WISCONSIN RAPIDS

NOTICE OF PUBLIC MEETING

Public Works Committee/

Ryan Austin, Chairperson
Sheri Evanson, Secretary
Dennis Polach
Mayor Blaser

Notice is hereby given of a meeting of the Public Works Committee to be held in the **Council Chambers** at City Hall, 444 West Grand Avenue, Wisconsin Rapids, at **5:00 p.m. on Tuesday, March 7th, 2023**. The meeting will be streamed live on the City of Wisconsin Rapids Facebook page and will also be broadcast live on Charter Cable Channel 985 and Solarus HD Cable Channel 3. If a member of the public wishes to access this meeting live via Zoom audio conferencing, you must contact the City Clerk at least 24 hours prior to the start of the meeting to coordinate your access. This meeting is also available after its conclusion on the City's Facebook page and Community Media's YouTube page, which can be accessed at www.wr-cm.org. It is possible that members of the Committee may appear remotely via video or audioconferencing for this meeting.

Agenda

1. Call to order
2. Review Engineering & Street Department Monthly Activity Report.
3. Review the 2023 Asphalt Paving Contract bid results and consider awarding the contract to the low, qualified bidder.
4. Review the 2023 Concrete Contract for Reconstruction Projects and consider awarding the contract to the low, qualified bidder.
5. Review the 2023 Crushing Contract and consider awarding the contract to the low, qualified bidder.
6. Review and consider installing sidewalk on the east side of 16th St S between E Riverview Expressway and 1,075 feet south.
7. Review the Wisconsin Rapids Rail Feasibility Study.
8. Review the concept drawings for Lincoln Street between E Riverview Expressway and E Grand Ave proposed for reconstruction in 2024.
9. Review referral list
10. Set Next Meeting Date
11. Adjourn

Ryan Austin, Chairperson

The City of Wisconsin Rapids provides access to meetings to all citizens. If access to this meeting through video or audio means is not possible due to a disability, notification to the City's IT Manager at 715-421-8288 at least 48 hours prior to the scheduled meeting is encouraged to request accommodations.

WISCONSIN RAPIDS

PUBLIC WORKS DEPARTMENT
1411 CHASE STREET
WISCONSIN RAPIDS, WI 54495
(715) 421-8218 FAX (715) 421-8281

February 2023

Refuse and Recycling

- Garbage Collection estimate 315.25 tons (2022 307.52 tons)
- Recycling Collection estimate 95.44 tons (2022 82.02 tons)

Construction

Cherry Street (Riverview Drive – 1st St North, Smith St (Railroad St – Riverview Drive)

- Project completed

Rosecrans Street (9th Ave – Dead End)

- Project completed

Lyons Park Flood Levee (1681 2nd Ave to Lyon Park)

Items to complete in spring:

- Asphalt trail tie in at river wall (North and South)
- Finish rake and seed earth berm and disturbed areas
- Asphalt trail tie in at Woodbine and 2nd Ave
- Asphalt patch between wall and back of curb

18th Ave South (Russel Street – West Grand Ave)

- Project completed

West Jackson Street (West Riverview Expressway – Wisconsin River)

- City portion of project completed

Freemont Street (14th Street – 13th Street)

- Project completed

9th Ave North (West Grand Ave – Freemont Street)

Items to complete in spring:

- Restoration of green spaces from West Grand Ave – High Street
- Entire construction of High Street – Freemont Street
- Some Concrete Carriage Walks

Freemont Street (7th Ave N – 10th Ave N

Items to complete:

- Concrete sidewalks and curb ramps
- Asphalt patch driveways
- Backfill of curb and site restoration

<u>17th Ave North (Rosecrans Ave – Jefferson Street)</u>

- Project completed

Streets Maintenance

- Patched city streets with cold patch
- Bike trail, and dead end tree and brush trimming
- Check sand barrels
- Equipment training for employees who may fill in
- Plowed or salted multiple snow and ice events
- Removed snow from Sidewalk complaints
- Removed snow from downtown business areas
- Winged back snow from blowing
- Loaded out snow from parking lots
- Building Maintenance
- Completed Confined Space and Forklift training with required staff
- Removed snow from plugged Catch Basins and uncleared crosswalks
- Assisted with Kafka Construction in grinding brush from the Compost sites and Dog Park
- Hauled Wood Chips from Dog Park to East Compost site
- Assisted Parks with tree removal throughout the city
- Worked at removing Ice Pack from city streets during warm temperatures
- Building maintenance and painting at Library
- Worked on building maintenance at Mead Field ball diamonds
- Sanitary manhole repairs
- City Garage building maintenance
- Swept chipseal streets, downtown business areas and highways to remove some winter dirt
- Rebuilt or replace traffic control barricades
- Assisted Waste Water with flushing of dead end manholes
- Filled snow boxes for Humane Society for their snow sculpting fund raiser
- Review plans and order and take delivery of supplies for 2023 Construction season

Paint and Signs

- Repaired damaged signs due to vehicle hits
- Replaced 30” Stop signs that no longer meet the MUTCD requirements as well as Speed Limit signs and Yield signs
- Replace seasonal banners
- Installed WIAA banners for State Gymnastics meet
- Continue to review Parking Ordinance Signs when possible
- Preparing mew signs for 2023 Construction Season

Shop and Repairs

- Routine service work fleet trucks
- Off Season Equipment manintenance (Sweeper, Paint Machine, Dozer, Excavator Bucket
- Service Police and Fire’s fleet
- Repaired packer and Hydraulic Cylinder in Garbage Truck
- Fixed broken plows from snow event
- Took delivery of two trucks and put into service
- Transfer case replacement in Police Vehicle

ENGINEERING DEPARTMENT
444 West Grand Avenue
Wisconsin Rapids, WI 54495-2780
Engineering (715) 421-8205 FAX (715) 421-8291

ENGINEERING DEPARTMENT Monthly Activity Report February 2023

Permits & Degradation

- 19 Permits/Licenses (5 last month) for asphalt paving (0), driveway grades/concrete pour inspections (1), storm water (0), excavating (8), Street Privilege (0), storm connection (0), permit parking (0), banner (1), environmental testing well (0), contractor licenses (9)
  - This year – 45 permits & licenses
- 44 Diggers Locates for Storm Sewer & Sanitary Sewer (87 last month)
  - 1 Emergency locate (0 after hours)
- Degradation fees - this year = $7,410.92
  - This month = $1,614.92 ($5,796 last month)

Traffic

- Vision Triangle Complaints
  - 4th Ave N and W Grand Ave – Southbound left – review is complete. The westerly most parking stall on the north side of W Grand Ave closest to 4th Ave will be removed to allow better visibility and increase the safety of motorists attempting to see traffic coming from the east. Work order will be sent out for painting in spring.

- Stop Sign / Yield Sign Requests
  - Traffic studies for the following intersections will be completed in February.
    - 2nd St S and Davis Ave – 4/28/22 – traffic study was complete in February. No additional signed is recommended. counter placed 11/22/22.
    - 13th St N & Prospect St – 10/6/22
      - Data gathering is complete. Initial review of the data confirms that all intersections except for 14th St N & Avon St are suitable as uncontrolled. We are further reviewing 14th St N and Avon St due to a series of accidents since 2014 that may justify increasing traffic control to yield.
      - 13th St N at Saratoga St, Avon and Wisconsin Prospect St – counter placed 11/29/22 at Saratoga, 12/8/22 at Prospect
      - 14th St N at Prospect St, Avon St and Wisconsin – counter placed 12/14/22 at 14th.
      - 15th St N at Prospect St, Avon St and Wisconsin – counter placed 12/23/22 at 15th St and at Saratoga on 12/30/22
- Traffic Study
  - Woodside School pick-up and drop-off traffic has created queueing and safety related issues on Two Mile Ave extending onto 8th St S. Observations were made on

WISCONSIN RAPIDS

ENGINEERING DEPARTMENT
444 West Grand Avenue
Wisconsin Rapids, WI 54495-2780
Engineering (715) 421-8205 FAX (715) 421-8291

February 2nd and 3rd. From those observations recommendations have been developed and will be shared with the school and Police Dpt.

- Request to allow right turn no stop for westbound traffic on Two Mile Ave at 1st St S. Some preliminary research has been done to gather guidance documents. A traffic study needs to be completed prior to modifying any signage.

- ITS Standalone Signal Grant
  - Bid awarded to Pember Companies. The contractor is working to compile the necessary insurance documents and construction schedule. At this time, construction is not anticipated to begin prior to May. The Notice to Proceed and Contract signing was completed in early February.
  - Bid opening was Dec. 8th at 10am.

- Signal complaints
  - A request for traffic signals at 16th St S and Expressway to switch quicker for vehicles heading north and south on 16th St S AND for the green to stay on longer.
  - Request to make 3rd St / Market St / Jackson St intersection an all-way stop.
  - STH 54 & CTH W – too few cars can get through (9/20/2022)
  - Chestnut & 8th St – too few cars can get through (9/20/2022)
  - W Grand & Expressway – left turn coming on when it shouldn't (9/30/2022)

Project Designs/Construction underway:

Maintenance Projects

- Sidewalk and Curb & Gutter Maintenance – preparations will be made in March to solicit work from a contractor for the 2023 concrete maintenance work.

2023 Reconstruction Projects

Project plans have been updated on the Engineering Dpt website and plans have been delivered to utilities along with city staff for their review and preparations for the upcoming construction season.

A preconstruction meeting is scheduled for March 1st to review the projects and proposed work schedules.

Letters to Oak St property owners were mailed out in February. Letters to Shorewood T. and Apricot St projects will be mailed in early March.

- Design for 2023 Projects
  - Oak St (E Jackson St to 16th St) – 100%
  - Shorewood Terrace (1st St N to Termini) – 100%

- Apricot St and Broadway St – 100%

- 2023 Contracts
  - Crushing Contract – Bid date is 3/2/2023
  - Asphalt Contract – Bid date is 3/2/2023
  - Concrete Contract – Bid date is 3/2/2023

2024 Reconstruction Projects

- Preliminary Survey for 2024 and 2025 Projects
  - Lincoln St (Expressway to Peach St) – 100%
  - Wylie St (8th St N to 10th St N) – 100%
  - 14th Ave N (W Grand Ave to Fremont St) – 5%
  - 15th Ave N (W Grand Ave to High St) – 5%
  - McKinley St (8th Ave to 14th Ave) – 5%
- Design for 2024 Projects
  - 9th St S (Peach St to Chestnut St) – 60%
  - Lincoln St (Expressway to Peach St) – 15%
    - Preliminary scoping has been underway along with traffic counts and initial feedback from Public Works and Community Development.
    - Due to the uniqueness of this project and the potential given the ROW width available we will refer the review of the preliminary concept plan to the committee at the March meeting.
  - Wylie St (8th St N to 10th St N) – 60%
  - 14th Ave N (W Grand Ave to Fremont St) – 0%
  - 15th Ave N (W Grand Ave to High St) – 0%

Projects Involving Grants

- 8th St S and Wood Ave - Highway safety Improvement Grant (HSIP).
  - 2023 Design and possible 2024 construction
- Grand Ave Bridge Rehabilitation
  - Bridge Rehabilitation Report is complete and submitted to Bureau of Structures.
  - Local Bridge Program Application is proposed to be submitted to DOT by March 24th, 2023.

Storm Water Utility

- Storm Utility Billing Update/Audit – Final data has been compiled and returned to the Engineering Department. This data has been sent to WWLC for review. WWLC and Engineering are scheduled to meet March 6th to discuss the integration of the updated account data.
- One Mile Cr. – All easements for the project are now secured.

WISCONSIN RAPIDS

ENGINEERING DEPARTMENT
444 West Grand Avenue
Wisconsin Rapids, WI 54495-2780
Engineering (715) 421-8205 FAX (715) 421-8291

- Dredging Permit - Sediment sampling is complete. The Engineering Dept is still working with the DNR to complete our pre-application necessary for the dredging permit.
- Dam Permit – All data has been submitted to DNR. We are awaiting their review.

Transportation Utility

- A routine of monthly updates has now occurred over the past couple months and is set to continue.

Capital Improvement Planning

- CIP updates to be reviewed in March for review and approval in April.

Other Highlights

- Rail Feasibility Study - A final report was delivered Feb. 6th. The document has been posted on the City's website and provided for those interested in reviewing the report. A follow-up meeting was held with Patrick Engineering on February 21st to further discuss the report and answer some preliminary questions.
    - Rail Study Kick-off meeting was held on 9/29/2022. Data collection began on October 12th.
- W Jackson St Update
    - The final lighting equipment was installed the week of February 20th. All lighting work is now complete, except for the repair of a light standard that was hit by a truck at 3rd Ave.
    - Final restoration work will be done immediately as soon as weather allows.
- Downtown Riverwall project scoping
    - No new updates
- Dog Park Fence Bids were prepared and advertised. The bid opening is set for March 6th.
- Centralia Center Roof bids were opened February 6th. Results were reviewed with the Finance & Property Committee in February with a motion to rebid. This will be rebid in March.

Public Works Committee

Date of Request: February 23, 2023

Requestor: Joe Eichsteadt, City Engineer

Request/Referral: Review the 2023 Asphalt Paving Contract bid results and consider awarding the contract to the low, qualified bidder.

Background information:

A public bid opening is scheduled for March 2nd at 3:00pm.

Bid results will be presented at the meeting.

Options available:

Action you are requesting the committee take: Award the contract to the low, qualified bidder.

How will the item be financed? Public Works Construction Fund

Public Works Committee

Date of Request: February 23, 2023

Requestor: Joe Eichsteadt, City Engineer

Request/Referral: Review the 2023 Concrete Contract for Reconstruction Projects and consider awarding the contract to the low, qualified bidder.

Background information:

A public bid opening is scheduled for March 2nd at 2:30pm.

Bid results will be presented at the meeting.

Options available:

Action you are requesting the committee take: Award the contract to the low, qualified bidder.

How will the item be financed? Public Works Construction Fund

Public Works Committee

Date of Request: February 23, 2023

Requestor: Joe Eichsteadt, City Engineer

Request/Referral: Review the 2023 Crushing Contract and consider awarding the contract to the low, qualified bidder.

Background information:

A public bid opening is scheduled for March 2nd at 2:00pm.

Bid results will be presented at the meeting.

Options available:

Action you are requesting the committee take: Award the contract to the low, qualified bidder.

How will the item be financed? Public Works Construction Fund

Public Works Committee

Date of Request: February 9, 2023

Requestor: Joe Eichsteadt, City Engineer on behalf of Jay Bemke, Alderperson

Request/Referral: Consideration for the construction of sidewalk on the east side of 16th Street South between the E Riverview Expressway and 1,075' south.

Background information:

Currently there is no sidewalk on the east side of the 16th St S between the Expressway and 1,075' south adjacent to Lincoln HS. There have been discussion between the WRPS and the City over the past couple of years about this sidewalk installation. WRPS had hopes of incorporating the sidewalk installation in with other recent upgrade projects, but was not able to do so. WRPS is in favor the sidewalk/path installation.

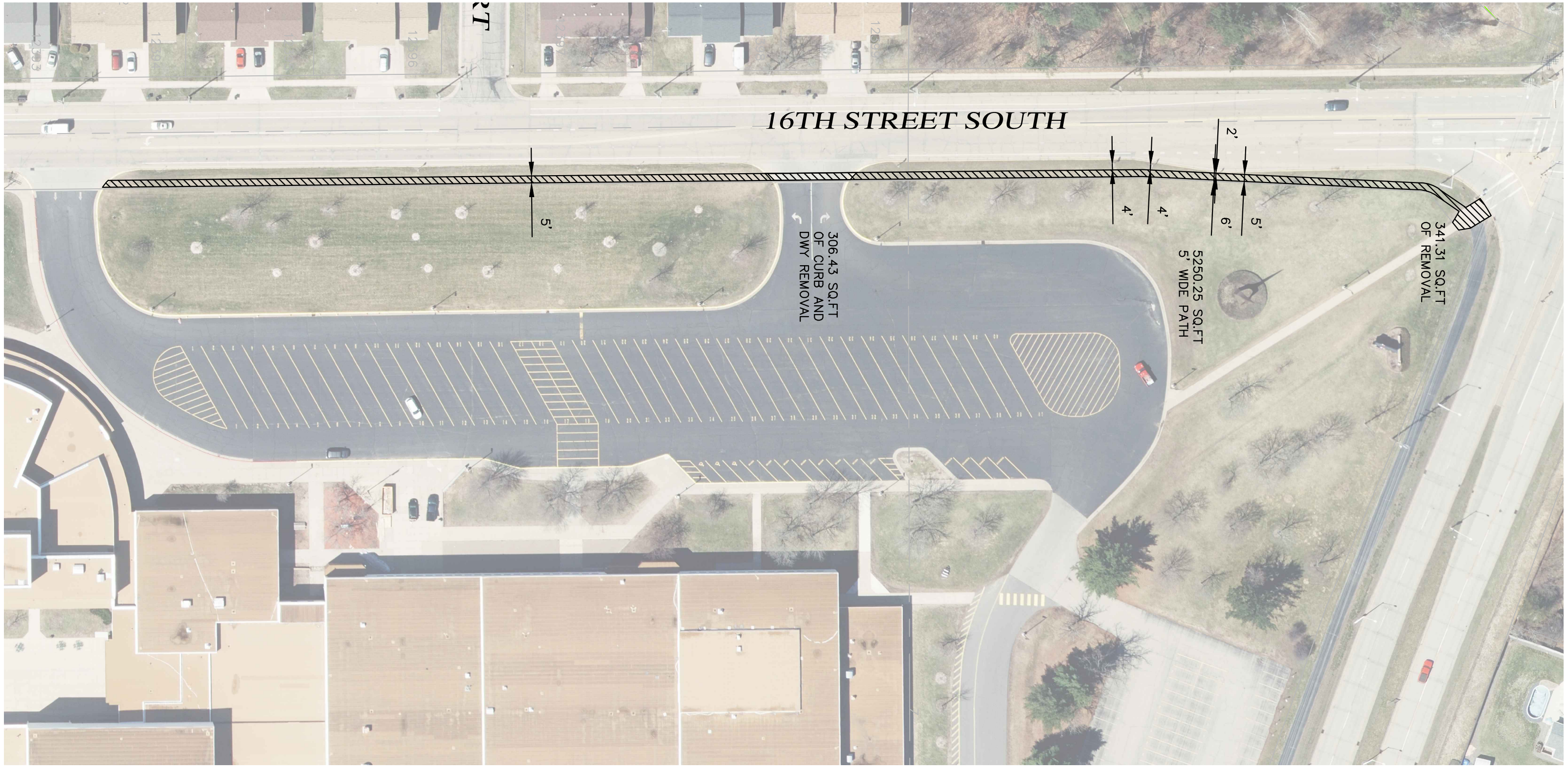
There are two options with the project: either a standard 5ft concrete sidewalk or an 8' (or 10') asphalt path. The asphalt path is approximately $40,000. The concrete sidewalk is approximately $70,000.

Besides cost, the reason for a wider asphalt path is that this section of path would connect with the E Riverview Expressway path and provide for a path connection, not only to Lincoln HS, but the football field, SWC Recreation Center, Quadplex, etc.

Options available: consider adding the project into the CIP or do nothing.

Action you are requesting the committee take: Consider adding the project into the CIP.

How will the item be financed? Future Public Works Construction Fund. Since the sidewalk / path would be a new installation it may be considered a special assessment to WRPS (this is still being evaluated and should have more information at the meeting). Another option would be that WRPS pursues the project on their own.


16TH STREET SOUTH
2'
4'
4'
6'
5'
5'
341.31 SQ.FT
OF REMOVAL
5250.25 SQ.FT
5' WIDE PATH
306.43 SQ.FT
OF CURB AND
DWY REMOVAL

Public Works Committee

Date of Request: January 20, 2023

Requestor: Joe Eichsteadt, City Engineer

Request/Referral: Review the Wisconsin Rapids Rail Feasibility Study as prepared by Patrick Engineering.

Background information:

We would like to review the recently-completed rail study this month, get some initial comments and questions, and take some time to consider the data further.

Next month we can revisit the study and recommendations by the staff on ways to proceed.

Options available:

Action you are requesting the committee take: No action.

How will the item be financed? N/A

Wisconsin Rapids
Feasibility Study Report

Prepared For:

City of Wisconsin Rapids
Prepared By:

Patrick Engineering Inc.
Project #22277.034
4970 Varsity Dr, Lisle, IL 60532

LinqThingz, Inc.
***11414 W Park Pl suite 202*, Milwaukee, WI 53224**

February 3, 2023

Table of Contents

Contents

Contents 2
Executive Summary 3
Background 4
TASK 1: Investigate, review and inventory at-grade railroad crossings, road characteristics, etc. 5
Road Traffic in Wisconsin Rapids 5
Rail Traffic In Wisconsin Rapids 5
TASK 2: Define concerns and issues. 6
Issue 1: Congestion 7
Issue 2: Safety 9
Issue 3: Noise 9
Issue 4: Pollution 9
Public Poll Summary: 10
TASK 3: Identify and compare alternatives to address those concerns. 10
Alternate 1: Increasing Speed of through trains 10
Alternate 2: Route Optimization and ITS solutions 11
Alternate 3: Intersection Modification 13
Alternate 4: Track Relocation 13
Option 1: Relocation along City West Edge 14
Option 2: Relocation along County lands 15
Alternate 5: Grade Separation 16
Option 2: New Underpass 17
Alternate 6 Quiet Zone 18
Quiet Zone 1 – Valley Sub 18
Option 1: Grade Separating Grand Ave 18
Option 2: Improvement at Bonow Ave 19
Option 3: Installing Improvements at Gaynor and S 17th St. 19
Quiet Zone 2 – Whitehall Sub 19
Alternate 7 Relocating Business to East Commerce Center 19
TASK 4: Identify costs, grant funding 20
TASK 5: Implementation of alternatives. 22
TASK 6: Recommendation 23

Executive Summary

The City of Wisconsin Rapids, with a population of over 19,000, has historically struggled with some thirteen at-grade rail crossings including those along the Route 13 highway corridor due to slow moving or stopped Wisconsin Central (CN) trains (map below). The excessive grade crossing blockages affecting some 35,000 vehicles per day on average and the associated horn noise has forced the City to initiate a feasibility study to determined potential solutions.

The City has hired the team of Patrick Engineering & LinqThingz to evaluate and Identify the origins of the problem (Task 1-3) and find alternatives and solutions (Tasks 4-6).

After an extensive study, it was determined that to serve the communities' best needs the following elements are recommended:

- Implementing the Predictive Mobility system would prevent a significant portion of congestion and safety problems for the crossings in the city.
- Construction of a Grade separation at Grand Avenue would improve safety and eliminate conflicts at the crossing and provide alternative routes for auto traffic.
- Quite Zone improvement will reduce noise problems through much of the corridor.

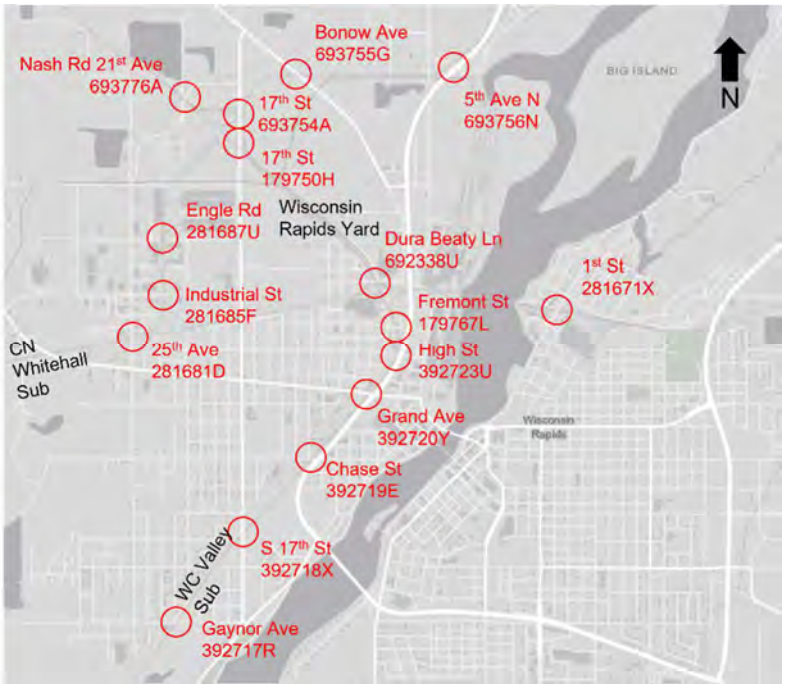


Figure 1: Wisconsin Rapids Site Map

Background

Wisconsin Rapids (City) has experienced delays due to train traffic along the Wisconsin Central (CN), Valley Sub corridor through the City much of it parallel to State Highway 13. The Corridor in consideration stretches from mile post (MP) 47.88 at Gaynor Avenue to the south, to MP 50.81 at 5th Avenue to the north. In this corridor, there are nine (9) at grade crossings, the CN Wisconsin Rapids Yard, General Chemical, and an additional storage siding of two (2) tracks.

Increasing freight rail traffic has plagued communities for decades with increased congestion, delays, noise, and safety consequences. Wisconsin Rapids experiences 1,500-minute backups multiple times a day, frequent complaints about noise and a plethora of rail congestion related issues. There is a history of searching for solutions including a rail relocation initiative back in 2000 (https://www.federalregister.gov/documents/2000/08/30/00-22034/wisconsin-central-ltd-and-fox-valley-and-western-ltd-joint-relocation-project-exemption-wisconsin).

Freight railroads offer benefits to municipal economic development and are a key factor in attracting manufacturing businesses to the area because of the following.

- One intermodal train carries as much freight as 270 trucks. If the goods railroads move were to instead move over highways, those highways would be choked with additional traffic.
- Freight railroads are 3-4 times as fuel-efficient as trucks.
- Moving freight by rail results in a reduction of around 75% in greenhouse gas emissions.
- Railroads account for around 40% of long-distance freight volume by weight, but only 1.9% of transport-related greenhouse gas emissions.

Deliverable Tasks for the Study

1. Investigation
2. Define
3. Alternatives
4. Funding
5. Implementation
6. Recommendation

TASK 1: Investigate, review and inventory at-grade railroad crossings, road characteristics, etc.

Road Traffic in Wisconsin Rapids

The major road traffic through Wisconsin Rapids via Hwy 51/54 is not affected directly by rail traffic because of the grade separation near Forest Hill Cemetery. However, there is a significant amount of east-west traffic from Hwy 54 that crosses the tracks via W Grand Avenue. The rail does have a significant effect on traffic on Hwy 13, 73, and 34 along the north-south rail (Valley subdivision) in town. There is significant rail and road traffic on Bonow (Hwy F) on the north side of town. There are a total of fifteen (15) grade crossings in the City of Wisconsin Rapids. Of this 15, there are thirteen (13) At Grade Crossings with AADT greater than 500 vehicles per day for a daily traffic flow at grade crossing of totaling more than 35,000 AADT.

Rail Traffic In Wisconsin Rapids

The crossing with the biggest impact is at W Grand Avenue with an AADT of 11,900 in the vicinity of the rail crossing. STH 13 is parallel to a set of tracks and the rail crossing at W Grand Av has not only an impact on traffic turning onto W Grand, but also traffic that gets backed up due to the turn lane traffic queues.

The team compared rail traffic from FRA reports, previous Wisconsin Rapids Study and current study using LinqThingz's TrainLinq. The sensors have been installed at W Grand Ave, Gaynor Ave., 17th St and Bonow Rd. A summary of rail traffic from this study is illustrated below. A more complete analysis is found in Appendix B.

	Data Period (days)	Time (minutes)	Average Speed (MPH)	Vehicle Blocked Per Day	Vehicle Delay / Year (hrs)
Grand	14	535	10	327	8516
Gaynor	14	189	12	34	969
Bonow	8	873	7	189	10264
17th	8	285	6	28	942

Figure 2: Summary of Rail Traffic From Sensors placed near crossings.

Here is a summary of rail traffic characteristics in Wisconsin Rapids

- The railroad in Wisconsin Rapids, owned by Wisconsin Central Ltd (CN), serve predominantly regional freight customers and are not on a major freight line.
- The largest amount of road traffic impact is a Grand Avenue.
- The largest amount of rail traffic is at Bonow.
- Crossings are blocked for an average of 8 minutes.
- At times, crossings can be blocked for over 1 hour.
- 740,000+ vehicles are delayed per year at all crossings.
- 99,000+ hours are spent a year waiting at the total of all crossings.
- Crossings at Gaynor and Grand are blocked simultaneously only 0.11% of the time.
- Crossings at Bonow and 17th are blocked simultaneously only 0.48% of the time.
- Most of the time spent with crossings blocked is the result of switching-type operations.
- Over 50% of the delay times caused are the result from the trains stopped on the tracks.
- The most rail-related accidents have occurred at the crossing on 1st St.
- The most rail-related fatalities have occurred at the crossing on Grand.

Approximately 8,000 people are employed in Wisconsin Rapids and the primary source of transportation is by automobile. The average work commute time in the city is 22 minutes. However, trains blocking crossings can increase this by 1 to 60 minutes. The community survey shows that many people in the community have been late for work, school, meetings, and other activities due to blocked crossings. Over 60% have experience delays of more than 20 minutes.

There is a range of wages in the Wisconsin Rapids area, and it is geographically separated. The west side of town below highway 73 is marked by an area where the average wage is $36,000 per year. This is certified Opportunity Zone (see Appendix A).

TASK 2: Define concerns and issues.

There are multiple stakeholders in the city and multiple governing bodies that oversee highway traffic and railroads. The stakeholders include citizens, businesses including the railroads, city leaders, fire/rescue, public safety, DPW, State DOT, State DNR, Federal Agencies including USDOT, FHWA and FRA, and other federal agencies including DHS and EPA.

The Mayor of Wisconsin Rapids has expressed concern with congestion and the times when multiple crossings are blocked simultaneously making it difficult or impossible to overcome long crossing blockages. However, current data shows that 99% of time there is a southerly alternate route in addition to an alternate route between Grand and Gaynor or Grand and Bonow.

The Fire Department is challenged during emergency operations daily. There are two fire stations in Wisconsin Rapids to mitigate some delays of the crossings that bisect the city. Even with the measure in place, rescues are hampered at rail crossings 6 to 12 times a year. Anticipating which crossings is open or closed is a daily struggle. Getting to the scene is one problem for emergency crews. Getting to the hospital is another. There is one hospital on the east side of the tracks and there is potential that getting to the hospital may be delayed by blocked crossings.

The Director of Community Development for the City of Wisconsin Rapids points out that the WEDC regularly queries communities regarding assets like rail access. Rail access is a key driver for some manufacturers and suppliers. Future opportunity for economic growth is available in Rapids East Commerce Center. Companies like Metalco have taken advantage of access to rail and land to grow their business in this area of the city.

There is only one hospital in Wisconsin Rapids, and it is on the east side of the north-south rail. Rail blockages with no obvious alternate paths could mean life or death when associated with heart attack, stroke, or traumatic injury patients. The cost of care associated with emergency transport doubles approximately every 4 minutes (as noted above blockages in this city can extend past 20 minutes).

The citizens of Wisconsin Rapids have great concerns about congestion, safety, noise, and some minor concerns regarding other issues (see Appendix F community survey results).

Issue 1: Congestion

The public survey (see Appendix F) identified congestion as the number one concern with over 95% of respondents. We reviewed data for 13 crossings in Wisconsin Rapids and have provided a preliminary cost impact on the community due to congestion. The data includes FRA information about rail traffic and accident reports, data from previous Wisconsin Rapids studies, current data from sensor systems used in this study and external references.

The current study contains the most detailed and comprehensive data regarding rail traffic at grade crossings. The detailed data at Grand, Gaynor, Bonow and 17th are contained in Appendix B. A comprehensive analysis at all 13 crossings is contained in Appendix F. This analysis considers impacts due to delays and blocked crossings. The complete list of assumptions is provided. The metrics for analysis include Carbon Cost (pollution), excess fuel usage, citizen productivity and logistics productivity. A separate safety analysis is in the following section.

Congestion Impact at Grade Crossings	
AADT(vehicles)	33,960.00
Carbon Cost ($)	$22,031.58
Fuel ($/yr)	$198,326.40
Citizen Costs ($/yr)	$1,804,770.24
Supply Chain Costs ($/yr)	$3,476,909.70
Total	$5,502,037.92

Figure 3: Congestion impact with cost estimates for 13 busiest crossings in Wisconsin Rapids

With the data provided by the City, observations made in the field, and data collected, there are two (2) determining factors that result in the congestion: The measured speeds of "Through Trains" and "Switching Movements".

The first issue observed is the speed of through trains through the corridor. While on site, a coal train was observed moving through town at a very slow speed. This train caused a delay at Grand Ave for more than 13 minutes. During this time, traffic began to back up in the northbound (NB) left turn lane of STH 13, blocking one of the NB through lanes. This study only collected delay statistics at Grand, Gaynor, Bonow and 17th. The typical mile-long freight trains are likely to block Grand, Chase, and High street simultaneously due to their proximity. However, the distances between Grand/Gaynor (1.4 miles), Grand/Bonow (1.9 mi), an Bonow/Gaynor (3.3 miles) are large enough to give over 99% probability of at least one alternate path.

According to the data collected between October 24th to November 5th (see below), there were forty-seven (47) through trains crossing Grand Ave with an average speed of 4.40 mph. These trains caused a total of 254 minutes of delay. Of the forty-seven (47) trains, 70% of the through train delays was caused by fifteen (15) of the trains for an average of 11.88 minutes. Currently there is a slow order in place between the CN Wisconsin Rapids Limits of MP 43-51 due to switching movements and tight curves in those limits. CN does believe this slow order could be lifted in the future.

The second issue observed is the switching movements being done by CN in the area. The switching movements are being done at the CN Wisconsin Rapids Yard, the siding between Chase Ave and 17th St, and servicing General Chemical. At Grand Ave, thirty-four (34) switching movements were recorded for a total delay of 69.27 minutes. However, there were three (3) instances that accounted for 42.88 minutes.

	GRAND AVENUE 10/24 – 11/5					
	Count	Total Delays	Average Delays	Average Speed	Count Percent	Delay Percent
NB LONG DELAYS	8	110.68	13.84	2.46	10%	34%
SB LONG DELAYS	7	67.57	9.65	3.60	9%	21%
NB SHORT DELAYS	15	26.68	1.78	4.78	19%	8%
SB SHORT DELAYS	16	49.98	3.12	4.04	20%	15%
SWITCHING LONG DELAYS	3	42.88	14.29	2.85	4%	13%
SWITCHING SHORT DELAYS	31	26.38	0.85	4.80	39%	8%
TOTAL	80	324.18	4.05	3.75	100%	100%

Issue 2: Safety

Safety was the second most important aspect of grade crossings based on the responses from the community survey (Appendix D). The safety concerns are broken into two categories. Impacts on emergency response due to blocked crossings and accidents at grade crossings.

The impacts on emergency vehicles are difficult to measure, however. These vehicles experience the same type and length of delays as do citizens and logistic companies. There are two fire houses constructed, one on each side the valley subdivision, to mitigate issues regarding blocked crossings. However, even with two fire houses, emergency vehicles are blocked at crossings 6 to 12 times a year. The community survey provides several accounts of this. Typical response times are targeted at 4 minutes. A crossing blocking an emergency crew from a traumatic injury victim or a burning building could mean life or death. There are examples of this at https://www.LinqThingz.com/Milwaukee. In addition, there is one hospital in Wisconsin Rapids, and it is on the east side of the tracks.

The other aspect of safety is accidents. Over the past ten years there have been 33 accidents at rail crossing resulting in property damage, injuries and/or death. A more complete analysis is in Appendix X. The return on investment is based on comprehensive causality numbers and statistics created by the insurance industry.

	Events	Cost	Sub Total
Crashes	33	N/A	
No Injuries	28	52700	$1,475,600.00
Injuries	22	345000	$7,590,000.00
Deaths	1	11449000	$11,449,000.00
Total			$20,514,600.00
Average per Year			$2,051,460.00

Figure 4: Safety impact with cost estimates for 13 busiest crossings in Wisconsin Rapids

Issue 3: Noise

Noise was the third issue that is met with concern according to the community survey in Appendix F. Under the Train Horn Rule (49 CFR Part 222), locomotive engineers must begin to sound train horns at least 15 seconds, and no more than 20 seconds, in advance of all public grade crossings. The sound level is between 96 and 110 decibels. The area around the crossings includes residential, commercial, and industrial areas. These horns can be heard for many miles and are a substantial nuisance for residents living near the tracks. There is a second corridor in the Wisconsin Rapids area that serves the industries along 17th Street and 25th Street northwest of the Grand Ave crossing. Rail traffic runs at all times of the day.

Issue 4: Pollution

Idling extra time at crossings produces pollution that adds to the carbon footprint. It is of least concern to citizens but there are several fundings and grants available to reduce carbon footprints.

Public Poll Summary:

Ten questions were asked in an online survey regarding grade crossings with a response from over 1000 citizens.

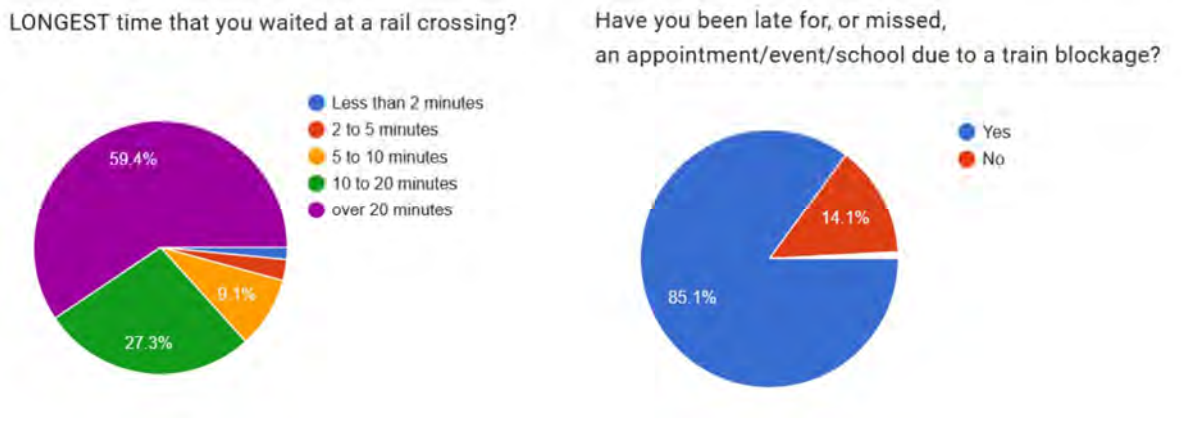


Figure 5: Two of the ten questions from public survey in Appendix F.

TASK 3: Identify and compare alternatives to address those concerns.

There are multiple ways to improve the issues outlined in Task 2: (1) Increasing the speed of the through trains; (2) route optimization and ITS solutions; (3) intersection modification; (4) track relocation; (5) grade separation; and (6) Quiet Zone.

Alternate 1: Increasing Speed of through trains

The CN timetable shows that the maximum speed for trains on the Valley Sub is forty (40) mph. However, there is a slow order in place through the yard limits (MP 43-51) of 5 mph. This slow order affects every crossing in the corridor. Sensors used in this study shows the average speed (at open/closing) at Grand and Gaynor as 10 mph and 12 mph respectively. Increasing the train speed through the corridor will only have an impactful effect on the through trains. Most of the switching movements over the crossings would not be affected by this change.

One possible solution would be to work with CN and see if there are ways to change operations to improve issues that limit speed through the yard limits and to modify switching movements to avoid the extended blocking of crossings. This alternative would require CN Coordination.

Pros	Cons
Cuts all delays by through trains significantly	Unknown Causes
Potentially limited amount of work required	May not affect switching movement delays

Alternate 2: Route Optimization and ITS solutions

The alternative routing analysis in Appendix C shows that the crossings at Grand and Gaynor are simultaneously blocked only 0.11% of the time. This means that there is an alternate route with 99% probability for success. Similarly, alternate routing at Bonow and 17th show that these intersections are simultaneously blocked 0.48% of the time. Predictive Mobility works by giving advanced warning, typically 2 to 7 minutes, so that road traffic does not intersect with rail traffic. For example an ambulance moving from the west on Grand/25th St could take either 17th St /Hwy 34 (4 minutes) or continue on Grand to Hwy 13 (4 minutes) to reach the hospital on the east side of the river. If notified, in advance of reaching 17th and Grand, the ambulance would add no extra time to the trip, while avoiding a potential 20 minute wait at Grand. The fastest time to get from the west end of the city and across the tracks is about 4 minutes. Based on the overlap between blocked crossings (Appendix C) there is an alternate route taking no more 7 minutes from anywhere on the west side 99% of the time. This is a maximum 3 minute penalty to avoid and average blockage penalty of 8 minutes or up to over 20 minutes.

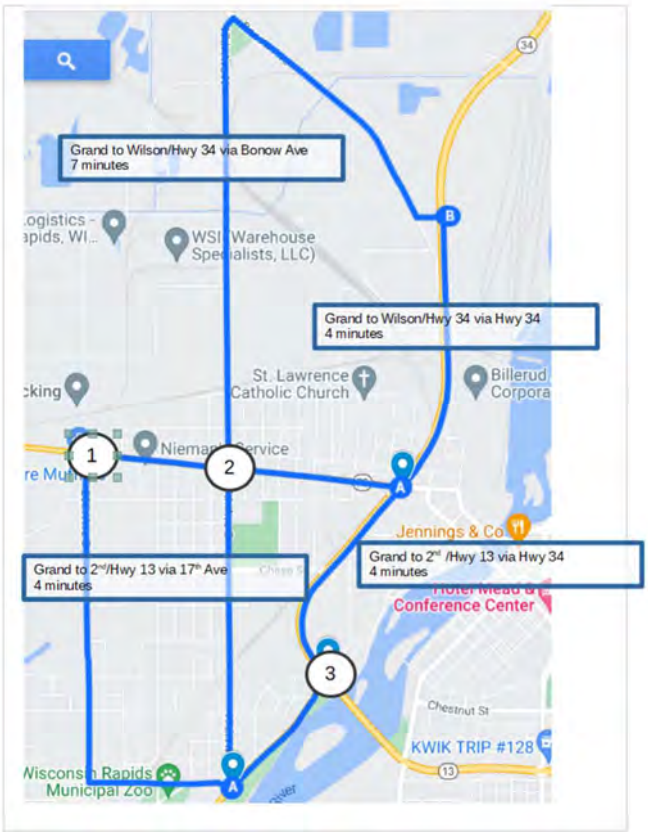


Figure 6: Example Alternate Route: Consider ambulance traveling from (1) to (3). Alternate routes from (2) to (3) take same amount of time but can avoid 20+ minute wait with advance warning given at (1) when one of the crossings is blocked.

Predictive Mobility works by placing an array of sensors within vicinity of rail but outside rail right of way. Sensors contain RADAR, LIDAR, IR, Camera, Magnetometer, Audio, Radio all within a single enclosure for fast Machine Learning processing to identify location, speed, direction, and length of trains. This information is communicated from multiple sensors to LinqThingz cloud where it is stored, and another Machine Learning engine processes the data to predict when crossings are and will be closed/open. This information is communicated to users via mobile application, web applications, fixed message signage with notifications, variable message signs and cloud applications. It is expected that the information from these sensors can be available to major navigation and connected vehicle companies by 2025.

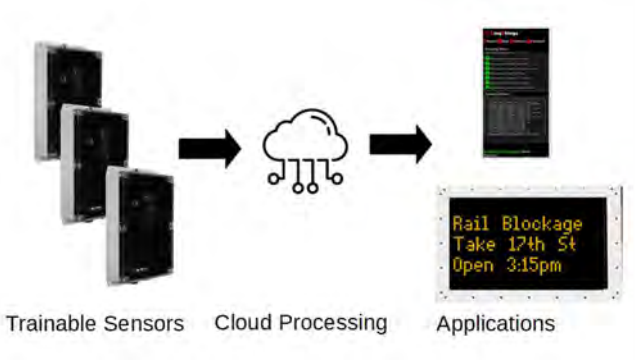


Figure 7: Predictive Mobility uses sensor data and machine learning to provide advanced warning of blocked crossing to digital applications and dynamic road-side signs.

Pros	Cons
Rerouting can eliminate congestion for over 95% of crossing incidents for all 13 crossings in Wisconsin Rapids	Very long or multiple trains in a queue may block all crossings
It can be implemented with only approval from the City to install Sensors on City Property	Increases Auto traffic on roads where high volumes are not regular
It can be implemented in a matter of months	
It is much lower cost than many construction solutions	
It provides a pathway to support future transportation such as computer aided dispatch, transportation management, navigation, and connected/autonomous vehicle platforms	

Alternate 3: Intersection Modification

When the crossing at Grand Ave is being blocked for an extended period due to a train, the NB traffic on STH 13 begins to back up due to the left turn lane queuing up. Currently, the left turn lane extends approximately 170' from the stop bar before the taper into the NB traffic lane. Extending the left turn lane to increase the capacity would allow for NB traffic to flow even when the crossing is being blocked. Without affecting the mall entrance, the left turn lane can be extended around 200'. The existing east curb could be relocated east to align with the curb line at the Grand Avenue intersection widening the south approach. This should have no effect on the sidewalk, but would result in storm sewer, light poles, and other utility modifications. The existing medians would need to be modified to channelize traffic and extend the left turn lane south. The left turn lane of the SB traffic would not be affected, and no modification to Grand Avenue. A full traffic study would need to be done to determine how much the left turn lane would need to be extended.

Figure 8: Potential intersection Modifications

Pros	Cons
Minimum impact on surrounding area	Doesn't change delays at the crossings
Constructable with active traffic	

Alternate 4: Track Relocation

In this option, all through train traffic would be rerouted on a Wisconsin Rapids Bypass. The goal of this option would be reducing the number of trains moving through the city and to speed up trains that are not stopping in the CN Wisconsin Rapids Yard, since the yard will be avoided. The existing track would remain after the bypass construction allowing CN to maintain access to the siding and General Chemical.

Option 1: Relocation along City West Edge

South of Seneca Rd the track curves along the river. In the relocation option, a power turnout would be installed south of this curve. From there, the proposed alignment would run north along the west edge of the city. On the north end, the new alignment reverse curves and ties into another proposed turnout west of the Grand Avenue bridge. For this alignment, three new grade crossings would need to be installed at Seneca Road, Gaynor Avenue, and George Road. The crossings should be constructed in a way that would allow for a quiet zone to be established once the corridor is constructed. Additionally, there would need to be four (4) small bridges or large culverts installed where the track would go over existing creeks. The alignment would match the 40-mph maximum speed the current timetable allows. Additional track improvements may also be needed through the industrial area between 17th and 25th Avenue east of where the alignment would tie in to accommodate the increase in train traffic and to maintain the train speeds.

Figure 9: Potential track relocation

Pros	Cons
Relocates train traffic away from populated area	Property Acquisition
Through Trains avoid CN Wisconsin Rapids Yard	3 New crossings created
Build to allow a Quiet Zone	3 Bridges over creeks and rivers
Provide location for proposed industry expansion	Increase Train Traffic in Industrial area between 17th and 25th St
	Potential Wetland Impacts
	Maintains Switching Movements at Hwy 13 Corridor to serve industry and out of CN Wisconsin Rapids Yard

Option 2: Relocation along County lands

This option would relocate the train traffic west of the city on county lands. West of the Kimball Avenue crossing a power turnout would be installed. The proposed corridor would run northeast from this location. On the north end, another turnout would be installed west of the Ridge Road crossing. For this alignment, three (3) new crossings would need to be constructed at WI-54, Seneca Road, and Marsh Road. Additional private crossings may be needed based on the alignment and private lands the new track would bisect. The crossings should be constructed in a way that would allow for a quiet zone to be established once the corridor is constructed. Additionally, four (4) small bridges or large culverts would need to be installed where the track would go over existing creeks. The alignment would match the 40-mph max speed the current timetable allows. Additional track improvements may also be needed through the industrial area between 17th and 25th Avenue east of where the alignment would tie in to accommodate the increase in train traffic and to maintain the train speeds.

Figure 10: Potential track relocation

Pros	Cons
Relocates train traffic away from populated area	Property Acquisition
Through Trains avoid CN Wisconsin Rapids Yard	3 New crossings created
Build to allow a Quiet Zone	4 Bridges over creeks and rivers
Provide location for proposed industry expansion	Increase Train Traffic in Industrial area between 17th and 25th St
	Potential Wetland Impacts
	Maintains Switching Movements at Hwy 13 Corridor to serve industry and out of CN Wisconsin Rapids Yard

Alternate 5: Grade Separation

To alleviate all delays and safety concerns at Grand Ave, the only option would be to construct a grade separation. This would also provide an alternative route for traffic being blocked by trains at adjacent crossings. The traffic flow at Grand Av is 11900 AADT of the 35000 AADT city wide. A grade crossing at Grand Av. would likely solve more than 30% of the existing crossing-related traffic flow problems for the west side of Wisconsin Rapids given existing flow patterns. These patterns would likely shift during and after construction.

Option 1: New Overpass

This option would be to elevate Grand Ave over the tracks. The vertical clearance required by CN at a bridge is 23'-0" in the state of Wisconsin. A large amount of fill material would be imported for the project and retaining walls would be built to support the elevated road. The Grand Ave raise would stretch from the 6th Avenue / Jackson Street intersection to the east to the 10th Avenue intersection to the West.

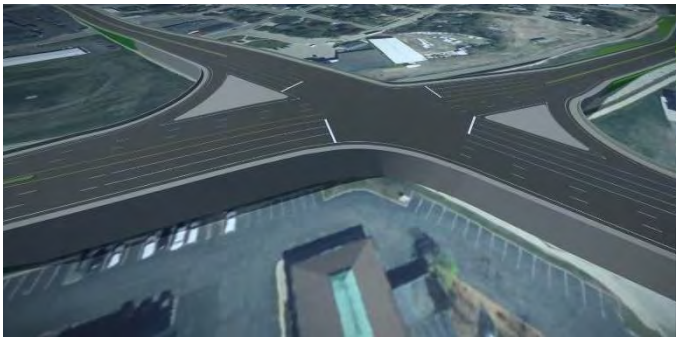


Figure 11: New grade separation overpass

To accommodate the raise in the road, the parking lot entrance east of the STH 13 Intersection would need to be closed. The intersection at 9th Avenue west of the crossing would be cul-de-saced due to the raise in the road and to maintain access to the Family Natural Foods. Along STH 13, the road raise would stretch from the beginning of the NB left turn lane of the High St crossing to the north, to north of the Hale Street intersection to the south. The parking lot entrance south of Subway would need to be closed to accommodate the raise in the road. The entire intersection of Grand Ave and STH 13 would be raised to maintain current traffic patterns and volumes. A traffic study should be done to optimize the new intersection geometry as part of the planning/design process. The surrounding sidewalks would need to be raised with the road to maintain pedestrian access throughout the corridor. On the west side of the tracks, there is a line of overhead wires that would need to be relocated or modified to allow for the elevated road. The track alignment would not require any adjustment during or after construction. There would need to be a study of buried electrical, data, gas, and other underground assets.

Pros	Cons
Eliminates all Delays at Grand Ave	Large Earthwork Fill
Improves safety	Overhead Electric relocation on West Approach
Provides alternate route for adjacent crossings when blocked	Mall entrance closing
No track modification	Eliminate intersection with 9th Ave
Qualifies corridor for a Quiet Zone	Would require a Roadway Shoofly
	Aesthetics for local Business

Option 2: New Underpass

This option would be to lower Grand Ave under the tracks. The vertical clearance required by WisDOT at a bridge is 14'-9" minimum. To lower the roads, there would need to be a large amount of excavation completed and hauled off site. Retaining walls would need to be installed along the limits of excavation. The Grand Ave excavation would stretch from west of the 6th Avenue / Jackson Street intersection to the east and west of the 9th Avenue intersection to the west. To accommodate lowering Grand Ave, the parking lot entrance east of the STH 13 Intersection would need to be closed. The Intersection at 9th Avenue and the 9th Avenue approach can be modified to maintain the road access. Along STH 13, the excavation would stretch from the parking lot entrance south of the Grand Ave intersection to the south, to south of the NB left turn lane at the High St intersection to the north. Small modifications may be required at the parking lot entrance along STH 13 to accommodate the excavation. When excavating the road, all underground utilizes will need to be relocated. A track shoofly would need to be constructed to maintain train traffic during the construction process.

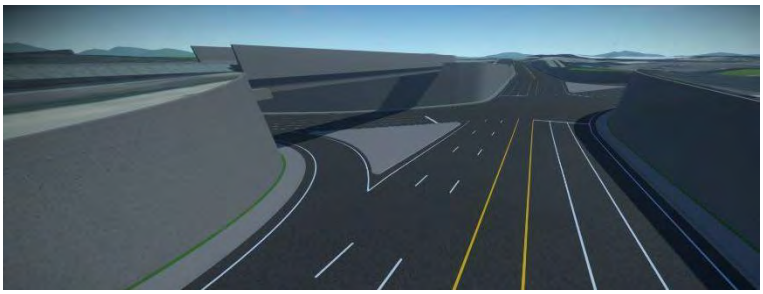


Figure 12: New grade separation underpass

Pros	Cons
Eliminates all Delays at Grand Ave	Large Earthwork Cut
Improves Safety	Underground storm sewer, water mains, electric and other utility relocation, and modification
Provides alternate route for adjacent crossings when blocked	Retaining Walls
Qualifies corridor for a Quiet Zone	Mall entrance closing
Aesthetics for local business	Road and Track Shoofly
Raising track can help optimize excavation costs	Underpass creates drainage low spot

Alternate 6 Quiet Zone

There are two corridors in Wisconsin Rapids that can be considered for a Quiet Zone. The first corridor is along the Wisconsin Central, Valley Sub. The second corridor is along the Wisconsin Central, Whitehall Sub.

Quiet Zone 1 – Valley Sub

The Quiet Zone would consist of nine (9) crossings along the WC Valley Subdivision beginning at Gaynor Avenue running North to 5th Avenue North.

QZ: Valley Sub			
US DOT Crossing ID Number	**Railroad**	**Street or Highway Name**	**MP**
392717R	WC	Gaynor Avenue	47.88
392718X	WC	S 17th Street	48.30
392719E	WC	Chase Street	48.83
392720Y	WC	Grand Avenue	49.23
392723U	WC	High Street	49.45
179767L	WC	Fremont Street	49.58
692338U	WC	Dura Beauty Lane	49.81
693755G	WC	Bonow Ave	50.51
693756N	WC	5th Avenue North	50.81

Before a quiet zone could be considered, all public crossings in the limits are required to have gates installed. This would mean Gaynor Ave, S 17th St, and Fremont St would need to have gates installed at the crossings.

To qualify for a quiet zone, the Quiet Zone Risk Index (QZRI) would need to be below the Nationwide Significant Rist Threshold (NSRT) of 15,488.00. Based on the FRA Quiet Zone Calculator, the current configuration of the crossings has a QZRI of 16,842.87, which does not qualify for a quiet zone. To lower the QZRI, there are multiple improvement options the City could implement. The only crossing with any safety measures currently is Grand Ave. The existing medians do not qualify for a full Supplementary Safety Measure (SSM) due to the proximity with STH 13. The medians for this study would be considered as an Alternative Safety Measure (ASM).

Option 1: Grade Separating Grand Ave

This option would be to implement Alternate 4 described above. Installing a Grade Separation will reduce the QZRI for the whole corridor to 13,282.82. This is lower than the NSRT which would qualify the exiting corridor for a Quiet Zone.

Option 2: Improvement at Bonow Ave

In this option, 100 ft of a Kwik Curb or equivalent raised median that would qualify as a SSM would be installed on both approaches of the crossing. This improvement would reduce the QZRI to 15,123.44, qualifying the corridor for a Quiet Zone.

Option 3: Installing Improvements at Gaynor and S 17th St.

In this option, while the gates are also being installed, Kwik Curb or equivalent raised medians would be installed at Gaynor Street and s 17th Street. Due to intersecting streets near each crossing, Carey St at 17th St and 21st Ave at Gaynor St, a full SSM would not be possible. However, installing the Kwik Curb or an equivalent raised median to the limits of the intersections should qualify as an ASM. Installing both improvements would reduce the QZRI to 14,894.24, qualifying the corridor for a Quiet Zone.

Quiet Zone 2 – Whitehall Sub

The Quiet Zone will consist of six (6) crossings along the WC Whitehall Subdivision beginning at Nash Road/21St St running south to 25th Avenue.

QZ: Whitehall Sub			
US DOT Crossing ID Number	**Railroad**	**Street or Highway Name**	**MP**
693776A	WC	Nash Road 21st Avenue	50.00
693754A	WC	17th Street North	50.80
179750H	WC	17th Street North	96.15
281687U	WC	Engel Road	96.54
281685F	WC	Industrial Street	97.05
281681D	WC	25th Avenue	97.34

To create this quiet zone, gates would need to be installed at all the included crossings. To qualify for a quiet zone, the Quiet Zone Risk Index (QZRI) needs to be below the Nationwide Significant Risk Threshold (NSRT) of 15,488.00. Based on the FRA Quiet Zone Calculator, the current configuration of the crossings has a QZRI of 7,896.60, which is lower than the NSRT of 15,488.00. This means the corridor will qualify for a quiet zone once all the gates have been installed.

Alternate 7 Relocating Business to East Commerce Center

There is a push to fully utilize Wisconsin Rapids East Commerce Center and its rail hub. There are multiple economic development grants, and loans that would benefit a company that is currently on the west end and connected to the valley subdivision; to move to the East Commerce Center. One example company would be General Chemical. If the move expanded operations and employment then economic development money could be used on the new facility, Rail elimination grants could be used to remove the rail spur. The facility, which is located in a certified opportunity zone could be replaced with housing or other businesses that qualify.

TASK 4: Identify costs, grant funding

The alternatives analyzed in TASK 3 can have vastly different costs and sources for funding. Quiet zone, Grade Separations, and Rail Relocation solutions impact initial and ongoing costs to both the city, state, federal government, and the railroad and are typically funded through a variety of grants, local funds, and railroad budgets. Alternate routing, depending on jurisdiction, impact initial and ongoing costs to both the city, state and federal government but have small requirement or impact on rail companies. Alternate routing solutions are typically funded through a variety of federal, state grants and local municipal budgets. Technology solutions have cost impacts directly to the municipality and require little responsibility from state, federal, and railroad sources. These technology solutions, however, can be funded by a variety of local, state, federal grants. The study will include grant opportunities including but not limited to:

- CMAQ - Congestion Mitigation and Air Quality Improvement Program
- ARPA America Rescue Plan Act
- Bipartisan Infrastructure Investment
- Section 130 Federal Highway Administration's (FHWA) Highway Safety Improvement Program (HSIP)
- CRISI Grant
- Carbon Reduction-related grants
- Grants related to underserved communities for Variable Message Signage
- Wisconsin General Transportation Fund grants
- Alternative/Sustainable funding sources

These grants include traditional transportation grants as per alternative 1,2,3 and 5. The technology solutions also can be funded by communication grants (for the communication infrastructure), and inclusiveness grants (for variable message signage for community members without mobile devices). In addition, this information can be sold to citizens, logistics companies, emergency services, mapping companies, etc. and secure commercial sponsorship. Thus, the technology solution can be sustainable with only minor long-term costs to the community, state, federal and rail stakeholders. We will analyze costs and sources of support and funding for the various solution alternatives.

Below is a table of the cost estimate in 2022 dollars, for each of the alternates listed above and characteristics that would fall under federal, state, and third-party funding.

ALTERNATE	DESCRIPTION	ESTIMATED UNIT COST	FUNDING OPTIONS
ALTERNATE 1	Increasing Speed of Through Trains	N/A	CN operation improvement, Signal Improvements, Carbon Reduction
ALTERNATE 2-1	Minimum Proof of Concept at a Single crossing	$52,000	Crossing Improvement, Technology Innovation, Carbon Reduction, Underserved communities, Commercial Sponsorship
ALTERNATE 2-2	Minimum Digital-Only City-wide solution	$217,200	Crossing Improvement, Technology Innovation, Carbon Reduction, Underserved communities, Commercial Sponsorship
ALTERNATE 2-3	Value-Based City-wide solution with Active Signage	$375,000	Crossing Improvement, Technology Innovation, Carbon Reduction, Underserved communities, Commercial Sponsorship
ALTERNATE 3	Intersection Modification	$1,000,000	Carbon Reduction
ALTERNATE 4-1	Track Relocation - City West Edge	$27,800,000	CN Operation Improvement, Safety Improvements, Carbon Reduction
ALTERNATE 4-2	Track Relocation - County Lands	$34,500,000	CN Operation Improvement, Safety Improvements, Carbon Reduction
ALTERNATE 5-1	Grade Separation - Railroad Under	$32,600,000	Safety Improvements, Grade Separation, Carbon Reduction, CN Operation Improvement
ALTERNATE 5-2	Grade Separation - Railroad Over	$33,600,000	Safety Improvements, Grade Separation, Carbon Reduction, CN Operation Improvement
ALTERNATE 6-1	QZ Option 1 - Grade Separation Grand Ave	$37,800,000	Quiet Zone, Safety Improvements, Grade Separation, Signal Improvements
ALTERNATE 6-2	QZ Option 2 - Improvement at Bonow Ave	$2,900,000	Quiet Zone, Safety Improvements, Signal Improvements
ALTERNATE 6-3	QZ Option 3 - Improvements at Gaynor and s 17th St	$2,900,000	Quiet Zone, Safety Improvements, Signal Improvements
ALTERNATE 6-4	Whitehall Sub Quiet Zone	$5,400,000	Quiet Zone, Safety Improvements, Signal Improvements
ALTERNATE 7	Relocated Rail Intensive Businesses to East Commerce Center	$?	WEDC grants and loans, SBA grants and Loans, Other miscellaneous Economic development incentives. Rail operation support.

See Appendix G for detailed estimates.

TASK 5: Implementation of alternatives.

The implementation process for each alternative is different.

The City would need to work with CN to determine the improvements required to increase the train speed through the city and discuss operations to prevent CN switching movements from blocking multiple crossings at the same time preventing easy alternative routes for traffic.

ITS, Predictive Mobility and alternate routing can be taken in steps and starts with a pilot project with sensors at all target crossings. There is an installation process with fixed or variable message signage and a roll out process for digital solutions that include mobile applications and cloud application integration. Community communication is an important part of this process.

The intersection modification at Grand Avenue along STH 13 project would involve the City performing an engineering study. There would need to be a traffic study performed to determine the improvements required to alleviate the traffic backups caused by the train blocking the crossing. The traffic study, engineering design, and construction process could be completed in two (2) years. During the construction process, the road would need to remain open to allow for traffic to continue.

The track relocation process would require CN coordination, public outreach, and engineering to determine the new track alignment. The City would need to work with the county and the project would require property acquisition. The engineering, property acquisition, and construction process would take multiple years before the new track could be operational.

The grade separation project would require engineering for the road alignment and the structures. A shoofly for the track and road would need to be designed to maintain train and roadway traffic operations during the construction process.

To implement a Quiet Zone, the city would need to complete a study to determine the improvements required to have the corridor qualify for a Quiet Zone. There would need to be a diagnostic site meeting with the involved parties, after which a Notice of Intent (NOI) package would be sent to the FRA. After 60 days and the safety improvements have been completed, a Notice of Establishment (NOE) from the City will need to be submitted to the FRA for final approval.

TASK 6: Recommendation

There are multiple solutions to the issues Wisconsin Rapids is experiencing. To substantially improve the City's traffic flow, Wisconsin Rapids should pursue a combination of the listed solutions. The solutions that we would recommend pursuing would be to work with CN to determine any operational changes including train speeds and switching movements, constructing a grade separation at Grand Ave, and implementation of Predictive Mobility. Working with CN to modify the current operations could help speed up trains through the corridor limiting the delay of each through train and modify switching movements to prevent multiple crossings being blocked for an extended period. The only way to eliminate all train delays at a single crossing would be to construct a grade separation. There are fifteen (15) at grade crossings in the city, a grade separation should be constructed at the crossing with the biggest impact. While Bonow seems to have the highest blockage time, Grand Avenue has the greatest impact based on the large AADT, centered in the city, proximity to other crossings, and impacts to traffic on STH 13. A grade separation at Grand Avenue will also help in the implementation of a Quiet Zone in the corridor. For all the other crossings in the City, message boards can be installed informing drivers of crossings being blocked to help guide drivers across the tracks avoiding trains in the area.

The teams' following recommendations have been generated based on the comprehensive analysis of the City's characteristics, rail traffic and road traffic.

These recommendations are as follows:

- Pursue steps to construct grade separation (underpass/overpass) at Grand Avenue that will start with a more detailed traffic and construction study.
    - NEXT STEP: Begin the process of detail traffic and construction analysis which Patrick Engineering can assist with.
- Pursue implementation of Predictive Mobility system that can help solve the problem at all 15 crossing in a matter of months while the longer-term, multi-year, multi-step grade separation projects is in motion.
    - NEXT STEP: Deploy pilot Predictive Mobility System.
- Pursue the implementation of a Quiet Zone in the city.
    - NEXT STEP: Begin the process of crossing analysis and determine improvements required for a Quiet Zone, which Patrick Engineering can assist with.

Public Works Committee

Date of Request: March 1st, 2023

Requestor: Joe Eichsteadt, City Engineer

Request/Referral: Review the preliminary concept drawing for Lincoln St between E Riverview Expressway and Peach St.

Background information:

As part of the public participation and stakeholder feedback for this future project we wanted to do a high level review of some initial concepts and introduce the project. By no means is this a final concept. Due to the size and scope of the project we will be looking for feedback from adjacent property owners and stakeholders, general public comments, etc and will get a project webpage developed where people can access project documents and provide their feedback.

Adjacent land uses and connectivity to those land uses, coupled with significant right-of-way through part of the corridor creates opportunities to provide a paved, off-street path that would provide an eventual connection to W Jackson and E Jackson (once complete).

The adjacent and nearby land uses include two schools, the Library, E Grand Ave & 8th St businesses, Aquatics Center, Skate Park, Rafters and residential neighborhoods.

Other Design Parameters

- Parking along Lincoln St will be maintained.
- Safety will be reviewed to ensure that vision triangles are clear, traffic control is appropriate, pavement marking and signage are improved and updated.
- Tree planting in boulevards will be considered.

A few design components we need to work through include:

- ROW discrepancy on west side south of Chestnut St – may require some ROW purchases
- Consideration for moving underground utilities outside the roadway if possible

WISCONSIN RAPIDS

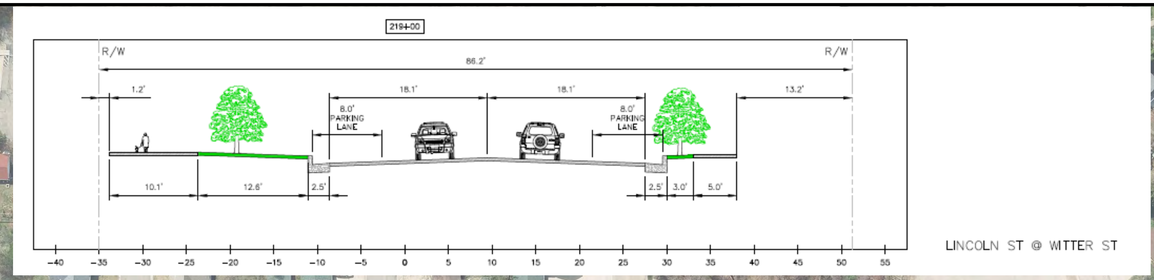
Feedback we have received to date includes:

- consider the paved trail on the east side of the road rather than west side for multiple reasons: keeping foot and bike traffic away from residential properties and city crews already plow sidewalks on the east side so it would avoid adding sidewalk to plow.
- Consider keeping the island between Witter and Peach St.
- Consideration of WB RT along the Expressway as a possible future project. Initial groundwork will be considered with this preliminary design.
- Consider a mid-block ped crossing at Witter St.
- Consider parking needs, even angle parking if necessary
- Extend some aesthetic features, similar to E Grand Ave into the corridor
- Include pedestrian signage on the Lincoln St route and high visibility cross walks.
- Consider additional width south of Chestnut St to accommodate some boulevard width and consistency with the rest of the corridor.
- Consider a dedicated bike lane
- Desirable to include traffic calming features to keep speeds slow

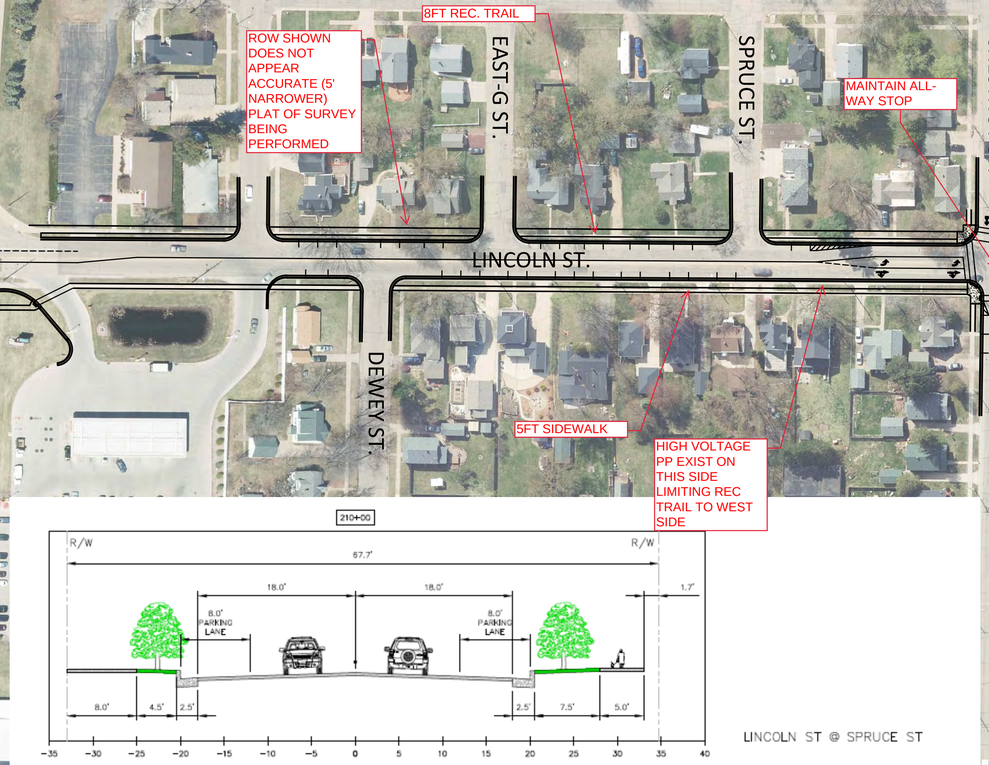
Options available: Feedback is encouraged.

Action you are requesting the committee take: No action

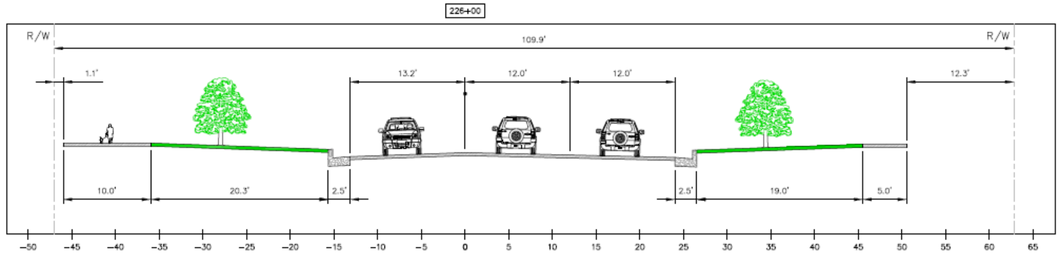
How will the item be financed? N/A



LINCOLN ST @ WITTER ST



LINCOLN ST @ SPRUCE ST



LINCOLN ST @ PEACH ST

ROW SHOWN DOES NOT APPEAR ACCURATE (5' NARROWER) PLAT OF SURVEY BEING PERFORMED

8FT REC. TRAIL

EAST-G ST.

SPRUCE ST.

MAINTAIN ALL-WAY STOP

CHESTNUT ST.

12-13' BOULEVARD

D - ST.

10FT REC. TRAIL

WITTER ST.

20' BOULEVARD

EXISTING ALL-WAY STOP CONTROL

LINCOLN ST.

DEWEY ST.

5FT SIDEWALK

HIGH VOLTAGE PP EXIST ON THIS SIDE LIMITING REC TRAIL TO WEST SIDE

5FT SIDEWALK

BOULEVARD IS NARROW ~3'. MAY LOOK TO MOVE CHAINLINK EAST ~6FT. WOULD REQUIRE DEDICATION.

REC TRAIL TO CONTINUE ON E JACKSON ST TO BRIDGE

BIRCH ST.

LINCOLN ST.

PROJECT:
LINCOLN ST. RE-CONSTRUCTION

LOCATION:
RIVERVIEW EXPRESSWAY TO E. GRAND AVE.

ENGINEERING DEPARTMENT
444 WEST GRAND AVENUE
WISCONSIN RAPIDS, WI 54495
PHONE 715-421-8205 / FAX 715-421-8291

WISCONSIN RAPIDS

DRAWING NUMBER: X-000

DRAWN BY: M.A.S.	PLOT DATE: 11/7/2022	PROJ. NO. 2022-14	SCALE: 1" = 80FT.	SHEET 00 OF 00

PUBLIC WORKS COMMITTEE REFERRAL LIST:

2023

1. Request from Alderperson Tom Rayome to discuss the future of 8th St S. (2016)
2. ~~Request by Alderperson Cattanach to reconsider the City's overnight parking ordinance (2021)~~
3. ~~Request by Alderperson Austin to consider developing a Responsible Bidder Ordinance~~
4. ~~Request by Alderperson Kellogg to study traffic speed along Chestnut from 8th Street to Hill Street and make recommendations (2020) – study was done when there were no school related activities. Will continue study when school is in session and will report back to committee.~~
5. ~~Request by Alderperson Evanson to review parking ordinance for any inconsistencies between ordinance language and signage throughout the City (2021)~~
6. ~~Request by Alderperson Bemke to perform an intersection analysis and determine sign warrants, if any, for 12th St S and Chestnut St.~~
7. Request by Alderperson Austin to consider a feasibility study for reducing noise and vehicle delays due to railroad tracks along the west side of the City at and between crossing from Gaynor Ave to High St.
8. ~~Request by residents along Smith St and Cherry St to not reinstall sidewalk along these road projects.~~
9. ~~Review and approve the conditions for a street privilege permit for Mead Witter Foundation, Inc.~~
10. ~~Review the bid results for the West Riverview Expressway Traffic Signal Improvement project and consider awarding the contract to the low, qualified bidder.~~
11. ~~Request from Zacher to consider removing pavers in west boulevard of 2nd Ave S between roundabout and Lyons St and replacing with colored, stamped concrete.~~
12. ~~Request from Austin to discuss the Biron wastewater agreement at a special PW meeting.~~
13. Request from Rayome for Quiet Zones for trains on the east side of city. (Referral Attached)
14. ~~Request from Polach to change traffic control at the intersection of Peach St and 13th St S from uncontrolled to either yield or stop control.~~
15. ~~Request by Gary Wilhorn, 4281 14th Pl S, to install street lighting at the intersection of 14th Pl and Whitrock Ave.~~
16. ~~Update Degradation Fees for 2023.~~
17. Consider Highway Safety Improvement Grant for pedestrian crossing at 8th St S at Wood Ave.
18. Consider possible solutions to possible lack of sufficient overnight and extended parking for semi-trucks within the City.
19. Referral by Alderperson Bemke to consider sidewalk installation on the east side of 16th St S from E Riverview Expressway to existing sidewalk 1075' south.