

Irrigation Systems for Boulevards and Roadsides

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The use of salt-tolerant sod and seed mixtures on roadsides has been the result of a collaborative effort between the Minnesota Department of Transportation and the University of Minnesota. Through previous research the University has developed MNST-12, a mixture of primarily fine fescue species that have been implemented as sod or seed on roadsides in Minnesota. Through on-site assessments, we have determined that there are a significant number of roadside sod establishment failures, even with the use of the improved mixtures. After evaluation, it has been concluded that these failures are the result of several factors including poor pre- and post-installation watering, poor soil preparation, seasonal weather influence, slow rooting of fine fescue sod and lack of nutrients. The primary factor limiting the success of the salt-tolerant turfgrass has been watering during establishment. It was determined that current watering practices are insufficient and costly, alternative methods for irrigating fine fescue sod/seed need to be investigated. This research involves the implementation and testing of five alternative systems for irrigating seed and sod establishments on roadsides. These systems have currently been installed on two roadsides in 2016 and we will be evaluating two additional sites in 2017, as well as one establishment on a sloped area at the Turfgrass Research Center.

Treatments were established for Site 1 on Larpenteur Avenue in mid-May and were in operation for a 60-day watering period. The treatments consisted of both 12 and 18 inch emitter spacing Netafim Streamline 630 Series 8 mil drip line (place above or beneath sod or seed), fixed spray head using 5'X15' side strip MP Rotator nozzles, and an unirrigated control. The treatments were installed on both seed and sod in 4.5 foot wide by 15 foot long plots on the roadside boulevard. The site was prepped and the irrigation was installed during a two week period prior to seeding and sodding. The water source for the treatments was a water hydrant located in the boulevard with a meter and ¾" connection provided by Saint Paul Regional Water Services. Seed treatments were seeded at a rate of 4lbs. per 1000 ft². Seed and sod treatments were fertilized with 14-14-14 fertilizer at a rate of 1lb. P₂O₅ per 1000 ft². Seed treatments were watered after seeding with an adequate amount of water to moisten the entire area. Sod treatment areas were watered prior to installation and immediately after to achieve 1inch of water applied. For the following ten days after installation all treatments were watered at a rate to keep the area moist. On days 11-30 treatments were watered to achieve 1" per week. For the remaining 30 days water was applied at a rate of 0.5" per week.

Treatment	Row and emitter spacing	Gallons per hour	Operating pressure	Above or Below
Netafim streamline	18" X 18"	0.26	15 psi	Above
Netafim streamline	12" X 12"	0.26	15 psi	Above
Netafim streamline	18" X 18"	0.26	15 psi	Below
Netafim streamline	12" X 12"	0.26	15 psi	Below
Overhead	15' (5'X15')	26.4	40 psi	NA
Control	NA	NA	NA	NA