

# Lawns to Legumes Individual Awards Selection Protocol – January 2025

BWSR has developed a GIS based approach to guide the selection of Lawns to Legumes Individual Support applicants. This approach considers applicants' locations relative to mapped priority pollinator areas, as well as balanced geographic distribution and equity/environmental justice. Demand for support greatly outstrips supply.

The selection process uses a GIS-based lottery distribution system while balancing several criteria:

1. Priority habitat areas for the rusty-patched bumblebee, public waters, the I35 corridor, and the DNR wildlife action network (all combined to create mapped priority area 1). Note that we anticipate the refinement of these maps as further research takes place.
2. Geographic distribution, ensuring all regions of the state are represented, while recognizing that a large majority of applications are clustered in the Twin Cities metro and other urban areas.
3. Environmental justice, ensuring that low-income, minority, and tribal communities are represented among the selected recipients.

Details of the process are as follows:

1. [SWCD Technical Service Areas](#) (TSAs) were used to provide an initial set of polygons for geographic distribution across the state.
2. All applicant addresses were geocoded and initial geographic distribution assessed. The results were as follows:

```
8285 Matched (99.65%)
12 Unmatched (0.14%)
17 Tied (0.20%)
```

3. Within all TSAs points were assigned to each applicant based on priority area location and location in an environmental justice\* (EJ) area.
  - Priority Area 1: 2 points
  - Priority Area 2: 1 point
  - EJ Area: +1 point
    - In only 1 EJA area: +.25 points
    - In 2 EJA areas: +.5 points
    - In 3 EJA areas: +.75 points
    - In 4 EJA areas: No applications met these conditions

Therefore, 3.75 points was the maximum that could be assigned.

4. Within each outstate TSA, applicants with the highest scores were selected aiming for a total of 1,200 funded outstate applications (40% of 3,000), or 171-172 per TSA. Since TSA 5 had less than 171 (119) total applicants, all 119 applicants in TSA 5 were funded. The remaining unallocated awards was 1,081. These 1,081 awards then needed to be distributed to the

remaining 6 outstate TSAs giving five of them 180 awards and one of them 181 awards. TSA 3 had the greatest number of applications outside of TSA 4 so it received the extra award.

5. Within TSAs 3, 6, and 7, to achieve better geographic distribution between highly populated areas and rural area, 40% (72) of the awards were given within cities with a population greater than 14,000, and 60% (108) were awarded across the remainder of the TSA. Populated areas used in the 40% distribution were:

FEATURE_NAME
Albert Lea
Austin
Duluth
Faribault
Hibbing
Hutchinson
Mankato
New Ulm
North Mankato
Northfield
Owatonna
Red Wing
Rochester
Winona

6. Within the metro area the goal was to select 1,800 awards (60% of total). To achieve better geographic distribution across the metro area, of the 1,800 metro awards 40% (720) were awarded within the St. Paul and Minneapolis municipal boundaries. 60% (1080) were awarded across the remainder of the greater metro area within TSA 4. Note that all the St. Paul/Minneapolis area, and most of the remaining TSA 4 area falls into Priority Area 1. A GIS-based lottery process was used to assign awards for the 40% and the 60% groups.

# GIS Selection Process

For all TSAs, when the award selection reached a point where the remaining applications had tied scores without enough remaining awards to go to all of them, the following GIS-based lottery selection process was applied:

- A numerical field (NUM) was populated with an increasing sequential number for each of the remaining records with a tied score, sorted by Object ID.
- The following process was then used to spatially select an evenly distributed subset of those records that would come as close as possible to achieving the remaining number of required awards:
  - # tied records / # needed awards ~ every N<sup>th</sup> record to be selected (N was rounded to the nearest integer)
  - The function **MOD(NUM + 2N - 1, N) = 0** where NUM is the sequential numerical field and N is the N<sup>th</sup> record was applied to the NUM field to select every N<sup>th</sup> record in order sorted by OID.
  - Example:
    - There are 50 remaining awards to be given
    - There are 200 records with a tied score of 2 to distribute the remaining 50 awards to
    - $N = 200/50 = 4$
    - The function  $\text{MOD}(\text{NUM} + 8 - 1, 4) = 0$  is applied to the NUM field to select every 4<sup>th</sup> record for a total of 50 records awarded
  - If N did not select the precise number of required records to fulfill the awards, the process was repeated on the remaining number that would be required, or if the difference was small enough ( $\leq 3$ ), an additional few records were manually selected or removed randomly from the selection to equal the required number.

## **NON METRO – 1,200 Awarded Applications:**

- 1) TSA 5 received 119 awards. There were only 119 total applicants, so all applications in TSA 5 were awarded.
- 2) TSA 1 received 180 awards. There were 115 applicants with a score of 2 or higher, so all were awarded. The GIS-based lottery selection process was used to give 65 awards to the remaining 293 score 1 applicants.
- 3) TSA 2 received 180 awards. There were 89 applicants with a score of 2.25 or higher, so all were awarded. The GIS-based lottery selection process was used to give 91 awards to the remaining 116 score 2 applicants.
- 4) TSA 3

- Populated areas received 72 awards. There were 62 applicants with a score of 2.25 or higher, so all were awarded. The GIS-based lottery selection process was used to give 10 awards to the remaining 109 score 2 applicants.
  - Rural areas received 108 awards. There were 45 applicants with a score of 2.25 or higher, so all were awarded. The GIS-based lottery selection process was used to give 63 awards to the remaining 158 score 2 applicants.
- 5) TSA 6
- Populated areas received 72 awards. There were 29 applicants with a score of 2.25 or higher, so all were awarded. The GIS-based lottery selection process was used to give 43 awards to the remaining 63 score 2 applicants.
  - Rural areas received 108 awards. There were 89 applicants with a score of 2 or higher, so all were awarded. The GIS-based lottery selection process was used to give 19 awards to the remaining 135 score 1 applicants.
- 6) TSA 7
- Populated areas received 72 awards. There were 74 applicants with a score of 2.25 or higher, so all but 2 random applications were awarded.
  - Rural areas received 108 awards. There was 1 applicant with a score of 2.25 or higher (3.25), so it was awarded. The GIS-based lottery selection process was used to give 107 awards to the remaining 267 score 2 applicants
- 7) TSA 8 received 180 awards. There were 106 applicants with a score of 2.25 or higher, so all were awarded. The GIS-based lottery selection process was used to give 74 awards to the remaining 87 score 2 applicants.

**METRO (TSA Area 4) – 1,800 Awarded Applications (720 in St. Paul/Minneapolis municipal boundaries, 1,080 in the greater metro area):**

- 8) The St. Paul/Minneapolis municipal area received 720 awards. There were 612 applicants with a score of 2.25 or higher, so all were awarded. The GIS-based lottery selection process was used to give 108 awards to the remaining 1,264 score 2 applicants.
- 9) The greater metro area received 1,080 awards. There were 317 applicants with a score of 2.25 or higher, so all were awarded. The GIS-based lottery selection process was used to give 763 awards to the remaining 2,964 score 2 applicants.

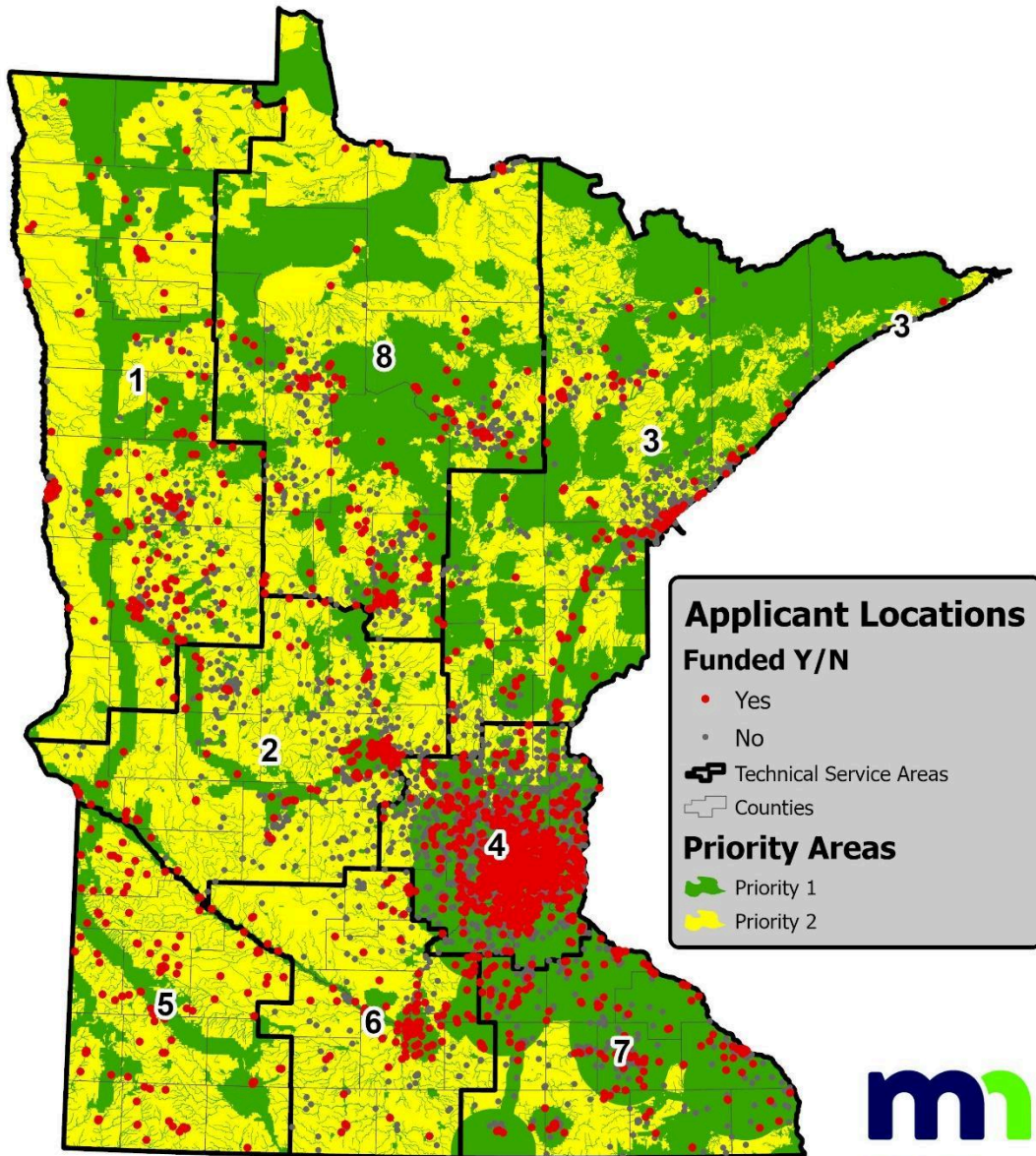
Code to calculate sequential number field:

Pre-Logic Script Code:

```
rec=0
def autoIncrement():
    global rec
    pStart = 1
    pInterval = 1
    if (rec == 0):
        rec = pStart
    else:
        rec += pInterval
```

```
return rec
NUM =
autoIncrement ()
```

## Lawns to Legumes Awarded Applications January 2025



January 2025