

**MEETING ANNOUNCEMENT**  
**Meeting of Madison Area Transportation Planning Board**  
**A Metropolitan Planning Organization (MPO)**

**January 9, 2019**

**Madison Water Utility Building**  
**119 E. Olin Avenue, Room A-B**

**6:30 p.m.**

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Yog tias koj xav tau ib tug neeg txhais lus, xav tau cov ntaub ntawv ua lwm hom ntawv, los sis lwm yam kev pab kom koom tau rau lub rooj sib tham no, hu rau Madison Lub Tuam Tsev Xyuas Txog Kev Npaj, Lub Zej Zos thiab Kev Txhim Kho (Madison Planning, Community & Economic Development Dept.) ntawm (608) 266-4635 los sis TTY/TEXTNET (866) 704-2318.  
*Thov ua qhov no yam tsawg 48 teev ua ntej lub rooj sib tham kom thiaj li npaj tau.*

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## **AGENDA**

1. Roll Call
2. Approval of December 5, 2018 Meeting Minutes
3. Communications
4. Public Comment (for items *not* on Agenda)
5. Approval to Issue Request for Proposals to Update and Enhance the Regional Travel Model
6. Adjournment

**Madison Area Transportation Planning Board (an MPO)  
December 5, 2018 Meeting Minutes**

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**1. Roll Call**

**Members present:** David Ahrens, Allen Arntsen (arrived during item #5), Kelly Danner, Paul Esser, Ken Golden, Chuck Kamp, Jerry Mandli (arrived during item #5; departed during item #6), Mark Opitz (attended via telephone; departed after items #5), Larry Palm, Bruce Stravinski, Doug Wood

**Members absent:** Steve Flottmeyer, Ed Minihan, Zach Wood

**MPO staff present:** Bill Holloway, Bill Schaefer

**Others present in an official capacity:** Lisa Coleman (Director, City of Fitchburg Public Works), Bill Balke (Transportation Engineer, City of Fitchburg), Mike Scarmon (KL Engineering)

**2. Approval of November 7, 2018 Meeting Minutes**

Moved by Esser, seconded by Golden, to approve the November 7, 2018 meeting minutes. Motion carried with D. Wood and Kamp abstaining.

**3. Communications**

- Letter from Wisconsin Department of Transportation and Federal Highway Administration approving amendment to 2018 Work Program extending the period of eligibility for MATPB to expend some of the remaining 2018 Work Program funds for the travel modeling project until May 31, 2019.
- Notice of public hearing on the proposed improvement of the Interstate Highway 39/90 and USH 12/18 (Beltline) Interchange, along with summary of the preferred design alternative.
  - Schaefer explained the preferred alternative to the board members, and noted that the number of northbound lanes drops from 3 to 2 just north of the exit ramp to US 12/18, and it will be the left lane that drops. This alleviates the potential problems associated with the right lane becoming exit-only, and forcing drivers to merge left. He also said that structures along the highway will be built to accommodate an additional northbound through lane so that one can be added during potential future projects that make more significant improvements to the interchange area. He said MPO staff was more comfortable with design alternative now.
- Flyer on Bus Rapid Transit project kickoff meeting at the Madison Central Library on December 12.

**4. Public Comment (for items *not* on MATPB Agenda)**

None

**5. Presentation on North Fish Hatchery Road Reconstruction Project(City of Fitchburg Staff and Consultant)**

Schaefer introduced Mike Scarmon, KL Engineering, the project manager, Bill Balke, City of Fitchburg Transportation Engineer, and Lisa Coleman, City of Fitchburg Director of Public Works. He noted that the reconstruction project is a joint project between the City of Fitchburg and Dane County, and that the City is wrapping up the process of selecting a design alternative. He said asked for a presentation to the MPO Board so it could weigh in on the design and in particular the issue of whether the bus lanes will be retained. Mike Scarmon provided a Powerpoint presentation on the reconstruction of North Fish Hatchery Road from Greenway Cross to just south of CTH PD, including a discussion of the alternatives under consideration, the project timeline, and funding sources. He said the staff recommendation was to select the alternative that retains the bus/bike/right turn lanes and adds off-street bike facilities on both sides. The city's transit and transportation committee supported that recommendation.

Opitz asked about the decision referenced to not widen the footprint of the roadway as part of the project. Scarmon replied that the project was originally envisioned as a simple reconstruction project without major changes and that, while the project will be much larger than originally conceived, expanding the roadway's footprint would conflict with budget and timeline restrictions. Opitz expressed his concern that BRT is a regional priority and he wanted to make sure that the road will be properly designed to support BRT.

Ahrens asked how costs for the project will be divided between the different funding jurisdictions. Coleman said that some will be coming from the county, some will be coming from a tax increment district, and that the city is looking for additional sources of funding. Ahrens asked how much the county was expected to pay. Coleman said that county funding would not be a large portion of the funding. Balke added that the county had initially approached the city with an offer to pay 15% of total project costs if the city would agree to a jurisdictional transfer whereby the city would assume responsibility for long-term maintenance of the road. However, the city did not feel that the county's proposed contribution was enough to justify the city assuming jurisdiction over the roadway so the city began planning to pay 100% of the costs for all of the improvements. He said the county recently approached the city with an improved cost-share offer (40% of total project costs) if the city would agree to the jurisdictional transfer. This proposal will be considered by the City Council. Ahrens asked if the City of Madison would be contributing funding for the project. Balke replied that Madison would be paying a small portion of the cost for work on the northbound lanes at the north end of the project area. He said he thought Madison's share would be about \$775,000. Ahrens asked if the state would be participating. Balke said that it would not.

Golden asked about the distribution of traffic north of the project area – how much got onto the Beltline east- and westbound and how much continued north on Fish Hatchery – and whether Fish Hatchery north of the project area could accommodate the new traffic. Scarmon said that the question was difficult to answer and that the data that is available is tainted by the current Verona Road reconstruction project, but that there is no clear pattern of diversion from Verona Road to Fish Hatchery Road. Golden said it would be irresponsible to proceed with a capacity expansion without analyzing the downstream traffic impacts. Scarmon replied that the MPO's travel model suggests about 4,000 additional vehicles per day (without any assumed redevelopment in the corridor). He said about 50% of the northbound traffic would exit onto the eastbound Beltline, while the other 50% would continue north, with some traffic getting on the westbound Beltline and some continuing north on Fish Hatchery. He said he didn't know how much of that 50% of additional traffic continued north on Fish Hatchery Road versus getting on the westbound Beltline. Golden said he wanted to see that data. He then asked whether the project team had projected increased ridership on Madison Metro, and Scarmon said that the project team had not been charged with doing that type of projection. A senior apartment complex and other redevelopment in the corridor will generate additional riders though.

Golden then asked about the feasibility of consolidating driveways. Scarmon said two property owners have agreed to this; others may need some convincing. He noted that some driveways will be relocated to other streets, including Pike Drive. Golden suggested narrowing the travel lanes. Scarmon replied that the project team had explored ways to maximize space in the corridor and the designs all include narrower lanes than there are currently, with a total reduction of about 3 feet. He said reducing the lane widths further would be problematic due to truck volume in the corridor.

Kamp thanked the project team for working with Metro and Madison staff. He noted that Mike Cechvala now works for the City of Madison Department of Transportation and that Tom Lynch is now the director of Madison's Department of Transportation overseeing Metro, Parking, and Traffic Engineering. He said that Lynch has been able to bring a more systematic and multimodal approach to transportation. He commented that the Route 75 service in the corridor to Epic could be tripled if Metro had the buses given the pent up demand and said there was a lot of potential for increased transit service in the project corridor.

Palm invited the registrant, Robbie Webber (2613 Stevens St, Madison), to speak. Webber said bicyclist and pedestrian safety was a major concern. She commented that the 8-foot off-street paths planned for both sides of the road are too narrow for two-way bike and pedestrian traffic and suggested that, if the space for paths cannot be increased, one of the paths should be increased to ten feet and the other be reduced to six. Webber said that using TIF funding required maximizing land values and the way to do that was making a pedestrian and bike friendly roadway. She recommended designing the roadway for 30 mph speeds, reducing the number of driveways to improve safety, and improving pedestrian street crossings.

Esser questioned the reason for discussing the roadway design in such depth. Schaefer said board comments on general design elements were appropriate, but that the primary reason for bringing the project before the board was the issue of the bus lanes. Retaining the bus lanes was consistent with the MPO's regional transportation plan. He applauded staff for recommending retention of the bus lanes, which was a politically difficult position given the current relatively low of them. He mentioned that Metro would stand to lose around \$50,000 a year in fixed guideway funding if the bus lanes were removed. Golden agreed with Schaefer about the importance of retaining the bus lanes. He said providing input on bike and pedestrian facilities along the corridor was also within the board's charge and that the road needed to be slowed down.

D. Wood clarified with Schaefer that the MPO board only had approval authority over the project if the bus lanes were to be removed, which was not being recommended now. Arntsen said that he thought the project had been thoroughly discussed. Schaefer said he would plan to attend the meetings on the project the following week, including the City Council meeting.

#### **6. Review and Approval of Strategic Work Plan to Improve the Regional Travel Model and Other Planning Tools as Guide for Future Work Programs**

Schaefer summarized the work plan the process for preparing it, which started with a list of important regional planning issues. The work plan components are designed to improve the ability to address those issues and better quantify whether plans and projects were helping to achieve plan goals and policies. The plan would serve as a guide for preparing future work programs. He said the first major project to be implemented from the plan was the travel model update, recalibration, and improvement project.

Palm reminded board members about its responsibility to carefully consider the plan because the document sets a foundation that will guide future actions. Esser commented on the technical nature of the plan and said he trusted staff. He said the plan looked well thought out and he supported it.

Moved by Kamp, seconded by Arntsen, to approve the work plan as guide for future work programs. Motion carried.

#### **7. Presentation on Bicycle Level of Traffic Stress Work and Approval to Release Report**

Schaefer introduced the report and Holloway provided a short presentation with a review of the level of traffic stress (LTS) methodology and uses.

Stravinski suggested adding railroad crossings, particularly those that are not at a 90-degree angle, to the list of factors not considered in the methodology on page six of the report. Schaefer agreed that would be a good addition.

Moved by Arntsen, seconded by D. Wood, to approve releasing the report. Motion carried.

#### **8. Status Report on Capital Area RPC Activities**

Schaefer noted that the landlord for the MPO's current office location agreed to let the MPO out of its lease as early as the end of June if it secured another office space so long as four months notice was provided.

Schaefer said an office location at 100 State Street was currently being considered. Schaefer noted that there is a planned joint meeting with CARPC on January 9. The meeting would mainly be focused on reviewing the workgroup report and recommendations.

**9. Announcements and Schedule of Future Meetings**

The next meeting of the MPO Board will be Wednesday, January 9 at 6:30 pm at the Madison Water Utility, 119 E. Olin Avenue, Room A-B.

**10. Adjournment**

Moved by Esser, seconded by Kamp, to adjourn. Motion carried. The meeting adjourned at 8:12 PM.



## Wisconsin Department of Transportation

[www.dot.wisconsin.gov](http://www.dot.wisconsin.gov)

Scott Walker  
Governor

Dave Ross  
Secretary

Office of the Secretary  
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December 14, 2018

Michael Davies  
Division Administrator  
Federal Highway Administration  
U.S. Department of Transportation  
525 Junction Rd. Suite 8000  
Madison, Wisconsin 53717

Kelley Brookins  
Regional Administrator  
Federal Transit Administration  
U.S. Department of Transportation  
200 W. Adams Street, Suite 320  
Chicago, Illinois 60606

Dear Mr. Davies and Ms. Brookins:

Under the authority delegated to me by Governor Scott Walker, I am hereby approving the 2019 – 2023 Transportation Improvement Program (TIP) for the Madison Metropolitan Area & Dane County. The Wisconsin Department of Transportation (WisDOT) will reflect by reference the 2019 – 2022 federal aid projects covered by this approval in our 2019 – 2022 Statewide Transportation Improvement Program (STIP), subject to the understandings I have indicated below.

The TIP, amended by the Madison Area Transportation Planning Board in Resolution No. 147 dated November 7, 2018, represents a cooperative effort between the Metropolitan Planning Organization (MPO), local communities, the Madison transit operator, and WisDOT, and is designed to meet the objectives and recommendations of the 2050 regional transportation system plan. A copy of the resolution approving the TIP is attached.

Based on our review, we believe that the TIP fulfills the federal transportation and planning requirements (Title 23 U.S.C. 134 and 135 and their implementing regulations 23 CFR 450 as amended) with respect to the inclusion of: 1) a four-year priority list of projects; 2) a financial plan that reflects federal, state and local resources that are reasonably expected to be available during this program period; and 3) both transit and highway projects to be funded with Federal Transit Act and Title 23 funds. Opportunities for public review and comment on the proposed TIP were provided through a public meeting and legal notice requesting citizen input.



Michael Davies  
Kelley Brookins  
December 14, 2018  
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In accordance with 23 CFR 450.336, the Wisconsin Department of Transportation (WisDOT) hereby certifies that the metropolitan transportation planning process is addressing major issues facing the State and its urbanized areas, and is being carried out in accordance with the following requirements:

- (1) 23 U.S.C. 134 and 135, 49 U.S.C. 5303 and 5304, and this part;
- (2) In non-attainment and maintenance areas, sections 174 and 176 (c) and (d) of the Clean Air Act, as amended (42 U.S.C. 7504, 7506 (c) and (d)) and 40 CFR part 93;
- (3) Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d-1) and 49 CFR part 21;
- (4) 49 U.S.C. 5332, prohibiting discrimination on the basis of race, color, creed, national origin, sex, or age in employment or business opportunity;
- (5) Section 1101(b) of the Fixing America's Surface Transportation Act (FAST Act) (P.L. 114-357), and 49 CFR Part 26 regarding the involvement of disadvantaged business enterprises in the US DOT funded projects;
- (6) 23 CFR part 230, regarding implementation of an equal employment opportunity program on Federal and Federal-aid highway construction contracts;
- (7) The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) and 49 CFR parts 27, 37, and 38;
- (8) The Older Americans Act, as amended (42 U.S.C. 6101), prohibiting discrimination on the basis of age in programs or activities receiving Federal financial assistance;
- (9) Section 324 of title 23 U.S.C., regarding the prohibition of discrimination based on gender; and
- (10) Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794) and 49 CFR part 27 regarding discrimination against individuals with disabilities.

The TIP will become effective upon your subsequent approval of WisDOT's 2019 – 2022 STIP.

Sincerely,



Dave Ross  
Secretary

ecc: William Schaefer, MPO  
Mary Forlenza, FHWA  
Mitch Batuzich, FHWA  
Matthew Spiel, FHWA  
William Wheeler, FTA  
Evan Gross, FTA  
Stephen Flottmeyer, WisDOT Southwest Region  
Charles Wade, WisDOT Bureau of Planning and Economic Development



**Federal Highway Administration**  
525 Junction Rd, Suite 8000  
Madison, WI 53717-2157

**Federal Transit Administration**  
200 W. Adams Street, Suite 320  
Chicago, IL 60606-5232

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December 20, 2018

Mr. Chuck Wade, Section Chief  
Bureau of Planning and Economic Development  
Wisconsin Department of Transportation  
4822 Madison Yards Way  
Madison, WI 53705

Dear Mr. Wade:

Thank you for your December 4, 2018 letter conveying WisDOT's endorsement of the Wisconsin Metropolitan Planning Organizations' 2019 Unified Planning Work Programs and the associated allocation of planning funding to support implementation (enclosed). The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) approve the following 2019 MPO work programs as the basis for federally funded metropolitan transportation planning activities in accordance with 23 CFR parts 420 and 450:

- *Overall Work Program – 2019*, Southeastern Wisconsin Regional Planning Commission, Approved by Resolution No. 2018-22, November 15, 2018;
- *2019 Unified Planning Work Program*, Madison Area Transportation Planning Board, Approved by Resolution TPB No. 148, November 7, 2018;
- *2019 Transportation Work Program & Budget*, East Central Wisconsin Regional Planning Commission, Adopted by Resolution 27-18, October 27, 2018 (Appleton MPO and Oshkosh MPO);
- *2019 Transportation Planning Work Program*, Brown County Planning Commission, Green Bay MPO, Approved by Resolution No. 2018-09, November 7, 2018;
- *Urban Transportation Planning Work Program for the Eau Claire Urbanized Area 2019*, Chippewa-Eau Claire Metropolitan Planning Organization, Adopted by Resolution No. 18-11, October 3, 2018;
- *2019 Planning Work Program for the La Crosse Area Planning Committee*, Approved by Resolution 6-2018, September 9, 2018;
- *Sheboygan Metropolitan Planning Area Transportation Planning Work Program 2019*, Bay-Lake Regional Planning Commission, Sheboygan MPO, Approved by Resolution No. 12-2018, October 26, 2018;
- *2019 Unified Planning Work Program*, Wausau Metropolitan Planning Organization, Marathon County Metropolitan Planning Commission, Adopted by Resolution No. 8-18, November 13, 2018;
- *2019 Work Program*, Janesville Area Metropolitan Planning Organization, Approved by Resolution No. 2018-07, November 12, 2018;



- *2019 Unified Transportation Work Program for the Fond du Lac Urbanized Area*, Fond du Lac MPO, Adopted by Resolution No. 08-18, October 3, 2018;
- *Stateline Area Transportation Study Metropolitan Planning Organization (SLATS MPO) 2019 Unified Planning Work Program*, Adopted by resolution 2018-16, October 29, 2018;
- *2019 Unified Transportation Planning Work Program and Budget*, Duluth Superior Metropolitan Interstate Council. Adopted by Resolution No. 18-21, September 19, 2018; and
- *Dubuque Metropolitan Area Transportation Study (DMATS) FY 2019 Transportation Planning Work Program*, East Central Intergovernmental Association, adopted May 10, 2018.

The MPOs are authorized to proceed with activities in the approved work programs beginning January 1, 2019 through December 31, 2019. WisDOT may advance a request for authorization of the corresponding federal funding to be effective on January 1, 2019.

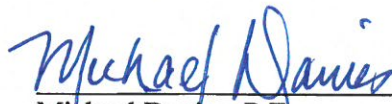
Approval of the MPO work programs is granted subject to the following:

1. Costs incurred by each MPO must be accumulated and accounted to the individual work item level.
2. Prior Federal approval is required when any of the following changes occurs to an approved individual UPWP:
  - Any change which would result in the need for additional Federal funding.
  - Cumulative transfers among separately budgeted projects, elements or activities that exceed or are expected to exceed 10 percent of the total approved work program budget for the individual MPO.
  - Significant change in the scope of work for separately budgeted work elements, including adding or deleting consequential work items.
  - Need to extend the period of availability of funds.
  - Changes in key personnel where specified.
  - Contracting out, sub-granting or otherwise obtaining the services of a third party to perform activities that are central to the purposes of the grant.

Any of the work program changes listed above requires an amendment approved by the individual MPO Policy Board and FHWA.

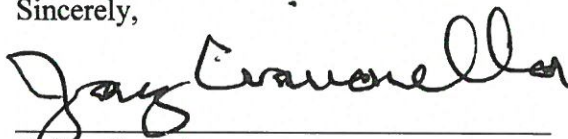
We look forward to working with WisDOT and the MPOs on another successful year of metropolitan transportation planning. Should you have any questions regarding this approval, please contact Mitch Batuzich of FHWA at (608) 829-7523, or Evan Gross of FTA at (312) 886-1619.

Sincerely,



Michael Davies, P.E.  
Division Administrator  
Federal Highway Administration

Sincerely,



Kelley Brookins  
Regional Administrator  
Federal Transit Administration

## Enclosure

ecc: Bill Wheeler, FTA Region V, [William.Wheeler@dot.gov](mailto:William.Wheeler@dot.gov)  
 Evan Gross, FTA Region V, [evan.gross@dot.gov](mailto:evan.gross@dot.gov)  
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 Mary Forlenza, FHWA  
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 Tracey Blankenship, FHWA  
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 Jeff Agee-Aguayo, Bay-Lake Regional Planning Commission, [jagee@baylakerpc.org](mailto:jagee@baylakerpc.org)  
 Dave Mack, Marathon County Metropolitan Planning Commission,  
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 Ron Chicka, Duluth-Superior Metropolitan Interstate Commission, [rchicka@ardc.org](mailto:rchicka@ardc.org)

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Date Signed:

Signed by:





## Wisconsin Department of Transportation

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Telephone: 608-266-0255  
FAX: 608-266-0686

December 4, 2018

Mary Forlenza  
Federal Highway Administration  
525 Junction Rd, Ste 8000  
Madison, WI 53717

### **Re: 2019 Unified Planning Work Program (UPWP) Endorsement for all Wisconsin Metropolitan Planning Organizations (MPOs)**

The Wisconsin Department of Transportation (WisDOT) endorses each MPO's 2019 UPWP and hereby approves all associated Indirect Cost Allocation Plans as the basis for state and federal funding under the Cooperative Agreement for Continuing Transportation Planning between the MPO, the local Transit Operator, and WisDOT. Attached is the 2019 MPO Funding Endorsement Table detailing FHWA and FTA funding allocations per the MPOs' respective approved and adopted UPWPs.

Actual state and local shares matching federal planning funds vary by MPO, as indicated on the attached table exhibiting the associated Federal, State, and Local funds. All funding allocations listed are to be used to complete work activities contained in the MPOs' 2019 UPWPs. In finalizing their respective work programs, MPO staff have taken into account comments received by FHWA, WisDOT, and the MPOs' public involvement process. We look forward to your approval and continuing support of Wisconsin's Metropolitan Transportation Planning Program.

Sincerely,

A handwritten signature in black ink, appearing to read "Charles Wade".

Charles Wade, Section Chief  
Bureau of Planning and Economic Development  
Wisconsin Department of Transportation

Cc via e-mail: William Wheeler, Federal Transit Administration  
Mitch Batuzich, Federal Highway Administration  
Matthew Spiel, Federal Highway Administration  
Evan Gross, Federal Transit Administration  
Jim Kuehn, Bureau of Planning and Economic Development Section  
Bureau of Business Services, Fiscal Services Section, WisDOT

2019 MPO Funding Endorsement Table

12.02.2018

MPO	Federal PL/CPG Formula Funding (a)	State Match	Local Match	Total PL/CPG Funding	Percentage of Federal PL/CPG Formula Funding (a)	Percentage of State Match	Percentage of Local Match	STP-U Funding	Local Match (b)	Total STP-U Funding	Total Funding (All Sources)
Beloit	118,754.00	5,282.03	24,406.47	148,442.50	80.00000%	3.55830%	16.44170%				\$148,442.50
Dubuque	3,751.00	243.00	694.75	4,688.75	80.00000%	5.18260%	14.81740%				\$4,688.75
Eau Claire	203,459.00	12,040.19	38,824.56	254,323.75	80.00000%	4.73420%	15.26580%				\$254,323.75
Fond du Lac	108,603.00	6,427.13	20,723.62	135,753.75	80.00000%	4.73440%	15.26560%				\$135,753.75
Fox Cities & Oshkosh	561,536.00	34,025.57	106,358.43	701,920.00	80.00000%	4.84750%	15.15250%				\$701,920.00
Green Bay	328,727.00	24,176.23	58,005.52	410,908.75	80.00000%	5.88360%	14.11640%				\$410,908.75
Janesville	168,000.00	8,154.09	33,845.91	210,000.00	80.00000%	3.88290%	16.11710%				\$210,000.00
La Crosse	188,935.00	11,181.17	36,052.58	236,168.75	80.00000%	4.73440%	15.26560%				\$236,168.75
Madison	776,012.00	47,020.51	146,982.49	970,015.00	80.00000%	4.84740%	15.15260%	\$88,800.00	\$22,200.00	\$111,000.00	\$1,081,015.00
SEWRPC	3,348,637.00	202,902.29	634,256.96	4,185,796.25	80.00000%	4.84740%	15.15260%				\$4,185,796.25
Sheboygan	168,000.00	8,348.13	33,651.87	210,000.00	80.00000%	3.97530%	16.02470%				\$210,000.00
Superior	68,000.00	3,166.08	13,833.92	85,000.00	80.00000%	3.72480%	16.27520%				\$85,000.00
Wausau	168,000.00	8,737.05	33,262.95	210,000.00	80.00000%	4.16050%	15.83950%				\$210,000.00
<b>TOTAL</b>	<b>\$6,210,414.00</b>	<b>\$371,703.47</b>	<b>\$1,180,900.03</b>	<b>\$7,763,017.50</b>	<b>80.00000%</b>	<b>4.7881%</b>	<b>15.2119%</b>	<b>\$88,800.00</b>	<b>\$22,200.00</b>	<b>\$111,000.00</b>	<b>\$7,874,017.50</b>

(a) Total Federal Planning Funds (includes PL and CPG; excludes STP-U)

(b) Local match is 20%; there is no state match for STP-U Funds

Note: Federal PL/CPG Funds includes both FHWA-PL and FTA-5303 funds.

STP-U Percentages	80.00%	20.00%

Extension of 2018 Work Activity Funding \*\*

MPO	Federal PL/CPG Formula Funding (a)	State Match	Local Match	Estimated PL/CPG Funding for Extended 2018 Work Activities	Percentage of Federal PL/CPG Formula Funding (a)	Percentage of State Match	Percentage of Local Match
Eau Claire	\$33,600.00	\$2,059.43	\$6,340.57	\$42,000.00	80.00000%	4.90340%	15.09660%
Fox Cities & Oshkosh	\$80,000.00	\$4,960.30	\$15,039.70	\$100,000.00	80.00000%	4.96030%	15.03970%
Madison	\$109,265.60	\$6,890.97	\$20,425.43	\$136,582.00	80.00000%	5.04530%	14.95470%

\*\* 2018 UPWP work activity funds are to be used as indicated in approved amendments to the 2018 UPWPs and invoiced for reimbursement before May 31, 2019.

## Krejny, Meredith

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**From:** Korth, Scott  
**Sent:** Wednesday, December 19, 2018 4:55 PM  
**To:** Schaefer, William  
**Cc:** Kamp, Charles; Martin, Crystal; Block, Wayne; Butler, Jeffrey; Beck, Drew  
**Subject:** TAM Extension Approval & Metro TAM Performance Measure Targets  
**Attachments:** TAM Extension Approval.pdf; Metro TAM Performance Measure Targets.pdf

Hi Bill,

Our TAM extension request has been approved by the FTA (see attached approval letter). As a requirement of our extension, we need to communicate our TAM State of Good Repair performance measure targets and asset condition data to our planning partners. Attached is a more formalized version of this information with more detailed explanation than our initial TAM targets submittal to you on September 26, 2018 via email. Please let me know if you have any questions or need further information. Otherwise, from my understanding, you'll incorporate this information in the 2019 TIP if it hasn't been included already and communicate it to WisDOT. Is that correct or is there someone from WisDOT that we should communicate this data with directly?

Thanks,

Scott D. Korth  
Grants Accountant  
Phone: (608) 266-6538  
Fax: (608) 267-8778





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U.S. Department  
Of Transportation  
**Federal Transit  
Administration**

Headquarters

1200 New Jersey Avenue  
S.E. Washington DC 20590

1245 East Washington Ave, Suite 201  
Madison, Wisconsin 53703

Dear Crystal Martin:

The Federal Transit Administration (FTA) has completed its review of your letter dated **October 4, 2018** requesting an extension of the October 1<sup>st</sup>, 2018 Transit Asset Management (TAM) Plan deadline.

FTA has found that Metro Transit's request satisfies the guidelines that allow for an extension. The new deadline for your TAM Plan will be **December 31, 2018** — a period of 3 months as requested due to software and scheduling issues.

As part of the requirement to receive this extension, you agree to the following:

1. You will forward this letter and your most recent interim TAM data, including the initial State of Good Repair (SGR) performance measure targets and asset condition data to your planning partners including the MPO(s)/RPA(s) and the State DOT(s) that program your projects.
2. You will provide a copy of the correspondence in item #1 to your FTA Regional Office Regional Administrator and the TAM contact listed below.
3. You will not apply for contiguous TAM plan extensions. FTA will not consider requests made less than four (4) years after your approved extension date — no sooner than December 31, 2022.
4. You will be subject to the normal remedies of non-compliance if you are unable to produce a compliant TAM plan by December 31, 2018.

Also, note that a TAM plan extension does not extend to the National Transit Database (NTD) reporting requirements, meaning you are required to report your TAM data to the NTD even with this extension.

Please contact Mshadoni Smith, TAM program manager [Mshadoni.smith@dot.gov](mailto:Mshadoni.smith@dot.gov) or email the TAM mailbox at [TAM@dot.gov](mailto:TAM@dot.gov) with any questions regarding this letter.

Sincerely,

Robert J. Tuccillo  
Associate Administrator for the Office of Budget and Policy  
Chief Financial Officer (CFO) for the Federal Transit Administration

CC: Ms. Kelley Brookins  
Ms. Krishina Green  
Mr. Dwayne Weeks  
Mr. Adam Schildge



Department of Transportation  
**Metro Transit**  
 Chuck Kamp, General Manager

1245 East Washington Avenue, Suite 201  
 Madison, Wisconsin 53703  
 Administration: (608) 266-4904  
 Fax: (608) 267-8778  
 Customer Service: (608) 266-4466  
[mymetrobus@cityofmadison.com](mailto:mymetrobus@cityofmadison.com)  
[www.mymetrobus.com](http://www.mymetrobus.com)

## MEMORANDUM

**TO:** FTA, MPO and other stakeholders  
**FROM:** Crystal Martin, Deputy General Manager  
**DATE:** December 19, 2018  
**SUBJECT:** 2018 TAM Performance Measure Targets

This memorandum is to document the current conditions of our assets and explain the 2018 Transit Asset Management (TAM) Performance Measure Targets.

Revenue Vehicles Current Status as of September 2018						
Item	Inventory	Condition	Useful Life Benchmark	Number Past Useful Life Benchmark	Percentage Past Useful Life Benchmark	Average Age
Rolling Stock (Buses)	215	3.63	14 years	28	13%	7.76

Metro Transit has incorporated a long-range strategic replacement plan for its transit buses. The plan calls for the annual replacement of 15 buses based on age and condition. On average, the buses replaced are between 14 and 15 years old and have about 400,000 miles. This is accomplished by rotating older buses into less rigid service and maximizing the newest buses to their full capacity on more strenuous routes. **The Performance Measure Target for this category in order to comply with our State of Good Repair policy is 11% of our bus inventory exceed our useful life benchmark (ULB) of 14 years.** According to our calculations, this target will be met by 2020 based on the current replacement schedule.

Non-Revenue Vehicles Current Status as of September 2018						
Item	Inventory	Condition	Useful Life Benchmark	Number Past Useful Life Benchmark	Percentage Past Useful Life Benchmark	Average Age
Sedans	14	3.14	8 years	7	50%	6.21
Trucks	12	3.33	8 years	8	67%	11.5
SUVs	2	4.5	8 years	0	0%	0.5
Vans	1	2	8 years	1	100%	10
<b>Totals</b>	<b>29</b>	<b>3.24</b>		<b>16</b>	<b>55%</b>	<b>7.05</b>

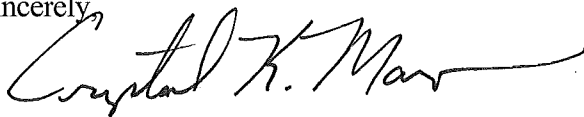
Metro Transit is developing a long range strategic replacement plan for non-revenue vehicles. The current strategy has been to replace one or possibly two vehicles annually, depending on type and budget constraints. Currently there is an analysis being conducting with Planning, Maintenance and Operations staff to calculate the appropriate amount of driver relief, road supervisor and building & grounds vehicles. This inventory analysis will be completed in 2019 and incorporated into our asset management plan, which will aid in complying with our desired performance targets. **The Performance Measure Target for this category in order to comply with our State of Good Repair policy is 38% of inventory exceed our useful life benchmark (ULB) of 8 years.**

Bus Garage and Maintenance Facilities		
Location	Current Estimated Condition	TAM Target
1101 East Washington Avenue	2	3.5

In order to improve the facility and reach the desired performance target, Metro Transit conducted a thorough facility study in 2017. This process assessed the most pressing needs and developed a six-phase strategy in order to address each one. The phases include roof replacement, electrical, HVAC, plumbing and work area renovations. Phasing strategies were evaluated for system failure, life safety, operational efficiencies and construction effect and prioritized accordingly. This strategy was chosen to help mitigate the budget impact of the total anticipated cost of over \$55 million. This strategy began in 2018 with the roof replacement project and will continue through 2023. As such, it was incorporated in our 2019 Capital Improvement Plan (CIP) for capital budget planning over the next six years that includes ongoing maintenance. **The Performance Measure Target for this category in order to comply with our State of Good Repair policy is 0% of facilities rated under 3.0 on the TERM scale. Since the plan for the facility is to be in operation 20+ more years, our target goal for the facility is to exceed the minimum 3.0 rating of Adequate and achieve a rating of 3.5 which is halfway to the rating of Good.** It is anticipated that this will be accomplished after the six-phase facility renovations are complete.

If you have any questions regarding this matter, please contact me at 608-267-8780, [cmartin@cityofmadison.com](mailto:cmartin@cityofmadison.com) or Scott Korth at 608-266-6538, [skorth@cityofmadison.com](mailto:skorth@cityofmadison.com).

Sincerely,



Crystal Martin  
Deputy General Manager

CC: Chuck Kamp, Transit General Manager  
Scott Korth, Transit Accountant

# TPB (MPO) Agenda Cover Sheet

## January 9, 2019

Item No. 5

**Re:**

Approval to Issue Request for Proposals to Update and Enhance the Regional Travel Model

**Staff Comments on Item:**

With the assistance of a consultant, Fehr & Peers, a Strategic Work Plan was just completed to improve the MPO's planning analysis tools, including the regional travel forecast model, and the data to support them. The MPO board approved the work plan at the December 2018 meeting.

The first major project to be implemented from the work plan is to hire a consultant to update, recalibrate, and enhance the regional travel model in accordance with the recommendations outlined in the work plan. The updated model will be used to support the next update to the Regional Transportation Plan, support other future corridor or area studies, for project forecasts, and for other planning efforts. The purchase of travel speed data and additional origin/destination (O/D) data is included as part of the model development project.

The primary tasks for the project include:

- Processing the household travel survey, O/D, and travel speed data to be used to calibrate/validate the travel model
- Creating new 2016 base year and 2050 future year travel model setups, including networks and input variables
- Calibrating and validating the new travel model using all of the new data
- Making enhancements to the model, including:
  - Separating regional and local retail for shopping trips;
  - Converting to a destination choice model for trip distribution, which accounts for the accessibility of destinations by different modes (rather than just auto travel time) and the land use/place type of areas;
  - Improve the model's sensitivity to land use/place type;
  - Incorporating intersection delay into trip assignment on the roadway network; and
  - Improving the accuracy of "external" trips (i.e., to/from outside the county and through the county).

The anticipated budget for the project is \$200,000 to \$275,000, including the cost of the travel speed and additional O/D data. Carryover 2018 funding as well as 2019 funding will be used for the project, which is expected to take around 18 months to complete.

**Materials Presented on Item:**

1. Scope of Work for the Travel Model Update Project, dated 12/17/18

**Staff Recommendation/Rationale:**

Staff recommends approval of an RFP for the modeling project based on this attached scope of work and budget. The project will implement the approved Strategic Work Plan, and it is included in the approved 2019 MATPB Work Program and budget.



## **TRAVEL FORECAST MODEL UPDATE PROJECT SCOPE OF WORK**

### Summary

The City of Madison (“City”), on behalf of the Madison Area Transportation Planning Board (MATPB) – A Metropolitan Planning Organization (MPO), is soliciting Proposals from qualified vendors for Consultant Services to update, recalibrate, and enhance the Dane County, WI Travel Demand Forecasting Model. MATPB is the MPO for the Madison, WI metropolitan planning area, which is designated as a Transportation Management Area (TMA). The planning area encompasses about 3/4s of the land area, but 90% of the population. The travel model is countywide. The City is the fiscal and administrative agent for MATPB, which receives federal and state Planning grant funding along with local matching funds that will be used for this project.

### Introduction

The purpose of this project is to update the Dane County Travel Forecast Model to a new 2016 base year, recalibrate the model using new 2016-’17 household travel survey data and other data already acquired and planned to be purchased as part of this project, and make other enhancements to the model as generally outlined in a recently completed Strategic Work Plan to Improve the Travel Model, Other Planning Tools, and Data. The updated model will be used to support the next update to the Regional Transportation Plan (RTP), due to be adopted in 2022, and to support other regional and local corridor/area studies and projects led by or involving MATPB and/or the Wisconsin Department of Transportation (WisDOT).

Seeing a need to develop a multi-year plan for improvements to its planning analysis tools, including the travel forecast model, and the data to support them, MATPB contracted with Fehr & Peers to put together the aforementioned Strategic Work Plan in coordination with MATPB staff. The process for developing the plan started with the RTP goals and policies and an identification of key regional planning issues to help in prioritizing planning tool improvements. The consultant then prepared Technical Memoranda outlining their assessment of the existing travel model and other planning tools used and ideas for improvements. From the ideas included in the memos, MATPB staff worked with the consultant to develop a Work Plan that prioritized them for implementation over the next five years. The Work Plan includes an initial round of updates and improvements to the travel model that is the subject of this RFP (see Item 10 page 8. Recommendations reference items from the Model Assesment Tech Memo). The Work Plan and supporting Technical Memos are posted on the MPO’s website at the following links:  
[http://www.madisonareampo.org/documents/MadisonMPO\\_WorkPlan\\_Final.pdf](http://www.madisonareampo.org/documents/MadisonMPO_WorkPlan_Final.pdf)  
[http://www.madisonareampo.org/documents/Madison\\_TravelModelMemo\\_Final.pdf](http://www.madisonareampo.org/documents/Madison_TravelModelMemo_Final.pdf)  
[http://www.madisonareampo.org/documents/Madison\\_OtherToolsMemo\\_Final.pdf](http://www.madisonareampo.org/documents/Madison_OtherToolsMemo_Final.pdf)

WisDOT has in the past served as the lead agency overseeing the development and use of the travel model, including licensing agreements with the model software provider. An MOU outlines current areas of responsibility for development, maintenance, operation, and application of the model. This will be updated in 2019 to reflect this project by the MPO. MPO staff has and will continue to closely coordinate with WisDOT Travel Forecasting staff on this project with WisDOT staff serving on the project staff team.

### Background Information on the Dane County Travel Forecast Model

The Dane County Travel Forecast Model is a four-step model, which represents highway, transit, non-motorized personal trips, and truck trips within, into, and out of and through Dane County. The model runs within a CUBE Catalog configuration. The current model base year is 2010. Updates made to the model as part of the last major update included: (1) replacement of the old FORTRAN based “modemad.exe” mode choice program with a CUBE script mode choice model; (2) implementation of a congestion feedback loop for the distribution, mode choice and assignment steps; and (3) conversion of the old daily model to a time of day model with AM peak, mid-day, PM peak, and night time periods.

The model was calibrated at a system and major corridor level for auto/truck traffic assignments on a daily level only, not by time period. Subsequent to the initial model calibration/validation, some additional traffic volume calibration work was done as part of the now suspended WisDOT major corridor study of the Beltline (U.S. Highway 12/14/18/151) using 2013 origin-destination data collected through Bluetooth devices and aerial photography.

The Dane County model uses a nested logit mode choice model. The mode choice model parameters and the nest structure were transferred from the mode choice model estimated for the Minneapolis-St. Paul metro area. The mode choice model includes a premium transit mode. Variables include: (1) in-vehicle travel time for auto and transit; (2) out of vehicle travel time for transit modes; (3) cost of travel for auto and transit; (4) non-motorized transportation attributes; (5) vehicle ownership; and (6) a CBD dummy variable. There are six personal trip purposes: home-based work; home-based shopping; home-based school (K-12); home-based university; home-based other; and non-home based trips.

The model documentation report (excluding some of the calibration statistics) is available at the following link: [http://www.madisonareampo.org/planning/documents/DaneModelReport\\_V012.pdf](http://www.madisonareampo.org/planning/documents/DaneModelReport_V012.pdf).

Subsequent to the major model update completed by Cambridge Systematics the City/MATPB contracted with a consultant team of HNTB Corporation and SRF Consulting Group to implement some transit ridership forecasting related model enhancements in preparation for a study to identify an initial Bus Rapid Transit project. That project has now just begun. These enhancements were designed to: (1) improve representation of trip making behavior to/from the University of Wisconsin (UW) – Madison campus as UW students and employees make up about one-half of current transit ridership; (2) improve model representation of bus speeds; and (3) refine and update the mode choice model calibration and validation. To address bus speeds, it was decided to replace the bus speed calculations, which were based off the auto speeds, with a bus speed lookup table identical in format to the one used for roadway speeds with a cross-tabulation between facility and area type. A significant part of the mode choice model refinement involved the modification of transit access procedures to more accurately represent walk access. The work did not include re-estimating or re-specifying mode choice model parameters and coefficients due to the lack of an up-to-date household travel survey. The project report for this transit modeling work is available at the following link:

[http://www.madisonareampo.org/documents/ModelValidationReport\\_FinalDraft.pdf](http://www.madisonareampo.org/documents/ModelValidationReport_FinalDraft.pdf)

In the course of working on the transit ridership modeling project it was discovered that auto speeds did not compare well to observed speeds based on Citilabs Sugar roadway speed data that had been obtained. Auto speeds had never been checked and validated, only traffic volumes. As a result of this review, a separate model update project was initiated by WisDOT and MATPB to improve roadway speed validation while maintaining or improving overall model validation. SRF was contracted to conduct this update. Observed TomTom speed data from 2012 was used for the speed validation work. To improve validation, the free flow speed lookup table was revised and the linkclass/area type attributes of some roadway links were updated. Since the revised speed input assumptions substantially altered model trip distribution patterns, calibration updates were made to several trip distribution parameters to improve model validation, including model friction factors and K-factors. The project report for this speed validation work is available at the following link:

[http://www.madisonareampo.org/documents/DCTDM\\_Speed\\_Update\\_20160919.pdf](http://www.madisonareampo.org/documents/DCTDM_Speed_Update_20160919.pdf)

#### Project Description, Schedule, and Work Tasks

The scope of services for this project to update and improve the Dane County Travel Forecast Model includes the suggested general tasks described below based upon the Round 1 model improvement recommendations in the Work Plan and MPO staff's understanding of them. The tasks have purposefully been kept fairly general. Respondents should build on these general tasks, describing the approach to be taken for each one, identifying more detailed sub-tasks, and summarizing the work products and detailed deliverables associated with each task. Tasks can also be combined, subdivided, and/or re-ordered as deemed appropriate. The tasks, deliverables, and personnel and budget assigned to them must be clearly identified. Respondents are free to suggest some additions, deletions, and/or

modifications to the tasks included within this scope as deemed appropriate given the overall project purpose and to fit within the anticipated budget.

The total anticipated budget for the modeling services is between \$150,000 and \$200,000, but will depend upon the final agreed upon work plan. This does not include the cost for the planned purchase of travel speed data and additional origin/destination data to be used for the model validation work. The purchase of this data will be the responsibility of the consultant as part of this project and should be included in the proposal. The anticipated budget for this data is \$50,000 to \$75,000, resulting in a total anticipated project budget of between \$200,000 and \$275,000.

The overall goal of the project is to produce an updated model with a 2016 base year that is well calibrated and validated based on new household travel survey, O/D, travel speed, and transit ridership data and that generally incorporates the desired improvements identified in the Work Plan to expand some of the model's capabilities while also setting up the framework for further enhancements to the model in the future.

Cost will be evaluated based on the best value as determined by the total cost as well as the overall composition of the cost. In order to stretch the limited funding available, the consultant is encouraged to suggest opportunities for MPO staff to provide support for the project, including in particular data processing and model coding. The City reserves the right to contract for all or only parts of the work described in this RFP. Please note: As stewards of public funds, the City maintains all adopted budgetary parameters in the performance of its contracts. The ability of the successful proposer to offer the lowest cost and maintain a sense of fiscal responsibility shall be favorably considered in the ranking and award of a contract.

An 18-month schedule is anticipated for the project with a desired completion date for a new working model by the 4<sup>th</sup> quarter of 2020. Complete documentation on the model and the work done in the form of a Model Development Report and Model User Guide is expected to be the last tasks and could be completed after this time.

### **Task 1 – Develop Overall Work Plan, Milestones, Project Schedule, and Coordination**

The Consultant shall develop a detailed work plan for the project. The work plan should include:

- Task-by-task description of categorized work elements delineating the roles of the Project Manager and other members of the Consultant Team.
- Implementation schedule showing activities, milestones, dates, and deliverables.
- List of data needs, desired MATPB staff support, and other resources the Consultant Team will need in order to successfully complete the project tasks.
- Project budget showing projected work, staff assigned, hourly rates, materials, and other expenses.

An initial kickoff meeting/teleconference between the Consultant Team and Project Staff Team will be held following contract execution to initiate the project, discuss details of the proposed work plan (including any potential modifications from that outlined in the proposal) and the schedule, and define project management roles and responsibilities. This will help flesh out any unresolved issues before finalizing the detailed work plan.

The work plan should include suggested conference calls, meetings, and other means to manage the work activities and facilitate coordination with the Project Staff Team. The work plan should also include two presentations to the MPO's Technical Coordinating Committee and one less technical presentation to the MPO Policy Board.

The schedule should allow time for the Project Staff Team to review and comment on draft deliverables prior to preparation of final versions. Methods should be suggested to communicate the process, analysis, decision making, conclusions, and recommendations in an understandable manner.

Progress reports shall be provided with a summary of work completed in each task during the billing period and a summary of tasks to be completed in the next billing period.

Deliverables:

- Final detailed work plan with milestones, tasks, schedule, and coordination details
- Summaries of check in/coordination conference calls/meetings
- Monthly invoicing and progress reports
- Powerpoint presentations to MPO Technical Committee (minimum of 2) and MPO Policy Board (minimum of 1) explaining the project and status

## **Task 2 – Process Household Travel Survey Data and AirSage O/D Data for Model Calibration**

MATPB has two household travel survey datasets, which will be combined and then used for model calibration and validation. The first is an add-on sample of the 2016-'17 National Household Travel Survey (NHTS) that was purchased by WisDOT. This dataset includes travel log information from 884 households and 1,515 persons with 7,156 trips recorded. The second dataset is from a local household travel survey that was conducted for the City/MATPB by the UW Survey Center in two waves in fall/winter 2016 and spring 2017 using the same questionnaire and travel log from the NHTS, which was tailored to a mail survey. Households were asked to submit questionnaires and travel logs for a primary adult, secondary adult, and a child (if present in the household). A sampling plan was utilized for this local household travel survey that targeted low income and minority households and households in areas with high transit and bicycle use based on Census ACS mode-to-work data. This dataset includes completed travel logs from 1,108 households and 1,777 persons with 10,337 trips recorded. The UW Survey Center applied weights to the data samples to account for the sampling plan. City/MATPB staff are currently in the process of tabulating key demographic and travel behavior variables to compare to ACS data to determine if additional weights need to be applied as part of combining the two datasets. If so, assistance may be sought from UW in applying the weights. City/MATPB staff will review and coordinate with the Consultant on the household survey data and the weighting to ensure it meets industry standards.

The consultant shall review the final combined household survey dataset and make any adjustments to the weighting of the data, if needed. Once the combined household survey dataset is finalized with any needed modifications to the sample weights, the dataset will need to be processed to obtain the data needed for model calibration and validation of trip generation, auto access, mode choice, and trip distribution. MATPB staff can provide assistance with the processing of the data as needed.

MATPB also purchased origin/destination data from AirSage. The data is from October 2017 and includes trips by purpose between 104 zones in the county and 33 zones adjacent to the county. The trip purposes are categorized as follows: WO, OW, OO, WW, HH, WH, HW, HO, and OH (H = Presumed Home, W = Presumed Work (or School or students), and O = Other). The AirSage data will need to be combined into a much smaller set of O/D zones (between 25 and 40) to be used for calibration and validation of model trip distribution. Additional processing of the data will be required such as combining trip purposes, combining by time period, etc.

Deliverables:

- Final processed household travel survey data files
- Final processed O/D data files
- Tech Memo describing data processing and review and any issues discovered and how addressed

### **Task 3 – Purchase and Process as Necessary Travel Speed and Additional O/D Data for Model Calibration**

As part of this project MATPB would like to purchase travel speed data (e.g., from INRIX) and additional O/D data (e.g., from Streetlight Analytics). The travel speed data will provide free flow auto and truck speeds and peak congested speeds by roadway segment. The data will be used for travel model calibration and validation as well as for other planning purposes. For example, the travel speed data will be used for a planned update of the MPO's federally required Congestion Management Process. After researching the options, details, and cost, and consulting with MPO staff, the consultant shall purchase the travel speed and O/D data and process the data as may be necessary for model calibration and validation. This includes relating the speed data, as well as WisDOT, city of Madison, and other traffic count data by time period, to the model network. The new O/D data shall be compared to the AirSage O/D data. MATPB staff can provide assistance with data processing as needed.

Another potential source of general O/D data for model calibration/validation is Bluetooth data from sensors owned by WisDOT along the Beltline (USH 12/14/18/151) and on roadways leading to the Beltline. If used, any processing of this data would be outside the scope of this contract.

#### **Deliverables:**

- Final processed travel speed data files, including maps of speeds by roadway segment by time period
- Final processed O/D data files
- Technical memo describing data processing and review and any issues discovered and how addressed

### **Task 4 – Create 2016 Base Year and 2050 Future Year Highway, Transit, and Active Transportation Networks in the Model**

The existing model has a 2010 base year and 2050 future year roadway and transit network. The base year roadway network is based on WisDOT's Wisconsin Information System for Local Roads (WISLR) data file. The base year transit network is based primarily on a GTFS file representing Metro Transit's service. A new 2016 base year model network shall be created. An initial decision for the base roadway network will be whether to base it on WISLR or Dane County Street Centerline data. WISLR data is easier to create a network from, but much of the MPO's data associated with roadways is tied to the County Centerline file. A Metro Transit GTFS file is available for the transit network. The City of Monona's transit service will need to be added to this.

A new aspect of the model network to be added is to code pedestrian and bicycle facilities into the model network using GIS files provided by MPO staff. MPO staff has coded the bicycle network according to the bicycle level of traffic stress and the bike network in the model shall be similarly coded. A report on the MPO's bicycle level of traffic stress coding and mapping work is on the MPO's website at this link: <http://www.madisonareampmo.org/planning/documents/LTSRReportFinal.pdf>

The purpose of coding the active transportation network into the model is to support efforts to better account for pedestrian and bicycle accessibility into travel forecasting by the model and/or to support off-model GIS tools, which summarize active transportation trips and then feed them back into the TAZ file. Consultants are encouraged to suggest methods for incorporating pedestrian and bicycle accessibility into mode choice and/or trip distribution either as part of this project or a future project.

In addition to creating a base year 2016 network, the consultant shall re-create the current future year 2050 roadway and transit network in the new, updated model. A future active transportation network may also be added based on GIS files provided by MPO staff. MPO staff has a planned bicycle facility geodatabase, but would need to create a bicycle level of traffic stress layer and add a planned pedestrian network database.



In addition to the networks, any necessary attributes to those networks will need to be coded to support the proposed modeling methodology described in the work plan based on data provided by MPO staff. This includes data necessary to implement updated roadway speed/capacity functions and add intersection delay.

Deliverables:

- Updated 2016 base year and 2050 future year model transportation networks with all needed attributes
- Updated speed and capacity methodology as needed, in particular to account for intersection delay
- Technical memo describing the assumptions, network updates and additions and attributes, updates to the speed and capacity methodology, and recommendations for network file management

### **Task 5 – Refine the Model Transportation Analysis Zone Structure and Incorporate Associated Socioeconomic, Land Use/Area, and Parking Cost Data**

MPO staff plans to make minor updates to the Transportation Analysis Zone (TAZ) structure as part of the model update project. The changes will mostly be made to better align the TAZ boundaries with Census Block Group (CBG) boundaries in order to make better use of Census ACS data. The TAZ boundaries currently align completely with Census Blocks but not CBGs. MPO staff has reviewed the TAZ boundaries and created suggested modifications to better align the TAZs with CBGs. The consultant will review the suggested changes and work with MPO staff to finalize the new modified TAZ structure and update the centroid connectors for auto and walk-to-transit access to accommodate the new structure.

MPO staff has prepared 2016 base year housing unit/household, employment, and school enrollment data. The housing unit database was compiled using a variety of data sources. The employment data is based on InfoUSA data, although staff made numerous corrections and additions to the data. The housing unit and employment data is point based and can therefore be tabulated to account for any modifications to the TAZ structure. MPO staff can also provide Census ACS data for incorporation into the model. MPO staff will also provide updated parking cost data for incorporation into the model.

As part of this task the consultant shall incorporate sensitivity to vehicle access as a separate input metric from vehicle ownership. With the increased use of car sharing and Transportation Network Companies (TNCs) and future potential for Autonomous Vehicles (AVs), building in this input metric will allow for testing of different scenarios related to shared mobility services and AVs. Person trip rates should be made relative to accessibility metrics. In the future, a separate auto ownership/access model may be implemented that considers transit and ped/bike accessibility, land use/place type, travel/parking cost, etc. However, that is not part of the planned scope of this project.

There is a strong desire to improve land use sensitivity in the model. In order to do this TAZs will need to be coded by land use/area type beyond the basic area types now used in the model (dense urban, urban, suburban, rural). An UrbanFootprint scenario planning model was created for Dane County as part of a City of Madison TIGER planning grant project. It is proposed that the land use types in the UrbanFootprint model (or likely aggregations of them) be used in the travel model with the travel behavior calibrated by the groups of place types. The UF model place types might also be used to make some modifications to the TAZ structure. See Recommendation #26 in the Travel Model Tech Memo referenced above. See also link below to Excel file with list of the detailed land use/building types:

[http://www.madisonareampo.org/documents/UF\\_Madison\\_BuildingTypes\\_UF2\\_Feb2017.xlsx](http://www.madisonareampo.org/documents/UF_Madison_BuildingTypes_UF2_Feb2017.xlsx)

Deliverables:

- Revised model TAZ structure and centroid connectors and walk-to-transit connectors
- Socioeconomic and land use/place type data associated with the TAZs
- Technical memo describing the TAZ structure and associated data updates

### **Task 6 – Separate Regional and Local Retail for Trip Generation and Distribution**

The current travel model currently uses a single trip attraction rate per retail employee for all shopping trips. However, there is a big difference in the number of trips generated per employee in large regional retail centers versus local commercial centers or areas. It has been observed that the model tends to under-assign traffic to/from these regional retail centers. It is proposed that regional and local retail be separated (most likely at the TAZ level) in order for the model to better reflect the difference in trip generation and distribution in regional and local serving retail. This will require calibration/validation using the household travel survey data. Perhaps there is also other data available that might be used. After reviewing the travel data, the consultant should propose and implement a methodology for distinguishing regional versus local serving retail employment in the model and reflecting the difference in the trip generation and distribution steps in the model.

#### **Deliverables:**

- Methodology for separating regional and local retail for trip generation and distribution
- TAZ level regional and local retail employment data file
- Technical memo describing the methodology and the calibration/validation

### **Task 7 – Develop and Calibrate Trip Generation Model**

The consultant shall develop and calibrate/validate the trip generation model, calibrating the trip generation rates and trips per time period based on the 2016-'17 household travel survey data. The same trip purposes currently in the model shall be carried forward with exception of shopping trip being divided into local and regional. The trip generation estimates shall be stratified by household size, number of workers, and auto ownership. Stratifying by land use/place type (or demographic characteristics associated with the place types, e.g., high/medium/low density housing) shall be investigated. Trip generation data for households by income and age should be tabulated for possible later incorporation into the model.

The model shall incorporate trip production and attraction balancing for both the base and future year scenarios. The model should be set up to produce a report that documents the number of trips generated and attracted prior to and after the balancing.

#### **Deliverables:**

- Calibrated trip generation component of the model
- Technical memo describing the work, including assumptions, methodology, findings, and the calibration/validation
- Data files

### **Task 8 – Develop and Calibrate Trip Distribution Model, Converting Gravity Model to Destination Choice Model**

The consultant shall develop and calibrate/validate the trip distribution model based on the household travel survey and O/D data and any other data used. The model shall be converted from the current gravity model to a destination choice model, which incorporates the accessibility of areas by the different transportation modes (auto – accounting for auto ownership, transit, bicycle, pedestrian) rather than just auto travel time and also by land use/area type (e.g., accounting for mixed use areas via impedance adjustments) if that can be done. In the future, additional socioeconomic data (e.g., household income, age, job wages) may be added as inputs, but that is outside the scope of this project. The incorporation of accessibility by mode into the model should leverage the addition of the bicycle and pedestrian networks into the model, including the bicycle level of traffic stress coding of the network.

The calibration should be based on a new, larger number of zones or districts, increasing the number beyond the current 25. It is expected that K-factors will continue to be needed to adjust the number of trips between zones, but the use of these should be minimized to the extent possible.

Deliverables:

- Calibrated trip distribution component of the model that uses destination choice rather than gravity model
- Technical memo describing the assumptions, methodology, findings, and the calibration/validation
- Data files

### **Task 9 – Develop and Calibrate Mode Choice Model**

The consultant shall develop and calibrate/validate the mode choice model based on the household travel survey, Metro Transit on-board survey data, and any other data used. The mode choice process should be updated to include sensitivity to the auto accessibility input variable to be added, the more detailed land use/area types added, and accessibility by mode of transportation, if possible, either directly through the model or by leveraging off-model GIS tools to inform the model at a sub-TAZ level. The incorporation of accessibility by mode into the model should leverage the addition of the bicycle and pedestrian networks into the model, including the bicycle level of traffic stress coding of the network.

Deliverables:

- Calibrated mode choice component of the model with enhancements described
- Technical memo describing the assumptions, methodology, findings, and the calibration/validation of the model
- Data files

### **Task 10 – Develop and Calibrate Trip Assignment Model, Incorporating Intersection Delay**

The consultant shall develop and calibrate/validate the trip assignment model based on the travel speed, traffic count, on-board transit survey, intersection control, and other available data. The validation of the model against traffic volumes should at a minimum be checked at a time of day level versus just daily level with some effort made to better calibrate the model at that level if needed. To evaluate the average travel time in the model, the congested auto travel times should be compared to the purchased travel speed data with mapping of “hot spots” potentially used for model validation.

Intersection delay shall be added in static assignment to improve the accuracy of assignment, including turning movement estimates. Adding intersection delay will require recalibrating roadway link capacity and speed since the current capacities and speeds of links include intersection constraints of total capacity and speed along the segment. This work shall be closely coordinated with the Project Team Staff and in particular WisDOT staff to determine the capacity calculation methodology. The turn penalties added should be done on a systematic basis, but also allow for manual adjustments at individual intersections, if desired.

Deliverables:

- Calibrated trip assignment component of the model with intersection delay added
- Technical memo describing the assumptions, methodology, findings, and the calibration/validation of the model
- Data files

### **Task 11 – Enhance and Calibrate the External Travel Model**

The consultant shall expand the functionality of how external travel (EI, IE, EE) is handled in the model with these trips based on land use/place type, trip purpose (including distinguishing regional vs local retail

shopping trips), and including gateway attractions/productions by purpose. The calibration/validation of the external travel model should be based on household travel survey, purchased O/D data, and the WisDOT statewide model. The outputs of WisDOT's updated freight model may also be able to be used for the Dane County model or at least for validation metrics. This should be explored, at least for EE truck trips.

Deliverables:

- Calibrated external travel component of the model with enhancements described
- Technical memo describing the assumptions, methodology, findings, and the calibration/validation of external travel
- Data files

### **Task 12 – Prepare Model User Guide and Provide Training**

The consultant shall prepare a detailed model user guide. The guide should include a section on model validation, which includes information on how to generate, verify, and use all reports that accompany the existing model and new ones added. The guide should be based on the technical memoranda prepared for the project.

The consultant shall also provide training to MPO and WisDOT staff throughout the course of the project at logical milestones as different components of the model are completed. This shall include an on-site training program at the conclusion of the development of the model and up to 10 hours of interactive assistance and follow up training. The training sessions shall be recorded for later viewing.

Deliverables:

- Model User Guide
- Staff training sessions, mostly on-site, throughout the course of the project
- Model introduction presentation for non-technical staff and policy board covering the basic process and the model's capabilities and limitations

### **Task 13 – Create Model Validation and Scenario Comparison Reports and Prepare Comprehensive Model Development Report**

The consultant shall prepare a detailed model development report that provides information on the model specifications and data used in developing the model components. The guide should be based on the technical memoranda prepared for the project. The objective of the document is to provide an overview and complete technical details of the model and its calibration and validation, including thorough descriptions of all data sources that formed the inputs to the model, and detailed description of all model components. The validation report should include a comparison of model results against agreed upon criteria and thresholds. At a minimum the criteria outlined in the [TMIP Travel Model Validation Reasonableness Checking Manual \(2<sup>nd</sup> Ed., 2010\)](#) prepared for FHWA should be met.

Both static and some dynamic validation tests should be completed. Examples of static tests include:

- Trip length frequency by trip purpose
- Average travel times by purpose
- Mode split by purpose
- Roadway segment model speeds vs. observed speeds
- Screenline ratios
- Roadway segment model to count ratios
- Transit system ridership and ridership by major corridors

Dynamic test might include changes in the following:

- Household location
- Household attributes (size, auto ownership)
- Employment location and type

- Land use/place type
- Roadway and transit network changes
- Travel and parking costs.

Changes implemented as part of this project should be emphasized in the report, but the document should include all model aspects and include information on prior work done that is carried forward into the new model. The report should discuss limitations of the model and suggested recommendations for further enhancements based on the consultant's expertise and experience gained from this model development project. The report should also provide guidance on development of forecasts and use of the model reports for validation and for comparing different scenarios.

The model shall be set up with a post processing routine to create validation and scenario comparison reports that are automatically generated with each run of the model. Ideally the reports would be set up to allow the model user to select the performance metrics to run and show. The consultant shall coordinate with the Project Staff Team on the model output results and performance metrics include as part of the routine. Accessibility by auto and transit should be included. The new model validation and scenario comparison report structure shall include a comparison report for congested speed. Ideally the congested speed report would include maps of hotspots/congested areas, the percentage of roadways within set criteria for speed, vehicle hours of travel or person travel for auto and transit.

Deliverables:

- Model Validation and Scenario Comparison Reports set up to automatically generate in the model
- Model Development Report