INSTRUCTIONS FOR CONTRACTOR

DO NOT ATTACH TO CONTRACT

Your contract MUST include the following information, or it will not be signed by the City.

- ☐ Check one box at top of Page 1 for the type of business entity.
- ☐ Sections 3 & 4 will be completed by the City and should be complete before you sign.
- ☐ Put a name in Sec. 7.A. – person responsible for administering the contract.
- ☐ **Affirmative Action:** Check the appropriate box in Sec. 13.B., Article IV.
  - Contractors who have previously done $25,000 in annual business with the City might already have a plan on file. Confirm this with your City contact person and **check A**.
  - If this is your first applicable Contract with the City, and/or you don't have a plan on file, and you are not exempt as noted in sec. 13.B., **check B**. You must file a plan within 30 days. The Model Affirmative Action Plan is here: http://www.cityofmadison.com/dcr/documents/AAP-VS.doc
  - If you are exempt because you have fewer than 15 employees, **check C**, and complete the Request for Exemption form available here: www.cityofmadison.com/dcr/aaFormsVS.cfm
  - If you have 15 or more employees but you will be paid less than $25,000 by the City, in total annual business for the calendar year, (including this contract) **check D.**

Affirmative Action Questions? Contact Dept. of Civil Rights, Contract Compliance: (608) 266-4910.

- ☐ Complete Sec. 15 – Official Notices. This is the name/job title/address of the person at your organization to receive legal notices under the contract.
- ☐ Signature line. A person with authority to bind the organization should sign, date, and print name and job title where shown on the signature page. Contractor signs first, City signs last.
- ☐ Print, sign and return three (3) complete, signed hard copies to the address for the City in Sec. 15 (Notices) unless otherwise instructed. Under some circumstances, the City will accept a scanned PDF signature.
  - Make sure all exhibits/attachments are labeled and attached after the signature page, unless otherwise instructed.
  - Double-sided is OK, but all attachments should begin on a new page.
  - City will sign last, and will send you one hard copy with original signatures unless otherwise agreed.
- ☐ Enclose CERTIFICATE OF INSURANCE (C.O.I.) showing proof of insurance required by Sec. 27.

Insurance Instructions:

Certificate Holder: City of Madison
Attn: Risk Manager
210 Martin Luther King Jr. Blvd. Room 406
Madison, WI 53703

Proof of all insurance required in the contract must be shown. Use City's certificate at this link: www.cityofmadison.com/finance/documents/CertInsurance.pdf

Send C.O.I. with your signed contract or email a scanned copy to City Risk Manager Eric Veum at: eveum@cityofmadison.com. Call Eric Veum at (608) 266-5965 with insurance questions.

Failure to complete these steps will result in contract not being signed.

CONTRACT FOR PURCHASE OF SERVICES

Madison Area Inter-Governmental Transportation Consortium

1. **PARTIES.**
This is a Contract between the Madison Area Inter-Governmental Transportation Consortium ("Consortium") which is a consortium of the City of Madison, Wisconsin, County of Dane, Wisconsin, and State of Wisconsin Department of Transportation, created through an intergovermental agreement among the foregoing units of government, and HNTB Corporation hereafter referred to as "Contractor." For purposes of this Contract, Dane County and WisDOT have delegated the administration of this contract to the City of Madison and the interests of the Consortium are represented in this Contract through the City of Madison, hereafter referred to as the "City."

The Contractor is a: ☒ Corporation ☐ Limited Liability Company ☐ General Partnership ☐ LLP
(to be completed by contractor) ☐ Sole Proprietor ☐ Unincorporated Association ☐ Other:_____.

2. **PURPOSE.**
The purpose of this Contract is as set forth in Section 3.

3. **SCOPE OF SERVICES AND SCHEDULE OF PAYMENTS.**
Contractor will perform the following services and be paid according to the following schedule(s) or attachment(s):

Attachment A – Work Plan & Scope of Services, including Addendum
Attachment B – Cost Proposal with Cover LetterPayment Schedule
Attachment C - USDOT/FTA Terms and Conditions, as applicable.

This contract is funded in whole or in part by the following federal grants: FTA Project Nos.WI-39-0001-00, WI-39-0002-00, and WI-26-0012-00, each under the Alternatives Analysis Program.

In the event of a conflict between this Contract for Purchase of Services and Attachments A or B, the Contract for Purchase of Services shall control. In the event of a conflict between Attachment C and this Contract for Purchase of Services or Attachments A or B, Attachment C shall control, as shall the USDOT/FTA mandated terms incorporated by reference in Attachment C, as stated in paragraph 2 of Attachment C.

4. **TERM AND EFFECTIVE DATE.**
This Contract shall become effective upon execution by the Contractor and all members of the Madison Area Inter-Governmental Transportation Consortium The term of this Contract shall be April 30,2016.

5. **ENTIRE AGREEMENT.**
This Contract for Purchase of Services, including any and all attachments, exhibits and other documents referenced in Section 3 (hereafter, "Agreement" or "Contract") is the entire Agreement of the parties and supersedes any and all oral contracts and negotiations between the parties.

6. **ASSIGNABILITY/SUBCONTRACTING.**
Contractor shall not assign or subcontract any interest or obligation under this Contract without the City's prior written approval. All of the services required hereunder will be performed by Contractor and employees of Contractor. See Attachment C, paragraph 14, for the City's rights of assignment.

7. **DESIGNATED REPRESENTATIVE.**
   A. Contractor designates Christopher Johnson Contract Agent with primary responsibility for the performance of this Contract. In case this Contract Agent is replaced by another for any reason, the Contractor will designate another Contract Agent within seven (7) calendar days of the time the first terminates his or her employment or responsibility using the procedure set forth in Section 15, Notices.
   B. In the event of the death, disability, removal or resignation of the person designated above as the Contract agent, the City may accept another person as the Contract agent or may terminate this Agreement under Section 25, at its option.

8. **PROSECUTION AND PROGRESS.**
   A. Services under this Agreement shall commence upon written order from the City to the Contractor, which order will constitute authorization to proceed; unless another date for commencement is specified elsewhere in this Contract including documents incorporated in Section 3.
   B. The Contractor shall complete the services under this Agreement within the time for completion specified in Section 3, the Scope of Services, including any amendments. The Contractor's services are completed when the City notifies the Contractor in writing that the services are complete and are acceptable. The time for completion shall not be extended because of any delay attributable to the Contractor, but it may be extended by the City in the event of a delay attributable to the City, or in the event of unavoidable delay caused by war, insurrection, natural disaster, or other unexpected event beyond the control of the Contractor. If at any time the Contractor believes that the time for completion of the work should be extended because of unavoidable delay caused by an unexpected event, or because of a delay attributable to the City, the Contractor shall notify the City as soon as possible, but not later than seven (7) calendar days after such an event. Such notice shall include any justification for an extension of time and shall identify the amount of time claimed to be necessary to complete the work.
   C. Services by the Contractor shall proceed continuously and expeditiously through completion of each phase of the work.
   D. Progress reports documenting the extent of completed services shall be prepared by the Contractor and submitted to the City with each invoice under Section 24 of this Agreement, and at such other times as the City may specify, unless another procedure is specified in Section 3.

E. The Contractor shall notify the City in writing when the Contractor has determined that the services under this Agreement have been completed. When the City determines that the services are complete and are acceptable, the City will provide written notification to the Contractor, acknowledging formal acceptance of the completed services.

9. **AMENDMENT.**
This Contract shall be binding on the parties hereto, their respective heirs, devisees, and successors, and cannot be varied or waived by any oral representations or promise of any agent or other person of the parties hereto. Any other change in any provision of this Contract may only be made by a written amendment, signed by the duly authorized agent or agents who executed this Contract.

10. **EXTRA SERVICES.**
The City may require the Contractor to perform extra services or decreased services, according to the procedure set forth in Section 24. Extra services or decreased services means services which are not different in kind or nature from the services called for in the Scope of Services, Section 3, but which may increase or decrease the quantity and kind of labor or materials or expense of performing the services. Extra services may not increase the total Contract price, as set forth in Section 23, unless the Contract is amended as provided in Section 9 above.

11. **NO WAIVER.**
No failure to exercise, and no delay in exercising, any right, power or remedy hereunder on the part of the City or Contractor shall operate as a waiver thereof, nor shall any single or partial exercise of any right, power or remedy preclude any other or further exercise thereof or the exercise of any other right, power or remedy. No express waiver shall affect any event or default other than the event or default specified in such waiver, and any such waiver, to be effective, must be in writing and shall be operative only for the time and to the extent expressly provided by the City or Contractor therein. A waiver of any covenant, term or condition contained herein shall not be construed as a waiver of any subsequent breach of the same covenant, term or condition.

12. **NON-DISCRIMINATION.**
In the performance of work under this Contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of race, religion, marital status, age, color, sex, handicap, national origin or ancestry, income level or source of income, arrest record or conviction record, less than honorable discharge, physical appearance, sexual orientation, gender identity, political beliefs or student status. Contractor further agrees not to discriminate against any subcontractor or person who offers to subcontract on this Contract because of race, religion, color, age, disability, sex, sexual orientation, gender identity or national origin.

13. **AFFIRMATIVE ACTION.**

A. The following language applies to all contractors employing fifteen (15) or more employees: (MGO 39.02(9)(c).)

The Contractor agrees that, within thirty (30) days after the effective date of this Contract, Contractor will provide to the City of Madison Department of Civil Rights (the "Department"), certain workforce utilization statistics, using a form provided by the City.

If the Contract is still in effect, or if the City enters into a new Agreement with the Contractor, within one year after the date on which the form was required to be provided, the Contractor will provide updated workforce information using a second form, also to be furnished by the City. The second form will be submitted to the Department no later than one year after the date on which the first form was required to be provided.

The Contractor further agrees that, for at least twelve (12) months after the effective date of this Contract, it will notify the Department of each of its job openings at facilities in Dane County for which applicants not already employees of the Contractor are to be considered. The notice will include a job description, classification, qualifications, and application procedures and deadlines. The Contractor agrees to interview and consider candidates referred by the Department if the candidate meets the minimum qualification standards established by the Contractor, and if the referral is timely. A referral is timely if it is received by the Contractor on or before the date stated in the notice.

The Department will determine if a contractor is exempt from Sec. 13. A., at the time the Request for Exemption in 13.B. is made.

B. Articles of Agreement, Request for Exemption, and Release of Payment:
The "ARTICLES OF AGREEMENT" beginning on the following page, apply to all contractors, unless determined to be exempt under the following table and procedures:

NUMBER OF EMPLOYEES	LESS THAN $25,000 Aggregate Annual Business with the City*	$25,000 OR MORE Aggregate Annual Business with the City*
14 or less	Exempt**	Exempt**
15 or more	Exempt**	Not Exempt

*As determined by the Finance Director **As determined by the Department of Civil Rights

REQUEST FOR EXEMPTION: (MGO **39.02**(9)(a)2.) Contractors who believe they are Exempt from the Articles of Agreement according to the table above, shall submit a Request for Exemption on a form provided by the Department of Civil Rights ("Department"), within thirty (30) days of the effective date of this Contract. The Department makes the final determination as to whether a contractor is exempt from the Articles of Agreement. In the event the Contractor is not exempt, the Articles of Agreement shall apply. CONTRACTORS WITH 15 OR MORE EMPLOYEES WILL LOSE THIS EXEMPTION AND BECOME SUBJECT TO THE ARTICLES OF AGREEMENT UPON REACHING $25,000 OR MORE ANNUAL AGGREGATE BUSINESS WITH THE CITY WITHIN THE CALENDAR YEAR.

RELEASE OF PAYMENT: (MGO **39.02**(9)(e)1.b.) Within thirty (30) days from the effective date of this Contract, and prior to release of payment by the city, all non-exempt contractors are required to have on file with the Department, an Affirmative Action

plan meeting the requirements of Article IV below. Additionally, contractors that are exempt from the Articles of Agreement under Table 13-B, must have a Request for Exemption form on-file with the Department, prior to release of payment by the City.

ARTICLES OF AGREEMENT

ARTICLE I

The Contractor shall take affirmative action in accordance with the provisions of this Contract to insure that applicants are employed, and that employees are treated during employment without regard to race, religion, color, age, marital status, disability, sex, sexual orientation, gender identity or national origin and that the employer shall provide harassment-free work environment for the realization of the potential of each employee. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training including apprenticeship insofar as it is within the control of the Contractor. The Contractor agrees to post in conspicuous places available to employees and applicants notices to be provided by the City setting out the provisions of the nondiscrimination clauses in this Contract.

ARTICLE II

The Contractor shall in all solicitations or advertisements for employees placed by or on behalf of the Contractors state that all qualified or qualifiable applicants will be employed without regard to race, religion, color, age, marital status, disability, sex, sexual orientation, gender identity or national origin.

ARTICLE III

The Contractor shall send to each labor union or representative of workers with which it has a collective bargaining Agreement or other Contract or understanding a notice to be provided by the City advising the labor union or workers representative of the Contractor's equal employment opportunity and affirmative action commitments. Such notices shall be posted in conspicuous places available to employees and applicants for employment.

ARTICLE IV

(This Article applies to non-public works contracts.)

The Contractor agrees that it will comply with all provisions of the Affirmative Action Ordinance of the City of Madison (MGO 39.02) including the Contract compliance requirements. The Contractor warrants and certifies that one of the following paragraphs is true **(check one):**

☐ A. Contractor has prepared and has on file an affirmative action plan that meets the format requirements of Federal Revised Order No, 4, 41 CFR part 60-2, as established by 43 FR 51400 November 3, 1978, including appendices required by City of Madison ordinances or it has prepared and has on file a model affirmative action plan approved by the Madison Common Council.

☒ B. Within thirty (30) days after the effective date of this Contract, Contractor will complete an affirmative action plan that meets the format requirements of Federal Revised Order No. 4, 41 CFR Part 60-2, as established by 43 FR 51400, November 3, 1978, including appendices required by City of Madison ordinance or within thirty (30) days after the effective date of this Contract, it will complete a model affirmative action plan approved by the Madison Common Council.

☐ C. Contractor believes it is exempt from filing an affirmative action plan because it has fewer than fifteen (15) employees and has filed, or will file within thirty (30) days after the effective date of this Contract, a form required by the City to confirm exempt status based on number of employees. If the City determines that Contractor is not exempt, the Articles of Agreement will apply.

☐ D. Contractor believes it is exempt from filing an affirmative action plan because its annual aggregate business with the City for the calendar year in which the contract takes effect is less than twenty-five thousand dollars ($25,000), or for another reason listed in MGO 39.02(9)(a)2. If the City determines that Contractor is not exempt, the Articles of Agreement will apply.

ARTICLE V

(This Article applies only to public works contracts.)

The Contractor agrees that it will comply with all provisions of the Affirmative Action Ordinance of the City of Madison, including the Contract compliance requirements. The Contractor agrees to submit the model affirmative action plan for public works Contractors in a form approved by the Director of Affirmative Action.

ARTICLE VI

The Contractor will maintain records as required by Section **39.02**(9)(f) of the Madison General Ordinances and will provide the City's Department of Affirmative Action with access to such records and to persons who have relevant and necessary information, as provided in Section **39.02**(9)(f). The City agrees to keep all such records confidential, except to the extent that public inspection is required by law.

ARTICLE VII

In the event of the Contractor's or subcontractor's failure to comply with the Equal Employment Opportunity and Affirmative Action provisions of this Contract or Sections 39.03 and **39.02** of the Madison General Ordinances, it is agreed that the City at its option may do any or all of the following:

A. Cancel, terminate or suspend this Contract in whole or in part.

B. Declare the Contractor ineligible for further City contracts until the Affirmative Action requirements are met.

C. Recover on behalf of the City from the prime Contractor 0.5 percent of the Contract award price for each week that such party fails or refuses to comply, in the nature of liquidated damages, but not to exceed a total of five percent (5%) of the Contract price, or five thousand dollars ($5,000), whichever is less. Under public works contracts, if a subcontractor is in noncompliance, the City may recover liquidated damages from the prime Contractor in the manner described above. The preceding sentence shall not be construed to prohibit a prime Contractor from recovering the amount of such damage from the noncomplying subcontractor.

ARTICLE VIII

(This Article applies to public works contracts only.)

The Contractor shall include the above provisions of this Contract in every subcontract so that such provisions will be binding upon each subcontractor. The Contractor shall take such action with respect to any subcontractor as necessary to enforce such provisions, including sanctions provided for noncompliance.

ARTICLE IX

The Contractor shall allow the maximum feasible opportunity to small business enterprises to compete for any subcontracts entered into pursuant to this Contract. (In federally funded contracts the terms "DBE, MBE, and WBE" shall be substituted for the term "small business" in this Article.)

14. **SEVERABILITY.**
It is mutually agreed that in case any provision of this Contract is determined by any court of law to be unconstitutional, illegal or unenforceable, it is the intention of the parties that all other provisions of this Contract remain in full force and effect.

15. **NOTICES.**
All notices to be given under the terms of this Contract shall be in writing and signed by the person serving the notice and shall be sent registered or certified mail, return receipt requested, postage prepaid, or hand delivered to the addresses of the parties listed below:

FOR THE CONSORTIUM:

1. David Trowbridge, Transportation Planning & Policy Manager
City of Madison Planning Division
215 Martin Luther King Jr. Blvd. Room LL100
Madison, WI 53703

2. David Merritt, Director of Policy and Program Development
Dane County Department of Administration
210 Martin Luther King. Jr. Blvd. Room 425
Madison, WI 53703

3. Donna Brown-Martin, Director, Bureau of Transit, Local Roads, Railroad & Harbors
Division of Transportation Investment Management
Wisconsin Department of Transportation
PO Box 7913
Madison, WI 53707-7913

FOR THE CONTRACTOR:

Christopher Johnson
HNTB Corporation
10 West Mifflin Street, Suite 300
Madison, WI 53703

16. **STATUS OF CONTRACTOR/INDEPENDENT/TAX FILING.**
It is agreed that Contractor is an independent Contractor and not an employee of the City, and that any persons who the Contractor utilizes and provides for services under this Contract are employees of the Contractor and are not employees of the City of Madison.

Contractor shall provide its taxpayer identification number (or social security number) to the Finance Director, 210 Martin Luther King Jr. Blvd, Room 406, Madison, WI 53703, prior to payment. The Contractor is informed that as an independent Contractor, s/he may have a responsibility to make estimated tax returns, file tax returns, and pay income taxes and make social security payments on the amounts received under this Contract and that no amounts will be withheld from payments made to this Contractor for these purposes and that payment of taxes and making social security payments are solely the responsibility and obligation of the Contractor. The Contractor is further informed that s/he may be subject to civil and/or criminal penalties if s/he fails to properly report income and pay taxes and social security taxes on the amount received under this Contract.

17. **GOODWILL.**
Any and all goodwill arising out of this Contract inures solely to the benefit of the City; Contractor waives all claims to benefit of such goodwill.

18. **THIRD PARTY RIGHTS.**
This Contract is intended to be solely between the parties hereto. No part of this Contract shall be construed to add, supplement, amend, abridge or repeal existing rights, benefits or privileges of any third party or parties, including but not limited to employees of either of the parties.

19. **AUDIT AND RETAINING OF DOCUMENTS.**
In addition to the requirements for audit and retention of documents in Attachment C, paragraph 9, the Contractor agrees to provide all reports requested by the City including, but not limited to, financial statements and reports, reports and accounting of services rendered, and any other reports or documents requested. Financial and service reports shall be provided according to a schedule (when applicable) to be included in this Contract. Any other reports or documents shall be provided within five (5) working days after the Contractor receives the City's written requests, unless the parties agree in writing on a longer period. Payroll records and any other documents relating to the performance of services under the terms of this Contract shall be retained by the Contractor for a period of three (3) years after completion of all work under this Contract, in order to be available for audit by the City or its designee.

20. **CHOICE OF LAW AND FORUM SELECTION.**
This Contract shall be governed by and construed, interpreted and enforced in accordance with the laws of the State of Wisconsin. The parties agree, for any claim or suit or other dispute relating to this Contract that cannot be mutually resolved, the venue shall

be a court of competent jurisdiction within the State of Wisconsin and the parties agree to submit themselves to the jurisdiction of said court, to the exclusion of any other judicial district that may have jurisdiction over such a dispute according to any law.

21. **COMPLIANCE WITH APPLICABLE LAWS.**
The Contractor shall become familiar with, and shall at all times comply with and observe all federal, state, and local laws, ordinances, and regulations which in any manner affect the services or conduct of the Contractor and its agents and employees.

22. **CONFLICT OF INTEREST.**
A. The Contractor warrants that it and its agents and employees have no public or private interest, and will not acquire directly or indirectly any such interest, which would conflict in any manner with the performance of the services under this Agreement.
B. The Contractor shall not employ or Contract with any person currently employed by the City for any services included under the provisions of this Agreement.

23. **COMPENSATION.**
It is expressly understood and agreed that in no event will the total compensation for services under this Contract exceed $194,532.00.

24. **BASIS FOR PAYMENT.**
A. GENERAL
(1) The City will pay the Contractor for the completed and accepted services rendered under this Contract on the basis and at the Contract price set forth in Section 23 of this Contract. The City will pay the Contractor for completed and approved "extra services", if any, if such "extra services" are authorized according to the procedure established in this section. The rate of payment for "extra services" shall be the rate established in this Contract. Such payment shall be full compensation for services rendered and for all labor, material, supplies, equipment and incidentals necessary to complete the services.
(2) The City will withhold final payment of the project total until all contract deliverables and work tasks have been completed by the Contractor and accepted in writing by the City. Final payment will be made upon successful completion and after review and written approval by the City of all tasks, deliverables and completed milestones as identified in the project schedule. The final invoice shall be submitted to the City within three months of completion of services under this Agreement.
(3) The Contractor shall submit invoices, on the form or format approved by the City, specified in the Scope of Services, Section 3 of this Contract. The City will pay the Contractor in accordance with the schedule set forth in the Scope of Services. The final invoice shall be submitted to the City within three months of completion of services under this Agreement.
(4) Should this Agreement contain more than one service, a separate invoice and a separate final statement shall be submitted for each individual service.
(5) Payment shall not be construed as City acceptance of unsatisfactory or defective services or improper materials.
(6) Final payment of any balance due the Contractor will be made upon acceptance by the City of the services under the Agreement and upon receipt by the City of documents required to be returned or to be furnished by the Contractor under this Agreement.
(7) The City has the equitable right to set off against any sum due and payable to the Contractor under this Agreement, any amount the City determines the Contractor owes the City, whether arising under this Agreement or under any other Agreement or otherwise.
(8) Compensation in excess of the total Contract price will not be allowed unless authorized by an amendment under Section 9, AMENDMENT.
(9) The City will not compensate for unsatisfactory performance by the Contractor.
(10) Travel Guidelines. All travel expenses shall be reasonable and documented and shall be included in the not-to-exceed cost for services and shall be itemized to show actual amounts not to exceed the applicable federal per diem rate, applicable for Madison, WI as shown on the website: http://www.gsa.gov/portal/category/100120.
B. SERVICE ORDERS, EXTRA SERVICE, OR DECREASED SERVICE.
(1) Written orders regarding the services, including extra services or decreased services, will be given by the City, using the procedure set forth in Section 15, NOTICES.
(2) The City may, by written order, request extra services or decreased services, as defined in Section 10 of this Contract. Unless the Contractor believes the extra services entitle it to extra compensation or additional time, the Contractor shall proceed to furnish the necessary labor, materials, and professional services to complete the services within the time limits specified in the Scope of Services, Section 3 of this Agreement, including any amendments under Section 9 of this Agreement.
(3) If in the Contractor's opinion the order for extra service would entitle it to extra compensation or extra time, or both, the Contractor shall not proceed to carry out the extra service, but shall notify the City, pursuant to Section 15 of this Agreement. The notification shall include the justification for the claim for extra compensation or extra time, or both, and the amount of additional fee or time requested.
(4) The City shall review the Contractor's submittal and respond in writing, either authorizing the Contractor to perform the extra service, or refusing to authorize it. The Contractor shall not receive additional compensation or time unless the extra compensation is authorized by the City in writing.

25. **DEFAULT/TERMINATION.**
See Attachment C, paragraph 20, “Termination.”

26. **INDEMNIFICATION.**
The Contractor shall be liable to and hereby agrees to indemnify, defend and hold harmless the City of Madison, the County of Dane, and the State of Wisconsin, and their officers, officials, agents, and employees (hereafter, the “Indemnified Parties”) against all loss or expense (including liability costs and attorney's fees) by reason of any claim or suit, or of liability imposed by law upon the Indemnified Parties for damages because of bodily injury, including death at any time resulting therefrom, sustained by any person or persons or on account of damages to tangible property, including loss of use thereof, arising from, in connection

with, caused by or resulting from the Contractor's and/or Subcontractor's acts or omissions in the performance of this Agreement, whether caused by or contributed to by the negligence of the Indemnified Parties.

27. **INSURANCE.**

The Contractor will insure, and will require each subcontractor to insure, as indicated, against the following risks to the extent stated below. The Contractor shall not commence work under this Contract, nor shall the Contractor allow any Subcontractor to commence work on its Subcontract, until the insurance required below has been obtained and corresponding certificate(s) of insurance have been approved by the City Risk Manager.

Commercial General Liability

The Contractor shall procure and maintain during the life of this Contract, Commercial General Liability insurance including, but not limited to bodily injury, property damage, personal injury, and products and completed operations (unless determined to be inapplicable by the Risk Manager) in an amount not less than $1,000,000 per occurrence. This policy shall also provide contractual liability in the same amount. Contractor's coverage shall be primary and list the City of Madison, its officers, officials, agents and employees as additional insureds. Contractor shall require all subcontractors under this Contract (if any) to procure and maintain insurance meeting the above criteria, applying on a primary basis and listing the City of Madison, its officers, officials, agents and employees as additional insureds.

Automobile Liability

The Contractor shall procure and maintain during the life of this Contract Business Automobile Liability insurance covering owned, non-owned and hired automobiles with limits of not less than $1,000,000 combined single limit per accident. Contractor shall require all subcontractors under this Contract (if any) to procure and maintain insurance covering each subcontractor and meeting the above criteria.

Worker's Compensation

The Contractor shall procure and maintain during the life of this Contract statutory Workers' Compensation insurance as required by the State of Wisconsin. The Contractor shall also carry Employers Liability limits of at least $100,000 Each Accident, $100,000 Disease – Each Employee, and $500,000 Disease – Policy Limit. Contractor shall require all subcontractors under this Contract (if any) to procure and maintain such insurance, covering each subcontractor.

Professional Liability

The Contractor shall procure and maintain professional liability insurance with coverage of not less than $1,000,000. If such policy is a "claims made" policy, all renewals thereof during the life of the Contract shall include "prior acts coverage" covering at all times all claims made with respect to Contractor's work performed under the Contract. This Professional Liability coverage must be kept in force for a period of six (6) years after the services have been accepted by the City.

Acceptability of Insurers. The above-required insurance is to be placed with insurers who have an A.M. Best rating of no less than A- (A minus) and a Financial Category rating of no less than VII.

Proof of Insurance, Approval. The Contractor shall provide the City with certificate(s) of insurance showing the type, amount, effective dates, and expiration dates of required policies prior to commencing work under this Contract. Contractor shall provide the certificate(s) to the City's representative upon execution of the Contract, or sooner, for approval by the City Risk Manager. If any of the policies required above expire while this Contract is still in effect, Contractor shall provide renewal certificate(s) to the City for approval. Certificate Holder language should be listed as follows:

City of Madison
ATTN: Risk Management, Room 406
210 Martin Luther King, Jr. Blvd.
Madison, WI 53703

The Contractor shall provide copies of additional insured endorsements or insurance policies, if requested by the City Risk Manager. The Contractor and/or Insurer shall give the City thirty (30) days advance written notice of cancellation, non-renewal or material changes to any of the above-required policies during the term of this Contract.

28. **OWNERSHIP OF CONTRACT PRODUCT.**

All of the work product, including, but not limited to, documents, materials, files, reports, data, including magnetic tapes, disks of computer-aided designs or other electronically stored data or information (the "Documents"), which the Contractor prepares pursuant to the terms and conditions of this Contract are the sole property of the City. The Contractor will not publish any such materials or use them for any research or publication, other than as expressly required or permitted by this Contract, without the prior written permission of the City. The grant or denial of such permission shall be at the City's sole discretion.

The Contractor intends that the copyright to the Documents shall be owned by City, whether as author (as a Work Made For Hire), or by assignment from Contractor to City. The parties expressly agree that the Documents shall be considered a Work Made For Hire as defined by Title 17, United States Code, Section 101(2).

As further consideration for the City entering into this Contract, the Contractor hereby assigns to City all of the Contractor's rights, title, interest and ownership in the Documents, including the right to procure the copyright therein and the right to secure any renewals, reissues and extensions of any such copyright in any foreign country. The City shall be entitled to the sole and exclusive benefit of the Documents, including the copyright thereto, and whenever required by the City, the Contractor shall at no additional compensation, execute all documents of assignment of the full and exclusive benefit and copyright thereof to the City. Any subcontractors and other independent Contractors who prepare portions of the Documents shall be required by the Contractor to execute an assignment of ownership in favor of the City before commencing work.

29. **LIVING WAGE (Applicable to contracts exceeding $5,000).**

Unless exempt by MGO 4.20, the Contractor agrees to pay all employees employed by the Contractor in the performance of this Contract, whether on a full-time or part-time basis, a base wage of not less than the City minimum hourly wage as required by Section 4.20, Madison General Ordinances.

30. **EQUAL BENEFITS REQUIREMENT (Sec. 39.07, MGO.) (Applicable to contracts exceeding $25,000).**
This provision applies to service contracts of more than $25,000 executed, extended, or renewed by the City on July 1, 2012 or later, unless exempt by Sec. 39.07 of the Madison General Ordinances (MGO).

For the duration of this Contract, the Contractor agrees to offer and provide benefits to employees with domestic partners that are equal to the benefits offered and provided to married employees with spouses, and to comply with all provisions of Sec. 39.07, MGO. If a benefit would be available to the spouse of a married employee, or to the employee based on his or her status as a spouse, the benefit shall also be made available to a domestic partner of an employee, or to the employee based on his or her status as a domestic partner. "Benefits" include any plan, program or policy provided or offered to employees as part of the employer's total compensation package, including but not limited to, bereavement leave, family medical leave, sick leave, health insurance or other health benefits, dental insurance or other dental benefits, disability insurance, life insurance, membership or membership discounts, moving expenses, pension and retirement benefits, and travel benefits.

Cash Equivalent. If after making a reasonable effort to provide an equal benefit for a domestic partner of an employee, the Contractor is unable to provide the benefit, the Contractor shall provide the employee with the cash equivalent of the benefit.

Proof of Domestic Partner Status. The Contractor may require an employee to provide proof of domestic partnership status as a prerequisite to providing the equal benefits. Any such requirement of proof shall comply with Sec. 39.07(4), MGO.

Notice Posting, Compliance. The Contractor shall post a notice informing all employees of the equal benefit requirements of this Contract, the complaint procedure, and agrees to produce records upon request of the City, as required by Sec. 39.07, MGO.

Subcontractors (Service Contracts Only). Contractor shall require all subcontractors, the value of whose work is twenty-five thousand dollars ($25,000) or more, to provide equal benefits in compliance with Sec. 39.07, MGO.

31. **WEAPONS PROHIBITION.**
Contractor shall prohibit, and shall require its subcontractors to prohibit, its employees from carrying weapons, including concealed weapons, in the course of performance of work under this Contract, other than while at the Contractor's or subcontractor's own business premises. This requirement shall apply to vehicles used at any City work site and vehicles used to perform any work under this Contract, except vehicles that are an employee's "own motor vehicle" pursuant to Wis. Stat. sec. 175.60(15m).

32. **IT NETWORK CONNECTION POLICY.**
If this Contract includes services such as software support, software maintenance, network services, and/or system development services and will require a Network Connection the City Network (as defined in the following link), the City's Network Connection Policy found at this link: http://www.cityofmadison.com/attorney/documents/posNetworkConnection.doc is hereby incorporated and made a part of this Contract and Contractor agrees to comply with all of its requirements.

33. **AUTHORITY.**
Contractor represents that it has the authority to enter into this Contract. If the Contractor is not an individual, the person signing on behalf of the Contractor represents and warrants that he or she has been duly authorized to bind the Contractor and sign this Contract on the Contractor's behalf.

34. **COUNTERPARTS, ELECTRONIC DELIVERY.**
This Contract may be signed in counterparts, each of which shall be taken together as a whole to comprise a single document. Signatures on this Contract may be exchanged between the parties by facsimile, electronic scanned copy (.pdf) or similar technology and shall be as valid as original. Executed copies or counterparts of this Contract may be delivered by facsimile or email and upon receipt will be deemed original and binding upon the parties hereto, whether or not a hard copy is also delivered. Copies of this Contract, fully executed, shall be as valid as an original.

IN WITNESS WHEREOF, the parties hereto have set their hands at Madison, Wisconsin.

CONTRACTOR:

_____
(Type or Print Name of Contracting Entity)

By: _____
(Signature)

Mark Kaminski, Vice President
(Print Name and Title of Person Signing)

Date: _____

MADISON AREA INTER-GOVERNMENTAL TRANSPORTATION CONSORTIUM:

CITY OF MADISON, WISCONSIN
a municipal corporation:

By: _____
Paul R. Soglin, Mayor

Date: _____

Approved:

By: _____
Maribeth Witzel-Behl, City Clerk

David P. Schmiedicke, Finance Director

Date: _____

Date: _____

Approved as to Form:

_____
Michael P. May, City Attorney

Eric T. Veum, Risk Manager

Date: _____

Date: _____

WisDOT:

_____
DONNA BROWN-MARTIN, DIRECTOR DATE
Bureau of Transit, Local Roads, Railroads & Harbors
Wisconsin Department of Transportation

The COUNTY OF DANE, Wisconsin:

By: _____
JOSEPH PARISI, County Executive Date

By: _____
SCOTT MC DONELL, County Clerk Date

King County Metro Rapid Ride BRT
Seattle, WA

4. PROJECT APPROACH

A. WORK PLAN

Work Plan Process

The HNTB team understands that the intent of the Madison Area Transportation Planning Board – A Metropolitan Planning Organization (MPO) is to award the project during the summer of 2015. The HNTB team anticipates a project start date in late summer 2015 and a six to eight month project window. This project timeline will make sure the model will be available to support the BRT pre-project development planning work expected to begin in late 2015. The proposed work plan includes Tasks 1-7 specified in the RFP, plus one more. Task 0 has been added and covers activities related to project management, administration, and meetings. A detailed description our plan to execute Tasks 0-7 can be found in section C , beginning on page 4.2.

Project Timeline

A schedule for completing the tasks during a seven-month project window is shown on pages 4.3 and 4.4. The schedule will be further detailed as part of Task 1 to include specific dates for activities, meetings, deliverables and other milestones.

A graphical representation of our work plan process is provided below:

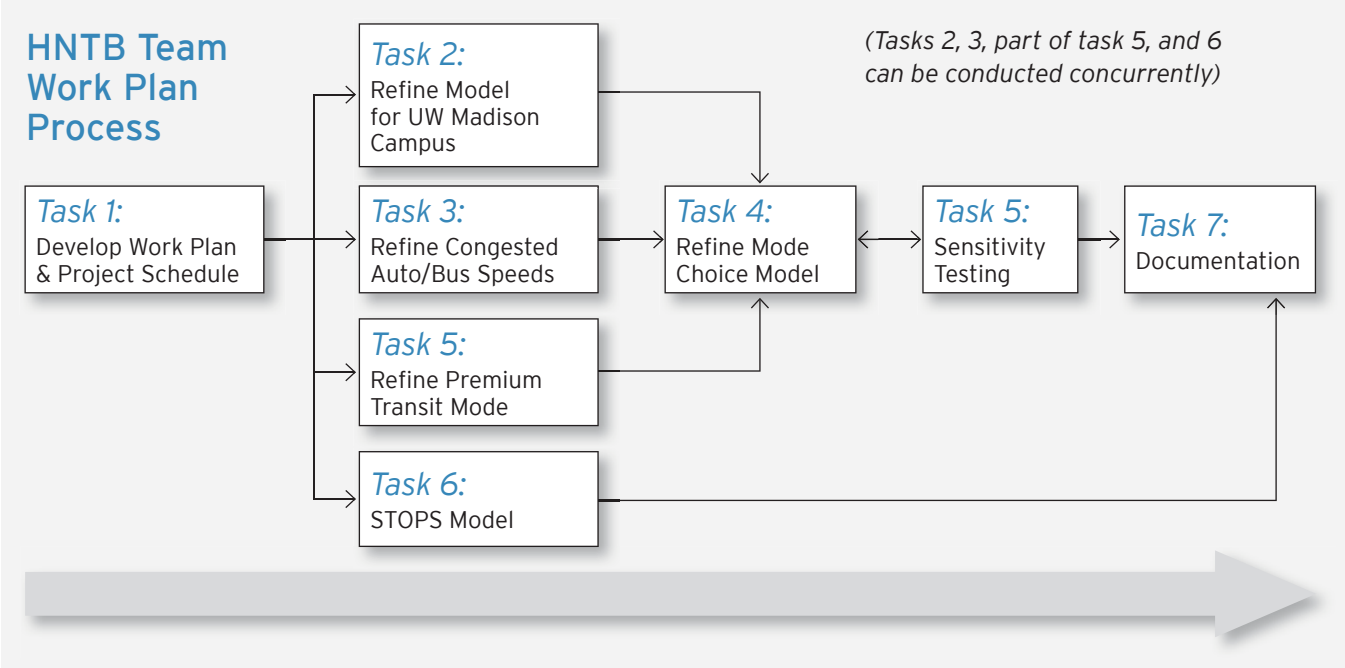

Figure 1: Work Plan Process

B. ESTIMATION OF TOTAL WORK HOURS (subject to change with final fee estimate)

The table below demonstrates HNTB's estimation of total work hours broken down by individual work tasks.

C. TECHNICAL APPROACH

1. Project Understanding

The HNTB team has a strong understanding of the scope of the travel modeling services requested. We have built upon tasks 0-7 by adding detailed subtasks to the description of our approach. We have laid out each task on the following pages, beginning with a summary of work for the task, detailing subtasks and finishing with deliverables. An in depth analysis of personnel and budget assigned to each task is summarized in Chapter 5, the cost proposal, submitted in a separate sealed envelope.

2. Controlling Quality, Correcting Mistakes and Cost Containment

HNTB has developed proven project management and tracking practices that will be used. At the outset, a project team meeting will be conducted to clearly communicate the roles and responsibilities of each team member, and the overall project and deliverable schedule. This will confirm team members are on the same page from the start. Once the project is underway, HNTB will conduct monthly internal project review meetings to monitor the project status and costs. These project review meetings help identify potential problems early and allow time for resolution.

Tasks	Hours
Task 0: Project Management, Administration and Meetings	130
Task 1: Develop Detailed Overall Work Plan and Project Schedule	32
Task 2: Refine the Model Calibration for Home-Based University and other Trips to the UW Madison Campus	392
Task 3: Review and Refine the Congested Auto Traffic Speeds on Radial Arterial Bus Routes and Bus Speeds	166
Task 4: Refine the Mode Choice Model	408
Task 5: Testing and Refinement of the Premium Transit Mode	148
Task 6: Test the BRT System Ridership Forecasts from the Model Using FTA's STOPS Software Package	132
Task 7: Prepare Model Validation Report Documenting Improvements Made to the Model and Results of the Model Calibration and Validation Efforts	144
Total All Tasks	**1,552**

Table 1: Project Tasks

Proposed Project Schedule

The project schedule below demonstrates HNTB's approach to completing the City of Madison Transit Ridership Modeling in seven months from Notice to Proceed (NTP). Task 0 has been added.

	Month						
Proposed Tasks	1	2	3	4	5	6	7
Task 0 - Project Management, Administration and Meetings (New Task)							
0.1 - Project Management							
0.2 - Project Administration & Progress Tracking							
0.3 - Project Meetings							
Task 1 - Develop Detailed Overall Work Plan and Project Schedule							
1.1 - Finalize Task Roles and Responsibilities							
1.2 - Develop Detailed Project Schedule in MS Project							
1.3 - Identify/Inventory Data, Resources and Project Support							
1.4 - Finalize Project Budget							
Task 2 - Refine the Model Calibration for Home-Based University and other Trips to the UW Madison Campus							
2.1 - Analyze UW Madison Transportation Surveys							
2.2 - Develop Validation Targets Specific to UW Madison Trips							
2.3 - Assess/Update TAZ Structure/Network for UW Madison Trips							
2.4 - Assess/Update Socio-Economic Data Assumptions for UW Madison Campus							
2.5 - Assess Trip Generation Model for UW Madison Trips							
2.5.1 - Analyze Location of Existing Model-Est. HB University Productions/Attractions							
2.5.2 - Estimate Trip Generation Model for Resident Hall Student Population							
2.5.3 - Implement Trip Generation Improvements/Refinements							
2.6 - Assess Trip Distribution Model for UW Madison Trips							
2.6.1 - Analyze Validation of Existing Trip Distribution Models for UW Madison Trip							
2.6.2 - Recalibrate Gravity Models by Trip Purpose for UW Madison Trips							
2.6.3 - Implement Trip Distribution Improvements/Refinements							
2.7 - Assess Mode Choice Model/Transit Assignment Model for UW Madison Trips							
2.7.1 - Analyze Validation of Existing Mode Choice/Transit Assignment Models for UW Madison Trip							
2.7.2 - Recalibrate Mode Choice Models by Trip Purpose for UW Madison Trip							
2.7.3 - Implement Mode Choice/Transit Assignment Improvements/Refinements							
Task 3 - Refine Congested Speeds on Radial Arterial Routes and Bus Speeds							
3.1 - Analyze Roadway Speed Data Under Existing Conditions							
3.1.1 - Transfer NPMRDS Speed Data to Arterial Corridors							
3.1.2 - Supplement NPMRDS Data With Additional Sources							
3.1.3 - Summarize Average Congested Travel Times on Arterial Corridors							
3.2 - Analyze Bus Speed Data Under Existing Conditions							
3.2.1 - Use Schedules to Estimate Bus Speeds on Arterial Corridors							
3.2.2 - Estimate Additional Factors Impacting Bus Travel Times (Dwell Time, Diversions to Make Stops on Local Roads)							
3.2.3 - Compare Bus Travel Times Against Roadway Travel Times for Reasonableness							
3.2.4 - Identify Inconsistencies and Update Highway Travel Times as Appropriate							
3.2.5 - Compare Scheduled Travel Time Data to Modeled Bus Travel Time for Each Transit Route/Roadway Segment							
3.2.6 - Develop Travel Time Lookup Table for Bus Speeds by Link Class and Area Type							
3.2.7 - Calibrate Speed Lookup Table to Improve Bus Travel Time Validation							
3.2.8 - Compare Results Based on the Existing Dane County Transit Speed Estimation with the Updated Estimation Procedures							
3.3 - Evaluate Impacts of Future Congestion on Ridership and Determine Appropriate Approach to Account for Future Congestion Document Approach and Results							

Table 2: Project Schedule

Proposed Project Schedule Continued

	Month						
Proposed Tasks	1	2	3	4	5	6	7
Task 4 - Refine Mode Choice Model							
4.1 - Analyze 2015 On-Board Survey							
4.1.1 - QC Geocoding							
4.1.2 - QC Weighting/Expansion							
4.1.3 - Assemble/Assign Survey Transit Trip Table							
4.2 - Establish Mode Share Calibration Targets							
4.3 - QC/Update Transit Network							
4.3.1 - Analyze Madison Metro AVL/APC GPS Data							
4.3.2 - Assess Route Coding (Stops, Loading Points, Frequencies)							
4.3.3 - Implement Improved Transit Walk Access Procedures							
4.3.4 - Assess Auto Access Assumptions							
4.3.5 - Assess Transit Time Functions							
4.3.6 - Validate Transit Network/Route Run Times Against Published Schedules							
4.4 - QC/Update Mode Choice Input Parameters							
4.4.1 - Assess Parking Costs, Auto Operating Costs, Transit Fares							
4.4.2 - Implement Improved Transit Fare Representation							
4.5 - Assess/QC Transit LOS Skim Components (Walk, Wait, Transfer, Boarding, In-Vehicle, Out-Vehicle)							
4.6 - Assess/QC Non-Transit Skims (Auto, Non-Motorized)							
4.7 - QC/Update Mode Choice Model Structure/Market Segmentation							
4.8 - QC/Update Mode Choice Coefficients							
4.9 - Calibrate Alternative Specific Constants to Match Mode Share Targets							
4.10 - Transit Assignment Validation							
4.10.1 - Tabulate Estimated/Observed Boardings/Alightings by Stop, Route, TAZ							
4.10.2 - Assess/Validate Transfer Rate							
4.10.3 - Implement Improved/Updated Transit Assignment Procedures							
Task 5 – Conduct Sensitivity Testing/Refinement of Premium Transit Mode							
5.1 - Complete Transit Network Coding – Local Routes							
5.2 - Code Additional BRT Alternative Route(s) for Sensitivity Testing							
5.3 - Document Current Model Parameters for Premium Transit Mode							
5.4 - Conduct Sensitivity Testing – Model Parameters							
5.5 - Conduct Sensitivity Testing – Transit Network Elements							
Task 6 - Evaluate TDM BRT Forecasts with FTA STOPS Model							
6.1 - Develop STOPS Model – Data Assembly							
6.2 - Develop STOPS Model – Networks							
6.3 - Calibrate/Validate STOPS Model							
6.4 - Apply STOPS Model – Base Year							
6.5 - Apply STOPS Model – Future Year							
6.6 - Compare TDM and STOPS BRT Forecasts							
Task 7 - Prepare Model Documentation							
7.1 – Model Improvements Report							
7.2 – Model Calibration/Validation Report							

3. Project Deliverables and Innovations

Task 0: *Project Management, Administration and Meetings (NEW)*

This task is proposed to accommodate the management and administration activities required to successfully deliver the project (writing progress reports, preparing invoices, coordination with subconsultants, etc.). It also includes routine project status meetings with MPO leadership, project team members, and internal quality control meetings. Roughly half of the hours proposed for this task are for meetings. In addition to a project kick-off meeting, the HNTB team is proposing monthly project status and coordination meetings with MPO leadership and staff during the estimated seven-month project window, and as part of its standard operating procedure, HNTB conducts internal project review meetings on a monthly basis to track project progress and costs.

The individual subtasks proposed under this task are:

- Subtask 0.1 Project Management
- Subtask 0.2 Project Administration and Progress Tracking Subtask
- 0.3 Meetings

Task 1: *Develop Overall Work Plan and Project Schedule*

Immediately after receiving Notice to Proceed (NTP), the HNTB team will work with the MPO project manager to finalize the detailed work plan for successfully completing the project tasks. Many of the ideas and much of the information contained in this proposal will be directly applicable to project planning purposes, so finalizing an overall work plan and project schedule is expected to be a straightforward and quick process.

The Federal Transit Administration (FTA) is an important voice and partner in any transit project that intends to seek federal funding for project implementation. The overall work plan will be provided to the FTA for review and comment. Prior to finalizing, comments and suggestions submitted by the FTA will be incorporated into the work plan. With the exception of data assembly and analysis tasks, the HNTB team will not proceed with project activities until the overall work plan and schedule has been approved by the MPO project manager.

Federal Transit Administration ⟷ The HNTB Team ⟷ Madison Area T·P·B Transportation Planning Board A Metropolitan Planning Organization (MPO)

The individual subtasks proposed under this task are:

- Subtask 1.1 Finalize Task Roles and Responsibilities
- Subtask 1.2 Develop Project Schedule
- Subtask 1.3 Identify/Inventory Data, Resources and Project Support
- Subtask 1.4 Finalize Project Budget

Task Deliverable(s):

- Final Work Plan, Schedule, and Project Budget

HNTB's standards of performance for project management, as detailed in HNTB's Manual of Professional Practice (MPP), will guide the management of the project. The MPP incorporates HNTB's time-tested procedures for delivering "4for4" performance every day, on every project to achieve:

Task 2: *Refine the Model Calibration for Home-Based University and Other Trips to the UW Madison Campus*

The HNTB team recognizes that the Madison area's most significant and most complex transit market segment is the faculty, staff, employees and students traveling to and from the University of Wisconsin campus. As noted in the RFP, this market segment accounts for approximately 50% of Madison Metro's mainline ridership. Representing this important market segment accurately will be critical to improving the validation of the mode choice and transit model components and, ultimately, to a more accurate assessment of the potential impact of BRT service.

INNOVATION
Bi-segregated UW Madison Submodels

To improve how the MPO travel demand model represents travel to and from the UW Madison campus, the HNTB team proposes an approach that separates home-based university trips (i.e., trips made by students to and from campus) into two categories:

- Trips made by students living in residence halls and dormitories
- Trips made by students living in off-campus housing

A similar approach to representing university student trip-making behavior has been successfully implemented in the Puget Sound Regional Council's (PSRC) travel demand model for the University of Washington campus in Seattle. For comparison, enrollment at the University of Washington is slightly larger than that of UW Madison, 45,000 versus 43,000 students, respectively.

Key elements of our approach will include developing separate trip generation and trip distribution models for each type of student population. To help address the current model limitation of widespread regional dispersion of home-based university productions, the HNTB team proposes to introduce additional variables (e.g., college households or college students per household) to the home-based university trip production model. This refinement will concentrate home-based university productions in TAZs where they are expected to occur and will help improve the validation of the downstream trip distribution and mode choice models.

In the PSRC model structure, the two types of home-based university trips were combined before the mode choice and assignment model steps. A similar approach is proposed for the Madison MPO model. A key modification envisioned for Madison MPO home-based university mode choice model will be the introduction of a zonal flag for campus TAZs. The zonal flag, or "dummy" variable will function similarly to what is currently in use for the Madison CBD in that it serves to help capture the complexity of campus travel behavior that is not explained well by the other variables in the mode choice utility expressions. If necessary, it can also be implemented for a sub-set of the campus TAZs.

The proposed refinements to the UW Madison sub-models will be informed and supported by a in-depth analysis of the locally observed datasets that will be provided for this project. Of particular importance to this task will be the analysis of the recently administered Madison Metro transit on-board survey and the UW Madison transportation surveys.

The individual subtasks proposed under this task are:

- Subtask 2.1 Analyze UW Madison Transportation Surveys
- Subtask 2.2 Develop Mode Choice Calibration Targets Specific to UW Madison Trips
- Subtask 2.3 Assess/Update TAZ Structure/Network for UW Madison Campus
- Subtask 2.4 Assess/Update Socio-Economic Data Assumptions for UW Madison Campus
- Subtask 2.5 Assess Trip Generation Model for UW Madison Trips
  - *Analyze Location of Existing Model-Estimated HB University Productions/Attractions*
  - *Estimate Trip Generation Model for Resident Hall Student Population*
  - *Implement Trip Generation Improvements/ Refinements*
- Subtask 2.6 Assess Trip Distribution Model for UW Madison Trips

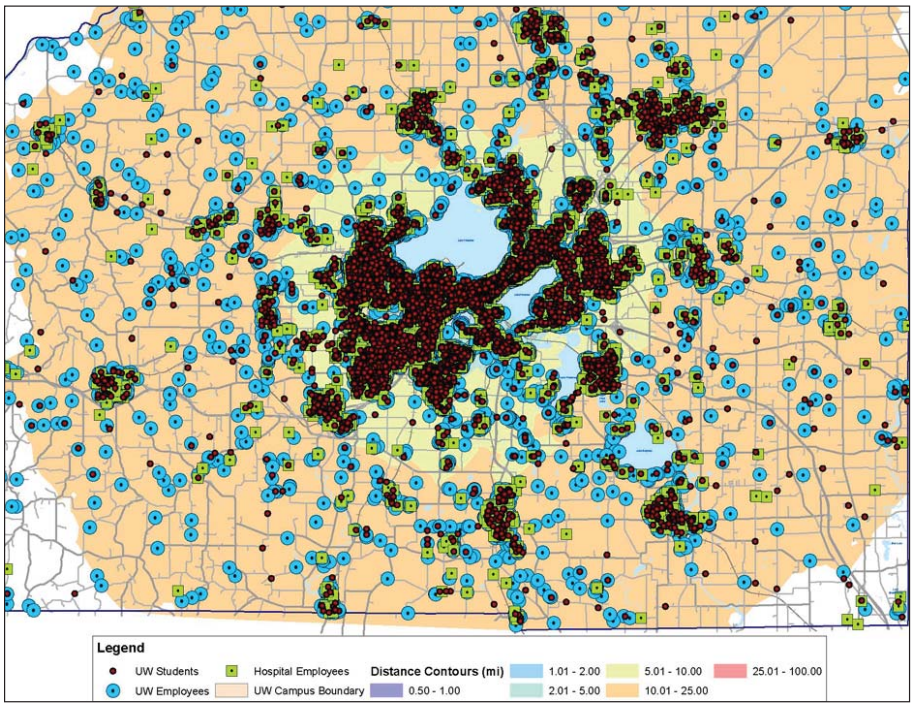

Figure 2: Geocoded Map for the 2005 Long Range Transportation Plan and Transportation Demand Management Plan. *The geocoded map shows home locations of all members of the UW Madison campus community and illustrates the importance of separately analyzing student populations living in dormitories and those living off-campus.*

- *Analyze Validation of Existing Trip Distribution Models for UW Madison Trips*
- *Recalibrate Gravity Models by Trip Purpose for UW Madison Trips*
- *Implement Trip Distribution Improvements/ Refinements*

- Subtask 2.7 Assess Mode Choice Model/Transit Assignment Model for UW Madison Trips
  - *Analyze Validation of Existing Mode Choice/Transit Assignment Models for UW Madison Trips*
  - *Recalibrate Mode Choice Models by Trip Purpose for UW Madison Trips*
  - *Implement Mode Choice/Transit Assignment Improvements/Refinements*

Task Deliverable(s):

- Technical Memorandum Documenting Model Refinements for Trip-Making to the UW Madison Campus

Task 3: *Review and Refine Congested Auto Traffic Speeds on Radial Arterial Bus Routes and Bus Speeds*

The HNTB team proposes to review and validate model-estimated auto travel times/speeds on radial arterial roadways against observed travel times/speed from the National Performance Management Research Data Set (NPMRDS) and other available sources. Radial arterials with major bus routes will be segmented for evaluation. Based on auto travel time/speed validation results, the functions and parameters that affect model-estimated auto speed assumptions will be adjusted as necessary. This will provide a reasonable baseline for the auto travel time skims used in the mode choice models. The potential for error in the NPMRDS travel time will be considered and accounted for in this adjustment.

INNOVATION
Refined Network Coding for "Transit-Only" Facilities

In the next sub-task, the major bus routes on radial arterials will be segmented and observed bus travel times/speeds will be developed based on existing route schedules and other sources as available. The consistency and relationship between peak and off-peak bus travel times/speeds will be investigated and evaluated. Observed bus travel times/speeds will be compared against observed auto travel times/speeds and evaluated for reasonableness.

Steps For Network Speeds Review:

- ✓ Review and validate modeled auto travel times/ speeds
- ✓ Segment key transit routes and estimate observed segment bus travel times/speeds
- ✓ Compare modeled bus travel times/speeds against the observed bus travel times
- ✓ Calibrate new bus speed lookup table
- ✓ Evaluate the impact of future congestion on bus ridership and travel times/speeds

Existing model-estimated bus travel times/speeds will be compared against the observed bus travel times/ speeds developed in the previous sub-task. To improve bus travel time/speed validation, maintain better model functionality, and maintain model integrity during future applications, the HNTB team feels that a bus travel time/ speed lookup table is the best approach for buses that will operate in mixed traffic conditions. To better represent the travel network that buses will interface with, the HNTB team proposes adding network treatments, such as "bus-only" lanes. The new lookup table of bus travel times/speeds would be based on model network attributes, such as link class and area type. This method has been effectively applied by the members of the project team in projects, such as 2012 update of the Twin Cities Transit Model. Similar to how speeds are developed for the roadway network, the transit speed look up table provides an efficient way of updating travel time for route adjustments during scenario analysis. This more systematic approach to adjusting and calibrating bus speeds, along with a more realistic transit network is recommended based on past experience. To demonstrate this, the HNTB team will compare alternative methods of bus speed calculations (e.g., congestion-based vs stop/schedule based) for a subset of major routes. In addition to implementing the new transit speed look-up table, the HNTB team will also test the use of additional transit route coding parameters, such as stop dwell time, to further refine model estimated bus times.

The bus speed assumptions will be based off of similar transit speed tables developed and applied in regional transit models, such the Twin Cities Regional Travel Demand Model. Next, the transit speed table will be calibrated by comparing the model-estimated travel times/ speeds to observed bus travel times/speeds and iteratively adjusting the speed assumptions in the look-up table.

These calibration adjustments will be prioritized for the radials corridors with major bus routes. The updated model results will be compared to previous model-estimated travel time/speeds to demonstrate the effectiveness and validity of the new approach. The final step proposed for this task is to test and evaluate the impact of future congestion travel times/speeds and bus ridership.

The individual subtasks proposed under this task are:

- Subtask 3.1 Analyze roadway speed data under existing conditions
  - *Summarize existing NPMRDS speed data by corridor segment and supplement with additional sources and supplement NPMRDS data with additional sources*
  - *Review validation of model travel times versus observed sources*
  - *Identify inconsistencies and update highway speed assumptions as appropriate*
- Subtask 3.2 Analyze bus speed data under existing conditions
  - *Use schedules and other sources to estimate bus speeds for routes and arterial corridor segments*
  - *Compare bus travel times against roadway corridor travel times for reasonableness and compare scheduled travel time data to modeled bus travel time for each transit route/roadway segment*
  - *Update model to include a travel time lookup table for bus speeds by link class and area type for critical corridors*
  - *Calibrate speed lookup table to improve bus travel time validation*
  - *Compare results based on the existing Dane County transit speed estimation with the updated results*
- Subtask 3.3 Evaluate impacts of future congestion on ridership and determine appropriate approach to account for future congestion

Task Deliverable(s):

- Technical Memorandum Documenting Model Refinements for Estimating Transit Travel Times
- Updated Travel Demand Model

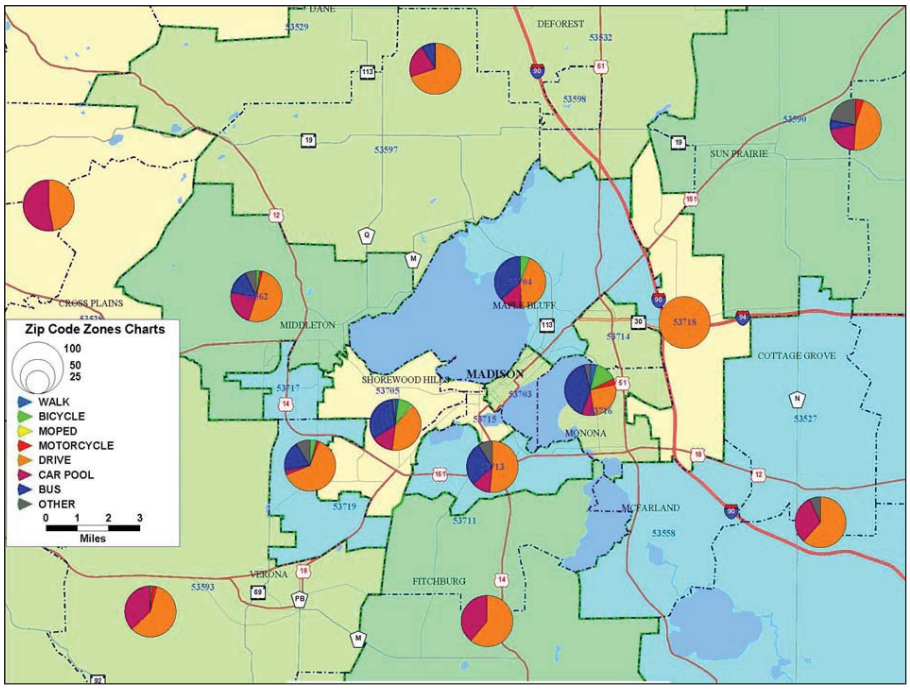

Figure 3: Regional Mode Shifts from the 2005 Long Range Transportation Plan and Transportation Demand Management Plan. *The map illustrates regional mode shifts, which are important when considering UW Madison faculty and staff in the mode choice model.*

Task 4: *Improve and Refine Mode Choice Model*

For the first step in this task, the HNTB team proposes to conduct a comprehensive review and evaluation of the existing mode choice mode structure, procedures, inputs, and parameters. To aid in this evaluation, the HNTB team will analyze the 2015 transit on-board survey results to identify the key transit market segments (both demographic and geographic) and transit trip behavior (e.g., transfer rates, average wait times, average walk access distances, etc.) and then to determine how well the existing mode choice model represents those key market segments. Chris Johnson of the HNTB team recently conducted a similar exercise using locally collected travel survey data in the re-estimation and update of the PSRC mode choice model parameters. A detailed description of this project can be found on page 3.21.

INNOVATION
Detailed Representation of Walk Access

The findings of the detailed transit on-board survey analysis and assessment of the existing model will determine the ultimate course of action for refining, modifying, and improving the mode choice model. Regardless of the findings, however, the HNTB team proposes several improvements to the mode choice model that will not only improve validation of the existing model, but will also position the model for a more accurate and robust analysis of potential BRT service.

Anticipated improvements to the mode choice model are:

- Updating fare assumptions to better represent current rates
- Implementing new procedures to more accurately represent walk access to bus stops and the transit network
- Recalibration and validation of auto access to the transit (park and ride lots) with recently collected local data
- Implementing weighted fare matrices to better represent the distribution between cash fares, discount passes, and student passes
- Enhancing auto terminal times and updating parking cost assumptions to better represent current rates
- Modifying market segment definitions by adding a dimension of household "car-competition" and other possible formulations
- Recalibration of alternative-specific constants by market segment and trip purpose to match mode share targets

Additional Diagnostic Reports From the NHTS and On-Board Survey Datasets

- ✓ District-district trips by mode (separate for UW Madison campus)
- ✓ Distribution of transit trips by number of transfers
- ✓ Average trip times/distances by mode (separate for UW Madison campus)
- ✓ Trip-length frequency distributions by mode (separate for UW Madison campus)
- ✓ Transit screenline, corridor, and route volumes
- ✓ Auto-access/park-and-ride lot utilization

The key elements of the mode choice/transit model improvements include a more refined representation of access (both walk and auto) to the transit network. For walk access trips, the HNTB team is proposing to incorporate the results of a detailed geo-processing step into the model stream that would replace the coarse walk to bus stop distances that are currently generated by the transit assignment model. The proposed geo-processing exercise would essentially be an overlay analysis that uses census block (or parcel) geography to more accurately measure the walking distances between the concentration of development in TAZs to accessible bus stops. This exercise would also produce a "percent walkable to transit" for each TAZ that will be incorporated into the mode choice models. This approach can also be easily applied to future year analyses by substituting a planned land use layer from a GIS. Although some TAZ divisions around proposed BRT stops may be warranted, the HNTB team proposing this approach as a more general alternative to the time-consuming process of splitting TAZs across extent of the model area.

The HNTB team also proposes to leverage the data recently collected by TranSmart as part of the WisDOT Southwest Region Park-and-Ride System Plan to improve and refine the auto access portion of the mode choice and transit models. In addition to validating the utilization of existing park and lots represented in the model network, the HNTB team will investigate the addition of "informal" park and lots, such as the large parking structures/lots located on the western end of the UW Madison campus. Portions of these lots currently function as de-facto park and ride lots as faculty and staff from other part of campus park in these lots and take a bus (or bike and walk) to their final destination. Improving the representation of park and ride activity occurring on the UW Madison campus will also serve to improve the result of work to be completed under Task 2.

It should be noted that for this project, the HNTB team is not proposing to conduct re-estimation of time and cost coefficients in the mode choice model. The HNTB team is concerned that the primary estimation data set for this purpose, in this case the 2009 National Household Travel Survey, was not designed for mode choice model estimation purposes and does not contained a sufficient sample size of transit trips. The HNTB team is of the opinion that project resources would be better spent analyzing the 2015 transit on-board survey and refining the existing mode choice model. Existing mode choice coefficients will however be evaluated for reasonableness and may be modified during the model validation process to improve model accuracy. Changes to mode choice model coefficients will be compared against FTA guidelines before finalizing.

In addition to these improvements, the HNTB team proposes several diagnostic and reporting enhancements that will help foster a better understanding of mode choice model performance and goodness-of-fit. Underlying this effort will be the assignment of the transit trip tables developed from the 2015 transit on-board survey to the modeled transit network. Many of the additional diagnostic reports will compare observed to model-estimated data, so they will also function as validation measures of the refined mode choice model. The additional diagnostic reports using the NHTS and on-board survey datasets highlighted above.

The individual subtasks proposed under this task are:

- Subtask 4.1 Analyze 2015 On-Board Survey
  - *QC Geocoding*
  - *QC Weighting/Expansion*
  - *Assemble/Assign Survey Transit Trip Table*
- Subtask 4.2 Tabulate 2015 On-Board Survey and NHTS datasets to Establish Mode Share Calibration Targets
- Subtask 4.3 QC/Update Transit Network route and Headway Coding
  - *Implement Improved Transit Walk-Access Procedures*
  - *Implement Improved Auto-Access Assumptions*
- Subtask 4.4 QC/Update Mode Choice Input Parameters
  - *Implement Improved Parking Costs, Auto terminal times, Auto-Operating Costs, Transit Fares*
  - *Implement Improved Transit Fare Representation*
- Subtask 4.5 Assess/QC Transit LOS Skim Components (Walk Time, Wait Time, Transfer Time, Boardings, In-Vehicle Time, Out-Vehicle Time)
- Subtask 4.6 Assess/QC Non-Transit Skims (Auto, Non-Motorized)
- Subtask 4.7 QC/Update Mode Choice Model Structure/Market Segmentation
- Subtask 4.8 QC/Update Mode Choice Coefficients
- Subtask 4.9 Calibrate Alternative Specific Constants to Match Mode Share Targets
- Subtask 4.10 Transit Assignment Validation
  - *Tabulate Estimated/Observed Boardings/Alightings by Stop, Route, TAZ*
  - *Assess/Validate Transfer Rate*
  - *Implement Improved/Updated Transit Assignment Procedures*

Task Deliverable(s):

- Improved/Refined Mode Choice Model
- Technical Memorandum Documenting Mode Choice Model Refinements

Task 5: *Conduct Sensitivity Testing of Premium Transit Mode*

In addition to establishing the goodness-of-fit relationships with the observed datasets used to estimate and inform model improvements and modifications, an equally important measure of model robustness and validity is the ability to exhibit intuitive and appropriate sensitivity and response to variations in the policy inputs (e.g., fare adjustments) and service assumptions (e.g., increased frequencies) that are typically tested during scenario analysis exercises.

For this task, the HNTB team proposes to conduct a rigorous set of model sensitivity tests to assist in the systematic evaluation of the improvements and refinements made to the mode choice and transit model components. With input from MPO staff, the sensitivity testing framework will be designed to address the range of policy and scenario variations (e.g., reducing dwell times to reflect fares paid prior to boarding) that are anticipated to be addressed during the next phase of more detailed BRT study. Conducting sensitivity testing in this context will help improve understanding and confidence in model estimates and help limit the number of analytical surprises during the next phase of study.

Sensitivity testing is typically reserved for the end of project timelines, and because of this, in many cases it is not

conducted or completed because project resources are exhausted and/or project schedules lapse. **Rather than waiting until the end of the project timeline and conducting the various sensitivity tests after all of the proposed model improvements and refinements have been implemented, the HNTB team proposes to conduct sensitivity testing throughout the life of the project.** This ongoing testing will help illuminate any potential issues or problems early in the project timeline and promote a meaningful linkage between the findings of the sensitivity tests and further model refinements.

An example of a useful sensitivity test that the HNTB team proposes to conduct early in the project timeline is a systematic evaluation of the utility expressions that comprise the mode choice models. Members of the HNTB team have used automated procedures that systematically vary the values of each variable in the utility expression (e.g., in-vehicle time) to help determine the relative importance and influence that each term has on the utility expression.

Much of the sensitivity testing proposed under this task will be focused on the representation of the BRT in the mode choice/transit models and alternative routing scenarios for the planned BRT system. Mode choice parameters and inputs will be tested and refined to be more reflective of service characteristics unique to BRT. Routing scenarios tested will include additional BRT routing scenarios (e.g., State Street/Capitol Square) and incorporation/truncation of local bus routes that are expected to feed proposed BRT routes. The RFP notes that MPO staff has coded some local bus routes to correspond with the proposed BRT system. For this task, the HNTB team anticipates additional transit network coding assistance from MPO staff to complete this work.

The individual subtasks proposed under this task are:

- Subtask 5.1 Complete Transit Network Coding - Local Routes
- Subtask 5.2 Code Additional BRT Alternative Route(s) for Sensitivity Testing
- Subtask 5.3 Document Current Model Parameters for Premium Transit Mode
- Subtask 5.4 Conduct Sensitivity Testing - Model Parameters
- Subtask 5.5 Conduct Sensitivity Testing - Transit Network Elements

Task Deliverable(s):

- Technical Memorandum Documenting Sensitivity Testing Results

INNOVATION
First Implementation of a STOPS Model in Madison, WI

Task 6: *Evaluate TDM BRT Forecasts with FTA STOPS Model*

The HNTB team will build and apply an FTA Simplified Trips-on-Project Software (STOPS) model that will be used as a point of comparison with the ridership estimates and forecasts that are produced by the travel demand model. According to the FTA, local installation of a STOPS model and assembly of the required input data will require one to two weeks of effort by capable and experienced travel-forecasting professionals. Preparation of project forecasts will require one additional week for straightforward projects and two to three additional weeks for complex projects. **The HNTB team has extensive prior experience developing and applying STOPS models in Chicago, Indianapolis, Des Moines and Kansas City. This prior experience will serve to expedite the Madison STOPS model development process.**

Building a STOPS Model

The STOPS model requires two types of information from the regional travel model:

- TAZ-specific population and employment estimates for the year 2000, the current year and for one or more future years
- TAZ-to-TAZ roadway travel times and distances for the current and, if applicable, future years.

All other required data is packaged and embedded in the software.

Our Commitment

As part of Task 6, the HNTB team proposes to train MPO staff on the operation and application of the STOPS model. This will provide MPO staff with practical experience using the model that they can apply during the next phase of the study.

With the exception of roadway travel times, the data requirements for a STOPS model are not contingent on data from the travel demand model, so the task to build the STOPS model can run concurrently with other project tasks. The HNTB team proposes that development of the STOPS begin early in the project timeline. This will provide the project team with ample time to better ad-

dress any known limitations (such as accounting for university/school trips) and quality checks of the model outputs. As part of this task, the HNTB team also proposes to train MPO staff on the operation and application of the STOPS model. This will provide MPO staff with practical experience using the model that they can apply during the next phase of the study.

The individual subtasks proposed under this task are:

- Subtask 6.1 Develop STOPS Model - Data Assembly
- Subtask 6.2 Develop STOPS Model - Networks
- Subtask 6.3 Calibrate/Validate STOPS Model
- Subtask 6.4 Apply STOPS Model - Base Year
- Subtask 6.5 Apply STOPS Model - Future Year
- Subtask 6.6 Compare TDM and STOPS BRT Forecast
- Subtask 6.7 Train MPO Staff on STOPS

Task Deliverable(s):

- Calibrated, Validated, and Functional STOPS Model
- Technical Memorandum Comparing Travel Demand Model and STOPS Model Ridership Estimates

New Starts/Small Starts

In anticipation of the next phase of the project and eventual New Starts/Small Starts application, the documentation report will also address and emphasize the aspects of ridership estimates and forecasts that the FTA considers in project evaluation:

- ✓ Properties of the forecasting methods
- ✓ Adequacy of current ridership data to support useful tests of the methods
- ✓ Successful testing of the methods to demonstrate grasp of current ridership
- ✓ Reasonableness of inputs (demographics, service changes) used
- ✓ Plausibility of the forecasts

Task 7: *Prepare Model Documentation*

The HNTB team will prepare a final documentation report consisting of two basic sections. The first section will document the model improvements, refinements, and modifications that were tested and implemented during the project. This section of the report will also include a discussion on the development and application of the STOPS model. Many of the project tasks include technical memorandums as deliverables. Since these technical memorandums will effectively serve as chapters in the final documentation report, completion of this task will follow soon after the last round of mode choice model refinements and sensitivity tests are finalized.

The second section will focus on the calibration of the models and the resulting validation achieved. The calibration section will cover adjustments to the mode choice, transit network and transit assignment model parameters and inputs, while the validation discussion will focus on goodness-of-fit comparisons with various observed datasets, such as the spring 2015 transit on-board survey, ridership counts, and travel times/speeds. The validation section will also report on the results of the premium transit mode sensitivity testing conducted under Task 4. While goodness-of-fit metrics are an important assessment of model validation, an equally important element of model validity and robustness is the ability to respond to differing scenarios in an intuitive, understandable, and defensible manner.

The individual subtasks proposed under this task are:

- Subtask 7.1 Prepare Model Improvements Report
- Subtask 7.2 Prepare Model Calibration/Validation Report

Task Deliverable(s):

- Model Documentation Reports

D. ROADBLOCKS AND MILESTONES

In travel model development/improvement projects like this, roadblocks often pop up that can delay affect schedule milestones and delay project deliverables. They can be caused by unexpected staffing issues, miscommunication, bottlenecks and other unknowns. Based on recent experience with similar projects in Puget Sound and Twin Cities regions, there are a number of proven and effective strategies to overcome most project roadblocks and keep the project on track. The proven strategies include:

- Assemble a "deep" project team with redundant technical skills to make sure the loss on one team member will not significantly impact the project schedule
- Incorporate a highly collaborative communication and workflow approach with individual team member responsibilities clearly defined to make sure all technical work doesn't flow through a single team member and create a potential bottleneck
- Design a work plan with as much concurrency as possible between project tasks and sub-tasks to keep the project moving forward even though work may pause for individual tasks as issues are addressed

1. Critical Success Factors

There are a number of factors that are critical to the overall success of model development/improvement projects such as this. From a technical perspective, the project "keys to success" include:

- Emphasis on practical, implementable, and proven solutions tailored to known limitations of the existing model (limitations are identified under Tasks 2, 3 and 4)
- Reliance on locally collected data to support, inform and validate model refinements and improvements
- Prioritizing of model modifications with an eye toward the next phase of more detailed BRT study
- Meaningful engagement of MPO staff, FTA representatives and other stakeholders throughout the life of the project

From a project management perspective, keys to success include the leadership of a proven project manager, a team with a depth of modeling experience, internal and external communication, and the knowledge that comes with our locale in Madison, WI.

Proven Project Manager

Project manager Chris Johnson has been implementing improvements to travel demand models for over 20 years. Most recently, Chris spent the last 10 years managing the travel demand modeling group at the Puget Sound Regional County, the MPO for Seattle, WA. This practical experience in an MPO setting will help successfully deliver the project, emphasizing quality work, delivered on time, within budget, and to your satisfaction.

Depth of Modeling Expertise

There is no substitute for strong qualifications. HNTB has thoughtfully selected its team members based on their experience in carrying out similar assignments. As indicated by our organization chart and resumes, not only are the project's key personnel highly qualified, they are backed by an unparalleled group of technical experts with broad experience in travel demand modeling.

Communication

Most problems are rooted in communication issues. Establishing and maintaining open, honest and timely communications amongst all project participants is critical to success. Paramount to good communications is the ability to listen. We pride ourselves in our ability to listen to our clients and understand their needs.

Local Knowledge

Many of the team members are longtime Madison area residents, University of Wisconsin alumni, and/or Madison Metro patrons, so they understand the uniqueness of Madison's geography, its travel and transit markets, its planning context, and its long-term growth and transportation system aspirations.

2. Key Challenges

Data Availability

Much of the success of this project will rely on observed data recently collected in the Madison area, such as the 2015 Transit On-Board Survey. It is critical that these key data sets are ready for application upon Notice to Proceed to complete this project on time and make sure the model is ready for the next more detailed phase.

Extended Review Time of Deliverables

It will be important that interim project deliverables are reviewed in a timely fashion to keep the project progressing according to schedule. Implementing strict quality control procedures on project deliverables helps facilitate expedited client review. Strong communication between the project manager and client also helps in the allocation of review time. If key data is not available for project needs, then an alternative will be to use transferred parameters from models developed elsewhere in the country.

3. High Level Strategy/Approach

In projects like this, risk and uncertainty are inherent, and can often lead to schedule and cost overruns. With more than 100 years of combined experience developing and improving travel models, HNTB team members understand that there are common denominators of a successful project strategy that will limit the effects of risk and uncertainty. Key elements of this strategy include:

- Having a complete understanding of the policy questions the travel model will address
- Identifying multiple and prioritized improvement options before implementation
- Implementing basic functionality of improvements first, then layering in complexity and additional functionality, time and budget permitting
- Development of comprehensive diagnostic reports to help quickly identify problems and solutions

E. WHY THIS APPROACH?

The HNTB team recognizes that travel demand models and the transit ridership estimates they produce are highly visible contributors to the planning processes evaluating and recommending transit investments. The travel demand models need to produce intuitive and defensible ridership estimates and forecasts to help "tell the story" and maintain stakeholder and public support.

Our proposed approach is proven, practical, and data-driven. Members of the HNTB team have successfully implemented the core elements of this approach for other MPOs across the country as they weighed potential investments in BRT. This approach will provide an analytical tool that will help the MPO and the City of Madison achieve it goals of developing an effective BRT system that will compete well for federal funding.

F. ROLE OF MPO/CITY STAFF

The HNTB team anticipates seeking the MPO/City of Madison's/Madison Metro's assistance in performing additional geocodeing and/or quality control (QC) checks on observed data sets and identifying any existing materials that could be provided to reduce project costs and build quality into the developed work products. The specific data sets identified for QC activities are:

- The 2009 NHTS results
- The 2015 Transit On-Board Survey results
- The UW Madison Transportation Survey results
- The travel time/speed data from the NPMRDS
- AVL/APC datasets from Madison Metro
- Any observed arterial speed data the MPO might acquire from a third

City of Madison Transit Ridership Modeling
Scope Language Addendum

1) Under Task 2, add the language highlighted below to the end of the last full paragraph (page 4.6).

   The proposed refinements to the UW Madison sub-models will be informed and supported by a in-depth analysis of the locally observed datasets that will be provided for this project. Of particular importance to this task will be the analysis of the recently administered Madison Metro transit on-board survey and the UW Madison transportation surveys. *If warranted by the results of the survey analysis and other potential data sources (e.g., AirSage), the project team may choose to modify certain elements of the proposal for the UW sub-model, such as collapsing the dorm and off-campus student population into a single category instead maintaining separate categories for these two market segments.*

2) Under Task 4, add the language highlighted below to the third paragraph (page 4.9).

   The proposed geo-processing exercise would essentially be an overlay analysis that uses census block (or parcel) geography to more accurately measure the walking distances between the concentration of development in TAZs to accessible bus stops. *The proposed exercise will also investigate the use the local street network already present in the model network geodatabase file and/or the use of walk-only auxiliary transit-access links. Following this preliminary investigation, the project team will finalize the approach to refining and improving the representation of walk-access to transit.* This exercise would also produce "percent walkable to transit" for each TAZ that will be incorporated into the mode choice models.

3) Under Task 5, add the language highlighted below to the second paragraph (page 4-10).

   For this task, the HNTB team proposes to conduct a rigorous set of model sensitivity tests to assist in the systematic evaluation of the improvements and refi nements made to the mode choice and transit model components. With input from MPO staff, the sensitivity testing framework will be designed to address the range of policy and scenario variations (e.g., reducing dwell times to reflect fares paid prior to boarding) that are anticipated to be addressed during the next phase of more detailed BRT study. *A key element of the sensitivity testing will be an evaluation of the need for the discrete representation of the premium transit mode within the structure of the mode choice model. Based on discussion and feedback with FTA representatives, as well the results of the sensitivity testing, the project team will determine and implement the most appropriate representation of premium transit with mode choice and/or transit assignment/path building models.* Conducting sensitivity testing in this context will help improve understanding and confidence in model estimates and help limit the number of analytical surprises during the next phase of study.

Attachment B

A-D. PLEASE SEE THE FOLLOWING COST SUMMARY TABLE, ITEM E8.

E. FEE AND REIMBURSABLE EXPENSE SCHEDULES

The HNTB team's lump sum, not-to-exceed cost for the work tasks described in our Technical Proposal is $194,532 This figure includes all direct, indirect and subconsultant costs. In that one of HNTB's subconsultants is a Disadvantage Business Enterprise (DBE) firms, their total cost of $18,981 meets the DBE utilization goal of 10%.

Our costs are further detailed as follows:

1. **Proposed Lump Sum Cost:** $194,532
2. **Hourly Rates by Personnel, Proposed Number of Hours by Staff/Task:** See the cost summary table, item E8.
3. **Percentage of Subconsultant Involvement by Task:** See the cost summary table, item E8.

1. **Direct and Indirect Costs**

   a. **Direct Labor Costs:** See the cost summary table, item E8.

   b. **Direct Expense Itemization:**

Item	Unit Amount	Unit Type	Rate	Total Expenses
8.5 x 11 B-W Printing	4,000	Each	$.04	$160.00
8.5 x 11 Color Printing	100	Each	$.40	$40.00
11 x 17 B-W Printing	500	Each	$.10	$50.00
11 x 17 Color Printing	100	Each	$.79	$79.00
Mileage	0	Each	$.56	$0
Meals	0		$12	$0
			TOTAL - DIRECT EXPENSES	**$329.00**

   c. **Indirect overhead and fee/profit:** See the cost summary table, item E8.

5. **Included Costs:** Proposed lump sum, not-to-exceed cost is inclusive of preparation, travel, transportation, communication, reproduction, labor, overhead and profit.

6. **Additional Work Outside of Scope:** The HNTB team suggests Task 0, which is in addition to the RFP scope of work and is further described in our Technical Proposal. The lump sum, not-to-exceed cost for this subtask is $13,052.

7. **Unforseen Work:** At this time, the HNTB team does not anticipate any unforeseen work for billing on a time and materials basis.

8. **Cost Summary Table:** Follows on pages 5.3 and 5.4.

9. **Travel Guidelines:** The HNTB team's travel expenses do not exceed the applicable federal per diem rate for Madison, WI as shown on the GSA's website, **www.gsa.gov/portal/category/100120.**

Sincerely,
HNTB Corporation

Mark Becherer, PE
Vice President

Chris Johnson
Project/Contract Manager

Scope and Fee

Madison Transit Ridership Modeling

Task	Task Description	HNTB J. Shadewald $61.92	HNTB C. Johnson $55.36	HNTB W. McFarlane $51.28	HNTB S. Brown $37.92	HNTB T. Flynn $32.76	HNTB Project Analyst $28.96	SRF D. Hungess $64.91	SRF J. Asplund $33.51	TranSmart C. Wade $45.00	TranSmart G. Ausse $37.25	TranSmart R. Kedzior $30.00	HOURS BY TASK	LABOR COST BY TASK	LOADED BY TASK
0	**Project Management, Administration & Meetings**														
	Project Management	4	8	0	0	0	12	0	0	0	0	0	24	$1,038	$3,114
	Project Administration and Progress Tracking	4	8	0	0	0	24	0	0	0	0	0	36	$1,386	$4,157
	Project Meetings	6	12	0	0	0	8	6	0	6	0	0	38	$1,927	$5,781
	TASK SUBTOTAL	**14**	**28**	**0**	**0**	**0**	**44**	**6**	**0**	**6**	**0**	**0**	**98**	**$4,351**	**$13,052**
1	**Develop Detailed Overall Work Plan and Project Schedule**														
	Finalize Task Roles and Responsibilities	2	2	0	0	0	0	4	0	4	0	0	12	$674	$2,023
	Develop Detailed Project Schedule	2	2	0	0	0	0	0	0	0	0	0	4	$235	$704
	Identify/Inventory Data, Resources and Project Support	2	2	0	0	0	0	0	0	0	0	0	4	$235	$704
	Finalize Project Budget	2	2	0	0	0	0	4	0	4	0	0	12	$674	$2,023
	TASK SUBTOTAL	**8**	**8**	**0**	**0**	**0**	**0**	**8**	**0**	**8**	**0**	**0**	**32**	**$1,818**	**$5,453**
2	**Refine Model Calibration for UW-Madison Trips**														
	Analyze UW-Madison Transporation Surveys	0	6	8	0	4	0	0	0	8	20	24	70	$2,698	$8,095
	Develop Validation Targets Specific to UW-Madison Trips	0	6	8	0	4	0	4	0	0	0	0	22	$1,133	$3,399
	Assess/Update TAZ Structure/Network for UW-Madison Campus	2	4	8	0	16	0	0	16	0	0	0	46	$1,816	$5,448
	Assess/Update Socio-Economic Data Assumptions for UW-Madison Campus	2	4	16	0	16	0	0	16	4	6	12	76	$2,990	$8,969
	Analyze Location of Existing Model-Estimated HB University Productions/Attractions	0	4	8	0	12	0	0	0	4	6	12	46	$1,788	$5,365
	Estimate Trip Generation Model for Resident Hall Student Population	0	6	0	0	0	0	4	0	0	0	0	10	$592	$1,775
	Implement/Code Trip Generation Improvements/Refinements	4	6	0	0	12	0	0	16	0	0	0	38	$1,509	$4,527
	Analyze Validation of Existing Trip Distribution Models for UW-Madison Trips	0	6	0	0	0	0	0	0	0	0	0	6	$332	$996
	Recalibrate Gravity Models by Trip Purpose for UW-Madison Trips	0	6	0	0	0	0	4	0	0	0	0	10	$592	$1,775
	Implement/Code Trip Distribution Improvements/Refinements	4	6	0	0	0	0	0	16	0	0	0	26	$1,116	$3,348
	Analyze Validation of Existing Mode Choice/Transit Assignment Models for UW-Madison Trips	0	6	0	0	0	0	0	0	0	0	0	6	$332	$996
	Recalibrate Mode Choice Models by Trip Purpose for UW-Madison Trips	0	6	0	0	0	0	4	0	0	0	0	10	$592	$1,775
	Implement/Code Mode Choice/Transit Assignment Improvements/Refinements	4	6	0	0	0	0	0	16	0	0	0	26	$1,116	$3,348
	TASK SUBTOTAL	**16**	**72**	**48**	**0**	**64**	**0**	**16**	**80**	**16**	**32**	**48**	**392**	**$16,606**	**$49,818**
3	**Refine Congested Speeds on Radial Arterial Routes and Bus Speeds**														
	Summarize existing NPMRDS speed data by corridor segment and supplement with additional sources	0	0	0	0	0	0	2	24	0	0	0	26	$934	$2,802
	Review validation of model travel times vs observed sources	0	0	0	0	0	0	2	12	0	0	0	14	$532	$1,596
	Identify inconsistencies and update highway speed assumptions as appropriate	0	0	0	0	0	0	2	10	0	0	0	12	$465	$1,395
	Use schedules and other sources to estimate bus speeds for routes and arterial corridor segments	0	0	0	0	0	0	0	8	0	0	0	8	$268	$804
	Compare bus travel times against roadway corridor travel times for reasonableness	0	0	0	0	0	0	2	8	0	0	0	10	$398	$1,194
	Compare scheduled travel time data to modeled bus travel time for each transit route/roadway segment	0	0	0	0	0	0	0	8	0	0	0	8	$268	$804
	Update model to include a travel time lookup table for bus speeds by link class and area type for critical corridors	0	0	0	0	0	0	4	18	0	0	0	22	$863	$2,588
	Calibrate speed lookup table to improve bus travel time validation	0	0	0	0	0	0	8	24	0	0	0	32	$1,324	$3,971
	Compare Results Based on the Existing Dane County Transit Speed Estimation with the updated results	0	0	0	0	0	0	4	4	0	0	0	8	$394	$1,181
	Evaluate impacts of future congestion on ridership and determine appropriate approach to account for future congestion	0	0	0	0	0	0	4	8	0	0	0	12	$528	$1,583
	Document Approach and Results	0	0	0	0	0	0	4	10	0	0	0	14	$595	$1,784
	TASK SUBTOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**32**	**134**	**0**	**0**	**0**	**166**	**$6,567**	**$19,702**
4	**Refine Mode Choice Model**														
	QC Geocoding	0	0	8	0	0	0	0	0	4	8	8	28	$1,128	$3,385
	QC Weighting/Expansion	0	0	8	0	0	0	0	0	0	0	0	8	$410	$1,231
	Assemble/Assign Survey Transit Trip Table	0	4	0	0	8	0	0	16	0	0	0	28	$1,020	$3,059
	Establish Mode Share Calibration Targets	4	4	0	0	0	0	4	0	0	0	0	12	$729	$2,186
	Analyze Madison Metro AVL/APC GPS Data	0	0	8	0	0	0	0	16	0	0	0	24	$946	$2,839
	Assess Route Coding (Stops, Loading Points, Frequencies)	0	4	0	0	16	0	0	20	0	0	0	40	$1,416	$4,247
	Implement Improved Transit Walk-Access Procedures	4	6	0	0	8	0	0	0	0	0	0	18	$842	$2,526
	Assess Auto-Access Assumptions	4	6	0	0	8	0	0	0	4	8	8	38	$1,560	$4,680
	Assess Transit Time Functions	4	4	0	0	8	0	0	0	0	0	0	16	$731	$2,194
	Validate Transit Network/Route Run Times Against Published Schedules	0	2	0	0	8	0	0	0	0	0	0	10	$373	$1,118
	Assess Parking Costs, Auto-Operating Costs, Transit Fares	0	4	0	0	8	0	0	0	0	0	0	12	$484	$1,451
	Implement Improved Transit Fare Representation	0	6	0	0	8	0	0	0	0	0	0	14	$594	$1,783
	Assess/QC Transit LOS Skim Components (Walk, Wait, Transfer, Boarding, In-Vehicle, Out-Vehicle)	0	6	0	0	0	0	0	16	0	0	0	22	$868	$2,605
	Assess/QC Non-Transit Skims (Auto, Non-Motorized)	0	6	0	0	0	0	0	16	0	0	0	22	$868	$2,605
	QC/Update Mode Choice Model Structure/Market Segmentation	0	6	0	0	0	0	4	0	0	0	0	10	$592	$1,775
	QC/Update Mode Choice Coefficients	0	6	8	0	0	0	4	0	0	0	0	18	$1,002	$3,006
	Calibrate Alternative Specific Constants to Match Mode Share Targets	0	6	8	0	0	0	0	0	0	0	0	14	$742	$2,227
	Tabulate Estimated/Observed Boardings/Alightings by Stop, Route, TAZ	0	6	0	0	12	0	0	0	0	0	0	18	$725	$2,176
	Assess/Validate Transfer Rate	0	4	0	0	0	0	0	16	0	0	0	20	$758	$2,273
	Implement Improved/Updated Transit Assignment Procedures	0	8	0	0	8	0	4	16	0	0	0	36	$1,501	$4,502
	TASK SUBTOTAL	**16**	**88**	**40**	**0**	**92**	**0**	**16**	**116**	**8**	**16**	**16**	**408**	**$17,289**	**$51,868**
5	**Conduct Sensitivity Testing/Refinement of Premium Transit Mode**														
	Code Additional BRT Alternative Route(s) for Sensitivity Testing	2	2	0	0	0	0	8	16	0	0	0	28	$1,290	$3,870
	Code Additional Feeder Bus and Access to Support BRT Alternative Route(s)	2	2	0	0	0	0	8	16	0	0	0	28	$1,290	$3,870
	Document Current Model Parameters for Premium Transit Mode	0	0	0	0	0	0	4	10	0	0	0	14	$595	$1,784
	Conduct Sensitivity Testing - Model Parameters	4	4	0	0	0	0	8	16	0	0	0	32	$1,525	$4,574
	Conduct Sensitivity Testing - BRT Alternative Elements (Headway, Feeder bus, Access)	4	4	0	0	0	0	8	16	0	0	0	32	$1,525	$4,574
	Document Sensitivity Testing Parameters and Results	0	0	0	0	0	0	4	10	0	0	0	14	$595	$1,784
	TASK SUBTOTAL	**12**	**12**	**0**	**0**	**0**	**0**	**40**	**84**	**0**	**0**	**0**	**148**	**$6,819**	**$20,456**
6	**Evaluate TDM BRT Forecasts with FTA STOPS Model**														
	Develop STOPS Model - Data Assembly	0	0	0	12	6	0	0	0	0	0	0	18	$652	$1,955
	Develop STOPS Model - Networks	0	0	0	12	6	0	0	0	0	0	0	18	$652	$1,955
	Calibrate/Validate STOPS Model	0	0	0	12	4	0	0	0	0	0	0	16	$586	$1,758

Scope and Fee

Madison Transit Ridership Modeling

Task	Task Description	HNTB J. Shadewald $61.92	HNTB C. Johnson $55.36	HNTB W. McFarlane $51.28	HNTB S. Brown $37.92	HNTB T. Flynn $32.76	HNTB Project Analyst $28.96	SRF D. Hungess $64.91	SRF J. Asplund $33.51	TranSmart C. Wade $45.00	TranSmart G. Ausse $37.25	TranSmart R. Kedzior $30.00	HOURS BY TASK	LABOR COST BY TASK	LOADED BY TASK
	Apply STOPS Model - Base Year	0	2	0	16	8	0	0	0	0	0	0	26	$980	$2,939
	Apply STOPS Model - Future Year	0	2	0	16	8	0	0	0	0	0	0	26	$980	$2,939
	Compare TDM and STOPS BRT Forecasts	4	4	0	12	8	0	0	0	0	0	0	28	$1,186	$3,559
	TASK SUBTOTAL	**4**	**8**	**0**	**80**	**40**	**0**	**0**	**0**	**0**	**0**	**0**	**132**	**$5,035**	**$15,104**
7	**Prepare Model Documentation**														
	Model Improvements Report	4	16	4	4	16	0	4	12	4	4	4	72	$3,125	$9,375
	Model Calibration/Validation Report	4	16	4	4	16	0	4	12	4	4	4	72	$3,125	$9,375
	TASK SUBTOTAL	**8**	**32**	**8**	**8**	**32**	**0**	**8**	**24**	**8**	**8**	**8**	**144**	**$6,250**	**$18,751**
	Hours	78	248	96	88	228	44	126	438	46	56	72	1,520	$64,734	$194,203
	Raw Labor Costs	$4,830	$13,729	$4,923	$3,337	$7,469	$1,274	$8,179	$14,677	$2,070	$2,086	$2,160			
	Loaded Labor Costs	$14,489	$41,188	$14,769	$10,011	$22,408	$3,823	$24,536	$44,032	$6,210	$6,258	$6,480			
	Direct Expenses by Firm			$181				$115			$33				
	Loaded Labor by Firm			$106,687				$68,568			$18,948				
	Total Cost by Firm			$106,868				$68,683			$18,981				$194,532