

**SENATE
STATE OF MINNESOTA
NINETY-THIRD SESSION**

S.F. No. 5142

(SENATE AUTHORS: JASINSKI)

DATE
03/21/2024

D-PG
12527 Introduction and first reading
Referred to Transportation

OFFICIAL STATUS

1.1 A bill for an act
1.2 relating to transportation; establishing an autonomous ditch mowing program;
1.3 requiring a report.

1.4 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

1.5 Section 1. **AUTONOMOUS DITCH MOWERS.**

1.6 Subdivision 1. Definitions. (a) For purposes of this section, the following terms have
1.7 the meanings given.

1.8 (b) "Autonomous mower" means a robotic or automated device designed, programmed,
1.9 and operated to cut grass or vegetation without the need for human intervention.

1.10 (c) "Commissioner" means the commissioner of transportation.

1.11 (d) "Project" means the autonomous ditch mowing pilot project authorized by this section.

1.12 (e) "Project corridor" means the segment of marked Interstate Highway 35 from the
1.13 border with Iowa to the marked Interstate Highway 35E-35W interchange in the city of
1.14 Burnsville.

1.15 Subd. 2. Pilot project. (a) The commissioner must conduct an autonomous mowing
1.16 pilot project to study and analyze the use of robotics and automation for ditch mowing and
1.17 maintenance activities in the trunk highway right-of-way. The commissioner must deploy
1.18 the pilot project at multiple locations and at multiple times of the year along the project
1.19 corridor based on traffic volume, weather and precipitation conditions, vegetation type and
1.20 density, and terrain.

2.1 (b) The commissioner must use different configurations and types of autonomous mowers
2.2 to study the capability for future deployment along the trunk highway system statewide.
2.3 Configurations must study different sensors and methods of programming the autonomous
2.4 mower to operate safely and navigate obstacles in ditches or other land alongside the project
2.5 corridor right-of-way.

2.6 (c) The commissioner may enter into an agreement with a third-party vendor responsible
2.7 for maintenance and operations of the autonomous mowers and the supporting equipment
2.8 used in the project.

2.9 (d) The commissioner must analyze the efficiency and productivity gains from the
2.10 operation and deployment of the pilot project along the project corridor. The commissioner
2.11 must collect data on the following factors related to the pilot project:

2.12 (1) the hours of operation for autonomous mowers, including battery life where
2.13 applicable;

2.14 (2) the type of terrain, vegetation, and road segments where autonomous mowers were
2.15 used;

2.16 (3) the most common types of obstacles or obstructions encountered by the autonomous
2.17 mowers and the success rate of the mowers safely navigating the obstacles;

2.18 (4) the types of programmed, predefined routes for cutting grass and vegetation
2.19 effectively;

2.20 (5) the impact on road traffic and delays in the project corridor when autonomous mowers
2.21 were deployed versus the delays caused by conventional maintenance activities;

2.22 (6) a cost benefit analysis compared to traditional mowing methods used by the
2.23 Department of Transportation, including the costs of repair and maintenance, fuel,
2.24 technology, and labor;

2.25 (7) the environmental impact of using autonomous mowers compared to traditional
2.26 gas-powered methods of mowing; and

2.27 (8) the safety considerations when deploying autonomous mowers in and alongside the
2.28 trunk highway right-of-way.

2.29 (e) When implementing the pilot project, the commissioner must use adequate signage
2.30 to notify road users about the presence of autonomous mowers operating in and alongside
2.31 the trunk highway right-of-way.

3.1 Subd. 3. Report. (a) By January 15, 2026, the commissioner must submit a report to
3.2 the chairs, ranking minority members, and legislative staff of the legislative committees
3.3 with jurisdiction over transportation finance and policy on the results of the pilot project.

3.4 The report must include:

3.5 (1) the total cost of the pilot project and information on pilot project expenditures,
3.6 including maintenance, labor, equipment, signage, operations, and programming;

3.7 (2) information on the types and design of autonomous mowers deployed in the project;

3.8 (3) the number of hours autonomous mowers were in operation along the project corridor;

3.9 (4) the type of vegetation cut by autonomous mowers and whether certain types of
3.10 vegetation posed operational challenges for autonomous mowers;

3.11 (5) the terrain where the autonomous mowers were deployed and whether certain
3.12 environmental limitations affected the mowers' effectiveness in the project corridor;

3.13 (6) a description of any accidents or incidents involving autonomous mowers;

3.14 (7) maintenance and operation costs for autonomous mowers;

3.15 (8) feedback from highway maintenance staff on the use of autonomous mowers;

3.16 (9) other opportunities for autonomous mowers to be tested and deployed along the trunk
3.17 highway system statewide; and

3.18 (10) recommendations on implementing autonomous mowers as part of the Department
3.19 of Transportation's management and maintenance of the trunk highway system and any
3.20 legislative changes necessary to deploy the technology in locations beyond the pilot project's
3.21 location.

3.22 (b) For purposes of this subdivision, "legislative staff" means those employees who are
3.23 identified in any of the following roles for the legislative committees: committee
3.24 administrator, committee legislative assistant, caucus research, fiscal analysis, counsel, or
3.25 nonpartisan research.

3.26 **EFFECTIVE DATE.** This section is effective the day following final enactment.