THE CITY OF
NORTHFIELD
MINNESOTA

Spring Creek Road and Woodley Street

Safety and Stop Analysis

Background

- Mill Towns State Trail
  - East side of Spring Creek Rd
  - 10’ trail
  - More bicyclist traffic
- Improved roadway to south
  - More vehicle traffic
  - More pedestrian traffic
- Potential safety concerns
  - Accommodating more traffic
  - Intersection on a curve

Pedestrian & Bicyclist Volumes

Intersection	Time of Day	Pedestian + Bicyclist Volume			
		North Crossing	South Crossing	East Crossing	West Crossing
Woodley Street and Spring Creek Road	AM Peak Hour (7:15-8:15 AM)	7	0	2	1
	PM Peak Hour (4:15-5:15 PM)	4	2	0	1
	Pedestrian Peak Hour (3:00-4:00 PM)	21	2	15	1
	Daily	65	8	19	8

- East-West connection highly used today
- Based on use today, once complete, Mill Towns trail likely to see high use

Traffic Analysis

- Safety Review
  - Crashes
  - Sight lines
  - Speeds
- Stop Control Review
  - Multi-way stop

- Woodley St: county roadway
- Spring Creek Rd: city street
- Traffic volume data
  - October 2024
- Crash data
  - 2019-2023
  - 2024 data was not available until early 2025

Safety Review

- Zero reported crashes to MnDPS or MnDOT
  - 2019-2024
- Sight lines
  - Different driver stop locations
- Speeds

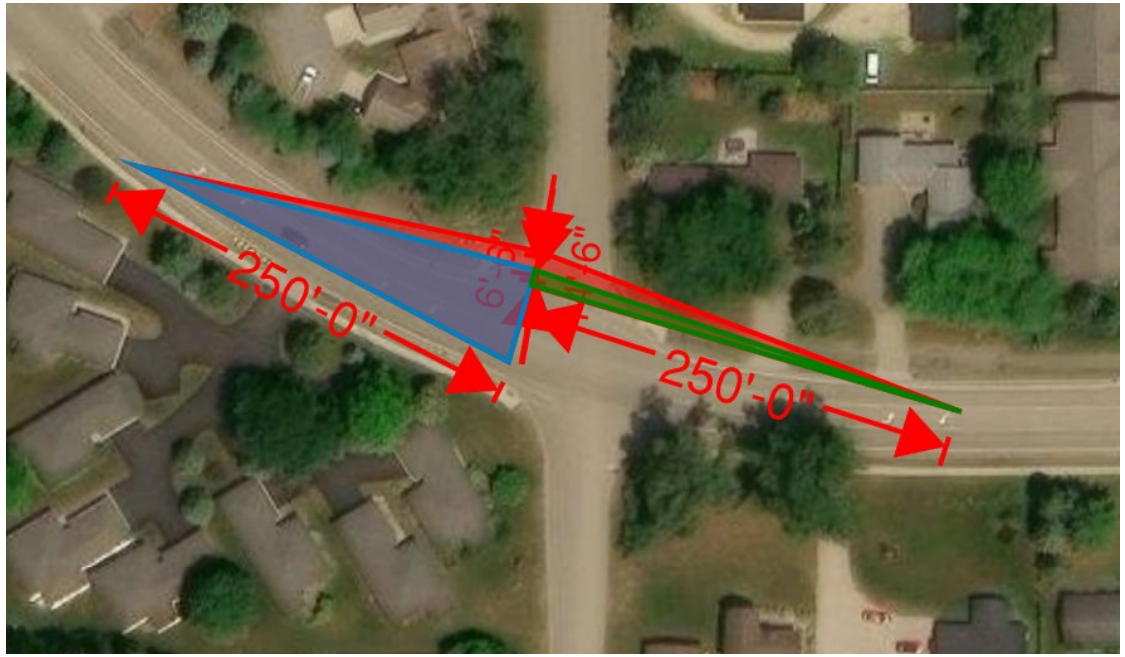


Table 4: Field-Collected Speed Data

Location	Median Speed	85th Percentile Speed	Posted Speed
West to Spring Creek Road	33 to 34 mph	37 to 39 mph	35 mph
East to Spring Creek Road	38 mph	43 mph	35 mph

*Multiple speeds listed above indicate different speed measurements in each direction

Traffic Control

- Minnesota Manual on Uniform Traffic Control Devices
  - Minnesota specific MUTCD
  - Ensures consistent traffic control implementation across the United States
  - Includes warrants for different traffic control options
    - Traffic volume
    - Traffic delay
    - Crash history
    - Location and users

- Multi-way Stop Control
  1. Where a signal is justified
  2. 5 or more reported correctable crashes in a 12-month period
  3. Minimum volume
     - 300 vph on major street for 8 hrs of an average day
     - 200 vehicles, pedestrians, and bicyclists on minor street for the same 8 hrs
     - Where 85th percentile approach speed on major street is greater than 40 mph, volume thresholds met at 70% values
  4. Combination
     - 1, 2, and 3 met at 80% values
  5. Conflicts and Characteristics

Warrant Thresholds

- Approach Volumes

Hour	Major	Minor
6-7 am	44	16
7-8 am	133	50
8-9 am	129	38
9-10 am	78	40
10-11 am	99	31
11-Noon	134	35
12-1 pm	120	31
1-2 pm	118	36
2-3 pm	148	39
3-4 pm	158	58
4-5 pm	87	69
5-6 pm	160	62
6-7 pm	135	45
7-8 pm	94	26
8-9 pm	54	10
9-10 pm	33	9

- Conflicts and characteristics
  1. Left turns cannot make turn concurrently
     - Does not apply
  2. High pedestrian volume generator nearby
     - Does not apply
  3. Sight lines
     - Since vehicles can lawfully move forward to see approaching vehicles without impacting major street traffic, does not apply
  4. Intersection of two residential neighborhood collector streets
     - Does not apply

All-Way Stop Implementation Outcomes

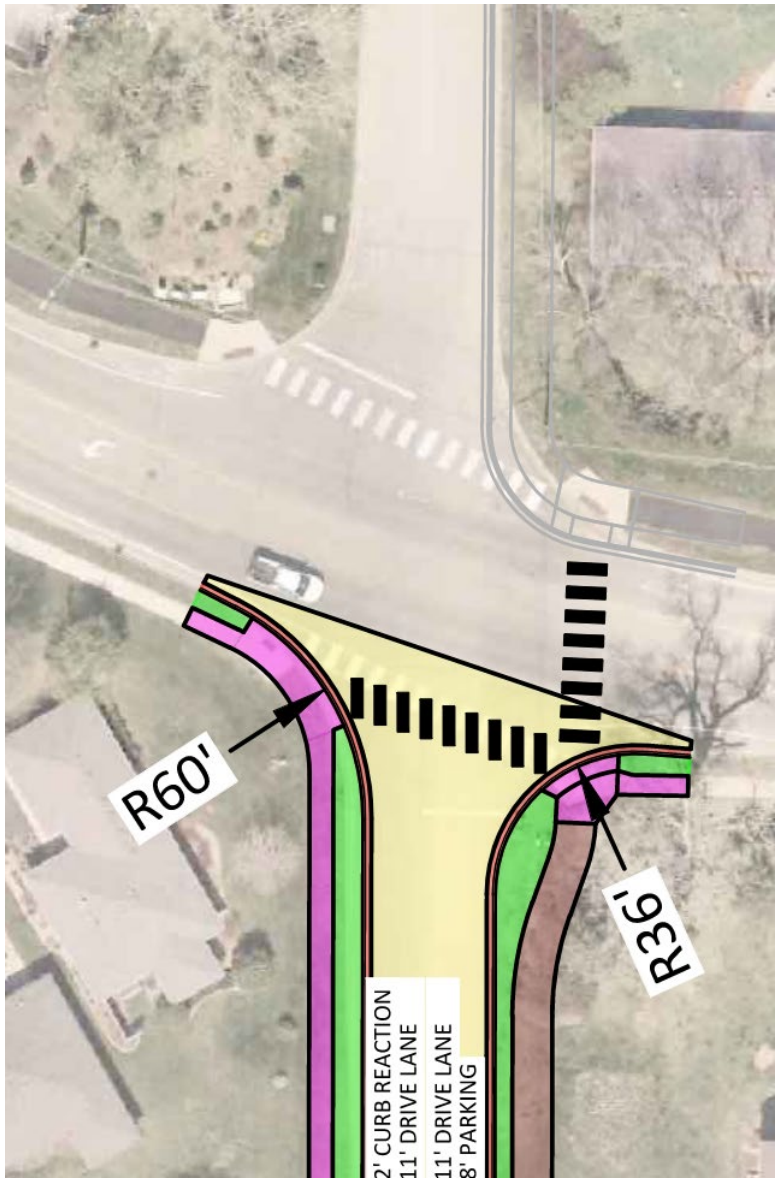
- Prior to meeting warrants (unwarranted installation)
  1. Poor compliance when unwarranted
     - 19 study references
     - Found that drivers feel that signs have no traffic control purpose
     - Little reason to yield the right-of-way when usually no vehicles on minor street
  2. Can increase speeds some distance from intersections
     - 15 study references
     - Hypothesize that motorists are trying to account for lost time when “unnecessarily” stopping
  3. Safety of pedestrians decreased
     - 7 study references
     - Pedestrians expect vehicles to stop but vehicles get in habit of not stopping
  4. Costs
     - 5 study references
     - Installation cost low but enforcement costs become prohibitive

All-Way Stop Implementation Outcomes

- Prior to meeting warrants (unwarranted installation)
    1. Can reduce crashes where there are sight distance problems
        - 3 study references
        - Volume does not meet threshold
        - Some crash history but crashes may not quite meet threshold

Current Recommendations

- Reduce speeds
  - Improve pavement markings
  - Dynamic Speed Feedback Sign (for WB)
- Improve sight lines
  - Reduce vegetative obstructions
- Enhance awareness of crossing
  - High visibility crosswalk markings
  - Crosswalk warning signs
  - Implement flashing beacon (w/2025 project)
- Review lighting levels

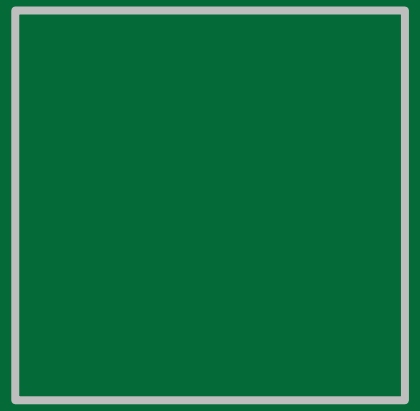


Future Recommendations

- Implement multi-way stop control when warranted
  - Traffic volume increase
    - Roadway improvement
    - Mill Towns State Trail
    - Development
- Consider a roundabout if/when Woodley reconstructed
  - Justified when multi-way stop warrant met

Thank You

Questions?



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