Consulting Services Contract
City of Waukesha – Ayres Associates, Inc.
Project Name: Traffic Study Preparation Services for the 2022 Surface Transportation Program (STP) St. Paul Ave. Reconstruction

This Contract is by and between the City of Waukesha, a Wisconsin municipal corporation, referred to herein as the City; and Ayres Associates, Inc., N17 W24222 Riverwood Drive, Suite 310, Waukesha, WI 53188-1132, referred to herein as the Consultant. Together, the City and Consultant are referred to as the Parties.

Recitals

The City published a Request for Proposals, referred to as the RFP, for consulting services in connection with the following Project:

Traffic Study Preparation Services for the 2022 Surface Transportation Program (STP) St. Paul Ave. Reconstruction

The RFP contained a specific Scope of Work to be incorporated into the successful bidder's contract.

The Consultant submitted a proposal (Exhibit 1) in response to the RFP, and was selected by the City to be awarded the contract for the Project.

The Consultant is willing to perform consulting services according to the Scope of Work stated in the RFP and the Consultant's responsive Proposal, as modified by the Parties, and to accept the award of the contract for the Project.

Now, therefore, the City and the Consultant agree and contract as follows:

1. **Scope of Work.** The Consultant shall perform the Work described on Schedule A-Scope of Work, Schedule B-Price, according to the terms and conditions of this Contract. Schedule A and B are incorporated into this Contract by reference.

2. **Standard of Work.** Consultant will perform the Work according to generally-accepted industry practices in the professions of the individual employees performing the Work for Consultant.

3. **Payment.** The City shall pay to Consultant $17,591.91 for performance of the Work in compliance with the terms and conditions of this Contract. Consultant shall invoice the City, monthly. No more than 90% of the Contract Price shall be payable before Consultant's Work is complete and delivered to the City. All invoices shall be payable net 30 days.

4. **Time.** Consultant shall commence the Work as promptly after execution of this Contract as is possible, and shall complete the Work no later than December 31, 2021, subject only to delays for circumstances beyond Consultant's control, provided Consultant re-commences work promptly in good faith upon the return of normal circumstances.

5. **Ownership of Work Product.** All materials produced in the performance of the Work shall be the sole property of the City, and shall be kept confidential and not disclosed to any third party without the prior written permission of the City.

6. **Changes.** This Contract can only be amended by the written, mutual agreement of the Parties. No change to the scope of the Work, or the total amount to be paid to Consultant, shall be effective unless done by the written mutual agreement of the Parties.

7. **Indemnification.** Consultant shall indemnify, defend, and hold the City and its officials and employees harmless from any and all third-party claims, demands, causes of action, lawsuits, judgments, penalties, and other liabilities of any kind to the extent that they arise out of or in connection with Consultant's negligence or intentional misconduct, including court costs and actual attorney fees.

8. **Insurance.** Consultant shall maintain insurance of the following kinds and for not less than the following limits, at Consultant's sole expense, at all times during the performance of the Work. Policies shall be occurrence, and not claims-made, policies, except for professional errors and omissions policies. Consultant shall obtain an endorsement making the City an additional insured, and Consultant's insurance shall be primary, not excess, and non-contributory. All policies shall be from insurers licensed to issue such policies in Wisconsin. Upon the execution of this Contract, Consultant shall deliver a certificate of insurance to City showing that all requirements of this section are met.

   a. Commercial general liability, including products-completed operations, $1,000,000 per occurrence, $2,000,000 aggregate per project.

   b. Automobile liability, $1,000,000 bodily injury, $1,000,000 property damage.

   c. Excess liability-umbrella, $5,000,000.

   d. Worker compensation, statutory requirements.

   e. Professional liability-errors and omissions, $2,000,000, with extended-reporting period endorsement.

9. **Record Keeping.** Consultant shall keep all documents and records generated in the performance of the Work for no less than 7 years after completion of the Work, and shall make them available to the City at the City's request. Consultant acknowledges that such documents and records may be subject to Wisconsin's Open Records Law.

10. **Cooperation by City.** The City shall cooperate with the Consultant in the performance of the Work, and shall respond timely to all reasonable requests for information and access.

11. **Parties Are Independent Contractors.** Nothing in this Contract shall be construed to create any relationship between the Parties other than independent contractors. Unless specifically provided in this Contract, the Parties are not agents for one another, have no authority to bind the other to contracts, and have no vicarious liability for the other's acts or omissions.

12. **Governmental Immunities, Liability Limits, and Notice Requirements Preserved.** Nothing in this Contract shall be construed to be a waiver or modification of the governmental immunities, notice requirements, or limitations of liability imposed by Wis. Stats. §893.80 or any other law.

13. **Permits and Licenses.** Consultant shall be responsible, at Consultant's expense, for obtaining all permits and licenses required for the performance of the Work.

14. **Assignment Prohibited.** This Contract, and the Consultant's responsibility to perform the Work under this Contract, may not be assigned by the Consultant without the City's written consent.

15. **Notices.** All notices required by this Contract, and all other communications between the Parties, shall be addressed as follows:

To the City:	Attention: Craig Ausen, P.E. City of Waukesha 130 Delafield Street Waukesha WI 53188
To Consultant:	Attention: John A. Davis, P.E., PTOE, RSP, TSOS. Ayres Associates, Inc. N17 W24222 Riverwood Drive, Suite 310 Waukesha, WI 53188-1132

16. **Corporate Authorization.** The individuals executing this Contract on behalf of the Consultant warrant and represent that they are duly authorized to bind the Consultant to this Contract. Consultant warrants and represents that the execution of this Contract is not prohibited by the Consultant's articles of incorporation, by-laws, operating agreement, or other internal operating orders, or by any applicable law, regulation or court order. Consultant shall provide proof upon request.

17. **Assistance of Counsel, Voluntary Contract.** The Consultant acknowledges that it has either had the assistance of legal counsel in the negotiation, review and execution of this Contract, or has voluntarily waived the opportunity to do so; that it has read and understood each of this Contract's terms, conditions and provisions, and their effects; and that it has executed this Contract freely and not under conditions of duress.

18. **Adequacy of Consideration.** The Parties acknowledge that the consideration expressed in this Contract is adequate and sufficient to make the obligations contained in this Contract binding upon the Parties.

19. **Costs of Enforcement.** The Parties agree that in the event legal action is necessary to enforce any term or condition of this Contract, then the breaching Party will pay the non-breaching Party's costs incurred in such legal action, including actual attorney fees. If a judgment is taken, then costs of enforcement will be added to the judgment.

20. **Severability.** If any term of this Contract is held unenforceable by a court having jurisdiction, then to the extent the unenforceable term can be severed from the remainder of this Contract without affecting the enforceability of the remainder of this Contract or substantially frustrating its purpose, it will be so severed, and the remainder of this Contract will remain in effect and enforceable.

21. **Survival and Parties Bound.** Unless specifically limited in this Contract, any term, condition or provision of this Contract will survive the execution of this Contract or any stated time periods, to the extent necessary for their performance. This Contract is binding upon, and inures to the benefit of, the Parties' successors, assigns, heirs, executors, trustees and personal representatives.

22. **Governing Law and Jurisdiction.** This Contract will be construed and enforced according to the laws of Wisconsin. If a lawsuit arises out of this Contract, it shall be filed in the state Circuit Court for Waukesha County, Wisconsin. The Parties consent to personal and subject-matter jurisdiction in Wisconsin, and waive all jurisdictional defenses.

23. **Integration, Construction of Contract.** This Contract constitutes the entire agreement of the Parties formed as a result of the City's RFP and the Consultant's responsive proposal. All other agreements and understandings of the parties with respect to the subject matter expressed in this Contract are unenforceable. If there are any conflicts among the terms of this Contract and any documents incorporated into this Contract, including Schedule A and B, then the terms of this Contract shall control.

24. **Termination.** Either party may terminate this Contract without cause by giving written notice of termination to the other party, with termination to occur no sooner than 20 days after delivery of the notice. Upon termination, Consultant shall be paid for all Work completed as of the date of termination.

25. **Limitation of Liability.** Consultant shall not be liable for incidental or consequential contract damages.

26. **Confidentiality; Public Records.** All documents created pursuant to this Contract, and all documents delivered to the City, are public records and will be subject to disclosure to the public under Wisconsin's Open Records law.

27. **Effective Date.** This Contract shall be effective as of the latest date of execution shown below.

City of Waukesha

By Shawn N. Reilly, Mayor
Date:

Attested by Gina L. Kozlik, City Clerk
Date:

To certify that funds are provided for payment:

Richard L. Abbott, Director of Finance
Date:

Ayres Associates, Inc.

By (print name)
Title:
Date:

By (print name)
Title:
Date:

Schedule A
Scope of Work

GENERAL INFORMATION

The City of Waukesha has applied for and will be receiving funding from WisDOT STP Urban over 200,000 programs. This RFP is to provide Engineering and Real-Estate services for the following project ID's:

Project I.D.:	2718-04-01	2718-04-21
Street:	West St Paul Avenue	West St Paul Avenue
From:	Mountain Avenue	Mountain Avenue
To:	Madison Street	Madison Street
Length:	0.5 Mi	0.5 Mi
Service:	Design	Real-Estate

The project includes traffic engineering study/alternatives analysis for the planned reconstruction of W St Paul Avenue. (Mountain Ave. to Madison St.). The roadway design and supporting documents will be completed by internal City staff. The consultant is expected to work with City staff to provide required AutoCAD files, plan sheets, estimates, and WisDOT reports and supporting documents.

All Engineering and Design requirements shall meet the standards and requirements of the Wisconsin Department of Transportation.

PROJECT DESCRIPTION AND SCOPE:

W. St Paul Avenue is a major arterial roadway on the border of downtown Waukesha. The majority of land use along W. St Paul Avenue is commercial in nature. The roadway currently consists of a poor condition 40'-48' wide urban cross section with sidewalks on both sides of the street throughout most of the project limits. The existing right-of-way for W. St Paul Avenue varies from 60 to 70 feet wide. It is anticipated that ROW will need to be acquired for the roadway reconstruction project. The roadway and utility reconstruction plan for W. St Paul Avenue will be designed by the City of Waukesha.

Traffic Engineering

W. St. Paul Avenue from Wisconsin Avenue to Madison Street corridor will be examined in this traffic analysis. However, St. Paul Avenue is part of an overall coordinated signalized corridor consisting of a one-way pair (E/W. North Street, and E/W. St. Paul Avenue) and a two-way street section of E/W. St. Paul Avenue beginning at NW Barstow Street heading west. The City plans to convert North St and St Paul Avenue to one (1) lane in each direction.

The traffic analysis for the W. St. Paul Avenue corridor from Wisconsin Avenue to Madison Street will consist of examining two scenarios in a coordinated signal system:

- Scenario 1 – Existing E/W North St. and E/W St. Paul Avenue corridor remain in its current existing condition as a one-way pair (existing traffic and future projected traffic).

- Scenario 2 – Existing E/W North St. and E/W St. Paul Avenue corridor is converted to a two-way street system.

In the above description, Scenario 2 has already been completed by another consultant in a separate study. That study material and Synchro files will be made available to the consultant of this study. The consultant shall examine the study findings and determine of all newer traffic data, supplied by the City, is compatible with the report data and will support its conclusions.

Corridor ADT traffic count information will be provided by the City to the Consultant. The consultant shall use said information to create a comprehensive traffic report that will be submitted to the DOT as part of the DSR process for traffic projections for the years 2022, 2032 and 2042.

Traffic Signal turning movement counts will be provided by the City to the Consultant for the following locations:

- W. St. Paul Avenue & N. Prairie Avenue
- W. St. Paul Avenue & W. North St. / Wisconsin Avenue
- E. St. Paul Avenue & Madison Street
- E. St. Paul Avenue & NW Barstow Street
- E. North Street & Madison / Delafield Street
- E. North Street & NW Barstow Street

The above signalized intersection locations make up a subsection of the overall coordinated signal corridor on St. Paul Avenue. The consultant is expected to create a signalized corridor model and use it to analyze the following:

- Existing corridor conditions
- Scenario 1 – (see description above)
- Scenario 2 – (see description above) – consultant can use the traffic report from the two-way street study to use in their corridor model to verify that the results of the two-way study are still valid

The consultant shall perform a crash analysis for the intersections of E. St. Paul Avenue & E. North Street / Wisconsin Avenue, E. St. Paul Street & Madison Street and the W. Madison Street corridor from Wisconsin Avenue to Madison Street.

The consultant shall design traffic signal improvement plans for the following locations for 30%, 60%, 90% and PS&E submittals:

- W. St. Paul Avenue & E. North Street / Wisconsin Avenue intersection (full replacement)
- W. St. Paul Avenue & Madison Street (revised traffic signal for left turn lanes & phasing). Consultant shall consider using existing traffic equipment.

The consultant shall develop traffic signal timing plans, for 4 (four) periods of a day, compatible for the coordinated signal system, for the following intersections:

- W. St. Paul Avenue & E. North Street / Wisconsin Avenue intersection
- W. St. Paul Avenue & Madison Street
- W. St. Paul Avenue & N. Prairie Avenue
- E. St. Paul Avenue & NW Barstow Street
- E. North Street & Madison / Delafield Street
- E. North Street & NW Barstow Street

The consultant shall develop a transportation management plan (TMP) per WisDOT FDM requirements.

The consultant shall complete the traffic signal design in AutoCAD Civil 3D 2018 per WisDOT Civil 3D standards and template. The consultant shall provide a proposed base file with proposed traffic signal equipment prior to each WisDOT submittal or as requested by the City of Waukesha.

<u>MAJOR PROJECT ELEMENTS</u>

- Traffic signal study and preparation of PS&E documents.

<u>ADDITIONAL PROJECT ELEMENTS INCLUDE:</u>

- Provide at a minimum the following meetings with the City of Waukesha:
    - Initial kickoff meeting
    - Bi-weekly conference calls
    - Review meetings (30/60/Draft)
- Consultant shall work with the City to develop the delivery schedule. Consultant shall submit studies/reports/plans/specials/estimate for review at the following City project milestones:
    - 30% (2/1/2020) (Tentative)
    - 60% (7/1/2020) (Tentative)
    - Preliminary Plat (7/1/2020) (Tentative)
    - 1078 (9/1/2020) (Tentative)
    - Final Plat (9/1/2020) (Tentative)
    - Draft PS&E (5/1/2021) (Tentative)
    - Final PS&E (8/1/2021)
    - Let (12/14/2021)

ITEMS AVAILABLE FROM THE CITY INCLUDE:

- Traffic Counts:
    - City will collect any other traffic data needed upon request
- Scanned images of design and/or as-built plans, may be available.
- City GIS data.
- Electronic Civil 3D Roadway design files for the reconstruction project (Updated as design level progresses)

AGENCY AND UTILITY INVOLVMENT:

The Department of Public Works anticipates that the following organizations (but not restricted to) will have some involvement in this project:

- City of Waukesha Community Development Department
- City of Waukesha Parks, Recreation, and Forestry Department
- City of Waukesha Board of Public Works
- City of Waukesha Common Council
- Wisconsin DNR
- WisDOT
- Wisconsin Historical Society
- Any other permitting agencies

AYRES ASSOCIATES FEE ESTIMATE

ID 2718-04-01
West St Paul Avenue
Mountain Avenue to Madison Street
Waukesha

Overhead Rate: 1.6539
Fixed Fee 7.5%

TASK DESCRIPTION	Direct Labor Costs	Overhead Costs	Fixed Fee/Profit	Direct Expenses	Total
GENERAL	$234.40	$387.67	$43.95	-	$666.02
MEETINGS	$418.04	$691.40	$78.38	-	$1,187.82
TRAFFIC ANALYSIS	$3,603.56	$5,959.93	$675.67	-	$10,239.16
PLANS, SPECIFICATONS, & ESTIMATES (PS&E)	$1,931.20	$3,194.01	$362.10	-	$5,487.31
PROJECT				$11.60	$11.60
TOTAL	$6,187.20	$10,233.01	$1,160.10	$11.60	**$17,591.91**

DIRECT EXPENSE ESTIMATE

ID 2718-04-01
West St Paul Avenue
Mountain Avenue to Madison Street
Waukesha

ITEM	Amount	Type	Rate	Total
MILEAGE	20	MILES	$0.580	$11.60
TOTAL				$11.60

HOURS ESTIMATE

ID 2718-04-01
West St Paul Avenue
Mountain Avenue to Madison Street
Waukesha

	Proj. Man./ Principal Engineer $54.50		Project Engineer $42.83		Design Engineer $34.43		Jr. Engineer/ Technician $28.89		Support Staff/ Clerical $23.56		Total Direct Labor	
TASK DESCRIPTION	hrs	Dollars	hrs	Dollars	hrs	Dollars	hrs	Dollars	hrs	Dollars	hrs	Dollars
GENERAL	1	$54.50	2	$85.66	-	$0.00	-	$0.00	4	$94.24	7	$234.40
MEETINGS	2	$109.00	4	$171.32	4	$137.72	-	$0.00	-	$0.00	10	$418.04
TRAFFIC ANALYSIS	8	$436.00	-	$0.00	92	$3,167.56	-	$0.00	-	$0.00	100	$3,603.56
PLANS, SPECIFICATONS, & ESTIMATES (PS&E)	4	$218.00	40	$1,713.20	-	$0.00	-	$0.00	-	$0.00	44	$1,931.20
TOTAL	15	$818	46	$1,970	96	$3,305	-	$0	4	$94	161	$6,187

EXHIBIT 1

PROPOSAL

RFP No. 2718-04-01

W. St. Paul Avenue: Mountain Avenue to Madison Street Traffic Analysis and Design Services

City of Waukesha

July 12, 2019

HireSmart®

AYRES ASSOCIATES

July 12, 2019

Craig Ausen, PE
City of Waukesha Department of Public Works
City Hall Annex
130 Delafield Street
Waukesha, WI 53188

Re: Proposal for W. St. Paul Avenue: Mountain Avenue to Madison Street Traffic and Design Services

Dear Mr. Ausen:

Enhancing the flow of traffic in Waukesha's downtown starts with a clear understanding of available options. With our staff expertise, experience, and availability, Ayres Associates is eager and ready to continue to help the City evaluate the possibilities along St. Paul Avenue and North Street and select the best option for the City. Please consider the qualifications and the advantages we bring to you:

- I will serve as the project manager as I did for the previous East/West St. Paul Avenue East/West North Street Traffic Study. **As a professional traffic operations engineer specializing in transportation-related projects, I have provided traffic engineering and project management services on numerous analysis and signal design projects during my 36-year career.** Much of this experience is from my 20-plus years as the chief traffic engineer for Lee County, Florida, and as the traffic engineer for the City of Indianapolis, Indiana. During my time in Indianapolis and Lee County, I was involved with several conversions of streets from one-way to two-way operation and vice versa. As a Waukesha resident, I recognize the issues of the current street operation on St. Paul Avenue and North Street through my daily driving experiences and my previous project work for the City.

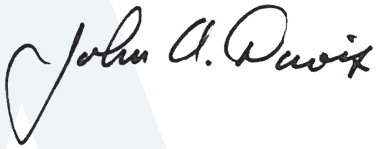
- **Our team** consists of experienced and energetic staff members, including **Ken Voigt, PE, and Tristan Hickman, PE.** Ken has been practicing traffic engineering and planning for nearly 50 years and has been involved with numerous projects in other communities to examine their one-way and two-way street operations. He has a long familiarity with Waukesha and will serve as a valuable resource for the analysis. Tristan has prepared the signal design plans for well over 60 intersections in Wisconsin as well as other states. He understands the design practices of WisDOT and the City of Waukesha.

- **We are very active members of the Congress for New Urbanism, Association of Pedestrian and Bicycle Professionals, and the Institute of Transportation Engineers.** Through our involvement and connections, we can gather insights and lessons-learned experiences from other professionals across the nation that will benefit the outcome of this study.

Thank you for considering our qualifications. Our staff will be readily available and responsive to the City. We look forward to working with you on this project. If you have any questions or need more information after reviewing our material, please contact me.

Sincerely,

Ayres Associates Inc



John A. Davis, PE, PTOE, RSP, TSOS
Senior Traffic Engineer/Project Manager
262.522.4905
DavisJ@AyresAssociates.com

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> The Ayres Associates staff really went the extra mile to make sure we got this project completed. Taking the neighborhood back to its true form, restoring the quaintness and downtown feel that you can see in the old pictures – this project helps to restore the original quality of the area that had been lost over time.
>
> – Nate Piotrowski, Community Development Director, Village of Brown Deer

Project Understanding and Approach

Ayres Associates is very familiar with the corridor of St. Paul Avenue and North Street in Waukesha from not only completing the recent traffic flow study to identify the impacts of a two-way operation along the two streets, but also as daily users and residents of the City. We are excited about this project.

The City of Waukesha is seeking a traffic analysis and the design of traffic signal improvements along St. Paul Avenue from Mountain Avenue to Madison Street. The work will involve using recent intersection volume counts to update the prior Ayres Associates analysis of six intersections along St. Paul Avenue and North Street from Prairie Avenue to Barstow Street for three scenarios: existing one-way operation (no changes to existing lane uses in the corridor), proposed one-way operation (revisions to provide one through lane in each direction on St. Paul from Mountain Avenue to Madison Street), and proposed two-way operation on both St. Paul Avenue and North Street. A crash summary will be prepared at the intersections of St. Paul Avenue/North Street at Wisconsin Avenue, St. Paul Avenue at Madison Street, and St. Paul Avenue from Wisconsin Avenue to Madison Street for inclusion in the City's Design Study Report.

Additionally, the work will include the preparation of design plans for traffic signal improvements and modifications for the intersections of St. Paul Avenue/North Street at Wisconsin Avenue and St. Paul Avenue at Madison Street. Temporary traffic signal plans will also be prepared for the construction. Timing plans for both intersections will be developed for four periods during a day in concert with the balance of the coordinated signal system from Prairie Avenue to Barstow along both St. Paul Avenue and North Street.

Scope of Services

Task 1 – Traffic Engineering Analysis

For this first task, we will obtain turning movement counts for each intersection collected by the City to update the traffic analysis model that we prepared for the previous study along St Paul Avenue and

North Street for Prairie Avenue to Barstow Street. We will also obtain the existing signal timing information from the City for each intersection. The anticipated locations for the study are:

1. St. Paul Avenue and Prairie Avenue
2. St. Paul Avenue and North Street/Wisconsin Avenue
3. St. Paul Avenue and Madison Street
4. St. Paul Avenue and Barstow Street
5. North Street and Madison/Delafield Streets
6. North Street and Barstow Street

It is anticipated that these traffic volume counts will include 13 hours of data from 6 a.m. to 7 p.m. on a weekday.

As part of our quality assurance plan, we would identify the peak hours and the volumes for each movement at each intersection. We would review these hours to identify time differences and then work with City staff to resolve any differences. Once we have reached agreement on the peak hour times, we would then show the volumes for each movement at each intersection on a line diagram and work to balance the volumes throughout the study network. We would first compare these existing traffic volumes with those developed in the recent feasibility study of two-way traffic operations on North Street and St. Paul Avenue that we prepared for the City. Using our intimate knowledge and insights from the previous study and the area, we will identify any differences or issues between the

two volume sets. We would share these findings and the balanced existing volumes with City staff to gain their input and concurrence prior to proceeding to develop future volumes.

The recent intersection traffic counts at each of these six locations will be factored to reflect anticipated traffic volumes in 2022, 2032, and 2042 in both the morning and evening peak periods. The growth factors will be determined based on information provided by the City and the Southeast Wisconsin Regional Planning Commission. We will also discuss with the City staff redevelopment plans in Waukesha's downtown area, such as the Reserve Development project, to assess their influence on future traffic patterns and volumes.

This growth factor will reflect the anticipated diversion of traffic from the St. Paul/North corridor to the west Waukesha bypass that is being constructed and should be completed in the coming years. We plan to discuss the proposed growth factors to be used with City staff prior to applying them to existing volumes. Additionally, the resulting volume sets for each year will be reviewed for balance throughout the study network and shared with City staff to get concurrence prior to using them in the traffic models as an added measure of quality control.

These three sets of projected intersection volumes for 2022, 2032, and 2042 will then be used to examine the intersections under existing one-way operation (no changes to existing lane uses in the corridor), proposed one-way operation (revision to provide one through lane in each direction on St. Paul from Mountain Avenue to Madison Street), and two-way operation on both St. Paul Avenue and North Street.

For the model of two-way operation on both St. Paul Avenue and North Street, it will include a connector street segment, east of Albert Street to divert traffic flow from North Street to St. Paul Avenue. A total of 18 intersection capacity analysis sets are anticipated to be prepared using Synchro 10 and reported using the Highway Capacity Manual methods.

1. Existing one-way operation/street configurations along St. Paul Avenue and North Street
    - Year 2022

        - AM peak period
        - PM peak period
    - Year 2032
        - AM peak period
        - PM peak period
    - Year 2042
        - AM peak period
        - PM peak period

2. Proposed one-way operation with revised cross section on St. Paul Avenue
    - Year 2022
        - AM peak period
        - PM peak period
    - Year 2032
        - AM peak period
        - PM peak period
    - Year 2042
        - AM peak period
        - PM peak period

3. Proposed two-way operation along St. Paul Avenue and North Street
    - Year 2022
        - AM peak period
        - PM peak period
    - Year 2032
        - AM peak period
        - PM peak period
    - Year 2042
        - AM peak period
        - PM peak period

The quality of traffic flow (level of service) for each intersection in each analysis set will be reported along with a brief narrative describing the analysis process and any operational issues at the various locations. Vehicle delay and queue lengths for

each movement will also be reported using the applicable Highway Capacity Manual methods. Recommendations on lane configurations, turn lane storage lengths, and signal operations will also be included in the narrative.

We will obtain traffic crash reports for the past five years along St. Paul Avenue from Wisconsin Avenue to Madison Street. A summary of the crash reports will be prepared for inclusion in the Design Study Report (DSR) to be prepared by the City. The summary will show the number, severity, and collision types at the two signalized intersections and along the corridor.

We will assemble the results and narratives of the intersection capacity and summary of crash reports into a report to be submitted to the City for their review and comment. Upon receipt of comments from City staff, this report will be finalized for submittals by the City to WisDOT for their review.

Task 2 – Traffic Signal Design and Plan Preparations

Ayres will develop traffic signal design plans for 30%, 60%, 90% (Draft PS&E), and Final PS&E submittals. The traffic signal phasing schemes identified in the preferred scenario from the traffic engineering analysis will be used as a basis for the traffic signal design plans for both intersections – St. Paul Avenue/North Street at Wisconsin Avenue and St. Paul Avenue at Madison Street. We anticipate that temporary traffic signals plans will also be included in the design activities.

For St. Paul Avenue/North Street at Wisconsin Avenue, we anticipate that all traffic signal-related equipment, cabinet, controller, poles, and mast arms will be replaced, and that flashing yellow arrow phasing schemes will be used to some degree.

For the traffic signal at St. Paul Avenue and Madison Street, it is anticipated that the existing cabinet, controller, equipment, conduits, handholes, poles. and mast arms will be retained, and that the design plans for the traffic signal installation will only reflect changes in signal head configuration (placement and type) and phasing needed to accommodate left turn lanes on St. Paul Avenue and the use of flashing yellow arrows. Traffic signal design services that involve changes to existing pole locations or to

different mast arms and poles due to changes to the locations of curbs or other geometric features within the existing curblines on St. Paul Avenue would be considered an additional service.

Additionally, consideration will be given to using the existing traffic signal heads and equipment at St. Paul Avenue and Madison Street during construction instead of temporary signals. Since the City desires to use flashing yellow arrows for left turn movements at St. Paul Avenue and Madison Street in the permanent installation, we would propose that the signal displays be changed to flashing yellow arrows for St. Paul Avenue traffic prior to construction staging that would reduce St. Paul Avenue to a single travel lane in each direction. In this fashion, the flashing yellow arrow displays can be used to operate a split phase sequence, if needed, for vehicles on St. Paul Avenue as part of the construction staging schemes without the need for temporary traffic signals to be constructed or installed on the existing mast arms. This approach could be a potential cost savings for the project.

These signal design plans will be produced using AutoCAD Civil 3D 2018 following the WisDOT Civil 3D standards and templates. A base file will be provided of the proposed traffic signal designs prior to the WisDOT submittals and as requested by the City. We will prepare plans, specifications, and estimates for the signal designs along with any special provisions.

Task 3 – Traffic Signal Timing Plan Development

Ayres will use the traffic analysis model of the preferred scenario for St. Paul Avenue to develop timing patterns for the morning, mid-day, evening,

and non-peak hours of operation. We would plan to select a time period outside of the morning, mid-day, and evening peak hours to represent the non-peak hours of operation. The selection of the peak hours will be discussed with City staff to get agreement prior to commencing the development of timing plans. The resulting signal timing and plans and other parameters will be submitted to City staff for their review and approval.

Task 4 – Transportation Management Plan (TMP) Development

We will work with the City's staff to identify the phases of construction staging and prepare a TMP according to WisDOT requirements for up to four anticipated staging phases. The TMP is anticipated to be a Type 2, which would require analysis of each intersection operation during the various stages. If the staging plans would call for additional phases, an all-way stop controlled intersection or a separate detour, any additional analyses would be considered an additional service, and could be done with a written amendment to the agreement.

Task 5 – Meetings

We plan to participate in a kick-off meeting and review meetings at the 30%, 60%, and 90% draft milestones of the design. While our project work is active, we would plan to participate in bi-weekly conference calls. With the project schedule being about 24 months in length from notice-to-proceed to final PS&E, we would anticipate that Ayres would be involved in about 50% of any bi-weekly calls. Therefore, we anticipate participating in up to 24 project conference calls.

If participation in additional project conference calls is requested and authorized, they will be considered an additional service. We can also participate in additional meetings of the public or City's boards and Common Council as requested and authorized as an additional service.

Schedule

Task Milestone	Target Date
Initial Kickoff	August 2019
Task 1 – Traffic Engineering Analysis	
Draft Report	November 1, 2019
Final Report	December 1, 2019
Tasks 2 and 4 – Traffic Signal Design and TMP Development	
30% Plans	February 1, 2020
Review Meeting 3/1/20	March 2020
60% Plans	July 1, 2020
Review Meeting	August 2020
90% Plans and Draft PS&E	May 1, 2020
Review Meeting	June 2020
Final PS&E	August 1, 2020
Task 3 – Traffic Signal Timing Plan Development	
Initial Plan	July 1, 2020
Final Plan	May 1, 2021

Previous Experience/References

About Ayres Associates

Ayres Associates is a multi-specialty architectural/engineering consulting firm providing services from a network of 11 offices in four states. We will serve the City of Waukesha from our Waukesha office.

Traffic Engineering Services

Safe roadway travel is nearly impossible without quality traffic engineering. Ayres Associates has in-house traffic engineers committed to providing safe, efficient travel. Our traffic engineering staff provides a range of services to public and private clients, including:

Intersection and corridor capacity analysis	Traffic signal design, operations, and timings
Traffic impact analysis and peer review	Traffic modeling and microsimulation
Work zone user delay analysis	Traffic taming
Warrant analysis	Origin-destination studies
Crash and safety analysis	Speed studies
Pedestrian, school, and bicycle studies	Signing and pavement marking design and evaluation
Traffic counting	Corridor planning
Parking analysis/design	Access management
Consensus building	Context-sensitive solutions

Our traffic engineers help our clients handle increased demand on their roadways while maintaining safety for motorists, pedestrians, and bicyclists. We are specialists in untying traffic tie-ups.

Project Experience

Ayres Associates staff, project manager John Davis, and traffic engineer Tristan Hickman have completed a number of projects with requirements similar to those of the St. Paul Avenue and North Street traffic and design services project. Descriptions of several of these are provided on the following pages. Additionally, John has been involved with the planning and implementation of one-way to two-way street conversions in his prior employments with the City of Indianapolis and with Lee County, Florida.

City of Waukesha East/West St. Paul Avenue-East/West North Street Traffic Study

Client: City of Waukesha
Completion Date: 2017
Key Staff: John Davis, Alexandria Motl

The City of Waukesha was interested in increasing access to businesses in the downtown area by converting North Street and St. Paul Avenue from one-way to two-way traffic operations. The City hired Ayres Associates to conduct a study evaluating the feasibility of the conversion, determine lane configurations at each intersection, and determine the expected peak-hour traffic operation conditions under the conversion.

This report analyzed existing conditions and a final preferred street configuration. A phased implementation plan with two sequence options was presented. The preferred configuration has several key components and several elements that are more flexible depending on design costs, scheduling, and public involvement. Key components of the preferred configuration include:

- Full conversion to two-way traffic on all segments of both study corridors.
  - North Street would be converted from one-way to two-way traffic operations between Wisconsin Avenue and Albert Street.
  - East St. Paul Avenue would be converted from one-way to two-way traffic operations between NW Barstow Street and Albert Street.
- A two-way left-turn lane (TWLTL) would be installed on West St. Paul Avenue between Wisconsin Avenue and Madison Street.
- Left turns from Delafield Street onto East North Street will be prohibited due to the skew of Delafield Street.
- A connection will need to be constructed between North Street and St. Paul Avenue to

encourage traffic diversion. It is expected that a significant amount of existing westbound East North Street traffic will need to divert to westbound St. Paul Avenue to provide reasonable levels of service (LOS "D" or "E") on both corridors under two-way operation.
- The only construction required for the conversion will be for the new connection. All other components of the conversion will involve removing and replacing pavement markings and installing the necessary signage and traffic signal hardware.

Configuration elements that involve some flexibility focus primarily on design alternatives for the connection between North Street and St. Paul Avenue:

- Connection could begin east or west of where Pewaukee Road merges with East North Street.
- Access to connection from Pewaukee Road could be permitted or prohibited based on design.
- Access to St. Paul Avenue could be provided at the existing St. Paul Avenue intersection with Albert Street, or on Albert Street midblock between East North Street and East St. Paul Avenue.

Manitowoc USH 10/STH 42 (Waldo Boulevard) Urban Reconstruction

Client: Wisconsin Department of Transportation, Northeast Region
Completion Date: 09/14/2018
Key Staff: John Davis, Ken Voigt, Alexander Cowan, Tristan Hickman

The Wisconsin Department of Transportation, Northeast Region, retained Ayres Associates to prepare preliminary and final plans for USH 10/STH 42 (Waldo Boulevard), a four-lane urban roadway in the City of Manitowoc. The project involves a public involvement process to identify the street's cross-section and intersection controls, street reconstruction and rehabilitation, bridge and culvert design, landscape design, and mobile lidar mapping.

Ayres' Ken Voigt led an extensive public involvement program, including advisory committee and City Council meetings, to gain consensus for the typical cross section of the street to be used along USH 10/STH 42, proposed roundabouts at two intersections, and an intersection realignment for improved intersection safety. "Complete streets" features and bus accommodations are being implemented.

The Ayres Traffic Group completed ICE Reports for the study intersections to identify the future lane geometrics and traffic control options to be considered for the intersections.

New traffic signals will be installed at the intersections of CTH "R", 18th Street, 11th Street, and 8th Street. A new dual lane roundabout will be installed at Maritime Drive. The traffic signals will operate under a coordinated system using signal timings, cycle lengths, and offsets developed by Ayres.

City of Green Bay North Webster Avenue (University Avenue to Radisson Street) Reconstruction

Client: City of Green Bay
Completion Date: 06/07/2019
Key Staff: John Davis, Tristan Hickman, Ken Voigt, Alexandria Motl

The City of Green Bay retained Ayres Associates to design approximately one mile of North Webster Street from University Avenue to Radisson Street. The existing urban roadway is an undivided four-lane roadway that will be designed to a four-lane divided roadway, with the addition of bioretention practices included in the proposed boulevard. The project includes removal of 24 homes for the addition of a boulevard and recreational trail along the east side of Webster Avenue. In addition, there will be replacement of two signalized intersections and upgrades to storm sewer throughout the project. Extensive coordination will be needed with utility companies and the Canadian National Railroad. Webster Avenue is a major north-south corridor for traffic into and out of the City, so the project will be staged during construction. The project received STP urban funding.

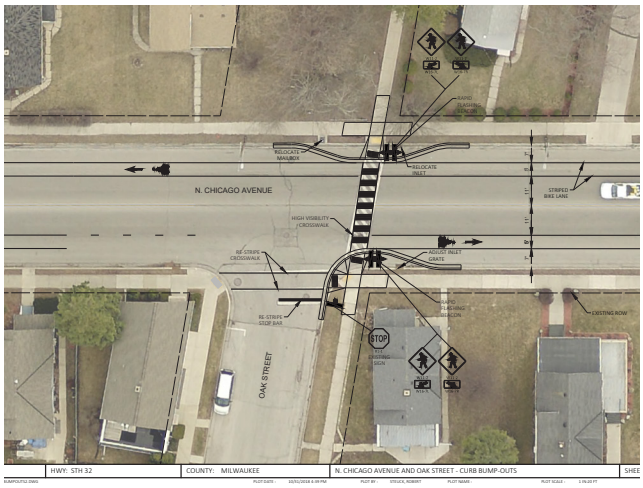
South Milwaukee Chicago Avenue/Oak Street Intersection Alternative Analysis

Client: City of South Milwaukee
Completion Date: 2019
Key Staff: John Davis, Tristan Hickman, Alexandria Motl

The City of South Milwaukee had a problem with unsafe pedestrian crossing conditions that were endangering school children living east of a busy roadway who needed to cross at an existing pedestrian crossing to reach a high school and middle school to the west. Speeding on the north-south Chicago Avenue – as well as a lack of well-planned pedestrian signage – makes it difficult for students to cross the street safely.

The City hired Ayres Associates improve the pedestrian crossing and access on the south side of Chicago Avenue's intersection with Oak Street. To provide a safer crossing for pedestrians and encourage motorists to proceed with caution when pedestrians and bicyclists are near the intersection, our team recommended three improvements that were tailored to the funds available for the project.

Ayres provided conceptual designs and cost estimates for each proposed improvement. To support each of the alternatives, our experts looked at existing traffic data and performed a speed study on the corridor to determine the present conditions. Recommendations ranged from installing curb bump-outs to installing pedestrian refuge islands. Our team consistently recommended bike lanes and a high-visibility crosswalk to draw attention to the key crossing as motorists traveled on Chicago Avenue.



Wauwatosa Watertown Plank Road Bridge Rehabilitations

Client: WisDOT, Southeast Region
Completion Date: 2017
Key Staff: John Davis, Tristan Hickman

The Wisconsin Department of Transportation retained Ayres Associates to provide preliminary and final roadway and structure plans to replace the concrete deck and roadway approaches on two adjacent structures on Watertown Plank Road in the City of Wauwatosa, west of STH 100 (Mayfair Road). The bridges cross two railroads, Underwood Creek, and the Milwaukee County Oak Leaf Trail.

The bridge decks were replaced due to deterioration and widened to provide for on-road bicycle accommodations. Work was staged to maintain traffic at all times by the use of median crossovers.

Extensive public involvement was required for this project due to the confined work zone; number of businesses, including large office complexes, within the project area; proximity of this project to Zoo Interchange reconstruction; and the presence of the police department and Wauwatosa Fire Station #53 adjacent to the project limits. In addition to a local official and public involvement meetings, individual meetings were held with emergency services and businesses in the area to get their input for the construction staging. Ayres prepared a transportation management plan (TMP) for the project. A detour route was created for the users of the Oak Creek Trail to accommodate bicyclists and pedestrians during construction.

Services included survey; agency coordination; railroad coordination; the environmental document; public involvement and meetings; the DSR; preliminary and final roadway design; traffic control staging plans and signing; preliminary and final structure plans; and final PS&E.

A contractor constructability workshop was coordinated and held through WTBA for this project. This was an interactive workshop between design staff and contractors to address items such as project access, construction staging, and construction schedule. The goal was to work jointly with contractors to provide a PS&E package for a project with various unique challenges that could be bid tightly and within budget.

Waukesha Traffic Signal Design Peer Review

Client: City of Waukesha
Completion Date: 2018 and 2019
Key Staff: John Davis, Tristan Hickman

The City of Waukesha desired to have a peer review performed on traffic signal design plans prepared by City staff. Ayres Associates provided qualified staff to conduct the review. The City prepared design plans for the following intersections: W. Main Street at N. East Avenue; N. Grandview at Madison Street; and Main Street at Perkins Avenue.

Resumes and Qualifications of the Team

Ayres Associates will provide an experienced team to the City of Waukesha for your St. Paul Avenue and North Street corridor traffic study and traffic signal design plans on St. Paul Avenue. Our team of professional engineers, technicians, and support staff has successfully completed many similar traffic engineering projects throughout the state and especially in southeastern Wisconsin. Our traffic engineering group is based in Waukesha. We know how to work with you to complete this project efficiently.

John Davis, PE, PTOE, will serve as project manager. He will be your primary contact, attend meetings, schedule work, monitor progress and budgets, and see that this project is completed to your satisfaction. He has completed dozens of similar projects in his career.

Our project team members and their roles are listed below. Resumes showing relevant experience for our project team members follow in this section.

Team Member	Project Role	Years of Experience	Project Tasks
John Davis, PE, PTOE, RSP, TSOS	Project Manager	36	Project management, billing, assignments, traffic operational analysis, traffic analysis, public involvement
Alex Cowan, PE Ken Voigt, PE	Quality Assurance / Quality Control	12 52	QA/QC
Tristan Hickman, PE	Signal Design	12	Traffic signal design.
Alex Motl, PE	Traffic Analysis and TMP	5	Traffic analysis and TMP.
Brett Glaeser	Civil Engineering	2	Intersection/street design elements and signal design

Davis

Cowan

John Davis, PE, PTOE
Project Manager

Registration: Registered Professional Engineer, WI, WY, GA, IN, FL, IL, MN, IA

Certifications: Professional Traffic Operations Engineer, 1999; Traffic Signal Operations Specialist, 2008; Wisconsin DOT Traffic Impact Analysis Certification, 2005

Education: MS, Civil Engineering, Purdue University, 1987; BS, Civil Engineering, Purdue University, 1982

Professional Associations: Institute of Transportation Engineers, Fellow; Congress for the New Urbanism, Advocate

John joined Ayres Associates in 2007, bringing 25 years of traffic engineering experience. He is manager of Ayres Associates' traffic engineering group. John previously dedicated more than 20 years to serving the traffic divisions in large metropolitan areas. His project experience includes traffic control design and operations, geometric design, traffic impact studies, and traffic control evaluations. He has demonstrated his commitment to moving the traffic engineering profession forward as a fellow of the Institute of Transportation Engineers (ITE) since 1998 and as a member of ITE since 1981. His experience includes:

- City of Waukesha East/West St. Paul Avenue East/West North Street Traffic Study
- South Milwaukee Chicago Avenue/ Oak Street Intersection Alternative Analysis
- Manitowoc USH 10/STH 42 (Waldo Boulevard) Urban Reconstruction
- City of Green Bay North Webster Avenue (University Avenue to Radisson Street) Reconstruction
- Waukesha Traffic Signal Design Peer Review

Alex Cowan, PE
QA/QC

Registration: Registered Professional Engineer, WI

Education: BS, Civil Engineering, University of Wisconsin-Milwaukee, 2008

Professional Associations: Institute of Transportation Engineers, Member; Congress for the New Urbanism, Advocate

Alex has experience with studies for intersection, interchange, and freeway capacity analysis; traffic data collection; traffic impact analysis; transportation management plans; traffic safety analysis; warrant studies; traffic signal design; and traffic operations analysis and intersection geometric design for signalized and roundabout intersections. His background in traffic analysis software includes programs such as HCS and Synchro. He specializes in microsimulation modeling with experience using Paramics and SimTraffic software. He has been a member of ITE since 2008. His experience includes:

- Manitowoc USH 10/STH 42 (Waldo Boulevard) Urban Reconstruction
- Janesville Two-way Street Conversion
- City of Milwaukee Prospect/ Farwell Two-way Street Conversion
- Janesville Dean Hospital Traffic Impact Analysis
- City of Eau Claire Parking Study and Traffic Impact Analysis
- River Hills Preliminary Traffic Analysis
- City of Wauwatosa Burleigh Street Bike/Ped Alternatives Analysis
- Wauwatosa Mayfair Collection Traffic Impact Analysis

Hickman

Motl

Tristan Hickman, PE
Traffic Engineer

Registration: Registered Professional Engineer, WI, FL, WY

Certifications: Certified Traffic Impact Analysis Preparer, WI, 2008

Education: BS, Civil Engineering, University of Wisconsin-Milwaukee, 2007

Professional Associations: Institute of Transportation Engineers, Member; Congress for the New Urbanism, Advocate

Tristan joined Ayres Associates in 2007 with experience in traffic and transportation engineering. He has prepared traffic impact analyses for residential, commercial, and industrial developments; designed over 60 traffic signals throughout Wisconsin, Arizona, Wyoming, and Florida; prepared traffic signal timing plans for standalone intersections and corridors; and worked with local communities to study and design roadway sections aimed at providing safe pedestrian and bicycle friendly solutions in urban areas with a complete streets approach to design. He specializes in microsimulation modeling with experience using VISSIM and SimTraffic. He frequently uses the HCS, Synchro and SIDRA software packages to complete traffic analysis. His experience includes:

- Wauwatosa 68th Street and North Avenue Traffic Signal Design
- City of Wauwatosa Burleigh Street Bike/Ped Alternatives Analysis
- South Milwaukee Chicago Avenue/ Oak Street Intersection Alternative Analysis
- Manitowoc USH 10/STH 42 (Waldo Boulevard) Urban Reconstruction
- City of Green Bay North Webster Avenue (University Avenue to Radisson Street) Reconstruction

Alex Motl, PE
Traffic Engineer

Registration: Registered Professional Engineer, WI

Education: MS, Civil & Environmental Engineering, University of Wisconsin-Madison, 2014; BS, Foreign Service: Science, Technology & International Affairs, Georgetown University-Walsh School of Foreign Services, 2008

Professional Associations: Institute of Transportation Engineers, Member; Women's Transportation Seminar, Member

Alex joined Ayres Associates in 2014 with experience in traffic operations and safety. She assists the traffic engineering staff with studies for intersection, interchange, and freeway capacity analysis; traffic counting data and counts; traffic impact analysis; TMPs; crash and safety analysis; warrant studies; and traffic operations analysis and intersection geometric design for signalized and roundabout intersections. Her background in traffic analysis software includes programs such as HCS and Synchro/SimTraffic. Her experience includes:

- City of Waukesha East/West St. Paul Avenue East/West North Street Traffic Study
- South Milwaukee Chicago Avenue/ Oak Street Intersection Alternative Analysis
- Manitowoc USH 10/STH 42 (Waldo Boulevard) Urban Reconstruction
- City of Green Bay North Webster Avenue (University Avenue to Radisson Street) Reconstruction
- City of Milwaukee Prospect/ Farwell Two-way Street Conversion
- City of Wauwatosa Burleigh Street Bike/Ped Alternatives Analysis
- River Hills Preliminary Traffic Analysis

Voigt

Glaeser

Ken Voigt, PE
QA/QC

Registration: Registered Professional Engineer, WI

Education: MS, Transportation Engineering, University of Wisconsin-Milwaukee, 1974; BS, Civil Engineering, University of Wisconsin-Madison, 1966

Ken has more than 52 years of experience in conducting traffic safety studies, roadway operation analysis, traffic calming, and neighborhood street system design. He has led numerous focus group sessions to build consensus and to develop a context-sensitive design approach to projects. Ken's experience on large, complex corridor management projects ranging from capacity improvements to ITS applications, along with his common-sense approach to traffic management, provides insight into solving clients' traffic problems. His public involvement skills make a real difference in how projects are received. His experience includes:

- Manitowoc USH 10/STH 42 (Waldo Boulevard) Urban Reconstruction
- City of Green Bay North Webster Avenue (University Avenue to Radisson Street) Reconstruction
- Marquette Interchange Rehabilitation Traffic Services
- Milwaukee Third Ward Parking Study
- City of Milwaukee Hoan Bridge Preliminary Traffic Analysis
- USH 51 (Wausau to Merrill, CTH "U"/CTH "K"/B51 Interchange)
- IH 794 Lake Freeway/Hoan Bridge Traffic Services

Brett Glaeser
Civil Engineering Staff

Education: BS, Civil Engineering, Marquette University, 2017

Brett, who joined Ayres Associates in 2017, provides construction inspection services and assists with the design of sanitary sewer, storm sewer, water main, and roadway reconstruction. Brett has experience working in the public and private sectors, including inspecting water main, sanitary sewer, storm sewer, and paving projects; designing concrete curb, gutter, and sidewalk projects in the field; developing construction review reports; communicating with contractors on the status of projects; using WinSLAMM software for stormwater management plans; and providing survey and staking on street projects. His experience includes:

- UW Madison South Campus Utility Improvements
- City of Waukesha Road Management Pavement Assessment
- Village of Menomonee Falls Garfield Drive Storm Sewer/ Roadway Design Plans
- Green Bay Water Utility Construction Services
- Beloit Road Sidepath Design Services
- Walworth County Campus Sanitary Sewer
- Cleveland & Patton Watermain Design, Menomonee Falls, WI
- Milwaukee Harboe View Plaza, Phase II

Staff Availability

Staff	Current Commitments	Availability
John Davis, PE, PTOE, RSP, TSOS Project Manager	• Neenah Traffic Study • Waukesha Barstow Traffic Analysis Study • Rockford IL Traffic Analysis	08/19 forward 70%
Alex Motl, PE Traffic Analysis and TMP	• Waukesha Barstow Traffic Analysis Study • Sonnentag Community Center Development Plan • Pabst Farms Traffic Impacts Study • Reviews Miscellaneous Traffic Studies	08/19 forward 60%
Tristan Hickman, PE Traffic Signal Design	• Various Signal Designs • Neenah Traffic Study • Mayfair Collection Traffic Review	08/19 forward 50%
Alex Cowen, PE QA/QC	• Beltline Interchange • School Sisters of Notre Dame • Miscellaneous Traffic Studies	08/19 forward 65%
Ken Voigt, PE QA/QC	• Neenah Traffic Study • Mayfair Collection Traffic Review	08/19 forward 65%
Brett Glaeser Civil engineering and signal design	• Waukesha Road Ratings	08/19 forward 60%