Frequently Asked Questions – PCN 23738, ND 22 Traffic Signals
(9th St W, 4th St W, 3rd St W, 2nd St W, & Broadway)

Why is the project needed?
Traffic signals have a design life expectancy of 20-30 years. The signals at these intersections are 44 to 47 years old. They use outdated technology and operate on pretimed plans, with no vehicle detection or interconnect to talk to the other signals on the corridor. Additionally, these signals often malfunction and operate in flashing red mode for many hours of the day which results in an all-way stop situation. These deficiencies cause unnecessary traffic delays.

When is the project planned to occur?
The project is planned to be built during the 2025 construction season. The contractor will determine the schedule after the project is bid. Construction could occur between the months of May and October.

Why is there a public input meeting for this project?
The purpose of the public input meeting is to inform the public on the proposed project and answer questions.

How much traffic is there at each intersection?
Traffic and pedestrian counts were collected on Wednesday April 19th, 2023 from 6:00 AM to 7:00 PM; the results are:

Intersection	Total Vehicles per side				Total Pedestrians per side			
	North	South	East	West	North	South	East	West
ND 22 & Broadway	7,725	8,668	1,770	1,595	0	3	3	5
ND 22 & 2nd Street	9,217	9,965	1,358	1,638	41	14	34	13
ND 22 & 3rd Street	9,936	10,364	720	1,050	21	18	14	8
ND 22 & 4th Street	10,402	10,617	548	351	5	1	3	5
ND 22 & 9th Street	11,359	12,302	3,848	3,653	2	3	5	3

*note that more pedestrians cross ND 22 at 2nd Street than at 3rd Street.

Why do the signals flash red sometimes instead of operating normally?
The signals switch from timed operation to flashing red during off-peak times to reduce traffic delays. The flashing red creates an all way stop condition for all vehicles approaching the intersection, in off-peak times when traffic is light this is an efficient method of traffic control.

After the signals are replaced with modern equipment they will rely on vehicle detection instead of being timed. The signal will know when vehicles are approaching or coming to a stop and will switch accordingly to keep traffic moving smoothly. The flashing red will no longer occur.

How is it determined if an intersection needs a traffic signal?
A traffic study is performed to count the number of vehicles and pedestrians using the intersection. If specific warrants are met a traffic signal would be considered an appropriate form of traffic control. If warrants are not met the traffic signal is not recommended. There are nine criteria commonly used to evaluate if a traffic signal is the appropriate method of traffic control for an intersection:

- Warrant # 1 Eight-hour vehicular volume: 500 vehicles per hour on ND 22 **AND** 150 vehicles per hour on side street entering the intersection, at least.

- Warrant # 2 Four-hour vehicular volume: vehicles per hour entering the intersection during the busiest 4 hours of the day plotted on a threshold chart. Threshold is met when side streets have higher traffic volumes, such as at 9th Street.

- Warrant # 3 Peak-hour vehicular volume: used for unusual conditions that generate large volumes of vehicles over a short period of time. Does not apply to any of these signals.

- Warrant # 4 Pedestrian volume: number of pedestrians crossing the street plotted against the volumes of traffic; intended for when traffic on the street is so heavy that pedestrians cannot cross.

- Warrant # 5 School Crossing: schoolchildren crossing the street is the main reason for the signal and at least 20 schoolchildren cross during the highest crossing hour.

- Warrant # 6 Coordinated signal system: signals must be 1,000 ft apart or more and connected to each other to maintain the flow of traffic. Does not apply to any of these signals.

- Warrant # 7 Crash experience: number of reported crashes for vehicular and pedestrian volumes.

- Warrant # 8 Roadway network: both intersecting streets are principal routes or major highways. Does not apply to any of these signals.

- Warrant # 9 Intersection near a railroad grade crossing: does not apply to any of these signals.

What are the results of the warrant analysis for the signals on the project?

Warrant	ND 22 & Broadway	ND 22 & 2nd St	ND 22 & 3rd St	ND 22 & 4th St	ND 22 & 9th St
1	Not Met	Not Met	Not Met	Not Met	Met
2	Not Met	Not Met	Not Met	Not Met	Met
3	N/A	N/A	N/A	N/A	N/A
4	Not Met	Not Met	Not Met	Not Met	Not Met
5	N/A	Met	Not Met	Not Met	N/A
6	N/A	N/A	N/A	N/A	N/A
7	Not Met	Not Met	Not Met	Not Met	Not Met
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A

What is proposed to be done at each intersection?

- ND 22 & Broadway: signal is not warranted. Remove traffic signal and install stop signs for east-west traffic on Broadway.

- ND 22 & 2nd Street: signal is warranted. Replace traffic signal system and modify striping to add dedicated left turn lanes.

- ND 22 & 3rd Street: signal is not warranted. Remove traffic signal, install stop signs for east-west traffic on 3rd Street, and install pedestrian activated Rapid Rectangular Flashing Beacon (RRFB) to alert motorists a pedestrian needs to cross the street.

- ND 22 & 4th Street: signal is not warranted. Remove traffic signal and install stop signs for east-west traffic on 4th Street.

- ND 22 & 9th Street: signal is warranted. Replace traffic signal system.

What will the project cost and who is paying for it?

The project is estimated to cost $1.7-million and will be paid with Federal and State funds (80.93% Federal / 19.07% State).

- Signal removal averages $50,000 each. Three total = $150,000.
- Signal replacement averages $600,000 each. Two total = $1,200,000.
- An overhead RRFB with lighting averages $150,000 each. One total = $150,000.
- Miscellaneous items = $200,000.

What other kinds of traffic control were considered at these intersections?
Besides a traffic signal, the common forms of intersection control are stop signs, yield signs, or uncontrolled (no stop or yield signs). A roundabout is also a form of intersection traffic control.

What will be the intersection traffic control after the signals are removed?
Side street stop signs on Broadway, 3rd Street, & 4th Street. Traffic will not stop on ND 22 unless pedestrians need to cross the street.

Why can't an unwarranted traffic signal be left in place?
Maintenance costs and traffic delay. These signals need to be replaced due to their age and "doing nothing" will actually be more expensive compared to signal removal due to the ongoing need to replace broken and damaged parts. Also, an unwarranted signal causes unnecessary delays for traffic; stopping traffic on ND 22 for one car to turn off the side street, for example. Removing the signal will keep traffic moving on ND 22 and the vehicle at the side street stop will wait for a gap in traffic to pull out.

What about Berg Elementary School's crosswalk / the signal at 3rd Street?
The signal does not meet warrants and should be removed. Stop signs will be installed on the east-west sides. Because of the school crosswalk, it is planned to install overhead rapid rectangular flashing beacons (RRFB's) that are pedestrian activated to stop traffic on ND 22 and allow pedestrians to cross. When the RRFB crosswalk button is pushed by the pedestrian the LED lights below the pedestrian crossing signs will flash brightly and rapidly to alert drivers on ND 22 to stop for the pedestrians to cross.

See below for an example of what it could look like:

What if the new RRFB system isn't installed and operating by the time school starts?
We will require the contractor to have the pedestrian activated crossing operate at all times by either using the existing signal right up until the new RRFB is operational or by using temporary signals with WALK/DON'T WALK displays.

Will any right-of-way need to be purchased for the project?
Permanent right-of-way is not needed. It may be necessary to obtain temporary construction easements from landowners. A temporary construction easement is an agreement between the landowner and the DOT that allows the project contractor to step foot on private property to perform removal and restoration work. For this project the temporary construction easements would be limited to areas where the traffic signals are very close to the property line.

What happens next?
The City and DOT will turn off the operation of the signals to be removed, install stop signs on the east-west approaches, and perform a 90-day test run of how the intersection operates without a signal. At 3rd Street, the DOT will install temporary RRFB's and connect them into the existing pedestrian push buttons. The school crossing will operate during the 90-day test run just like it would in the permanent configuration planned.

What should I do if I have questions or concerns with the proposed improvements?
Please contact Chris Dahl from Bolton & Menk via email.

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