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October 14, 2022

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October 14, 2022
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Ms. Cynthia T. Brown
Chief, Section of Administration
Office of Proceedings
Surface Transportation Board
395 E Street, S.W.
Washington, DC 20423-0001

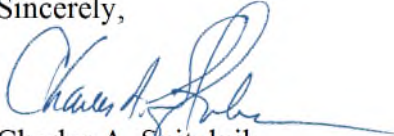
Re: STB Finance Docket No. 36500, *Canadian Pacific Railway Limited, et al. – Control – Kansas City Southern et al.*

Dear Ms. Brown:

I am attaching for e-filing the “Comments of Hennepin County, MN, and the Hennepin County Regional Railroad Authority on Draft Environmental Impact Statement”, in the above-referenced proceeding.

If you have any questions, please do not hesitate to contact me.

Sincerely,


Charles A. Spitulnik

Enclosure

cc: All Parties of Record

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

STB Finance Docket No. 36500

**CANADIAN PACIFIC RAILWAY LIMITED; CANADIAN PACIFIC RAILWAY
COMPANY; SOO LINE RAILROAD COMPANY; CENTRAL MAINE & QUEBEC
RAILWAY US INC.; DAKOTA, MINNESOTA & EASTERN RAILROAD
CORPORATION; AND DELAWARE & HUDSON RAILWAY COMPANY, INC. –
CONTROL – KANSAS CITY SOUTHERN, THE KANSAS CITY SOUTHERN
RAILWAY COMPANY, GATEWAY EASTERN RAILWAY COMPANY,
AND THE TEXAS MEXICAN RAILWAY COMPANY**

**COMMENTS OF HENNEPIN COUNTY, MN, AND
THE HENNEPIN COUNTY REGIONAL RAILROAD AUTHORITY
ON DRAFT ENVIRONMENTAL IMPACT STATEMENT**

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Dated: October 14, 2022

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SURFACE TRANSPORTATION BOARD**

STB Finance Docket No. 36500

**CANADIAN PACIFIC RAILWAY LIMITED; CANADIAN PACIFIC RAILWAY
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**COMMENTS OF HENNEPIN COUNTY, MN, AND
THE HENNEPIN COUNTY REGIONAL RAILROAD AUTHORITY
ON DRAFT ENVIRONMENTAL IMPACT STATEMENT**

I. INTRODUCTION

Hennepin County, MN, and the Hennepin County Regional Railroad Authority (together, the “County”) hereby jointly submit the following comments in response to the Draft Environmental Impact Statement issued by the Surface Transportation Board’s (the “Board”) Office of Environmental Analysis (“OEA”) on August 5, 2022, in *Canadian Pacific Railway Limited, et. al.--- Control of ---- Kansas City Southern et. al.*, Docket No. FD 36500. (“OEA Draft EIS” or “DEIS”).

In accordance with the National Environmental Policy Act of 1969 (“NEPA”), the OEA has prepared the DEIS to evaluate the environmental impacts of a proposal by Canadian Pacific Railway (“CP”) to acquire Kansas City Southern Railway (“KCS”) (the “Acquisition”). If the Board authorizes the Acquisition, CP and KCS (together, the “Applicants”) would combine into a

single rail system comprised of approximately 20,350 miles of track.¹ As one of the jurisdictions in which the DEIS projects an increase in rail and truck traffic as a result of the Acquisition, the County is a key stakeholder in the outcome of the Acquisition and an important voice in this environmental review process.

The County is the most populous in the State of Minnesota, with 1,281,565 residents, including in the City of Minneapolis.² CP owns 44% of the approximately 172 miles of freight rail infrastructure in the County as well as two large railyards -- Humboldt and Shoreham Yards.³ Humboldt Yard is primarily a switching yard with transloading facilities while Shoreham Yard is the site of CP's Minneapolis Intermodal Terminal ("IMS").⁴ According to the DEIS, the IMS is the third largest intermodal facility in the country.⁵

As a key stakeholder, the County urges the OEA to address serious flaws in the DEIS. First, the DEIS dramatically understates the volume of truck traffic resulting from the Acquisition in the County, the impact of that increase in traffic, and necessary mitigation of those impacts. Both the County's own observations and previous projections prepared by CP show truck traffic volumes in and out of the IMS far in excess of the amounts reflected in the DEIS. The harms of this traffic are high, because the Shoreham Yard is surrounded by densely populated, diverse neighborhoods, with substantial residential and commercial activity.⁶ OEA therefore must re-examine the truck traffic surrounding the IMS and Shoreham Yard and require appropriate mitigation.

The DEIS also fails to consider grade crossing impacts in the County and the measures to mitigate those impacts. Some of these crossings are located in densely populated portions of the

¹ OEA Draft EIS at 2-3.

²U.S. Census Bureau (2020). *Decennial Census: Hennepin County, Minnesota*. Retrieved from <https://data.census.gov/cedsci/table?q=Hennepin%20County,%20Minnesota&tid=DECENNIALPL2020.P1>.

³ Exhibit B, Verified Statement of Mark Amfahr, at ¶ 4. ("Exhibit B, V.S. Amfahr re: DEIS")

⁴ *Id.* at ¶ 4.

⁵ See DEIS 2-13, Table 2.2-3.

⁶ Exhibit B, V.S. Amfahr re: DEIS at ¶¶ 6-8.

County.⁷ The Humboldt Avenue North crossing presents the largest concern. It lies just to the east of CP's Humboldt Yard, a crossing that is frequently blocked not just by CP's train traffic but also by activities in Humboldt Yard.⁸ A fire station on Humboldt Avenue immediately north of the crossing serves neighborhoods south of the crossing, and when that crossing is blocked, response times for emergency services are adversely impacted.⁹ These problems will worsen as activities in Humboldt Yard increase and CP runs longer and more frequent trains.¹⁰

Finally, the DEIS ignores the impacts resulting from the increased level of hazardous materials traversing the County and fails to propose any conditions to mitigate those harms. The DEIS projects that an additional 40,000 rail cars with a hazardous classification will travel through the County if the Board approves the Acquisition.¹¹ These cars will travel through densely populated urban areas, creating considerable risk to County residents.¹² The Board must impose common-sense conditions if it approves the Acquisition to reduce the likelihood of an incident or release of hazardous material in the County.

On August 5, 2022, OEA issued the DEIS for the proposed Acquisition and the County provided oral comments at the OEA's September 19, 2022, public hearing. The County also submitted comments to the Board proceeding on February 28, 2022,¹³ a copy of which is attached hereto and incorporated herein as **Exhibit A**, and testified before the Board on September 28, 2022.

⁷ *Id.* at ¶ 30.

⁸ *Id.* at ¶ 31.

⁹ *Id.* at ¶ 32.

¹⁰ *See generally Id.* at ¶¶ 29-33.

¹¹ OEA Draft EIS, Appendix F, Table F.2-2 at F-13.

¹² *Comments and Request for Conditions of Hennepin Cnty. in Can. Pac. Ry. Ltd., et al. – Control –Kan. City S. et al.*, Docket No. FD 36500, (Date Filed Feb. 28, 2022) ("Exhibit A, Hennepin Cnty. Comments (Feb. 28, 2022)") Attachment A, Verified Statement of Mark Amfahr ("Exhibit A-Attachment A, V.S. Amfahr (Feb. 28, 2022)") at ¶ 26.

¹³ Exhibit A, Hennepin Cnty. Comments (Feb. 28, 2022).

II. LEGAL BACKGROUND

NEPA is “our basic national charter for protection of the environment.” *Barnes v. U.S. Dep’t of Transp.*, 655 F.3d 1124, 1131 (9th Cir. 2011) (quoting 40 C.F.R. § 1500.1(a) (2016)). NEPA is intended to ensure that Federal agencies consider the environmental impacts of their actions in the decision-making process concerning proposed Federal actions. “For any proposed major federal action...NEPA requires the agency to prepare an [EIS].” *Lands Council v. Powell*, 395 F.3d 1019, 1026 (9th Cir. 2005). An EIS must provide “full and fair discussion of significant environmental impacts and [] inform decision makers and the public of reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment.” 40 C.F.R. § 1502.1 (2020). Specifically, an EIS must include details on the environmental impact of a proposed action, any adverse environmental effects which cannot be avoided should the proposal be implemented, and the alternatives to the proposed action. 42 U.S.C. § 4332(2)(C)(i)-(iii). Environmental impacts that must be covered in an EIS include reasonably foreseeable environmental trends and planned actions in the area. 40 C.F.R. § 1502.15. Reasonably foreseeable impacts are those that are “sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision.” *Mid States Coal. for Progress v. STB*, 345 F.3d 520, 549 (8th Cir. 2003) (citing *Sierra Club v. Marsh*, 976 F.2d 763, 767 (1st Cir. 1992)). The fact that the specifics of a reasonably foreseeable impact are not known with precision does not mean that they may be ignored when the nature of the effect is reasonably foreseeable. *Id.* at 549-50.

The Board has also adopted its own regulations governing how NEPA applies to railroad acquisitions. *See generally* 49 C.F.R. § 1105. Under these regulations, the OEA generally prepares an EIS for new railroad acquisition proposals. 49 C.F.R. § 1105.6(a). The Board invites public

comment on the scope of the environmental review and the DEIS. 49 C.F.R. § 1105.10(a)(2). The Final Environmental Impact Statement (“FEIS”) should discuss the comments received on the DEIS and note any changes made in response to them. 49 C.F.R. § 1105.10(a)(4). When determining whether to authorize an acquisition, the Board considers the environmental record, which includes the FEIS and any comments and responses concerning environmental issues. 49 C.F.R. § 1105.10(f). The Board “will . . . impose appropriate conditions upon any authority granted, when an environmental . . . issue has not yet been resolved.” *Id.* The Board has broad authority to address the public interest impacts of a merger transaction, particularly in the context of a merger between two Class I railroads, such as this one. 49 U.S.C. §§ 11324(b)-(c).

Indeed, the Board has “extraordinarily broad discretion in deciding whether to impose protective conditions in the context of railroad consolidations.” *Grainbelt Corp. v. STB*, 109 F.3d 794, 798 (D.C. Cir. 1997) (citations and internal quotation marks omitted); *see also Vill. of Barrington v. STB*, 892 F.3d 252, 269 (7th Cir. 2018). The Board’s selection of conditions is afforded “great deference” by reviewing courts, which will deny a petition for review of the Board’s decision as long as that decision is supported by substantial evidence in the record and was reached by reasoned decision-making. *Village of Barrington*, 892 F.3d at 269 (citations and internal quotation marks omitted). Conditions will be imposed if a merger produces effects harmful to the public interest that a condition will ameliorate or eliminate. *Canadian Natl. Ry. Co. et al. – Control – Illinois Cent. Corp. et al.*, Decision No. 37, Docket No. FD 33556, slip op. at 21 (STB Served May 25, 1999). A condition should be tailored to remedy adverse effects of a transaction and should not be designed simply to put its proponent in a better position than it occupied before the consolidation. *Id.* at 21-22.

III. COMMENTS

A. **THE DEIS SIGNIFICANTLY UNDERESTIMATES THE INCREASED VOLUMES OF TRUCK TRAFFIC IN THE COUNTY RESULTING FROM THE ACQUISITION AND FAILS TO PROPOSE ADEQUATE CONDITIONS TO MITIGATE THE HARM TO THE COUNTY FROM THE INCREASED TRUCK TRAFFIC.**

The Applicants' Operating Plan identified U.S. intermodal facilities that would experience increases in truck traffic on nearby local roads as a result of the Acquisition. OEA analyzed six intermodal facilities that the Applicants project would experience an increase in truck traffic of at least 50 trucks per day, a 10 percent increase in average daily truck traffic, or both.¹⁴ The IMS at CP's Shoreham Yard was one of those six facilities.¹⁵ OEA also

identified local roadways near the six intermodal facilities, as well as major routes and connecting routes. OEA also considered limiting factors, such as truck route designations, truck restrictions (signed or physical), and minor local roadways. Based on these criteria, applicable roadway segments were selected for evaluation. For the purposes of this analysis, OEA assumed there would be no physical changes to roadway networks resulting from the Proposed Acquisition. OEA calculated the average [annual daily travel ("AADT")] for the 2027 No-Action Alternative using the base year 2022 AADTs with a 1.5 percent annual organic growth rate, derived from a survey of sample data from the [Highway Performance Monitoring System ("HPMS")]. OEA estimated traffic in 2027 under the proposed Acquisition by adding the projected additional truck trips to the base 2027 AADTs.¹⁶

However, OEA significantly miscalculated the amount of truck traffic entering and exiting the IMS. Using Applicants' data, OEA found that, in 2019, there were 221 truck trips per day in 2019, with that number rising to 279 trucks per day in 2027 without the merger and 332 trucks per day with the merger, a 19% increase over projected 2027 counts without the Acquisition,¹⁷ or a 50% increase over 2019 levels¹⁸. Yet, in 2019, when CP was seeking permission to open a new

¹⁴ OEA Draft EIS at 3.5-1; *see also* OEA Draft EIS, Appendix I, Table I.2-1 at I-14.

¹⁵ OEA Draft EIS, Appendix I, Table I.2-1 at I-14.

¹⁶ OEA Draft EIS at 3.5.1

¹⁷ OEA Draft EIS, Appendix I, Table I.2-1 at I-14.

¹⁸ $(332-221)/221 = 0.457$

exit from Shoreham Yard onto Central Avenue, it commissioned a traffic study by Stantec Consulting Services, as part of the CP Rail Shoreham Expansion Travel Demand Management Plan, attached as **Exhibit C** (“Exhibit C, CP Traffic Study”).¹⁹ This study showed a count of 640 heavy vehicles per day in 2019, nearly triple the truck traffic identified by CP in the DEIS.²⁰ Similarly, the study projected a daily heavy vehicle count of 762 in 2022,²¹ yet the DEIS estimates a truck number that is less than half this amount in 2027²². The figures in the DEIS therefore directly contradict CP’s own numbers and are unreliable.

Moreover, this same study also stated that CP’s data showed a growth rate of six percent per year over the prior ten years.²³ The study assumed that the six percent growth rate per year was reasonable until the facility reached double the 2019 traffic volumes.²⁴ CP achieved this six percent growth rate without the Acquisition²⁵, yet the DEIS numbers show a growth rate much less than six percent even in the post-Acquisition scenario, again directly contradicting CP’s own prior statements. OEA should therefore re-examine CP’s contradictory data and determine actual truck traffic counts near the IMS and the resulting impacts to the County following the Acquisition.

The truck traffic figures in the DEIS also directly contradict actual observations of traffic at Shoreham Yard. County staff seeking to test CP’s data monitored actual traffic in and out of the IMS and identified traffic volumes far in excess of Applicant’s 2019 and 2027 projections in the DEIS. On four representative days in March of 2022, County traffic engineers counted 1,271 daily truck movements on Thursday, March 17, 2022; 77 on Saturday, March 19, 2022; 17 on Sunday,

¹⁹ Exhibit C, CP Traffic Study Table 1 at 6.

²⁰ *Id.*

²¹ See OEA Draft EIS, Appendix I, Table I.2-1 at I-14 (showing a projection of 279 under the “No-Action” alternative).

²² OEA Draft EIS, Appendix I, Table I.2-1 at I-14.

²³ Exhibit C, CP Traffic Study at 6 (“Data provided by CP Rail shows that in the last ten years they experienced an average annual traffic growth rate of 6%.”).

²⁴ *Id.*

²⁵ *Id.*

March 20, 2022; and 1,484 on Tuesday, March 22, 2022.²⁶ These daily truck movements did not include passenger automobiles or single unit trucks but did count truck traffic repositioning empty containers, moving containers to temporary storage, moving without containers, and other ancillary movements.²⁷ On those four days, 1,177 trucks, or 41% of all container-related truck movements, were observed by County traffic engineers entering or leaving on the University Avenue side of the IMS while 1,672, or 59% of all truck movements, were observed moving via Central Avenue, east of the IMS.²⁸ Using this data, County traffic engineers estimated that the average daily truck traffic associated with the IMS is actually 976, far above the 221, 279, and 332 respective numbers listed in the DEIS.²⁹

OEA must investigate this discrepancy and use accurate numbers in its assessment of the environmental impact of the Acquisition and the determination of appropriate mitigations. Potentially, the DEIS failed to account for ancillary truck movements. However, ancillary movements add significantly to daily truck traffic on roadways around the IMS.³⁰ In one case, for example, a truck exited Shoreham Yard at 29th Avenue, traveled south on Central Avenue then reentered the IMS at 28th Avenue.³¹ Presumably, that truck repositioned a container within the IMS, but it used Central Avenue to do so.³² OEA should conduct a further review of traffic data and forecasts to resolve this discrepancy and study the harm resulting from the increase in truck movements to the County and its residents, address the effects of the significant truck movements

²⁶ See Exhibit B, V.S. Amfahr re: DEIS, Attachment A (“Exhibit B-Attachment A, Traffic Counts”) at Summary.

²⁷ Exhibit B, V.S. Amfahr re: DEIS at ¶ 7.

²⁸ *Id.* at ¶ 9.

²⁹ *Id.* at ¶ 15.

³⁰ *Id.* at ¶¶ 11-14.

³¹ *Id.* at ¶ 12.

³² *Id.*

on air quality, vibrations, noise, safety, and traffic in the County, and propose conditions to mitigate those effects.³³ The FEIS must account for these concerns.

Taken together, these discrepancies show how significantly the DEIS may be understating the increase in truck traffic that could result from the Acquisition. If the County's estimated average daily truck traffic count is correct, and the 2019 CP study's estimate of annual growth is correct, then truck traffic in 2027 without the merger will be 1,306³⁴, not 279, as shown in the DEIS. Using the proportionate increase calculation in the DEIS, the truck traffic in 2027 after the Acquisition will be 1,554³⁵, nearly five times the estimate in the DEIS. A discrepancy of this magnitude must be resolved and addressed in the FEIS.

The increase in traffic is particularly injurious because of the arteries and communities through which it travels. All truck access into and out of the IMS is on two busy urban streets: University Avenue on the west, and Central Avenue to the east.³⁶ This is a densely populated, diverse area.³⁷ Central Avenue, where CP recently built new facilities to increase truck traffic, is a busy commercial corridor.³⁸ From Central Avenue, trucks travel to various other neighborhood arteries, all of which are heavily residential and commercial streets.³⁹ Although the existing street design off Central Avenue is intended to prevent truck traffic exiting the IMS from using 29th Avenue to the east, neighborhood complaints of trucks diverting to 29th Avenue rather than using the intended truck route along Central Avenue continue.⁴⁰ Based on current traffic patterns and

³³ *Id.* at ¶ 16.

³⁴ $976(1.06^5) = 1306.11$

³⁵ $1306.11 * 1.19 = 1554.27$

³⁶ See Exhibit B, V.S. Amfahr re: DEIS at ¶ 17.

³⁷ *Id.* at ¶ 18.

³⁸ *Id.* at ¶ 19.

³⁹ *Id.*

⁴⁰ Marla Khan-Schwartz, *Audubon neighborhood continues push for 29th Avenue reconstruction*, NORTHEASTER NEWSPAPER, September 6, 2022, <https://www.mynortheast.com/news/audubon-neighborhood-continues-push-for-29th-avenue-reconstruction/> (“[T]he neighborhood group and residents expressed concern about the increase of freight traffic over the past three years ... ‘Stop the semis,’ yelled a passerby out of their vehicle window.”).

existing conditions, the County anticipates that most of the additional truck traffic resulting from the Acquisition will be using the Central Avenue route and the connecting residential streets, leading to elevated concerns for those already busy corridors.⁴¹ Even under current conditions, the City of Minneapolis identified University and Central Avenues as “high injury streets” due to the above average incidence of injuries and fatalities on those streets, many involving large trucks.⁴² The proposed Acquisition would expose these residents and businesses to significant increases in safety, traffic, noise, pollution, and infrastructure damage, all of which must be addressed by OEA in the FEIS.⁴³

Moreover, planning is already underway to expand transit service on Central Avenue. Metro Transit, the regional transit provider, is currently planning a new arterial bus rapid transit project for Central Avenue called the “F Line.”⁴⁴ This project, expected to cost \$75-85 million, including federal funds, intends to provide service with ten minute headways running 20% faster than the current Route 10 local bus that serves the same corridor.⁴⁵ Although the specific improvements related to the “F Line” are not yet determined, other arterial bus rapid transit projects in the County are considering dedicated bus lanes as a way to achieve transit service goals.⁴⁶ OEA should consider the impact that large increases in truck traffic on Central Avenue will have on transit service in the corridor, and the negative environmental harms resulting from such an injury to transit service.

Using USDOT’s Benefit-Cost Analysis Guidance, the County calculated that truck traffic associated with Shoreham Yard in 2027 will result in \$2.5 million in total annual social costs to

⁴¹ See Exhibit B, V.S. Amfahr re: DEIS at ¶¶ 26-27 .

⁴² See Exhibit B, V.S. Amfahr re: DEIS, Attachment B, Vision Zero (“Exhibit B-Attachment B, Vision Zero”).

⁴³ See Exhibit B, V.S. Amfahr re: DEIS at ¶ 20.

⁴⁴ *F Line Project*, METRO TRANSIT (March 2022), <https://www.metrotransit.org/f-line-project>.

⁴⁵ *F Line FAQs*, METRO TRANSIT (March 2022), <https://www.metrotransit.org/f-line-FAQs>.

⁴⁶ *E.g., Lake Street improvements – Bus Rapid Transit is coming to Lake Street*, HENNEPIN COUNTY MINNESOTA, <https://www.hennepin.us/lake-street-improvements> (last visited Oct. 14, 2022).

area residents, including roadway maintenance costs, truck collision costs, and health impacts from truck emissions.⁴⁷ Using this methodology, at current levels of 356,240 annual truck trips, the County estimates that costs amount to \$4.4 million per year.⁴⁸ An increase of 53 truck trips per day, as projected by the DEIS, would increase these costs by \$476,976 per year.⁴⁹ If truck traffic increases by more than projected by the DEIS, as seems likely given the DEIS's significant undercount of current traffic levels, that the social costs would likewise be proportionately higher. The FEIS must account for these social costs and propose appropriate conditions to mitigate the harms.

The County, therefore, respectfully requests that OEA establish a five-year⁵⁰ formal oversight period during which the County and its state and local government partners would annually conduct a detailed study of all traffic volumes related to the IMS/Shoreham Yard, at Applicant's sole cost and expense. This study should include any noise, environmental, traffic, safety, and infrastructure impacts of any truck traffic increases, and an analysis of any operational changes or physical improvements that could ameliorate these harms. The FEIS should also require Applicants to solely fund any changes or improvements recommended by the study to mitigate the impacts in the County.

This condition is consistent with prior actions of this Board. The Board has previously imposed five-year monitoring periods, including for the study of traffic control measures. *Union Pac. R.R. Co. and Mo. Pac. R.R. Co.- Control and Merger- S. Pac. Rail Corp. et al*, Decision No. 44, Docket No. FD 32760, at 580-81 (STB Served Aug. 6, 1996) (imposing a multi-year

⁴⁷ See Exhibit B, V.S. Amfahr re: DEIS, Attachment C, Social Impacts of Trucks ("Exhibit B-Attachment C, Social Impacts of Trucks").

⁴⁸ *Id.*

⁴⁹ *Id.*

⁵⁰ The County is aware that other Parties have requested a ten-year monitoring period. Should that the Board approve their request, the County desires a similar ten-year monitoring period rather than a five-year monitoring period.

monitoring period to assess the effectiveness of traffic control measures); *see Can. Nat'l Ry. Co., et al. – Control - EJ&E West Co.*, Decision No. 16, Docket No. FD 35087 at 84 (STB Served Dec. 24, 2008) (imposing a multi-year monitoring and oversight period during which Canadian National was required to study, report and remedy impacts from the transaction). The Board has similarly retained jurisdiction to impose additional conditions after approval of a merger application to address unforeseen adverse impacts of the transaction. *See CSX Corp. and CSX Transp., Inc. et al - Control and Operating Leases/Agreements - Conrail Inc. and Consol. Rail Corp.*, Docket No. 33388, at 246 (STB Served July 20, 1998) (retaining jurisdiction for five years to impose additional conditions in the event existing conditions do not fully alleviate the harms caused by the merger transaction). Indeed, CP has already said it would not object to a five-year monitoring period in regard to the Acquisition⁵¹, and this Board should include in that monitoring a requirement for study of truck traffic from Shoreham Yard, as requested by the County.

B. THE DEIS FAILS TO CONSIDER THE ACQUISITION'S IMPACTS ON GRADE CROSSINGS IN THE COUNTY.

The DEIS also fails to address the impact that longer and more frequent trains, as proposed by Applicants, will have on grade crossings in the County. Applicants represented in their environmental filing that train volume in the area around Humboldt Yard (Camden-MNS segment) will increase from an average of 20.0/day to 23.6.⁵² However, Applicants' forecast may be conservative for certain product categories.⁵³ For example, the County anticipates that additional shipments of Bakken oil and gas, many of which are hazardous, and grain traffic, could materially

⁵¹ Surface Transportation Board, *STB Hearing - CP/KCS, FD 36500 -September 28th - 30th 2022 (Day 1)*, YOUTUBE, at 1:01:16 (Sep. 28, 2022)

https://www.youtube.com/watch?v=CbmzhM3S0Bc&t=21011s&ab_channel=SurfaceTransportationBoard (Keith Creel, CP CEO and intended CEO of the combined CP-KCS entity, stated plainly that "We support up to five years of oversight by the Board.").

⁵² Exhibit A-Attachment A, V.S. Amfahr (Feb. 28, 2022) at ¶ 34.

⁵³ Exhibit A-Attachment A, V.S. Amfahr (Feb. 28, 2022) at ¶ 35.

add to CP's carload volume and to daily train traffic on the Paynesville Subdivision, with the potential to further increase delays at crossings, disrupt emergency responders, and aggravate traffic congestion in the area.⁵⁴ The FEIS should address these concerns and propose conditions to mitigate these impacts.

The County has identified a total of 32 crossings along CP mainlines in the County that would be directly and materially impacted by merger-related traffic increases.⁵⁵ Of those, the following fourteen crossings are of the greatest concern since they support the highest volumes of vehicle traffic:

- (a) N.E. Central Avenue;
- (b) Humboldt Avenue N;
- (c) West Broadway Avenue;
- (d) Douglas Drive;
- (e) Winnetka Avenue;
- (f) Boone Avenue;
- (g) Zachary Lane;
- (h) Peony Lane;
- (i) County Road 101;
- (j) Pinto Drive;
- (k) Arrowhead Drive;
- (l) County Road 19;
- (m) County Road 92; and

⁵⁴ *Id.* at ¶¶ 35-36.

⁵⁵ *Id.* at ¶ 32.

(n) County Road 50.⁵⁶

Among these crossings, the crossing at Humboldt Ave. N. (County Road 52)⁵⁷ presents the greatest concern. This crossing is just east of CP's Humboldt Yard in north Minneapolis, a heavily urbanized area.⁵⁸ This crossing is frequently blocked by activities in the Humboldt Yard, and changes in those activities, such as the increased storage of cars, increased work events by trains (block swapping, etc.), or other operational changes could result in significant increases in delays at this crossing.⁵⁹

This crossing is important for emergency access. A fire station on North Humboldt Avenue, immediately north of the CP crossing, serves neighborhoods south of the crossing.⁶⁰ When the crossing is blocked, response times for certain emergency services are adversely impacted.⁶¹ The Acquisition will exacerbate this problem as activities at Humboldt Yard increase and CP runs longer and more frequent trains, further hampering the ability to provide emergency services to its residents.⁶²

To mitigate these harms, the County respectfully requests that impacts to the County's grade crossings be included in the five-year formal oversight period requested by the County in Section IV(A) herein. Similar to the truck traffic study, the County and its state and local government partners would annually conduct a detailed study of traffic volumes and delay times at grade crossings in the County, all at Applicants' sole cost and expense. The study would include an analysis of any operational changes or physical improvements that could ameliorate these

⁵⁶ *Id.*

⁵⁷ *Id.* at ¶ 33.

⁵⁸ *Id.*

⁵⁹ *Id.* at ¶¶ 37-38.

⁶⁰ *Id.* at ¶ 39.

⁶¹ *Id.*

⁶² Surface Transportation Board, *STB Hearing - CP/KCS, FD 36500 -September 28th - 30th 2022 (Day 1)*, YOUTUBE at 5:49:33.

harms, and the FEIS should require Applicants to fund any identified changes or improvements that mitigate these impacts to Hennepin County. *See Can. Nat'l Ry. Co, et al* at 38-39 (requiring applicants construct grade separations and implement other changes that were intended to redress the adverse impacts on grade crossings).

C. THE DEIS FAILS TO CONSIDER THE INCREASED NUMBER OF HAZARDOUS MATERIALS TRAVELING THROUGH THE COUNTY AS A RESULT OF THE ACQUISITION.

Finally, the DEIS fails to address impacts in the County from Acquisition-related increases in the number of rail cars carrying hazardous materials. Applicants forecast that the Acquisition will result in approximately 40,000 annual additional rail cars with a hazardous classification on the Paynesville Subdivision by the year 2027.⁶³ However, these projections were based on current volumes, which are currently depressed from peak levels that were reached in prior years, before the COVID-19 pandemic.⁶⁴ Oil and gas shipments originating in the Bakken and other formations throughout the northern U.S. and Canada are currently depressed from peak levels that were reached in past years.⁶⁵ Shipment volumes are driven by many factors not directly controlled by Applicants such as availability of pipeline capacity, seasonality, and commodity prices. If market conditions result in an increased shipping volume from the Bakken area, it would likely result in higher freight traffic volumes than Applicants projected.⁶⁶

In 2021, 22 rail cars on a CP train, some containing hazardous materials, derailed in the County.⁶⁷ Fortunately, the derailment occurred in a relatively isolated area, rather than a heavily

⁶³ OEA Draft EIS, Appendix F, Table F.2-2 at F-13.

⁶⁴ Exhibit A-Attachment A, V.S. Amfahr (Feb. 28, 2022) at ¶¶ 28-29.

⁶⁵ *Id.* at ¶ 29.

⁶⁶ *Id.*

⁶⁷ *Id.* at ¶ 26.

urban area. However, the incident illustrates the danger of increased hazardous materials to our residents, rivers, and parks in the County.⁶⁸

The FEIS must, therefore, address these concerns and require Applicants to implement conditions to mitigate those risks. The County proposes that OEA include the following conditions in the FEIS:

1. Installation of additional defect detectors along the corridor, possibly including dragging equipment, acoustic, thermal, and wheel impact detectors.
2. An increase in frequency of visual inspection by track supervisors.
3. An increase in frequency of rail defect testing along the corridor.
4. An assurance that no trains will be operated until track and structures can be inspected following unusually heavy rain in the area.
5. A speed restriction through portions of the metro area not already restricted (only applying to trains handling loaded hazardous materials shipments).⁶⁹

These common sense conditions will reduce the likelihood of a derailment of rail cars containing hazardous materials, protecting County's residents and natural resources.

The Board has previously imposed mitigation measures to protect urban areas from the impact of increased traffic due to railroad mergers. *See Union Pac. R.R. Co. and Mo. Pac. R.R. Co.* at 223 (imposing limitations on freight and passenger traffic through the Cities of Reno and Wichita in order to mitigate adverse impacts relating to pollution, air and water quality, and increased potential for pedestrian accidents). The Board should do the same here.

⁶⁸ *Id.*

⁶⁹ *Id.* at ¶ 27.

IV. CONCLUSION

For all the foregoing reasons, the County respectfully requests that, in the FEIS, OEA address the concerns raised by the County in its comments herein and require Applicants to comply with the conditions proposed by the County.

Respectfully submitted,



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Dated: October 14, 2022

CERTIFICATE OF SERVICE

I hereby certify that on the 14th day of October, 2022, I have caused to be served a copy of the foregoing COMMENTS OF HENNEPIN COUNTY, MN, AND THE HENNEPIN COUNTY REGIONAL RAILROAD AUTHORITY ON DRAFT ENVIRONMENTAL IMPACT STATEMENT, upon all parties of record in this proceeding.



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EXHIBIT A

Comments of Hennepin County and
Hennepin County Regional Railroad Authority
February 28, 2022

February 28, 2022

VIA E-FILING

Ms. Cynthia T. Brown
Chief, Section of Administration
Office of Proceedings
Surface Transportation Board
395 E Street, S.W.
Washington, DC 20423-0001

Re: STB Finance Docket No. 36500, *Canadian Pacific Railway Limited, et al. – Control – Kansas City Southern et al.*

Dear Ms. Brown:

I am attaching for e-filing the Comments and Request for Conditions of Hennepin County, MN and the Hennepin County Regional Railroad Authority, in the above-referenced proceeding.

If you have any questions, please do not hesitate to contact me.

Sincerely,



Charles A. Spitulnik

Enclosure

cc: All Parties of Record

EXHIBIT A

Comments of Hennepin County and
Hennepin County Regional Railroad Authority
February 28, 2022

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

STB Finance Docket No. 36500

**CANADIAN PACIFIC RAILWAY LIMITED; CANADIAN PACIFIC RAILWAY
COMPANY; SOO LINE RAILROAD COMPANY; CENTRAL MAINE & QUEBEC
RAILWAY US INC.; DAKOTA, MINNESOTA & EASTERN RAILROAD
CORPORATION; AND DELAWARE & HUDSON RAILWAY COMPANY, INC. –
CONTROL – KANSAS CITY SOUTHERN, THE KANSAS CITY SOUTHERN
RAILWAY COMPANY, GATEWAY EASTERN RAILWAY COMPANY,
AND THE TEXAS MEXICAN RAILWAY COMPANY**

**COMMENTS AND REQUEST FOR CONDITIONS
OF
HENNEPIN COUNTY, MN, AND
THE HENNEPIN COUNTY REGIONAL RAILROAD AUTHORITY**

Communications with respect to this
document should be addressed to:

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Dated: February 28, 2022

THIS FILING CONTAINS COLOR IMAGES

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

STB Finance Docket No. 36500

**CANADIAN PACIFIC RAILWAY LIMITED; CANADIAN PACIFIC RAILWAY
COMPANY; SOO LINE RAILROAD COMPANY; CENTRAL MAINE & QUEBEC
RAILWAY US INC.; DAKOTA, MINNESOTA & EASTERN RAILROAD
CORPORATION; AND DELAWARE & HUDSON RAILWAY COMPANY, INC. –
CONTROL – KANSAS CITY SOUTHERN, THE KANSAS CITY SOUTHERN
RAILWAY COMPANY, GATEWAY EASTERN RAILWAY COMPANY,
AND THE TEXAS MEXICAN RAILWAY COMPANY**

**COMMENTS AND REQUEST FOR CONDITIONS
OF
HENNEPIN COUNTY, MN, AND
THE HENNEPIN COUNTY REGIONAL RAILROAD AUTHORITY**

Hennepin County, MN, (the “County”) and the Hennepin County Regional Railroad Authority (“HCRRA”) hereby submit these Comments in opposition to the approval of the transaction proposed in this proceeding. The Applicants have proposed a transaction that will increase train frequencies on lines throughout the County, with more traffic not only on their lines but on the lines of connecting railroad. Applicants have projected an increased number of containers moving into and out of the intermodal yards in the County but have proposed no action that will address the impact of the arrival and departure of increased volumes of trucks on streets and highways in the County on traffic and on the quality of life of the County’s residents and on the businesses located near those yards. Applicants have acknowledged that the proposed transaction will lead to increased volumes of hazardous materials moving into and through the County but have proposed no action to protect the County’s residents from the increased threat presented by those higher volumes. To protect the health and safety of the County’s residents, the

County requests that this Board approve the application that is the subject of this proceeding only if the Board requires Applicants, working with the County, to undertake a thorough evaluation of the potential impacts of the increased traffic on the safety and quality of life in the County and on the entire rail network in the County, and then undertake at the Applicants' cost to develop measures that will mitigate the adverse impact that the proposed merged system will create in the region.

I. INTRODUCTION

Canadian Pacific Railway Company ("CP"), one of the applicants in this proceeding,¹ is a Class I common carrier railroad serving the United States and Canada, providing transportation subject to the jurisdiction of the STB. Kansas City Southern Railway Company ("KCS"), another of the applicants here², is a Class I common carrier railroad serving the United States and Mexico, providing transportation subject to the jurisdiction of the STB. On October 29, 2021, CP and KCS filed their Application with the STB proposing the merger of CP and KCS.³ The Application seeks STB approval for CP's acquisition of KCS and common control by CP of KCS's U.S. railroad subsidiaries and affiliates.⁴ If approved, the Application would result in a merger of CP and KCS, resulting in a railroad extending from Canada to Mexico.⁵ On November 23, 2021, the STB determined that it had sufficient information to satisfy the requirements for a major transaction and accepted the Application.⁶

¹ Other members of the CP corporate family - Canadian Pacific Railway Limited; Soo Line Railroad Company; Central Maine & Quebec Railway US Inc.; Dakota, Minnesota & Eastern Railroad Corporation; and Delaware & Hudson Railway Company, Inc. - are also applicants here.

² Other members of the KCS corporate family - Kansas City Southern, Gateway Eastern Railway Company, and The Texas Mexican Railway Company - are also applicants here.

³ *Canadian Pac. Ry.—Control—Kan. City S. (Decision No. 11)*, FD 36500, slip op. at 1 (STB served Nov. 23, 2021).

⁴ *Decision No. 11*, slip op. at 1.

⁵ *Decision No. 11*, slip op. at 3.

⁶ *Decision No. 11* at 9.

Comprising a total of 607 square miles, the County is the largest and most populous in the State of Minnesota. According to the 2020 Census, there were 1,281,565 people residing in the County. Minneapolis is the largest city in the County. HCRRA was established in 1980 as a political subdivision and local government unit of Minnesota. It was established as a separate political entity to plan, design, and implement light rail transit in the County. When established in 1980, HCRRA's mission was to acquire abandoned railroad corridors in order to preserve them for future transportation use. In addition to continuing to work to further that mission, HCRRA engages in advocating, planning, and funding rail transportation corridors which will serve the county and the region.

II. The Board May Only Approve the Proposed Transaction if it is Consistent with the Public Interest. As Presented, this Application is Not.

In reviewing a proposed merger of two Class I railroads, the Board is required by statute to determine whether the proposed merger is in the public interest. 49 U.S.C. § 11324(c). When assessing the public interest, the Board has concluded that "...mergers serve the public interest only when substantial and demonstrable gains in important public benefits - such as improved service and safety, enhanced competition, and greater economic efficiency - outweigh any anticompetitive effects, potential service disruptions, or other merger-related harms." 49 C.F.R. §1180.1(c). Where, as here, a proposed merger transaction is not otherwise consistent with the public interest because of its potential adverse effects on safety, the Board can impose conditions that will mitigate the adverse impacts of the proposed arrangement. 49 U.S.C. § 11324(c). If the Board elects to approve the Application, the County and HCRRA ask the Board to impose conditions that will address the harms they have identified, described below, that will result from approval of the transaction.

The Board has “extraordinarily broad discretion in deciding whether to impose protective conditions in the context of railroad consolidations.” *Grainbelt Corp. v. STB*, 109 F.3d 794, 798 (D.C. Cir. 1997) (citations and internal quotation marks omitted); see also *Village of Barrington v. STB*, 892 F.3d 252, 269 (7th Cir. 2018). The Board’s selection of conditions is afforded “great deference” by reviewing courts, which will deny a petition for review of the Board’s decision as long as that decision is supported by substantial evidence in the record and was reached by reasoned decision-making. *Village of Barrington*, 892 F.3d at 269. Conditions will be imposed if a merger produces effects harmful to the public interest that a condition will ameliorate or eliminate. *Canadian Natl. Ry. Co. et al. – Control – Illinois Central Corp. et al.*, FD 33556, slip op. at 21 (STB Served May 25, 1999). A condition should be tailored to remedy adverse effects of a transaction and should not be designed simply to put its proponent in a better position than it occupied before the consolidation. *Id.* Pursuant to applicable Board regulations, conditions are normally imposed where the condition: “(i) is shown to be related to the impact of the consolidation; (ii) is designed to enable shippers to receive adequate service; (iii) would not pose unreasonable operating or other problems for the consolidated carrier; and (iv) would not frustrate the ability of the consolidated carrier to obtain the anticipated public benefits.” 49 C.F.R. § 1180.1(d).

Here, as described more fully below, the proposed merger transaction will bring more freight traffic to and through the County, bringing adverse impacts to the County’s infrastructure in a way and to an extent that Applicants have not addressed at all in their proposed plans. Applicants have studied and given estimates of how many more trains, how many more intermodal containers, how often more trains will move to and through the County⁷, but have provided no

⁷ V.S. Bengt Muten at 26.

acknowledgement that this increase will cause more blocked crossings for longer periods of time, will lead to greater highway congestion on the roads surrounding the intermodal facilities, or would create a greater risk of incidents involving hazardous materials. The potential harms to the County and its residents and businesses are explained more fully in the Verified Statement of Mark Amfahr (“VS Amfahr”), attached to these Comments as Exhibit 1. To address those issues, the County and HCRRA are asking this Board to require as a condition of its approval of the proposed transaction, that the Applicants engage with the County in the analysis of potential impacts described below, and further that the Board retain oversight authority over the proposed transaction for a period of five (5) years to permit the Applicants and the County to complete that analysis and determine the measures that the County will need to undertake, at the Applicants sole cost and expense, to address these impacts.

III. These Issues Identified by the County and HCRRA Require Further Analysis by Applicants. The Board Should Require Applicants to Fund Improvements to the County’s Infrastructure to Address the Adverse Impacts that the Proposed Transaction Will Create.

- A. Adverse impacts resulting from increased traffic at CP’s Minneapolis Intermodal Facility require study and construction of improvements to address increased traffic volumes.

The arrival of additional containers in the intermodal facilities in the County brings concerns about potential negative impacts of the additional truck traffic in the vicinity of CP’s Minneapolis Intermodal Terminal. CP has stated that it expects an additional train daily in each direction, handling containers between Minneapolis and various terminals in Texas and Mexico.⁸ The train is expected to handle an average of 86 units daily through the Minneapolis Terminal, with those units being diverted from trucks currently operating via I-35 and other principal

⁸ Applicants’ Response to Interrogatory No. 2 of Hennepin County and Hennepin Regional Rail Authority at 7.

corridors.⁹ While the diversion of those trucks from highways to rail will provide environmental, safety, and other public benefits overall, they will have an offsetting, adverse impact upon the local Twin Cities metro area.¹⁰

According to Mr. Amfahr, CP's forecast shows the trucks currently operating between Texas/Mexican points and facilities scattered throughout southern Minnesota and western Wisconsin. These trucks utilize a variety of routes to travel through the area, finally converging onto either I-35 or I-29 to travel through Iowa when moving to/from southern points. With diversion to CP's intermodal service, truck traffic that was formerly dispersed, traveling through the region on a variety of routes will become highly concentrated on local roadways in and around the Twin Cities metro area.¹¹ This is one of the few undesirable consequences of long-haul intermodal rail service – concentration of truck traffic into urban areas where most large intermodal facilities are located. Attached hereto as Exhibit 1-B is a map depicting the street and roadway network leading to and from the Minneapolis Intermodal Terminal.

Mr. Amfahr explains that the diversion of the long-haul trucks from primarily rural, interstate routes onto urban roadways to reach CP's Minneapolis Intermodal Terminal at Shoreham Yard will aggravate existing problems and concerns. CP has recently added the transload facility at its Shoreham site, specializing in handling of dried distiller's grain, grain and related agricultural products.¹² This will attract heavy trucks to area roadways, arriving with agricultural products from surrounding rural areas and departing empty, with their products transferred to containers for outbound movement by rail.¹³ That transload facility is located in the southeast corner of the

⁹ *Id.*

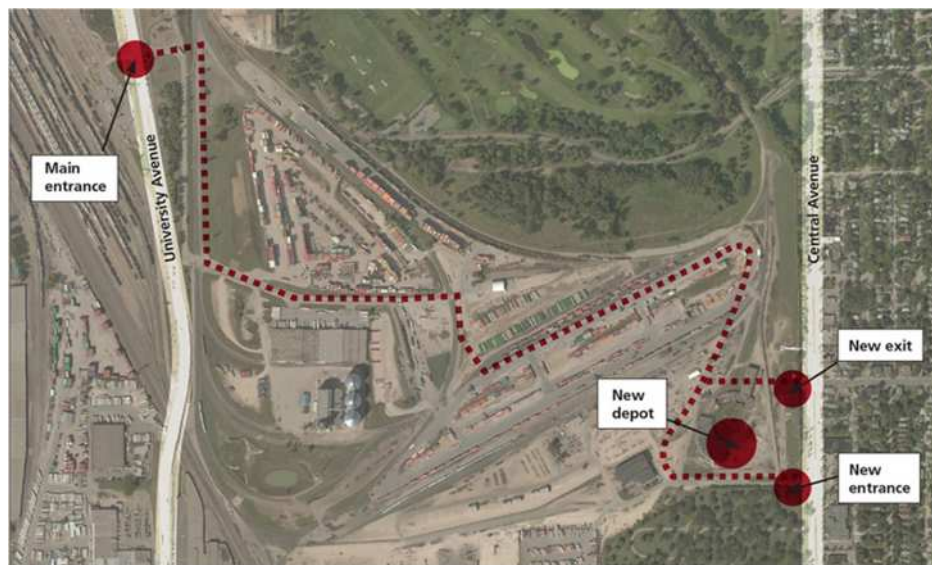
¹⁰ VS Mark Amfahr at 10.

¹¹ *Id.* at 12.

¹² <https://www.cpr.ca/en/our-markets/intermodal-containers/minneapolis>

¹³ VS Amfahr at 16.

Shoreham facility, with trucks utilizing new entrance/exit routes to Central Avenue. As shown on the map below, truck traffic associated with the transload facility as well as many container trucks serving the intermodal terminal will be using the new Central Avenue route and connecting streets, such as Lowry Avenue, rather than University Avenue that had been the primary route in the past. The increase in truck traffic from the new transload operation, along with projected increases in traffic from the merger on area streets and roadways, will elevate concerns for safety along those already busy corridors.



Aerial photo showing entrances and exits used by trucks when accessing CP's Minneapolis Intermodal Terminal. The principal roadways used by trucks are University Avenue (west) and Central Avenue (east) of the terminal. Note the retail and residential units along Central Avenue, as well as the golf course immediately to the north of the terminal. <https://www.cpr.ca/en/our-markets/intermodal-containers/minneapolis>.

Minnesota's Department of Transportation ("MnDOT") has identified University Avenue and Central Avenue as high-risk routes due to their above average incidence of injuries and fatalities, many involving large trucks.¹⁴ The safety of bicycle riders, pedestrians, and other users of

¹⁴ <https://www.dot.state.mn.us/metro/projects/hwy47andhwy65improvements/index.html>

University Avenue (Hwy 47) and Central Avenue (Hwy 65) roadways are of prime concern as CP plans to attract additional truck traffic onto those corridors.¹⁵

According to Mr. Amfahr, it is necessary to consider actual roadway traffic volumes with intermodal service rather than simply examine the units that the railroad will handle.¹⁶ With 86 additional railcar units expected daily through CP's Minneapolis Intermodal Terminal following the merger, Mr. Amfahr asserts that the actual daily traffic counts on area roadways will be greater than what CP projects.¹⁷ This is because of the need for ancillary vehicle movements that are a part of the intermodal operation, such as bobtail trucks, empty chassis movements, and repositioning of empty containers.¹⁸ These movements typically increase unit traffic by a factor of ~1.3-1.5x.¹⁹ Therefore, 86 additional intermodal units per day units would result in approximately 110-130 truck movements on area roadways daily, which is a material increase over current volumes.²⁰

In view of those issues, the County requests that the STB requires CP-KCS to provide periodic traffic reports as a way of monitoring activity in the area. A monthly count of truck traffic arriving and leaving each of the gates at CP's Minneapolis Intermodal Terminal would enable both the County and MnDOT to objectively monitor the situation on an ongoing basis. CP's projection of an additional 86 intermodal units daily from the merger would represent a 38% increase in intermodal truck traffic over 2019 levels. That figure, together with any agricultural transload traffic that may materialize, would add significantly to truck activity on area roadways and accordingly increase the danger posed to cyclists, pedestrians and other roadway users.

¹⁵ *Id.*

¹⁶ VS Amfahr at 21.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Id.*

The County requests that the STB requires CP-KCS to:

- Conduct a detailed study of the potential routes trucks will follow when traveling to and from the Intermodal Facility.
- Require CP to fund any improvements to highways, including intersection improvements, that will be necessary to reduce adverse impacts of such improvements.
- Conduct regular updated studies to determine whether changing intermodal container volumes have caused further increases in truck traffic on area roadways that require further improvements to existing highway infrastructure.
- Require CP to fund any such improvements.

The Board ordered similar conditions in *Arizona Eastern Railway Inc – Construction Exemption – In Graham County, AZ*, FD 34836 slip op. at 4-5, 7 (STB Served June 12, 2009). In that matter, the Board required the applicants to regularly consult with federal, state and local agencies following the transaction to determine whether changing conditions warranted further improvements, at the applicants' expense, to mitigate increased vehicular traffic conditions on the surrounding communities. In this case, the Board should impose similar conditions requiring Applicants to study changing truck traffic patterns and implement the required improvements within Hennepin County, at the Applicants' expense, to ameliorate the increased vehicular traffic resulting from this transaction.

- B. Increased volumes of hazardous materials as identified by Applicants bring greater risk of incidents that will require additional safety measures, training, and equipment for first responders.

The County is concerned about an increased risk of an incident involving hazardous materials given CP's expectations for merger-related traffic growth in that product segment. CP documentation, provided as part of the environmental review of the proposed transaction, shows that the merger is expected to add 40,000 carloads of hazardous materials annually to the

Paynesville Subdivision by year 2027.²¹ The Paynesville Subdivision is CP’s primary route into the Twin Cities from the west and is expected to handle the vast majority of the hazardous materials from Alberta oil/gas fields to Mexico and other destinations throughout the south. The 40,000 additional shipments of hazardous materials that will move in that corridor would represent a 17.5% increase over the base-case hazardous materials volume of 228,000 cars annually.²² More significantly, nearly 1 in 4 cars moving over the Paynesville Subdivision is expected to be a car with a hazardous materials classification.

Paynesville Subdivision 2027 Traffic Forecast

	Without Merger	With Merger	Net Change
Hazmat Cars	228,000	268,000	40,000
Total Cars	952,000	1,128,000	176,000
% Hazmat	23.9%	23.8%	---

Source: STB website, Environmental Impact Statement, maps

To be sure, rail has a good overall safety record with regard to transportation of hazardous materials. However, as Mr. Amfahr notes, with an expectation of a significant increase in a hazardous materials traffic category that already comprises nearly 25% of all cars, it is reasonable to expect some additional precautions be taken to provide additional margins of safety through this heavily populated metropolitan area. A recent CP derailment in Hennepin County highlights the concern. On March 7, 2021, an eastbound CP train derailed 22 cars near milepost 11.8 in Plymouth, MN, located within Hennepin County. The consist of this mixed freight train included a variety of hazardous materials cars, with several cars of molten sulfur and asphalt involved in the derailment. It is fortunate that the derailment occurred in a relatively isolated area rather than

²¹ CP-KCS EIS documents available at: [Documents | CP-KCS Environmental Impact Statement \(cp-kcsmergereis.com\)](https://www.cp-kcs.com/documents/CP-KCS-Environmental-Impact-Statement); Information Requests and Responses, document: “CP-KCS Response to Info Request #1 Maps by segment book”)

²² VS Amfahr at 24.

in the heavily urbanized area further to the east and that no release of hazardous materials occurred. However, the potential for increased volumes of hazardous materials traffic moving through a densely populated urban area highlights the risks presented by a proposal that projects a 40,000 car increase annually in the movement of such commodities through this area. While incidents like the March 7, 2021 derailment cannot be prevented entirely, the likelihood of an incident and the risk of a serious outcome can be minimized through a variety of common-sense measures.

Moreover, Mr. Amfahr states that CP's forecast of additional hazardous materials cars traversing Hennepin County is understated.²³ At times during recent years, freight shipments hazmat have been higher than what is shipped today. Oil and gas shipments originating in the Bakken and other formation throughout the northern U.S. and Canada are currently depressed from peak levels that were reached in past years.²⁴ According to Mr. Amfahr, shipment volumes are driven by many factors not directly controlled by CP, such as availability of pipeline capacity, seasonality, and commodity prices.²⁵ With oil prices currently on the rise, Bakken oil would become attractive again, making it likely that production levels from the region will increase going forward.²⁶ These factors could result in higher freight traffic volumes than CP has projected.²⁷

The County wishes to work with Applicants to help minimize the chances of a hazardous materials incident. The County proposes the following measures that should include, but would not be limited to, actions that would reduce the chances of a derailment involving hazardous materials shipments, and changes that would reduce chances for a release of hazardous materials, fire, or related outcome, such as:

²³ VS Amfahr at 28.

²⁴ Id. at 29; The relatively high production cost of Bakken oil/gas provides little incentive to drill and produce when WTI oil prices are depressed. This has been the case since the COVID outbreak began. *Id.*

²⁵ *Id.*

²⁶ *Id.*

²⁷ Id.

- Installation of additional defect detectors along the corridor, possibly including dragging equipment, acoustic, thermal, and wheel impact detectors.
- An increase in frequency of visual inspection by track supervisors.
- An increase in frequency of rail defect detector testing along the corridor.
- An assurance that no trains will be operated until track and structures can be inspected following unusually heavy rain in the area.
- A speed restriction through portions of the metro area not already restricted (only applies to trains handling loaded hazardous materials shipments).

C. Increased train frequencies coupled with recent trends showing increased train lengths will result in more and longer delays at crossings.

The County is concerned that Applicants have not projected any measures they propose to take that will ameliorate the impacts of more trains and longer trains, if industry trends continue, at crossings. This Board is well-familiar with the issue and has required applicants in other proceedings to undertake measures that will identify and address the potential impacts.

For example, in STB FD 35087, *Canadian National Ry. Co, et al. – Control - EJ&E West Company*, Decision No. 16 (Service Date December 24, 2008), at 3, the Board ordered mitigation measures that required the applicants there to construct grade separations and implement other changes that were intended to redress the adverse impacts on grade crossings from the increased traffic, stating the following:

Our mitigation includes two grade separations (and requires applicants to bear 67% of the cost of one and 78.5% of the cost of the other), cameras to assist in the timely response of emergency providers, programs related to school and pedestrian safety, noise mitigation, and a 5-year environmental reporting condition requiring applicants to file quarterly reports on the implementation of our environmental mitigation, so that we will be kept apprised of the effectiveness of the conditions. We are also establishing a 5-year formal oversight period, with detailed monthly reporting requirements imposed on the applicant carriers, to allow us to closely monitor applicants' operations during the oversight period. In addition, applicants will be required to comply with their extensive voluntary environmental mitigation and with the negotiated agreements they have entered into with the National Railroad Passenger Corporation (Amtrak) and communities in Illinois and Indiana containing tailored mitigation that applicants will provide.

Responding to concerns over increased train volumes and blockages at grade crossings, the Board also required the applicant to regularly report the number of trains operating over segments of the affected line, detail information on any accidents or incidents, including those at grade crossings, and provide descriptive information for any grade crossing blockage that exceeded ten minutes.²⁸ While the Board acknowledged that certain communities would benefit from a decrease in rail traffic, it noted that others may experience the reverse due to rerouted freight traffic.²⁹ For those harmed communities, the Board noted that it is not “appropriate” that they “bear the full adverse environmental impacts of rail congestion” and conditions must be imposed to protect the affected communities from the effects of increased rail traffic.³⁰

The County has identified a total of 32 crossings along CP mainlines in the County that would be directly and materially impacted by merger-related traffic increases.³¹ Of those, the following fourteen crossings are of the greatest concern since they support the highest volumes of vehicle traffic:

- (a) N.E. Central Avenue;
- (b) Humboldt Avenue N;
- (c) West Broadway Avenue;
- (d) Douglas Drive;
- (e) Winnetka Avenue;
- (f) Boone Avenue;
- (g) Zachary Lane;
- (h) Peony Lane;

²⁸ *Id.* at 26.

²⁹ *Id.* at 38.

³⁰ *Id.*

³¹ VS Amfahr at 32.

- (i) County Road 101;
- (j) Pinto Drive;
- (k) Arrowhead Drive;
- (l) County Road 19;
- (m) County Road 92; and
- (n) County Road 50.³²

Moreover, the County is concerned that crossings within the heavily urbanized area near CP's Humboldt Yard in north Minneapolis will also be blocked as a result of this proceeding.³³ The daily train counts cited by CP in its environmental-issues filing in this proceeding indicates an expectation that train volume in the area around Humboldt Yard (Camden-MNS segment) will increase from an average of 20.0/day to 23.6.³⁴ However, as previously noted, CP's forecast may be conservative in certain product categories. In addition to Bakken oil, gas shipments, many of which are hazardous (currently below peak levels due to market conditions) and grain traffic is also subject to variations in shipping volume as commodity prices fluctuate.³⁵ In both cases, additional shipments in favorable market conditions could add materially to carload volume and to daily train traffic on the Paynesville Subdivision, with the potential to further increase delays at crossings, disrupt emergency responders, and aggravate traffic congestion in the area.³⁶ The County is concerned that any changes in use of the Humboldt Yard, such as the increased storage

³² *Id.* at 32.

³³ *Id.* at 34.

³⁴ CP-KCS EIS documents available at: [Documents | CP-KCS Environmental Impact Statement \(cp-kcsmergereis.com\)](#); Information Requests and Responses, document: "CP-KCS Response to Info Request #1 Maps by segment book")

³⁵ VS Amfahr at 35.

³⁶ *Id.* at 36.

of cars, increased work events by trains (block swapping, etc.), or other operational changes could result in significant increases in delays at important grade crossings.³⁷

The additional train traffic using the Paynesville Subdivision is also likely to result in increased blockage of crossings such as North Humboldt Avenue /Hennepin County Highway 57, a principal roadway in the area. It is important to note that a fire station is located along North Humboldt Avenue, immediately north of the CP crossing. When that crossing is blocked, response times for certain emergency services will be adversely impacted.

The County is requesting this Board to require Applicants to both provide funds for the County to study the impacts on grade crossings to determine where increased train volumes and the long trains Applicants operate will create blocked crossings that will have associated impacts of preventing emergency responders from reaching parts of the community, delaying trips by ambulances in medical emergencies and preventing or delaying access to emergency medical facilities, preventing residents from getting to or from work or child care facilities and otherwise impeding the day-to-day flow of business and daily life in the County. Then, once those studies have been completed, requiring Applicants to fund the improvements that are required to mitigate the delays, whether grade separations or other changes to train operations and dispatching practices on lines and into and out of rail yards that will address the delays at the crossings.

IV. CONCLUSION

The County and HCRRA have legitimate concerns about the potential impacts of this proposed merger transaction on the quality of life in the County. Applicants have glossed over the impacts of the changes their proposed transaction will create and have not addressed those impacts with proposed mitigation measures. Accordingly, the County and HCRRA respectfully request

³⁷ *Id.* at 37.

the Board to approve the Application as consistent with the public interest only if it imposes the conditions described above to address those adverse impacts.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Charles A. Spitulnik", with a long horizontal flourish extending to the right.

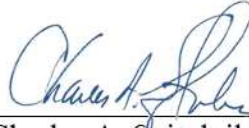
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Dated: February 28, 2022

CERTIFICATE OF SERVICE

I hereby certify that I have on the 28th day of February 2022, caused to be served the foregoing Comments and Request for Conditions of Hennepin County, MN and the Hennepin County Regional Railroad Authority upon all parties of record in this proceeding.



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Dated: February 28, 2022

EXHIBIT 1

Verified Statement of Mark Amfahr

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

STB Finance Docket No. 36500

**CANADIAN PACIFIC RAILWAY LIMITED; CANADIAN PACIFIC RAILWAY
COMPANY; SOO LINE RAILROAD COMPANY; CENTRAL MAINE & QUEBEC
RAILWAY US INC.; DAKOTA, MINNESOTA & EASTERN RAILROAD
CORPORATION; AND DELAWARE & HUDSON RAILWAY COMPANY, INC. –
CONTROL – KANSAS CITY SOUTHERN, THE KANSAS CITY SOUTHERN
RAILWAY COMPANY, GATEWAY EASTERN RAILWAY COMPANY,
AND THE TEXAS MEXICAN RAILWAY COMPANY**

VERIFIED STATEMENT OF MARK AMFAHR

1. I am Mark Amfahr. I am an independent consultant providing assistance to Hennepin County and the Hennepin County Regional Railroad Authority (“HCRRA”) on rail-related matters.
2. I have over 38 years of experience in the railroad industry. I have worked on numerous freight and passenger rail projects in the United States and abroad. The first ten years of my career were spent working as a railroad employee, initially for the Iowa Railroad and Iowa Interstate Railroads, then for Chicago & North Western Railway. At those companies I worked in a variety of management positions in the accounting, operations, and sales/marketing areas. Following that work, I started my own company, Amfahr Consulting LLC, and have worked as principal of that company providing rail-related consulting services for the past 28 years. My clients have included a variety of entities including: government agencies, owners of private railroads, and investors seeking to acquire railroads. I have also provided services as a subcontractor for several consulting firms. That work has covered a wide variety of specialized areas, with most tasks focused on the commercial and operational areas but with certain projects

touching on engineering and financial matters. I have a BBA degree in Transportation/Logistics from Iowa State University; completed in 1983.

3. I am very familiar with the issues of concern in this matter. I have been a resident of the Twin Cities metropolitan area¹ since 2001 and have completed several local rail consulting projects since that time.

4. My initial project for Hennepin County (“Hennepin County” or “the County”) in 2002 was an analysis of a rail line owned by HCRRA which culminated in a Surface Transportation Board (“STB” or “Board”) filing for abandonment that I personally prepared. Additional projects for Hennepin County have included freight traffic studies, traffic flow analyses, assistance with light rail projects, rerouting of freight lines, representation at community meetings, and work involving rail shippers in the area.

5. In addition to the Hennepin County projects, I also completed local rail-related work for the Minnesota Department of Transportation (“MnDOT”), the University of Minnesota, the City of Minneapolis, and for the Minneapolis/St. Paul Metropolitan Council.

6. A copy of my full CV is attached as Exhibit 1-A.

7. As a long-time resident of the area and consultant on numerous transportation-related issues, I am familiar with vehicular and rail traffic patterns in and around Hennepin County.

8. The Applicants in this proceeding anticipate that this transaction, if approved by the Board, will result in additional intermodal units operating through their Minneapolis Intermodal Terminal. This will generate additional truck traffic on local roadways in the urban areas within Hennepin County.

¹ The Twin Cities metropolitan area encompasses the cities of Minneapolis and St. Paul, Minnesota and surrounding suburbs.

9. The Applicants have stated for the record that they expect one additional train daily in each direction, handling containers between Minneapolis and various terminals in Texas and Mexico.² This extra train is expected to handle an average of 86 units daily through the Minneapolis terminal,³ with those units being diverted from trucks currently operating via I-35 and other principal highways.

10. While the diversion of those trucks from highways to rail will provide environmental, safety, and other public benefits overall, they will have an offsetting, adverse impact locally in the Twin Cities metro area.

11. Specifically, the roadways that provide access to Canadian Pacific Railway's ("CP") Minneapolis Intermodal Terminal (formerly SOO Line's Shoreham Yard) in the Twin Cities metro would see increases in daily traffic volume as a result of the merger.

12. CP's forecast indicates that the trucks to be diverted as a result of this merger currently operate between points in Texas/Mexico and facilities located throughout southern Minnesota and western Wisconsin. These trucks currently utilize a variety of routes to travel through the area, finally converging onto either I-35 or I-29 to travel through Iowa when moving to/from southern points.⁴

13. With diversion to CP's intermodal service, long-haul truck traffic that was formerly dispersed through the mid-western region on a variety of routes will become highly concentrated on local roadways in and around the Twin Cities metro as they travel to/from CP's Minneapolis Intermodal Terminal.

² Applicants' Response to Interrogatory No. 5 of Hennepin County and Hennepin County Regional Rail Authority at 9.

³ Applicants' Response to Interrogatory No. 2 of Hennepin County and Hennepin County Regional Rail Authority at 7.

⁴ Finance Docket No. 36500, Verified Statement of Bengt Muten, "Traffic Studies", Muten V.S. at 22.

14. The map provided as exhibit 1-B to this Verified Statement shows the street and roadway network leading to and from the Minneapolis Intermodal Terminal, and highlights the local routes that will see increased traffic congestion as trucks deliver the intermodal containers to or from the Terminal.

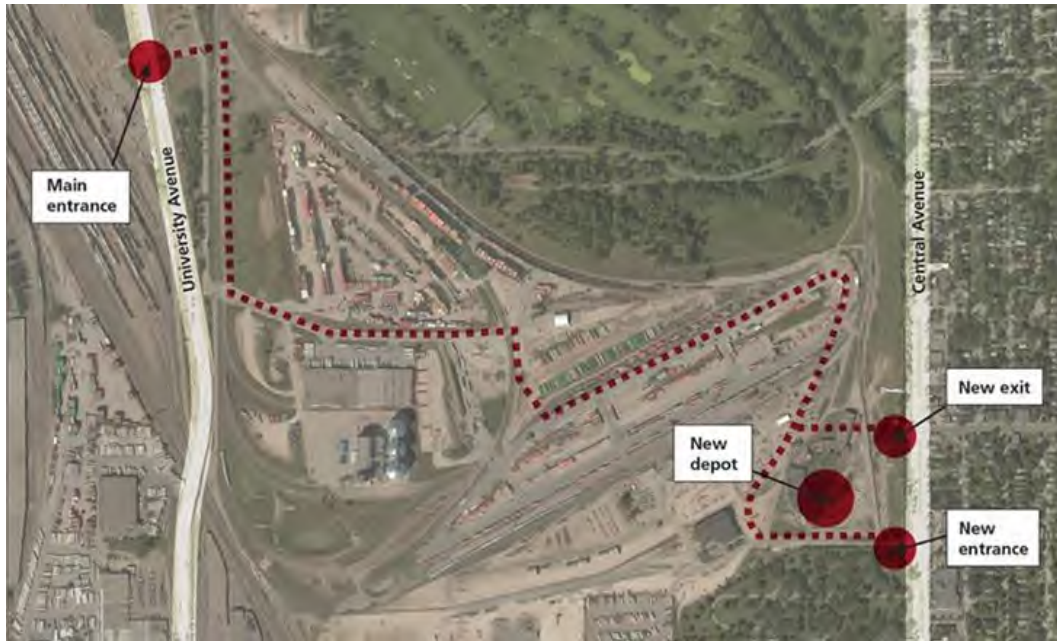
15. The diversion of the long-haul trucks from primarily rural, interstate routes onto urban roadways to reach the Minneapolis Intermodal Terminal is likely to aggravate existing traffic and safety problems and concerns.

16. CP recently added a transload facility at its Shoreham site, specializing in handling of DDG (dried distillers grain), grain, and related agricultural products. This facility will attract additional heavy trucks to area roadways, arriving with agricultural products from surrounding rural areas and departing empty, with their products transferred to containers for outbound movement by rail.⁵

17. The new transload facility is located in the southeast corner of the Shoreham facility, with trucks utilizing new entrance/exit routes to Central Avenue. Truck traffic associated with the transload facility as well as many container trucks serving the intermodal terminal will be using the new Central Avenue route and connecting streets such as Lowry Avenue rather than University Avenue that had been the primary route in the past.

18. CP's projection of an additional 86 intermodal units daily from the merger would represent a 38% increase in intermodal truck traffic over 2019 levels. That figure, together with any agricultural transload traffic that may materialize, would significantly add to truck activity on area streets and roadways.

⁵ Minneapolis Intermodal Terminal, www.cpr.ca.



Aerial photo showing entrances and exits used by trucks when accessing CP's Minneapolis Intermodal Terminal. The principal roadways used by trucks are University Avenue (west) and Central Avenue (east) of the terminal. Note the retail and residential units along Central Avenue, as well as the golf course immediately to the north of the facility. Photo from: [Minneapolis Intermodal Terminal \(cpr.ca\)](http://MinneapolisIntermodalTerminal.cpr.ca)

19. The safety of bicycle riders, pedestrians, and other users of University Avenue (Hwy 47) and Central Avenue (Hwy 65) roadways are of prime concern to the County as CP plans to attract additional truck traffic onto those corridors.

20. MnDOT has identified University Avenue and Central Avenue as high-risk routes due to their above average incidence of injuries and fatalities, many involving large trucks.

<https://www.dot.state.mn.us/metro/projects/hwy47andhwy65improvements/index.html>

21. With intermodal service, it is always necessary to consider actual roadway traffic volumes rather than simply examining units that the railroad will handle. With 86 additional units expected daily through CP's Minneapolis Intermodal Terminal following the merger, the actual daily traffic counts on area roadways will be greater than what CP projects. This is due to the need for ancillary vehicle movements that support intermodal operation, such as bobtail trucks, empty chassis movements, and trucks repositioning empty containers. These movements

typically increase unit traffic by a factor of ~1.3-1.5x. Therefore, 86 additional intermodal units per day on rail would result in approximately ~110-130 truck movements on area roadways daily, which is a material increase over current volumes.

22. The Applicants’ forecast an increase in the number of hazardous material (“hazmat”) cars that will traverse Hennepin County on an annual basis following the transaction.

CP’s forecast shows that the merger is expected to add approximately 40,000 cars of hazmat annually to the Paynesville Subdivision by the year 2027.⁶

23. The Paynesville Subdivision is CP’s primary route into the Twin Cities from the west and it is expected to handle the vast majority of the CP’s hazmat shipments that will move from Alberta oil and gas fields to Mexico and other destinations throughout the southern United States.

24. The 40,000 additional cars of hazmat that will move in that corridor would represent a 17.5% increase over the base-case hazardous material volume of 228,000 cars annually. More significantly, nearly 1 in 4 cars moving over that subdivision is expected to be a car with a hazardous materials classification, according to data provided by CP:

Paynesville Subdivision 2027 Traffic Forecast

	Without Merger	With Merger	Net Change
Hazmat Cars	228,000	268,000	40,000
Total Cars	952,000	1,128,000	176,000
% Hazmat	23.9%	23.8%	---

Source: STB website, Environmental Impact Statement, maps

⁶ All data in this section obtained from CP-KCS EIS documents available at: [Documents | CP-KCS Environmental Impact Statement \(cp-kcsmergereis.com\)](https://www.cp-kcsmergereis.com); Information Requests and Responses, document: “CP-KCS Response to Info Request #1 Maps by segment book.”

25. With the relatively high percentage of hazmat moving on the Paynesville Subdivision, the likelihood of hazmat cars being involved in a derailment or other incident in the County is a valid concern.

26. A recent CP derailment in Hennepin County highlights the concern. On March 7, 2021, an eastbound CP train derailed 22 cars near milepost 11.8 in Plymouth, MN, located within Hennepin County. The consist of this mixed freight train included a variety of hazmat shipments with several cars of molten sulfur and asphalt involved in the derailment. It is fortunate that the derailment occurred in a relatively isolated area rather than in the heavily urbanized area further to the east, and that no release of hazardous materials occurred. However, the potential for increased volumes of hazardous materials traffic moving through a densely populated urban area highlights the risks presented by a proposal that projects a 40,000 car increase annually in the movement of such commodities through this area.

27. While incidents like the March 7, 2021 derailment cannot be prevented entirely, the likelihood of an incident and the risk of a serious outcome can be reduced through a variety of common-sense measures such as:

- Installation of additional defect detectors along the corridor, possibly including dragging equipment, acoustic, thermal, and wheel impact detectors.
- An increase in frequency of visual inspection by track supervisors.
- An increase in frequency of rail defect testing along the corridor.
- An assurance that no trains will be operated until track and structures can be inspected following unusually heavy rain in the area.
- A speed restriction through portions of the metro area not already restricted (only applying to trains handling loaded hazardous materials shipments).

28. The County is further concerned about the possibility that CP's forecast for hazmat may be understated.

29. At times during recent years, freight shipments of hazmat have been higher than what is shipped today. Oil and gas shipments originating in the Bakken and other formation throughout the northern U.S. and in Canada are currently depressed from peak levels that were reached in past years⁷. Shipment volumes are driven by many factors not directly controlled by CP, such as availability of pipeline capacity, seasonality, and commodity prices. With oil prices currently on the rise, Bakken oil becomes attractive again, making it likely that production levels from the region will increase going forward. These factors could result in higher freight traffic volumes than CP has projected.

30. To ensure that all potential traffic is considered, the Board should consider the additional cars of hazardous materials that would result from increased oil production and a return to the freight traffic levels seen in past years. Based upon that information, conditions could be imposed to mitigate the harmful effects this additional traffic would have in Hennepin County.

31. With the anticipated increase in freight train traffic, along with the tendency to operate longer trains, delays at existing grade crossings would likely increase as a result of this merger.

32. Hennepin County has identified a total of 32 crossings along CP mainlines in the County that would be directly and materially impacted by merger-related traffic increases. Of those, the following fourteen crossings are of the greatest concern since they support the highest volumes of vehicle traffic:

(a) N.E. Central Avenue;

(b) Humboldt Avenue N;

⁷ The relatively high production cost of Bakken oil/gas provides little incentive to drill and produce when WTI oil prices are depressed. This has been the case since the COVID outbreak began.

- (c) West Broadway Avenue;
- (d) Douglas Drive;
- (e) Winnetka Avenue;
- (f) Boone Avenue;
- (g) Zachary Lane;
- (h) Peony Lane;
- (i) County Road 101;
- (j) Pinto Drive;
- (k) Arrowhead Drive;
- (l) County Road 19;
- (m) County Road 92; and
- (n) County Road 50.

33. Of greatest concern is the blockage of crossings within the heavily urbanized area near CP's Humboldt Yard in north Minneapolis.

34. The daily train counts cited by CP in its environmental-issues filing in this proceeding indicates an expectation that train volume in the area around Humboldt Yard (Camden-MNS segment) will increase from an average of 20.0/day to 23.6.

35. As previously mentioned, it is important to consider that CP's forecast may be conservative in certain product categories, with additional traffic that is not merger-related possibly increasing those base figures. Examples could include Bakken oil and gas shipments, many of which are hazardous (currently below peak levels due to market conditions), and grain traffic which is also subject to variations in shipping volume as commodity prices fluctuate.

36. In both cases, additional shipments in favorable market conditions could add materially to carload volume and to daily train traffic on the Paynesville Subdivision, with the potential to further increase delays at crossings, disrupt emergency responders, and aggravate traffic congestion in the area.

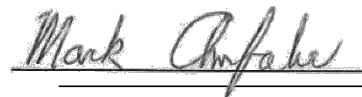
37. The County is concerned that any changes in use of the Humboldt Yard, such as the increased storage of cars, increased work events by trains (block swapping, etc.), or other operational changes could result in significant increases in delays at important grade crossings.

38. I have reviewed the statements, documents, maps, and charts the Applicants filed with the Board and can attest that the added rail traffic resulting from this proceeding will likely cause additional vehicular delays and traffic congestion at grade crossings in the County. Of special concern are the impacts that additional train traffic would have upon vehicles using crossings near Humboldt Yard, such as North Humboldt Avenue, 45th Avenue N., and N. Lyndale Avenue, all principal roadways in the area.

39. It is important to note that a fire station is located along North Humboldt Avenue, immediately north of the CP crossing. When that crossing is blocked, response times for certain emergency services will be adversely impacted.

I, Mark Amfahr, declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this Verified Statement.

Executed on February 28, 2022.

A handwritten signature in cursive script, reading "Mark Amfahr", is written over a horizontal line.

Mark Amfahr
Principal, Amfahr Consulting LLC

EXHIBIT 1-A

Curriculum Vitae of Mark J. Amfahr

Name	MARK J. AMFAHR
Profession	International Railway Consultant
Position in Company	Principal, Amfahhr Consulting LLC
Year of Birth	1961
Nationality	American
Company founded in	1993
Years of work experience	34
Education	Iowa State University
Qualifications	BBA Transportation / Logistics
Specialization	In both Domestic and International Markets: Rail Traffic Forecasting, Evaluation of Market Potential, Improvement of Commercial and Operational Practices, Project Benefit-Cost Analysis, Optimization of Railcar Fleets, Development of Freight Service Plans, Train Dispatching, Development of Shipment Cost Models to Assist in Pricing of Services, Evaluation of Financial Contribution by Line Segment, Strategic Planning Assistance for Small to Medium-sized Railroads.
Key Experience	Conducted numerous due diligence analyses, with a focus on the marketing, sales and revenue-generating areas. The output fed larger studies that ultimately determined the economic value of rail properties that were offered for sale or concession. Analyzed the economics of rail shipments on a variety of railroads operating worldwide; generated data that guided marketing strategy and sales efforts. Conducted numerous studies of the financial viability of specific segments of rail networks.

Have functioned in a variety of Sales and Marketing positions throughout North America on both large and small railroads. Responsibilities included budgeting and forecasting, supervision of staff, customer sales contact, cost and price determination, benefit/cost analysis, negotiation, issuance of contracts and tariffs, as well as allocation and assignment of rail equipment.

Have functioned in a variety of Operating Department positions throughout North and South America. Positions have included Director of Operations and Superintendent of Operations in Chile, Dispatcher and Chief Dispatcher in the U.S. and Operations Analyst in Argentina.

Foreign Languages	Language	Speaking	Reading	Writing
	Spanish	Fair	Good	Fair

1993 to Present	Rail Industry Consultant
Montana Rail Link – CRISI Grant Application Missoula, Montana September – October 2018	The applicant, Montana Rail Link, sought grant funds for PTC planning work in advance of PTC installation along its 655-mile mainline network. Prepared an application for funding available through the U.S. DOT's 2018 CRISI Grant Funds program. The application included a detailed proposal describing how funds would be applied to advance MRL's PTC work and the benefits that would result.
Progressive Rail Inc – CRISI Grant Application Lakeville, Minnesota August - October 2018	Progressive Rail's subsidiary the Central Midland Railway (CMR) sought funds to assist with rehabilitation of bridges along its line in Missouri. Assisted with preparation of a CRISI grant application to fund a portion of the \$3.6 million project. Work involved development of project scope, preparation of traffic forecasts and associated operational costs, as well as development of a benefit-cost analysis that monetized the project's internal and external (societal) economic impacts.

Belt Railway of Chicago – CRISI Grant Applications Bedford Park, Illinois May - July 2018	Prepared two applications for funding through the U.S. DOT's CRISI Grant Funding program. The applications were for fiscal years 2017 and 2018 funding appropriations, with both seeking funds to assist with BRC's Positive Train Control (PTC) projects. The application included a detailed proposal that described how funds would be applied to advance BRC's installation timeline, including testing and employee training, and the benefits that would result. One of the two applications was successful and BRC was awarded a grant for \$8.6 million.
Willmar Wye / Highway 12 Bypass Project Willmar, Minnesota April – June 2018	On behalf of Minnesota Department of Transportation, conducted a comprehensive evaluation of rail customers' use of a spur track. The right of way that MnDOT selected for the new Highway 12 By-pass alignment required that an active spur track be shortened which impacted rail operations for the three customers using the spur. The project goal was to develop viable alternatives that would preserve customers' current operational capabilities at the lowest possible cost. Worked directly with the customers on-site as well as BNSF Railway to understand their needs then presented the alternatives and cost estimates to MnDOT for evaluation.
Grant Application; Airpark Connector Project Big Spring, Texas, USA September, October 2017	Assisted with preparation of a grant application for \$4.5 million available through the federal government's TIGER grant program on behalf of client City of Big Spring, Texas. The City sought funds to revise and upgrade roadway access to a developing industrial park located at their regional McMahon-Wrinkle Airport. Conducted a comprehensive review of the Airpark's commercial and operational activities that included customer and management interviews and market analysis. The information was used to develop a detailed benefit-cost analysis that monetized the project's internal and external (societal) economic impacts over the 20-year forecast period.
TIGER Grant Application; Farmrail System Inc. Clinton, Oklahoma, USA September, October 2017	Assisted with preparation of a \$16.5 million rail infrastructure grant application to fund track rehabilitation in western Oklahoma. The applicant, Farmrail System, sought the funds to upgrade track to allow trains with 286,000 cars to move at 25 mph. Work involved assistance with strategic planning, development of project scope, preparation of traffic forecasts and associated operational costs, as well as development of a detailed benefit-cost analysis that monetized the project's internal and external (societal)

	economic impacts. The application was ultimately successful which allowed Farmrail to obtain materials and begin construction in Q2 of 2018.
Metropolitan Council / Southwest Light Rail Transit Project St. Paul, Minnesota, USA April 2017 – ongoing	Advising the Metropolitan Council of Minneapolis / St. Paul on freight rail issues related to their Southwest Light Rail Transit (SWLRT) project. Freight operator Twin Cities & Western Railroad (TCWR) operates a line that parallels the proposed SWLRT line and their operations will be disrupted during and after construction of the new light rail line. Assisting Metropolitan Council with evaluation of freight rail issues as they may impact TCWR, including operating costs, track maintenance costs, commercial and service matters, and freight rail line capacity during and after construction. Provided detailed estimates of expected operating and track maintenance costs as well as interactive models to allow the Council to test a variety of scenarios.
Great Plains Development Authority Parsons, Kansas, USA Nov 2016 – ongoing	Conducted an analysis of how to best utilize the rail assets of an industrial park to generate profitable growth and economic development in the region. Great Plains Industrial Park is located on the site of the former Kansas Army Ammunition Plant in southeast Kansas that was constructed during WWII. The recently decommissioned KAAP has been working to transition from a government operation to a private sector industrial park. Great Plains' rail transportation and logistics opportunities were studied and recommendations were made in a report that included a transportation market study and marketing plan. A presentation of findings was made to GPDA's board of directors. Follow-on work to assist GPDA with business development and to implement recommendations is ongoing.
PTC Grant Application; Belt Railway of Chicago Chicago, Illinois, USA April, May 2016	Prepared an application for funding available through the U.S. DOT's 2016 Railroad Safety Technology Grant Funds program. The program made \$25 million available for railroad safety technology projects that would advance the implementation of Positive Train Control (PTC). The application included a detailed proposal that described how funds would be applied to advance BRC's installation timeline and the benefits that would result.

Grant Application; WATCO – SKOL Cherryvale, Kansas, USA March, April 2016	Assisted with preparation of an application for \$25.3 million available through the federal government’s TIGER VIII grant program on behalf of client South Kansas and Oklahoma Railroad (SKOL). SKOL, a subsidiary of WATCO Companies, applied for the funds in order to complete a track rehabilitation project on their Tulsa Subdivision in Oklahoma and Kansas. Conducted a comprehensive review of SKOL’s commercial and operational activities that included customer and SKOL management interviews. Prepared a 20-year traffic forecast and developed a detailed benefit-cost analysis that monetized the project’s internal and external (societal) economic impacts.
Assessment of Business and Financial Plans; PFAL / California High-Speed Rail Authority January, February 2016	Working with consulting firm Project Finance Advisory Ltd. (PFAL), provided rail-related advisory services to the California High Speed Rail Authority. Conducted due diligence assessments on the Authority’s funding plans for various project proposals under consideration. Advised client on operational and commercial aspects of various service proposals and recommended strategies that could be employed to mitigate risk.
Mitsui Nacala Corridor Review Maputo, Mozambique October – December 2015	Evaluated commercial and operational aspects of three railway companies operating as concessions in Southern African nations Mozambique and Malawi. The companies included coal hauling railway CLN and general cargo railways CDN and CEAR. The analysis was conducted on behalf of part-owner Mitsui & Co. Ltd., a Tokyo-based business conglomerate. Following an evaluation of the railways a written report was submitted that included observations and recommendations for improvement in their commercial and operational areas.
HCRRA; Analysis of BNSF Monticello Subdivision Minneapolis, Minnesota, USA November - December 2015	On behalf of client Hennepin County Regional Railroad Authority assessed the value of BNSF’s 38.2-mile Monticello Subdivision. HCRRA is interested in the corridor for possible construction of a light rail transitway in the future. The project required that all relevant costs be assessed which included development of multiple scenarios for track maintenance spending. Detailed estimates of traffic and revenue were also prepared for each of the on-line shippers. All revenue and cost factors were then consolidated into a pro-forma income statement which estimated the economic value of the branch.

Amtrak RRIF Loan Application Washington D.C., USA August – November 2015	Teamed with Project Finance Advisory Ltd. (PFAL) to assist the US DOT's Office of the Secretary of Transportation in its review of Amtrak's \$3.0 billion RRIF loan application. Our team performed a secondary "peer" review of the loan assessment with the initial review having been prepared by Scully Capital. Responsibilities included assessment of the commercial and operational aspects of the application. The loan was intended to fund acquisition of 28 Next Generation High-Speed Trainsets for use on Amtrak's Northeast Corridor, replacing the Acela equipment currently in service there.
University of Minnesota Minneapolis, Minnesota, USA July 2015 – April 2016	On behalf of client University of Minnesota, evaluated the impacts that a property acquisition would have rail operations in an area immediately north of the campus. Studied the rail activities taking place on the properties and commented on the operational, commercial and financial impacts if relocation were to occur. The interests of each customer and of the railway were carefully considered as recommendations were developed for the client.
HBRY – OmniTRAX Churchill, Manitoba, Canada May – July 2015	On behalf of OmniTRAX, conducted a full review of rail traffic and operational activities on their Hudson Bay Railway in north-central Canada. Interviewed company officials and assessed local economic conditions in order to assess the impacts that would result from a potential restructuring of the railway. Completed a benefit-cost analysis that estimated net benefits generated by the railway internally as well as externally to the regional economy.
Grant Application; Amtrak Southwest Chief La Junta, Colorado, USA May – June 2015	On behalf of a consortium of rural communities, assisted with preparation of a grant application for infrastructure investment. The Amtrak Southwest Chief Route Advancement and Improvement Project sought funds for rehabilitation of the BNSF trackage through the federal government's TIGER VII grant program. A 20-year ridership and operational forecast was prepared and a complete benefit-cost analysis was developed that monetized the project's internal and external (societal) economic impacts. The application was successful and \$15.2 million in funding was awarded for the project.

Hennepin County Regional Railroad Authority; Freight Traffic Study Minneapolis, Minnesota, USA April 2015 – December 2016	Conducted a comprehensive review of rail freight movements within Hennepin County. Quantified traffic volumes moving on each route within the county including average daily train counts and percentage breakdown of products transported. Identified all rail-served facilities and determined the level of rail shipping activity of each. Developed a five-year forecast of train and product movements by route to assist the county in their planning efforts. Worked with partner consulting firm to quantify truck traffic associated with each rail facility to feed their roadway traffic model.
RRIF Loan Application; Port of Stockton Stockton, California, USA April – May 2015	Worked with a team from Project Finance Advisory Ltd. (PFAL) to evaluate the commercial and operational aspects of the Port of Stockton's loan application. The loan was available through the Federal Railroad Administration's RRIF (Railroad Rehabilitation and Improvement Financing) program. The funds were sought to expand rail capacity that would improve operational efficiency and permit traffic growth to continue. The process involved interviewing key customers, railway and port officials, analysis of traffic information and development of a traffic and revenue forecast. A final report was issued that summarized findings and conclusions.
Grant Application; WATCO – WSOR Madison, Wisconsin, USA March, April 2014	Assisted with preparation of an application for \$25.6 million in funds available through the federal government's TIGER VI grant program on behalf of client Wisconsin and Southern Railroad (WSOR). WSOR, a subsidiary of WATCO Companies, applied for the funds in order to complete a 35.5-mile track rehabilitation project in Wisconsin. Conducted a complete review of WSOR's commercial and operational activities that included customer and WSOR management interviews as well as an inspection of the project site. Prepared a 20-year traffic forecast and developed a complete benefit-cost analysis that monetized the project's internal and external (societal) economic impacts.
Grant Application; Amtrak Southwest Chief Garden City, Kansas, USA March, April 2014	Assisted with preparation of an application to fund infrastructure investment through the Amtrak Southwest Chief Route Improvement Project. The application requested \$28.3 million in funds available through the federal government's TIGER VI grant program on behalf of a consortium of rural communities. The funds were for rehabilitation of the BNSF trackage that hosts the Amtrak service. Work included preparation of a 20-year ridership

	and operational forecast and development a complete benefit-cost analysis that monetized the project's internal and external (societal) economic impacts. The application was successful and funds were awarded for the project.
Business Plan Assistance; WATCO – SLWC Oklahoma City, Oklahoma, USA Nov. 2013 – Jan. 2014	Assisted client WATCO with preparation of a business plan that was an important component of their proposal to purchase the Stillwater Central rail line from its owner, the State of Oklahoma. As part of the project, traffic was analysed, shippers and SLWC railroad managers were interviewed and forecasts were developed. Traffic and operations scenarios were developed and benefits of the sale were quantified using benefit-cost analysis. WATCO's bid to own the railroad was ultimately successful.
Grant Application; Indiana Rail Road Co. Indianapolis, Indiana, USA May 2013	Assisted with preparation of an application for \$13.8 million in TIGER V funds on behalf of the Indiana Rail Road Company. The funds were to be used to replace their 115-year old White River bridge in southern Indiana which supported the operation of unit coal trains and other traffic. Conducted a full review of rail traffic and operational activities related to the structure and interviewed customers who would be impacted by the project. Completed a benefit-cost analysis that estimated net project benefits that would accrue to the railroad as well as to society. The application was successful and the project received the full amount requested.
Grant Application; OmniTRAX – GWRCO Loveland, Colorado, USA May 2013	Assisted with preparation of an application for \$22.9 million in funds available through the federal government's TIGER V grant program. The application was prepared on behalf of the Great Western Railway of Colorado (GWRCO), a subsidiary of OmniTRAX, with the funds to be applied to a variety of infrastructure projects. Conducted a complete review of the railroad's commercial and operational activities and evaluated the impact that the proposed project would have upon those activities. Prepared a 20-year traffic forecast and developed a complete benefit-cost analysis that monetized the project's internal and external (societal) economic impacts. The application was successful with the project receiving partial funding from the FRA.
Grant Application; WATCO – WSOR	Assisted with preparation of an application for \$23.9 million in funds available through the federal government's TIGER V grant program on behalf of client Wisconsin and Southern

Madison, Wisconsin, USA May 2013	Railroad (WSOR). WSOR, a subsidiary of WATCO Companies, applied for the funds in order to complete a 37.5-mile track rehabilitation project in Wisconsin. Conducted a complete review of WSOR's commercial and operational activities that included customer and WSOR management interviews as well as an inspection of the project site. Prepared a 20-year traffic forecast and developed a complete benefit-cost analysis that monetized the project's internal and external (societal) economic impacts.
Evaluation of BRRRA's Rail Corridor Luverne, MN, USA March – June 2013	On behalf of Minnesota Department of Transportation, conducted a comprehensive evaluation of the Buffalo Ridge Regional Railroad Authority's rail line in southwest Minnesota, operated by the Minnesota Southern Railway. The objective of the project was to determine a going concern value for the railroad, as well as a net liquidation value for the rail corridor, which had been partially funded by MnDOT. Interviewed railway officials and principal customers and prepared detailed projections of carloads and revenue for the rail line. Infrastructure maintenance needs and asset valuation estimates were also provided to MnDOT.
Review; WATCO – SLWC Oklahoma City, Oklahoma, USA February 2013	On behalf of WATCO, reviewed and quantified impacts that a BNSF acquisition of Stillwater Central Railroad line in Oklahoma would have upon shippers and the public.
USTDA Southern African Reverse Trade Mission; Washington D.C., USA RTM: Sept./Oct. 2013 Project concluded late 2014	Acted as the team's Technical Expert during a 12 day USTDA Intermodal Freight Transportation Reverse Trade Mission for delegates visiting the United States from a variety of Southern African nations. Scheduled facility visits and presentations that exposed delegates to U.S. technologies, equipment, services and policies that could be applied in their home countries. Assisted with preparation of reports as well as the Delegate Handbook that detailed all aspects of the RTM and provided contact information to encourage follow-up activities with U.S. suppliers.
RRIF Loan Application; Great Lakes Central Railway Owosso, Michigan, USA	Evaluated the commercial aspects of the Great Lakes Central Railway as part of an analysis for a loan / re-financing package. The loan was available through the Federal Railroad Administration's RRIF program – Railroad Rehabilitation and Improvement Financing. The project

June – July 2012	involved updating of a loan application that had been initiated in 2009 but not completed. The updating process included interviews with key customers and railway officials, analysis of traffic information and revision of the previous forecast. A report was prepared that included an update and revision of the previously-filed multi-year financial forecast together with a summary of findings and conclusions.
Grant Application; WATCO – WSOR Madison, Wisconsin, USA February, March 2012	Assisted with preparation of an application for \$24.1 million in funds available through the federal government's TIGER IV grant program on behalf of client Wisconsin and Southern Railroad (WSOR). WSOR, a subsidiary of WATCO Companies, applied for the funds in order to complete a 37-mile track rehabilitation project in Wisconsin. Conducted a complete review of WSOR's commercial and operational activities that included customer and WSOR management interviews as well as an inspection of the project site. Prepared a 20-year traffic forecast and developed a complete benefit-cost analysis that monetized the project's internal and external (societal) economic impacts.
Grant Application; OmniTRAX – GWRCO Loveland, Colorado, USA February, March 2012	Assisted with preparation of an application for \$12.7 million in funds available through the federal government's TIGER IV grant program. The application was prepared on behalf of the Great Western Railway of Colorado (GWRCO), a subsidiary of OmniTRAX, with the funds to be applied to a variety of infrastructure projects. Conducted a complete review of the railroad's commercial and operational activities and evaluated the impact that the proposed project would have upon those activities. Prepared a 20-year traffic forecast and developed a complete benefit-cost analysis that monetized the project's internal and external (societal) economic impacts.
Grant Application; OmniTRAX – IR and GWRCO Ottawa, Illinois; Loveland, Colorado, USA September, October 2011	Assisted with preparation of an application for \$49.1 million in funds available through the federal government's TIGER III grant program. The client, OmniTRAX, partnered with state and local government entities to apply for funds that would permit infrastructure on its Illinois Railroad (IR) and Great Western Railway of Colorado (GWRCO) subsidiaries to be upgraded and improved. Reviewed IR and GWRCO commercial and operational activities and used that information to prepare 20-year traffic and operational forecasts for the companies. Also completed a comprehensive benefit-cost analysis for each company that

	estimated the internal and external benefits that would result from the projects.
Grant Application; WATCO – YSVR Sidney, Montana, USA September, October 2011	Assisted with preparation of an application for \$10.1 million in TIGER III funds on behalf of WATCO subsidiary Yellowstone Valley Railroad, operator of 134 miles of trackage in northeast Montana. The funds were to be used to upgrade one of their lines in order to permit unrestricted passage of unit grain trains. Conducted a full review of YSVR's commercial and operational activities and interviewed customers who would be impacted by the project. Completed a benefit-cost analysis that estimated net project benefits that would accrue to the railroad as well as to society.
Romanian Railways Audit Project – CFR S.A. Bucharest, Romania May, June 2011	Participated in an audit of CFR S.A, the National Railway Infrastructure Company of Romania. CFR utilizes 25,000 employees to maintain and administer 20,000 kilometers of trackage within the country of Romania. Interviewed managers, reviewed reports and conducted site visits in order to evaluate key aspects of the company's activities, including condition of infrastructure, capacity utilization, dispatching of trains, communication, signalling, electrification, employee productivity, service levels provided to operators and company strategy. The objective of the audit was to identify realistic solutions that would improve operational efficiency, make better use of limited capital funds and improve financial performance while maintaining or improving service levels for the operators that use the infrastructure.
Grant Application; DesertXpress Enterprises Las Vegas, Nevada, USA March 2011	Prepared a benefit-cost analysis (BCA) designed to support an application for \$30 million in funding from the federal government's TIGER III grant program. The application was prepared on behalf of DesertXpress Enterprises, an entity that intends to construct and operate a high-speed passenger railway between Southern California and Las Vegas.
Loan Application; DesertXpress Enterprises Las Vegas, Nevada, USA February - October 2011	Prepared a detailed benefit-cost analysis (BCA) that was submitted as part of a \$4.9 billion loan application on behalf of client DesertXpress Enterprises. The loan was requested through the U.S. government's Railroad Rehabilitation and Improvement Financing (RRIF) program. The DesertXpress High Speed Rail Project is envisioned as a private, high speed passenger railroad linking Las Vegas with southern

	California. The BCA component of the loan application was specifically designed to quantify the project's external benefits – benefits that accrue to society as a whole rather than directly to the railway operator. Societal benefits that were evaluated and monetized in the analysis included items such as: reduced transit times, reduced fuel consumption, improved safety for travellers, reduced noise and emissions and reduced need for highway capacity investments in the future.
Romanian Railways Audit Project – CFR Marfa Bucharest, Romania November 2010 – May 2011	Completed key elements of a comprehensive audit of CFR Marfa, the national freight railway of Romania. CFR Marfa and its subsidiary companies utilize 13,700 employees to conduct operations on 9500 kms of trackage within the country of Romania. The first phase of the audit required that a comprehensive review be conducted with recommendations for improvement of current practices provided based upon findings. The objective of the first phase was to provide CFR Marfa management with practical recommendations that would improve financial performance while also maximizing potential value of the company for privatization. The second phase of the project was to analyze the company's assets, strengths and weaknesses and then recommend ways that the existing CFR Marfa could be reorganized and restructured in order to maximize value for privatization. Also evaluated the potential benefits and risks associated with various recovery proposals that were in the process of being implemented by management at that time.
Grant Application; WATCO – SKOL Cherryvale Yard Relocation Cherryvale, Kansas, USA October 2010	Assisted with preparation of an application for federal government Rail Line Relocation grant funds on behalf of WATCO Companies. WATCO was seeking funds to support a project on their South Kansas and Oklahoma RR subsidiary. The funds were to be applied to the second of three phases of their Cherryvale Yard relocation project which would move switching operations from the center of Cherryvale, Kansas to a remote area north of town. As part of the application, a detailed benefit-cost analysis of the rail yard relocation project was prepared which included all operational, social and economic benefits that were expected from the project. Work on this application was halted just prior to completion when it was learned that full funding for the project had been obtained from another source.
Grant Application;	Assisted with preparation of applications requesting a total of

WATCO – SKOL / YSVR Cherryvale, Kansas; Sidney, Montana, USA July – August 2010	\$29.5 million in funds from the federal government’s TIGER II grant program. The client, WATCO Companies, partnered with state and local government to apply for funds that would permit infrastructure on its South Kansas and Oklahoma (SKOL) and Yellowstone Valley (YSVR) Railroads to be upgraded. The application process required that a complete review of SKOL and YSVR commercial activities be conducted. Information obtained from that process was used to develop carload and revenue projections for the companies. Estimates of the project’s operational, social and economic benefits were also developed as part of the benefit-cost analysis. Despite the TIGER II program being highly oversubscribed, the SKOL portion of the application was successful and \$10.2 million in grant funding was awarded to Kansas to support the project on the SKOL.
Hennepin County Regional Railroad Authority; Target Field Station Rail Capacity Analysis Minneapolis, Minnesota, USA April 2010 – July 2012	Developed a rail capacity simulation for BNSF trackage in the vicinity of Target Field Station Minneapolis. The simulation is to be used as a tool to analyze the movement of freight and passenger traffic near the new passenger station. The impacts of a number of freight and passenger traffic growth scenarios are to be evaluated as well as the capacity implications associated with each.
Loan Application; Livonia, Avon and Lakeville Railway Lakeville, New York, USA March – June 2010	Evaluated the commercial aspects of the Livonia, Avon and Lakeville Railway, including its sister companies WNY&P and B&H, as part of an analysis for a loan / re-financing package. The loan was available through the Federal Railroad Administration’s RRIF program – Railroad Rehabilitation and Improvement Financing. The project involved a complete review of the railway’s loan application, interviews with key customers and railway officials. A report was prepared that included a multi-year financial forecast together with a summary of findings and conclusions.
Site Evaluation Project for an Aggregate Supply Company Houston, Texas, USA March – May 2010	Assisted client with a site evaluation project that encompassed several counties in southeast Texas. The client was interested in identifying sites that had the potential to support the unloading of unit trains as well as the storage and handling of aggregate materials used in construction. The project required physical inspection of over 50 potential sites. Each site was evaluated based upon its ability to support rail activities as well as its available land area, surroundings,

	suitability for industrial use, etc. A report that summarized findings was prepared and delivered to the client.
City of Minneapolis – Granary Road Study Minneapolis, Minnesota, USA October 2009 – June 2010	Evaluated the impacts that a new roadway to be built along an existing railway corridor would have upon rail operations. Studied the rail activities taking place at each facility along the corridor and suggested alternate sites that could be utilized in the event relocation is necessary. Analysis also included an in-depth study of customer activities taking place at each facility along the corridor – the interests of each customer were carefully considered as recommendations were prepared for the client.
Loan Application; Great Lakes Central Railway Owosso, Michigan, USA August / September 2009	Evaluated the commercial aspects of the Great Lakes Central Railway as part of an analysis for a loan / re-financing package. The loan was available through the Federal Railroad Administration’s RRIF program – Railroad Rehabilitation and Improvement Financing. The project involved a complete review of the railway’s loan application, interviews with key customers and railway officials. A report was prepared that included a multi-year financial forecast together with a summary of findings and conclusions.
Grant Application; WATCO - SKOL Cherryvale, Kansas, USA July – September 2009	Assisted with preparation of an application for \$44.4 million from the State of Kansas and Oklahoma to the federal government’s TIGER grant program. The client, WATCO, desired funds that would permit infrastructure on the company’s South Kansas and Oklahoma Railroad subsidiary to be upgraded to increase speeds, increase capacity and improve safety. The project called for a complete review of SKOL’s commercial activities, including interviews of railway officials as well as key clients. Information obtained from that process was used to develop carload and revenue projections for the company. The application included a detailed forecast showing the operational, social and economic benefits that were expected from use of the desired funds. This application, while not receiving funds under this highly competitive program, was among the top ten percent of applications selected for the final selection pool by US DOT.
Hennepin County Regional Railroad Authority; Analysis of Northwest-Bottineau Blvd Transitway	Analyzed alternatives available to client for construction of a light rail transitway along an existing freight rail corridor. As part of the analysis, alternate routes for the existing freight rail traffic were evaluated. The project called for several

Minneapolis, Minnesota, USA April 2009 – June 2013	alternatives to be developed, with each considering all relevant commercial, operational, financial and engineering issues. As part of the study, consideration was given to capacity issues along developing commuter corridors that would be used by freight trains. Estimates of maintenance and capital costs were developed along with a detailed traffic and revenue forecast to assist in estimating corridor value. Client was advised on rail capacity matters, including signalling issues, headways to use for scheduling as well as the impact of trains along various routes.
Hennepin County Regional Railroad Authority; Assistance with Freight Rail Issues – TCWR Railway Minneapolis, Minnesota, USA March 2009 – November 2010	Assisted client with development and analysis of routing alternatives for a regional railroad transiting the County. Several possible alignments were examined to determine optimal routing for the Twin Cities & Western Railway's traffic through the area. Alternatives were evaluated from engineering, operational as well as political perspectives. Estimates of capital and life-cycle maintenance costs for each alternative were developed and included in the study. The benefits, drawbacks and costs of each alternative were presented in a public forum as well as to the Policy Committee for their evaluation.
Railway Modernization Project; Bucharest – Constanta Line Bucharest, Romania March 2003 – July 2008	Provided a wide-ranging array of services in support of the ongoing Bucharest-Constanta project: conducted a trip/travel survey of passengers travelling in the corridor to assist in analyzing travel patterns and preferences, developed an allocation methodology for both freight and passenger services to estimate revenue for the corridor, prepared studies designed to improve the profitability of CFR Marfa's services in the corridor, made recommendations for the improvement of intermodal services, developed a revised methodology to apply when evaluating the closure of stations.
Marfa Financial Strategy Project Bucharest, Romania September 2003 – January 2006	Assisted CFR Marfa in their efforts to modernize their commercial activities as a way of improving the overall financial performance of the company. Implemented improved methods of cost analysis using a customized Shipment Cost Model. Made recommendations for change away from rigid, tariff-based pricing to more flexible, free-market pricing to enable the company to compete more effectively. Conducted training seminars to instruct Marfa personnel in modern railway marketing and pricing strategies. Assisted Marfa in consolidating and reconfiguring their Commercial Department to reduce costs and improve

	effectiveness. Implemented periodic reporting procedures designed to provide top management with information necessary to manage more effectively.
Review of MAV Cargo Budapest, Hungary September, October 2007	Reviewed the Hungarian State Railway's MAV Cargo unit on behalf of a client involved in the bidding to acquire the company. Analyzed the company's long-term prospects, its competitors, as well as the risks and challenges that it is expected to encounter. Prepared report with findings and conclusions and advised client with regard to his prospective bid for control of the company.
World Bank / Azerbaijan State Railway Baku, Azerbaijan June – September 2006	Evaluated traffic and commercial activities of ADDY, the Azerbaijan State Railway company. The analysis was conducted as part of a World Bank project. The railway was being evaluated to determine the impacts that an investment in equipment and infrastructure would have upon the railway and the region.
Loan Application; Virginia Railway Express Washington, D.C., USA May 2006	Evaluated the potential impact of a loan for new passenger equipment. The loan was part of the FRA's RRIF program – Railroad Rehabilitation and Improvement Financing. The Virginia Railway Express had applied for funds for the acquisition of passenger coaches to replace older equipment as well as to increase capacity to permit future growth.
Loan Application; Wheeling & Lake Erie Railway Brewster, Ohio, USA February, March 2006	Evaluated the potential impact of a loan for new freight equipment. The loan was part of the FRA's RRIF program – Railroad Rehabilitation and Improvement Financing. The Wheeling and Lake Erie had applied for funds for the acquisition of freight locomotives and cars to replace older equipment to improve efficiency and permit future growth.
Loan Application; Iowa Northern Railway Greene, Iowa, USA November, December 2005	Evaluated the potential impact of a loan to be used to upgrade the railway's infrastructure. The loan was part of the FRA's RRIF program – Railroad Rehabilitation and Improvement Financing. The Iowa Northern had applied for funds that would permit the company's infrastructure to be upgraded to increase speeds, increase capacity and improve safety. A review of the railway's application was conducted, including interviews of key customers.
Determination of historic rail traffic flows over	Reviewed historic data and extrapolated where necessary in order to reconstruct historic rail traffic patterns across a

Mississippi River bridge Davenport, Iowa, USA April – July 2004	major steel structure. The study required that traffic patterns be determined for each decade of the bridge's 100-year history. The research resulted in a detailed estimate of the railway equipment that had crossed the structure in its lifetime, including locomotives and wagons by quantity and type, axle loadings of each type of equipment and so on. The data was converted into detailed load spectra, which in turn supported the fatigue life study being conducted on the structure to determine its remaining useful life.
Evaluation of Argentina's Belgrano Cargas Railway Buenos Aires, Argentina March – July 2004	Reviewed existing traffic and evaluated potential of the Belgrano Cargas Railway system as part of due diligence analysis. The process involved interviews with railway officials and certain key customers as well as research into the prospects for handling each of the major commodities considering relevant competition. Detailed projections of tonnage and revenue were prepared by commodity and customer for each of the 8 years covered by the study. The study was used together with operational analyses to determine whether or not a bid should be submitted for control of the company.
Evaluation of Peoria & Pekin Union Railway Peoria, Illinois, USA November 2003	Performed comprehensive review of the P&PU Railway on behalf of an interested party. The review encompassed all aspects of the company, including mechanical and engineering department issues, operations, labor issues, existing contractual agreements and also included a thorough assessment of the company's commercial potential. Based upon this assessment, a bid was submitted for control of the railway.
Montreal, Maine & Atlantic Railway Bangor, Maine, USA June – December 2003	On behalf of a third-party client, reviewed existing traffic and evaluated the economics of two of MM&A's routes under a variety of scenarios. The process involved interviews with railway officials as well as research into the prospects for handling certain key products along the lines being studied. Detailed projections of tonnage and revenue were prepared by commodity and by customer for each of the scenarios considered. The study was eventually used to support a filing that was accepted as valid by the U.S. Government's Surface Transportation Board.
Evaluation of the TranzRail network Auckland, New Zealand	Performed comprehensive review of the TranzRail network to determine the company's commercial potential on behalf of a potential bidder. All aspects of the company's commercial activities were evaluated as part of the review,

July, August 2003	including pricing, costs, operational constraints, existing traffic and clients, market growth potential, effectiveness of competitors, and so on. The commercial review was a key factor in determining whether a bid would be put forth on the railway.
Rail services in the Port of Portland Portland, Oregon, USA April, May 2003	On behalf of a client, an analysis was conducted to determine the commercial potential of operating a switching operation that would serve certain sections of the Port of Portland. The process included gathering of data from the Port Authority, interviews with current and potential railway customers, meetings with officials of the BNSF railway as well as extensive site inspections. A report was prepared which provided information to the client and assisted them in determining their course of action regarding the opportunity.
Evaluation of Bolivian Soybean market Santa Cruz, Bolivia September - Nov 2002	On behalf of Bolivian railway E.F. Oriental, a comprehensive study of the Bolivian soybean markets was conducted. The purpose of the study was to understand and to quantify the relative strengths and weaknesses of the various routes available for exporting of the country's soybean production. Based upon the study's findings, the railway formed strategic partnerships and established commercial policies intended to optimize the company's financial performance in future years.
Evaluation of HCRRA's Hutchinson Line Minneapolis, MN, USA April – October 2002	Reviewed existing traffic and evaluated potential of the former Dakota Rail Hutchinson Line, which had been acquired by Hennepin County Regional Railroad Authority and its partners. Worked with Hennepin County's legal department to determine the financial viability of the route. The process involved interviews with railway officials and principal customers as well as research into the prospects for handling each of the major commodities. Detailed projections of tonnage and revenue were prepared by commodity and by customer for each of the 7 years covered by the study. The study was eventually used to support an abandonment filing that was approved by the U.S. Government's Surface Transportation Board.

Romanian Railway Privatization Washington D.C. June 2000 – December 2001	Prepared outline, drafted material and edited business plans which offered guidance to Romanian railway and Government transport officials as they prepared the railway network for possible privatization. Comprehensive business plans were written for each of their distinct business units: Freight, Intercity Passenger, Regional Passenger and Infrastructure. The business plans were part of a larger project which was to culminate in the privatization of the former National Railway of Romania (SNCFR) network.
Evaluation of the Arica – La Paz Railway and regional rail network Arica, Chile February – April 2001	Completed a transportation demand and market study of the region that included western Bolivia, northern Chile and southern Peru. Conclusions from the demand study were considered together with the operational constraints that exist in the region. Demand sensitivity and cost structures were then used to prepare a variety of scenarios that predicted the future financial performance of FCALP and the other regional rail carriers. Pro-forma financial projections were produced for each of the scenarios to test contribution of each of the carrier's lines of business as well as their overall profitability. The project's conclusions were used to assist in strategic planning.
Evaluation of Estonian Railway Tallinn, Estonia November, December 1999	Performed preliminary review of the Eesti Raudtee portion of the Estonian Railway network. A comprehensive review was performed with all aspects of the company being evaluated: locomotives, wagons, operations, infrastructure, dispatching, productivity, signalling, labor issues, legal and regulatory matters as well as a review of the company's commercial potential.
Assistance with start-up of FCCM Railway Merida, Mexico October, Nov 1999	Assisted with implementation of business plan objectives during early months for the newly privatized company. Implemented budgeting/forecasting methods, established rate levels, interviewed and trained employees in the Marketing and Sales area, outlined company growth objectives and resolved conflicts. Assisted with preparation of a comprehensive 200-page report that provided the International Finance Corporation all necessary information with regard to the Chiapas-Mayab Railway (FCCM). The report was prepared in conjunction with IFC's due diligence and appraisal of the company for a proposed financing package.
Evaluation of Mexico's	Gathered information from a variety of sources and completed an evaluation of traffic and revenue opportunities

Southeast Railway Mexico City, Mexico June – Sept 1999	on FNM's 1500 km South Eastern Railway as part of due diligence analysis on behalf of potential bidders. The report on the railway that was offered for sale by the government included a complete written analysis of the railway's traffic as well as detailed tonnage and revenue projections for future years. The due diligence work and bidding process was successful, and the railway was purchased later in the year. Projected traffic and revenue levels from the S.E. Railway's initial study came within 5% of actual performance of the privatized FCCM Railway.
Evaluation of Peru's ENAFER Railway Lima, Peru March – May 1999	Reviewed existing traffic and evaluated potential of ENAFER's Central, South and Southeast Railway systems as part of due diligence analysis. The process involved interviews with railway officials and principal customers as well as research into the prospects for handling each of the major commodities considering relevant competition. Detailed projections of tonnage and revenue were prepared by commodity and customer for each of the 10 years covered by the study. The study supported a bid that was submitted for the eventual privatization of the network.
New York & Atlantic Railway New York, New York Jan 1998 – February 1999	Directed Marketing and Sales efforts on 240 mile Shortline operating on Long Island, New York. Prepared 1998 Budget and established budgeting and forecasting procedures to report traffic and explain variances vs. budget. Trained two new employees in Marketing and Sales techniques.
Evaluation of Nuevo Central Argentino Railway Rosario, Argentina July – September 1997	Completed review of Marketing and Sales practices as part of a comprehensive study of N.C.A, a 5000 km railway in Argentina, on its five-year anniversary. All aspects of the company were examined with a focus placed upon recommendations that would facilitate a continuation of their rapid tonnage and revenue growth. Upon completion, the report, including recommendations, was presented to the president and board of directors in Buenos, Aires.
Assistance with start-up of FSA Railway Curitiba, Brazil Feb 1997 - April 1997	Assisted with implementation of business plan objectives during the early months of the newly privatized company. Worked with Operating and Marketing departments to develop the company's 1997 and 1998 budgets. Provided assistance with a number of issues including pricing strategy, car distribution, operating practices, cost analysis, locomotive optimization and utilization, train scheduling, and the preparation of the company's timetable and

	rulebook.
Review of Nuevo Central Argentino Railway Rosario, Argentina May 1996 – August 1996	Performed complete review of Marketing and Sales Dept. practices, made recommendations for improvement and implemented changes. Reviewed existing traffic and equipment cycle times by route, commodity and customer to provide information that guided departmental strategy. Completed analysis of economic contribution of branch and secondary routes to support strategic planning. Performed study of potential Chrysler, Renault and Fiat finished vehicle and parts traffic to evaluate possible investments in equipment and facilities to accommodate traffic. Presented findings, including demand forecast and cost/benefit analysis, to president and board of directors for review.
Burlington Northern O'Neill Subdivision O'Neill, Nebraska, USA April 1996	Completed preliminary review of traffic and revenue potential on behalf of potential bidders for the property.
Assistance with start-up of FEPASA Railway Santiago, Chile May 1995 – Dec 1995	Designed and implemented shipment cost model for use by Marketing dept for pricing guidance. Supervised transition to TWC dispatching system. Worked with Operating Dept. managers to oversee day to day operations during transition to new operating system. Played key role in the writing and editing of timetable, rulebook and system operating plan. As Superintendent-Northern Division, directly supervised all aspects of FEPASA's Northern division operations. Resolved numerous start-up related complications which allowed monthly tonnages to increase by 45%.
Nuevo Central Argentino Rosario, Argentina Feb 1995 – March 1995	Developed shipment cost model and evaluated contribution of existing traffic based upon variable costs and car cycle times. Recommended and implemented improved car distribution practices, which increased revenue during peak months. Produced report outlining the financial contribution of each of the company's routes and branches to assist in strategic planning.
Ferro Expreso Pampeano Bahia Blanca / Buenos Aires, Argentina	Worked with Operating and Marketing Departments to implement recommended improvements to practices. Set record for revenue/month by increasing average train size, reducing wagon cycle time, and by improving coordination of procedures between the Operating and Marketing

January 1994 – Sept 1994	Departments. Refined and improved numerous operating practices that resulted in enhanced operating efficiency, reduced unit costs and increased revenue through improved equipment utilization. Developed a shipment cost model and evaluated contribution of existing traffic based upon variable costs and car cycle times. Completed economic analysis of system traffic flows and revenue sources by station and route and produced reports that guided financial and strategic planning.
Ferro Expresso Pampeano Bahia Blanca / Buenos Aires, Argentina June 1993 – August 1993	Performed comprehensive review of Marketing and Operating Department practices to investigate the company's performance shortfall vs. business plan. Reported findings and suggestions for improvement to the president for review. Implemented many of the suggested improvements and refinements during the three-month period.
Chicago & North Western Transportation Company Chicago, Illinois February 1991 – June 1993	Manager, Sales and Marketing – Industrial Chemicals Direct pricing and forecasting responsibility for over 900 commodities in four groups. Sales responsibility for 15 accounts. Used a variety of marketing strategies to increase carloads, revenue and revenue per car in the three primary groups 1992 vs. 1991. Set records for annual revenue in two groups during 1992. Member of several committees including ASCBG Quality Committee.
Iowa Interstate Railroad Chicago, Illinois June 1989 – February 1991	Market Manager – Agricultural Products Maintained contact with over 30 on-line grain shippers. Responsible for entire traffic development cycle: customer contact, costing of service, competitive evaluation, pricing, negotiation, contract issuance, and follow up. Assistant Market Manager – Agricultural Products Responsibility for Ag. Chemicals accounts. Managed and distributed covered hopper fleet of 450 cars. Developed models to aid in fleet utilization and cost analysis.
Iowa Interstate Railroad Iowa City, Iowa October 1984 – May 1989	Chief Dispatcher Responsibilities included planning and management of train and locomotive movement, oversight of operating rules and procedures, direct supervision of four dispatchers and training of new employees. Dispatcher / System Support Analyst In addition to traditional dispatching duties, responsibilities included the editing of car hire data, T&E employee time keeping, and the handling of T&E crew calling and extra board.

Iowa Railroad Company Des Moines, Iowa May 1983 – August 1983	Assistant Manager of Revenue Accounting Working as an intern, assisted with interline accounts, abstracts, waybills, UMLER file, etc. Audited interline settlements and identified over \$300,000 owed to the company by other railroads. Analyzed the company's physical assets including all track components, infrastructure and property to support an NLV assessment that was a critical component of a successful debt refinancing.

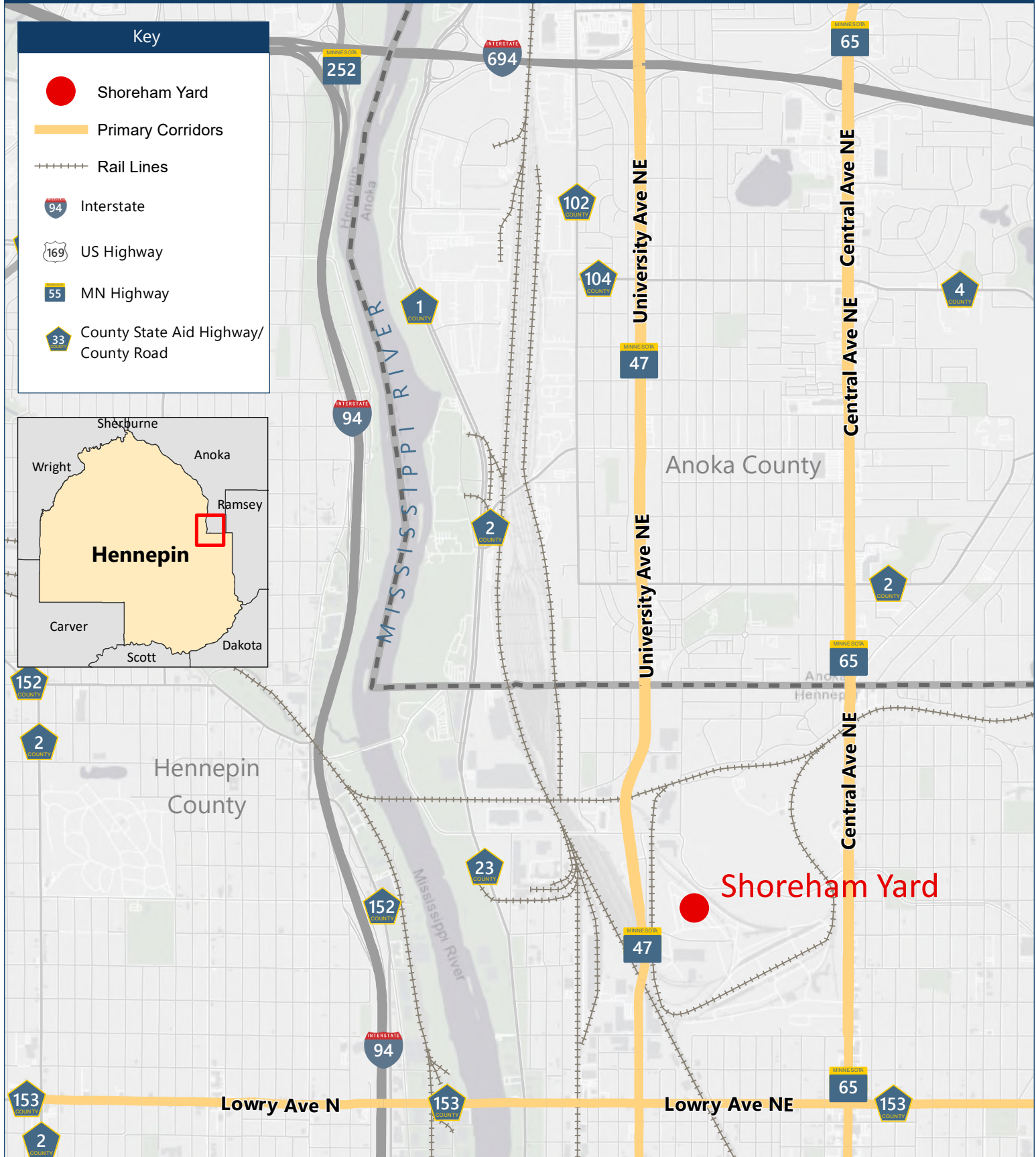
EXHIBIT 1-B

Shoreham Yard Overview Map

Primary Freight Corridors to CP - Shoreham Yard

HENNEPIN COUNTY
MINNESOTA

Hennepin County Public Works



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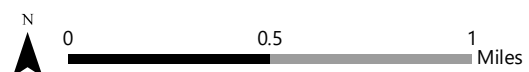


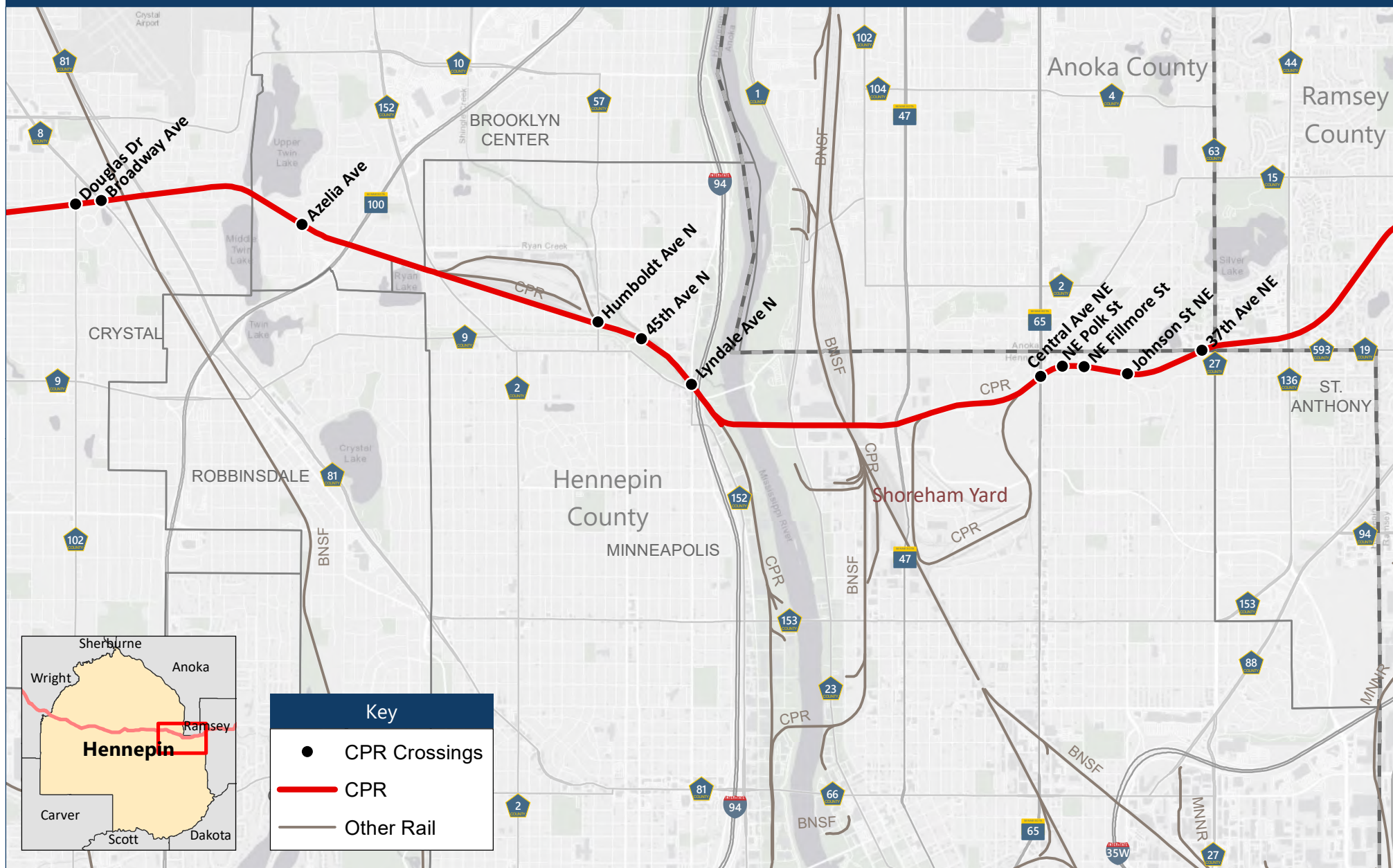
EXHIBIT 1-C

CP At Grade Crossings Maps

CPR At-Grade Public Road Rail Crossings in Hennepin County

Map 1 of 3 | Hennepin County Public Works

HENNEPIN COUNTY
MINNESOTA



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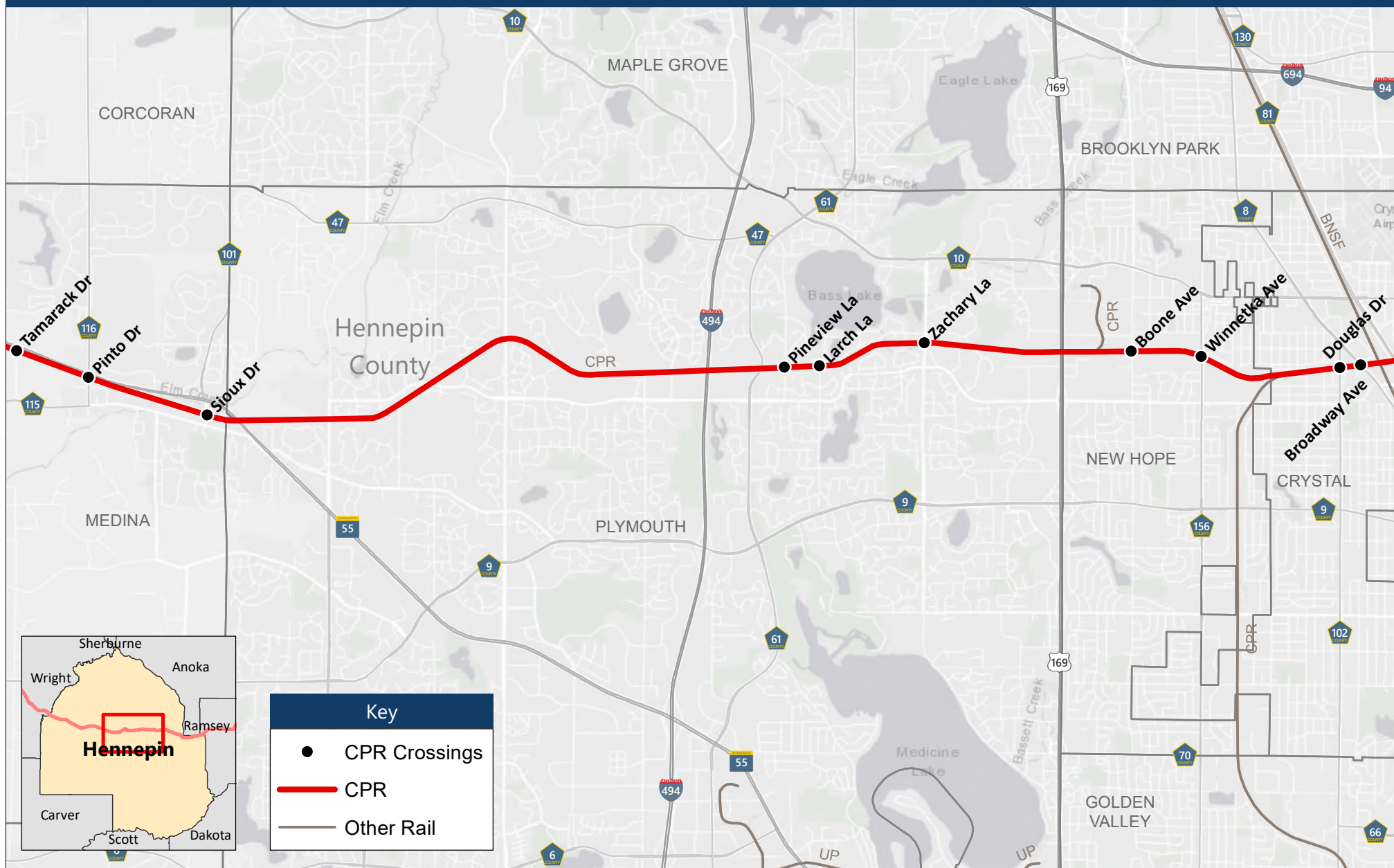
Data sources: Hennepin County, MnDOT



CPR At-Grade Public Road Rail Crossings in Hennepin County

Map 2 of 3 | Hennepin County Public Works

HENNEPIN COUNTY
MINNESOTA



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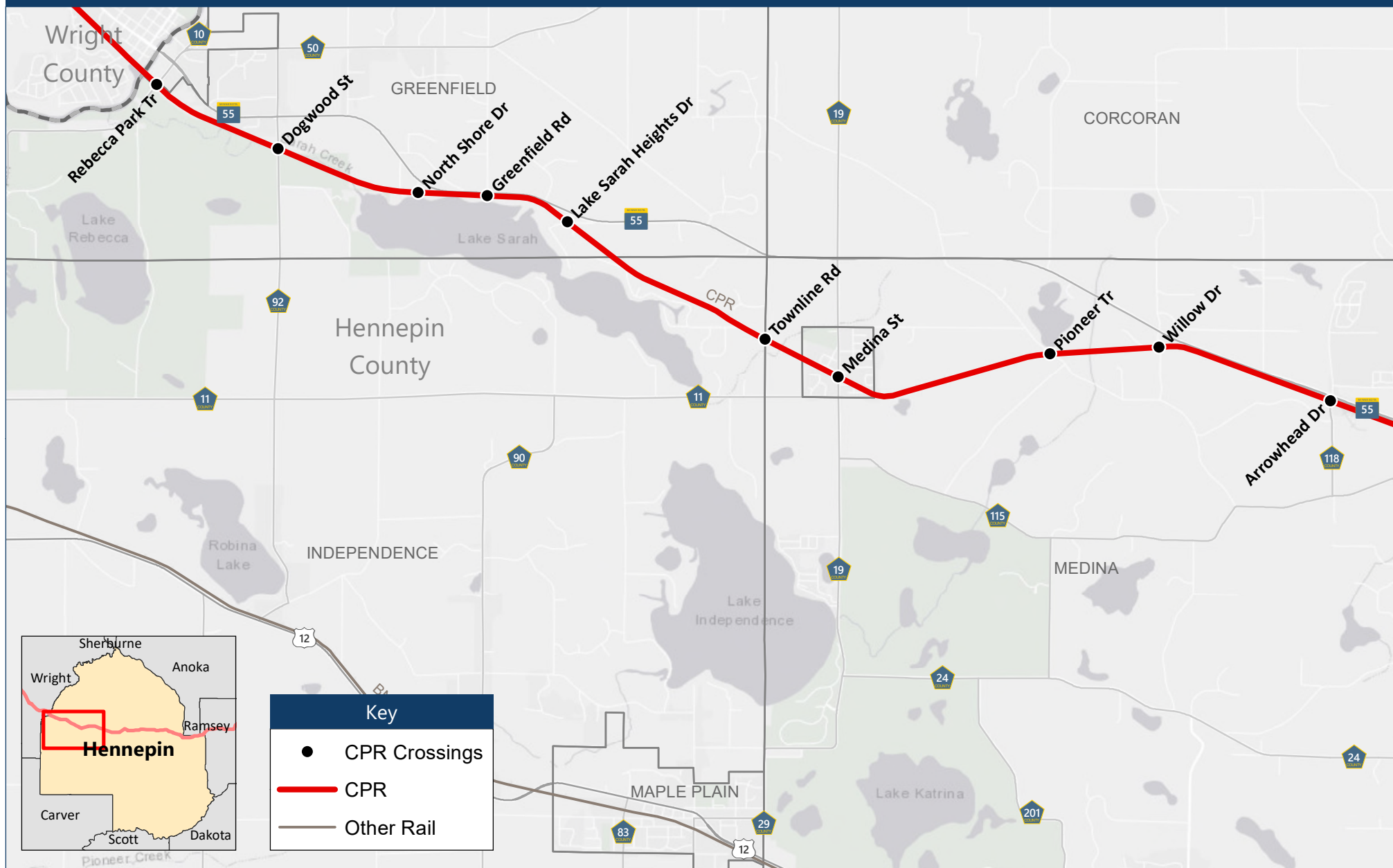
Data sources: Hennepin County, MnDOT



CPR At-Grade Public Road Rail Crossings in Hennepin County

Map 3 of 3 | Hennepin County Public Works

HENNEPIN COUNTY
MINNESOTA



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Publication date: 2/28/2022

Data sources: Hennepin County, MnDOT



EXHIBIT B

Verified Statement of Mark Amfahr

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

STB Finance Docket No. 36500

**CANADIAN PACIFIC RAILWAY LIMITED; CANADIAN PACIFIC RAILWAY
COMPANY; SOO LINE RAILROAD COMPANY; CENTRAL MAINE & QUEBEC
RAILWAY US INC.; DAKOTA, MINNESOTA & EASTERN RAILROAD
CORPORATION; AND DELAWARE & HUDSON RAILWAY COMPANY, INC. –
CONTROL – KANSAS CITY SOUTHERN, THE KANSAS CITY SOUTHERN
RAILWAY COMPANY, GATEWAY EASTERN RAILWAY COMPANY,
AND THE TEXAS MEXICAN RAILWAY COMPANY**

VERIFIED STATEMENT OF MARK AMFAHR

1. I am Mark Amfahr. I am an independent consultant providing assistance to Hennepin County and the Hennepin County Regional Railroad Authority (“HCRRA”) on rail-related matters.
2. On February 28, 2022, I submitted a Verified Statement as part of Hennepin County and HCRRA’s Comments before the Surface Transportation Board, Finance Docket No. 36500. I incorporate herein the statements and representations made in my February 28, 2022, Verified Statement and add the following additional information.
3. I have reviewed the Draft Environmental Impact Statement (“DEIS”) issued in this matter and am familiar with its contents.
4. Canadian Pacific (“CP”) owns 44% of the approximately 172 miles of freight rail infrastructure in Hennepin County as well as two railyards -- Humboldt and Shoreham.
5. Humboldt Yard is primarily a local switching and storage yard with an associated transload facility that handles building products. Shoreham Yard is the site of CP’s Minneapolis Intermodal Terminal and a transload terminal for agricultural products.

6. Shoreham Yard is located in a densely populated, diverse area of Hennepin County, surrounded by residential and commercial activity.

Truck Traffic at Shoreham Yard

7. To understand the actual amount of truck traffic entering and exiting Shoreham Yard on a typical day, I utilized the data provided to me by Hennepin County traffic engineers attached hereto as Attachment A. Hennepin County traffic engineers collected traffic data during full 24-hour periods on four days, Thursday March 17, Saturday March 19, Sunday March 20, and Tuesday March 22, 2022. The study was prepared using the methodology described in Attachment A. The sample days are believed to be typical, representative days, not falling before or after a holiday and with no weather-related issues impacting traffic. As outlined in Attachment A, traffic engineers counted all trucks believed to be associated with CP's Minneapolis Intermodal Terminal at Shoreham Yard. The trucks counted included those handling containers, those entering or leaving without an attached trailer (tractor only), and those handling an empty container chassis. The latter two groups of trucks were included in the counts since Hennepin County traffic engineers and I believed them to be dropping or picking up containers at the Minneapolis Intermodal Terminal.

8. On those dates, the total number of container-related truck movements entering or leaving CP's Minneapolis Intermodal Terminal were: 1,271 on March 17, 77 on March 19, 17 on March 20, and 1,484 on March 22.

9. On those four days, 1,177 trucks, or 41% of all container-related truck movements, were observed by Hennepin County traffic engineers entering or leaving on the University Avenue side of the Minneapolis Intermodal Terminal while 1,672, or 59% of all truck movements, were observed moving via Central Avenue east of the Terminal.

10. Information contained in Appendix C, Table C.1-2 of the DEIS indicates that CP estimates Shoreham Yard will generate 279 Over the Road (“OTR”) trucks per day in 2027 if the Acquisition is not approved and 332 trucks per day in 2027 if the Acquisition is approved. Given the discrepancy between CP’s counts as listed in the DEIS and the actual counts in Hennepin County’s March 2022 traffic sample, I believe that CP has not fully considered all truck movements generated by its Minneapolis Intermodal Terminal.

11. It is possible that CP did not fully account for many of the “ancillary” truck movements that are often associated with container terminal operations. Ancillary movements may include extra truck movements that result when containers are dropped or picked up at intermodal terminals without a load to haul in the reverse direction. They may be tractors without trailers, or tractors hauling a chassis without a container. There may also be movements of loaded containers being shuttled to or from remote storage sites. Examples of each type of movement were observed during the study period. It is possible that this large discrepancy resulted from CP’s failure to fully account for these ancillary truck movements.

12. Additional truck movements could also occur on local roadways when it is necessary to reposition containers within the Shoreham Yard. In one case that I observed, a truck exited Shoreham at 29th Avenue, traveled south on Central Avenue then reentered the terminal at 28th Avenue. Presumably, that truck repositioned a container within the terminal, but it used Central Avenue to do so. Movements like this are most likely not considered in CP’s estimates.

13. Ancillary movements are a normal part of any intermodal operation and can add significantly to daily truck traffic on nearby roadways. Since these ancillary movements represent inefficiency in the operation, there are ongoing efforts to minimize them. However,

despite these efforts, ancillary truck movements still represent a significant percentage of total truck trips on area roadways.

14. Ancillary truck movements are a significant portion of total truck movements at the Minneapolis Intermodal Terminal. While they represent only a portion of all ancillary truck movements associated with the Minneapolis Intermodal Terminal, Hennepin County survey data from March 2022 found 14% of all truck trips operated without a trailer and 22% operated in or out with an empty chassis (without a container). Those categories are listed as “tractor” and “empty” respectively in the **Attachment A** data. In addition to these categories, there are other ancillary truck movements that may include repositioning or otherwise handling empty containers.

15. Using the methodology outlined in **Attachment A** utilizing the March 2022 survey data, I estimate that the average daily truck traffic associated with CP’s Shoreham Yard is 976. This figure significantly exceeds the daily figures of 279 and 332 OTR Trucks per Day anticipated by the Applicants in 2027 (DEIS Appendix C, Table C.1-2). Since CP’s figures understate current traffic counts so significantly, I believe it is appropriate to question the validity of CP’s projections – both the 2027 forecast figures and the additional traffic expected with the Acquisition.

16. Based on Hennepin County’s 2022 traffic survey results and associated observations and calculations, I believe that the data listed in the DEIS understates the magnitude of truck traffic entering and exiting Shoreham Yard. On that basis, OEA should conduct a further review of traffic data and forecasts to resolve this discrepancy and study the harm resulting from the increase in truck movements to Hennepin County and its residents.

Truck Traffic in Minneapolis Neighborhoods

17. All truck access into and out of Shoreham Yard is from two busy urban streets:

University Avenue on the west, and Central Avenue to the east.

18. Shoreham Yard is located in a densely populated, diverse area of Minneapolis. The City of Minneapolis identified University and Central Avenues as “high injury streets” in their Vision Zero Project due to their above average incidence of injuries and fatalities (see **Attachment B**).

19. Central Avenue, where CP recently built new gates and street access routes, is a busy commercial corridor. Hennepin County traffic data from March 2022 shows that 59% of all truck movements related to CP’s Shoreham terminal traveled via Central Avenue. 72% of those trucks traveled to/from the south along Central Avenue. Central Avenue south of Shoreham is one of the most heavily congested roadways in the area, with dense commercial and residential activity along the entirety of the route.

20. The additional truck traffic generated by the proposed Acquisition will expose local residents and businesses to material increases in noise and harmful emissions, while increasing traffic congestion and risk of accident and injury.

21. To quantify the impacts of CP's truck traffic on metro area residents, I utilized the methodology suggested in USDOT’s Benefit-Cost Analysis Guidance. See **Benefit Cost Analysis Guidance 2022 (Revised).pdf (transportation.gov)** (“BCA”). On the attached spreadsheet, **Attachment C**, I applied cost factors and formulas from the BCA Guidance to the estimated truck-miles generated by CP’s Shoreham facility. Calculations were made for the following three scenarios.

22. CP-KCS 2027 Base: This data represents the truck traffic that CP expects Shoreham Yard to generate in 2027 if the Acquisition is not approved. The annual figure of 203,670 is

derived from Applicant's data shown in DEIS Appendix I, Table I.2-1. Using the BCA methodology, those trucks would collectively impose costs of \$2.5 million on Twin Cities area residents each year. The estimated annual cost burden to area residents from health impacts associated with truck emissions and noise is \$836,319.

23. Hennepin County Traffic Survey: The figures in this scenario are based upon the Hennepin County traffic survey conducted in March 2022 which is believed to reflect 2022 traffic levels. At these current levels - which, as noted above, are significantly greater than CP figures shown in the DEIS - a total of 356,240 annual truck trips are expected near Shoreham Yard. Applying the same cost factors suggested in the BCA Guidance, truck traffic would impose costs totaling \$4.4 million annually on Twin Cities metro residents, with \$1.5 million of that amount resulting from environmental and health impacts to those residents.

24. Additional Merger: The calculations in this scenario are based upon the 53 daily trucks that CP anticipates adding with the Acquisition. Applying the BCA methodology, additional costs of \$476,976 would be borne annually by metro area residents. It is important to note that only a small fraction of those additional societal costs would be offset by increases in taxes and other revenue (e.g. fuel taxes) – local residents and government agencies will be left with most of the burden of the additional truck traffic.

25. As discussed above, CP's daily truck counts significantly understate the number of truck movements that result from the merger given the actual daily truck movements observed by Hennepin County traffic engineers. The social impacts to the Twin Cities will, therefore, be significantly higher as well.

26. While OEA anticipates that the diversion of many trucks to CP's long-haul rail service may provide benefits overall to the larger network of truck traffic, there will be offsetting,

negative impacts locally. With diversion to CP's intermodal service, long-haul truck traffic that was formerly dispersed throughout the Midwestern region on a variety of routes will become highly concentrated on local roadways in the Twin Cities area as they travel to/from CP's Minneapolis Intermodal Terminal. The diversion of the long-haul trucks from primarily rural, interstate routes onto urban roadways to reach the Minneapolis Intermodal Terminal is expected to aggravate existing traffic and safety problems and concerns as outlined above.

27. These locally concentrated impacts will result in increased harmful emissions over time, which are known to increase health problems for area residents, result in lost work-days and higher medical costs for diseases such as asthma. Twin Cities metro residents will also have the additional burden of greater roadway maintenance costs, a higher incidence of crashes, injuries, and fatalities, and additional travel time due to increased traffic congestion.

28. Given the disproportionate harm that diverted trucks would have on local residents, OEA should re-examine the impact that truck movements will have on air quality, safety, roadway maintenance costs, and traffic congestion in Hennepin County and throughout the Twin Cities metro area.

Blocked Grade Crossings

29. Additional train traffic and increased cars moving on the Paynesville Subdivision as a result of the Acquisition are expected to negatively impact blockages at grade crossings in Hennepin County.

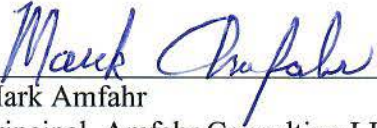
30. Some of these crossings are located in a densely populated portion of Hennepin County. In many areas grade separations are not readily available to provide an alternate route. This means that additional crossing blockages will likely result in additional delays to vehicles at crossings.

31. The Humboldt Avenue North crossing in Minneapolis is the most concerning. It lies just to the east of CP's Humboldt Yard, a crossing that is frequently blocked not just by CP's mainline traffic but also by yard and industry switching activities in and around Humboldt Yard.

32. Minneapolis Fire Station 20 is located immediately north of the CP crossing on Humboldt Avenue. First responders from this station are responsible for the residential neighborhoods located south of the CP crossing. Crossing blockage already impedes their ability to respond quickly and reliably to emergencies south of the crossing. Additional merger traffic that would increase crossing blockage time would further impede their efforts to respond to emergencies in those neighborhoods.

33. If the increased merger traffic levels on the Paynesville Subdivision prompt an increase in CP's use of the Humboldt Yard – for switching, storage, block swapping, or other activities – crossing blockage of North Humboldt Avenue will increase.

I, Mark Amfahr, declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this Verified Statement.


Mark Amfahr
Principal, Amfahr Consulting LLC

Executed on October 14, 2022.

ATTACHMENT A
TO EXHIBIT B

Shoreham Yard Traffic Counts
Traffic Sample Results March, 2022
Oct 14, 2022

Summary of Results

Thursday March 17, 2022

Vehicle Category	University					Central												Grand Total
	32nd Ave NE					28th Ave NE						29th Ave NE						
	entering from north		exiting to south			entering from north		exiting to south				entering from north		exiting to south				
	north	south	north	south	total	north	south	north	south	east	total	north	south	north	south	east	total	
Tractor	21	17	14	7	59	18	41	7	29	1	96	0	0	2	11	0	13	
Empty	17	42	20	46	125	26	46	3	22	0	97	0	0	4	78	0	82	
Small	47	22	17	21	107	4	16	3	6	0	29	0	0	5	22	0	27	
Large	95	34	80	37	246	56	129	37	40	0	262	0	0	27	99	2	128	
Total	180	115	131	111	537	104	232	50	97	1	484	0	0	38	210	2	250	

Saturday March 19, 2022

Vehicle Category	University					Central											Grand Total	
	32nd Ave NE					28th Ave NE					29th Ave NE							
	entering from		exiting to			entering from		exiting to			entering from		exiting to					
	north	south	north	south	total	north	south	north	south	east	total	north	south	north	south	east		total
Tractor	1	3	3	3	10	4	10	1	2	0	17	0	0	0	1	0	1	28
Empty	0	1	2	1	4	0	1	0	0	0	1	0	0	0	6	0	6	11
Small	1	1	1	0	3	0	0	0	0	0	0	0	0	0	1	0	1	4
Large	2	2	2	0	6	5	8	7	5	0	25	0	0	1	2	0	3	34
Total	4	7	8	4	23	9	19	8	7	0	43	0	0	1	10	0	11	77

Sunday March 20, 2022

Vehicle Category	University					Central											Grand Total	
	32nd Ave NE					28th Ave NE					29th Ave NE							
	entering from north		exiting to south			entering from north		exiting to south			entering from north		exiting to south					
	north	south	north	south	total	north	south	north	south	east	total	north	south	north	south	east		total
Tractor	0	0	0	0	0	2	2	0	2	0	6	0	0	0	0	0	0	6
Empty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Small	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Large	0	0	0	0	0	1	4	2	3	0	10	0	0	0	0	0	0	10
Total	0	0	0	0	0	3	6	2	5	0	16	0	0	0	1	0	1	17

Tuesday March 22, 2022

Vehicle Category	University					Central												Grand Total
	32nd Ave NE					28th Ave NE						29th Ave NE						
	entering from		exiting to			entering from		exiting to				entering from		exiting to				
	north	south	north	south	total	north	south	north	south	east	total	north	south	north	south	east	total	
Tractor	15	30	16	19	80	42	23	8	29	0	102	0	0	2	19	1	22	204
Empty	30	72	6	24	132	19	88	4	10	0	121	0	0	3	46	0	49	302
Small	40	15	31	20	106	23	20	3	12	0	58	0	0	2	32	1	35	199
Large	72	47	112	68	299	81	129	27	48	0	285	0	0	32	163	0	195	779
Total	157	164	165	131	617	165	260	42	99	0	566	0	0	39	260	2	301	1484

Estimation of Annual Traffic

March 17 Thursday actual	1271	
March 22 Tuesday actual	1484	
Average of Two Weekdays	1378	average of two daily figures
March 19 Saturday actual	77	
March 20 Sunday actual	17	
total weekdays	351,263	255 per year
total Saturdays	4,004	52 per year
total Sundays & Holidays	986	58 per year, including holidays
Estimated annual:	356,253	
Av. Annual Daily Traffic	976	Annual figure / 365

Routes taken by trucks

to/from:	Univ.	Central	Total	% of total
North	645	461	1106	39%
East/W.	0	5	5	0.2%
South	532	1206	1738	61%
Total	1177	1672	2849	
% of total	41%	59%		

<--- % of all trucks entering and leaving the terminal.

72% of all truck movements operating via Central Avenue moved to/from the south (1206 / 1672 = 72.1%).

Figures are the sum of Shoreham truck traffic counts noted during the four days.

Shoreham Yard Traffic Counts

Traffic Sample Results March, 2022

Methodology

Video cameras were placed at intersections where vehicles enter and leave CP's Shoreham Terminal in Minneapolis.

Cameras recorded full 24-hour periods each day for a week.

Vehicle traffic each day was counted manually by Hennepin County transportation planning staff by viewing recordings.

Vehicles were counted for each 15-minute period throughout each day.

Each vehicle was placed into a category based upon its characteristics:

Pass	Passenger vehicle
SU	Single unit commercial vehicle, 6 tires or more
MU	Multi unit, semi truck, or flatbed trailer that is not designed to haul shipping containers
Tractor	Semi truck tractor only, does not have a trailer with it
Empty	Semi truck with an empty trailer (chassis only), no shipping container on it
Small	Semi truck with a small shipping container, 20 ft approximately
Large	Semi truck with a large shipping container, 40-50 ft approximately

To assess only container-related vehicle traffic in/out of CP's Shoreham Yard, categories Pass, SU, and MU were excluded from the counts.

A single movement of a vehicle through an intersection was counted as one vehicle in the traffic count. A truck that passes through an intersection multiple times, such as entering and leaving the terminal, would generate multiple vehicle counts through that intersection.

To obtain a sample of current traffic volumes, vehicle movements during four complete days were counted; March 17, 19, 20 & 22.

Detailed counts for each day are shown on attached sheets (see tabs below); traffic figures are linked to the summary table on the preceeding sheet.

Pass	Passenger vehicle
SU	Single unit commercial vehicle, 6 tires or more
Tractor	Semi truck tractor only, does not have a trailer with it
Empty	Semi truck with an empty trailer, no shipping container on it
Small	Semi truck with a small shipping container, 20 ft approximately
Large	Semi truck with a large shipping container, 40-50 ft approximately

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Empty	Semi truck with an empty trailer, no shipping container on it
Small	Semi truck with a small shipping container, 20 ft approximately
Large	Semi truck with a large shipping container, 40-50 ft approximately

Date:	Eastbound												Southbound					Northbound							
3/17/2022	Left					Thru					Right					Right					Left				
Time	Pass	SU	Tractor	Empty	Small	Large	Pass	SU	Tractor	Empty	Small	Large	Pass	SU	Tractor	Empty	Small	Large	Pass	SU	Tractor	Empty	Small	Large	
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Empty	Semi truck with an empty trailer, no shipping container on it
Small	Semi truck with a small shipping container, 20 ft approximately
Large	Semi truck with a large shipping container, 40-50 ft approximately

Date:	Eastbound												Southbound					Northbound									
3/19/2022	Left						Thru						Right					Right					Left				
Time	Pass	SU	Tractor	Empty	Small	Large	Pass	SU	Tractor	Empty	Small	Large	Pass	SU	Tractor	Empty	Small	Large	Pass	SU	MU	Tractor	Empty	Small	Large		
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Large	Semi truck with a large shipping container, 40-50 ft approximately

Date:	Eastbound												Southbound					Northbound												
3/20/2022	Left						Thru						Right						Right						Left					
Time	Pass	SU	Tractor	Empty	Small	Large	Pass	SU	Tractor	Empty	Small	Large	Pass	SU	Tractor	Empty	Small	Large	Pass	SU	MU	Tractor	Empty	Small	Large					
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22:00	2																		2											
22:15																														
22:30													1																	
22:45	1																								1					
23:00																									1					
23:15																														
23:30																														
23:45	1																													

Pass	Passenger vehicle
SU	Single unit commercial vehicle, 6 tires or more
MU	Multi unit or semi truck that is not hauling shipping containers
Tractor	Semi truck tractor only, does not have a trailer with it
Empty	Semi truck with an empty trailer, no shipping container on it
Small	Semi truck with a small shipping container, 20 ft approximately
Large	Semi truck with a large shipping container, 40-50 ft approximately

Shoreham Yard Traffic Counts - Traffic Sample Results March, 2022 - Central, 28th; 3-22

Date:	Eastbound																	
3/17/2022	Left						Thru						Right					
Time	Pass	SU	Tractor	Empty	Small	Large	Pass	SU	Tractor	Empty	Small	Large	Pass	SU	Tractor	Empty	Small	Large
0:00																		
0:15																		
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6:30																1		
6:45				1												1		
7:00						1								1		2		1
7:15																1		1
7:30						1										1		
7:45					1													1
8:00						1										1		1
8:15						1										3	1	2
8:30																2		4
8:45																4		3
9:00						1								1		3	1	2
9:15				1		1										1		1
9:30															2			1
9:45						2									4			2
10:00											1				2			5
10:15															2		1	
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11:00						2												2
11:15						2						1				2		2
11:30																2		3
11:45					1	1										4	2	
12:00						1										4	2	5
12:15																1		2
12:30						1											1	3
12:45					1	1										2	1	2
13:00																1		2
13:15																1		3
13:30			1		1										1			2
13:45															1	5	2	2
14:00																2	2	
14:15																1		2
14:30																3		4
14:45					1	1										4	2	2
15:00						1											1	1
15:15						1											2	1
15:30						1										1		2
15:45																		4
16:00				1		1										2		4
16:15						2												5
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17:30						1												2
17:45						1												4
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Total	0	0	2	4	5	27	0	0	0	0	0	2	0	0	11	78	22	99

Pass	Passenger vehicle
SU	Single unit commercial vehicle, 6 tires or more
Tractor	Semi truck tractor only, does not have a trailer with it
Empty	Semi truck with an empty trailer, no shipping container on it
Small	Semi truck with a small shipping container, 20 ft approximately
Large	Semi truck with a large shipping container, 40-50 ft approximately

Date:	Eastbound																	
3/19/2022	Left						Thru						Right					
Time	Pass	SU	Tractor	Empty	Small	Large	Pass	SU	Tractor	Empty	Small	Large	Pass	SU	Tractor	Empty	Small	Large
0:00																		
0:15																		
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Total	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	6	1	2

Pass	Passenger vehicle
SU	Single unit commercial vehicle, 6 tires or more
Tractor	Semi truck tractor only, does not have a trailer with it
Empty	Semi truck with an empty trailer, no shipping container on it
Small	Semi truck with a small shipping container, 20 ft approximately
Large	Semi truck with a large shipping container, 40-50 ft approximately

Date:	Eastbound																	
3/20/2022	Left						Thru						Right					
Time	Pass	SU	Tractor	Empty	Small	Large	Pass	SU	Tractor	Empty	Small	Large	Pass	SU	Tractor	Empty	Small	Large
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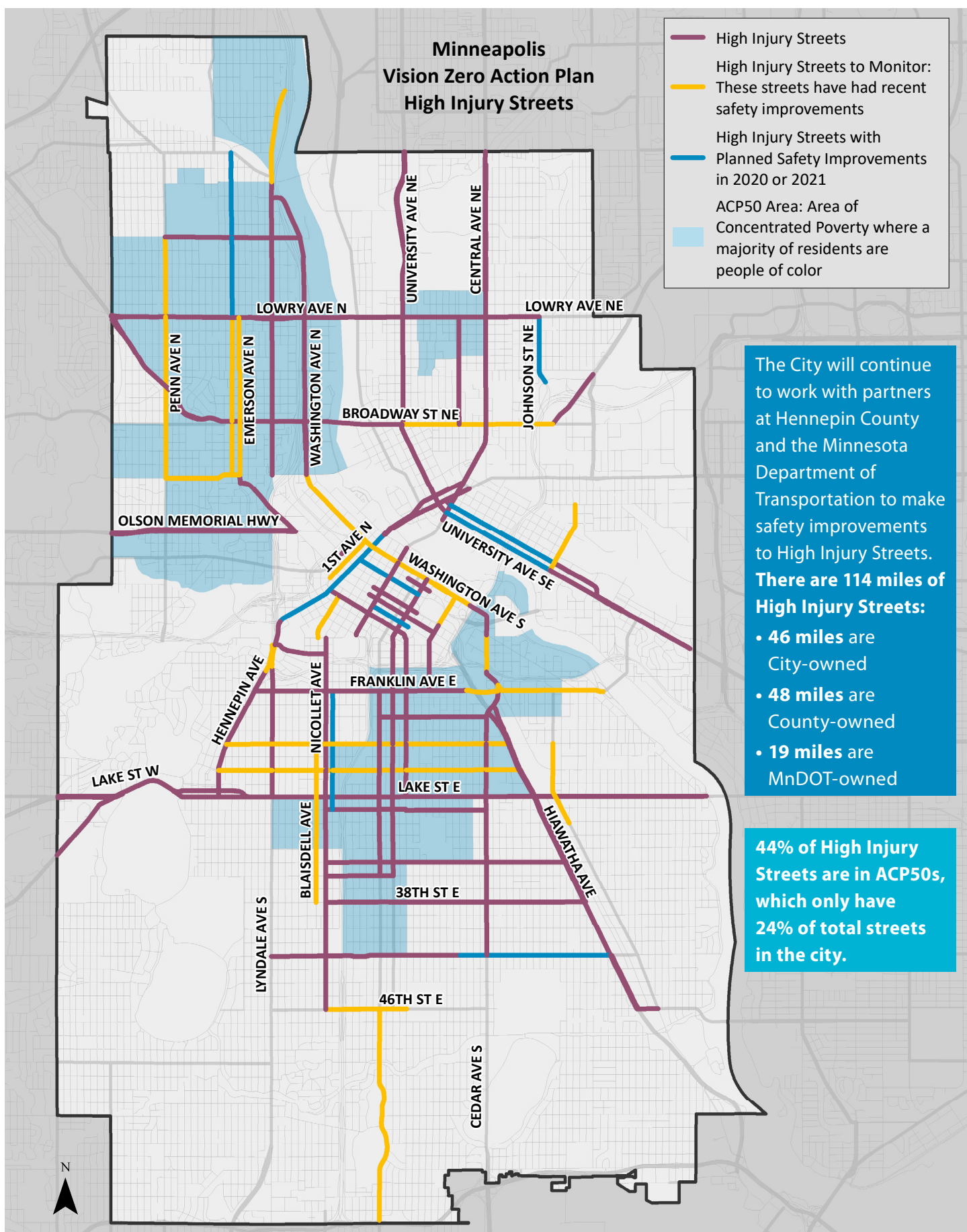
Pass	Passenger vehicle
SU	Single unit commercial vehicle, 6 tires or more
Tractor	Semi truck tractor only, does not have a trailer with it
Empty	Semi truck with an empty trailer, no shipping container on it
Small	Semi truck with a small shipping container, 20 ft approximately
Large	Semi truck with a large shipping container, 40-50 ft approximately

Pass	Passenger vehicle
SU	Single unit commercial vehicle, 6 tires or more
Tractor	Semi truck tractor only, does not have a trailer with it
Empty	Semi truck with an empty trailer, no shipping container on it
Small	Semi truck with a small shipping container, 20 ft approximately
Large	Semi truck with a large shipping container, 40-50 ft approximately

ATTACHMENT B

TO EXHIBIT B

Strategy: Make safety improvements on High Injury Streets.



ATTACHMENT C
TO EXHIBIT B

CP Minneapolis Intermodal Truck Traffic

Social Cost Estimates

Oct 14, 2022

Social Cost Category	CP-KCS 2027 Base	Henn. County Traffic Survey	Additional Merger
Truck trips generated annually	203,670	356,240	38,690
Truck-miles in the metro area	2,342,205	4,096,760	444,935
Gallons of fuel burned:			
Road	390,368	682,793	74,156
Terminal	54,312	94,997	10,317
Roadway maintenance costs	\$ 423,002	\$ 739,875	\$ 80,355
Highway congestion costs	\$ 740,858	\$ 1,295,838	\$ 140,736
Vehicle noise	\$ 110,786	\$ 193,777	\$ 21,045
Accident costs (crashes, injuries, fatalities)	\$ 510,694	\$ 893,258	\$ 97,014
Health Impacts of Emissions:			
CO2 (carbon dioxide)	---	---	---
NOx (nitrogen oxides)	\$ 340,130	\$ 594,922	\$ 64,612
PM2.5 (particulate matter)	\$ 383,522	\$ 670,820	\$ 72,855
SO2 (sulfur dioxide)	\$ 1,881	\$ 3,290	\$ 357
Subtotal - Vehicle Costs	\$ 1,674,555	\$ 2,928,970	\$ 318,105
Subtotal - Environmental	\$ 836,319	\$ 1,462,809	\$ 158,871
Total Social Cost of Truck Traffic	\$ 2,510,874	\$ 4,391,780	\$ 476,976

Each "trip" is a vehicle entering or leaving the facility.

Figures represent sum of estimated distances traveled within the metro area.

calculated based upon consumption figures below.
estimated based upon consumption during terminal dwell time.

calculated based upon FHWA factors below.

calculated based upon FHWA factors below.

calculated based upon FHWA factors below.

calculated based upon FHWA factors below.

not valued as a direct, local health cost.
calculated based upon EPA factors below.
calculated based upon EPA factors below.
calculated based upon EPA factors below.

Sum of Noise category and Emissions categories.

Notes:

"CP-KCS 2027 Base" reflects traffic forecast shown by applicants for 2027; includes organic traffic growth but without the merger.

"Hennepin Co. Traffic Survey" is based upon traffic surveys conducted by Hennepin County March 17, 19 & 22, 2022; traffic entering and leaving Shoreham Yard.

"Additional Merger" quantifies only the impacts of merger-related truck traffic, above what is anticipated in the "CP-KCS 2027 Base" scenario.

Estimate of Urban Truck Mileage

Truck Movements - CP Intermodal:	
Annual truck trips (CP-KCS 2027 base)	203,670
Annual truck trips (Henn. Co. survey)	356,240
Annual truck trips added by merger (CP-KCS)	38,690

Source:

279 "trucks" / day x 2 = 558 daily truck trips x 365 = 203,670 annual truck trips. From DEIS Appendix I, Table I.2-1.
estimated based upon March 2022 Hennepin County traffic samples; assumes AADT 976 x 365 = 356,240.

53 "trucks" / day x 2 = 106 daily truck trips x 365 = 38,690 annual truck trips. From DEIS Appendix C, Table C.1-2.

Estimated Mileage - Urban Drayage:		
Av. miles - metro pickup or delivery	7	estimated average mileage for pick ups or drops within MSP metro area.
Av. miles - regional drayage	16	estimated average mileage within urban area for all other drays (i.e.,to/from regional points such as Eau Claire, Mankato, etc)
Estimated Percentages; Truck Trips:		
Metro area customers	50%	percentage of customer facilities within MSP metro area (all mileage counted)
Regional drayage	50%	percentage of customer facilities outside of MSP metro area (only urban mileage counted)

	CP-KCS 2027 Base	Henn. County Traffic Survey	Additional Merger
Total Annual Truck Trips - CP Intermodal	203,670	356,240	38,690
MSP Urban Area Mileage Calculations:			
Metro area customers	712,845	1,246,840	135,415
Regional drayage	1,629,360	2,849,920	309,520
Total Urban Mileage - all drays	2,342,205	4,096,760	444,935
Hours of idling in terminal	67,890	118,747	12,897
Metric Tons of Emissions			
Carbon Dioxide (CO2)	4,527	7,918	860
Nitrogen Oxides (NOx)	22	38	4
Particulate Matter (PM2.5)	0.50	0.88	0.10
Sulfur Dioxide (SO2)	0.044	0.078	0.008

A "trip" is assumed to be a single vehicle movement from an origin to a destination. A truck driver entering the terminal and leaving would be counted as two "trips" for traffic impact purposes.

Fuel Consumption - Trucks

Factors Applied:

Average wait time in terminal 20 minutes

Sources and Notes:

estimated wait time for each truck trip; includes time to enter and leave gate, loading/unloading & misc. delays.

Truck Fuel Consumption

Over-the-road (gallons / mile)	6.0
Consumption per hour (idling)	0.8

FHWA Statistics 2018, Table VM-1. Accessed 02/11/20 at fhwa.dot.gov/policyinformation/statistics/2018/pdf/vm1.pdf
[How Much Gas Does Idling Waste? | Verizon Connect](#)

Social Costs - Truck Mileage

Cost Category	Base year \$	2022\$
Roadway Maintenance Cost (\$ per truck-mi)	\$ 0.105	\$ 0.181
Highway Congestion Costs (\$ per truck-mi)	\$ 0.184	\$ 0.316
Vehicle Noise (\$ per truck-mile)	\$ 0.0275	\$ 0.047
Accident Costs (\$ per truck-mile)	\$ 0.158	\$ 0.218

FHWA Federal Highway Cost Allocation Study (at: <https://rosap.ntl.bts.gov/view/dot/13476>), summary, Table ES-6; 60 kip 5-axle combination truck/urban interstate costs year 2000
FHWA Federal Highway Cost Allocation Study (at: <https://rosap.ntl.bts.gov/view/dot/13476>), summary, Table ES-6; 60 kip 5-axle combination truck/urban interstate costs year 2000
FHWA Federal Highway Cost Allocation Study (at: <https://rosap.ntl.bts.gov/view/dot/13476>), summary, Table ES-6; 60 kip 5-axle combination truck/urban interstate costs year 2000
USDOT: Large Truck and Bus Crash Facts 2009; Combination truck mileage from Table 16 page 22; Total accident costs for combination trucks from Table 71 page 68;
\$26,571 million in accident costs / 167,842 million vehicle miles = \$0.158 per vehicle mile traveled in 2009\$.

GDP Deflator factor applied (2000\$ --> 2022\$) : 1.72 (see note)

GDP Deflator factor applied (2009\$ --> 2022\$) :

1.38

 (see note)

Note: inflation adjustments based U.S. Government CPI data; factor obtained 10-11-2022 from: [Inflation Calculator | Find US Dollar's Value from 1913-2022 \(usinflationcalculator.com\)](#)

Truck Emissions

Emissions by type	Amount
Carbon Dioxide (CO2)	10180
Nitrogen Oxides (NOx)	9.191
Particulate Matter (PM2.5)	0.215
Sulfur Dioxide (SO2)	0.10

grams / gallon diesel fuel
grams / vehicle mile
grams / vehicle mile
grams / gallon diesel fuel

from EPA website: <https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>
found in Table 2, page 5 of EPA document: <https://nepis.epa.gov/Exe/ZyPDF.cgi/P100EYV6.PDF?Dockey=P100EYV6.PDF> VIIIa rating assumed
found in Table 2, page 5 of EPA document: <https://nepis.epa.gov/Exe/ZyPDF.cgi/P100EYV6.PDF?Dockey=P100EYV6.PDF> VIIIa rating assumed
found in footnote 631, page 269 of government document: <https://www.govinfo.gov/content/pkg/FR-2010-05-07/pdf/2010-8159.pdf>

Grams per metric ton conversion 1 :

1,000,000

Monetization of Truck Emissions

Metric ton values by emission type	2022 value
Carbon Dioxide (CO2)	\$ 53
Nitrogen Oxides (NOx)	\$ 15,800
Particulate Matter (PM2.5)	\$ 761,600
Sulfur Dioxide (SO2)	\$ 42,300

Emissions values obtained from Table A-6 of USDOT's Benefit-Cost Analysis Guidance for Discretionary Grant Programs, 2022 values applied:
[Benefit Cost Analysis Guidance 2022 \(Revised\).pdf \(transportation.gov\)](#)

EXHIBIT C

Canadian Pacific (CP) Rail Shoreham Expansion – Travel Demand Management Plan

To:	Allan Klugman, P.E., PTOE	From:	Tom Fidler, PE Mark Powers, EIT
	City of Minneapolis		Stantec Consulting Services Inc.
File:	1716	Date:	July 11, 2019

Reference: Canadian Pacific (CP) Rail Shoreham Expansion – Travel Demand Management Plan

INTRODUCTION

This memo was prepared in response to the City of Minneapolis' request for a Travel Demand Management Plan for the proposed expansion to the CP Rail Shoreham facility located between Central Avenue NE (TH 65), 27th Avenue NE, University Avenue NE (TH 47), and St. Anthony Parkway. The proposed expansion would increase the capacity of the intermodal yard allowing for an increase in shipping truck traffic. This would increase truck traffic entering the CP Rail property from Central Avenue at 28th Avenue and exiting onto Central Avenue at 29th Avenue. The purpose of this study is to review existing traffic conditions and evaluate any potential impacts on the corridor as result of the proposed expansion.

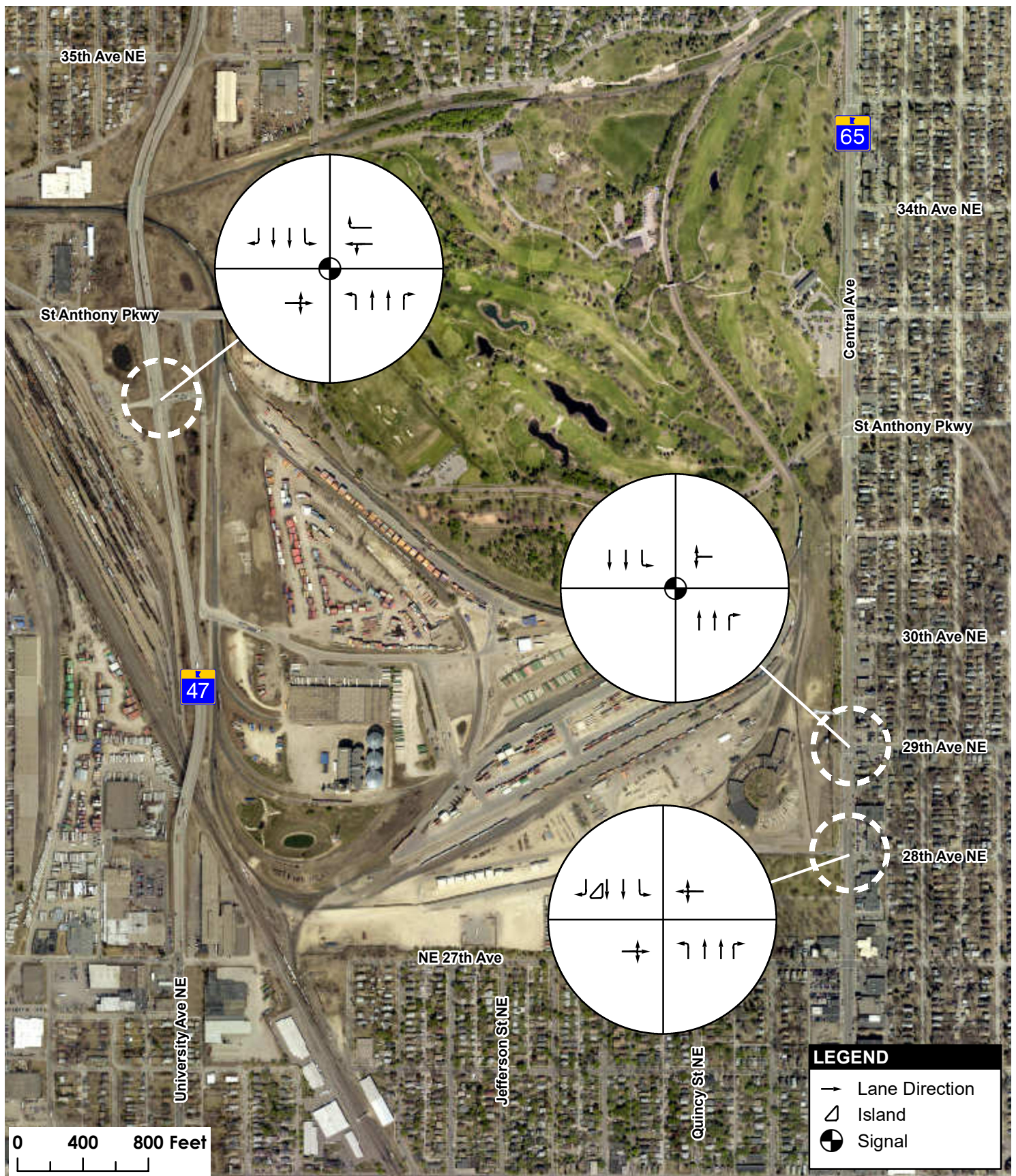
EXISTING CONDITIONS

Turning movement counts (TMC) were collected on Tuesday, May 21, 2019. TMC were collected for the AM and PM peak hours at three intersections:

- University Avenue NE & 32nd Avenue NE
- Central Avenue NE & 28th Avenue NE
- Central Avenue NE & 29th Avenue NE

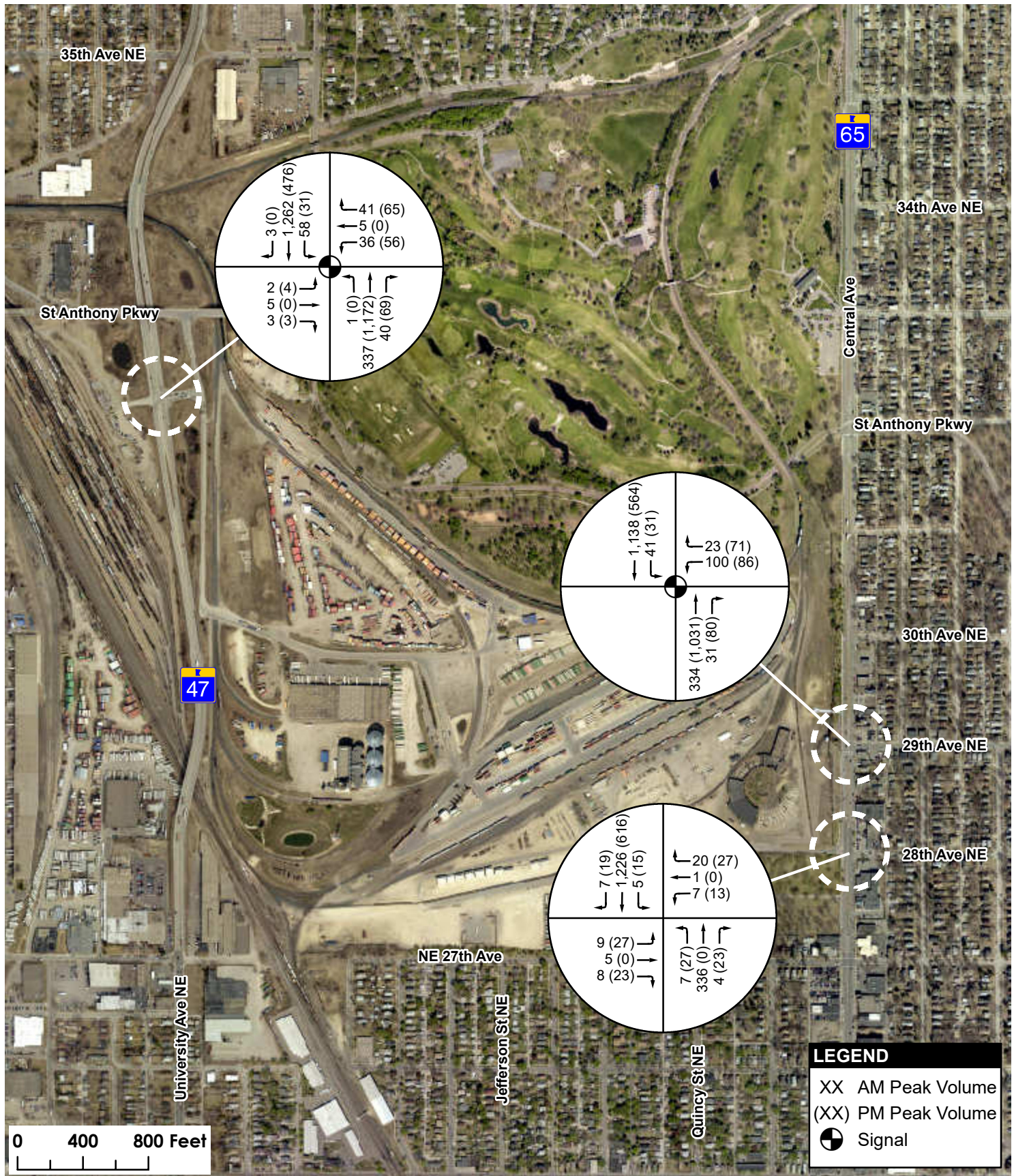
It was determined that weekend TMC would not be needed for this study. While the facility is open on weekends, empirical data provided by CP Rail shows that it is utilized at a rate of around 5% of that of a typical weekday.

Existing geometrics and traffic volumes can be found in Figure 1 and Figure 2, respectively.



Location Map and Existing Geometrics

Figure 1



Existing Peak Hour Movement Volumes

Figure 2

July 11, 2019

Allan Klugman, P.E., PTOE

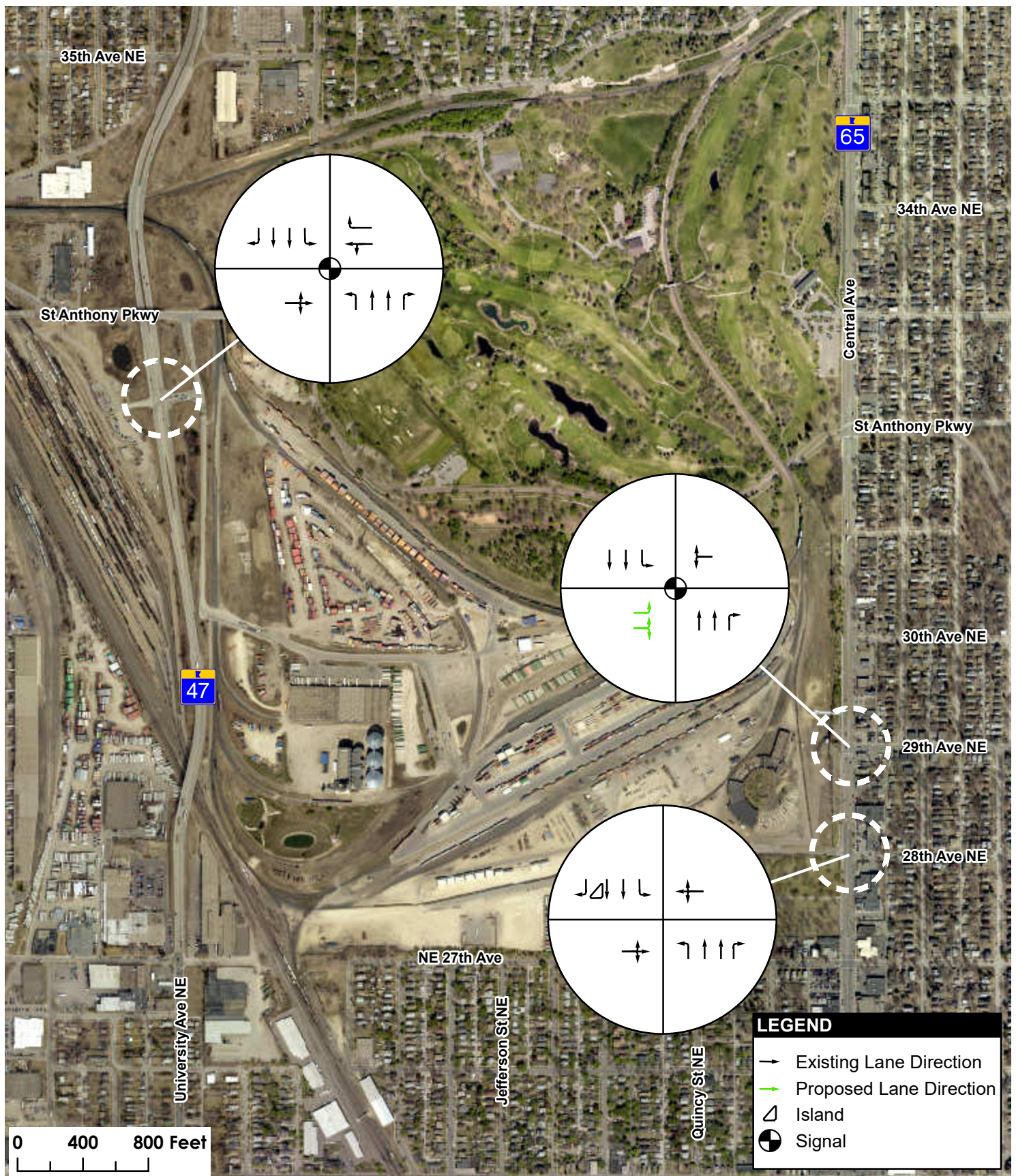
Page 4 of 13

Reference: Canadian Pacific (CP) Rail Shoreham Expansion – Travel Demand Management Plan

PROPOSED DEVELOPMENT

The proposed development will add a new entrance to the CP Rail facility on Central Avenue at 28th Avenue and add a new exit on Central Avenue at 29th Avenue. The new entrance at 28th Avenue would not change the geometrics of the current intersection. The new exit at 29th Avenue will be the west leg of the intersection. It is proposed to have a dedicated left-turn lane and a shared left-right-turn lane. There will be no receiving lane, as it will be one-way only for traffic exiting the facility.

The proposed geometrics are shown in Figure 3.



Proposed Geometrics

CP Rail Shoreham
Minneapolis, Minnesota

Figure 3

Reference: Canadian Pacific (CP) Rail Shoreham Expansion – Travel Demand Management Plan

TRIP GENERATION AND DISTRIBUTION

The trip generation performed for this site utilized the data obtained from the TMC, empirical data provided by CP Rail, assumptions made by CP Rail, and sound engineering judgement. Data provided by CP Rail shows that in the last ten years they experienced an average annual traffic growth rate of 6%. It is assumed that this rate would continue until the facility reached double its current traffic volumes.

CP Rail provided a spreadsheet that detailed all the exiting and entering traffic from its facility for January – May of 2019. An average weekday was shown to have an entering/exiting volume of 472 heavy vehicles (HV). On the day of data collection, the entering/exiting volume was 640 HV. The values obtained on this day were used as the baseline of the study to present a conservative analysis. Table 1 shows the peak hour trips used in the analysis.

Table 1 - Estimated Peak Hour & Daily Trips					
Year	AM		PM		Daily Total
	In	Out	In	Out	
Existing	43	44	30	53	640
2022	51	52	36	63	762
2039	86	88	60	106	1280

CP Rail estimates that 58% of entering and exiting traffic will use the new entrance and exit on Central Avenue once open. The remainder will use the existing access off University Avenue. The observed directional distribution from the TMC was used proportionally for both entrances and exits. The observed distributions are shown in Table 2.

Table 2 - Observed Trip Distribution							
AM				PM			
North		South		North		South	
In	Out	In	Out	In	Out	In	Out
0.44	0.57	0.56	0.43	0.37	0.6	0.63	0.4

SIMULATION ANALYSIS

Synchro/SimTraffic 10 was used to perform simulation analysis. The collected TMC along with signal timing plans provided by the City of Minneapolis were used to analyze the 3 intersections. The intersections were evaluated for existing conditions, build-year forecasted condition in 2022, and a 20-year forecasted condition in 2039. Both the AM and PM peak hours were analyzed. The results of the existing conditions analysis are shown in Table 3.

Reference: Canadian Pacific (CP) Rail Shoreham Expansion – Travel Demand Management Plan

Intersection	Direction	Movement	AM					PM				
			95 % Queue	Delay/ Vehicle	MVMT LOS	APPR LOS	LOS	95 % Queue	Delay/ Vehicle	MVMT LOS	LOS	LOS
Universtiy Ave & 32nd Ave	EB	Left	29'	51.6	D	C (23.7)	A (5.8)	16'	23.6	C	B (13.2)	A (6.6)
		Thru	29'	29.9	C			16'	-	-		
		Right	29'	8.9	A			16'	2.7	A		
	WB	Left	103'	30.1	C	B (16.3)		105'	30.5	C	B (18.0)	
		Thru	103'	19.5	B			105'	-	-		
		Right	78'	4.2	A			85'	8.4	A		
	NB	Left	4'	-	-	A (4.7)		-	-	-	A (6.6)	
		Thru	86'	4.9	A			168'	6.8	A		
		Right	48'	2.3	A			52'	2.8	A		
	SB	Left	55'	5.5	A	A (5.3)		62'	12.5	B	A (4.0)	
		Thru	146'	5.3	A			78'	3.4	A		
		Right	9'	1.3	A			-	-	-		
Central Ave & 28th Ave (unsignalized)	EB	Left	68'	17.3	C	C (16.5)	A (1.6)	97'	31.5	D	C (21.6)	A (1.9)
		Thru	68'	29.5	D			97'	-	-		
		Right	68'	10.1	B			97'	9.4	A		
	WB	Left	34'	10.9	B	A (5.7)		48'	29.6	D	B (15.0)	
		Thru	34'	16.5	C			48'	-	-		
		Right	34'	3.6	A			48'	8.8	A		
	NB	Left	22'	12.1	B	A (0.5)		39'	5.9	A	A (0.8)	
		Thru	-	0.3	A			7'	0.8	A		
		Right	-	0.7	A			4'	0.9	A		
	SB	Left	13'	4.3	A	A (1.5)		32'	9.3	A	A (1.3)	
		Thru	3'	1.5	A			4'	1.0	A		
		Right	-	1.5	A			-	1.8	A		
Central Ave & 29th Ave	WB	Left	130'	37.9	D	C (35.0)	A (6.7)	163'	39.6	D	C (30.8)	A (8.0)
		Right	130'	20.4	C			163'	20.3	C		
	NB	Thru	77'	3.2	A	A (3.1)		189'	6.8	A	A (6.5)	
		Right	33'	1.5	A			74'	3.3	A		
	SB	Left	61'	7.8	A	A (5.0)		46'	9.8	A	A (4.9)	
		Thru	195'	4.9	A			139'	4.7	A		

As the results show, there are currently no operational problems at the intersections. Movements experiencing LOS D are low in volume. All approaches operate at a LOS C or better, and the intersections operate at LOS A.

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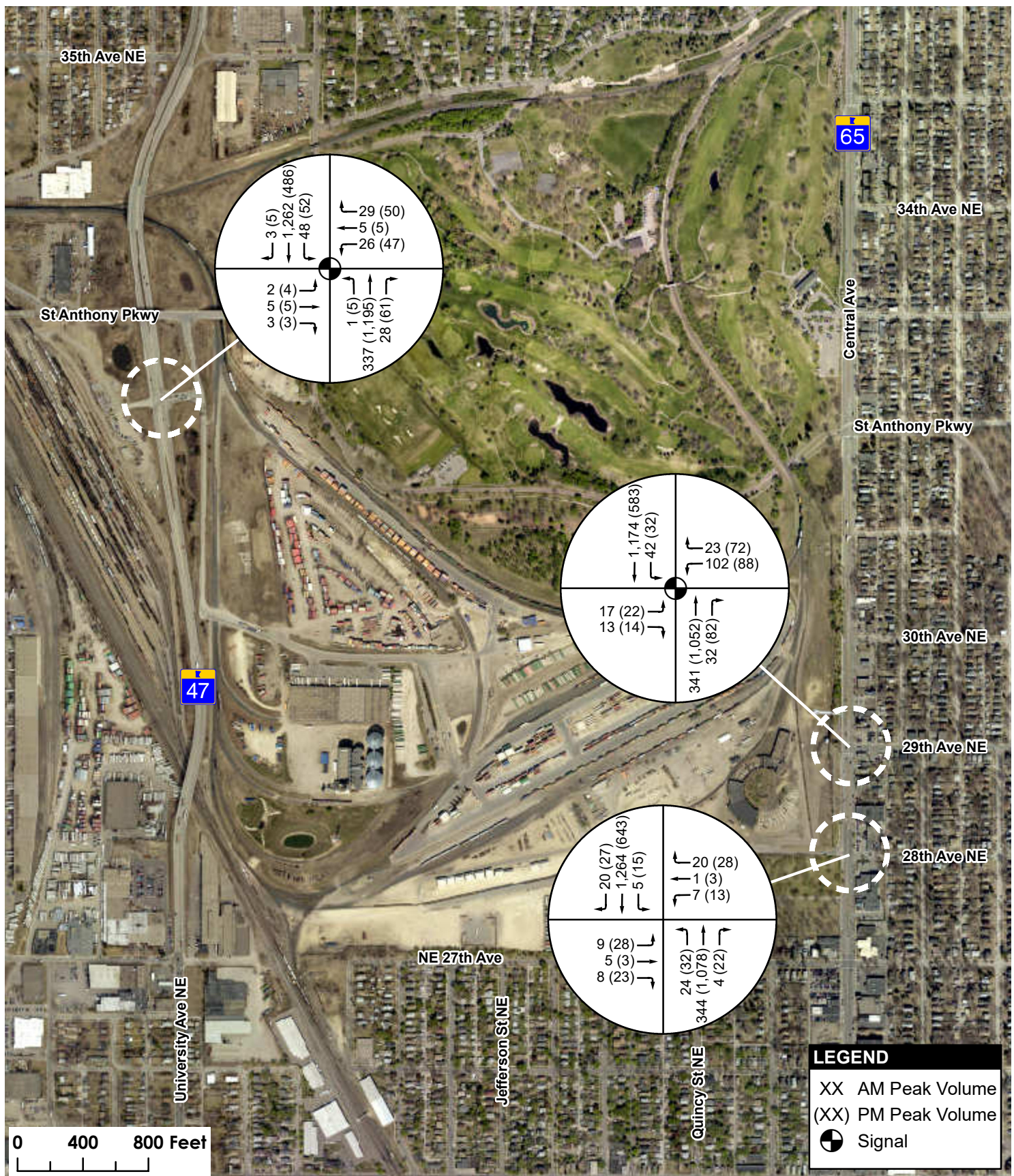
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Reference: Canadian Pacific (CP) Rail Shoreham Expansion – Travel Demand Management Plan

For the build-year and forecast analysis, the following changes were made to the model:

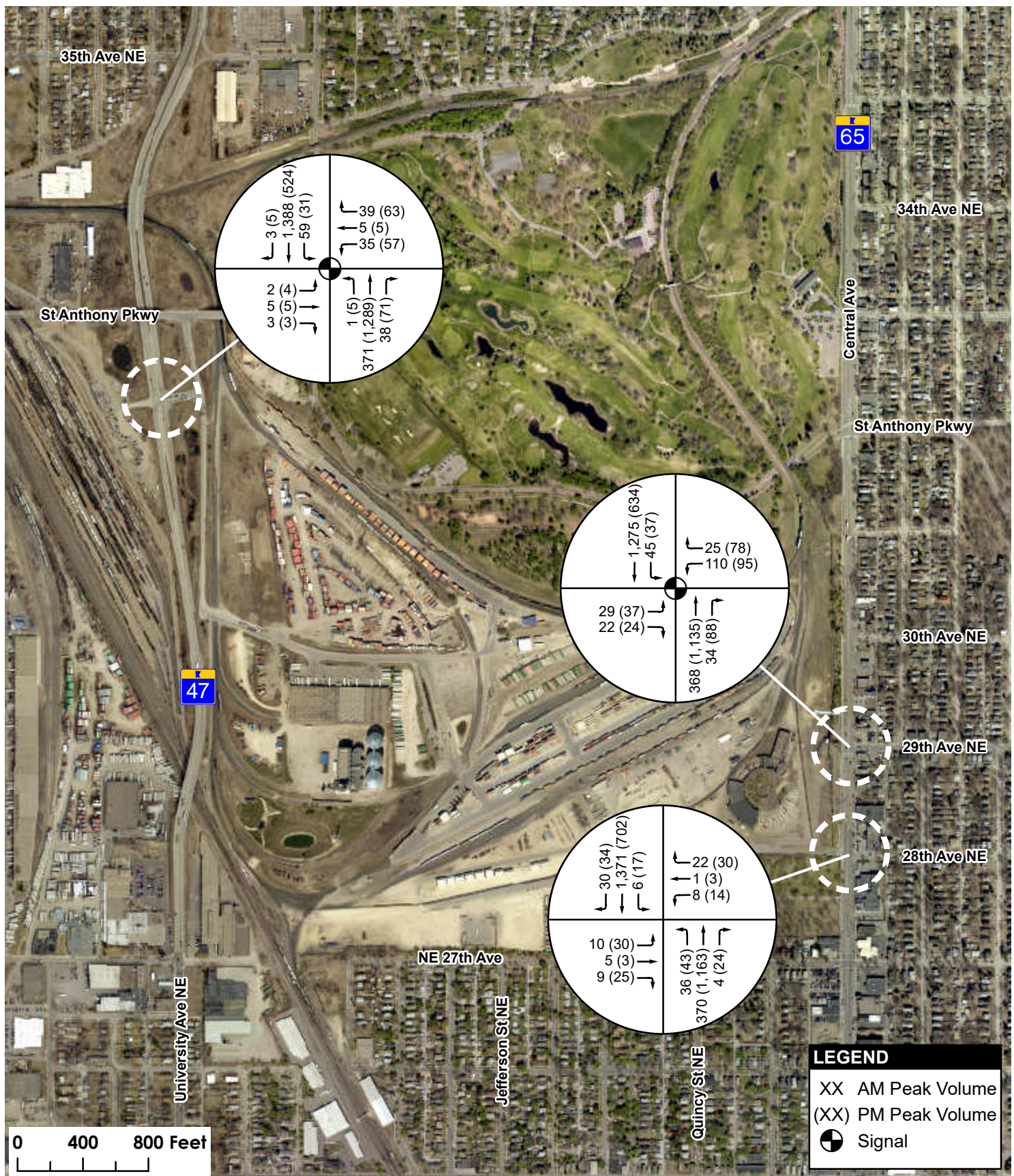
- Background traffic was increased by 0.5% annually. MnDOT State Aid lists Hennepin County as having a flat growth projection. The 0.5% annual growth was used for a more conservative analysis.
- An EB approach was added at the Central Avenue & 29th Avenue intersection. The approach has a dedicated left turn lane, and a shared left-right lane. There is no receiving lane on this leg, as it is an exit only.
- The EB/WB for Central Avenue & 29th Avenue is split phase. The split phase is needed to accommodate the dual left movement.
- The cycle length for Central Avenue & 29th Avenue was kept the same as it is currently. This allows for a more accurate comparison to the existing conditions by only showing the potential impacts of an additional phase and not the potential benefit of cycle length optimization. The cycle splits were optimized by Synchro.

The traffic volumes for the build-year and forecast conditions are shown in Figure 4 and Figure 5, respectively.



Projected 2022 Peak Hour Movement Volumes

Figure 4



Projected 2039 Peak Hour Movement Volumes

Figure 5

Reference: Canadian Pacific (CP) Rail Shoreham Expansion – Travel Demand Management Plan

The results of the analysis for build-year and forecast conditions are shown in Table 4 and Table 5.

Table 4 - LOS and Queue Lengths for University Ave and Central Ave Corridors Build Year 2022 Conditions												
Intersection	Direction	Movement	AM					PM				
			95 % Queue	Delay/ Vehicle	MVMT LOS	APPR LOS	LOS	95 % Queue	Delay/ Vehicle	MVMT LOS	LOS	LOS
Universtiy Ave & 32nd Ave	EB	Left	29'	19.1	B	B (17.6)	A (4.5)	21'	42.9	D	C (29.6)	A (6.5)
		Thru	29'	22.7	C			21'	35.8	D		
		Right	29'	3.4	A			21'	3.7	A		
	WB	Left	66'	21.6	C	B (12.6)		91'	29.9	C	B (19.2)	
		Thru	66'	22.6	C			91'	28.5	C		
		Right	61'	3.9	A			70'	8.2	A		
	NB	Left	5'	4.1	A	A (3.8)		10'	6.9	A	A (6.4)	
		Thru	74'	3.9	A			169'	6.6	A		
		Right	35'	1.8	A			46'	2.5	A		
	SB	Left	51'	5.7	A	A (4.2)		36'	12.5	B	A (4.0)	
		Thru	127'	4.2	A			79'	3.7	A		
		Right	5'	1.5	A			5'	1.5	A		
Central Ave & 28th Ave (unsignalized)	EB	Left	66'	29.7	D	C (23.0)	A (2.1)	113'	33.0	D	D (26.3)	A (2.2)
		Thru	66'	29.3	D			113'	42.1	E		
		Right	66'	12.4	B			113'	13.0	B		
	WB	Left	36'	17.7	C	A (8.3)		46'	29.7	D	B (16.0)	
		Thru	36'	18.3	C			46'	37.2	E		
		Right	36'	3.5	A			46'	8.6	A		
	NB	Left	56'	13.1	B	A (1.0)		57'	5.8	A	A (0.9)	
		Thru	2'	0.3	A			2'	0.8	A		
		Right	-	0.4	A			-	1.2	A		
	SB	Left	8'	4.3	A	A (2.0)		27'	9.2	A	A (1.5)	
		Thru	7'	2.0	A			7'	1.3	A		
		Right	-	2.7	A			-	2.4	A		
Central Ave & 29th Ave	EB	Left	86'	38.7	D	C (27.0)	A (9.9)	102'	38.9	D	C (25.8)	B (11.8)
		Right	68'	10.5	B			68'	5.6	A		
	WB	Left	118'	31.7	C	C (28.7)		153'	32.3	C	C (26.9)	
		Right	118'	14.7	B			153'	19.8	B		
	NB	Thru	101'	5.7	A	A (5.4)		276'	11.4	B	B (11.1)	
		Right	38'	2.1	A			89'	7.0	A		
	SB	Left	87'	14.1	B	A (8.9)		60'	17.3	B	A (8.1)	
		Thru	259'	8.7	A			152'	7.6	A		

Reference: Canadian Pacific (CP) Rail Shoreham Expansion – Travel Demand Management Plan

Intersection	Direction	Movement	AM					PM				
			95 % Queue	Delay/ Vehicle	MVMT LOS	APPR LOS	LOS	95 % Queue	Delay/ Vehicle	MVMT LOS	LOS	LOS
Universtiy Ave & 32nd Ave	EB	Left	34'	38.5	D	C (29.9)	A (5.6)	25'	32.4	C	C (26.8)	A (7.2)
		Thru	34'	38.2	D			25'	33.7	C		
		Right	34'	10.1	B			25'	3.1	A		
	WB	Left	86'	28.0	C	B (15.2)		118'	29.7	C	B (19.4)	
		Thru	86'	26.5	C			118'	30.7	C		
		Right	68'	4.3	A			101'	9.7	A		
	NB	Left	5'	7.5	A	A (4.4)		11'	5.6	A	A (7.1)	
		Thru	82'	4.7	A			188'	7.3	A		
		Right	45'	2.2	A			48'	2.5	A		
	SB	Left	59'	6.2	A	A (5.2)		54'	13.3	B	A (4.4)	
		Thru	148'	5.2	A			86'	3.9	A		
		Right	1'	0.8	A			3'	1.6	A		
Central Ave & 28th Ave (unsignalized)	EB	Left	67'	31.3	D	C (23.4)	A (2.7)	129'	44.5	E	D (33.3)	A (2.8)
		Thru	67'	26.1	D			129'	42.6	E		
		Right	67'	14.3	B			129'	21.4	C		
	WB	Left	36'	19.1	C	A (8.4)		61'	38.4	E	C (23.4)	
		Thru	36'	18.1	C			61'	41.8	E		
		Right	36'	3.8	A			61'	13.5	B		
	NB	Left	75'	15.8	C	A (41.6)		82'	7.0	A	A (1.1)	
		Thru	-	0.3	A			-	0.9	A		
		Right	-	0.9	A			-	0.8	A		
	SB	Left	12'	4.7	A	A (2.6)		36'	9.8	A	A (1.7)	
		Thru	9'	2.6	A			11'	1.5	A		
		Right	13'	3.7	A			15'	2.1	A		
Central Ave & 29th Ave	EB	Left	111'	37.4	D	C (24.0)	B (12.6)	130'	36.5	D	C (23.8)	B (12.3)
		Right	84'	9.1	A			89'	4.8	A		
	WB	Left	126'	32.2	C	C (29.6)		157'	30.8	C	C (25.8)	
		Right	126'	16.5	B			157'	19.5	B		
	NB	Thru	108'	7.0	A	A (6.6)		281'	12.1	B	B (11.7)	
		Right	47'	2.5	A			94'	6.5	A		
	SB	Left	100'	15.5	B	B (12.4)		52'	17.2	B	A (8.9)	
		Thru	331'	12.3	B			173'	8.4	A		

The analysis shows that the project is expected to have little to no impact on the intersections in this study. The smaller movements show LOS C-E. All approaches are expected to operate at LOS C or better, with the exception of the EB approach of Central Avenue & 28th Avenue during the PM peak, which had a LOS D. A reasonable signalized intersection operational goal for 20-yr project traffic analysis in a metro area is LOS D. The three intersections showed a LOS B or better.

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Reference: Canadian Pacific (CP) Rail Shoreham Expansion – Travel Demand Management Plan

SUMMARY AND CONCLUSIONS

Based on the analysis, the following summary and conclusions are presented:

- The proposed expansion of CP Rail's Shoreham facility would allow for them to double the number of heavy vehicles (HV) currently being serviced on site.
- Operational reviews were completed for three intersections for existing traffic, 2022 traffic, and 2039 traffic conditions. The intersections are University Avenue NE & 32nd Avenue NE and Central Avenue NE at both 28th Avenue NE and 29th Avenue NE.
- The proposed expansion would add an entrance to the CP facility on Central Avenue at 28th Avenue and add an exit from the CP facility on a new west leg for the intersection of Central Avenue & 29th Avenue. The newly constructed west leg would be one-way EB traffic only.
- The EB/WB movements at the intersection of Central Avenue and 29th Avenue would be required to run in split phase.
- The proposed expansion would generate approximately eighty-seven (87) AM peak hour trips, and eighty-three (83) PM peak hour trips.
- The proposed expansion would not require additional parking facilities.
- The proposed expansion is not expected to have a significant impact on the traffic operations for any of the three intersections in this study.

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Attachment: SimTraffic Outputs

3: University Ave & 32nd Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.2	0.2		0.1	3.5	2.3	0.3	2.3
Total Del/Veh (s)	51.6	29.9	8.9	30.1	19.5	4.2		4.9	2.3	5.5	5.3	1.3

3: University Ave & 32nd Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	5.8

8: Central Ave & 28th Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.5	0.1	3.3	0.1	3.7	0.0	0.0	0.1
Total Del/Veh (s)	17.3	29.5	10.1	10.9	16.5	3.6	12.1	0.3	0.7	4.3	1.5	1.5

8: Central Ave & 28th Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	1.6

10: Central Ave & 29th Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	2.4	0.2	0.2
Total Del/Veh (s)	37.9	20.4	3.2	1.5	7.8	4.9	6.7

Total Network Performance

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	8.6

Queuing and Blocking Report

AM - Existing Conditions

06/26/2019

Intersection: 3: University Ave & 32nd Ave

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	45	139	96	5	102	55	66	72	162	131	18
Average Queue (ft)	7	44	35	0	41	13	14	20	80	54	1
95th Queue (ft)	29	103	78	4	86	42	48	55	146	117	9
Link Distance (ft)	173	196	196		1321	1321			1069	1069	
Upstream Blk Time (%)		0									
Queuing Penalty (veh)		0									
Storage Bay Dist (ft)				210			215	275			200
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 8: Central Ave & 28th Ave

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	L	L	T
Maximum Queue (ft)	83	40	48	25	4
Average Queue (ft)	26	14	3	2	0
95th Queue (ft)	68	34	22	13	3
Link Distance (ft)	776	331			587
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			95	100	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 10: Central Ave & 29th Ave

Movement	WB	NB	NB	NB	SB	SB	SB
Directions Served	LR	T	T	R	L	T	T
Maximum Queue (ft)	149	91	98	51	84	246	217
Average Queue (ft)	70	36	22	8	19	114	77
95th Queue (ft)	130	77	66	33	61	195	169
Link Distance (ft)	1266	587	587			625	625
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)				80	100		
Storage Blk Time (%)			0	0		7	
Queuing Penalty (veh)			0	0		3	

Network Summary

Network wide Queuing Penalty: 3

3: University Ave & 32nd Ave Performance by movement

Movement	EBL	EBR	WBL	WBR	NBT	NBR	SBU	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.2	0.2	2.3	3.7	3.3	0.1	0.3
Total Del/Veh (s)	23.6	2.7	30.5	8.4	6.8	2.8	6.7	12.5	3.4	6.6

8: Central Ave & 28th Ave Performance by movement

Movement	EBL	EBR	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.1	0.2	0.1	1.9	0.2	2.2	0.0	0.0	0.6	0.2
Total Del/Veh (s)	31.5	9.4	29.6	8.8	5.9	0.8	0.9	9.3	1.0	1.8	1.9

10: Central Ave & 29th Ave Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	3.1	0.1	0.1
Total Del/Veh (s)	39.6	20.3	6.8	3.3	9.8	4.7	8.0

Total Network Performance

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	9.6

Queuing and Blocking Report

PM - Existing Conditions

06/27/2019

Intersection: 3: University Ave & 32nd Ave

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	T	T	R	UL	T	T
Maximum Queue (ft)	23	130	108	202	184	73	74	97	48
Average Queue (ft)	3	47	42	95	65	18	24	35	11
95th Queue (ft)	16	105	85	168	139	52	62	78	34
Link Distance (ft)	173	196	196	1321	1321			1069	1069
Upstream Blk Time (%)		0							
Queuing Penalty (veh)		0							
Storage Bay Dist (ft)						215	275		
Storage Blk Time (%)				0	0				
Queuing Penalty (veh)				0	0				

Intersection: 8: Central Ave & 28th Ave

Movement	EB	WB	NB	NB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	T	T	R	L	T
Maximum Queue (ft)	128	61	60	3	9	4	41	7
Average Queue (ft)	47	21	10	0	0	0	10	0
95th Queue (ft)	97	48	39	2	7	4	32	4
Link Distance (ft)	776	334		906	906			587
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			95			90	100	
Storage Blk Time (%)			0					
Queuing Penalty (veh)			0					

Intersection: 10: Central Ave & 29th Ave

Movement	WB	NB	NB	NB	SB	SB	SB
Directions Served	LR	T	T	R	L	T	T
Maximum Queue (ft)	207	231	224	90	48	168	136
Average Queue (ft)	84	110	104	23	19	74	36
95th Queue (ft)	163	189	187	74	46	139	95
Link Distance (ft)	1266	587	587			625	625
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)				80	100		
Storage Blk Time (%)			9	0		3	
Queuing Penalty (veh)			7	1		1	

Network Summary

Network wide Queuing Penalty: 9

3: University Ave & 32nd Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.2	0.1	0.2	0.1	0.1	2.5	0.1	3.4	2.4	0.2	2.6
Total Del/Veh (s)	19.1	22.7	3.4	21.6	22.6	3.9	4.1	3.9	1.8	5.7	4.2	1.5

3: University Ave & 32nd Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	4.5

8: Central Ave & 28th Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.1	0.1	0.1	0.1	0.1	3.0	0.1	3.6	0.0	0.0	0.4
Total Del/Veh (s)	29.7	29.3	12.4	17.7	18.3	3.5	13.1	0.3	0.4	4.3	2.0	2.7

8: Central Ave & 28th Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	2.1

10: Central Ave & 29th Ave Performance by movement

Movement	EBL	EBR	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.1	0.0	0.0	2.4	0.2	0.2
Total Del/Veh (s)	38.7	10.5	31.7	14.7	5.7	2.1	14.1	8.7	9.9

Total Network Performance

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	9.7

Intersection: 3: University Ave & 32nd Ave

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	54	104	81	8	90	54	51	77	144	124	10
Average Queue (ft)	7	22	24	0	35	10	8	18	64	40	0
95th Queue (ft)	29	66	61	5	74	38	35	51	127	94	5
Link Distance (ft)	173	196	196		1321	1321			1069	1069	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)				210			215	275			200
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 8: Central Ave & 28th Ave

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	L	T	T
Maximum Queue (ft)	80	44	66	3	20	14	4
Average Queue (ft)	25	16	19	0	1	1	0
95th Queue (ft)	66	36	56	2	8	7	4
Link Distance (ft)	776	334		906		586	586
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			95		100		
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 10: Central Ave & 29th Ave

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	LTR	LTR	T	T	R	L	T	T
Maximum Queue (ft)	116	83	129	127	122	57	124	320	260
Average Queue (ft)	30	20	63	51	37	10	27	156	112
95th Queue (ft)	86	68	118	101	91	38	87	259	214
Link Distance (ft)	285	285	1267	586	586			613	613
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)						80	100		
Storage Blk Time (%)					1	0		13	
Queuing Penalty (veh)					0	0		6	

Network Summary

Network wide Queuing Penalty: 6

3: University Ave & 32nd Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.2	0.1	2.3	0.2	2.3	5.0	3.0	0.1
Total Del/Veh (s)	42.9	35.8	3.7	29.9	28.5	8.2	6.9	6.6	2.5	11.2	12.5	3.7

3: University Ave & 32nd Ave Performance by movement

Movement	SBR	All
Denied Del/Veh (s)	2.9	0.3
Total Del/Veh (s)	1.5	6.5

8: Central Ave & 28th Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.2	0.1	2.2	0.2	2.0	0.0	0.0	0.5
Total Del/Veh (s)	33.0	42.1	13.0	29.7	37.2	8.6	5.8	0.8	1.2	9.2	1.3	2.4

8: Central Ave & 28th Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	2.2

10: Central Ave & 29th Ave Performance by movement

Movement	EBL	EBR	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.2	0.0	0.1	3.1	0.1	0.1
Total Del/Veh (s)	38.9	5.6	32.3	19.8	11.4	7.0	17.3	7.6	11.8

Total Network Performance

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	11.6

Intersection: 3: University Ave & 32nd Ave

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	UL	T	T	R
Maximum Queue (ft)	27	114	96	23	209	197	68	50	94	77	10
Average Queue (ft)	5	41	32	1	93	71	13	13	39	14	1
95th Queue (ft)	21	91	70	10	169	150	46	36	79	48	5
Link Distance (ft)	173	196	196		1321	1321			1069	1069	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)				210			215	275			200
Storage Blk Time (%)					0	0					
Queuing Penalty (veh)					0	0					

Intersection: 8: Central Ave & 28th Ave

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	L	T	T
Maximum Queue (ft)	133	69	79	3	25	15	4
Average Queue (ft)	55	21	17	0	8	1	0
95th Queue (ft)	113	46	57	2	27	7	4
Link Distance (ft)	776	334		906		586	586
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			95		100		
Storage Blk Time (%)			0				
Queuing Penalty (veh)			0				

Intersection: 10: Central Ave & 29th Ave

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	LTR	LTR	T	T	R	L	T	T
Maximum Queue (ft)	135	93	181	312	325	90	96	179	135
Average Queue (ft)	37	20	80	151	154	31	22	82	41
95th Queue (ft)	102	68	153	266	276	89	60	152	102
Link Distance (ft)	288	288	1267	586	586			613	613
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)						80	100		
Storage Blk Time (%)					15	0		4	
Queuing Penalty (veh)					13	1		1	

Network Summary

Network wide Queuing Penalty: 16

3: University Ave & 32nd Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.2	0.1	0.1	0.1	0.2	2.2	0.1	3.3	2.2	0.3	2.5
Total Del/Veh (s)	38.5	38.2	10.1	28.0	26.5	4.3	7.5	4.7	2.2	6.2	5.2	0.8

3: University Ave & 32nd Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	5.6

8: Central Ave & 28th Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	3.1	0.1	3.6	0.0	0.0	0.3
Total Del/Veh (s)	31.3	26.1	14.3	19.1	18.1	3.8	15.8	0.3	0.9	4.7	2.6	3.7

8: Central Ave & 28th Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	2.7

10: Central Ave & 29th Ave Performance by movement

Movement	EBL	EBR	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.2	0.0	0.0	2.4	0.3	0.2
Total Del/Veh (s)	37.4	9.1	32.2	16.5	7.0	2.5	15.5	12.3	12.6

Total Network Performance

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	11.9

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Intersection: 3: University Ave & 32nd Ave

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	57	116	79	12	100	62	62	77	169	129	2
Average Queue (ft)	9	35	31	0	41	14	12	22	80	58	0
95th Queue (ft)	34	86	68	5	82	45	45	59	148	117	1
Link Distance (ft)	173	196	196		1321	1321			1069	1069	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)				210			215	275			200
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 8: Central Ave & 28th Ave

Movement	EB	WB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	L	T	T	R
Maximum Queue (ft)	79	44	101	20	18	12	18
Average Queue (ft)	26	16	28	2	1	1	1
95th Queue (ft)	67	36	75	12	9	7	13
Link Distance (ft)	776	313			586	586	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			95	100			50
Storage Blk Time (%)			1			0	0
Queuing Penalty (veh)			1			0	0

Intersection: 10: Central Ave & 29th Ave

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	LTR	LTR	T	T	R	L	T	T
Maximum Queue (ft)	137	96	149	140	138	70	169	399	348
Average Queue (ft)	48	34	66	56	41	15	30	202	162
95th Queue (ft)	111	84	126	108	96	47	100	331	298
Link Distance (ft)	275	275	1267	586	586			613	613
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)						80	100		
Storage Blk Time (%)					1	0	0	19	
Queuing Penalty (veh)					0	0	0	9	

Network Summary

Network wide Queuing Penalty: 11

3: University Ave & 32nd Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.2	0.2	2.7	0.3	2.2	5.3	3.1	0.1
Total Del/Veh (s)	32.4	33.7	3.1	29.7	30.7	9.7	5.6	7.3	2.5	10.8	13.3	3.9

3: University Ave & 32nd Ave Performance by movement

Movement	SBR	All
Denied Del/Veh (s)	3.4	0.4
Total Del/Veh (s)	1.6	7.2

8: Central Ave & 28th Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	2.1	0.2	2.4	0.0	0.0	0.4
Total Del/Veh (s)	44.5	42.6	21.4	38.4	41.8	13.5	7.0	0.9	0.8	9.8	1.5	2.1

8: Central Ave & 28th Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	2.8

10: Central Ave & 29th Ave Performance by movement

Movement	EBL	EBR	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.2	0.0	0.0	3.1	0.2	0.1
Total Del/Veh (s)	36.5	4.8	30.8	19.5	12.1	6.5	17.2	8.4	12.3

Total Network Performance

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	12.6

Queuing and Blocking Report
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07/01/2019

Intersection: 3: University Ave & 32nd Ave

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	UL	T	T	R
Maximum Queue (ft)	32	164	135	23	226	218	60	74	107	61	4
Average Queue (ft)	7	50	45	2	104	83	16	20	40	16	0
95th Queue (ft)	25	118	101	11	188	165	48	54	86	46	3
Link Distance (ft)	173	196	196		1321	1321			1069	1069	
Upstream Blk Time (%)		0									
Queuing Penalty (veh)		0									
Storage Bay Dist (ft)				210			215	275			200
Storage Blk Time (%)					0	0					
Queuing Penalty (veh)					0	0					

Intersection: 8: Central Ave & 28th Ave

Movement	EB	WB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	L	T	L	T	T	R
Maximum Queue (ft)	173	82	102	26	40	8	25	30
Average Queue (ft)	59	26	32	0	11	0	1	1
95th Queue (ft)	129	61	82	0	36	5	11	15
Link Distance (ft)	776	334		927		586	586	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			95		100			50
Storage Blk Time (%)			0				0	0
Queuing Penalty (veh)			2				0	0

Intersection: 10: Central Ave & 29th Ave

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	LTR	LTR	T	T	R	L	T	T
Maximum Queue (ft)	167	113	180	322	318	90	71	198	180
Average Queue (ft)	58	33	82	169	165	34	20	98	54
95th Queue (ft)	130	89	157	279	281	94	52	173	133
Link Distance (ft)	288	288	1267	586	586			613	613
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)						80	100		
Storage Blk Time (%)					18	0		7	
Queuing Penalty (veh)					16	2		3	

Network Summary

Network wide Queuing Penalty: 22