

**PROFESSIONAL SERVICES AGREEMENT BETWEEN  
ORCHARD, HILTZ & McCLIMENT, INC.  
AND THE CITY OF ANN ARBOR  
FOR  
NIXON / GREEN / DHU VARREN ROADS INTERSECTION IMPROVEMENT  
AND  
NIXON ROAD CORRIDOR TRAFFIC STUDY**

The City of Ann Arbor, a Michigan municipal corporation, having its offices at 301 E. Huron St. Ann Arbor, Michigan 48104 ("City"), and Orchard, Hiltz & McCliment, Inc. ("Contractor") a Michigan Corporation, with its address at 34000 Plymouth Road, Livonia, MI 48150 agree as follows on this 10th day of March, 2016.

The Contractor agrees to provide services to the City under the following terms and conditions:

**I. DEFINITIONS**

Administering Service Area/Unit means Public Services Area / Project Management Services Unit.

Contract Administrator means Nicholas S. Hutchinson, City Engineer, acting personally or through any assistants authorized by the Administrator/Manager of the Administering Service Area/Unit.

Deliverables means all Plans, Specifications, Reports, Recommendations, and other materials developed for and delivered to City by Contractor under this Agreement

Project means Nixon/Green/Dhu Varren Roads Intersection Improvement and Nixon Road Corridor Traffic Study, RFP #955.

**II. DURATION**

This Agreement shall become effective on March 10, 2016, and shall remain in effect until satisfactory completion of the Services specified below unless terminated as provided for in Article XI.

**III. SERVICES**

- A. The Contractor agrees to provide professional engineering services ("Services") in connection with the Project as described in Exhibit A. The City retains the right to make changes to the quantities of service within the general scope of the agreement or within a Work Statement at any time by a written order. If the changes add to or deduct from the extent of the services, the contract sum shall be adjusted accordingly. All such changes shall be executed under the conditions of the original agreement.
- B. Quality of Services under this Agreement shall be of the level of quality

performed by persons regularly rendering this type of service. Determination of acceptable quality shall be made solely by the Contract Administrator.

- C. The Contractor shall perform its Services for the Project in compliance with all statutory, regulatory and contractual requirements now or hereafter in effect as may be applicable to the rights and obligations set forth in the Agreement.
- D. The Contractor may rely upon the accuracy of reports and surveys provided to it by the City (if any) except when defects should have been apparent to a reasonably competent professional or when it has actual notice of any defects in the reports and surveys.

#### **IV. INDEPENDENT CONTRACTOR**

The Parties agree that at all times and for all purposes under the terms of this Agreement each Party's relationship to any other Party shall be that of an independent contractor. Each Party will be solely responsible for the acts of its own employees, agents, and servants. No liability, right, or benefit arising out of any employer/employee relationship, either express or implied, shall arise or accrue to any Party as a result of this Agreement.

#### **V. COMPENSATION OF CONTRACTOR**

- A. The Contractor shall be paid on the basis of reasonable time spent and materials used at the rates and prices specified in Exhibit B for acceptable work performed and acceptable Deliverables received. The total fee to be paid the Contractor for the Services shall not exceed \$ 538,076. Payment shall be made monthly following receipt of invoices submitted by the Contractor, and approved by the Contract Administrator.
- B. The Contractor will be compensated for Services performed in addition to the Services described in Section III, only when those additional Services have received prior written approval of the Contract Administrator. Compensation will be on the basis of reasonable time spent and reasonable quantities of materials used, according to the schedule of rates in Exhibit B. The Contract Administrator shall be the sole arbitrator of what shall be considered "reasonable" under this provision.
- C. The Contractor shall keep complete records of work performed (e.g. tasks performed/hours allocated) so that the City may verify invoices submitted by the Contractor. Such records shall be made available to the City upon request and submitted in summary form with each invoice.

#### **VI. INSURANCE/INDEMNIFICATION**

- A. The Contractor shall procure and maintain during the life of this contract such insurance policies, including those set forth in Exhibit C, as will protect itself and the City from all claims for bodily injuries, death or property damage which may arise under this contract; whether the act(s) or omission(s) giving rise to the claim were made by the Contractor, any subcontractor or anyone employed by them directly or indirectly. In the case of all contracts involving on-site work, the Contractor shall provide to the City, before the commencement of any work under this contract, documentation satisfactory to the City demonstrating it has obtained the policies and endorsements required by Exhibit C.
- B. Any insurance provider of Contractor shall be admitted and authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company's Key Rating Guide of "A-" Overall and a minimum Financial Size Category of "V". Insurance policies and certificates issued by non-admitted insurance companies are not acceptable unless approved in writing by the City.
- C. To the fullest extent permitted by law, Contractor shall indemnify, defend and hold the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses, including attorney's fees, resulting or alleged to result, from any acts or omissions by Contractor or its employees and agents occurring in the performance of or breach in this Agreement, except to the extent that any suit, claim, judgment or expense are finally judicially determined to have resulted from the City's negligence or willful misconduct or its failure to comply with any of its material obligations set forth in this Agreement.

## **VII. COMPLIANCE REQUIREMENTS**

- A. Nondiscrimination. The Contractor agrees to comply, and to require its subcontractor(s) to comply, with the nondiscrimination provisions of MCL 37.2209. The Contractor further agrees to comply with the provisions of Section 9:158 of Chapter 112 of the Ann Arbor City Code and to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity.

- B. Living Wage. If the Contractor is a “covered employer” as defined in Chapter 23 of the Ann Arbor City Code, the Contractor agrees to comply with the living wage provisions of Chapter 23 of the Ann Arbor City Code. The Contractor agrees to pay those employees providing Services to the City under this Agreement a “living wage,” as defined in Section 1:815 of the Ann Arbor City Code, as adjusted in accordance with Section 1:815(3); to post a notice approved by the City of the applicability of Chapter 23 in every location in which regular or contract employees providing services under this Agreement are working; to maintain records of compliance; if requested by the City, to provide documentation to verify compliance; to take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee or person contracted for employment in order to pay the living wage required by Section 1:815; and otherwise to comply with the requirements of Chapter 23.

#### **VIII. WARRANTIES BY THE CONTRACTOR**

- A. The Contractor warrants that the quality of its Services under this Agreement shall conform to the level of quality performed by persons regularly rendering this type of service.
- B. The Contractor warrants that it has all the skills, experience, and professional licenses necessary to perform the Services specified in this Agreement.
- C. The Contractor warrants that it has available, or will engage, at its own expense, sufficient trained employees to provide the Services specified in this Agreement.
- D. The Contractor warrants that it is not, and shall not become overdue or in default to the City for any contract, debt, or any other obligation to the City including real and personal property taxes.
- E. The Contractor warrants that its proposal for services was made in good faith, it arrived at the costs of its proposal independently, without consultation, communication or agreement, for the purpose of restricting completion as to any matter relating to such fees with any competitor for these Services; and no attempt has been made or shall be made by the Contractor to induce any other perform or firm to submit or not to submit a proposal for the purpose of restricting competition.

#### **IX. OBLIGATIONS OF THE CITY**

- A. The City agrees to give the Contractor access to the Project area and other City-owned properties as required to perform the necessary Services under this Agreement.
- B. The City shall notify the Contractor of any defects in the Services of which the Contract Administrator has actual notice.

**X. ASSIGNMENT**

- A. The Contractor shall not subcontract or assign any portion of any right or obligation under this Agreement without prior written consent from the City. Notwithstanding any consent by the City to any assignment, Contractor shall at all times remain bound to all warranties, certifications, indemnifications, promises and performances, however described, as are required of it under the Agreement unless specifically released from the requirement, in writing, by the City.
- B. The Contractor shall retain the right to pledge payment(s) due and payable under this Agreement to third parties.

**XI. TERMINATION OF AGREEMENT**

- A. If either party is in breach of this Agreement for a period of fifteen (15) days following receipt of notice from the non-breaching party with respect to a breach, the non-breaching party may pursue any remedies available to it against the breaching party under applicable law, including but not limited to, the right to terminate this Agreement without further notice. The waiver of any breach by any party to this Agreement shall not waive any subsequent breach by any party.
- B. The City may terminate this Agreement, on at least thirty (30) days advance notice, for any reason, including convenience, without incurring any penalty, expense or liability to Contractor, except the obligation to pay for Services actually performed under the Agreement before the termination date.
- C. Contractor acknowledges that, if this Agreement extends for several fiscal years, continuation of this Agreement is subject to appropriation of funds for this Project. If funds to enable the City to effect continued payment under this Agreement are not appropriated or otherwise made available, the City shall have the right to terminate this Agreement without penalty at the end of the last period for which funds have been appropriated or otherwise made available by giving written notice of termination to Contractor. The Contract Administrator shall give Contractor written notice of such non-appropriation within thirty (30) days after it receives notice of such non-appropriation.
- D. The provisions of Articles VI and VIII shall survive the expiration or earlier termination of this Agreement for any reason. The expiration or termination of this Agreement, for any reason, shall not release either party from any obligation or liability to the other party, including any payment obligation that has already accrued and Contractor's obligation to deliver all Deliverables due as of the date of termination of the Agreement.

**XII. REMEDIES**

- A. This Agreement does not, and is not intended to, impair, divest, delegate or contravene any constitutional, statutory and/or other legal right, privilege, power, obligation, duty or immunity of the Parties.

- B. All rights and remedies provided in this Agreement are cumulative and not exclusive, and the exercise by either party of any right or remedy does not preclude the exercise of any other rights or remedies that may now or subsequently be available at law, in equity, by statute, in any agreement between the parties or otherwise.
- C. Absent a written waiver, no act, failure, or delay by a Party to pursue or enforce any rights or remedies under this Agreement shall constitute a waiver of those rights with regard to any existing or subsequent breach of this Agreement. No waiver of any term, condition, or provision of this Agreement, whether by conduct or otherwise, in one or more instances, shall be deemed or construed as a continuing waiver of any term, condition, or provision of this Agreement. No waiver by either Party shall subsequently effect its right to require strict performance of this Agreement.

### **XIII. NOTICE**

All notices and submissions required under this Agreement shall be delivered to the respective party in the manner described herein to the address stated in this Agreement or such other address as either party may designate by prior written notice to the other. Notices given under this Agreement shall be in writing and shall be personally delivered, sent by next day express delivery service, certified mail, or first class U.S. mail postage prepaid, and addressed to the person listed below. Notice will be deemed given on the date when one of the following first occur: (1) the date of actual receipt; (2) the next business day when notice is sent next day express delivery service or personal delivery; or (3) three days after mailing first class or certified U.S. mail.

If Notice is sent to the CONTRACTOR, it shall be addressed and sent to:  
Orchard, Hiltz & McCliment, Inc.  
Jon Kramer, P.E.  
34000 Plymouth Road  
Livonia, MI 48150

If Notice is sent to the CITY, it shall be addressed and sent to:  
City of Ann Arbor  
Nicholas S. Hutchinson, City Engineer  
301 E. Huron St.  
Ann Arbor, Michigan 48104

#### **XIV. CHOICE OF LAW AND FORUM**

This Agreement will be governed and controlled in all respects by the laws of the State of Michigan, including interpretation, enforceability, validity and construction, excepting the principles of conflicts of law. The parties submit to the jurisdiction and venue of the Circuit Court for Washtenaw County, State of Michigan, or, if original jurisdiction can be established, the United States District Court for the Eastern District of Michigan, Southern Division, with respect to any action arising, directly or indirectly, out of this Agreement or the performance or breach of this Agreement. The parties stipulate that the venues referenced in this Agreement are convenient and waive any claim of non-convenience.

#### **XV. OWNERSHIP OF DOCUMENTS**

Upon completion or termination of this Agreement, all documents (i.e., Deliverables) prepared by or obtained by the Contractor as provided under the terms of this Agreement shall be delivered to and become the property of the City. Original basic survey notes, sketches, charts, drawings, partially completed drawings, computations, quantities and other data shall remain in the possession of the Contractor as instruments of service unless specifically incorporated in a deliverable, but shall be made available, upon request, to the City without restriction or limitation on their use. The City acknowledges that the documents are prepared only for the Project. Prior to completion of the contracted Services the City shall have a recognized proprietary interest in the work product of the Contractor.

Unless otherwise stated in this Agreement, any intellectual property owned by Contractor prior to the effective date of this Agreement (i.e., Preexisting Information) shall remain the exclusive property of Contractor even if such Preexisting Information is embedded or otherwise incorporated in materials or products first produced as a result of this Agreement or used to develop Deliverables. The City's right under this provision shall not apply to any Preexisting Information or any component thereof regardless of form or media.

#### **XVI. CONFLICTS OF INTEREST OR REPRESENTATION**

Contractor certifies it has no financial interest in the Services to be provided under this Agreement other than the compensation specified herein. Contractor further certifies that it presently has no personal or financial interest, and shall not acquire any such interest, direct or indirect, which would conflict in any manner with its performance of the Services under this Agreement.

Contractor agrees to advise the City if Contractor has been or is retained to handle any matter in which its representation is adverse to the City. The City's prospective consent to the Contractor's representation of a client in matters adverse to the City, as identified above, will not apply in any instance where, as the result of Contractor's representation, the Contractor has obtained sensitive, proprietary or otherwise confidential information of a non-public nature that, if known to another client of the Contractor, could be used in any such other matter by the other client to the material disadvantage of the City. Each matter will be reviewed on a case by case basis.

## **XVII. SEVERABILITY OF PROVISIONS**

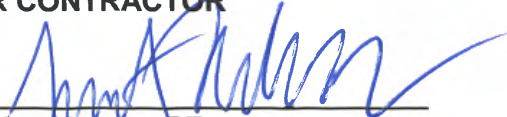
Whenever possible, each provision of this Agreement will be interpreted in a manner as to be effective and valid under applicable law. However, if any provision of this Agreement or the application of any provision to any party or circumstance will be prohibited by or invalid under applicable law, that provision will be ineffective to the extent of the prohibition or invalidity without invalidating the remainder of the provisions of this Agreement or the application of the provision to other parties and circumstances.

## **XVIII. EXTENT OF AGREEMENT**

This Agreement, together with any affixed exhibits, schedules or other documentation, constitutes the entire understanding between the City and the Contractor with respect to the subject matter of the Agreement and it supersedes, unless otherwise incorporated by reference herein, all prior representations, negotiations, agreements or understandings whether written or oral. Neither party has relied on any prior representations, of any kind or nature, in entering into this Agreement. No terms or conditions of either party's invoice, purchase order or other administrative document shall modify the terms and conditions of this Agreement, regardless of the other party's failure to object to such form. This Agreement shall be binding on and shall inure to the benefit of the parties to this Agreement and their permitted successors and permitted assigns and nothing in this Agreement, express or implied, is intended to or shall confer on any other person or entity any legal or equitable right, benefit, or remedy of any nature whatsoever under or by reason of this Agreement. This Agreement may only be altered, amended or modified by written amendment signed by the Contractor and the City. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall be deemed to be one and the same agreement.

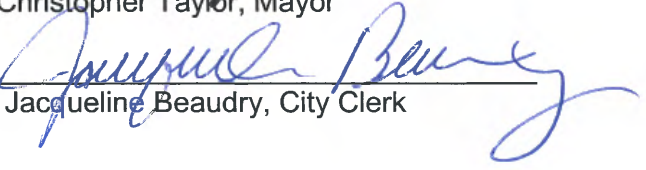


**FOR CONTRACTOR**

By   
\_\_\_\_\_  
Jon Kramer, PE  
Vice President of Operations  
Orchard, Hiltz & McCliment, Inc.

**FOR THE CITY OF ANN ARBOR**

By   
\_\_\_\_\_  
Christopher Taylor, Mayor

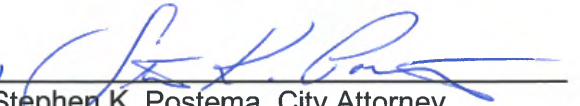
By   
\_\_\_\_\_  
Jacqueline Beaudry, City Clerk

**Approved as to substance**

  
\_\_\_\_\_  
Tom Crawford, Interim City Administrator

  
\_\_\_\_\_  
Craig Hupy, Service Area Administrator

**Approved as to form and content**

  
\_\_\_\_\_  
Stephen K. Postema, City Attorney

## **EXHIBIT A**

The Contractor shall provide all items listed in the Scope of Work for RFP (Request for Proposal) # 955 and the Orchard, Hiltz & McCliment, Inc. Proposal to RFP # 955. Both of these documents are included below.

### **RFP 955 – BACKGROUND AND SCOPE OF WORK**

The information for the Nixon /Green / Dhu Varren Roads Intersection Improvement Design (Task 1), the Nixon Corridor Study (Task 2), and the Communication and Community Engagement (Task 3; applicable to both Task 1 and 2) are each set forth separately below.

Work for all three tasks is within the City of Ann Arbor, in Washtenaw County, Michigan. The City of Ann Arbor is located in eastern Washtenaw County and is bordered by Interstate Highway 94 (I-94), US Route 23 (US-23), and Michigan Route 14 (M-14) which are all the major highways linking Ann Arbor to other Michigan cities.

### **TASK 1 - NIXON/GREEN/DHU VARREN INTERSECTION IMPROVEMENT DESIGN:**

#### **A. BACKGROUND**

##### **1. Location and Setting**

The intersection of Dhu Varren Road, Green Road, and Nixon Road is currently a four-way stop-controlled intersection. In the project area, Nixon Road (running north and south) is a two-lane roadway with one travel lane in each direction. Dhu Varren Road and Green Road are offset from each other by approximately 90 ft, forming two T intersections with Nixon Road.

Dhu Varren Road is the west leg with a two-lane approach. Green Road is the east leg with a three-lane approach to the intersection. Green Road has separate left and right turning lanes at the intersection that transition easterly into a three-lane cross section with one travel lane in each direction and a center left turn lane.

In the project area, the majority of parcels are residential. The northeast and southeast quadrants of the intersection are attached to residential condominiums. The northwest and southwest quadrants of the intersection are currently undeveloped, but have been optioned and are proposed for residential development with approximately 400-500 residential units (“Nixon Farms” North and South projects). These are in the process of Site Plan review. There is also a proposed 235-300 unit project under review (“Woodbury Club Apartments”) located approximately ¼ mile north of the intersection on the east side of Nixon Road that will contribute traffic to this intersection area.

East of Nixon Road, shared use paths approximately eight feet wide run along the north and south sides of Green Road. They join a shared use path on the east side of Nixon Road in the project area. Dhu Varren Road has paved shoulders signed as bike paths on both sides.

West of Nixon Road, there are significant wetlands with associated woods on the north side of Dhu Varren as well as additional wooded wetlands on the south side. There is also a landmark bur oak near the northwest corner of the intersection.

The existing wetlands have been flagged and edges surveyed by the consulting engineer for one of the proposed development projects. These identified wetland edge lines will be furnished to the chosen Consultant for informational purposes. At the

time of preparation of this RFP those wetland lines have not been reviewed and verified by the MDEQ,

## 2. **Prior Studies , Community Meetings, and City Design Policies**

An Intersection Improvement Study was conducted that identified expected operational problems at the intersection and possible improvements to address these issues. Based on the result of this study, the City has opted to install a new roundabout to improve the traffic operations, pedestrian and bicycle access and other factors affecting this area.

There are other current and past planning and transportation documents that include the project area in their studies and recommendation including Traffic Impact Studies by the proposed developments referenced above.

This Project will require review of relevant elements from documents such as the City of Ann Arbor Master Plan: Land Use Element (2009), the City of Ann Arbor Transportation Plan (2009), The 2013 Non-motorized Transportation Plan Review and the Non-motorized Transportation Plan (2007) contain elements related to the Project, as well as the City of Ann Arbor Capital Improvements Plan (2011).

On February 18, 2014 the Ann Arbor City Council resolved the adoption of a Green Streets Policy Statement consisting of stormwater guidelines for Public Street construction and reconstruction. All public street construction and reconstruction projects are to follow the following stormwater guidelines: Green Streets Stormwater Guidelines.

On October 9, 2013 and December 11, 2014, the City held community meetings regarding this intersection. Discussion summaries of the meetings as well as other background documents related to the intersection can be found on the [a2gov.org/intersection](http://a2gov.org/intersection).

## 3. **Traffic and GIS Data**

The AM and PM turning movement counts at the intersection, as well as 24 hr. counts at each approach to the intersection are included in the Intersection Improvement Study.

Projections of localized future traffic from the proposed new developments were also incorporated in that study.

Existing data available via the City's Geographic Information Systems (GIS) data includes two foot contours, locations of City sanitary sewers, storm sewers, and water mains, 2012 aerial photography, parcel lines, etc. **Please note that this information will only be made available to the chosen consultant and that signing a non-disclosure agreement will be required.** The Consultant shall verify accuracy of any such data provided. For the purpose of preparing a response to this RFP, City maps containing limited version of the data may be accessed at Map Ann Arbor.

## 4. **Engineering Design Goals**

While the primary goal of this task is to design a roundabout that improves the capacity of the intersection, other important goals were identified in the Intersection Improvement Study. These include:

- Improving pedestrian, bicycle, and vehicular safety
- Creating a pedestrian-friendly environment. The study proposed including the installation of pedestrian refuge islands
- Accommodation of bicycle traffic including the planned installation of bicycle lanes within the project limits

- Providing accessibility for the disabled in accordance with the applicable ADA requirements

All improvements shall be designed in accordance with applicable City of Ann Arbor, AASHTO, MDEQ, ADA, and any other relevant standards.

**B. Scope of Work**

The City is seeking proposals from qualified, professional engineering, consulting firms to perform the necessary tasks to complete the design and preparation of plans and specifications in accordance with City of Ann Arbor standards to competitively bid and construct the Nixon/Green/Dhu Varren Roads intersection Improvement Project as described below. Improvements are slated for the 2017 construction season.

In general, the following items will need to be addressed by the consulting firm, in accordance with Section III of this request and the attached project schedule (reference Attachment "B"):

**1. Review the Intersection Improvement Study**

Review the study, evaluate the findings, and recommend any design modifications as deemed appropriate to the conceptual design.

**2. Review site plans for the proposed Nixon Farms North and Nixon Farms South projects**

Review proposed site plans and, as design progresses, identify any conflicts between those site plans and the design elements for this project. It is noted that those site plans were developed with attention to the preliminary design in the Intersection Improvement Study.

**3. Perform Design Survey and Utility Location Verification**

The Consultant shall perform any needed field surveys in order to have correct and sufficient data for use in completing the final design.

The Consultant shall complete the survey of the entire project influence area. The Consultant shall at a minimum, provide the following items in their proposed scope of work:

- Locate all trees 6" diameter or greater and provide the genus and cultivar (if applicable) breakdown
- Locate all cultural features within the requested survey boundaries
- Provide a survey with 1' contour intervals
- Certify ROW and locate property boundaries
- Locate all "breaklines" and other features necessary to develop accurate contours
- Provide detailed spot elevations at all existing sidewalk and sidewalk ramp areas
- Locate all existing property irons and monuments within the survey limits
- Locate and determine horizontal and vertical elevation of existing public and private utilities
- Perform all survey work in accordance with the City of Ann Arbor Public Services Area's Standards and its Geodetic Control Manual
- Provide AutoCAD drawings and all field survey point data to the City

**4. Perform Geotechnical Investigation**

The Consultant shall select a qualified Geotechnical Engineering Firm to perform a detailed, comprehensive soil investigation, the cost of which shall be included in the proposal. Soil borings shall be taken where specified by the Consultant, at frequencies necessary to insure an adequate representation of site soil conditions. The Consultant shall provide a detailed soil report, which includes the Resilient Modulus of Subgrade Reaction (Mr) for the proposed lane expansion areas.

All traffic control required to perform the soil borings and all related work shall be in accordance with the Michigan Manual of Uniform Traffic Control Devices (MMUTCD) and the City of Ann Arbor Design Standards. The Consultant shall also be responsible for coordinating this work with the Miss Dig network a minimum of 72 hours in advance of any underground activities.

**5. Design for Utility Relocations**

Design for relocation or modification of existing public and private utilities within the area of the proposed roundabout. It is expected that the proposed realignment of a segment of Dhu Varren west of Nixon may necessitate relocation of an existing 20” transmission water main in the area of realignment. Consultant must evaluate whether such relocation is necessary and, if so, prepare design plans for the relocation. In the proposed Work Plan (see Section III), please define such a water relocation design as a separate work item assuming that such relocation is necessary. Utility relocation design within the roundabout area may be included as part of task 6 below.

**6. Prepare Construction Plans and Specifications**

Prepare complete, detailed, and accurate construction plans and specifications meeting the requirements of the City of Ann Arbor in order to satisfactorily complete the project. It is anticipated that improving operational efficiency will involve aligning Dhu Varren Road to eliminate the offset “T” intersections and creation of a roundabout

All plan sheets shall be drawn and prepared in accordance with the City of Ann Arbor Public Services Area Drafting Standards.

In general, the Consultant shall prepare and submit to the City of Ann Arbor, plan and profile sheets, at a horizontal scale of 1” = 20’ and 1” = 2’ vertically. Certain plans, such as traffic control drawings, intersection enlargement plans, typical sections, details, etc. shall be drawn at scales as approved by the City in order to properly complete the work of the project.

The following is a brief overview of major or critical elements of the plan:

Design Speed: 25 mph

Design Vehicle: WB-40 (unless otherwise directed)

Horizontal Alignment: The proposed horizontal alignment shall accommodate the proposed changes as required by the project. The Consultant shall prepare a minimum of three schematic horizontal alignments for City review and approval. The alignments shall not be prepared concurrently, but shall be developed in a sequential fashion, as needed, to allow for maximum “design development”.

Vertical Alignment: Minimum longitudinal grade shall be 1.0%. A maximum longitudinal grade shall not be specified, but in all cases, the sight distances required by AASHTO shall be provided. The Consultant shall prepare a minimum of three schematic vertical alignments for City review and approval. The alignments shall not be prepared concurrently, but shall be developed in a sequential fashion, as needed, to allow for maximum “design development”.

Typical Cross-sections: The typical cross-sections shall follow the applicable City of Ann Arbor Standards and shall be drawn to scales as approved by the City. Cross-sections shall be those cross-sections produced as part of the Schematic Design, and modified, if needed, to match conditions encountered during the final design.

Drainage: All drainage systems shall be designed or evaluated as required by the City of Ann Arbor Green Streets Stormwater Guidelines.

Wetlands Mitigation: The site plans for the proposed Nixon Farms North and South projects included delineation of existing wetlands west of Nixon Road in the area of the proposed construction for this project. The wetland edges as flagged by the developer were reviewed and approved by the MDEQ. The proposed realignment of Dhu Varren will impact regulated wetlands. Consultant must design a wetlands mitigation plan and prepare all needed permit applications to the MDEQ, and revise mitigation plans as required by that review.

General Design Standards: Incorporate the AASHTO Policy on Geometric Design of Highways and Streets (2011); AASHTO Guide for the Development of Bicycle Facilities (2010); ADA Accessibility Standards; City of Ann Arbor Code of Ordinances; and City of Ann Arbor Public Services Department Standard Specifications (current edition);

Intersection Improvement Plans: All roadway intersections shall be designed to include roadway centerline grades with corresponding longitudinal and transverse slopes; spot curb grades measured at the edge-of-metal with corresponding longitudinal slopes; spot pavement elevations along lane lines at 25' intervals and at other miscellaneous locations that are approved by the Engineer; spot pavement elevations at PC's and PT's of horizontal curves and at PVI, PVC, and PVT stations along vertical curves; spot elevations at both back and face of sidewalk and their corresponding longitudinal and transverse slopes; spot sidewalk elevations at all ramp areas. Elevations at the above referenced areas shall be shown on these plans in accordance with the City of Ann Arbor Standards and as approved by the Engineer.

The scale of these plans shall be 1"=10'.

Soil Erosion, Grading,

Natural Features Protection & Miscellaneous Plans: These plans shall be prepared as required by the appropriate chapters of the City of Ann Arbor Code of Ordinances, and as approved by the Project Engineer and/or the appropriate City Departments.

Traffic Control Plan: Prepare complete, detailed, and accurate traffic control plans meeting the requirements of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD) and the City of Ann Arbor Design Standards to construct the project and provide for the maintenance of one lane of vehicular traffic in each direction at all times. Also, provisions shall be made so that continuous pedestrian and bicycle traffic throughout the project limits will be maintained at all times.

Pavement Marking Plans: Prepare permanent pavement marking plans to ensure the safety of motorists, bicyclists, and pedestrians.

Right of Way Investigation

and Document Preparation : Investigate how much of the additional ROW would be required to perform the intersection improvement, evaluate the different layouts to minimize the ROW need, and prepare all necessary documents and assist the City with the acquisition of required ROW.

## **TASK 2 - NIXON ROAD CORRIDOR STUDY**

### **A. Location and Setting**

The Nixon Road corridor begins at Plymouth Road and extends north to the City limits. Nixon Road is a predominantly two lane roadway with some widening for turn lanes at a few intersections. Intersection control on the corridor includes traffic signalization under SCOOT control, roundabouts, and two-way STOP control. Major intersections to be part of the operational analysis include:

- Huron Parkway and Plymouth Road
- Nixon Road and Plymouth Road
- Nixon Road and Huron Parkway

- Nixon Road and Aurora Street
- Nixon Road and Bluett Road
- Nixon Road and Traver Boulevard
- Nixon Road and Dhu Varren Road/Green Road
- Other intersections as deemed necessary, e.g. The Clauge Middle School Driveway

## **B. Transportation Study Goals**

The primary goal of this task is to conduct a transportation study to be used as a planning guide for future capital improvements on this corridor that will result in a complete street that meets the community's needs. This goal is to be met by:

- Improving pedestrian, bicycle, and vehicular safety
- Creating a pedestrian-friendly, walkable environment
- Creating a bicycle-friendly corridor that can be used for commuting and recreation
- Providing accessibility for the sensitive user groups in the area

All recommended improvements shall be in accordance with applicable City of Ann Arbor, AASHTO, ITE, ADA, and other relevant guidelines and standards.

## **C. Scope of Work**

The City is now seeking proposals from qualified, professional engineering, consulting firms to perform the necessary tasks to complete the corridor transportation study in accordance with City of Ann Arbor standards.

In general, the following items will need to be addressed by the consulting firm, in accordance with Section III of this request and the attached project schedule (reference Attachment "B"):

### **1. Review the Proposed Traffic Projections for the Area**

Review the traffic projections utilized in the Intersection Improvement Study. Validate the traffic projections and base data used in the study and their applicability to this study.

### **2. Develop and Execute a Comprehensive, Multi-Modal Data Collection Plan**

The Consultant shall develop a comprehensive, multi-modal data collection plan that collects data for all methods of travel on the corridor. This data collection plan shall be reviewed and approved by the City prior to commencement of work on this subtask.

### **3. Develop and Execute a Comprehensive, Multi-Modal Analysis Methodology**

The Nixon Road corridor contains a complex set of traffic control devices. The intersections with Plymouth Road are signalized and under SCOOT control. The corridor also will contain two intersections with roundabout control as well as many closely spaced two-way STOP controlled intersections.

The consultant will develop a comprehensive analysis methodology to evaluate the corridor for all modes of transportation. The consultant shall develop an analysis plan that has appropriate measures of effectiveness (MOEs) for all travel modes present on



the corridor. These MOEs and the methodology plan shall be reviewed and approved by the City prior to commencement of work on this subtask.

It is anticipated that standard MOEs of delay and level of service will be used for vehicular travel; however, the consulting team shall establish, subject to City review, a comprehensive set of MOEs for pedestrians and bicyclists.

The analysis methodology shall also address all of the identified peak times of concern determined as part of the public engagement process and review of the collected travel data.

#### **4. Prepare Draft and Final Reports**

Prepare complete, detailed, and accurate documents meeting the requirements of the City of Ann Arbor in order to satisfactorily complete the project.

The report shall contain sections detailing:

- Explanation of the measures of effectiveness chosen for each mode of travel
- The modeling process developed for the corridor and all assumptions made as part of the modeling process
- Complete report of existing and future operational conditions for each mode of travel, including the proposed improvements scenario
- Safety review for current and proposed conditions based on the Highway Safety Manual methodology
- Documentation of the community engagement process

#### **5. Prepare Conceptual Corridor Plans**

Prepare conceptual plans to convey the proposed preferred alternative(s) for the corridor. It is anticipated that these drawings will be used during the public engagement meetings and included in the transportation study report.

### **Task 3 – COMMUNICATION AND COMMUNITY ENGAGEMENT**

Community engagement is a fundamental element of the Nixon/ Green/ Dhu Varren Intersection Improvement Design and the Nixon Corridor Study. A community engagement process to allow affected stakeholders the opportunity to provide input is required. An effective community engagement proposal should ensure that community interests are taken into consideration throughout the design and study process, and that community values are reflected in the final work products.

#### **SCOPE OF WORK**

1. **Review records of prior community engagement efforts.** On October 9, 2013 and December 11, 2014, the City held community meetings regarding this intersection. Discussion summaries of the meetings as well as other background documents related to the intersection can be found on the [project website](#). The consultant shall review and be familiar with the input provided via these community engagement efforts. Public hearings have been held for the proposed developments. Review and be familiar with public input that has been provided via these public hearings.
2. **Design an opportunity for ongoing public information and input.** The community

engagement and communications component of this process should be designed to continue throughout the duration of the project. It should enable the Project Team to provide information and updates to affected stakeholders, and to seek community input at appropriate project milestones. The communications plan should provide ample opportunity for stakeholders to engage in the project and also to stay informed of important project updates.

- 3. Prepare a Community Engagement Plan.** The Consultant will develop a detailed Community Engagement Plan (CEP) at the onset of the project. The CEP will define the goals and objectives of the community engagement effort, identify key stakeholders, and discuss the community engagement techniques and materials that will be used such as social media, newsletters, fact-sheets, and graphical displays.

Based upon the schedule of project milestones, a community engagement matrix will be developed by the consultant to identify methods of information distribution and outreach efforts. The matrix will guide and focus the engagement strategy throughout the project. The City has developed a Community Engagement Toolkit (hereafter “Toolkit”) that will be reviewed with the chosen Consultant to shape the CEP.

- 4. Identify Stakeholders.** The Consultant’s proposed CEP will include all appropriate stakeholders in the project area. The Consultant will work with City staff, utilizing the Toolkit, to establish an initial stakeholder database. The Consultant will be responsible to maintain the stakeholder database and keep record of updated stakeholder contact information as the database evolves throughout the engagement process.
- 5. Facilitate Public Meetings.** While City staff will be in attendance, the Consultant’s community engagement specialist will lead and facilitate all community meetings. Meetings with the general public, and other identified groups, will be designed and scheduled to facilitate information exchange and listening opportunities at key intervals throughout the process. The Consultant will develop a tentative schedule for public meetings as part of the CEP.
- 6. Propose Appropriate Schedule and Strategy for Public Outreach.** The consultant shall propose the appropriate public outreach schedule, taking into consideration the need for public input on both the intersection design (Task 1) and the corridor study (Task 2). The consultant should take advantage of opportunities to gather public input on both projects through a singular public outreach opportunity when appropriate, and recognize when/if separate public outreach is necessary specific to a single project element.

Public outreach opportunities may include, but are not limited to, community wide meetings, stakeholder focus groups, one-on-one interviews with key stakeholders, and online feedback opportunities.

The Consultant’s proposal should include public outreach at key milestones, which may include: Project Introduction/ Kick-off, Concept Design options, and Preferred Design Selection and Next Steps. The Consultant’s CEP shall include all public meetings and outreach opportunities which are, in its professional judgment, needed to appropriately engage the community in the intersection design and corridor study process.

7. **Prepare materials for public distribution, including meeting advertisement and invitations.** The Consultant will provide technical background materials, visual aids, and other materials for public distribution, as needed. The Consultant will advise the City on appropriate advertisement and publicity means for public input opportunities, and will be responsible for distribution of all meeting invitations.
8. **Provide Content for Project Website.** A Plan website hosted on the City's web page will be managed by the City and utilized as one means of providing the community with information about the project. It may also be used to solicit information about the project. The consultant will be expected to provide project update content on a regular basis for the City Project Manager to review and include on the project website.
9. **Schedule and facilitate Progress Meetings with City Staff.** The Consultant shall establish a schedule for regular progress meetings with the City Project Manager and other staff members identified to participate on the project team. The Consultant will develop meeting agendas, provide written progress reports, and complete discussion summaries for documentation of each progress meeting.

## **Orchard, Hiltz & McCliment, Inc. Proposal to RFP # 955**

### **Background and Scope of Work**

Nixon Road, Green Road, and Dhu Varren Road are all key components of the transportation system for residents and commuters living in northeastern Ann Arbor. The area could be described as suburban dominated by existing residential, properties. In the Nixon Road corridor, there is some vacant land slated for residential developments in the northwest and southwest quadrants of the intersection with Dhu Varren. In addition, there is an elementary school, a middle school, and a church nearby.

The intersection of Nixon Road at Dhu Varren / Green Roads has been problematic for a number of years. Having the form of two offset tee intersections, this junction is controlled as one location with all-way stop signs. However, there is a significant through movement for east / west travel, making this a confusing location to traverse with a history of collisions.

To address the safety and operational problems at this intersection, the City commissioned a study to explore improvement options. Conducted by Opus International, the report evaluated a series of alternatives. It concluded that there were two viable options that would significantly improve safety and mobility: realigning Dhu Varren to align with Green and installing either a roundabout or traffic signal.

When the study alternatives were presented to the area residents in a meeting held in December 2014, it became evident that many thought that a broader review of the entire Nixon Rd corridor was needed. Subsequently, City staff engaged in a process to weigh the alternatives in light of the various evaluation criteria, and determined that the roundabout was the preferred option.

### **Existing Conditions**

The posted speed limit for Nixon Road is 30 mph from Plymouth Rd to the Dhu Varren / Green Rd intersection. It then changes to 35 mph for the balance of the segment north to the City limits. Nixon generally has one traveled lane in each direction. There are auxiliary turn lanes provided at a limited number of locations:

- A center lane for left turns between Traver Blvd. and Bluett Dr.
- A SB right turn taper for Sandalwood Circle
- A center lane of left turns between the roundabout at Huron Pkwy and Plymouth Rd.

There is a pedestrian facility along both sides of Nixon Rd from Plymouth Rd to the driveway for Clague Middle School. The east sidewalk ends there and the west side continues the short distance to Traver Blvd. There is no sidewalk or safety path along the west side of Nixon north of Traver Blvd to the City limit. On the east side, a pedestrian facility resumes at the intersection with Haverhill Ct and continues to about 1,380 ft. north of Green Road. By way of a marked bike lane, where the road is curbed, or a paved shoulder, Nixon Road has bike lanes along both sides from Plymouth Rd to Huron Pkwy, and from Bluett Dr north to the City limits. The gap in bike lanes from Huron Pkwy to Bluett Dr is due to a narrow road pavement and shoulders that are gravel.

Dhu Varren Rd is a 35 mph, two lane roadway for its entire length within the study area. It does not have any pedestrian or bike facilities. Green Rd is also posted 35 mph. It has a 3-lane cross section and there is a marked bike lane, but only along the north side for westbound bike travel. It has continuous pedestrian walks along both sides of the street. The Nixon Road corridor is also used by transit. AATA runs Routes 1 and 2 in the corridor, so there are various bus stops present along this roadway.

### **Issues and Concerns**

From the dialog noted in the public meetings, there are a variety of issues and concerns held by the area residents. Some involve development issues that are peripheral to this project. The trip generation facet to those concerns will require that any review of the 2035 horizon year traffic projections account for the known development proposals currently being considered. It is abundantly clear that the City wants potential improvements along the corridor to further the City's policy goal of 'complete streets'; multi-modal facilities to allow and encourage non-vehicle mobility for the area residents. Thus, we will be looking at improvements that would fill in the gaps to pedestrian facilities and on-street bike lanes. But this does not mean that vehicle-related problems are to be ignored, but rather that they be balanced with the concerns for other users. This is exemplified by the need to make a targeted improvement to the intersection of Nixon Road at Dhu Varren / Green Roads for vehicle safety and mobility, while addressing the needs of pedestrians and cyclists.

There appears to be safety concerns related to a special subset of pedestrians and bicyclists – the students attending Logan Elementary School or Clague Middle School. School crossings of Nixon Rd will come under extra scrutiny in our work.

The other set of concerns voiced involved the increasing difficulty of residents commuting to work leaving their neighborhood by way of Argonne Dr and Nixon. The relative lack of gaps is compounded by the limited sight distance for SB traffic due to a crest vertical curve north of this intersection.

### **Intersection Improvement Project and Corridor Traffic Study**

In order to address the issues and concerns identified above, the City of Ann Arbor intends to redesign the intersection of Nixon / Green / Dhu Varren Road to a roundabout and also prepare a Corridor Traffic Study for the Nixon Road Corridor. Within this project there are three discrete tasks to be completed:

- Task 1: Nixon / Green/ Dhu Varren Intersection Improvement Design
- Task 2: Nixon Road Corridor Study
- Task 3: Communication and Community Engagement

The following sections delve into each of these Tasks and outline the anticipated scopes of work.

### **Task 1 Description: Intersection Improvement Design**

#### **Existing Conditions**

Dhu Varren Road and Green Road intersect Nixon Road about 90 feet apart from each other, creating two separate T-intersections. The existing asphalt pavement surface is deteriorating at the intersection, and concrete curb & gutter is only present on the east side. We understand that Nixon Road was originally laid out as a “commercial” corridor, with the purpose of bringing goods from farm to market. The northwest and southwest quadrants are currently vacant, with development pending. The corridor’s character has changed over the years, with more change on the way. We believe this roundabout project will improve the capacity, operational efficiency, and safety for all users of the intersection. The setting also presents a good candidate for a modern roundabout solution, with opportunities to improve non-motorized mobility in the area. AATA bus stops for “The Ride” exist on the southwest and southeast corners of the intersection, and there is another bus stop approximately 300 feet to the east on Green Road at Windwood Drive. Intersection operations are impacted when motorists pass stopped Buses illegally. Our roundabout design will address vehicles, transit, bicycles, and pedestrians. We expect the public to be interested in multi-modal transportation on the four approaches as well as within the intersection.

### **Observations on the “Intersection Improvement Study” (March 2015)**

Our Work Plan generally describes the key phases of design necessary for a modern roundabout. **We list below several key elements of the conceptual design shown in the “Intersection Improvement Study” that we would like to revisit and address more thoroughly.** These were identified during our review of the results of the Study of the Nixon / Green / Dhu Varren Roads intersection performed by another consultant for the City of Ann Arbor. These items offer room for an improved design in areas that, based on our team’s experience, will be very important to the City. We will not dwell on these key elements in our Work Plan, and we recognize that the Study may have had a limited scope. If selected for an interview, our team can provide additional details about our approach to these issues.

Our Work Plan and associated estimate include the work necessary to refine the conceptual design of the intersection to one that will provide the same or better level of service as the preliminary concept. Our design will meet more goals of the City’s master planning documents at the intersection, as well as on the approach roads. We have considered the City’s Comprehensive Non-Motorized Transportation Plan (Non-Motorized Plan), Capital Improvement Plan (CIP), Northeast Area Plan (NEAP), and Northeast Area Transportation Plan (NEATP). As a part of our design, we will coordinate with the City to refine the following key issues that we have identified after our review of the Study:

1. Bicycles: We feel that non-motorized users should be provided with the option of either remaining in the roadway or using off-street facilities. This is consistent with City practices, especially at the Huron Parkway / Nixon Road roundabout.
2. Construction Staging was not considered in the Study. A one-lane roundabout is more difficult to stage, but we have successfully managed construction on recent projects that maintains traffic for heavy movements or fully closes and detours an intersection during construction. Our Work Plan includes preparation of maintaining traffic concepts and cost estimates to compare these alternatives.

3. Cost Estimate: Depending on the chosen option, staging could increase the construction cost, particularly if that option requires temporary pavement. While we understand that maintaining traffic is City practice, this location may have detour route possibilities at certain legs that could reduce project cost and shorten the duration of the project. If the City deems it appropriate, residents could

have an opportunity to voice an opinion on construction staging options.

4. Buses: As frequent users of this intersection, we are familiar with driver behavior related to these bus stops, which probably would not change with the current recommended Study concept geometry. We believe the bus stops should be more appropriately incorporated into the final design. Bus pullouts could be considered.

5. West Leg Bypass Lane: A free-flow eastbound-to southbound right turn bypass lane results in the need for a southbound lane drop, which adds a potentially high-speed conflict point for vehicles, bicyclists, and pedestrians. In addition, the bypass lane would likely increase construction costs, ROW impacts, and environmental features impacts. As an alternative, a “snagged”, or partial right-turn bypass lane could be provided. At an initial glance, the 2035 peak hour turning movements are less than 500 vehicles per hour, which is a commonly used maximum value for a partial right-turn bypass lane.

### **Scope of Work for Task 1 (Intersection Improvement Design)**

The project will consist of completing the design and preparing the necessary contract documents for the City of Ann Arbor to competitively bid the 2017 construction of a modern roundabout at the intersection of Nixon Road, Green Road, and Dhu Varren Road. The City of Ann Arbor is undertaking this project to improve the intersection’s operational efficiency for both motorized and non-motorized users. The City has selected a modern roundabout as its preferred design. The roundabout footprint will generally be centered at the intersection of Nixon Road and Green Road, while Dhu Varren Road will be realigned to meet the roundabout. Significant additional right-of-way will be required in the southwest quadrant to accommodate this realignment. Lesser amounts of right-of-way and/or Consents to Grade will be necessary in the other three quadrants.

Our design will be sensitive to the overall needs of the traveling public, including public bus transportation, bicyclists, pedestrians, visually or hearing impaired users, commercial vehicles, and commuting motorists. We will design an aesthetically pleasing roundabout, to preserve the residential character of the area.

In completing the design, the following goals will be carefully evaluated and incorporated into the project:

1. Improve pedestrian, bicycle, and vehicle safety in the project area, along with accommodating the long-term goals of the City’s Non-Motorized Plan.
2. Create a pedestrian-friendly environment, which will include construction of pedestrian refuge islands on each leg of the intersection.
3. Accommodate bicycle traffic in and around the roundabout, including bike lanes within the project limits.
4. Provide accessibility for the disabled in accordance with the applicable ADA and City requirements.

5. Address storm water management and increase infiltration within the project area in accordance with the City's Green Streets Stormwater Guidelines and the Rules of the Washtenaw County Water Resources Commissioner.
6. Determine the extent of the proposed fee right-of-way and Consents to Grade. Produce parcel exhibits for right-of-way acquisition.
7. Review the proposed site plans for the Nixon Farms North and South developments to identify any conflicts or coordination issues related to this roundabout project.

We anticipate that the City of Ann Arbor will want to maintain traffic on Nixon Rd (in a manner to be determined), and maintain vehicular and pedestrian access to adjacent properties. We will prepare detailed construction staging plans and maintaining traffic special provisions to accommodate the phased construction. However, during development of the staging concepts, we recommend soliciting public input on the possibility of a full closure with posted detours. If desired by area residents to limit the project duration, this option would be a significant cost savings for the City.

### **Task 1 • Intersection Improvement Design • Basis of Design**

OHM Advisors will prepare a set of plans including (but not limited to) typical cross sections, alignment, removals, construction sheets, profiles, municipal utilities (if necessary), construction staging, detail grades, wetland mitigation, permanent signing, pavement markings, lighting, soil borings, soil erosion and sedimentation control. Our plans and profiles will be drawn at a scale of 1" = 20' horizontally and 1" = 2' vertically. Our detail grade sheets will be enlarged to a scale of 1" = 10'. Plan sheets will conform with the City of Ann Arbor Public Services Area Drafting Standards.

1. Design Speed. The roundabout should generally be designed to keep traffic at approximately 15 to 25 MPH.
2. Design Vehicle. Our design will accommodate the larger of a WB-40 (per the RFP) or the largest vehicle requested by the City. BUS-45 could be utilized to model the AATA Buses, similar to the Huron Parkway / Nixon Road Roundabout.
3. Horizontal Alignment. Our proposed horizontal alignment and geometric design will begin with an evaluation of the conceptual plan in the Study. After identifying a list of key design constraints, and prioritizing these constraints with the City, we will proceed with three geometric iterations. Each iteration will consider impacts to the environment, motorized and non-motorized users, right-of-way, bus stops, signs, and other constraints. RODEL Roundabout Capacity Software will be used to verify the roundabout capacity for each iteration. Once analyzed and discussed with the City, we will proceed with detailed plans.
4. Vertical Alignment. Our proposed vertical alignment design will begin with an evaluation of the conceptual profiles in the Study, and will proceed with our recommended geometry. Our design development will consist of at least three iterations of the schematic vertical alignment before continuing with detailed profiles. Each iteration will consider impacts to the environment, motorized and non-motorized users, right-of-way, and bus stops.
5. Typical Cross-Sections. The existing and proposed typical cross-sections will follow the City of Ann Arbor Standards, and will be included in the base design plans and modified during the preliminary and final design phases of the project. We anticipate that the proposed pavement section will resemble the existing pavement section; however, the final pavement design will be



selected based on our geotechnical investigation (with City review and input) to ensure an acceptable design life.

6. Drainage. The existing drainage system will be augmented and expanded to manage storm water runoff from the new roundabout and realigned roadways. We will design for positive drainage with increased infiltration for up to the 10-year design storm event per the City's Green Streets Stormwater Guidelines. We will also address the Washtenaw County Water Resources Commissioner's requirements by infiltrating either the first flush volume or the "bankfull volume difference" (whichever is larger). If the existing soils prove unable to provide the desired infiltration rate, a detention basin will be provided (if feasible and if directed by the City).

7. Wetland Mitigation. Wetlands exist in the northwest and southwest quadrants, and have been delineated by the private property developer. It is our understanding that the wetland limits were reviewed and approved by the MDEQ. The realignment of Dhu Varren Road will impact one of the regulated wetlands, and a permit application and on-site wetland mitigation will be required for this project.

8. General Design Standards. The current edition of the following guidelines will be used as resources for our design team:

- AASHTO Policy on Geometric Design of Highways and Streets.
- AASHTO Guide for the Development of Bicycle Facilities.
- ADA Accessibility Standards.
- City of Ann Arbor Code of Ordinances.
- City of Ann Arbor Public Services Department Standard Specifications.
- City of Ann Arbor Consent Decree for ADA Compliance.
- FHWA Roundabouts: An Informational Guide (NCHRP 672)
- MDOT Road Design Manual.
- MDOT Geometric Design Guide.
- MDOT Standard Specifications for Construction.
- Michigan Manual on Uniform Traffic Control Devices (MMUTCD)

9. Intersection Improvement Plans. Detailed roundabout enlargement plans will be prepared at a scale of 1" = 10'; and will include horizontal and vertical curve data; detailed grades at lane lines, edge-of-pavement, ADA sidewalk ramps, and the limits of construction in each direction. Given the critical nature of roundabout geometry and its effect on traffic operations and safety, we have found that detailed alignment data is essential. Construction layout will be dictated by a table of coordinates (Northing, Easting, & Elevation) for critical points to thoroughly describe the central island, splitter islands, and the outer curb & gutter for the circulating roadway in the roundabout.

10. Soil Erosion, Natural Features Protection, & Miscellaneous Plans. We will prepare all plans as required by the applicable chapters of the City of Ann Arbor Code of Ordinances. Soil erosion and sedimentation control items will be shown on the plans. Also, the existing landmark bur oak will be protected during construction, and our proposed geometry will avoid any impact to this particular tree.

11. Temporary Traffic Control Plan. We will develop plans and special provisions to maintain traffic while staging the construction of the roundabout and approach roads. Temporary traffic control will meet the requirements of the MMUTCD and the City of Ann Arbor Design Standards. We will design the staging to maintain pedestrian, bicycle, and two-way vehicular traffic in each direction wherever and whenever possible. As an alternative, we will also offer

crossroad closure concepts with posted detours for consideration by the City before proceeding to final design. See Task 1J.

12. Permanent Signing and Pavement Markings. The project will require modification of the permanent traffic controls at the intersection to reflect the new roundabout. These signs and markings will meet the requirements of the MMUTCD and best practices for guidance and wayfinding. The pavement marking plans will include the approach markings that may have been disturbed as part of the maintaining traffic plans.

13. Right-of-Way Investigation and Document Preparation. Our design will include plans depicting the real estate needs of the project. Significant right-of-way acquisition is anticipated in the southwest quadrant, with lesser amounts and/or Consents to Grade in the other three quadrants. We will prepare parcel exhibits as described in Task 1B.

### **Task 1 • Intersection Improvement Design • Work Plan**

The work plan consists of completing the following tasks:

#### **Task 1A – Data Research and Utility Coordination**

Available background information concerning the location and condition of existing utility will be reviewed, including aerial and underground. Beginning with the Miss Dig system and City as-built drawings, we will research available records and depict the existing utilities on our plans. As the design continues, utility conflicts will be identified. Where the proposed design cannot be modified to avoid conflicts, OHM Advisors will coordinate with the utility owners to facilitate their relocation prior to construction. We will develop and update a utility conflict matrix throughout the design process, and meet with utility owners to discuss and resolve each issue. In past experience, we have found that a collaborative, proactive, and detailed-oriented process is the most successful for utility coordination.

As mentioned in the RFP, a 20-inch water transmission main exists in the Dhu Varren Road right-of-way. As instructed, our proposal includes design and plan preparation for this water main relocation (refer to Task 1R). Early in the design process, we will evaluate options and their effect on the existing utilities. Based on our initial proposal, we believe this project can potentially be designed without relocating this water main, resulting in a significant cost savings. Although Dhu Varren Road will be realigned and the old road will be obliterated, we believe it can be re-graded such that the existing utilities are unaffected. However, if relocation is necessary, we have engineers who have vast experience in municipal utility design and plan preparation.

The DTE pole in the northwest corner of Nixon and Dhu Varren will likely have limited options for relocation due to the wetlands to the west and the long pole span (~270 feet) to the west. Avoidance of this pole will be critical to the design. The pole also carries numerous secondary service providers, which likely includes AT&T.

#### **Task 1B – Topographic Survey & Right-of-Way**

Our proposal includes collection of full topographic information for the construction influence area. We will collect base topographic survey for the preparation of base sheets. In addition, survey will verify the existing right-of-way limits. This information will be obtained by a survey

crew using RTK GPS and a Robotic Total Station. Base sheets will be prepared in Civil3D 2015 to a 1" = 20' (horizontal) and 1" = 2' (vertical) scale.

The survey will include the following:

1. Location, genus, and species of all trees 6-inch diameter and greater.
2. Location of all cultural features within the construction influence area.
3. One-foot contours.
4. Right-of-way will be certified and property boundaries will be located.
5. Detailed existing spot elevations on all sidewalk ramps, and at critical sidewalk, road centerline, and curb locations.
6. Location of property controlling corners.
7. Location of existing utility structures and full structure inventories.
8. Location of Benchmark 1025 of the Ann Arbor Geodetic Reference System.

The project limits will extend approximately 500 feet to the north, south, and east; and 1000 feet to the west (as measured from the intersections). A triangular area of topographic survey will also be obtained in the southwest quadrant of the intersections to facilitate the realignment of Dhu Varren Road to the south. The topographic survey will also include a strip of lane 100 feet west of the western right-of-way line for Nixon Road for a length of 500 feet north of Dhu Varren Road (for our anticipated construction staging needs).

All survey procedures will conform to Michigan Law relative to land surveying and will be performed under the direct supervision of a Professional Surveyor licensed to practice in the State of Michigan.

#### Control

OHM will recover and/or re-establish the horizontal and vertical control if possible. We anticipate that the coordinate system will be based on the City of Ann Arbor Geodetic Control Network (Horizontal: North American Datum of 1983, 1997 Adjustment (NAD83/97) and Vertical: North American Vertical Datum of 1988 (NAVD88)).

#### Topography

OHM will develop the survey work order and assign it to appropriate personnel, collect/annotate topography, investigate and describe underground utilities, locate and identify trees 6-inch diameter and larger per City requirements, establish existing alignments, and compile field notes, government corner witnesses, and project report.

#### Right-of-Way

Establishment of the existing right-of-way will be necessary for this project. Parcel exhibits will be provided so that the necessary property interests can be acquired. OHM will prepare up to four (4) right-of-way acquisition documents, using the City of Ann Arbor format.

#### **Task 1C – Geotechnical Investigation**

The purpose of the Geotechnical Investigation is to determine and evaluate general subsurface conditions along the proposed roadway and intersection alignment in order to develop related earthwork and pavement design recommendations and construction considerations. The purpose of the Infiltration Testing is to determine the approximate rate of ground infiltration of collected

storm water runoff from areas where new impermeable pavement is being constructed. A licensed professional engineer acting as a Project Manager will direct the geotechnical exploration and infiltration testing. Our proposed scope of work will consist of the following items:

1. G2 Consulting Group, LLC (G2) will visit the site and mark the approximate soil boring and locations.

Conflicts with existing structures, utilities, or other site conditions may require local variations in location.

2. G2 will contact the local utility locating company MISS DIG. It should be noted that MISS DIG requires a minimum of 72 hours to locate utilities.

3. G2 will provide traffic control in accordance with MMUTCD standards while performing the field investigation. Traffic control is expected to consist of an arrow board, hazard cones and signs, as necessary.

4. G2 will drill a total of ten (10) soil borings within the shoulder and accessible right-of-way areas adjacent to the roadways. Three (3) of the soil borings in the vicinity of the existing wetland in the southwest quadrant will be extended to a depth of 30 feet below the existing ground surface. The remaining seven (7) soil borings will also be extended to a depth of 30 feet. Our proposal fee is based on a total soil boring drilling depth of 300 vertical feet. Standard borings will be extended to their proposed depths using hollow-stem drilling methods by means of either an all-terrain vehicle-mounted drilling rig, or a truck-mounted drill rig where access is feasible. We will obtain soil samples by the Standard Penetration Test Method every 2½ feet within the upper 10 feet, and every 5 feet thereafter. More frequent sampling will be performed where organic soils, peat or marl are encountered. All of the borings will be backfilled with the drill cuttings. It should be understood that some settlement of the borehole fill may occur and no future maintenance of the holes is included. G2 will not be responsible for landscape restoration associated with the drilling operations.

5. G2 will perform a total of six (6) hand-auger soil borings in areas where an ATV drill rig cannot access. Hand-auger borings will be extended to a depth of 10 feet below the existing ground surface, but may be terminated at a shallower depth if the borehole caves or auger refusal is experienced. Our proposal is based on a total hand-auger drilling footage of 60 vertical feet. Samples of the underlying subgrade soils will be obtained where soil conditions or soil layers change during handauger operations. In addition, pocket penetrometer (PP) and dynamic cone penetrometer (DCP) tests will be performed periodically to estimate the strength characteristics of the subgrade soils. The boreholes will be backfilled with on-site soils after completion of drilling. It should be understood that some settlement of the borehole fill may occur and no future maintenance of the holes is included.

6. G2 will perform laboratory testing to determine the physical characteristics of the subsurface soils. The testing program may include determination of the unconfined compressive strength, dry density, natural moisture content, organic matter content, particle-size distribution, Atterberg limits, and soil classification in accordance with the Unified Soil Classification System.

7. Following completion of the soil borings and laboratory testing, G2 will review the soil boring and laboratory data and provide preliminary recommendations for possible locations and bottom depths of infiltration (retention) basins. Upon agreement by the design team, G2 will subcontract with a backhoe operator to excavate as many as four (4) test pits at the identified possible infiltration locations. The test pits will be limited to a maximum depth of 10 feet and will terminate at the approximate top surface of the target soil layer based on the soil boring review.

Within each test pit, G2 will perform encased falling head infiltration testing in accordance with the Washtenaw County Water Resource Commission (WCWRC) Rules and Guidelines – Procedures & Design Criteria for Stormwater Management Systems (dated August 6, 2014). The test pits will be backfilled with the excavated soils, but the backfill will not be compacted to an engineered level. G2 will not be responsible for landscape restoration associated with the test pit excavations.

8. G2 will prepare an engineering report summarizing our findings and presenting evaluations, conclusions and recommendations about the following items:

- Subsurface soil and groundwater conditions.
- Suitability of existing subgrade soils for roadway support.
- Approximate limits and organic content of organic, peat, or marl soil deposits.
- Methods to remove and replace, treat in place, or stabilize unsuitable soil, organic, peat, or marl deposits
- Earthwork operations, including subgrade preparation, suitable fill materials, and fill placement and compaction.
- Temporary dewatering methods for construction excavations.
- Allowable temporary open-cut excavation slopes, and temporary earth support requirements for shoring of excavations.
- Lateral earth soil pressures for use in design of temporary earth retention systems.
- Roadway embankment allowable permanent slope inclinations.
- Allowable subgrade soil parameters and bituminous pavement section design based on AASHTO design criteria.
- Estimated infiltration rates at possible retention basin locations.
- Other subsurface conditions which may impact design and construction of the proposed roadway.

### **Task 1D – Wetland Mitigation**

As mentioned above, wooded wetlands exist in the southwest quadrant of the project area, and will be impacted by the proposed realignment of Dhu Varren Road. This wetland and another in the northwest quadrant have been delineated by the Nixon Farms developer, and the limits have been reviewed and approved by the MDEQ. Based on our review of the exhibits in the Study, we anticipate that the wetland impact will be less than 1/3 acre. Our understanding of the latest MDEQ guidance suggests that for wetland impacts this small, the mitigation may be of any type, at any location, and at a 1:1.5 ratio.

OHM will prepare the necessary documentation and MDEQ permit application as part of this proposal. Niswander Environmental will provide the following as part of the wetland design services: Earthwork plans showing existing and proposed elevations of the mitigation site.

1. Planting plans showing the MDEQ-required wetland zones as specified in the permit, as well as seeding and planting locations.
2. Earthwork and Planting Specification documents to be included with the final plans.
3. Justification Report including mitigation plan, hydrology budget, and cost estimate.

## **Task 1E – Horizontal and Vertical Roadway Alignments**

The conceptual plan that was prepared for the Intersection Improvement Study will be evaluated and used as a starting point. Topographic survey information will be added to ensure that the existing conditions in the affected area are accurately represented. The horizontal and vertical alignments will be evaluated for constructibility, positive drainage, avoidance of costly impacts, and adequate roundabout geometry based on site constraints. After identifying a list of key design constraints, and prioritizing these constraints with the City, we will proceed with three geometric iterations. We will consider alignment options to minimize the extent of the right-of-way acquisition. We will also consider the bus stops and non-motorized users in our geometric design. Bus pullouts might be a solution, pending analysis and discussion with the City and the AATA. Starting and ending bicycle lanes and pedestrian facilities will be a key design consideration at the roundabout and within the entire project limits.

OHM will develop three iterations of the schematic horizontal and vertical alignments before continuing with the detailed plans and profiles. During design, we will also review the proposed site plans for the Nixon Farms North and South projects, identify conflicts, and assist the City in coordination between the proposed roundabout and adjacent private developments. The following key design features will be discussed with the City and analyzed as a part of the horizontal and vertical iterations:

1. Alternate horizontal roundabout geometric options could include:
  - a. A “snagged” (i.e. partial) right-turn bypass lane at the eastbound approach (west leg – Dhu Varren Road). This would avoid a potential downstream merging conflict, reduce speeds for non-motorized safety, reduce construction costs, ROW impacts, and environmental impacts.
  - b. A smaller radius curve at the eastbound approach (west leg – Dhu Varren Road), compared to what was presented in the Study. By limiting the length at which the proposed Dhu Varren alignment deviates from the existing alignment, there could be several cost, schedule, and maintenance benefits. This would significantly reduce: right-of-way impacts, wetland impacts, costs to stabilize poor soils, the time to consolidate poor soils using wick drains, and the long-term risk of high maintenance costs due to settlement.
  - c. An additional “snagged” right-turn bypass lane at the westbound approach (east leg – Green Road). The concept Study indicated a LOS D for this approach in PM peak in 2035. The addition of this bypass lane could improve the LOS, pending an analysis.
  - d. Phasing-in the bypass lanes for future use. Rather than construct one or more bypass lanes as part of the construction in 2017, plan for future bypass lanes by setting up the curb lines, sidewalks, roadside appurtenances, and proposed ROW limits for the future addition of the bypass lanes.
  - e. An elliptical-shaped or peanut-shaped roundabout. These options have been successfully implemented in Wisconsin and Indiana.
2. Entry deflection: Studies have shown that proper entry deflection is one of the most important considerations for preventing entry/circulating crashes. Proper entry deflection is critical for speed control and gap acceptance. Given suburban/commuter context to the surrounding area, entry deflection is critical to foster speed reduction at the roundabout entry.
3. Profile / vertical analysis will explore opportunities to flatten or “table” the intersection within the roundabout and within the deceleration zone approaching the roundabout. A 2.5% to 3% maximum profile is commonly used, although flatter is more preferred. A relatively flat profile is

critical to improve sight distance, plus prevent rear end accidents and truck overturns. A raise in profile will have to be carefully analyzed so as to not dramatically impact ROW or environmental features.

### **Task 1F – Storm Water Management**

As with all road reconstruction projects, the City of Ann Arbor is dedicated to improving storm water runoff quality and providing additional runoff rate and volume controls. We understand that the City's Green Streets Stormwater Guidelines require that the first inch of runoff must be designed to infiltrate first, before being captured by any storm sewer system. The rate of infiltration will depend on the type of soils that we discover below and adjacent to the pavement. Our geotechnical investigation will include percolation tests to determine the infiltration capacity. We will design for a 10-year storm event to meet the City's standards, but we will also address the Rules of the Washtenaw County Water Resources Commissioner (WCWRC). The WCWRC will require the infiltration to be either the first flush volume or the "bankfull volume difference", whichever is greater. The "bankfull volume difference" will be calculated as the difference between the pre- and post-development volume from a 2-year / 24-hour storm event. If the existing soils are unable to infiltrate the required amount of storm water, then we will design a detention basin if feasible and if directed by the City. The most likely location for detention is in the northwest quadrant, either within the excess existing Dhu Varren Road right-of-way, or between the existing wetland and Nixon Road if additional property must be acquired for this purpose.

The existing storm drainage system will be evaluated to determine its adequacy. The existing enclosed storm sewer within the intersection appears to flow northerly before discharging into the wetland in the northwest quadrant. It is unknown whether these existing storm sewers have capacity for additional flows. Our intersection reconstruction plans will address any known drainage problems, and repair or replace any known failing pipe or drainage structures under direction from the City. We intend to use the existing drainage system wherever possible, and to expand it where necessary to positively drain the roundabout.

OHM will seek various types of storm water BMP's for this project. For example, we will consider the possibility of using swales in conjunction with an infiltration basin. Other options include rain gardens or bioswale methods. These will depend on the soil types encountered and the source of the runoff. Any plants used in a swale or rain garden adjacent to the roadways will have to be resistant to salt and other contaminants. As with detention, these features would probably have to be located in the northwest quadrant if the excess Dhu Varren Road right-of-way is retained.

### **Task 1G – Street Lighting**

OHM will design and prepare plans for new street lighting at the Nixon / Green / Dhu Varren roundabout. Lighting will not be designed along the remainder of the Nixon Road corridor. OHM will coordinate with DTE for electrical service to the lighting.

From the geometric concept in the Study, it appears that the existing streetlight in the southeast corner of Green Road and Nixon Road will require relocation. Other streetlights along Green Road could be impacted, depending on the chosen geometric configuration. For the purpose of

this scope, we assume these lights will be relocated or replaced as a part of the street lighting design which will be coordinated with the City.

**Task 1h – Pedestrians, Bicycles, & Landscaping**

OHM will design improvements to the non-motorized facilities at this intersection, following “Complete Streets” policies and integrating the proposed roundabout with the City’s Non-Motorized Plan. As mentioned above, we believe non-motorized users should have access into and around the roundabout. Our design will provide bicyclists with two options, based on their comfort level. For experienced bicyclists, riding through a properly designed roundabout is appropriate. For others, we will provide access to the off-road shared use paths. Pedestrians will also share the path, and we will design ADA-compliant sidewalk ramps at each crosswalk. We will design the splitter islands to provide refuge for pedestrians as they cross each leg of the intersection. In addition, we will discuss the use of raised crosswalks, which have been successfully implemented at other roundabouts across the country.

The geometry of a roundabout presents opportunities for streetscape features, landscaping, or low-maintenance plantings in the splitter islands, center islands, and other disturbed areas. While these services were not described in the RFP, the City has requested that OHM provide landscaping plans for the central island of the roundabout. OHM will develop two conceptual planting plans for the interior of the roundabout. These concepts will include a plan view and section detail for review, and will focus on native plants that require minimal maintenance, and will not inhibit sight distance. Upon consensus from the City on one planting concept, OHM Advisors will implement the planting concept into engineering drawings including plant schedule, plant placement and planting details. We assume irrigation plans are not required.

**Task 1J – Temporary Traffic Control**

Detailed plans and specifications will be prepared for maintaining traffic during construction, in accordance with MDOT, MMUTCD, and City of Ann Arbor requirements. Generally, the staging plans will be developed with the goal of maintaining one lane of traffic on Nixon Road in each direction. We anticipate that phasing portions of the work will require temporary pavement and partwidth construction in order to maintain traffic, including maintaining non-motorized traffic along the shared use path system.

As noted elsewhere, the City might elect to consider alternating full closures of Green Road and Dhu Varren Road, which would result in a significantly shorter project schedule and potential cost savings. OHM will create up to 4 conceptual maintenance of traffic options for review by the City and for use in public meetings. These concepts will include a written description, a simple schematic and pros and cons for each option. Time and cost implications will also be determined for comparison of each option.

**Task 1K – design meetings**

An initial Kick-Off Meeting will be held, once the design contract has been approved. We anticipate that this meeting will be attended by OHM team members and City staff. During the design process, OHM will conduct bi-weekly progress meetings either in person or over the phone. We anticipate that City staff and OHM team members will attend these meetings to



collaborate on issues, design options, and alternatives. OHM will prepare an agenda, meeting materials, and a summary.

We anticipate Plan Review Meetings after major milestone submittals (e.g. Base Plans, Preliminary Plans, and Pre-Final Plans). OHM will prepare and distribute meeting summaries. Two additional meetings related to right-of-way acquisition have been included in the Proposal. It is assumed in this Proposal that the right-of-way acquisition will be only for temporary acquisitions (no permanent right-of-way is needed) and that OHM will not be required to meet with property owners.

We believe early discussions with the adjacent condominium associations, property owners, and the Nixon Farms developer will greatly reduce the time and cost of City staff when acquiring the right-of-way. Refer to Task 3 for details of the community engagement and public meeting process.

#### **Task 1L – Base Plans (30% Set)**

The OHM team will prepare a 30% set of Base Plans and an engineer's opinion of probable cost for the City's review. The chosen iteration of the proposed horizontal and vertical alignment will be shown, with the corresponding impacts on right-of-way and existing utilities. Proposed drainage improvements and potential storm water management options will be presented for discussion. The initial Maintaining Traffic Concepts will also be submitted.

#### **Task 1M – Preliminary Plans and Specifications (70%)**

OHM will prepare a 70% set of Preliminary Plans, draft contract documents, and updated engineer's opinion of probable cost for the City's review. The proposed roadway and non-motorized alignments will be detailed, and the grading limits will be refined to define the right-of-way impacts. The proposed drainage features will be depicted in plan and profile. The chosen construction staging scheme will be developed.

#### **Task 1N – Pre-Final Plans and Specifications (95% Set)**

Based on the comments received from the City at the Preliminary Plans Review Meeting, OHM will prepare detailed Pre-Final Plans, contract documents, and an updated engineer's opinion of probable cost for the City's review. This package will include detailed special provisions and methods of payment for construction items that are not covered by the City's Public Services Department Standard Specifications for Construction. Prior to this submittal, OHM will complete all necessary parcel exhibits, construction notes, plans, profiles, details, and quantities.

#### **Task 1P – Incorporate Final Comments & Prepare Contract Documents**

Upon receipt of final review comments from the City of Ann Arbor, OHM will address outstanding issues, make any final modifications to the plans and specifications, and submit complete sets of biddable contract documents to the City for advertisement of the project. The submittal will also include the final engineer's estimate of probable cost.

#### **Task 1Q – QA/QC, Deliverables, and Revisions**

Our Lead QA/QC Engineer is an experienced professional engineer with over 25 years of experience working on a wide range of transportation projects for a variety of clients. For quality control (QC), he will lead independent reviews of all milestone plan sets and specifications prior

to submitting to the City of Ann Arbor for review. For quality assurance (QA), he will coordinate with our experienced design staff to ensure that all elements of the design have been reviewed by a qualified independent engineer.

All construction plans and specifications will meet the requirements of the City of Ann Arbor, as described in the RFP. Our final plan set will include a title sheet, legend, general notes, typical cross sections, miscellaneous details, survey data, alignments, removal sheets, construction plans, profiles, water main plans (if necessary), construction staging, detail grades, permanent signing, pavement markings, and a log of soil borings. If necessary during the final review or bidding process, OHM will prepare Addenda or make revisions to the final plans, special provisions, and/or cost estimates. Lastly, we will submit AutoCAD files of the plans, and electronic files of all other contract documents to the City for their records.

### **Task 1R – Water Main Relocation**

If the existing 20-inch water transmission main in the Dhu Varren Road right-of-way must be relocated as a result of this project, OHM will design and prepare plans for a new main and removal or abandonment of the old. As mentioned above, we believe the proposed roadway realignment can be designed without a significant earth cut at the obliterated old road, thereby retaining the cover over the water main and avoiding its relocation. Our municipal utility engineers will evaluate this possibility early in the design. If relocation is deemed necessary, we will prepare the water main plans, profiles, and details to meet City of Ann Arbor standards. OHM will also prepare and submit a permit application to the MDEQ in a timely fashion, to ensure that the water main design is approved before the Letting.

### **Task 1S – MDOT LAP Special Activities**

With this project anticipated to receive federal funding, the MDOT Local Agency Program requirements will need to be followed. OHM will prepare or pursue the following: Program Application, State Historic Preservation Office (SHPO) clearance, Valuation Statements based on property value assessment information furnished by the City, and Buy America Certification.

## **Task 2 • Nixon Road Corridor Study • Work Plan**

### **Task 2A – Review Proposed Traffic Projections**

As the RFP noted, there are various traffic counts and vehicle volume forecasts available for the project area. Included in the available data are the trip generation and distribution estimates for the proposed developments in the area, Woodbury Club and Nixon Farms North and South. The City is asking that this information be reviewed and validated. However, since a critical objective of the corridor study is to include a multi-modal analysis, we are proposing that all new data, both vehicle and non-vehicle, be collected. Please refer to the data collection and analysis plans below.

The previously collected information will be reviewed and treated as a resource to check the new data against. While the RFP did not note the desired forecast year for the corridor study, we have subsequently learned that the City wishes to use the same horizon year as the Intersection Improvement Study prepared by Opus International Consultants, which is 2035. We will start by

placing a Transportation Data Request with WATS to obtain the current and future model information for the study area.

We generally do not use forecast data ‘out of the box’, without an understanding of the social and economic data on which they are based. Our standard practice is to evaluate the Transportation Analysis Zone (TAZ) data to see how it accounts for potential development in the area. Given the possible developments of Woodbury Club and Nixon Farms North and South, we would want to ensure that they are not double counted. We generally exercise our professional judgment to develop adjustments to the forecast numbers for use in studies.

### **Task 2B – Develop and Execute a Comprehensive, Multi -Modal Data Collection Plan**

OHM has included on our team one of the premiere firms in southeast Michigan for obtaining and processing traffic data. Traffic Data Collection, Inc. (TDC) has decades of experience, including the capture of multi-modal data. They have revolutionized the way to collect traffic data on transportation engineering projects and place a high importance on collecting bike and pedestrian data. By using video, TDC is able to collect data, and observe and record multi-modal activity and its interaction at intersections and mid-blocks, and apply this additional insight into transportation projects.

We have evaluated the study corridor area and concur with the RFP that the eight key locations to be part of the data collection effort are:

- Nixon Rd and Dhu Varren Rd/ Green Rd [current all-way STOP control, proposed roundabout]
- Nixon Rd and Traver Blvd [minor approach STOP control]
- Nixon Rd and Clauge Middle School drive [minor approach STOP control]
- Nixon Rd and Bluett Rd [minor approach STOP control]
- Nixon Rd and Aurora St [minor approach STOP control]
- Nixon Rd and Huron Pkwy [roundabout]
- Nixon Rd and Plymouth Rd [traffic signal control]
- Huron Pkwy and Plymouth Rd [traffic signal control]

### **Video Data Collection**

Collecting multi-modal data can be challenging, with the need to capture vehicles, bikes, pedestrians and transit. It’s crucial to capture how all modality is interacting with the environment and infrastructure. TDC utilizes Miovision to record the various mode types at major intersections and provides report summary details & percentages by seven (7) groupings:

1. Light vehicles: Includes FHWA Classes 1-3 (Motorcycles, Cars, Light Goods Vehicles)
2. Buses: Includes FHWA Class 4 (School Buses & Regional Transportation Metro Buses)
3. Single-Unit Trucks: Includes FHWA Classes 5-7 (2-4 Axle SU Medium Trucks)
4. Articulated Trucks: Includes FHWA Classes 8-12 (Heavy Trucks W/Single & Multi Unit Trailers)
5. Bicycles On Road: Includes all bicycles on the roadway
6. Bicycles On Crosswalk: Includes all bicycles using sidewalks
7. Pedestrians: Includes all pedestrians using crosswalks

For this project, TDC will be collecting video for all locations, concurrently, for a minimum of 24-hours. This will allow us to have turning movements at the surveyed intersections, as well as the pedestrian, bicycle and transit movements. Normally this information would only be

available through extensive observation in the field. But with video capture, TDC provides video so the project team can view the sites in the office at any time. TDC utilizes this approach and it's highly beneficial when accessing site during peak hours and off peak periods is difficult. Collecting pedestrian and bike data this way not only shows volume of activity, but allows for additional insight into pedestrian and bicyclist behavior. For example, video can show poor or dangerous pedestrian behavior such as a pedestrian running out to cross the street between gaps in vehicles. Video capture allows for recommendations which address designing for pedestrian safety.

## **Task 2C – Develop and Execute a Comprehensive, Multi -Modal Data Analysis Methodology**

### **Vehicle Analysis**

Commiserate with the multi-modal data collection is the need for multi-modal analysis of the users of the Nixon Rd corridor. Evaluating vehicle flows is relatively straightforward, as there is fundamental agreement on the methods and meanings of the standard measures of effectiveness, average delay and level of service (LOS) as defined in the Highway Capacity Manual, 2010 edition (HCM). To evaluate these factors, we proposed to utilize VISSIM software and develop a series of models of the corridor. At a minimum, we will model the a.m. and p.m. commuter peak periods, for the following alternatives:

- Existing traffic and roadway corridor conditions
- Future traffic on existing roadway corridor conditions
- Future traffic on proposed improvements to roadway corridor

We presume it is the City's goal to look at improvements that would represent the least needed to maintain a reasonable mobility for vehicles, while focusing on more significant improvements in mobility and safety for pedestrians and bicyclists. So, we believe it should be possible to achieve this with just one vehicle-focused alternative. This brings the total number of VISSIM models to six. Although VISSIM is capable of modeling roundabouts, we note that the software is best suitable for planning-level analysis. We do not feel that it has the rigor to evaluate subtle geometric differences for roundabouts. So as we have noted for Task 1 of this project, we will be relying on RODEL for detailed evaluation and design of the proposed roundabout for Nixon Rd and Dhu Varren Rd/ Green Rd.

### **Pedestrian and Bicycle Analysis**

By way of contrast, there is no such general agreement on the appropriate measures of effectiveness for pedestrians and bicyclists. The 2010 version of HCM has chapters on pedestrians and bicycles, but the results of the HCM methodologies have been criticized for failing to best represent the 'quality of service' for these modes. For example, it deals with concepts like the density of pedestrians and its impacts on flow rates and walking speed. These do not really relate to the characteristics of this corridor and how 'friendly' the roadway facility is to pedestrians. So while our analyses will include performing HCM pedestrian and bicycle LOS calculations, we will discuss with the City the possibility of also using a multi-modal scoring tool developed by the City of Charlotte, NC. Developed as part of their Urban Street Design Guidelines, this tool will allow us to consider physical characteristics in the corridor, existing and proposed, that may better address the quality of the walking and biking experience along Nixon Rd. For example, the tool would look at variables such as pedestrian crossing

distances, median refuge islands, corner radius, crosswalk treatments and signal facets such as phasing and right turns on red.

#### Safety Analysis

The RFP speaks about wanting a safety review of existing and proposed conditions, based on the Highway Safety Manual (HSM) methodology. We will use the TIA crash tool TCAT to obtain crash data for the study area for a minimum of three years to form the safety baseline. We will use a Safety Predictive Function (SPF) to estimate the expected crash frequency of the existing condition, adjusted for the anticipated future traffic volumes. We will then apply appropriate Crash Modification Factors (CMF) (HSM Vol. 3, Part D) to estimate the expected crash frequency of the proposed conditions.

#### **Task 2D – Report Preparation**

Generally, the reports will summarize data collected, traffic projections, safety analysis, vehicle, pedestrian and bicycle analysis and recommended improvements for the corridor. Submittals will include a Draft and Final Report.

Specifically, the reports will explain the measures of effectiveness chosen for each mode of travel. It will also note the modeling process, including all assumptions, operational conditions for all modes of travel including proposed improvements, a safety review for existing and proposed conditions utilizing the Highway Safety Manual methodology and documentation of the community engagement process.

#### **Task 2E – Meetings**

Once the study contract has been approved, an initial Kick- Off Meeting will be held. During the study process, OHM plans to conduct an additional (4) study related progress meetings: at the end of Task 2A (Review Proposed Traffic Projections), and Task 2B (Data Collection), which will occur concurrently, after the models of the corridor have been created in Task 2C (Analysis), and after the draft report has been submitted and reviewed by the City and an as-needed meeting. OHM will prepare and distribute minutes of all meetings. Additional participation in meetings for public engagement of the community will be necessary and are covered in Task 3.

#### **Task 3 • Communication and Community Engagement • Work Plan**

##### **Proposed Work Plan**

Project Innovations' philosophy regarding public engagement is to engage the public early and often. Successful public engagement builds trust on two levels:

- 1) trust in the project team's technical competence and
- 2) the project team's willingness to truly listen to the stakeholders.

A well publicized timeline, clearly established milestones, and easily accessible digital records offer transparency. Competently facilitated meetings and fruitful conversations will create a collaborative environment to discuss complex topics in a safe space. The keys to a successful public engagement project in Ann Arbor include:

1. Creating a safe space for the public to raise and discuss the issues relating to the project.
2. Acknowledging feedback and showing how it is being utilized by the Project Team.

3. Preparing for meetings with a relevant agenda and providing facilitation that allows for all voices to be heard.
4. Disseminating information in various methods to be sure that it is reaching a wide audience, including stakeholders such as City Council, Commissions, and Boards.
5. Translating complex technical language into simplified and easy to digest documents.

As an additional complement to our process, we will provide mentoring and coaching in public engagement facilitation to the Ann Arbor staff on the project. During 2015, Project Innovations provided extensive facilitation, public engagement, and public speaking training to city staff. We will leverage and reinforce the training with city staff as appropriate and desired throughout the project.

**Task 3A: Documentation Review**

Scan/review/absorb existing related City data (documents and video) to assess public engagement challenges and opportunities:

- Dhu Varren-Nixon-Green Intersection Improvement Projects Website
- Intersection Study Final Report (March 2015)
- December 11, 2014 Public Meeting documentation and video
- October 9, 2013 Public Meeting documentation

Deliverable: Executive Summary of Key Findings

**Task 3B: Schedule/Attend/Facilitate Project Work Group Meetings**

Deliverable: Project Work Group meeting agendas and summaries

**Task 3C: Public Engagement Strategy Development**

- a. Interview Key City Staff regarding Public Engagement Needs, starting with the Project Manager
- b. Situation Analysis: Identify key issues the Public Engagement Program will address. The issues will vary by project area as will all of the below tasks.
- c. Clarify and Integrate: Clarify objectives of the public engagement efforts for the roundabout design and corridor study. Identify opportunities for integrating the public engagement process for the two efforts
- d. Develop Message Model: Identify the five to seven key messages that must be communicated to build trust in the project team’s competence.
- e. Target Audience Lists: Using the City’s Toolkit, develop an expanded list of stakeholders, including the RFQ’s listed groups and appropriate press contacts (on-line and print, newsletters, business, local, and broadcast), and other influencers.
- f. Engagement Matrix: Create a matrix to be used to determine which stakeholder groups will be targeted for each project area.
- g. Contact Plan: Confirm interview, focus groups, advisory group and public meeting schedule.
- h. Create a Public Engagement strategy, with timeline/milestones for each phase/meeting event.
- i. Document the public engagement strategy using Ann Arbor’s Community Action Plan format

Deliverable: Community Engagement Plan

**Task 3D: Engage the Public**

a. Conduct/document up to 18 stakeholder interviews:

- 9 for the Roundabout Design
- 9 for the Corridor Study

b. Plan, facilitate, and document outcomes of four general public meetings:

- Project Introduction/Kick-off
- Concept Design Options
- Preferred Design Selection
- Next Steps

c. Plan, organize and facilitate a Nixon Road Transportation Advisory Task Force (Note – this task was not mentioned in the RFP, but our review of the prior public meetings, indicates a need for more focused interaction with the Nixon Road residential/business community. Six meetings will be conducted – three focusing on the corridor study and three focusing on the roundabout.

d. Maintain project website throughout the project, providing content as defined by the Project Manager to the City.

Deliverables:

- Develop project fact sheets for public distribution.
- Develop infographic show how roundabout and corridor study are integral to each other
- Input into the Task 3C, Final Community Engagement Report with appropriate interview, focus group and meeting documentation.

**Task 3E: Post Project Communication:**

Project Innovations will develop a 3 to 5 minute close out video documenting the process and results of the Corridor Study only.

Deliverable: 3 to 5 minute project close out video.

## Schedule of Key Dates

### Task 1 • Intersection Improvement Design

<b>03/2016</b>	Kick-Off Meeting
<b>06/2016</b>	MDEQ Pre-Application Meeting
<b>06/2016</b>	Submit Base Plans (30%) and ROW
<b>07/2016</b>	Base Plan Review Meeting
<b>09/2016</b>	Submit Preliminary Plans (70%), Specifications, and Estimates
<b>09/2016</b>	MDEQ Permit Application
<b>10/2016</b>	Preliminary Review (GI) Meeting
<b>12/2016</b>	Submit Pre-Final Plans (95%), Specifications, and Estimates
<b>01/2017</b>	Pre-Final Review Meeting
<b>02/2016</b>	Submit Bid Package of Final Contract Documents
<b>02/2017</b>	Addenda (if necessary)
<b>03/2017</b>	Bid Letting by City of Ann Arbor or MDOT LAP

### Task 2 • Corridor Study

<b>03/2016</b>	Kick-Off Meeting
<b>03/2016</b>	Traffic Projections/ Data Review Meeting
<b>05/2016</b>	Modeling and Analysis Meeting
<b>07/2016</b>	Draft Report Review Meeting

### Task 3 • Engagement

<b>04/2016</b>	Public Meeting- Project Introduction/ Kick-Off
<b>06/2016</b>	Public Meeting- Concept Design Options
<b>08/2016</b>	Public Meeting- Preferred Design Selection
<b>12/2016</b>	Public Meeting- Next Steps



ALLOCATION OF STAFF RESOURCES

OHM Job Number: JN: 19D PROJECT DESCRIPTION: Nixon / Green / Dinu Varren Roads Intersection Improvement Project and  
 CONSULTANT NAME: OHM Address: Nixon Road Corridor Traffic Study Rfp #955

Task	Task Description	Staff Classification	Billing Rate	Task Allocation												Total Hours For This Task	Total Cost For This Task	
				Prof. Eng. IV	Asst. Eng. IV	Asst. Eng. III	Prof. Eng. IV	Asst. Eng. IV	Asst. Eng. III	Prof. Eng. III	Subcontractant - See below	Eng. Tech. III	Surveyor III	Surveyor II	LS Arch II			Eng. Tech. I
Task 1: Intersection Improvement Design																		
1A	Draft Research and Utility Coordination	OHM	\$ 155	4														
1B	Geographic Route Survey	OHM	\$ 125	12														
1C	Geotechnical Investigation	OHM	\$ 125	4														
1D	Vertical Alignment and MDEQ Permitting	OHM	\$ 125	4														
1E	Horizontal and Vertical Roadway Alignments	OHM	\$ 125	4														
1F	Storm Water Management	OHM	\$ 125	4														
1G	Street Lighting	OHM	\$ 125	4														
1H	Professional, Electrical and Landscaping	OHM	\$ 125	4														
1I	Temporary Traffic Control (Assume 14 Sheets)	OHM	\$ 125	4														
1J	Design Meetings	OHM	\$ 125	4														
1K	Design Meetings	OHM	\$ 125	4														
1L	Design Meetings	OHM	\$ 125	4														
1M	Preliminary Plans (70%) and Specifications	OHM	\$ 125	4														
1N	Preliminary Plans (95%) and Specifications	OHM	\$ 125	4														
1O	Proprietary Plans Comments & Revisions Contract Documents	OHM	\$ 125	4														
1P	QA/QC, Revisions & Final Review	OHM	\$ 125	4														
1Q	QA/QC, Revisions & Final Review	OHM	\$ 125	4														
1R	Revisions (Assume 14 Sheets) (If Necessary)	OHM	\$ 125	4														
1S	MDOT L&E Specific Activities	OHM	\$ 125	4														
Task 2: Nixon Road Corridor Study																		
2A	Review Proposed Traffic Projections	OHM	\$ 125	2														
2B	Develop and Execute a Comprehensive, Multi-Modal Data Collection Plan	OHM	\$ 125	2														
2C	Develop and Execute a Comprehensive, Multi-Modal Analysis Methodology	OHM	\$ 125	4														
2D	Report Preparation	OHM	\$ 125	4														
2E	Meetings	OHM	\$ 125	20														
Task 3: Communication and Community Engagement																		
3A	Documentation Review	OHM	\$ 125	4														
3B	Schedule/Attend/Rehearse Project Work Group Meetings	OHM	\$ 125	6														
3C	Public Engagement Strategy Development	OHM	\$ 125	64														
3D	Engage the Public	OHM	\$ 125	2														
3E	Post-Project Communication	OHM	\$ 125	2														
Subtotal: Environmental, Vertical Alignment, Traffic Data Collection, Multi-Modal Data Collection																		
Subtotal: G2 Consulting Group - Geotechnical Investigation																		
Subtotal: Project Innovations - ORRapid Productions																		
Subtotal: Project Innovations - Expenses																		
Total Hours by Staff Resource - Plan																		
TOTAL HOURS FOR ALL TASKS																		
TOTAL COST FOR ALL TASKS																		
\$ 458,076																		

Hours not calculated: Subconsultant services will be lump sum.  
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