmobiling in the winter.

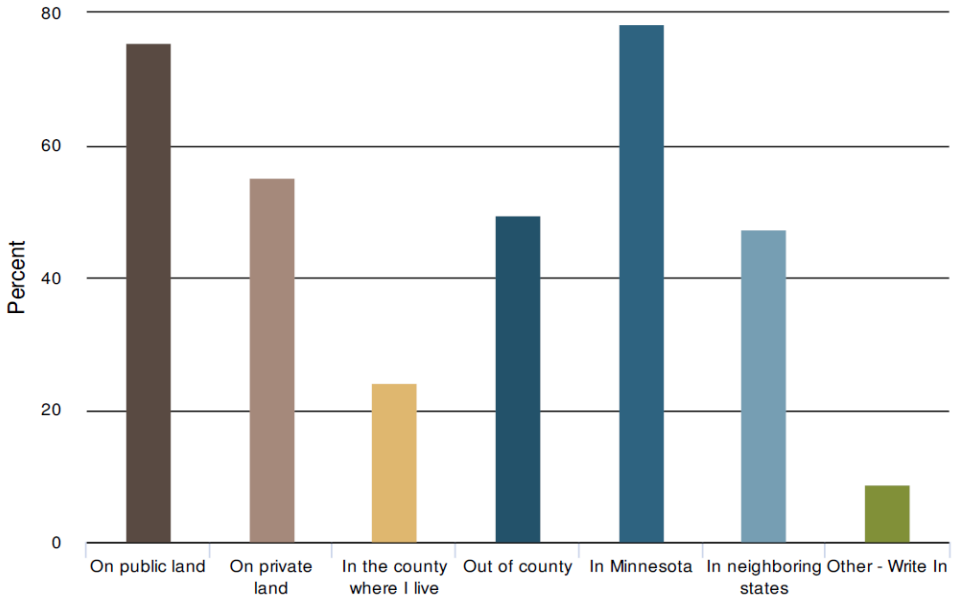


Recreation Experience

- **EXPERIENCE:** 48 percent of respondents stated they would typically rate their off-roading experience as good, 32 percent as excellent and 15 percent as fair. Write-in comments included discussion of variation in experience depending on location, the lack of proximate off-roading opportunities and Wisconsin being a model for ORV trails. Respondents wanted to see more intermediate level trails and more opportunities on public land.
- **RECREATION LOCATION:** Respondents were asked to select where they typically recreate. 78 percent of respondents stated they typically off-road in Minnesota and 72 percent stated they typically off-road on public land. Many ORV users also stated they recreate on private lands (55 percent).

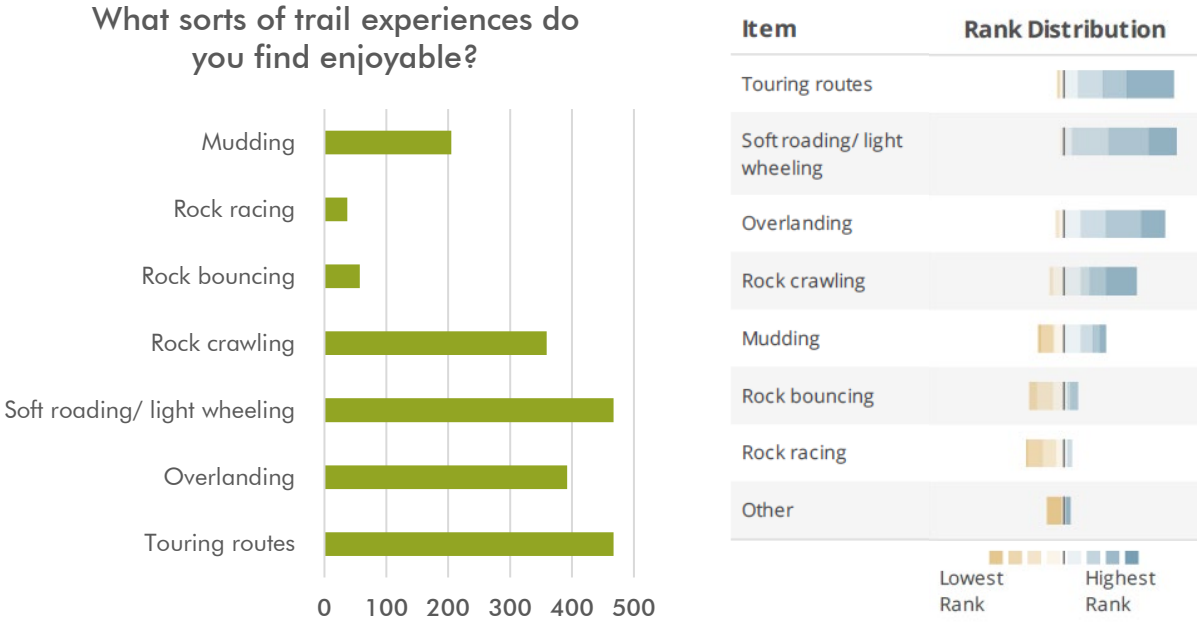


How would you typically rate your wheeling or off-roading experience?

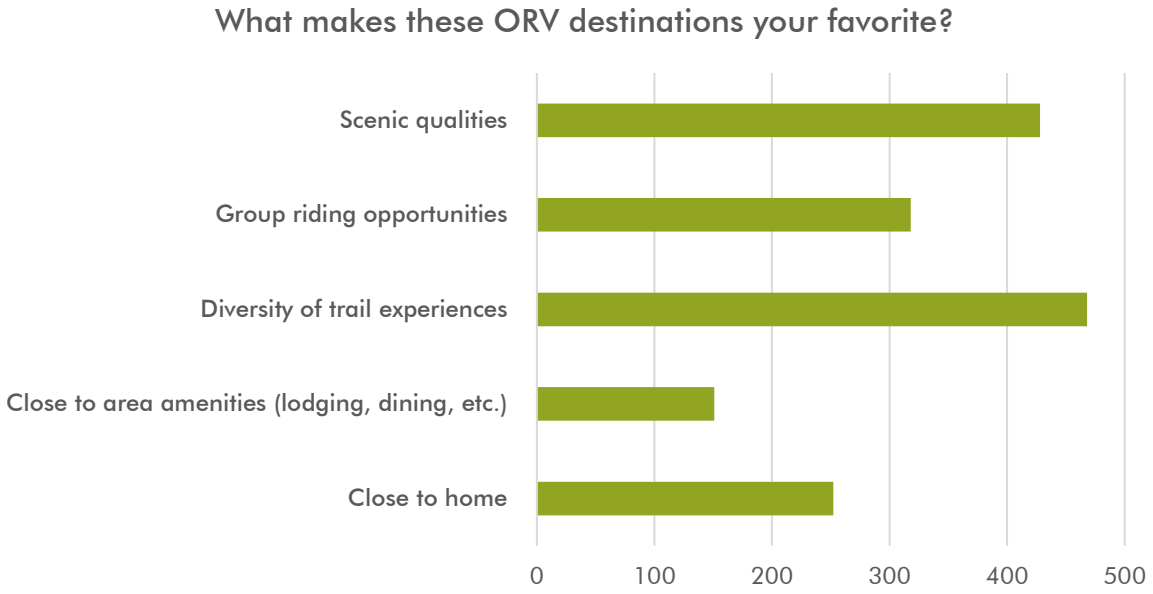


- **RECREATION FACILITIES:** Respondents were also asked what facilities they most used (touring routes, state forests, etc.). 65 percent of respondents stated they typically wheel or off-road on state forest roads. Other frequently visited facilities include state parks and recreation areas (53 percent) and national forest roads (51 percent).
- **EXISTING RECREATION FACILITIES**: Most wheelers stated they find touring routes, overlanding and soft roading/ light wheeling most enjoyable. Slightly under half of respondents stated they enjoyed rock crawling and 30 percent stated they enjoy mudding. Rock racing and rock bouncing were rated the lowest.
    - Write-in comments included interest in technical features and reiterating the desire for a diversity of trail experiences. Some respondents stated interest in having opportunities that allowed them to camp and drive for several days along a trail. Others indicated a desire for intermediate level features that land between soft roading and rock crawling.

- **DESIRED RECREATION FACILITIES:** Respondents wanted to see more touring routes, soft roading/light wheeling, overlanding and rock crawling opportunities.



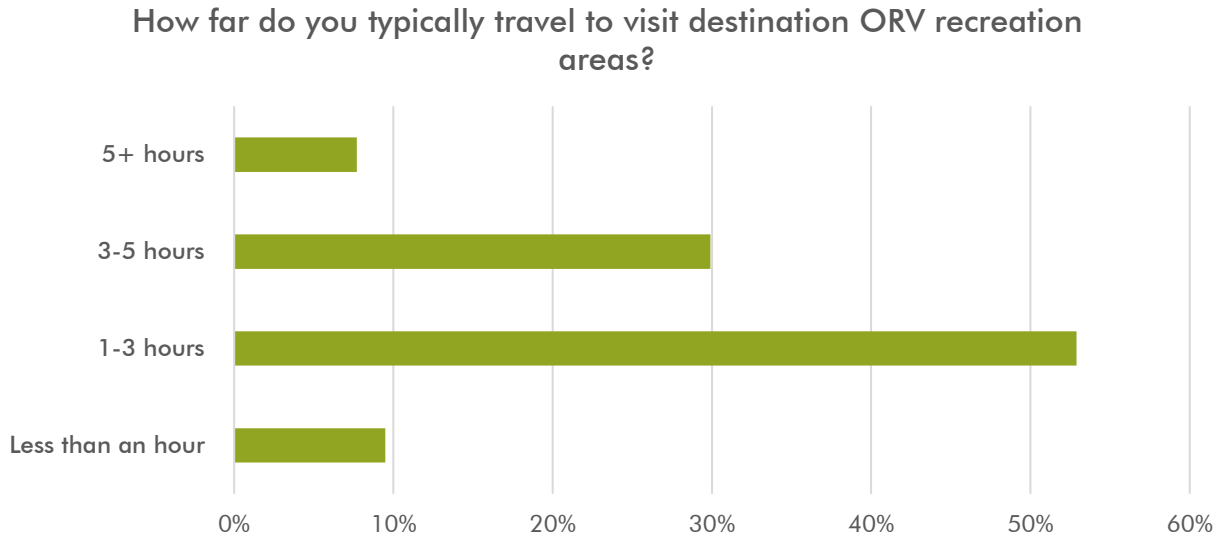
- **FREQUENTLY VISITED AREAS:** 27 percent of respondents (n=730) stated they most often visit the Gilbert IROHVSRA area. Other common answers include Nemadji State Forest, Spider Lake, Northern MN, Appleton Area Recreational Park (AARP), Foothills State Forest, Superior National Forest, Chippewa National Forest, Paul Bunyan State Forest, St. Croix State Forest, Red Top, Snake Creek and the Mesabi Mountain Trail.
- **FAVORITE AREAS:** When asked about their three favorite ORV/OHV areas or routes in Minnesota, commons answers included AARP, Spider Lake, Nemadji, IROHVSRA and Superior National Forest.



- **FAVORITE AREA QUALITIES:** Respondents stated these were their favorite areas because of the diversity of trail experiences and their scenic qualities. Many respondents stated that these locations

were also favorable due to the group riding opportunities they presented. The proximity to home and other amenities were ranked less important.

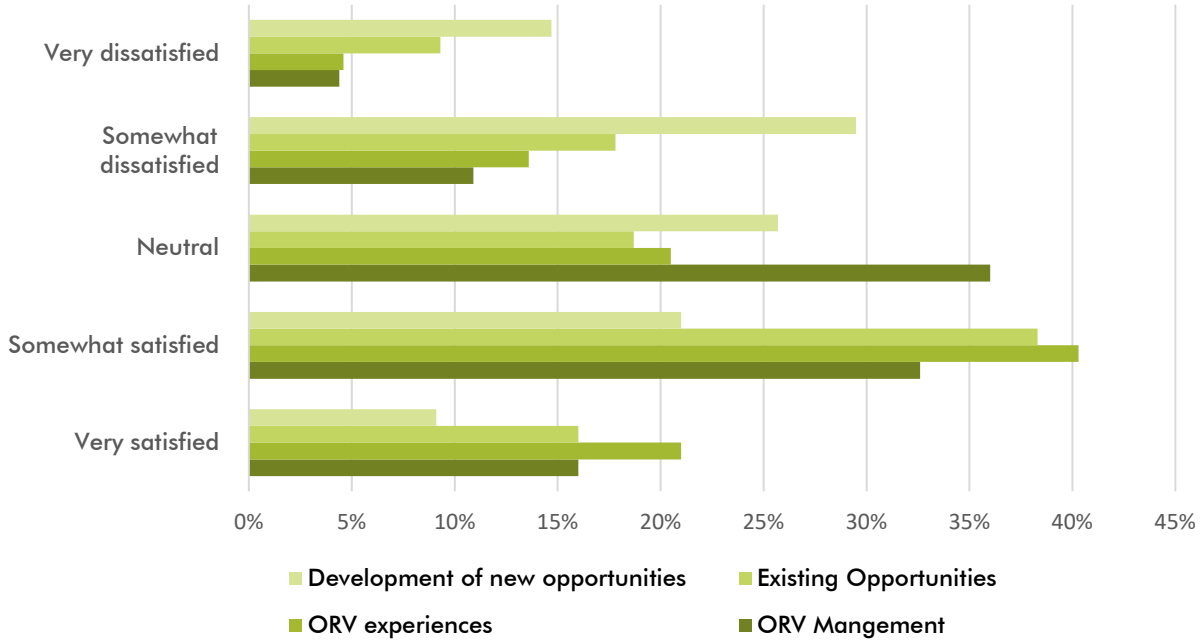
- **DESTINATIONS:** When asked where respondents would like to recreate more often, commons answered included IROHVSRA, Minnesota River Valley, Northern Minnesota, Border-to-Border Touring Route, near metro area/Twin Cities, Nemadji, Spider Lake and Paul Bunyan.
    - Counties included St. Louis, Anoka, Lake, Houston, Dakota, Cass, Wabasha, Carver, Cook, Beltrami, Hennepin, Pine, Sherburne, Crow, Mille Lacs and Crow Wing.
    - Respondents stated they would like to go to these places more because they are closer to home and have a diversity of riding experiences. Other common answers included scenery, lodging nearby, to try something new, ability to go in a day trip, varying levels of difficulty and consistent trail conditions.
- **AVERAGE MILEAGE:** On average, wheelers reported riding around 41 miles per day at ORV areas. A third of respondents stated they travel over 50 miles per day at ORV areas and 12 percent stated they travel over 100 miles.
- **TRAVEL TIME:** 19 percent of wheelers stated there are adequate wheeling and off-roading opportunities within an hour of where they live.
    - Over half of respondents stated they typically travel 1 to 3 hours to visit destination ORV recreation areas and 30 percent drive between 3 and 5 hours.
    - On average, respondents travel 3.1 hours to visit frequented ORV destinations.



- **OVERNIGHT TRIPS:** 35 percent of respondents stated they take overnight trips where the primary purpose is wheeling a few times a year. 25 percent answered never or rarely, 15 percent stated twice a month and 16 percent answered once a month.
- **ACCOMODATIONS**: When staying overnight, 38 percent of respondents stated they typically stay at a public or private campground in an RV or trailer. 26 percent stated they tent camp at a public or private campground, and 22 percent stated they stay at a short term vacation rental, inn or a hotel. Other common responses included staying at a personal cabin, dispersed camping and rooftop tents.

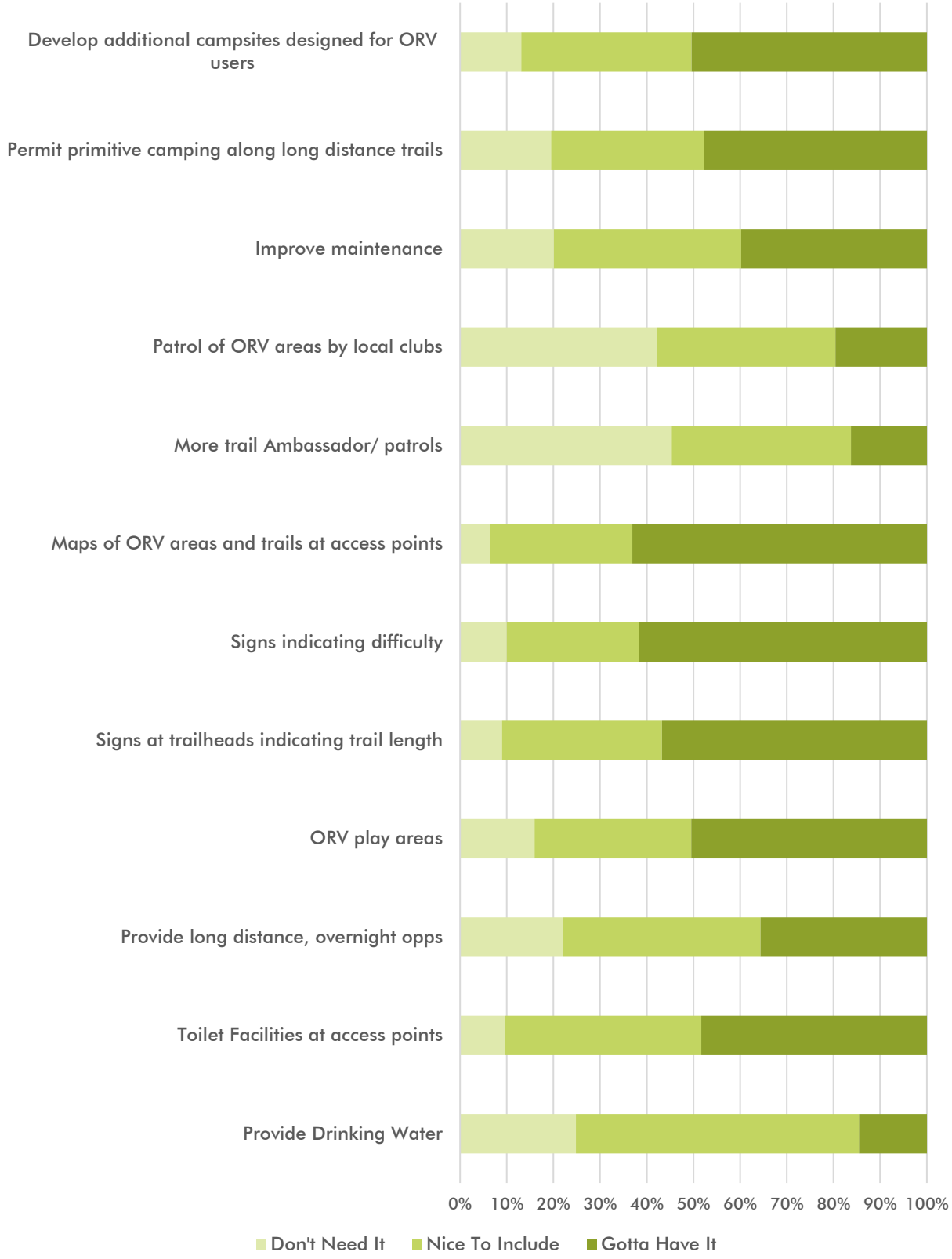
Management Actions

- **ORV OPPORTUNITIES:** 54 percent of wheelers stated they are somewhat or very satisfied with existing ORV opportunities.
  - 27 percent of wheelers state they are somewhat or very dissatisfied and the remaining were neutral.
- **DEVELOPMENT OF NEW OPPORTUNITIES:** 44 percent of wheelers state they are somewhat or very dissatisfied with development of new ORV opportunities.
  - 30 percent state they are somewhat or very satisfied with development of new ORV opportunities.
- **ORV MANAGEMENT:** 49 percent of wheelers state they are somewhat or very satisfied with ORV management, 11 percent somewhat dissatisfied and 4 percent very dissatisfied.
- **ORV EXPERIENCES:** 61 percent of wheelers state they are somewhat or very satisfied with ORV experiences, 19 percent somewhat or very dissatisfied.



- **ORV AMENITIES:** Respondents strongly supported ORV amenities include maps of ORV areas and trail at trailheads/access points, signs at intersections indicating trail difficulty and trail length, ORV play areas, toilet facilities and the development of additional campsites designed for ORV users. Management strategies and amenities that were not well supported included more patrol or trail ambassadors, the patrol of ORV areas by local clubs and the addition of drinking water at trailheads. Trail maintenance and long-distance trail opportunities were also less supported initiatives but still had proponents in the "Gotta Have It" category.

Indicate your feelings on each management action that could be taken to improve existing ORV experiences in Minnesota.



Vehicle Characteristics

- **REGISTRATION:** 82 percent of respondents reported that their vehicle is registered as an OHV.
- **OWNERSHIP:** 98 percent of off-roaders own their vehicle (as opposed to leasing).
- **TYPE:** 35 percent of off-roaders stated they own a Jeep, 11 percent Toyota, 11 percent full-size truck and 7 percent buggy. Common write in responses included ATVs, Polaris RZR, Can-Ams and Suzuki Samurais.
  - 51 percent of wheelers have modified their vehicle, 13 percent built it and 35 percent have not modified their vehicle.
  - 43 percent of respondents drive their ORV to events and 56 percent choose to haul their ORV.

Spending Profile

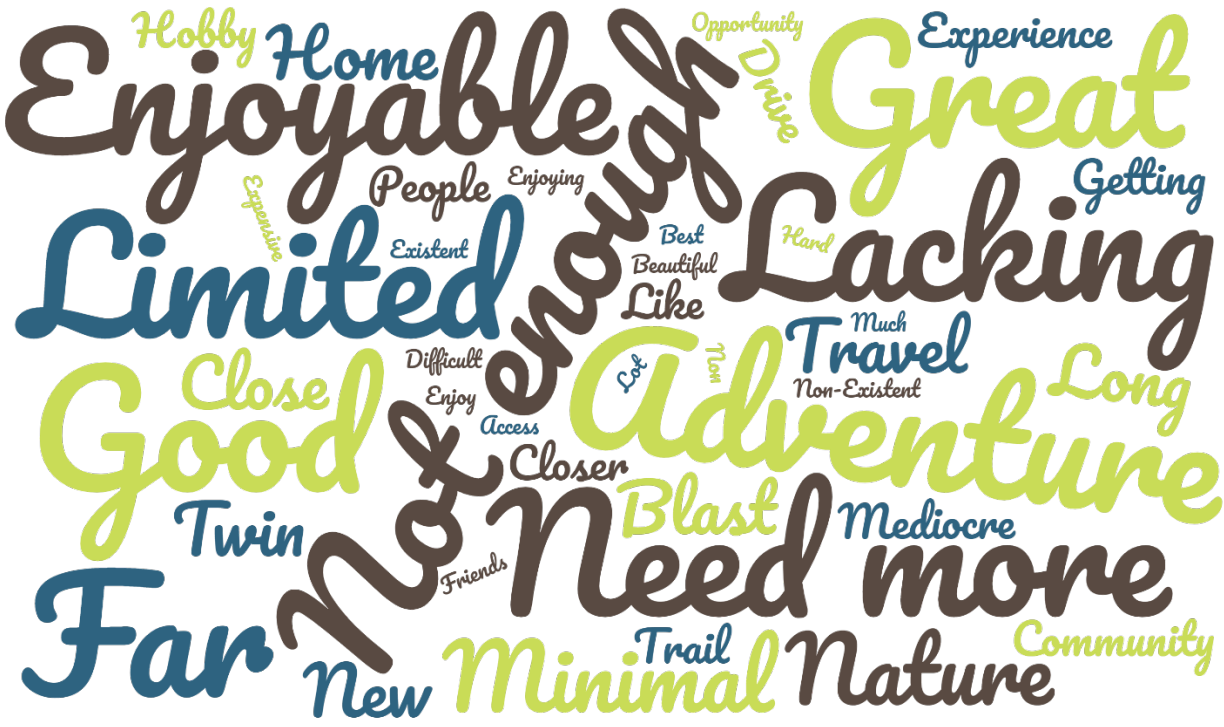
Trip Spending Category	Average Spend (per person per trip)
Lodging/Camping Fees	$37.65
Food and Beverage	$54.49
Transportation (fuel and parking fees)	$67.50
Admission/Fees	$18.06
Other (clothing, souvenirs, etc.)	$35.10
Total	**$212.80**

ORV Spending Category	Average Spend (Per person per year)
ORVs purchased	$12,130
Repairs	$1,167
Modifications/Upgrades	$2,584
Routine Maintenance	$636
Total	**$16,517**

Visitation	ORV Visitation
Average Trips Per Person	11.6
Registrations	7,111
Total Trips Per Year	82,500

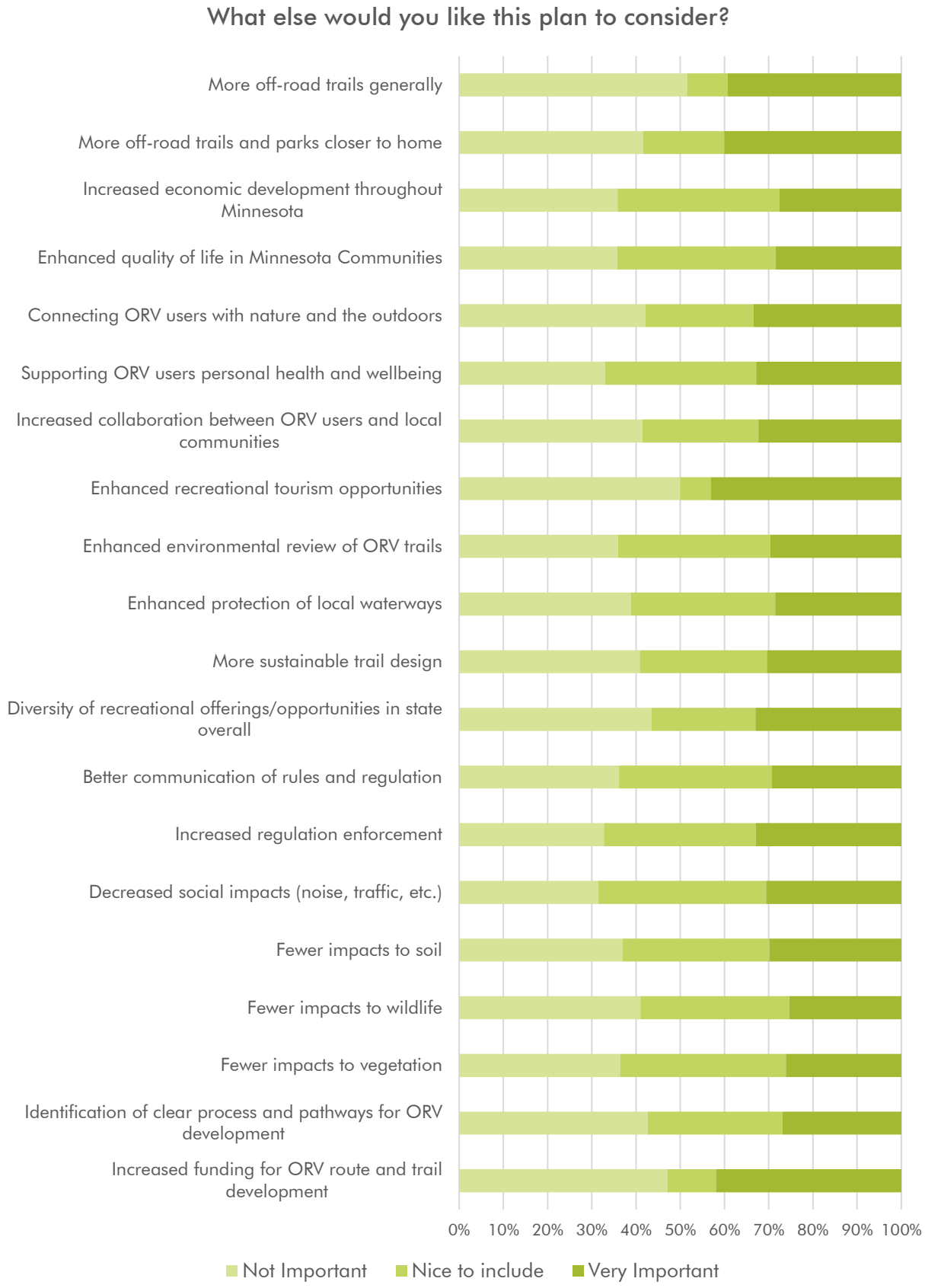
Visioning

What word or phrase best describes your existing experience with wheeling and off-roading in Minnesota?



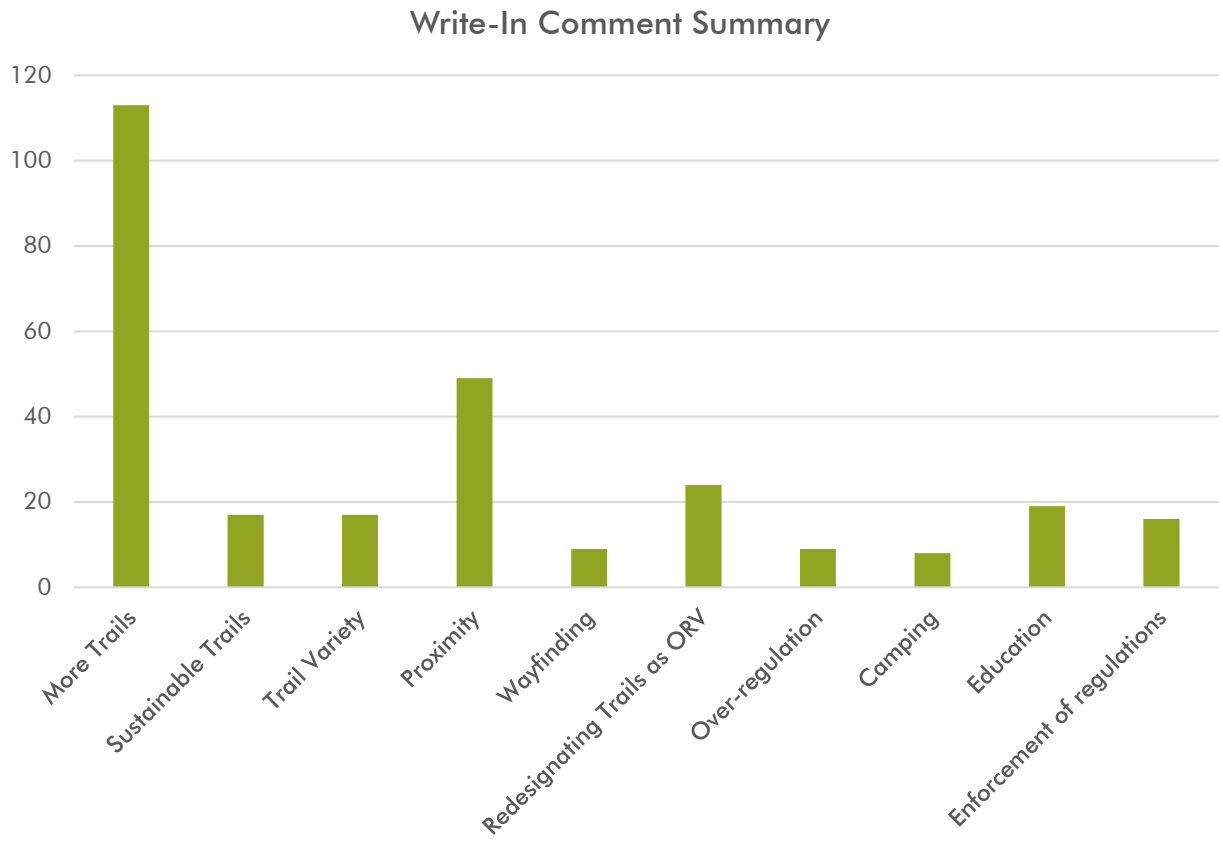
What word or phrase best describes your desired future experience with wheeling and off-roading in Minnesota?

Plan Considerations



Write-in Comments

262 respondents left write in comments to answer the question "Is there anything else you would like this plan to consider?" Responses skewed heavily towards the creation of more trails including more sustainable trails and trails that added variety to the existing offerings. Another frequently mentioned topic included the desire for more trails that were closer to home.



Respondents Who do not Participate in ORV Recreation

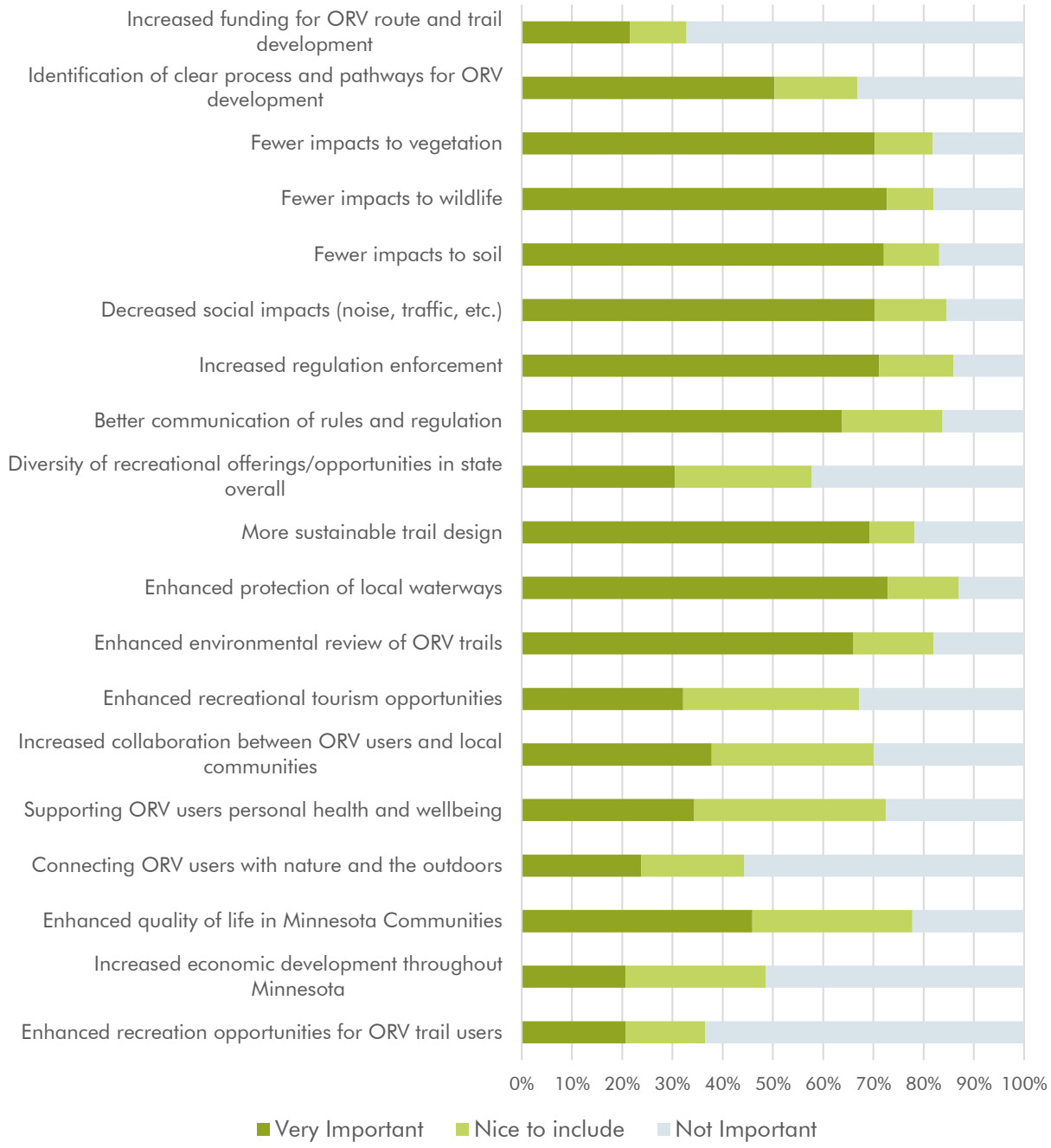
Participation

- Respondents who stated they do not currently and have never used an ORV for recreation cited reasons such as high entry costs (12 percent), the lack of people to go with (9 percent) and safety concerns (9 percent). Other commonly cited reasons included the far distance to trail systems and the lack of information on where to go. Write-in responses in the "Other" category included comments citing environmental impacts.
- In response to the question "What would make you more likely to try?", common responses included a better understanding of trail systems (9 percent) and more information about where I can recreate (8 percent). Most respondents selected "none of these" (70 percent).

Plan Considerations

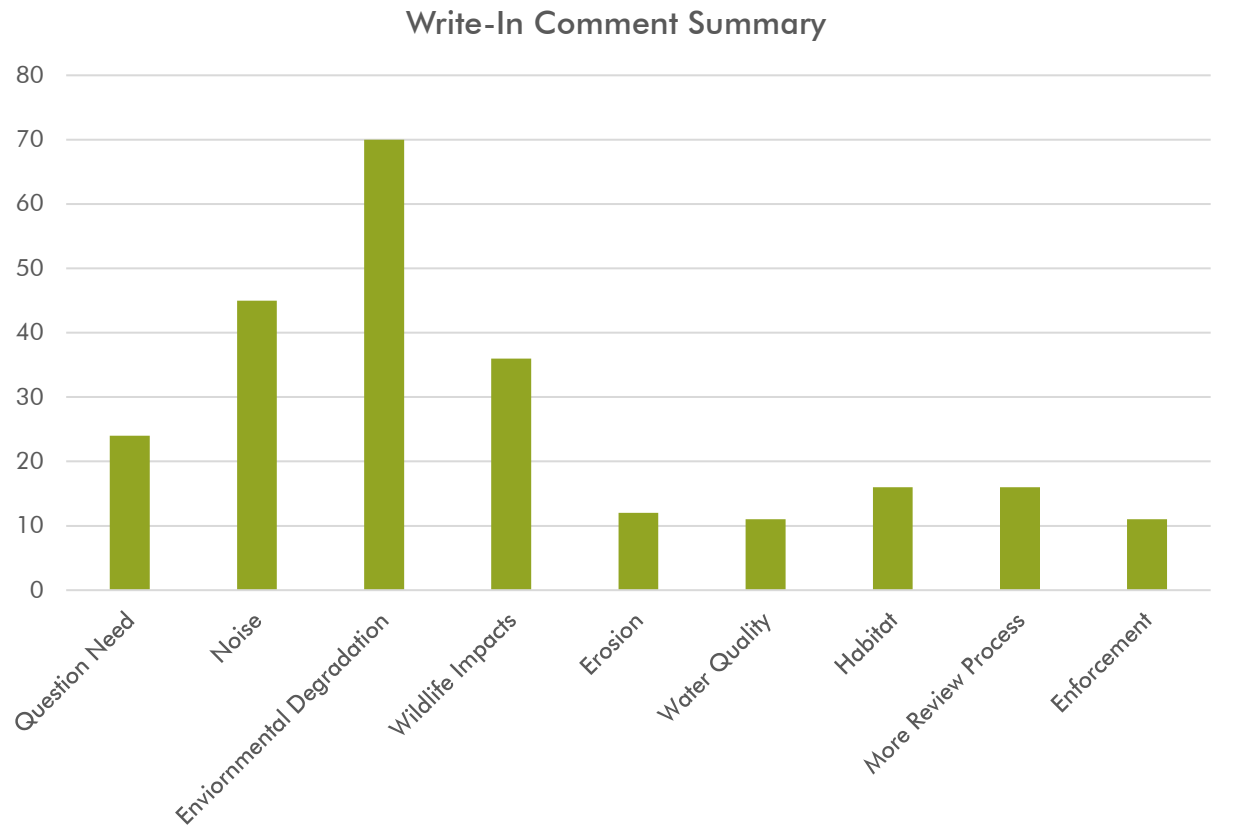
- Respondents felt it was very important that this plan consider ways that existing and future ORV areas could have fewer impacts to wildlife, fewer impacts to soil, decreased social impacts, increased regulation enforcement and enhanced protection of local waterways. Other plan considerations that ranked highly for this group included impacts to vegetation, better communication of rules and regulation, more sustainable trail design and applicable environmental review of ORV trails.
- Considerations that fell mainly into the "not important" category included enhanced opportunities for ORV trail users and increased funding for ORV routes and trail development.

What else would you like this plan to consider?



Write-In Comments

- 167 respondents left write-in comments to answer the question "Is there anything else you would like this plan to consider?" Many respondents reiterated the importance of categories included in the previous question such as protection of waterways, erosion and environmental degradation. About half of the write-in comments concerned environmental degradation in some form. Many respondents were concerned with noise and potential impacts to wildlife such as habitat fragmentation and encroachment. About 15 percent of write-in comments questioned the need for new trails and requested information be available about the extent of the existing ORV trail system on public land. Some respondents also requested a thorough (or more thorough) review process for existing and new trails that included assessments from independent hydrologists and ecologists.



APPENDIX E: REPRESENTATIVE SAMPLE SURVEY RESULTS

CORONA INSIGHTS
Bright thinking. Brilliant guidance.

Public Opinion Towards Off-Road Driving Recreation

An Online Survey of Minnesota Residents

June 2021

Prepared By: Corona Insights

CONTENTS

INTRODUCTION

Minnesota's Department of Natural Resources (DNR) supports various forms of outdoor recreation. To ensure Minnesotans and visitors can participate in responsible and sustainable off-road driving recreation, DNR is preparing a statewide off-road vehicle master plan in collaboration with local partners and user groups such as the Minnesota 4-wheel Drive Association (MN4WDA).

To draft an appropriate and effective master plan, DNR needed to understand public opinion towards off-road driving recreation. This understanding will help ensure that the master plan meets the needs of off-road drivers and addresses the prominent concerns of Minnesota's residents.

SURVEY IMPLEMENTATION

Corona Insights, an independent research company, conducted a restricted-sample public opinion survey of Minnesota residents who are 18 years or older. Survey respondents were sampled from a commercial online panel provider. Top-line results represent all Minnesota adult residents. For most questions, results are further segmented by DNR region (i.e., Northwest, Northeast, Central, and Southern), although due to limited sample size, the precision of estimates in some regions is relatively wide. Statewide results are also segmented by other indicators such as familiarity with off-road driving, outdoor recreation experience, and key demographics such as age and gender. The survey was fielded between April 30th and May 19th, 2021. The median survey length was 10 minutes. A detailed description of the methodology is found in Appendix A, and the questionnaire can be found in Appendix B.

SURVEY RESPONSE BY REGION

The number of survey responses by region are listed below by Minnesota Department of Natural Resources (DNR) region. We received 1,019 useable survey responses. Less populous regions were intentionally oversampled to improve their sample size and precision. We then used statistical weights to correct the oversample of responses in the Northwest and Northeast regions, so that the results more closely reflect the actual adult population in Minnesota. That is, even though we collected more than proportional number of responses from Northern regions, they do not have undue influence on the statewide results. Likewise, we used statistical weighting techniques to correct some age and gender skew because more older residents responded to the survey, which was expected. We did not need to correct for political lean because there was no skew (Democrat/Republican was 54%/46%), which was almost exactly what PEW Research Center estimates for Minnesota.

DNR Region	% of MN Adult Population	Sample Size Goal	Sample Size Achieved	Weighted Representation in Data
Central	71.8%	650+	670	71.6%
Northeast	7.6%	74+	121	8.0%
Northwest	8.0%	84+	103	7.9%
South	12.7%	141+	125	12.5%
Total	100%	1,000+	1,019	100.0%

KEY FINDINGS

The following are key findings derived from the survey results.

GENERAL OUTDOOR RECREATION

- Most Minnesota residents visited natural areas at least occasionally, and hiking, wildlife watching, and other non-motorized recreation activities were the most common activities during these visits. Motorized recreation was far less common.
- Residents were more likely to dislike seeing people engaging in motorized activities than non-motorized; 33% would dislike seeing people driving off-road vehicles, although about the same percentage would enjoy seeing people driving off-road vehicles.
- Almost half of residents believed that having dirt roads in natural areas for driving was good, although this was much lower than the 90% who believed that having hiking trails in natural areas was good. Residents in the Northwest and Northeast were more likely to agree that having dirt roads in natural areas for driving was good.

ABOUT ORV RECREATION

- Just over half of all residents said they were at least somewhat familiar with off-road driving. Greater familiarity with off-road driving was associated with several characteristics: living in a northern region, being younger, having less education, and visiting natural areas more often.
- Residents who visited natural areas did not often encounter off-road vehicles; about one-third never encountered them and about two-thirds encountered off-road vehicles about 20% of the time. However, residents who did not visit natural areas expected to encounter off-road vehicles a bit more often.
- About 17% of Minnesota residents went off-road driving as a driver or passenger in the past 24 months; this was higher in the northern regions, among males, among residents age 18 to 34, people without a bachelor's degree, and not surprisingly, people who were very familiar with off-road driving. Among the residents that had gone off-road driving in the past two years, about 27% had gone often or very often.

RECEPTION OF OFF-ROAD VEHICLES

- If residents were visiting a natural area, the most notable potential for interpersonal conflict was coming across a group of off-highway vehicles, which would be at least a moderate problem for more than half of residents. Among four items tested, this was the issue of greatest concern across all segments, and particularly for older adults. Secondly, hearing an off-road vehicle would be at least a moderate problem for almost half of residents. Seeing tracks of an off-road vehicle was least likely to be a problem, with nearly two-thirds of residents saying it was a slight problem or not a problem at all.
- There appeared to be some values-based conflict potential, although less than interpersonal conflict potential. About one-third of residents indicated that "*Just knowing people are driving off-highway vehicles…*" bothered them at least somewhat, and a similar percentage disagreed that "*Driving off-road vehicles in natural areas is a completely appropriate way to recreate.*" Again, age was strongly associated with values-based conflict, with residents 55 or older much more likely to experience this type of conflict. Interestingly, there was no association between frequency of visiting natural areas and values-based conflict.

BENEFITS OF OFF-ROAD VEHICLES

- Among five potential benefits of ORV recreation that were tested, providing something fun to do outside, boosting the rural economy through tourism, and connecting people with nature were the three seen as

most beneficial.

- Two potential benefits, improving quality of life in rural areas and making rural areas more attractive places, were not widely perceived as beneficial, with nearly two-thirds of residents saying they were slight benefits or less. Interestingly, urban residents were more likely than rural residents to believe ORV recreation made rural areas more attractive.
- Among six positive behaviors tested, residents thought off-road drivers were most likely to assist other natural area visitors and show courtesy to other visitors. On the other hand, nearly two-thirds of residents thought ORV users would rarely or never leave no trace of their presence.
- Residents in the Northwest region were more likely than residents of the Central region to believe off-road drivers frequently volunteered to restore driving trails.
- Additionally, people who visited natural areas at least occasionally were more likely to believe off-road drivers frequently showed courtesy to other visitors; it is possible that experience in natural areas contributes to positive attitudes towards ORV recreation.

CONCERNS ABOUT OFF-ROAD VEHICLES

- Harming the environment, plants, and animals in natural areas was the strongest concern among three potential concerns tested, with three-fifth of residents being at least somewhat concerned. The other two concerns tested, harming the quality of trails and roads and ruining the enjoyment of people recreating in the area, were at least somewhat concerning to a majority of residents.
- Among five driving-specific negative behaviors tested, residents thought off-road drivers were most likely to create ruts in trails and drive too fast. About half of residents believed people driving off-road vehicles did this often or very often. Comparatively, off-road drivers driving under the influence or driving on closed trails were believed to be less common behaviors, on average.
- Among four non-driving-specific negative behaviors tested, residents thought off-road drivers were most likely to litter or leave trash, with more than a quarter of residents believing this happened often or very often. Residents were far less likely to believe other negative behaviors happened often or very often.
- Older residents tended to have greater concern than others about off-road vehicles and believed negative behavior happened more frequently. But possibly unexpectedly, there does not appear to be a relationship between beliefs about these negative behaviors and experience in natural areas, familiarity with off-roading, or experience off-roading. That is, these beliefs were commonly held despite experiences in the outdoors.

ATTITUDES ABOUT OFF-ROAD RECREATION

- The majority of Minnesota residents held a moderate opinion of off-road driving in natural areas: 71% fell between somewhat positive and somewhat negative, while the remaining ~30% of residents were evenly split between holding strong positive opinions and strong negative opinions. This neutral tendency may not be reflected in the opinions expressed at public meetings that garner disproportionately more strongly opinionated residents and stakeholders.
- Interestingly, there were only subtle differences in opinion by region, with slightly more positive opinions, on average, in the northern regions than the other regions. Akin to patterns seen for other questions, residents 55 or older held the strongest negative opinions among all segments investigated. However, residents age 18 to 34 were most likely to hold very moderate opinions, with half between slightly positive and slightly negative. Perhaps not surprisingly, residents who had gone off-road driving in the past two years held the strongest positive opinions and fewest negative opinions.
- Most residents agreed that off-road driving seemed fun but seemed expensive. They also tended to agree that it seemed dangerous, should be regulated, was bad for the environment, but was a good way for people to spend time together. There was far less consensus about the economic benefits of off-road driving, with residents nearly evenly split about off-road driving supporting many jobs in Minnesota.

- Minnesota residents were generally split between wanting natural areas to be managed for environmental protection (46%) and managed for an equal balance between environmental protection and outdoor recreation. Few residents wanted an emphasis in maximizing outdoor recreation opportunities. This trend was consistent across most demographics, including region, gender, age, and experience with off-road vehicles. Residents with less than a bachelor's degree and residents than leaned Republican were both more likely than others to desire an equal balance in management, but neither group was strongly in favor of maximizing outdoor recreation opportunities.
- Lastly, most residents agreed that a statewide off-highway vehicle trail plan would reduce unsanctioned four-wheeling, with notably stronger agreement among people who had experienced off-road driving, among people with less educational attainment, and younger residents.

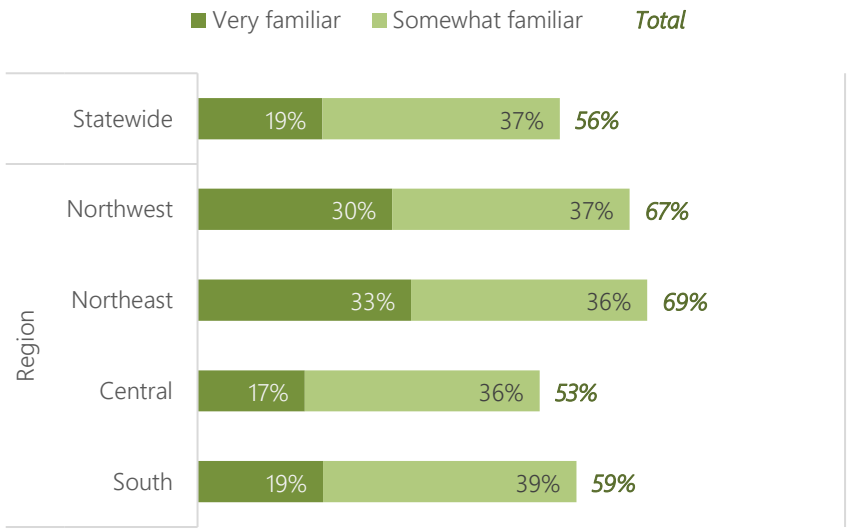
NORTHERN COMMUNITIES

- Nearly three-quarters of residents in northern regions feel generally neutral (e.g., between somewhat positive and somewhat negative) about the impact of off-road vehicles in their communities, and more people felt it had a positive impact (41%) than a negative impact (21%). There was no detectable difference between the Northwest and Northeast regions.
- Likewise, most residents in northern communities feel generally neutral (e.g., between somewhat good and somewhat bad) about the possibility of more "off-road tourists" visiting or passing through their area, with slightly more feeling it would be good (44%) than bad (34%). Most residents in these regions encountered non-local ORV tourists sometimes, rarely, or never, suggesting that ORV recreation is not broadly overwhelming.
- Residents in the northern regions saw off-road vehicles having a positive effect on their local economy, a neutral to slightly negative effect on safety and traffic, and a notably negative effect on noise, with almost half feeling ORVs had a somewhat or very negative effect on noise.

SECTION 1
PUBLIC RECEPTION

Familiarity with off-road driving

More than half of all Minnesota residents answered they were very familiar or somewhat familiar with off-road driving. This was highest in the Northwest and Northeast regions and lowest in the Central region.



Q9: Before taking this survey, how familiar were you with off-road driving, which is also known as four-wheeling?

Have gone off-road driving (driver or passenger)

Minnesota residents with recent off-roading experience were more likely to live in a northern region, be male, lean Republican, be younger than 35, have less than a bachelor's degree, visit natural areas at least occasionally, and be very familiar with off-road driving.

Among those with experience, about three-quarters had gone off-roading rarely or sometimes and one-quarter had gone often or very often.

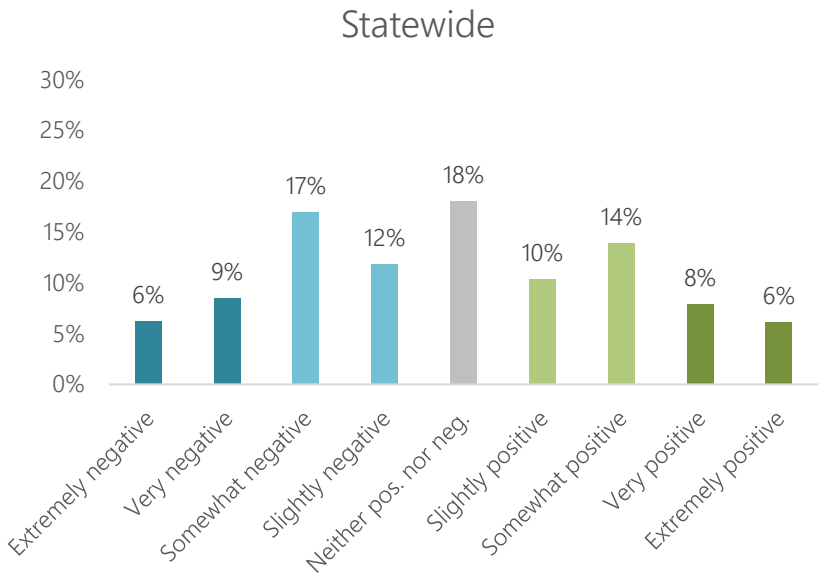
Statewide	17%	**Age 18-34**	32%
Northwest	22%	**Age 35-54**	20%
Northeast	26%	**Age 55+**	8%
Central	17%	**Less than a B.A.**	22%
South	11%	**B.A. or higher**	11%
Male	21%	**Visits natural areas at least occasionally**	23%
Female	13%	**Does not visit natural areas occasionally**	9%
Leans Democrat	12%	**Very familiar with off-road driving**	43%
Leans Republican	21%	**Not very familiar with off-road driving**	11%

Q12: Have you gone off-road driving in Minnesota in the past 24 months? This could be as a driver or a passenger?
Q13: [If yes] How frequently have you gone off-road driving in Minnesota in the past 24 months, as a driver or a passenger?

General attitude towards ORV driving (overall)

Most Minnesota residents held relatively neutral attitudes about ORV driving, with 40% of residents between slightly positive and slightly negative, and 70% between somewhat positive and somewhat negative. Relatively few people had extremely positive (6%) or extremely negative (6%) attitudes about ORV driving.

On average, attitudes towards ORV driving trended slightly negative.



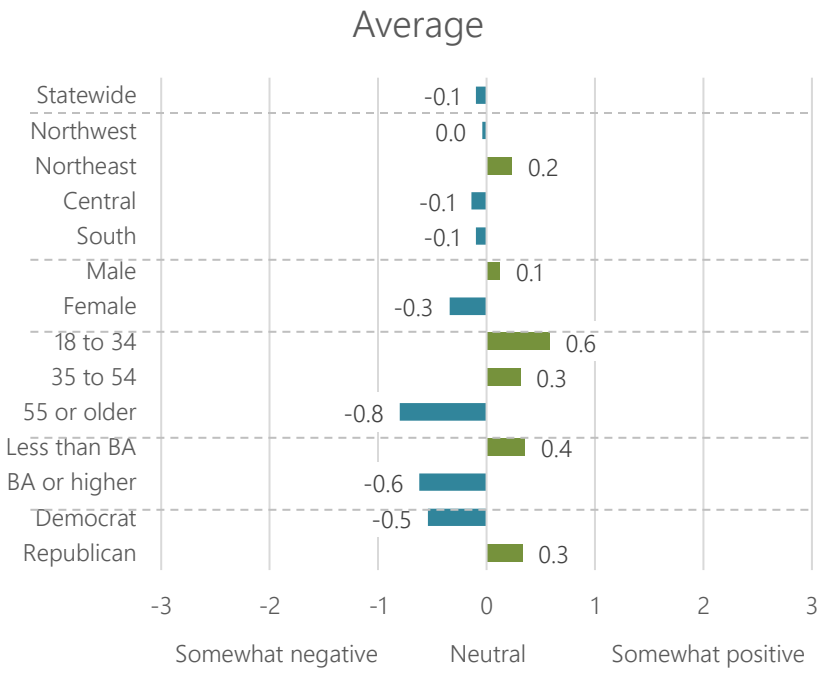
Q23: Regardless of how much you know about it, what is your opinion of off-road driving in natural areas?

General attitude towards ORV driving (segmented)

While a majority of Minnesota residents held neutral attitudes about ORV driving, there were clearly different attitudes by demographic segment.

Residents in the Northeast held a more positive attitude, on average. Likewise, males, people younger than 55, people with less than a bachelor's degree, and people who lean Republican held positive attitudes about off-road driving on average.

Residents 55 or older held the strongest negative attitudes, on average.

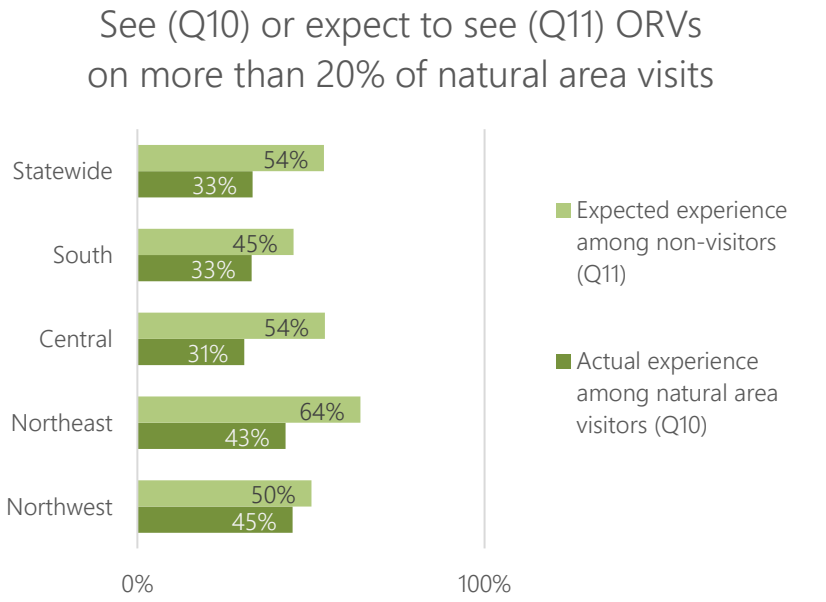


Q23: Regardless of how much you know about it, what is your opinion of off-road driving in natural areas?

Experience and expectations of seeing ORVs

Residents who did visit natural areas did not often encounter off-road vehicles; about one-third never encountered them and another third encountered off-road vehicles less than 20% of the time (data not shown here).

The remaining third of residents who visited natural areas encountered ORVs on more than 20% of visits. However, more than half of residents who did not visit natural areas expected to encounter ORVs on more than 20% of visits.

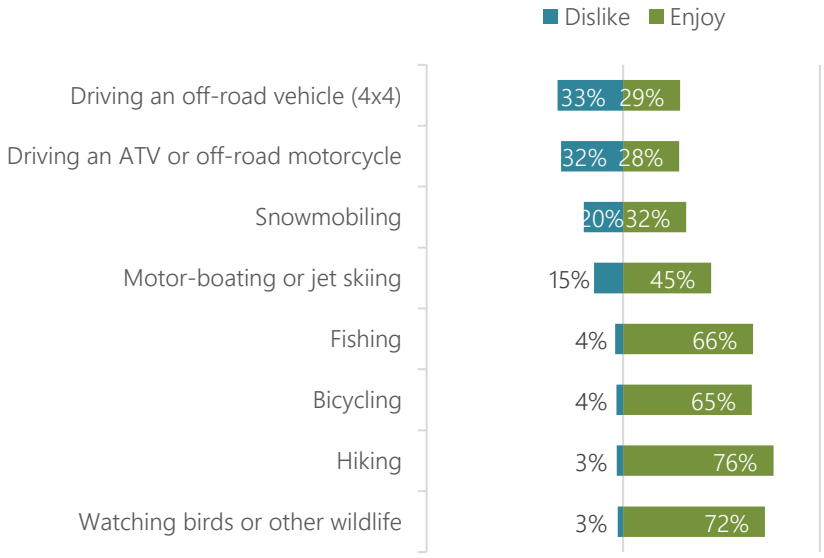


Q10: [If visited a natural area] When you have visited natural areas in Minnesota in the past 24 months, how often have you encounter off-road vehicles?
Q11: [If not visited a natural area] If you were to visit a natural area in Minnesota, how often do you think you would encounter off-road vehicles?

Reaction to seeing other activities

Although nearly one third of Minnesota residents would enjoy seeing others participate in ORV recreation in natural areas, another one-third would dislike seeing this, and the remaining one-third felt neutral.

All motorized forms of outdoor recreation tested were less likely to be enjoyed seeing than non-motorized activities and more likely to be disliked.

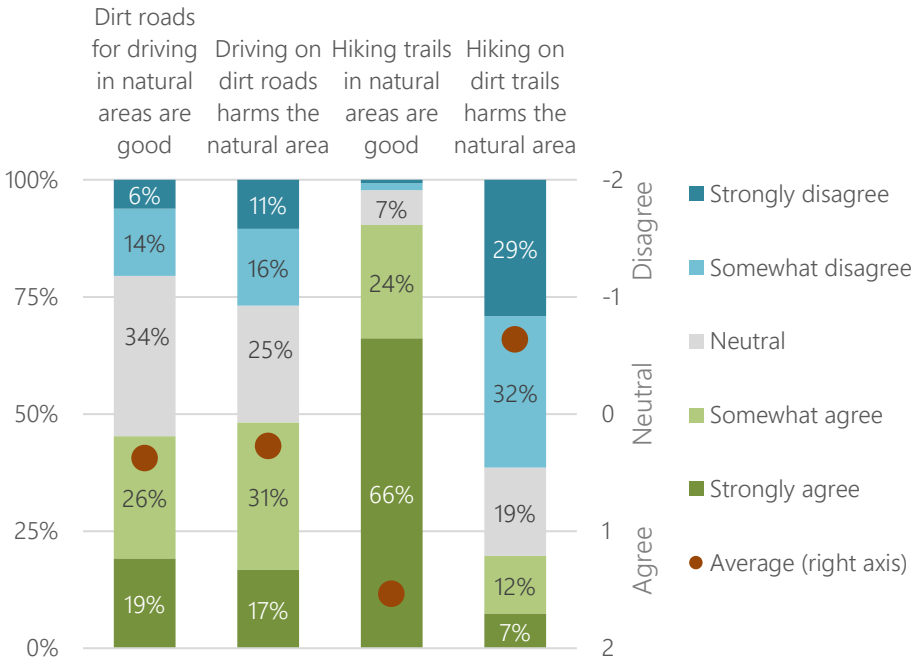


Q7: If you were recreating in a natural area in Minnesota, do you think you would enjoy or dislike seeing other people doing each of the following activities??

ORV recreation compared to hiking

Hiking was seen as less harmful to natural area and hiking trails were generally seen as good.

Still, almost half or residents agreed dirt roads for driving in natural areas were good, and relatively few (20%) disagree that they were good.

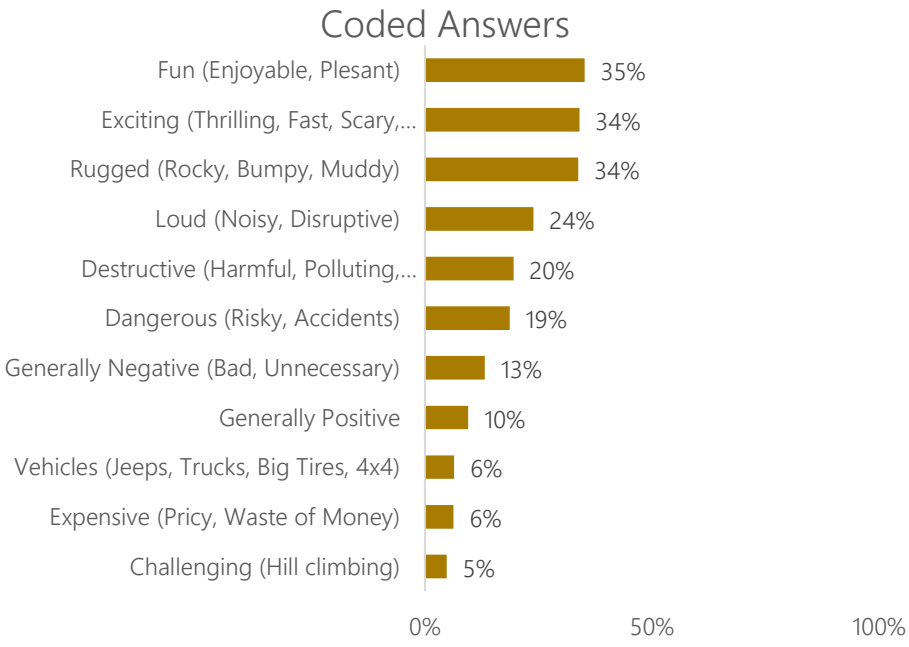


Q8: To what extent do you agree or disagree with the following statements?

What describes off-road driving

Words that came to mind to describe off-road driving revolved around it being fun, being exciting and scary, and being rugged, including rocky and muddy.

Note that survey respondents were shown three pictures of off-road driving prior to being asked to answer this question.

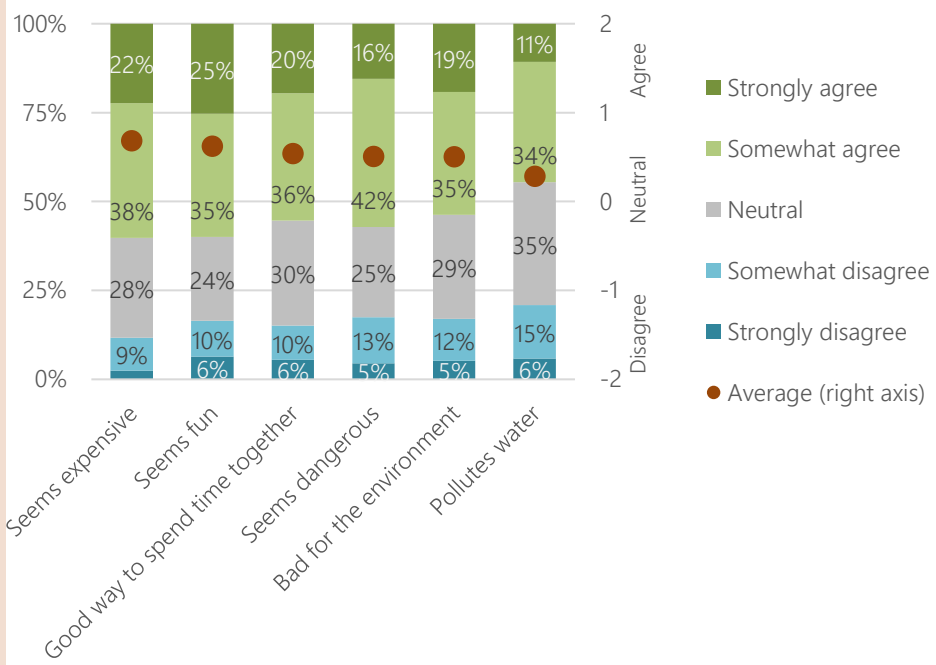


Q14: What are three words or short phrases that describe off-road driving to you?

ORV experience and environmental beliefs

Questions exploring ORV experience and environmental beliefs (used in the persona analysis) typically had more agreement than questions about economic benefits and policy (see next graph).

Overall, items did not vary much, and relatively few residents disagreed with the belief statements.

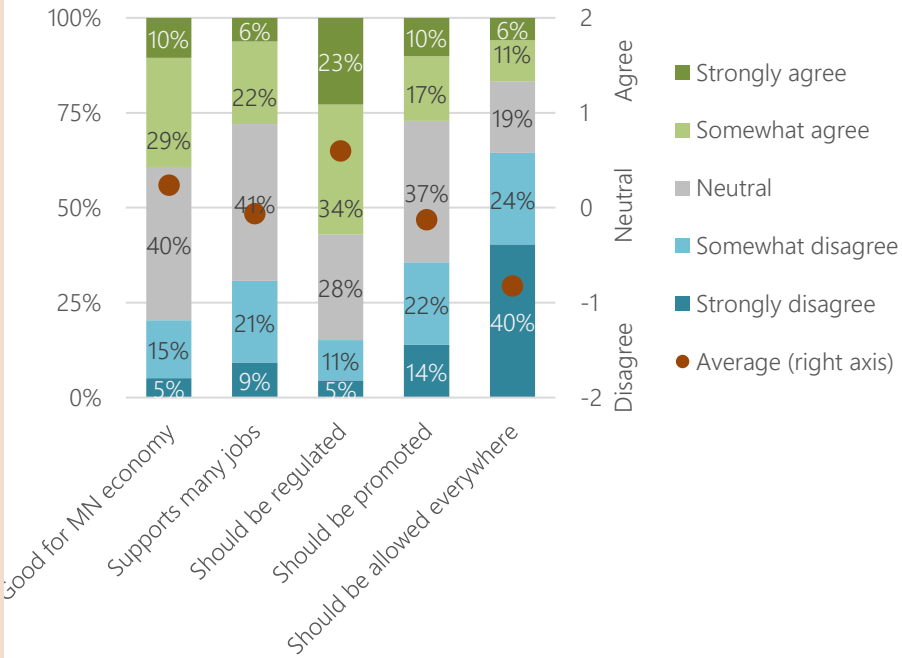


Q24: How much do you agree or disagree with these statements about off-road driving in Minnesota?

ORV economic and policy beliefs

There was more variance among the economic and policy belief questions. Both economic questions had a high proportion of neutral responses, suggesting people may not know and have a hard time speculating about the impact of ORVs on the economy.

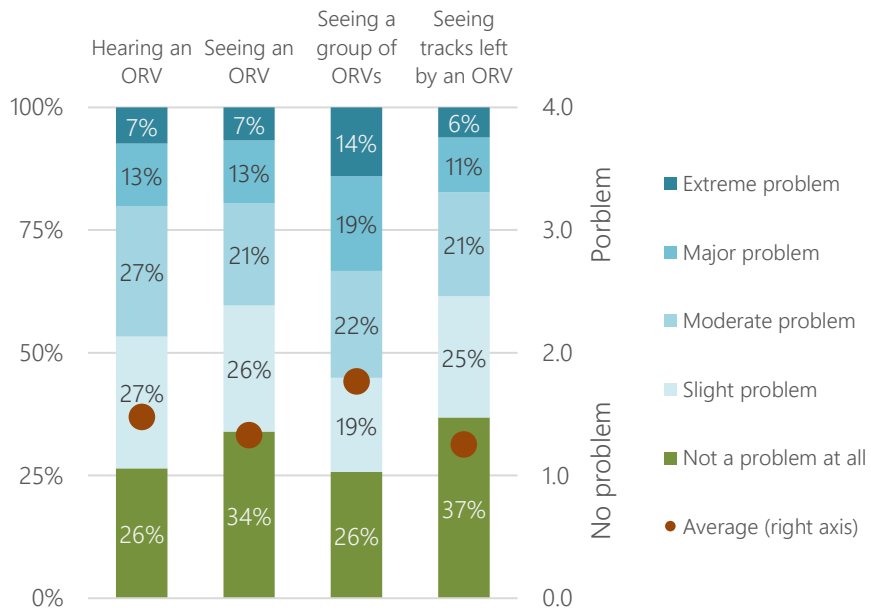
Few residents agreed that ORV driving should be allowed everywhere.



Q25: How much do you agree or disagree with these statements about off-road driving in Minnesota?

Interpersonal conflict potential

There was notable potential for interpersonal conflict if ORV and other activity types interacted in the same recreation space. There was the most potential for coming across a group of off-road vehicles, followed by hearing and seeing ORVs.

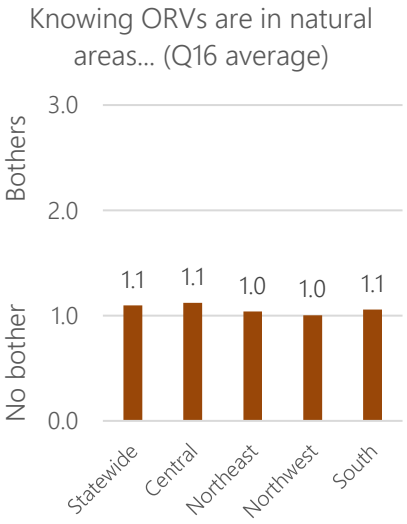


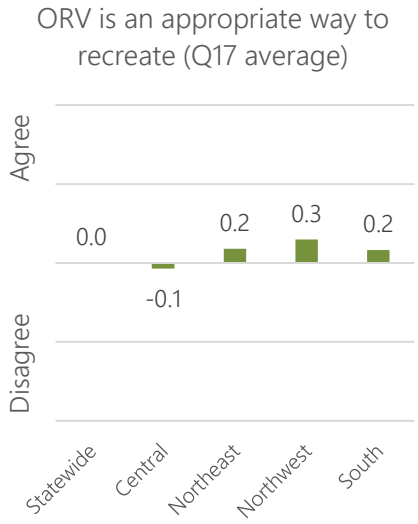
Q15: If you were in a natural area in Minnesota, how much might each of the following be a problem for you?

Values-based conflict potential

Likewise, there was potential for values-based conflict, which can happen even when there is no interpersonal interaction.

Residents from the Central region were more likely to feel a value-based conflict, as were residents 55 or older, females, and people with a bachelor's degree (not shown here).





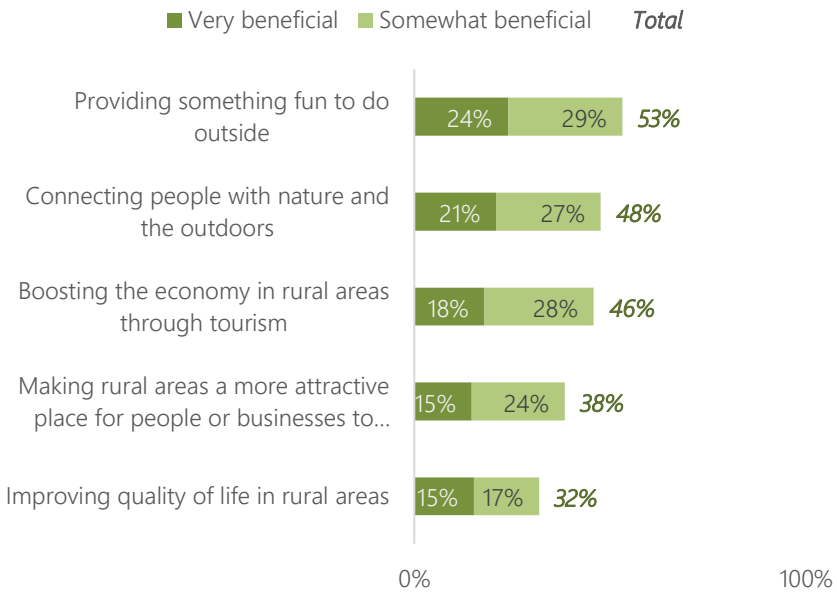
Q16: Please select how you would complete this statement:
"Just knowing that people are driving off-highway vehicles on roads in Minnesota's natural areas…."?
Q17: To what extent do you agree or disagree with this statement:
"Driving off-highway vehicles on roads in Minnesota's natural areas is a completely appropriate way to recreate."

SECTION 2
BENEFITS AND CONCERNS

Expected benefits of ORV recreation

Providing something fun to do outside was the most common benefit of ORV recreation, followed closely by connecting people with the outdoors and boosting the economy through tourism.

Interestingly, we did not find a difference in tourism benefits to be related to strength of respondent's local economy.

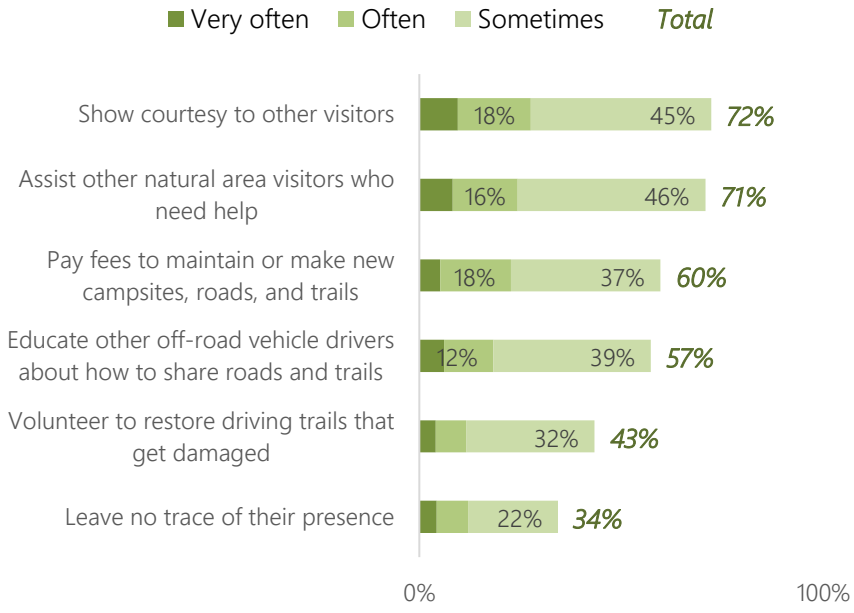


Q18: To what extent do you believe each of the following is a benefit of off-road vehicle recreation in Minnesota?

Expectation of positive ORV behavior

Minnesotans were most likely to expect ORV drivers to show courtesy to other visitors and to help other visitors in need, with about 10% expecting that behavior very often.

Conversely, fewer than half of all residents thought ORV users at least *sometimes* volunteer to restore trails or *sometimes* leave no trace of their presence.

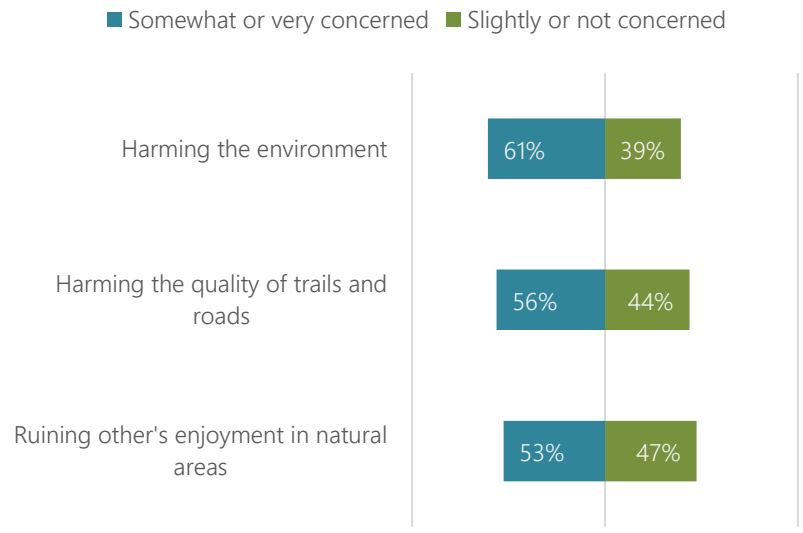


Q19: How frequently do you believe people driving off-road vehicles in Minnesota's natural areas do each of the following?

Perceived negative outcomes of ORVs

More residents were concerned with ORV's harming the environment and harming trails and roads than concerned with ORV's ruining other's recreation enjoyment in natural area.

The correlation among these questions was high, meaning that residents who held one concern likely held the other concerns around the same level.

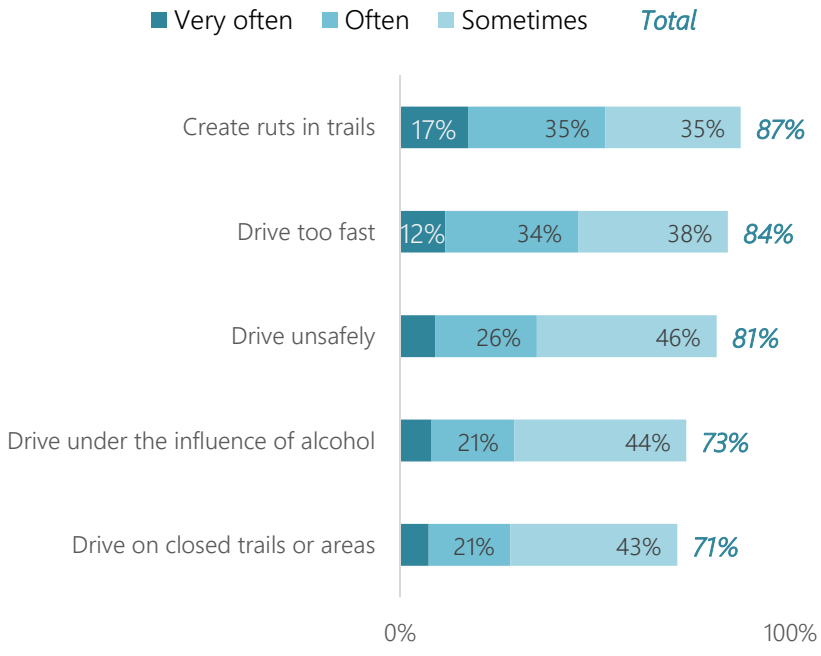


Q20: To what extent are you concerned about each of the following, regarding off-road vehicle recreation in natural areas in Minnesota??

Expected negative behavior of ORVs (driving)

Residents were most likely to believe ORV drivers created ruts in trails at least sometimes, and 4 in 5 thought ORV's were driven too fast and were driven unsafely. Most residents believed all five negative driving behaviors tested were expected to happen at least sometimes. Very few people thought these behaviors never happened.

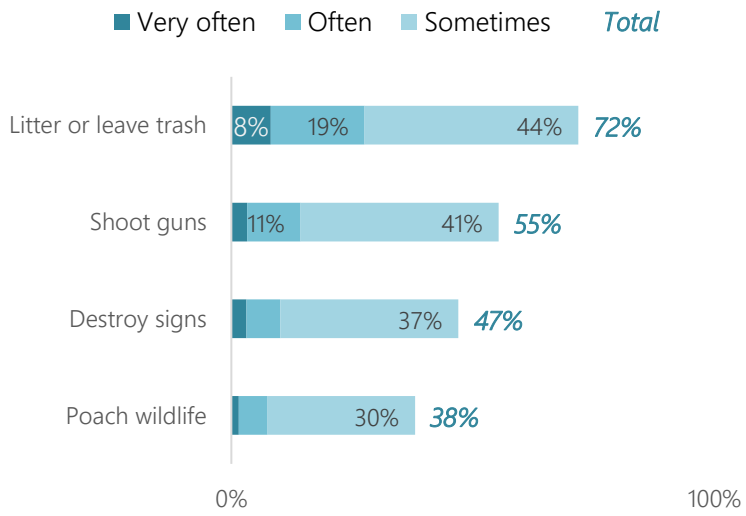
Older residents (age 55+) were more likely than others to expect all of the negative behaviors tested.



Q21: How frequently do you believe people driving off-road vehicles do each of the following?

Expected negative behavior of ORVs (non-driving)

Aside from leaving litter or trash, the other non-driving negative behaviors tested were notably less likely to be expected than the driving related behaviors (see above). Indeed, more than half of respondents thought poaching wildlife rarely or never happened by people driving ORVs.

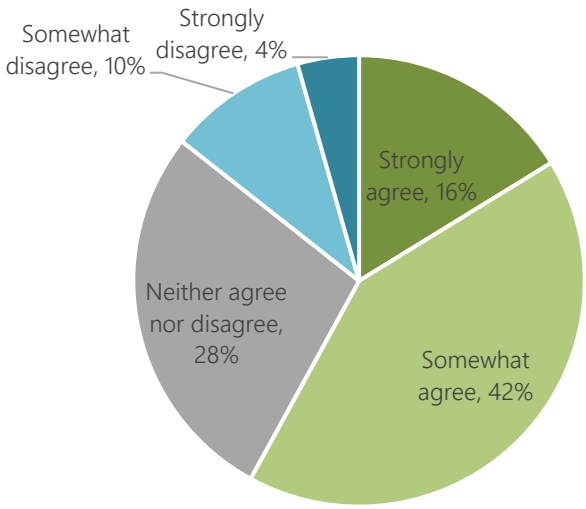


Q22: How frequently do you believe people driving off-road vehicles do each of the following?

Trail plan reducing unsanctioned four-wheeling

About three-in-five residents agree that a statewide off-highway vehicle trail plan would reduce unsanctioned four-wheeling, and more than a quarter more felt neutral on this question.

There was little difference in responses to this question by segment, aside from people with higher educational attainment were less likely than others to agree with it.



Q27: To what extent do you agree or disagree with this statement:
"A statewide off-highway vehicle trail plan will reduce unsanctioned four-wheeling "

SECTION 3
PERSONAS

About persona analysis

A persona segmentation was conducted through a latent class analysis to better understand the bigger picture of how residents' opinions about off-road driving tended to group together. This process simultaneously analyzed 19 questions (see table below) for the entire weighted sample. Demographics and behavioral measurements were excluded. The objective was to reveal underlying segments that clustered together yet were distinct from other segments based on answers to the survey questions. Four preliminary models were generated based on three, four, five, and seven segment options. Ultimately, the three-segment model was deemed most useful and is described in this section.

The following 19 items were included in the persona analysis.

Q18: To what extent do you believe each of the following is a benefit of off-road vehicle recreation in Minnesota?
4-point scale: *Not at all beneficial (0) to Very beneficial (3)*

- Connecting people with nature and the outdoors
- Providing something fun to do outside
- Boosting the economy in rural areas through tourism
- Improving quality of life in rural areas
- Making rural areas a more attractive place for people or businesses to move to

Q20: To what extent are you concerned about each of the following, regarding off-road vehicle recreation in natural areas in Minnesota?
4-point scale: *Not at all concerned (0) to Very concerned (3)*

- Ruining the enjoyment of other people recreating in natural areas
- Harming the quality of trails and roads
- Harming the environment and the plants and animals that live there

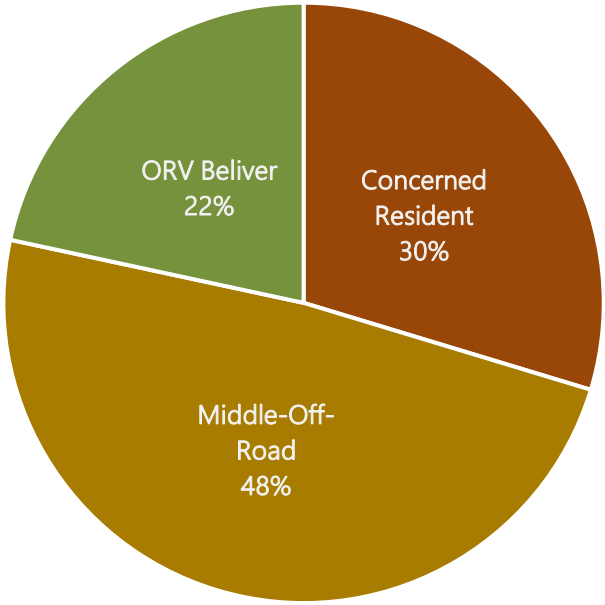
Q24 & Q25: How much do you agree or disagree with these statements about off-road driving in Minnesota?
5-point scale: *Strongly disagree (-2) to Strongly agree (2)*

- It's a good way for people to spend time together
- It seems fun
- It seems dangerous
- It seems expensive
- It's bad for the environment
- It pollutes the water
- It supports many jobs in Minnesota
- It's good for Minnesota's economy
- It should be promoted
- It should be heavily regulated
- It should be allowed everywhere

Persona analysis results

The final segmentation model included three groups. Results suggest nearly half of Minnesota residents would be assigned to the "Middle-Off-Road" group, 30% to the "Concerned Resident" group, and 22% to the "ORV Believer" group.

Group descriptions and demographic traits follow.



Results derived from Q18, Q20, Q24, and Q25

Persona 1: Middle-Off-Road

Summary:

The largest persona group (48%), Middle-Off-Road residents generally held neutral opinions towards ORV recreation. Half said they were at least somewhat familiar with off-road driving, yet only 18% had recent experience in an ORV. Almost half (46%) would feel neutral if they saw people driving off-road vehicles, and few visit natural areas frequently anyway. They tended to think of ORVs as being fun but also dangerous, and they had moderate-low conflict potential with ORV drivers.

Who are they?

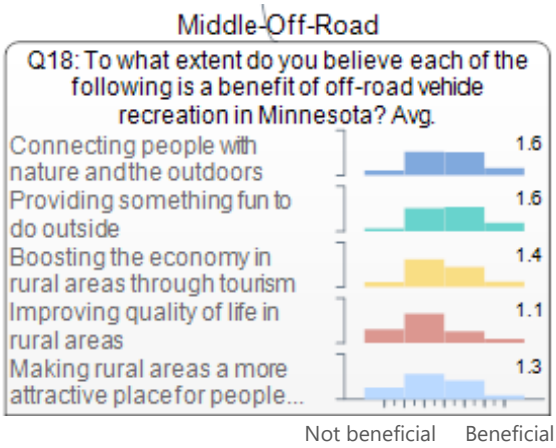
- Evenly split male/female
- More likely to be younger than 25 and less likely to be 55 or older
- Less likely to have a graduate degree
- No common political association

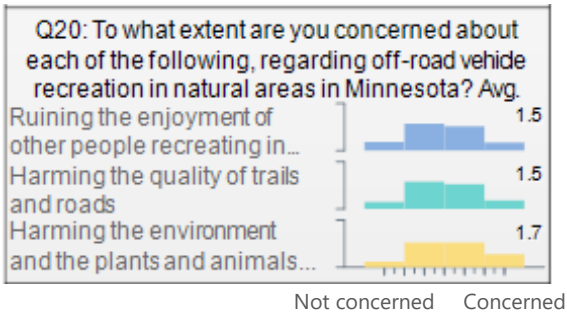
Where are they?

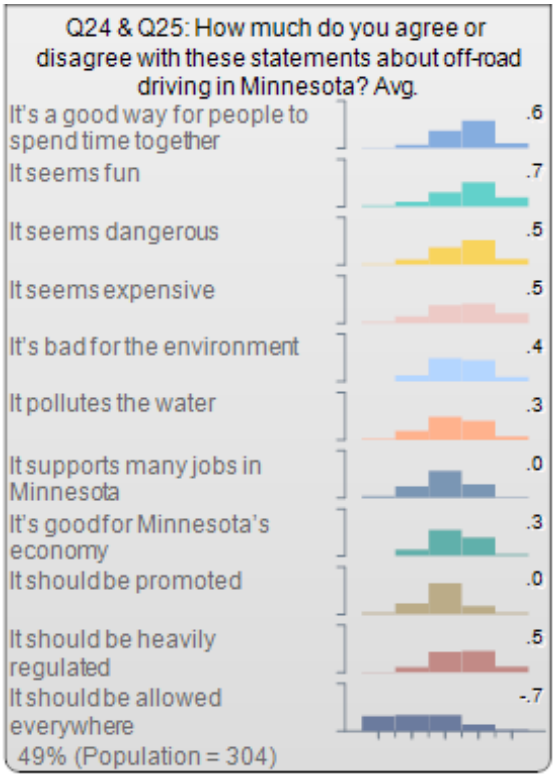
- Slightly higher concentrations in the South region
- Higher concentration in the suburbs

What groups them together?

- Neutral opinions about the economic impacts of ORVs and promoting ORVs
- Slight acknowledgement that ORV recreation may be bad for the environment







Persona 2: Concerned Resident

Summary:

The second largest persona group (30%), Concerned Residents held cautious, negative, or pessimistic opinions about ORV recreation. Half said they were at least somewhat familiar with off-road driving (13% say very familiar), yet only 2% had recent experience in an ORV. About 70% would dislike seeing people driving ORVs, and they tended to hike or walk when they visited natural areas. They tended to think of ORVs as being loud, disruptive, and destructive. There was high conflict potential: 71% said encountering a group of ORVs would be a major or extreme problem, 34% said knowing ORVs are in natural areas would bother them a lot, and 78% disagreed that driving ORVs in natural areas was appropriate.

Who are they?

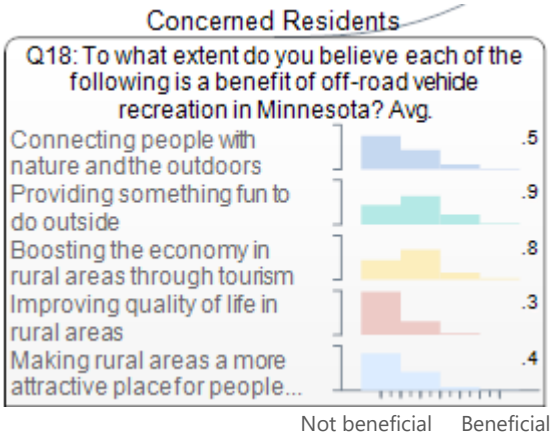
- Evenly split male/female
- Much more likely to be 55 or older, far less likely to be younger than 35
- Well-educated; 65% had a bachelor's or graduate degree
- More likely to lean Democrat (69% / 31%)

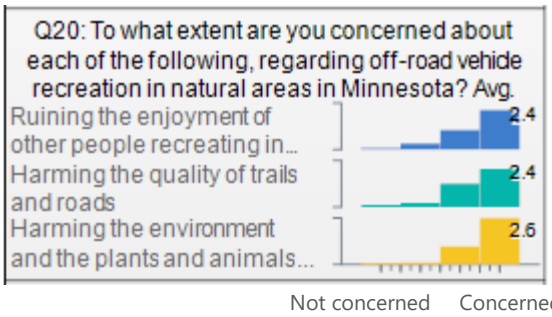
Where are they?

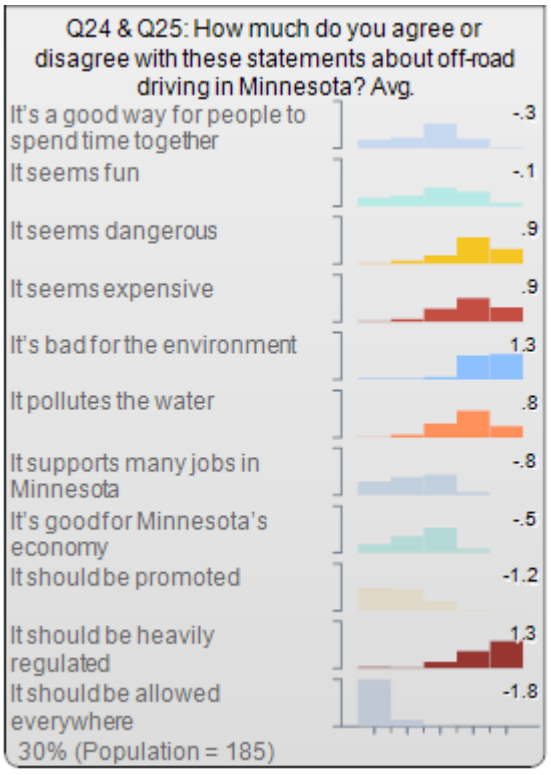
- No regional concentration

What groups them together?

- Disagree that ORVs should be allowed everywhere
- Disagree that ORVs improve quality of life or make rural areas more attractive
- Believe ORVs harm the environment







Persona 3: ORV Believer

Summary:

The smallest persona group (22%), ORV Believers held consistently positive opinions about all things related to ORV recreation. Three-quarters said they were at least somewhat familiar with off-road driving (38% said very familiar). Interestingly, a minority (37%) had recent experience in an ORV, but 56% would enjoy seeing people driving ORVs. ORV Believers were likely to participate in other motorized recreation, but they also bicycled and fished when they visited natural areas. They tended to think of ORVs as being fun and exciting and were unlikely to think they were destructive or loud. There was low conflict potential since most ORV Believers would have no problem with any of the four conflict scenarios tested.

Who are they?

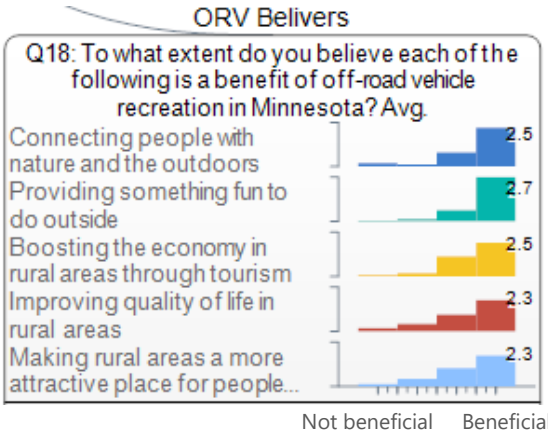
- More likely to be male (54% / 46%)
- Most likely to be age 35 to 54, less likely to be 55 or older
- Two-thirds did not have a 4-year college degree
- More likely to lean Republican (64% / 36%)

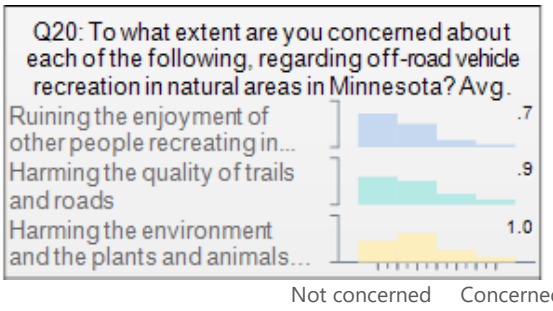
Where are they?

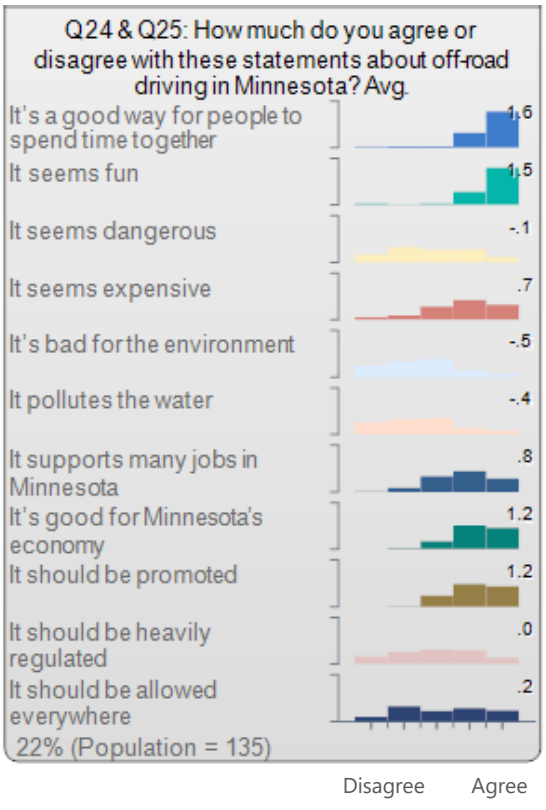
- Slightly concentrated in the Northeast region
- Less likely to live in suburbs

What groups them together?

- Believe off-roading provides something fun to do outside
- Believe ORVs are good for the economy and boosts rural areas through tourism
- Believe ORV recreation should be promoted





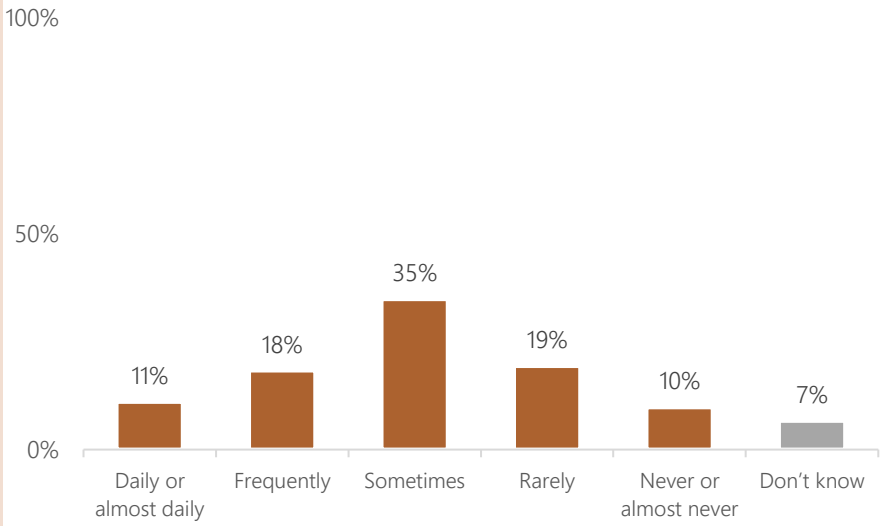


SECTION 4
NORTHERN COMMUNITIES

Questions in this section were only asked of 224 residents living in the Northwest or Northeast region.

Frequency of non-local ORV impact

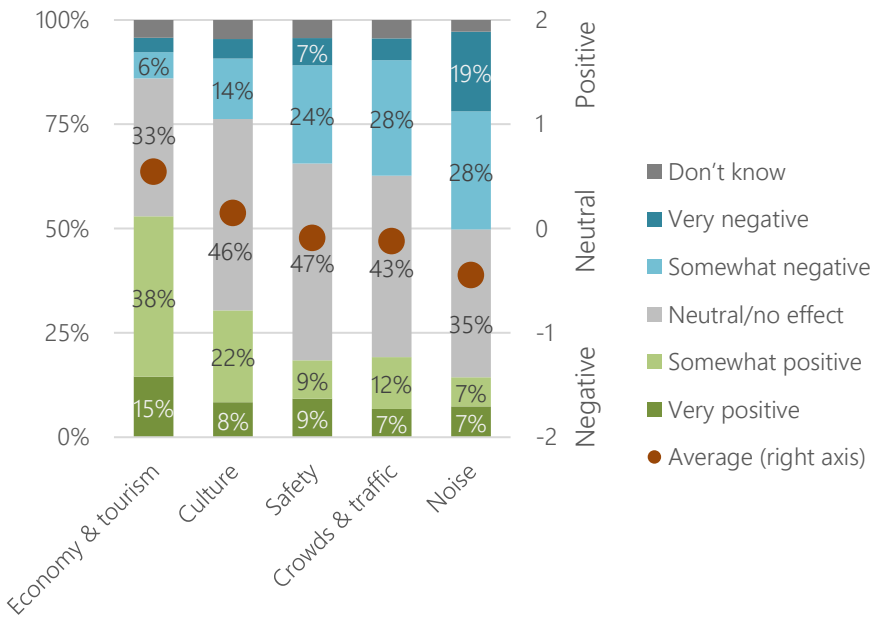
The presence of non-local tourists encountered by local residents in northern communities was moderate, with a plurality of residents saying they sometimes saw ORV tourists in their community. About 10% saw out-of-area ORV tourists nearly daily while another 10% never saw ORV tourists.



Q28: How often do you encounter non-local people driving or towing off-road vehicles into your community or through your community? If you live in a rural area, please think about the nearest community.

Effect of non-local ORV impact

Increased noise, crowds, traffic, and safety to a lesser extent, were all seen as negative impacts of ORV tourists in northern communities, on average. On the positive side, half of residents thought non-local ORV visitors helped the economy through tourism, and 30% thought it had a positive effect on culture.

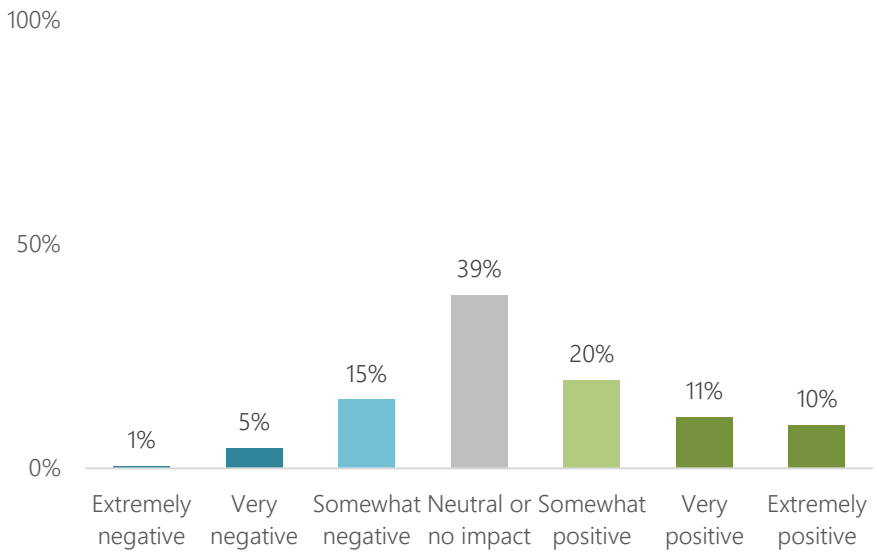


Q29: Do you believe that non-local off-road vehicle users have a positive or negative effect on the following elements of your community? If you live in a rural area, please think about the nearest community.

Overall ORV impact

About 40% of residents thought ORVs had no impact on their northern communities. More residents thought ORVs had a positive impact (41%) than a negative impact (21%).

No statistical differences were found between average scores of the Northwest and Northeast regions.

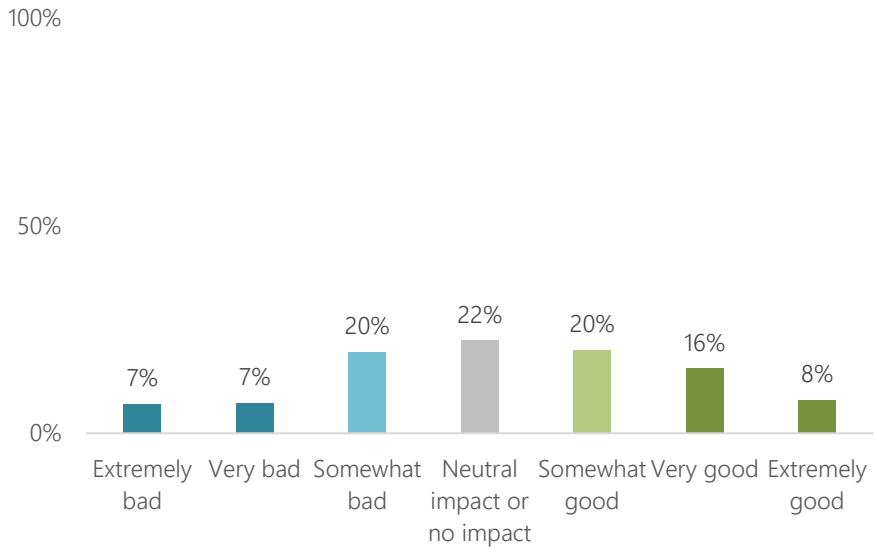


Q30: What is the overall impact of off-road vehicles on your community?

Overall ORV impact

Residents in northern communities were nearly evenly split on the desire for *more* ORV tourists visiting or passing through their communities, with slightly more thinking it would be good than bad (44% versus 34%).

No statistical differences were found between average scores of the Northwest and Northeast regions.



Q31: Do you think it would be good or bad for your community if more "off road tourists" visited or passed through your area?

APPENDIX A
METHODOLOGY

An online restricted access panel survey was conducted to understand statewide public opinion of off-road vehicle recreation in Minnesota's natural areas.

- The survey's questionnaire was designed by Corona Insights staff, with guidance and input from SE Group and Minnesota Department of Natural Resources staff.
- One thousand nineteen (1,019) adult Minnesota residents participated in the survey, and they were segmented by Minnesota Department of Natural Resources regions:
  - Central – 670 participants
  - Northeast – 121 participants
  - Northwest – 103 participants
  - South – 125 participants
- The sample of panel survey respondents was provided by Dynata, an industry leading commercial online sample provider.
  - While an online panel is not a statistically valid survey, it is a more rigorous approach than an open-access or emailed survey link. Additionally, because the survey topic is blind, the results have less non-response bias than other survey modes such as phone or mail surveys.
- In survey research, it is typical for the profile of respondents to not exactly match the profile of people the survey is intended to represent. This mismatch can be corrected by applying statistical weights, which help balance the response set and increase the accuracy of the results. Results of this panel survey were weighted to correct for three factors:
  - Geography: Four MN DNR regions
  - Gender: Male / Female
  - Age: 18 to 34/ 35 to 54/ 55 or older
- Weights were based on population profile estimates of the U.S. Census Bureau's American Community Survey (Table ID S0101) 5-year estimates.

APPENDIX B
QUESTIONNAIRE

Programming notes are in [RED] and research design notes and explanation are in [BLUE]. Sub-headers will not be programmed.

INTRODUCTION

Thank you for participating in this survey.

Please read each question carefully and answer honestly.

Your opinions are valued.

SCREENING QUESTIONS

1. In what state do you currently live?
    a. List of US states and Washington DC [Terminate if not Minnesota]
2. In what Minnesota county do you currently live?
    a. List of counties [Terminate if Not Sure] [Collect as many responses as possible from Northeast, Northwest and South regions. Remaining responses will come from Central region.]
3. Which of the following Minnesota cities or towns have you visited in the past 24 months? *Mark all that apply* [Randomize]
    a. Willmar
    b. Kendrick [Terminate]
    c. Minturn [Terminate]
    d. None of the above
4. What year were you born? [Age and screener]
    a. _____ *Enter a 4-digit year* [Terminate if greater than 2004]

GENERAL OUTDOOR RECREATION

This introduction will help ensure all respondents have the same general understanding of what natural areas are and what type of outdoor recreation we are talking about. We try to use terms that are familiar to the general public to describe it. For example, we try to avoid using "public lands," "natural resources," and "outdoor recreation opportunities."

The next few questions will ask you about recreating in natural areas in Minnesota, which often contain forests, lakes, ponds, or meadows.

People often recreate in natural areas by hiking, fishing, biking, picnicking, and bird watching.

In natural areas, many people drive machines for recreation, such as off-road vehicles (4x4s), all-terrain vehicles, motorboats, and snowmobiles.

In contrast, this survey is **not** about parks where you might see playgrounds, tennis courts, or playing fields. Please do not consider parks when answering survey questions.

5. In the past 24 months, how often have you visited natural areas in Minnesota?
    a. Never
    b. Rarely
    c. Occasionally
    d. Frequently

[If never or rarely] It is ok that you [never/rarely] visited natural areas in Minnesota. We still want to hear your opinions. Please click next.

6. [If rarely, occasionally, or frequently visited natural areas] How frequently did you do each of the following when visiting natural areas in Minnesota in the past 24 months? [Randomize] [We ask about experience with a mix of motorized and non-motorized activities to provide context]

	Never	Rarely	Occasionally	Frequently	Type
Bicycled	❍	❍	❍	❍	Non-motorized
Drove or rode in an off-road vehicle (4x4)	❍	❍	❍	❍	Motorized
Drove or rode an all-terrain vehicle (ATV) or off-road motorcycle	❍	❍	❍	❍	Motorized
Fished	❍	❍	❍	❍	Non-motorized
Hiked or walked	❍	❍	❍	❍	Non-motorized

Motor-boated or jet-skied	❍	❍	❍	❍	Motorized
Snowmobiled	❍	❍	❍	❍	Motorized
Watched birds or other wildlife	❍	❍	❍	❍	Non-motorized

7. If you were recreating in a natural area in Minnesota, do you think you would enjoy or dislike seeing other people doing each of the following activities? [Randomize] [This question begins to measure reception to ORVs and puts it in context with other motorized and non-motorized activities. We can see the extent that frequency of participating in motorized or non-motorized activities relates to acceptance of seeing people doing that activity.]

	I would enjoy seeing others do this	Neutral	I would dislike seeing others do this
Bicycling	❍	❍	❍
Driving an off-road vehicle (4x4)	❍	❍	❍
Driving an all-terrain vehicle (ATV) or off-road motorcycle	❍	❍	❍
Fishing	❍	❍	❍
Hiking	❍	❍	❍
Motor-boating or jet skiing	❍	❍	❍
Snowmobiling	❍	❍	❍
Watching birds or other wildlife	❍	❍	❍

8. To what extent do you agree or disagree with the following statements? [Do not randomize] [This question begins to measure reception to off-road driving, but before ORVs are defined. Attitudes towards hiking trails are asked to provide context and comparison.]

	Strongly Agree	Somewhat Agree	Neither agree nor disagree	Somewhat Disagree	Strongly Disagree
Hiking trails in natural areas are good	❍	❍	❍	❍	❍
Dirt roads for driving in natural areas are good	❍	❍	❍	❍	❍
People hiking on dirt trails harms the natural area	❍	❍	❍	❍	❍

People driving on dirt roads harms the natural area	❍	❍	❍	❍	❍

ABOUT ORV RECREATION

We would like to ask your opinion about off-road vehicles now. Off-road vehicles are typically sport utility vehicles (SUVs) such as Jeeps and pickup trucks. They often have 4-wheel drive (4x4), big tires, and high clearance, which make it easier to drive over rough, rocky, or muddy ground. Some people recreate by driving off-road vehicles in natural areas. Here are some pictures of off-road vehicles in Minnesota.


9. Before taking this survey, how familiar were you with off-road driving, which is also known as four-wheeling? [To measure level of familiarity]
    a. Very familiar
    b. Somewhat familiar
    c. A bit familiar
    d. Not at all familiar
10. [If visited a natural area in past 24 months] When you have visited natural areas in Minnesota in the past 24 months, how often have you encounter off-road vehicles?
    a. 80% to 100% of the time
    b. 60% to 79% of the time
    c. 40% to 59% of the time
    d. 20% to 39% of the time
    e. 1% to 19% of the time
    f. Never (0% of the time)
11. [If NOT visited a natural area in past 24 months] If you were to visit a natural area in Minnesota, how often do you think you would encounter off-road vehicles? We can compare expected encounters (this question) with experienced encounters (prior question).
    a. 80% to 100% of the time
    b. 60% to 79% of the time
    c. 40% to 59% of the time
    d. 20% to 39% of the time
    e. 1% to 19% of the time
    f. Never (0% of the time)

12. Have you gone off-road driving in Minnesota in the past 24 months? This could be as a driver or a passenger. [To classify as ORV user]
    a. Yes
    b. No
13. [If yes] How frequently have you gone off-road driving in Minnesota in the past 24 months? This could be as a driver or a passenger.
    a. Rarely
    b. Sometimes
    c. Often
    d. Very often

RECEPTION OF OFF-ROAD VEHICLES

14. What are three words or short phrases that describe off-road driving to you? [Used to gauge sentiment towards off-road driving. Sentiment can be coded and compared by region or other segments]
    a. _____
    b. _____
    c. _____
15. If you were in a natural area in Minnesota, how much might each of the following be a problem for you? [Do not randomize] [To measure potential for interpersonal conflict, if non-OHV and OHV drivers were to recreate in the same areas. Specific beneficial and concerning behaviors are explored later on]

	Not a problem at all	Slight problem	Moderate problem	Major problem	Extreme problem
Hearing an off-highway vehicle	❍	❍	❍	❍	❍
Seeing an off-highway vehicle	❍	❍	❍	❍	❍
Coming across a group of off-highway vehicles	❍	❍	❍	❍	❍
Seeing tracks on a road left by an off-highway vehicle	❍	❍	❍	❍	❍

16. Please select how you would complete this statement:
    "Just knowing that people are driving off-highway vehicles on roads in Minnesota's natural areas…." To measure social values conflict and compare to interpersonal conflict potential. Social value conflict exists when people oppose a recreation activity even when it does not interfere with their own experience directly.
    a. …does not bother me at all
    b. …bothers me a little

c. ...bothers me some

d. ...bothers me a lot

17. To what extent do you agree or disagree with this statement: "*Driving off-highway vehicles on roads in Minnesota's natural areas is a completely appropriate way to recreate.*" To measure social values conflict. [Reverse coded]

a. Strongly agree

b. Somewhat agree

c. Neither agree nor disagree

d. Somewhat disagree

e. Strongly disagree

BENEFITS OF ORVS

18. To what extent do you believe each of the following is a benefit of off-road vehicle recreation in Minnesota? [Randomize] [To measure perceived benefits of ORV recreation. These are general categories]

	Not at all beneficial	Slightly beneficial	Somewhat beneficial	Very beneficial
Connecting people with nature and the outdoors	❍	❍	❍	❍
Providing something fun to do outside	❍	❍	❍	❍
Boosting the economy in rural areas through tourism	❍	❍	❍	❍
Improving quality of life in rural areas	❍	❍	❍	❍
Making rural areas a more attractive place for people or businesses to move to	❍	❍	❍	❍

19. How frequently do you believe people driving off-road vehicles in Minnesota's natural areas do each of the following? [Randomize] [To measure perceived expectations of positive behaviors]

	Never	Rarely	Sometimes	Often	Very often
Educate other off-road vehicle drivers about how to share roads and trails	❍	❍	❍	❍	❍
Volunteer to restore driving trails that get damaged	❍	❍	❍	❍	❍

Pay fees to maintain or make new campsites, roads, and trails	❍	❍	❍	❍	❍
Assist other natural area visitors who need help	❍	❍	❍	❍	❍
Leave no trace of their presence	❍	❍	❍	❍	❍
Show courtesy to other visitors	❍	❍	❍	❍	❍

CONCERNS ABOUT ORVS

20. To what extent are you concerned about each of the following, regarding off-road vehicle recreation in natural areas in Minnesota? [Randomize] [To measure perceived negative outcomes of ORVs. These are general categories.]

	Not at all concerned	Slightly concerned	Somewhat concerned	Very concerned
Ruining the enjoyment of other people recreating in natural areas	❍	❍	❍	❍
Harming the quality of trails and roads	❍	❍	❍	❍
Harming the environment and the plants and animals that live there	❍	❍	❍	❍

21. How frequently do you believe people driving off-road vehicles do each of the following? [Randomize] [To measure perceived expectations of negative behaviors specific to driving]

	Never	Rarely	Sometimes	Often	Very often
Drive unsafely	❍	❍	❍	❍	❍
Drive on closed trails or areas	❍	❍	❍	❍	❍
Drive too fast	❍	❍	❍	❍	❍
Create ruts in trails	❍	❍	❍	❍	❍
Drive under the influence of alcohol	❍	❍	❍	❍	❍

22. How frequently do you believe people driving off-road vehicles do each of the following? [Randomize] [To measure perceived expectations of negative behaviors, not driving specific]

	Never	Rarely	Sometimes	Often	Very often
Shoot guns	❍	❍	❍	❍	❍
Poach wildlife	❍	❍	❍	❍	❍
Litter or leave trash	❍	❍	❍	❍	❍
Destroy signs	❍	❍	❍	❍	❍

PERSONA DEVELOPMENT

23. Regardless of how much you know about it, is your opinion of off-road driving in natural areas… [General attitude]
    a. Extremely positive
    b. Very positive
    c. Somewhat positive
    d. Slightly positive
    e. Neither positive nor negative
    f. Slightly negative
    g. Somewhat negative
    h. Very negative
    i. Extremely negative

[If "A bit familiar" or "Not at all familiar" with off-road driving] Even though you are [only a bit familiar / not at all familiar] with off-road driving, please still answer the following questions based on what you think.

24. How much do you agree or disagree with these statements about off-road driving in Minnesota? [Randomize]

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Dimension
It's a good way for people to spend time together	❍	❍	❍	❍	❍	Experience
It seems fun	❍	❍	❍	❍	❍	Experience
It seems dangerous	❍	❍	❍	❍	❍	Experience
It seems expensive	❍	❍	❍	❍	❍	Experience

It's bad for the environment	❍	❍	❍	❍	❍	Environmental
It pollutes the water	❍	❍	❍	❍	❍	Environmental

25. How much do you agree or disagree with these statements about off-road driving in natural areas in Minnesota? [Randomize]

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Dimension
It supports many jobs in Minnesota	❍	❍	❍	❍	❍	Economic
It's good for Minnesota's economy	❍	❍	❍	❍	❍	Economic
It should be promoted	❍	❍	❍	❍	❍	Policy
It should be heavily regulated	❍	❍	❍	❍	❍	Policy
It should be allowed everywhere	❍	❍	❍	❍	❍	Policy

26. Do you think natural areas in Minnesota should be managed to maximize environmental protection, maximize outdoor recreation opportunities, or a balance of both? [To measure general attitude towards management options]

    a. Strongly emphasize environmental protection
    b. Somewhat emphasize environmental protection
    c. Equal balance between environmental protection and outdoor recreation
    d. Somewhat emphasize outdoor recreation
    e. Strongly emphasize outdoor recreation

27. To what extent do you agree or disagree with this statement: "A statewide off-highway vehicle trail plan will reduce unsanctioned four-wheeling."

    a. Strongly agree
    b. Somewhat agree
    c. Neither agree nor disagree
    d. Somewhat disagree
    e. Strongly disagree

OFF-ROAD VEHICLE TOURISM AND RECEPTION IN NORTHERN COMMUNITIES

Asked only of residents in Northeast and Northwest regions.

28. How often do you encounter non-local people driving or towing off-road vehicles into your community or through your community? If you live in a rural area, please think about the nearest community.
    a. Daily or almost daily
    b. Frequently
    c. Sometimes
    d. Rarely
    e. Never or almost never
    f. Not sure/don't know

29. Do you believe that non-local off-road vehicle users have a positive or negative effect on the following elements of your community? If you live in a rural area, please think about the nearest community.

	Very positive	**Somewhat positive**	**Neutral/no effect**	**Somewhat negative**	**Very negative**	***Don't know***
Economy and tourism	❍	❍	❍	❍	❍	❍
Safety	❍	❍	❍	❍	❍	❍
Crowds and traffic	❍	❍	❍	❍	❍	❍
Noise	❍	❍	❍	❍	❍	❍
Culture	❍	❍	❍	❍	❍	❍

30. What is the overall impact of off-road vehicles on your community?
    a. Extremely positive
    b. Very positive
    c. Somewhat positive
    d. Neutral impact or no impact
    e. Somewhat negative
    f. Very negative
    g. Extremely negative

31. Do you think it would be good or bad for your community if more "off road tourists" visited or passed through your area?
    a. Extremely good
    b. Very good
    c. Somewhat good
    d. Neutral impact or no impact

e. Somewhat bad
f. Very bad
g. Extremely bad

DEMOGRAPHICS

Lastly, we'd like to learn a bit more about you.

32. What best describes the type of neighborhood you live in?
    a. Urban
    b. Suburban
    c. Rural

33. How would you rate the current economy in your area?
    a. Very strong
    b. Somewhat strong
    c. Somewhat weak
    d. Very weak

34. Are you …? [Gender]
    a. Male
    b. Female
    c. Prefer to self-describe _____

35. Which of the following best describe your race/ethnicity? *Please check all that apply*. [Race & Ethnicity – US Census categories]
    a. American Indian, Alaska Native, or Native American
    b. Hispanic, Latinx, or Spanish origin
    c. Asian
    d. Native Hawaiian or Other Pacific Islander
    e. Black or African American
    f. White or European American
    g. Some other race. Please specify _____

36. What is the highest degree or level of school you have completed? [Educational attainment – US Census categories]
    a. Some high school, no diploma or GED
    b. High school diploma or GED
    c. Some college, no college degree
    d. Associate degree
    e. Bachelor's degree
    f. Graduate or professional degree

37. In politics today, do you consider yourself a Republican, a Democrat, an Independent, or something else? [Political affiliation - from Pew Research Center (also Gallup uses). Needed for weighting]
    a. Republican
    b. Democrat
    c. Independent
    d. Something else
38. [If Independent/Something else/no answer] As of today, do you lean more to the Republican Party or the Democratic Party? [Political affiliation - from Pew Research Center]
    a. Republican Party
    b. Democratic Party

FINAL COMMENTS

39. What else would you like to say about off-road vehicles and outdoor recreation in Minnesota?
    a. _____