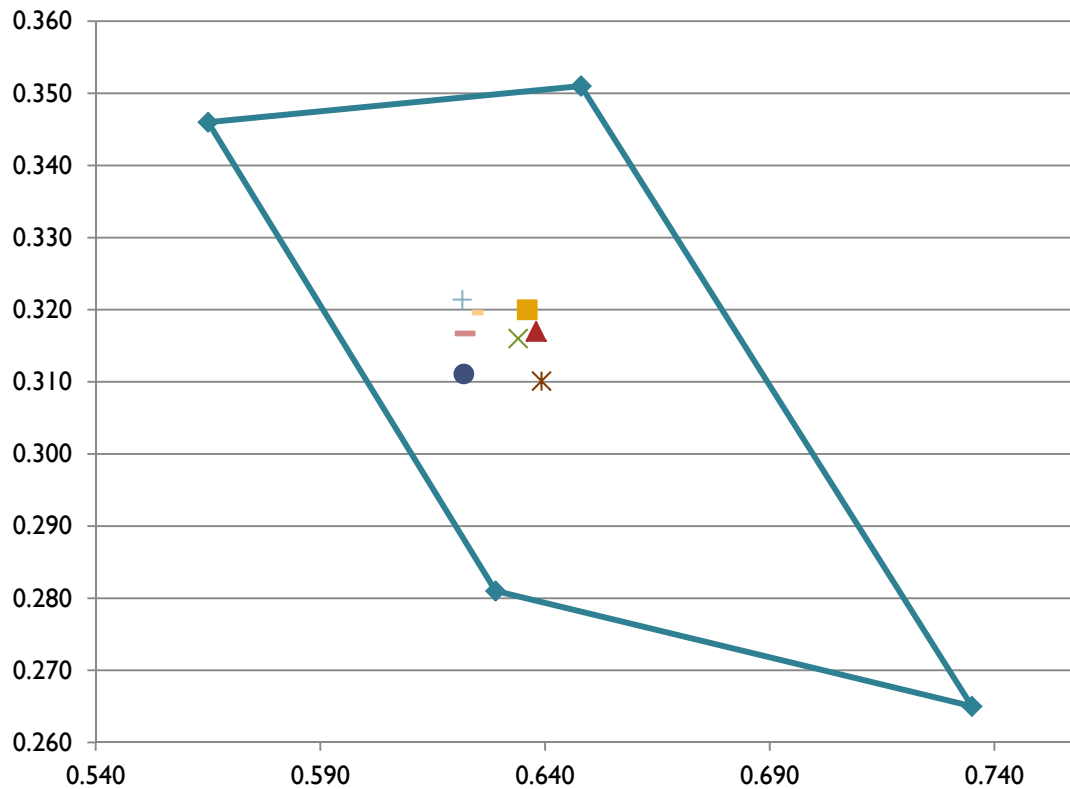


# MnDOT Sign Color Data - Red



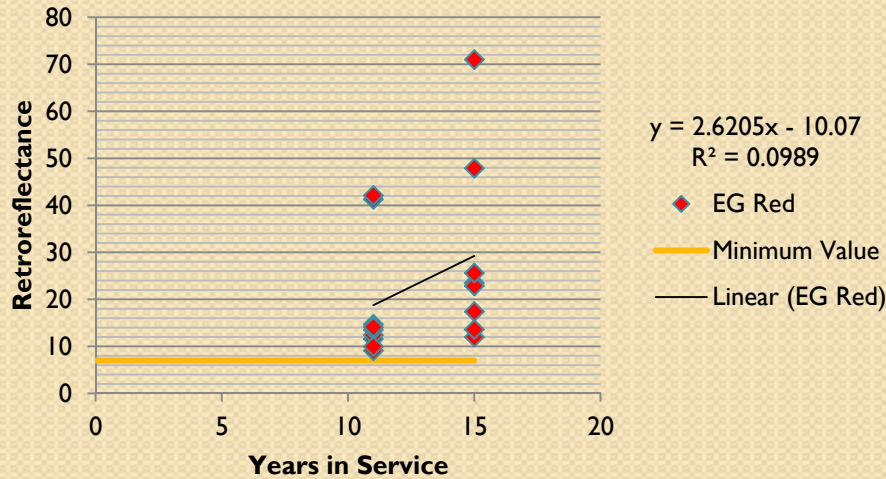
MnDOT is documenting and analyzing sign life with respect to color under another study.

- 2013 DG3
- ▲ II RID W 001
- ✕ II RID S 001
- ✱ II RID N 001
- IO RID E 001
- + 07 RID W 001
- 07 RID E 001
- 06 RID N 001

Current data is within the color box. Continued study and analysis is required to determine when color is likely to fail.

# ENGINEERING GRADE (EG)

## EG Red

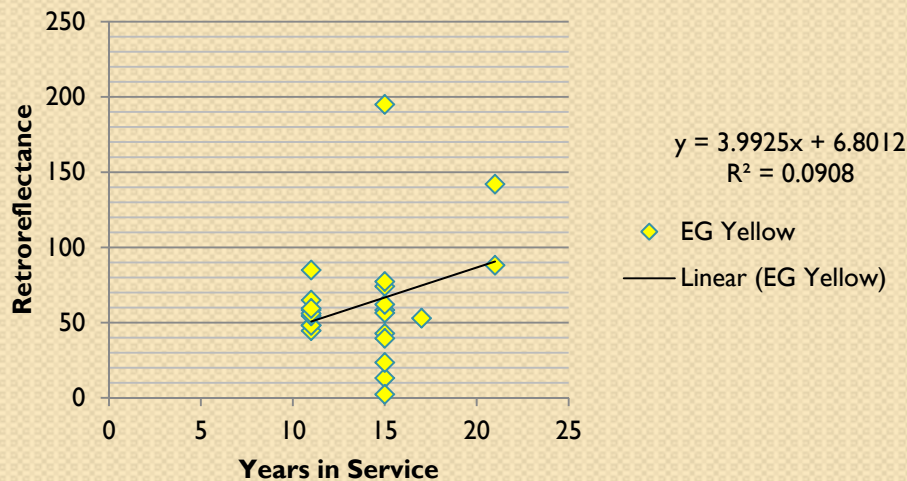


### Data Key

# of Signs: 17  
 Agency: Golden Valley  
 Min Retro Value: 7  
 Signs < Min: 0  
 Warranty: 7 Years

Trendline inconclusive

## EG Yellow



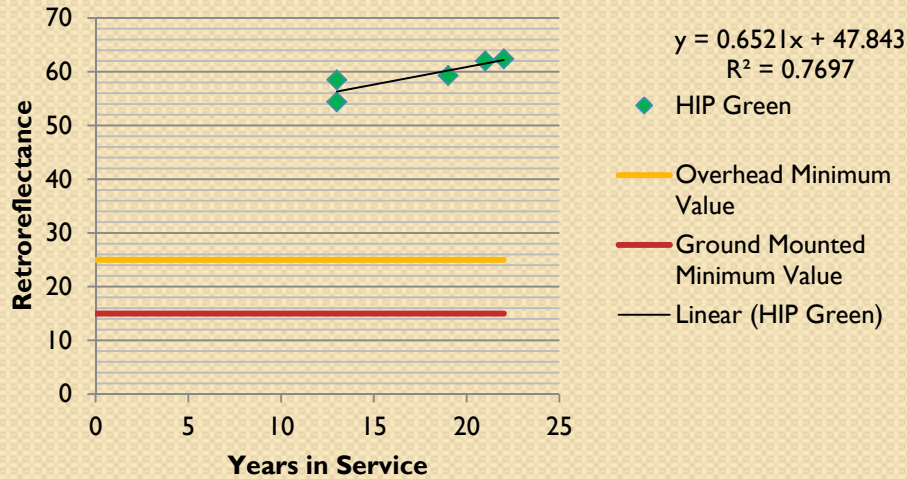
### Data Key

# of Signs: 23  
 Agency: Golden Valley  
 Min Retro Value: Do Not Use  
 Signs < Min: N/A  
 Warranty: 7 Years

MNMUTCD new table states EG Sheeting should not be used for black on yellow signs

# HIGH INTENSITY PRISMATIC (HIP)

## HIP Green

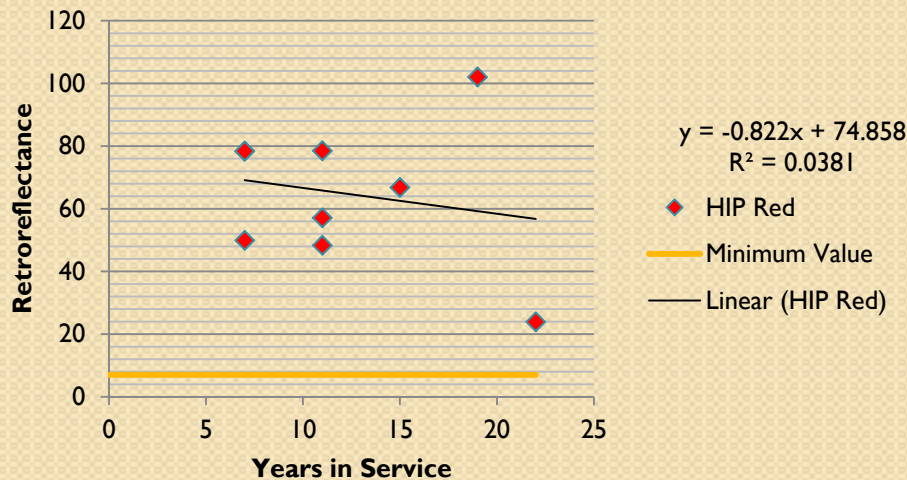


### Data Key

# of Signs: 5  
 Agency: MnDOT Lab  
 Min Retro Value: 25, 15  
 Signs < Min: 0  
 Warranty: 10 Years

Trendline inconclusive

## HIP Red

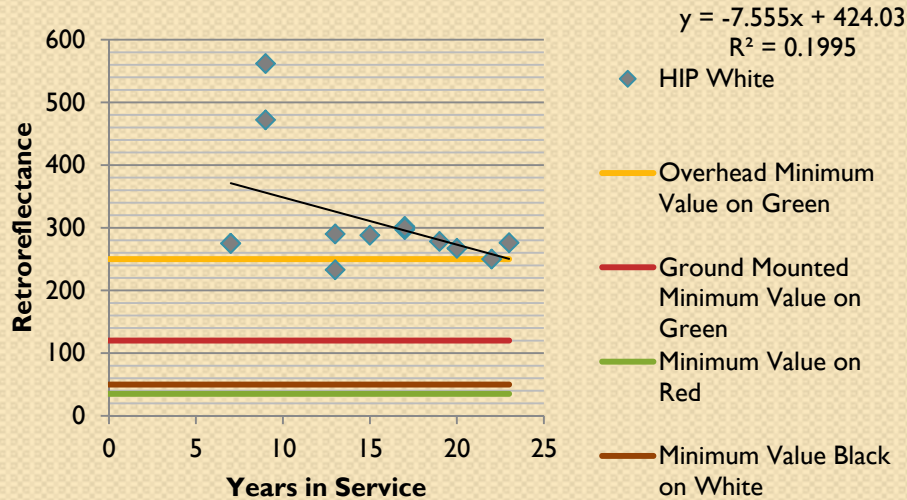


### Data Key

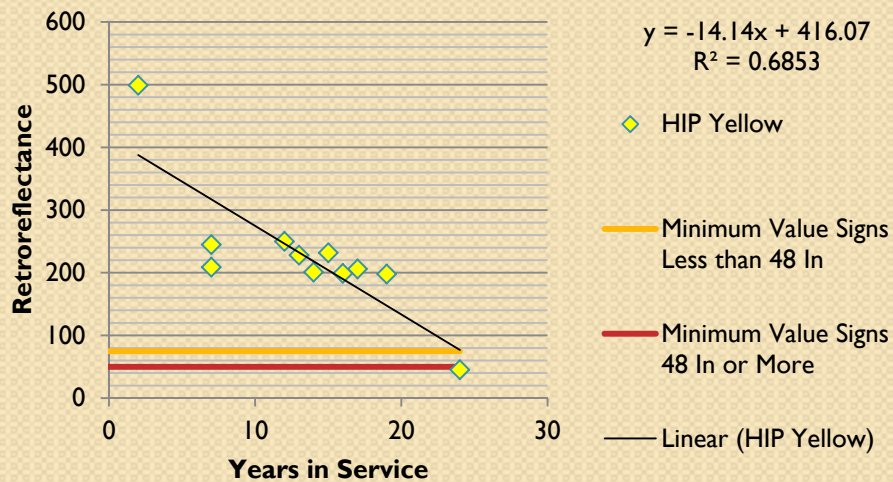
# of Signs: 9  
 Agency: MnDOT Lab,  
 Golden Valley,  
 Eagan  
 Min Retro Value: 7  
 Signs < Min: 0  
 Warranty: 10 Years

Trendline crosses minimum value at 82.5 years

## HIP White



## HIP Yellow



### Data Key

**# of Signs:** 14  
**Agency:** MnDOT Lab, Watonwan, Eagan  
**Min Retro Value:** 250, 120, 50, 35  
**Signs < Min:** 1 (13 Years)  
**Warranty:** 10 Years

Trendline crosses minimum values at:  
 23.0 years (250), 40.2 years (120), 49.5 (50),  
 51.4 (35)

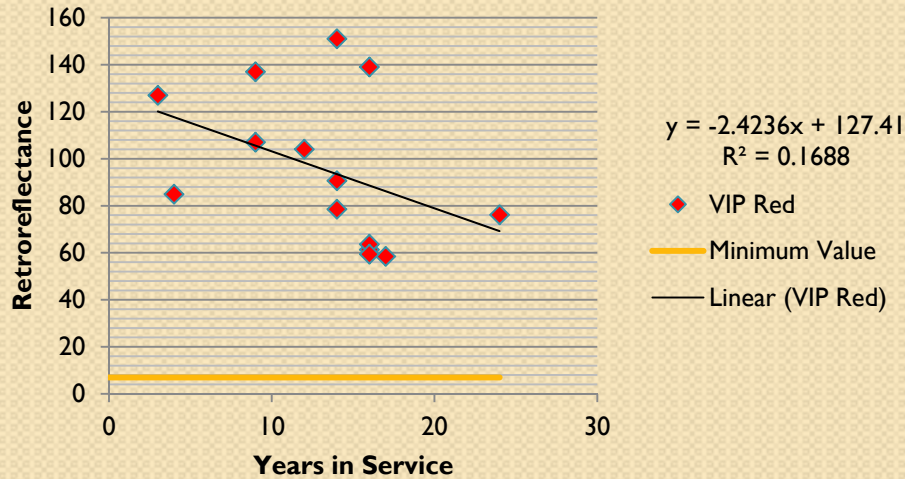
### Data Key

**# of Signs:** 11  
**Agency:** MnDOT Lab, MnDOT Metro, Watonwan, Eagan  
**Min Retro Value:** 75, 50  
**Signs < Min:** 1 (24 Years)  
**Warranty:** 10 Years

Trendline crosses minimum values at:  
 24.1 years (75), 25.8 years (50)

# VISUAL IMPACT PERFORMANCE (VIP)

## VIP Red

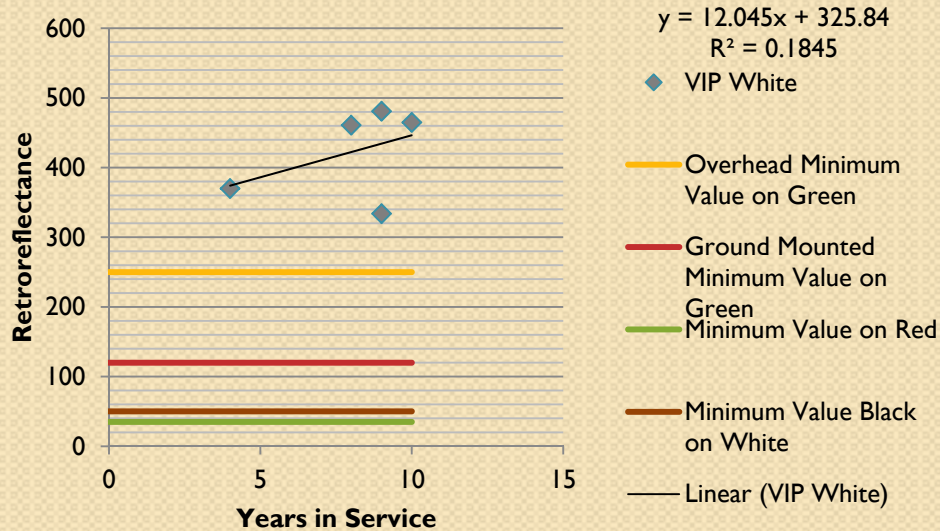


### Data Key

# of Signs: 14  
 Agency: MnDOT Lab, Watonwan  
 Min Retro Value: 7  
 Signs < Min: 0  
 Warranty: 12 Years

Trendline crosses minimum value at 49.6 years

## VIP White

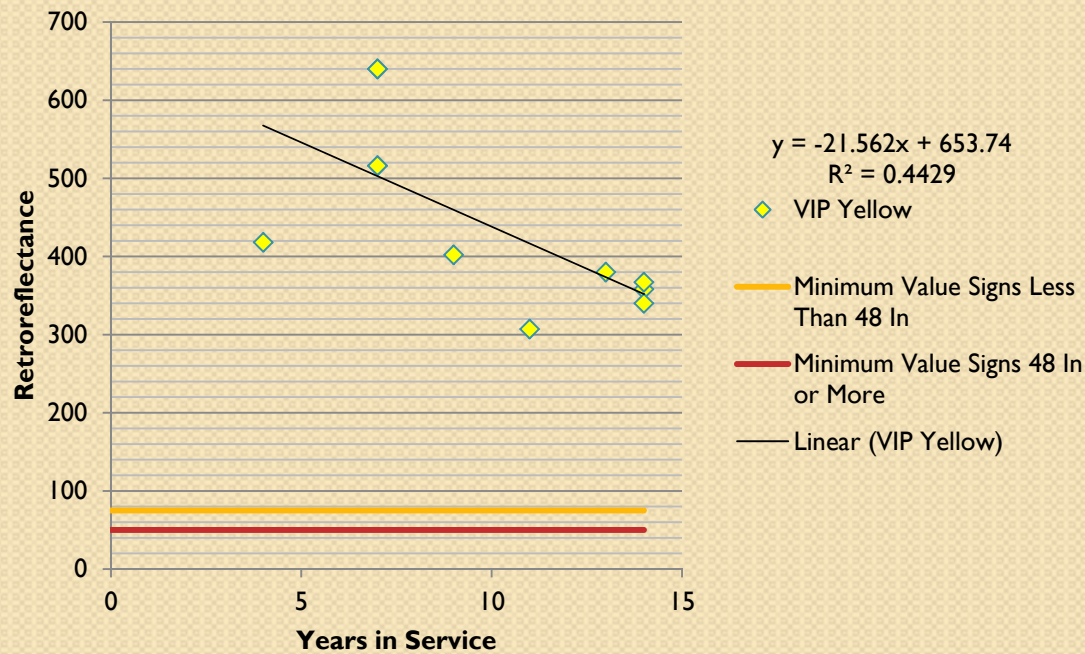


### Data Key

# of Signs: 5  
 Agency: MnDOT Lab, Watonwan  
 Min Retro Value: 250, 120, 50, 35  
 Signs < Min: 0  
 Warranty: 12 Years

Trendline inconclusive

## VIP Yellow

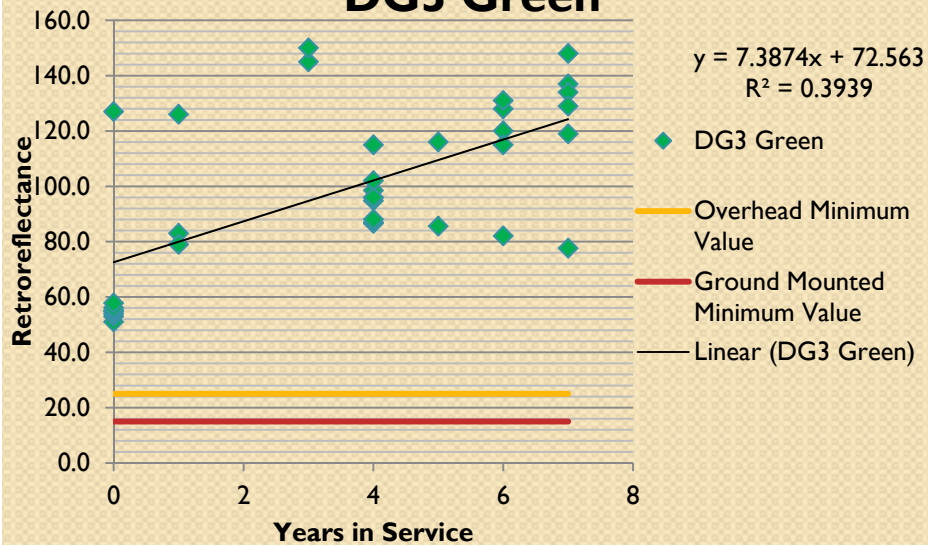


## Data Key

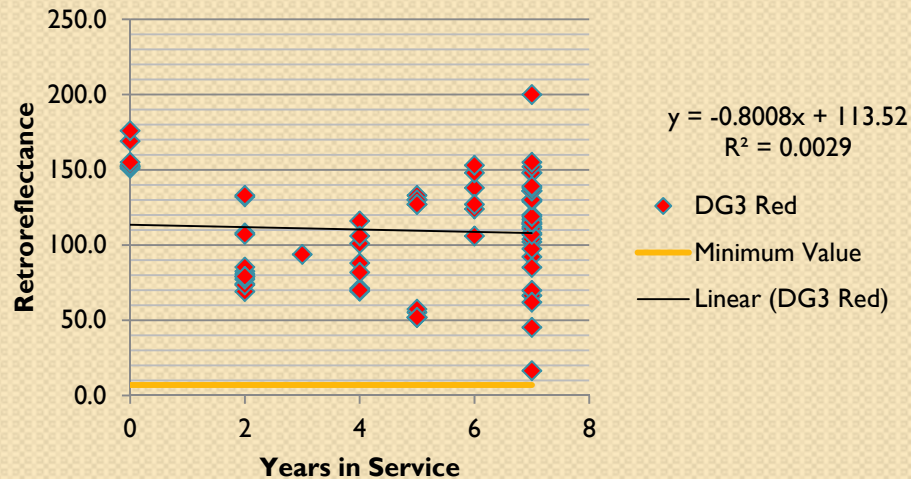
# of Signs:	11
Agency:	MnDOT Lab, MnDOT Metro, Watsonwan, Eagan
Min Retro Value:	75, 50
Signs < Min:	0
Warranty:	12 Years

Trendline crosses minimum values  
at:  
26.8 years (75), 28.0 years (50)

## DIAMOND GRADE (DG3) DG3 Green



## DG3 Red



### Data Key

# of Signs: **35**  
 Agency: **MnDOT Lab, MnDOT Metro, St. Louis Co, Dakota Co, Watonwan Co**  
 Min Retro Value: **25, 15**  
 Signs < Min: **0**  
 Warranty: **12 Years**

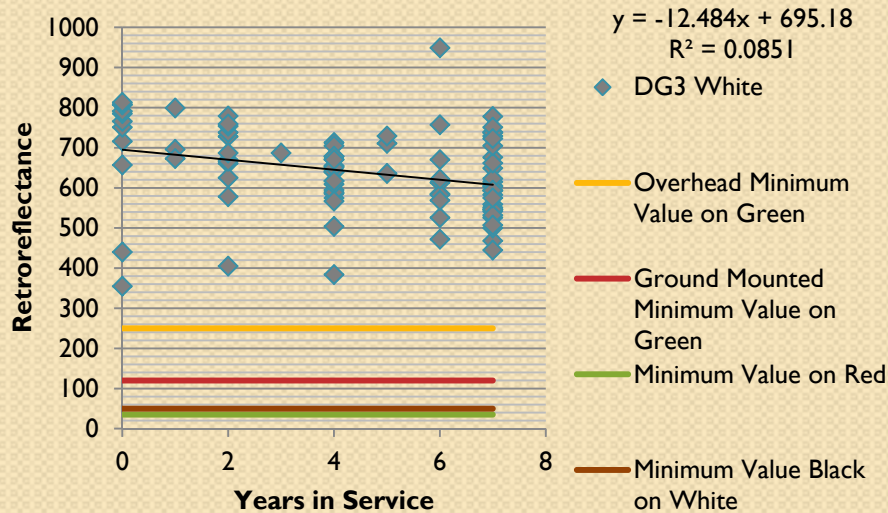
Trendline inconclusive

### Data Key

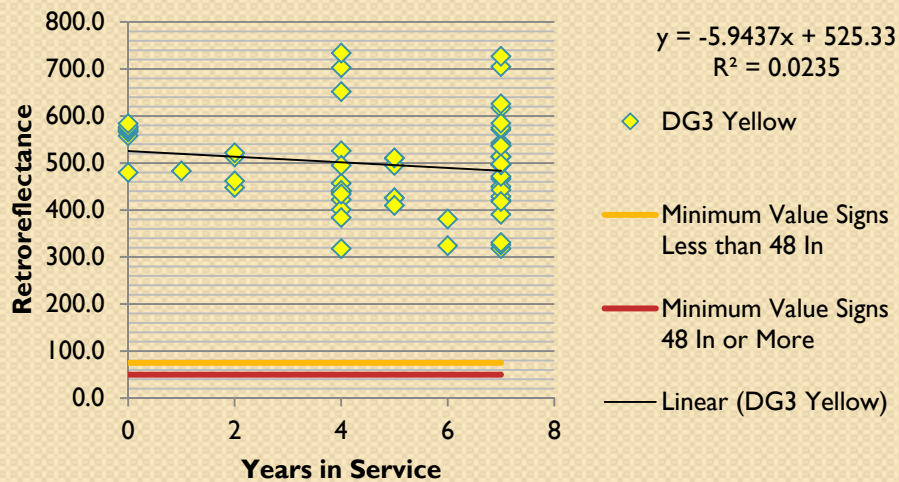
# of Signs: **78**  
 Agency: **MnDOT Lab, MnDOT Metro, St. Louis Co, Dakota Co, Watonwan Co, Golden Valley, Brooklyn Center, Eagan**  
 Min Retro Value: **7**  
 Signs < Min: **0**

Trendline crosses minimum value at 133.0 years

## DG3 White



## DG3 Yellow



### Data Key

# of Signs: 91

Agency:

MnDOT Lab, MnDOT Metro, St. Louis Co, Dakota Co, Watonwan Co, Golden Valley, Brooklyn Center, Eagan

Min Retro Value:

250, 120, 50, 35

Signs < Min:

0

Warranty:

12 Years

Trendline crosses minimum values at:  
 35.6 years (250), 46.0 years (120)  
 51.6 years (50), 52.8 years (35)

### Data Key

# of Signs: 65

Agency:

MnDOT Lab, MnDOT Metro, St. Louis Co, Dakota Co, Watonwan Co, Golden Valley, Eagan

Min Retro Value:

75, 50

Signs < Min:

0

Warranty:

12 Years

Trendline crosses minimum values at:  
 75.7 years (75), 79.9 years (50)



# MN Data Summary

- Not enough Minnesota data to credibly conclude an exact value for sign life
- Different agencies have different experience with sign life (i.e. vandalism, knock downs, etc)
- Data (including national research) suggests a range of 15 to 30 years
- Color (especially Red) may fall below adopted thresholds prior to retroreflectivity