

**AGREEMENT BETWEEN
OWNER AND ENGINEER**

THIS AGREEMENT is dated as of the _____ day of _____
in the year 2011, by and between CITY OF WEST LAFAYETTE, INDIANA, 609 West Navajo
Street, West Lafayette, IN 47906, hereinafter called the **OWNER** and

BUTLER, FAIRMAN and SEUFERT, INC.
8450 Westfield Boulevard, Suite 300
Indianapolis, Indiana 46240

hereinafter called the **ENGINEER**.

WITNESSETH

WHEREAS the **OWNER** requires professional engineering services in connection with the
following described project:

West Lafayette and Purdue Traffic Study

WHEREAS, the **OWNER** wishes to engage the **ENGINEER** to provide certain services
pertaining thereto; and

WHEREAS, the **ENGINEER** represents that it has sufficient qualified personnel and
equipment and is capable of performing the professional engineering services described herein;
is a corporation qualified to do business in the State of Indiana; and the services described
herein will be performed under the supervision of an engineer licensed to practice in the State of
Indiana.

The **OWNER** and the **ENGINEER**, in consideration of the mutual covenants hereinafter set
forth, agree as follows:

SECTION I SERVICES BY ENGINEER

The services to be provided by the **ENGINEER** under this Agreement are set out in
Appendix "A", attached to this Agreement, and made an integral part hereof.

SECTION II INFORMATION AND SERVICES TO BE FURNISHED BY OWNER

The information and services to be furnished by the **OWNER** are set out in Appendix
"B", attached to this Agreement, and made an integral part hereof.

SECTION III NOTICE TO PROCEED AND SCHEDULE

The **ENGINEER** shall begin the work to be performed under this Agreement upon
receipt of the written notice to proceed from the **OWNER**, and shall deliver the work to the
OWNER in accordance with the schedule contained in Appendix "C", attached to this
Agreement, and made an integral part hereof. The **ENGINEER** shall not begin work prior to
the date of the notice to proceed.

This Agreement shall be applicable to all assignments authorized by the **OWNER** and accepted by the **ENGINEER** subsequent to the date of execution and shall be effective as to all assignments authorized.

SECTION IV COMPENSATION

The **ENGINEER** shall receive payment for the work performed under this Agreement as set forth in Appendix "D", attached to this Agreement, and made an integral part hereof.

SECTION V MISCELLANEOUS PROVISIONS

Miscellaneous Provisions are set out in Appendix "E", attached to this Agreement, and made an integral part hereof.

SECTION VI GENERAL PROVISIONS

1. **Work Office**

The **ENGINEER** shall perform the work under this Agreement at the following office(s):

10 North 3rd Street, Lafayette, Indiana, 47901

2. **Employment**

During the period of this Agreement, the **ENGINEER** shall not engage, on a full or part time or other basis, any personnel who remain in the employ of the **OWNER**.

3. **Subletting and Assignment**

The **ENGINEER** and its subcontractors, if any, shall not assign, sublet, subcontract, or otherwise dispose of the whole or any part of the work under this Agreement without prior written consent of the **OWNER**. Consent for such assignment shall not relieve the **ENGINEER** of any of its duties or responsibilities hereunder.

4. **Use and Ownership**

All reports, tables, figures, drawings, specifications, boring logs, field data, field notes, laboratory test data, calculations, estimates and other documents prepared by the **ENGINEER** as instruments of service, shall remain the property of the **ENGINEER** and the **OWNER**.

The **ENGINEER** will retain all pertinent records relating to the services performed for a period of five (5) years following performance of work, during which period the records will be made available to the **OWNER** at all reasonable times.

The **ENGINEER** agrees that the **OWNER** is not required to use any plan, report, drawing, specifications, advice, map, document or study prepared by the **ENGINEER** and the **ENGINEER** waives all right of redress against the **OWNER** if the **OWNER** does not utilize same. Any modification, amendment, misuse of any of the **ENGINEER's** work by the **OWNER** or actions that disregard the **ENGINEER's** recommendations to the **OWNER** shall release the **ENGINEER** from any and all liability in connection with such work modified, amended or misused thereafter

and the **OWNER** shall not use the **ENGINEER's** name thereon without the expressed approval of the **ENGINEER**.

5. **Compliance with State and Other Laws**

The **ENGINEER** specifically agrees that in performance of the services herein enumerated by **ENGINEER** or by a subcontractor or anyone acting in behalf of either, that each will comply with all State, Federal, and Local Statutes, Ordinances, and Regulations.

6. **Professional Responsibility**

The **ENGINEER** will exercise reasonable skill, care, and diligence in the performance of services and will carry out all responsibilities in accordance with customarily accepted professional engineering practices. If the **ENGINEER** fails to meet the foregoing standard, the **ENGINEER** will perform at its own cost, and without reimbursement from the **OWNER**, the services necessary to correct errors and omissions which are caused by the **ENGINEER's** failure to comply with above standard, and which are reported to the **ENGINEER** within one (1) year from the completion of the **ENGINEER's** services for the Project.

In addition, the **ENGINEER** will be responsible to the **OWNER** for damages caused by its negligent conduct during **ENGINEER's** activities at the Project site or in the field to the extent covered by the **ENGINEER's** Comprehensive General Liability and Automobile Liability Insurance.

The **ENGINEER** shall not be responsible for errors, omissions or deficiencies in the designs, drawings, specifications, reports or other services of the **OWNER** or other consultants, including, without limitation, surveyors and geotechnical engineers, who have been retained by **OWNER**. The **ENGINEER** shall have no liability for errors or deficiencies in its designs, drawings, specifications and other services that were caused, or contributed to, by errors or deficiencies (unless such errors, omissions or deficiencies were known or should have been known by the **ENGINEER**) in the designs, drawings, specifications and other services furnished by the **OWNER**, or other consultants retained by the **OWNER**.

7. **Status of Claims**

The **ENGINEER** shall be responsible for keeping the **OWNER** currently advised as to the status of any known claims made for damages against the **ENGINEER** resulting from services performed under this Agreement. The **ENGINEER** shall send notice of claims related to work under this Agreement to the **OWNER**.

8. **Insurance**

The **ENGINEER** shall at its own expense maintain in effect during the term of this contract the following insurance with limits as shown or greater:

General Liability (including automobile) - combined single limit of \$1,000,000.00;

Worker's Compensation - statutory limit; and

Professional Liability for protection against claims arising out of performance of professional services caused by negligent error, omission, or act in the amount of \$1,000,000.00.

The **ENGINEER** shall provide Certificates of Insurance indicating the aforesaid coverage upon request of the **OWNER**.

9. **Status Reports**

The **ENGINEER** shall furnish a monthly Status Report to the **OWNER** by the fifteenth (15th) of each month.

10. **Changes in Work**

In the event that either the **OWNER** or the **ENGINEER** determine that a major change in scope, character or complexity of the work is needed after the work has progressed as directed by the **OWNER**, both parties in the exercise of their reasonable and honest judgment shall negotiate the changes and the **ENGINEER** shall not commence the additional work or the change of the scope of the work until a supplemental agreement is executed and the **ENGINEER** is authorized in writing by the **OWNER** to proceed.

11. **Delays and Extensions**

The **ENGINEER** agrees that no charges or claim for damages shall be made by it for any minor delays from any cause whatsoever during the progress of any portion of the services specified in this Agreement. Any such delays shall be compensated for by an extension of time for such period as may be determined by the **OWNER**, subject to the **ENGINEER's** approval. However, it being understood, that the permitting of the **ENGINEER** to proceed to complete any services, or any part of them after the date to which the time of completion may have been extended, shall in no way operate as a waiver on the part of the **OWNER** of any of its rights herein.

12. **Abandonment**

Services may be terminated by the **OWNER** and the **ENGINEER** at any time without cause upon 30 days written notice. If so abandoned, the **ENGINEER** shall deliver to the **OWNER** copies of all data, reports, drawings, specifications and estimates completed or partially completed along with a summary of the progress of the work completed within twenty (20) days of the abandonment. In the event of the failure by the **ENGINEER** to make such delivery upon demand, then and in that event the **ENGINEER** shall pay to the **OWNER** any damages sustained by reason thereof. The earned value of the work performed shall be based upon an estimate of the portions of the total services as have been rendered by the **ENGINEER** to the date of the abandonment for all services to be paid for on a lump sum basis. The **ENGINEER** shall be compensated for services properly rendered prior to the effective date of abandonment on all services to be paid on a cost basis or a cost plus fixed fee basis. The payment as made to the **ENGINEER** shall be paid as the final payment in full settlement and release for the services hereunder.

13. **Non-Discrimination**

Pursuant to Indiana and Federal Law, the **ENGINEER** and **ENGINEER's** subcontractors, if any, shall not discriminate against any employee or applicant for employment, to be employed in the performance of work under this Agreement, with respect to hire, tenure, terms, conditions or privileges of employment or any matter directly or indirectly related to employment because of race, color, religion, sex, disability, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the Agreement.

14. **Employment Eligibility Verification.**

The **ENGINEER** affirms under the penalties of perjury that it does not knowingly employ an unauthorized alien.

The **ENGINEER** shall enroll in and verify the work eligibility status of all its newly hired employees through the E-Verify program as defined in IC 22-5-1.7-3. The **ENGINEER** is not required to participate should the E-Verify program cease to exist. Additionally, the **ENGINEER** is not required to participate if the **ENGINEER** is self-employed and does not employ any employees.

The **ENGINEER** shall not knowingly employ or contract with an unauthorized alien. The **ENGINEER** shall not retain an employee or contract with a person that the **ENGINEER** subsequently learns is an unauthorized alien.

The **ENGINEER** shall require its subconsultant, who perform work under this Contract, to certify to the **ENGINEER** that the subconsultant does not knowingly employ or contract with an unauthorized alien and that the subconsultant has enrolled and is participating in the E-Verify program. The **ENGINEER** agrees to maintain this certification throughout the duration of the term of a contract with a sub-consultant.

The **OWNER** may terminate for default if the **ENGINEER** fails to cure a breach of this provision no later than thirty (30) days after being notified by the **OWNER**.

15. **Successor and Assigns**

The **OWNER** and the **ENGINEER** each binds themselves and successors, executors, administrators and assigns to the other party of this Agreement and to the successors, executors, administrators and assigns of such other party, in respect to all covenants of this Agreement; except as above, neither the **OWNER** and the **ENGINEER** shall assign, sublet or transfer their interest in the Agreement without the written consent of the other.

16. **Supplements**

This Agreement may only be amended, supplemented or modified by a written document executed in the same manner as this Agreement.

17. **Governing Laws**

This Agreement and all of the terms and provisions shall be interpreted and construed according to the laws of the State of Indiana. Should any clause, paragraph, or other part of this Agreement be held or declared to be void or illegal, for any reason, by any court having competent jurisdiction, all other causes, paragraphs or part of this Agreement, shall nevertheless remain in full force and effect.

This Agreement contains the entire understanding between the parties and no modification or alteration of this Agreement shall be binding unless endorsed in writing by the parties thereto.

This Agreement shall not be binding until executed by all parties.

18. **Independent Engineer**

In all matters relating to this Agreement, the **ENGINEER** shall act as an independent engineer. Neither the **ENGINEER** nor its employees are employees of the **OWNER** under the meaning or application of any Federal or State Laws or Regulations and the **ENGINEER** agrees to assume all liabilities and obligations imposed in the performance of this Agreement. The **ENGINEER** shall not have any authority to assume or create obligations, expressed or implied, on behalf of the **OWNER** and the **ENGINEER** shall have no authority to represent as agent, employee, or in any other capacity than as set forth herein.

19. **Rights and Benefits**

The **ENGINEER's** services will be performed solely for the benefit of the **OWNER** and not for the benefit of any other persons or entities.

20. **Disputes**

All claims or disputes of the **ENGINEER** and the **OWNER** arising out of or relating to the Agreement, or the breach thereof, shall be first submitted to non-binding mediation. If a claim or dispute is not resolved by mediation, the party making the claim or alleging a dispute shall have the right to institute any legal or equitable proceedings in a court located within the county and state where the project is located.

21. **Limitation of Liability**

To the maximum extent permitted by law, the **OWNER** agrees to limit the **ENGINEER's** liability for the **ENGINEER's** damages to the sum of \$1,000,000.00 limit of Professional Liability insurance. This limitation shall apply regardless of the cause of action or legal theory pled or asserted.

22. **Litigation**

In the event litigation is commenced to enforce any term or condition of this agreement, the prevailing party shall be entitled to reasonable litigation costs including a reasonable attorney fee.

IN WITNESS WHEREOF, the **OWNER** and the **ENGINEER** have signed this Agreement in duplicate. One counterpart each has been delivered to the **OWNER** and the **ENGINEER**.

This Agreement will be effective on _____, 2011.

ENGINEER:

BUTLER, FAIRMAN and SEUFERT, INC.

OWNER:

CITY OF WEST LAFAYETTE
REDEVELOPMENT COMMISSION

Michael A. Smith, Executive V.P.

Lawrence T. Oates, President

Attest:

Linda M. Sorensen, Recording Secretary

APPENDIX "A"

SERVICES BY ENGINEER

A. BRIEF PROJECT DESCRIPTION

The purpose of this traffic study is to compare the individual transportation concepts from both the current Regional Transportation Plan and the current Purdue Master Plan; and then provide future roadway recommendations based on the best individual concepts from each plan. The analysis will focus on the vehicular traffic operations of the major intersections that will impact the Chauncey Hill development district and the Perimeter Parkway phases 1A-2 and 1B (study areas #1, 2 and 3). The attached "Figure 1 - Intersections for Study Areas #1, 2 and 3" illustrates the intersections that will be analyzed for study areas #1, 2 and 3.

The results of this study can be used as justification to amend the Regional Transportation Plan or the Purdue Master Plan if needed. In addition, the roadway design efforts for future phases of the proposed Perimeter Parkway will benefit from the consensus that would be made between the transportation concepts of each plan.

B. DETAILED PROJECT DESCRIPTION

TRANSPORTATION PLAN ANALYSIS

In February 2005, TCAPC made an amendment to the "Transportation Plan for 2025" in order to adopt the Perimeter Parkway concept as well as other roadway improvements within the Purdue area. The concepts adopted into the amendment have since remained for the "Transportation Plan for 2030", which was adopted by the TCAPC in June 2006 and amended in June 2007. This represents the current Regional Transportation Plan.

In February 2009, the master plan for the Purdue campus was updated by the report titled "Purdue University West Lafayette Master Plan Report" as developed by Sasaki Associates, Inc. This current Purdue Master Plan introduces new concepts for the Purdue area roadway network that would require revisions to the current Regional Transportation Plan. The following briefly summarizes the potential revisions:

STUDY AREA #1: VILLAGE AREA AND CHAUNCEY HILL AREA

- Converting the one-way streets of Grant, Andrew, Pierce, Northwestern, Chauncey (south of State) and Wood to two-way streets.
- Converting the two-way streets of Chauncey (north of State) and Salisbury (north of State) to one-way streets.
- Moving the eastern edge of the Perimeter Parkway from Grant/Chauncey/Northwestern to South River Road.

STUDY AREA #2: STATE STREET

- Relocating the limited access portion (limited to pedestrians, bicycle, transit, emergency vehicles) from the center of campus to the western edge of campus.
- Converting all one-way segments of State Street to two-way segments.

STUDY AREA #3: UNIVERSITY, MARSTELLAR AND SHEETZ

- Converting these one-way streets to two-way streets.

STUDY AREA #4: JISCHKE, STEVEN BEERING, UNIVERSITY AND CHERRY

- Maintaining the existing directional traffic pattern along roadways surrounding the football and basketball stadiums.
- Eliminating the proposed extension of Jischke Drive north of Tower Drive and eliminating the re-alignment of Cherry Lane.

STUDY AREA #5: JISCHKE, RUSSELL, WALDRON, UNIVERSITY AND THIRD

- Converting the one-way streets of Russell, Waldron and University to two-way streets.
- Converting the limited access portions (limited to pedestrians, bicycle, transit, emergency vehicles) along Jischke, University and Third to full access roadways (allowing for all vehicular traffic).

STUDY AREA #6: HARRISON, NIMITZ, HALSEY, ARNOLD AND AIRPORT

- Extend McCarthur Drive south from State Street to the southern border of the proposed Perimeter Parkway.
- In addition, the following briefly summarizes a major difference between the current Regional Transportation Plan and the September 2001 report titled "Purdue University Transportation and Parking Plan". This transportation concept is currently under discussion by local stakeholders:

The current regional Transportation Plan shows the southwest border of the Perimeter Parkway as a proposed roadway that extends south of the married student housing. In contrast, the September 2001 report shows that the existing alignment of Nimitz Drive would serve as the southwest border of the Perimeter Parkway.

Since it is essential for the Regional Transportation Plan to address the transportation needs of the Purdue Master Plan, a "Transportation Plan Analysis" of the revisions proposed by the Purdue Master Plan would be desirable. The Transportation Plan Analysis would compare the individual transportation concepts from both the current Regional Transportation Plan and the current Purdue Master Plan; and then provide future roadway recommendations based on the best individual concepts from each plan. This analysis would address the "larger scale" transportation concepts including:

1. Roadway classification
2. Direction of travel
3. Number of travel lanes
4. Intersection traffic control

TRAFFIC IMPACT ANALYSIS FOR DEVELOPMENT DISTRICTS

The Purdue Research Foundation has created a "Commercial Development Master Plan" dated May 27th, 2010. The plan outlines several "development districts" within the West Lafayette and Purdue area to be re-developed. Other development plans may also exist

which outline additional development districts within this area. The traffic generated by the development of these districts will have an impact to the entire transportation network of the Purdue campus; but the most impacted areas would be immediately surrounding the districts. A "Traffic Impact Analysis" of these development districts would address the "smaller scale" transportation concepts for the transportation network immediately surrounding the districts. These smaller scale concepts would include:

1. Conceptual roadway cross-sections
2. Detailed intersection lane configuration
3. Auxiliary lane lengths
4. Access drive locations

However, these smaller scale transportation concepts associated with the development districts cannot be addressed until the larger scale concepts associated with Transportation Plan Analysis are first addressed.

C. SCOPE OF WORK

The analysis will be split into the "phases" listed below. This is to provide information in a timely manner so as not to hinder the development of the Chauncey Hill district or the design efforts of the next phases of the Perimeter Parkway (Phase 1A-2 and Phase 1B). Some of these phases will be performed at a later date as necessary with the exact scope, schedule and fee to be determined.

PHASE #1: TRAFFIC DATA COLLECTION (STUDY AREAS #1, 2 AND 3)

Peak hour vehicular turning movement traffic volume counts (intersection counts) will be performed at the study intersections by the **ENGINEER** in order to establish a baseline of traffic operations. During the spring semester of 2008, the Lafayette office of Butler, Fairman & Seufert (previously known as HE-BFS, Inc.) performed approximately 55 intersection counts within the study area. These counts are summarized in a report titled "Purdue Traffic Model Data Collection Phase 1" and dated May 19th, 2008. These intersection counts will be used for this study to minimize the number of new intersection counts needed.

This results in approximately 30 new intersection counts that will need to be collected for study areas #1, 2 and 3. The attached "Figure 1 - Intersections for Study Areas #1, 2 and 3" shows the locations of the 2008 counts and the new intersection counts. These traffic counts will be used for Phase #2: Transportation Plan Analysis (Study Areas #1, 2 and 3) and Phase #3: Traffic Impact Analysis for Development Districts (Study Area #1).

PHASE #2: TRANSPORTATION PLAN ANALYSIS (STUDY AREAS #1, 2 AND 3)

The Transportation Plan Analysis will compare the individual transportation concepts from both the current Regional Transportation Plan and the current Purdue Master Plan; and then provide future roadway recommendations based on the best individual concepts from each plan. This plan will recommend the larger scale transportation concepts for these study areas which include the roadway classification, direction of travel, number of travel lanes and intersection traffic control.

1. STUDY PARAMETERS

- a) Study Area - This traffic study will focus on the vehicular traffic operations of the major intersections in and around the Chauncey Hill development district and Phases 1A-2 and 1B of the Perimeter Parkway that would be affected by the transportation revisions proposed by the Purdue Master Plan (Study Areas #1, #2 and #3). These revisions are briefly summarized on pages 1 and 2 of Appendix A. It is anticipated that approximately 85 intersections total (including parking garage entrances/exits) would need to be reviewed for the study. The level of review at each individual intersection will vary based on the needs of the study, with some intersections requiring only data collection, while most will require data collection, traffic forecasting and capacity analysis. The attached "Figure 1 - Intersections for Study Areas #1, 2 and 3" shows the locations of the study area intersections.
- b) Horizon Year - A horizon year is used for traffic analyses to project future traffic operations. The horizon year is typically 20 years in the future, which could possibly be year 2030 or year 2035. The exact horizon year will be determined during the course of the study with input from stakeholders. However, only one (1) horizon year will be used for this analysis.
- c) Peak Hour - The peak hour of a transportation network is the hour of the day which typically experiences the highest traffic volume. Roadway improvements that can accommodate the peak hour traffic will most likely accommodate the traffic operations for the remaining hours of the day. Previous traffic data collection and traffic analysis performed in this area indicates that the typical weekday PM peak hour (usually Monday thru Thursday) is between 4:30 PM and 5:30 PM. Therefore, the PM peak hour will be analyzed for this study.
- d) Transportation Network Scenarios - The following transportation network scenarios will be analyzed:
 - Scenario 1: current Regional Transportation Plan
 - Scenario 2: current Purdue Master Plan
 - Scenario 3: Recommended Plan
(Incorporates the best individual transportation concepts from each of the current plans)

Each scenario will include within it:

- One (1) overall roadway network concept including roadway classification scheme and directional scheme (which streets are one-way, two-way or closed to through traffic). The overall roadway network concepts identified in the most current versions of the Regional Transportation Plan and the Purdue Master Plan will be used. Specific details of each plan will be further defined during the course of the study with input from stakeholders.
- One (1) future land use assumption scheme that is anticipated for the horizon year. Land use assumptions are needed for all six study areas as traffic from the land development within any given study area will have an impact to the remaining study areas. A future land use assumption scheme includes the locations for land development (aka development districts), the land use type (academic, residential, retail, parking facilities) and the land use size (building square footages, number of dwelling units, estimated

parking capacity). This may also include assumptions that the existing land uses within a particular area will remain the same.

The accuracy of future land use assumptions requires intimate knowledge of the local area. Therefore, significant input from the planning departments of West Lafayette, Purdue University, Purdue Research Foundation and TCAPC will be required to determine the future land use assumption scheme. It is anticipated that the planning departments will be able to provide to the **ENGINEER** detailed assumptions for the land use of any future land development within study areas #1, 2, 3, 4, 5 and 6. This could include maps and spreadsheets detailing the land use type, sizes and locations. The **ENGINEER** will then be responsible for translating the provided land use assumptions into future vehicular traffic volumes to be used for the analyses. If several assumptions are provided for a particular development district, the assumption which provides the “worst case vehicle traffic” will be used for the analyses.

2. OTHER DATA COLLECTION

- a) Existing Intersection Field Data - The existing traffic control (traffic signal head configurations and regulatory signs), speed limits and lane geometry (number of left-turn, through and right-turn lanes) will be collected at each study area intersection by the **ENGINEER**. The existing intersection data will be used for determining the future traffic control and lane geometry anticipated at each study intersection for each of the transportation network scenarios.
- b) Aerials and Right-of-Way - The most current aerials will be obtained from publicly available sources. In addition, right-of-way information from local GIS sources will be obtained. This planning level information will be used for the traffic analysis to verify if the anticipated future lane geometry can be accommodated within the existing pavement or right-of-way.
- c) CityBus Operations - The **ENGINEER** will obtain existing and anticipated bus routes and schedules for the study area from CityBus.
- d) Existing Studies - The **ENGINEER** will obtain copies of any relevant studies that have been previously performed in the area. The **ENGINEER** may require the assistance of the stakeholders in obtaining the studies.

3. TRAFFIC FORECASTING

- a) Development District Generated Traffic - As discussed under Transportation Network Scenarios, it is anticipated that the planning departments will be able to provide to the **ENGINEER** detailed assumptions for the land use of any development districts within study areas #1, 2, 3, 4, 5 and 6. The **ENGINEER** will then be responsible for translating the provided land use assumptions into future vehicular traffic volumes to be used for the analysis.
- b) Growth Rates - Projecting future traffic volumes will also require the use of growth rates. It is anticipated that the TCAPC will be able to provide the **ENGINEER** with existing and future Average Daily Traffic (ADT's) along key study area roadways. The **ENGINEER** will use these ADT's to calculate annual growth rates in traffic volumes and will apply the growth rates accordingly to project future PM peak hour

traffic volumes at the study area intersections. It is also anticipated that Purdue University will be able to provide the **ENGINEER** with existing and future student enrollment numbers. The **ENGINEER** will use the enrollment numbers to determine traffic volume growth rates and future intersection traffic volumes.

- c) Traffic Volume Projections - The **ENGINEER** will use the intersection counts, the land use assumptions and the growth rate data to project the horizon year PM peak hour vehicular traffic volumes for each study area intersection for each transportation network scenario. These traffic volume projections will then be used to analyze the study area intersections in order to compare the traffic operations between each transportation network scenario.

4. TRAFFIC ANALYSIS

- a) Vehicular Traffic Analysis - An extensive, “quantitative” traffic analysis will be made to compare the vehicular traffic operations between the transportation network scenarios. This analysis will consist of the following at each of the study area intersections for each scenario:
- Summarizing the projected horizon year, PM peak hour traffic volumes.
 - Performing a “Capacity Analysis” of the projected traffic volumes based on the most current version of the “Highway Capacity Manual (HCM)”. The HCM is the most widely recognized set of equations for determining the capacity of roadway networks and their ability to accommodate traffic volumes. The results of the capacity analysis provide a report-card like rating system called “Level of Service”. This system will rate the study area intersections from level of service “A” to “F” based on the typical delay that is anticipated for each vehicle traveling through the intersection. The most current and recognized software programs will be used to automate the capacity analysis.
 - Performing a “Vehicle Queue Length Analysis” of the projected traffic volumes using “2D micro-simulation” software. A vehicle queue length is the typical distance from the stop bar of an intersection to the tail end of the last vehicle waiting at the intersection. Queue lengths that extend from one intersection back into another are undesirable. Micro-simulation programs visually simulate the traffic operations of a roadway network with either two-dimensional (2D) or 3D vehicles, allowing the analyst to visually see where traffic problems occur. Performing a queue length analysis with the micro-simulation software will provide a visual representation of each transportation network scenario. This will show any potential capacity deficiencies of each network that would cause excessive vehicle delays or queue lengths that might extend back into the next intersection.
- b) Qualitative Assessment of Pedestrians - A “qualitative” assessment will be made to compare the pedestrian and bicycle operations between the transportation network scenarios. A qualitative assessment is defined as general verbal descriptions of the operations using “engineering judgment”, as opposed to extensive quantitative analysis which is based on numerical data and calculated formulas. An example format for a results summary of the qualitative assessment would be a table listing the pros and cons related to the pedestrian operations of each scenario.

The assessment will be based on existing data and results that have been published in previous studies for the area as well as any information that can be provided by the stakeholders. No new pedestrian or bicycle counts will be collected nor will any numerical projections be made as part of this study.

- c) Qualitative Assessment of Parking - A “qualitative” assessment will be made to compare the accommodation of parking facilities between the transportation network scenarios. The assessment will be based on existing data and results that have been published in previous studies for the area as well as any information that can be provided by the stakeholders. No new parking data will be collected nor will any numerical projections be made as part of this study.
- d) Qualitative Assessment of CityBus - A “qualitative” assessment will be made to compare the bus operations between the transportation network scenarios. The assessment will be based primarily on input from CityBus and other stakeholders as they will have the most insight on how each scenario will affect bus schedules and routes.
- e) Qualitative Assessment of Site Access - A “qualitative” assessment will be made to compare site access between the transportation network scenarios. This relates to the ability of vehicular traffic to access specific sites within the study area including Purdue facilities, private residential dwellings and commercial businesses.

5. REPORT

- a) Draft Reports - A completed draft report will be provided to the stakeholders for their review.
- b) Final Reports - A finalized report will be provided after review from the stakeholders.
- c) Deliverables - The report will include the following:
 - Both PDF and hard copy formats.
 - Description of the analysis process.
 - Summary of results which compare the transportation network scenarios based on the “quantitative” vehicular traffic analysis and the “qualitative” assessments of pedestrians, parking, CityBus and site access. This will provide a comparison of traffic operations between the current Regional Transportation Plan and the current Purdue Master Plan.

A “Recommended Plan” will be made for the study area roadway network based on the traffic operations comparison and input from stakeholders. This “Recommended Plan” will summarize the individual transportation concepts from the current Regional Transportation Plan and the current Purdue Master Plan that will best accommodate the anticipated future traffic operations. Recommendations for the “Recommended Plan” will include the roadway classification, direction of travel, number of travel lanes and intersection traffic control.

- Exhibits summarizing the collected intersection traffic volumes, the projected horizon year PM peak hour traffic volumes, a general description of each transportation network scenario (roadway classification, direction of travel, number of travel lanes, intersection traffic control), the projected

intersection level of service for each scenario and finally an exhibit which summarizes the “Recommended Plan” (roadway classification, direction of travel, number of travel lanes, intersection traffic control).

- Appendices summarizing the collected intersection counts, the capacity analysis software output and stakeholder input.

6. STAKEHOLDER MEETINGS

Meetings may be needed between the **ENGINEER** and the stakeholders to confirm the basic study assumptions made by the **ENGINEER** for the following:

- a) Study Parameters - the study area, horizon year, peak hour and the specifics of each transportation network scenario.
- b) Data Collection - collected data for the analysis such as CityBus routes and schedules, aerials, GIS right-of-way information and existing studies that have been previously performed in the area.
- c) Land Use Assumptions - the anticipated land use assumptions (future development or re-development, location, type, size) for each transportation network scenario.
- d) Growth Rates - information necessary to calculate the traffic volume and student enrollment growth rates.
- e) Draft Report - to discuss the initial findings of the analysis.
- f) Final Report - to discuss the finalized findings of the analysis.

PHASE #3: TRAFFIC IMPACT ANALYSIS FOR DEVELOPMENT DISTRICTS (STUDY AREA #1)

The Transportation Plan Analysis (Study Areas #1, 2 and 3) will address the differences between the current Regional Transportation Plan and the current Purdue Master Plan by providing a Recommended Transportation Plan. This plan will recommend the larger scale transportation concepts for these study areas which include the roadway classification, direction of travel, number of travel lanes and intersection traffic control.

After the larger scale transportation concepts are addressed for study areas #1, 2 and 3, the smaller scale transportation concepts can be addressed for the roadway network immediately surrounding the development districts within study area #1. The Traffic Impact Analysis will address these smaller scale transportation concepts for the Chauncey Hill development district within study area #1. These smaller scale concepts include conceptual roadway cross-sections, detailed intersection lane configuration, auxiliary lane lengths and access drive locations.

Similar traffic analyses performed for the Transportation Plan Analysis will be performed for the Traffic Impact Analysis including vehicle capacity analysis, vehicle queue length analysis and qualitative assessments of pedestrians / parking / CityBus / site access. Deliverables will include both PDF and hard copies of the report and exhibits summarizing the projected traffic and recommended transportation concepts.

PHASE #4: TRAFFIC IMPACT ANALYSIS FOR DEVELOPMENT DISTRICTS (STUDY AREA #2)

To be performed at a later date as necessary. The exact scope, schedule and fee to be determined.

PHASE #5: TRAFFIC IMPACT ANALYSIS FOR DEVELOPMENT DISTRICTS (STUDY AREA #3)

To be performed at a later date as necessary. The exact scope, schedule and fee to be determined.

PHASE #6: TRAFFIC DATA COLLECTION (STUDY AREAS #4, 5, AND 6)

To be performed at a later date as necessary. The exact scope, schedule and fee to be determined.

PHASE #7: TRANSPORTATION PLAN ANALYSIS (STUDY AREAS #4, 5, AND 6)

To be performed at a later date as necessary. The exact scope, schedule and fee to be determined.

PHASE #8: TRAFFIC IMPACT ANALYSIS FOR DEVELOPMENT DISTRICTS (STUDY AREAS #4, 5, AND 6)

To be performed at a later date as necessary. The exact scope, schedule and fee to be determined.

D. EXCLUSIONS

The following items will not be performed by the **ENGINEER** or provided as part of this agreement.

1. The preparation of economic development plans, market overview plans or campus master planning relating to the transportation network scenarios.
2. Land use planning or the determination of land assumptions for the transportation network scenarios.
3. The results of this study can be used to justify the amendment of the “Transportation Plan for 2030” or possibly an amendment to the “Purdue University West Lafayette Master Plan Report”. However, this agreement does not include any work that may be necessary by the **ENGINEER** during the amendment process of either plan.
4. This agreement does not include any work that may be necessary by the **ENGINEERING** during the site plan approval process for any of the development districts.

5. The preparation of traffic “micro-simulation” videos as part of a presentation for the general public.

If needed, very simplified traffic simulations with a low level of detail may be provided at meetings with the stakeholders (West Lafayette, Purdue University, Purdue Research Foundation, TCAPC and CityBus) in order to better illustrate the projected traffic operations. This low level of detail requires minimal effort and would typically include two-dimensional (2D) vehicles driving along a simplified 2D lane geometry surrounded by a 2D aerial.

However, the simulations shown at presentations for the general public typically require a substantial effort to provide the high level of detail needed for the public to understand the simulated traffic operations. This high level of detail would then typically include 3D vehicles driving along a roadway network surrounded by representative 3D buildings and realistic looking traffic signals, signs and pavement markings. Therefore, this agreement does not include the preparation of traffic simulations that would be needed at a presentation for the general public.

APPENDIX "B"

INFORMATION AND SERVICES TO BE FURNISHED BY OWNER

The **OWNER** shall, within a reasonable time, so as not to delay the services of the **ENGINEER**:

1. Provide full information as to **ENGINEER's** requirements for the Project.
2. Assist the **ENGINEER** by placing at **ENGINEER's** disposal all available information pertinent to the assignment including previous reports and any other data relative thereto.
3. Examine all studies, reports, sketches, drawings, specifications, proposals and other documents presented by **ENGINEER**, obtain advice of an attorney, insurance counselor, and other consultants as **OWNER** deems appropriate for such examination and render in writing decisions pertaining thereto within a reasonable time so as not to delay the services of **ENGINEER**.
4. Give prompt written notice to the **ENGINEER** whenever the **OWNER** observes or otherwise becomes aware of any defect in the Project.
5. Furnish all existing approvals or permits from all governmental authorities having jurisdiction over the Project. The **ENGINEER** will assist the **OWNER** in identifying and procuring any additional permits associated with this Project.
6. Arrange for access to and make all provisions for the **ENGINEER** to enter upon public and private property as required for the **ENGINEER** to perform services under this Agreement.
7. Provide to the **ENGINEER** the needed data as discussed in the Scope of Work in Appendix A which includes the following:
 - a) Land use assumptions
 - b) Copies of previous studies within the area
8. Assist the **ENGINEER** in obtaining the data needed from local stakeholders (Purdue, TCAPC and CityBus) as discussed in the Scope of Work in Appendix A which includes the following:
 - a) Land use assumptions (Purdue University and Purdue Research Foundation)
 - b) Existing and future ADT's for traffic growth rates (TCAPC)
 - c) Existing and future student enrollments for growth rates (Purdue University)
 - d) Existing and future bus routes and schedules (CityBus)
 - e) Copies of previous studies within the area (Purdue University, Purdue Research Foundation, TCAPC and CityBus)

APPENDIX "C"

SCHEDULE

PHASE #1: TRAFFIC DATA COLLECTION (STUDY AREAS #1, 2 AND 3)

Traffic data collection 0 days* after NTP

** traffic data has already been substantially completed in order to collect the data when Purdue classes were in session.*

PHASE #2: TRANSPORTATION PLAN ANALYSIS (STUDY AREAS #1, 2 AND 3)

1. Substantially completed draft report 240 days after Phase #1
2. Final report 30 days after Phase #2 draft

PHASE #3: TRAFFIC IMPACT ANALYSIS FOR DEVELOPMENT DISTRICTS (STUDY AREA #1)

1. Substantially completed draft report 70 days after Phase #3
2. Final report 20 days after Phase #3 draft

Total Completion Time for Phase #1 through #3: 360 days after NTP

PHASE #4 AND #5: TRAFFIC IMPACT ANALYSIS FOR DEVELOPMENT DISTRICTS (STUDY AREAS #2 AND #3)

To be performed at a later date as necessary. The exact scope, schedule and fee to be determined.

PHASE #6, 7 AND 8: TRAFFIC DATA COLLECTION, TRANSPORTATION PLAN ANALYSIS AND TRAFFIC IMPACT ANALYSIS FOR DEVELOPMENT DISTRICTS (STUDY AREAS #4, 5 AND 6)

To be performed at a later date as necessary. The exact scope, schedule and fee to be determined.

PHASE #4 AND #5: TRAFFIC IMPACT ANALYSIS FOR DEVELOPMENT DISTRICTS
(STUDY AREAS #2 AND #3)

To be performed at a later date as necessary. The exact scope, schedule and fee to be determined.

PHASE #6, 7 AND 8: TRAFFIC DATA COLLECTION, TRANSPORTATION PLAN
ANALYSIS AND TRAFFIC IMPACT ANALYSIS FOR DEVELOPMENT DISTRICTS (STUDY
AREAS #4, 5 AND 6)

To be performed at a later date as necessary. The exact scope, schedule and fee to be determined.

B. Additional Services

Additional Services would be services required in connection with the requested analysis of additional study area intersections above and beyond those shown on the attached "Figure 1 - Intersections for Study Areas #1, 2 and 3", the requested collection of additional intersection counts above and beyond those shown on the attached Figure 1, any additional transportation network scenarios above and beyond those listed in Appendix A under Scope of Work, any "traffic micro-simulation" presentations to the general public, permits, construction inspection, right-of-way engineering, right-of-way acquisition, or any legal action or litigation requiring the testimony and/or services of the **ENGINEER**, or if the **OWNER** or any other local, state, or federal agency shall direct or cause the **ENGINEER** to relocate or redesign the project, or any part thereof. The **OWNER** agrees to compensate the **ENGINEER** for Additional Services on the basis of actual hours of work performed on the project at the hourly billing rates noted in APPENDIX "D-1". The Hourly Billing Rates include overhead and fixed fee.

In addition to the hourly fees for additional services indicated above, the **ENGINEER** shall be compensated for direct project-related expenses such as job-related travel, permit applications, etc.

Any change in standards, design criteria, or other requirements by governmental units having jurisdiction over the contracted project which requires changes by the **ENGINEER** in the plans shall be considered as Additional Services.

C. Method of Payment

Payment shall be made by the **OWNER** to the **ENGINEER** each month as the work progresses.

APPENDIX "D-1"

SCHEDULE OF COMPENSATION

BUTLER, FAIRMAN and SEUFERT, INC.

HOURLY RATE SCHEDULE

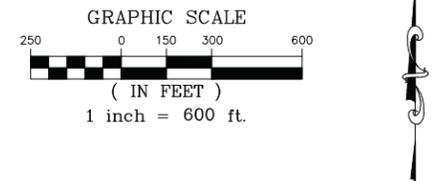
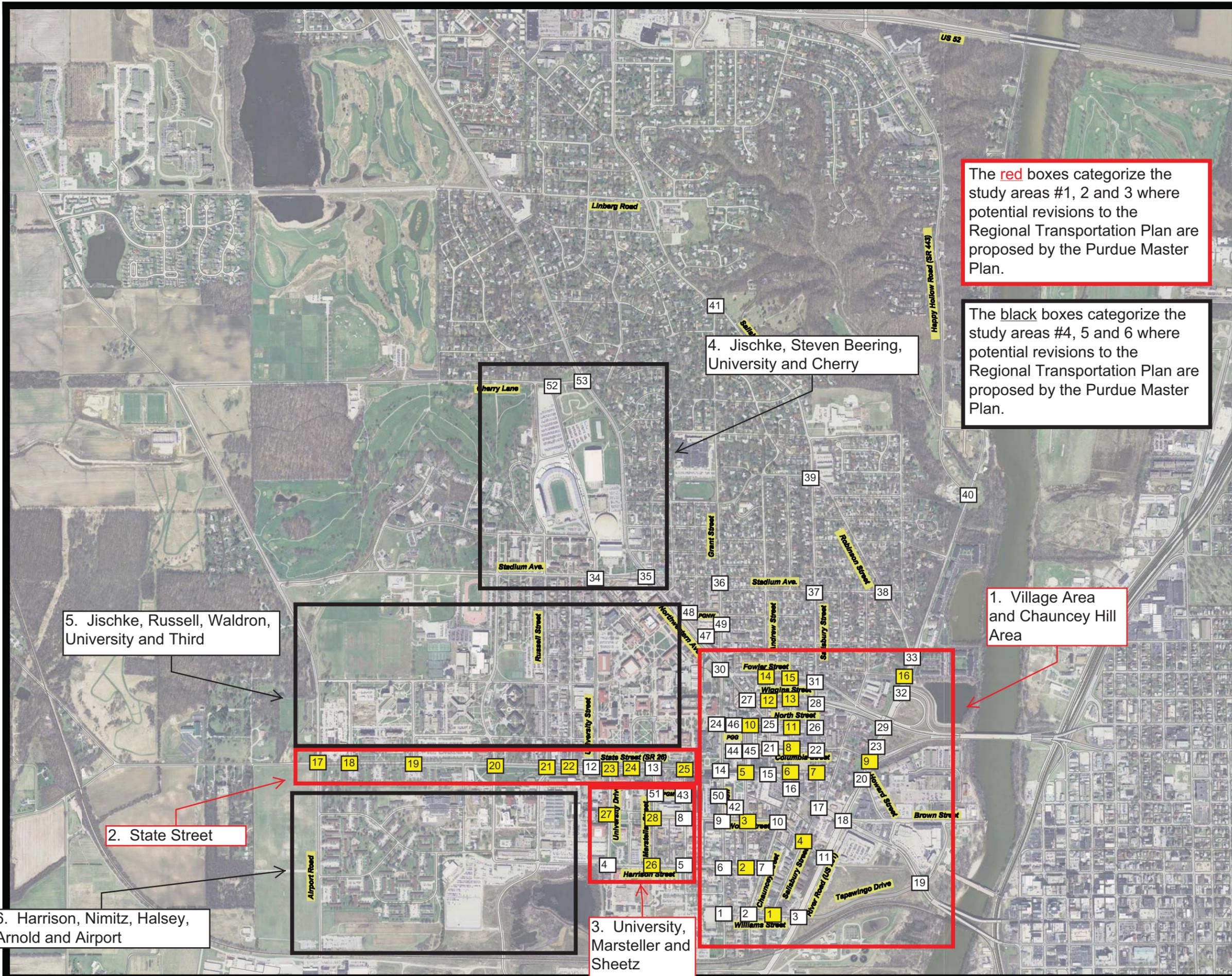
E-V	Engineer V (Principal)	\$ 175.00
E-IV	Engineer IV	\$ 158.00
E-III	Engineer III	\$ 133.00
E-II	Engineer II	\$ 101.00
E-I	Engineer I	\$ 75.00
FP-IV	Field Personnel IV (Project Coordinator)	\$ 128.00
FP-III	Field Personnel III	\$ 110.00
FP-II	Field Personnel II	\$ 82.00
FP-I	Field Personnel I	\$ 66.00
EA-III	Engineer's Assistant III	\$ 128.00
EA-II	Engineer's Assistant II	\$ 103.00
EA-I	Engineer's Assistant I	\$ 76.00
S-II	Support Personnel II	\$ 55.00
S-I	Support Personnel I	\$ 51.00
C-II	Clerical II	\$ 80.00
C-I	Clerical I	\$ 56.00
P-III	Planner/Environmental Specialist III	\$ 131.00
P-II	Planner/Environmental Specialist II	\$ 85.00
P-I	Planner/Environmental Specialist I	\$ 75.00
GIS-IV	GIS Administrator	\$ 130.00
GIS-III	GIS Database Administrator	\$ 110.00
GIS-II	GIS Specialist	\$ 92.00
GIS-I	GIS Technician	\$ 67.00

The billing rates are effective January 2012 and may be adjusted annually (beginning January 2013) to reflect changes in the compensation payable to the **ENGINEER**.

APPENDIX "E"

MISCELLANEOUS PROVISIONS

The attached "Figure 1 - Intersections for Study Areas #1, 2 and 3" provides the anticipated location, approximate number of intersection counts and study area intersections needed to perform the traffic study outlined in Appendix A under Scope of Work.



The **red** boxes categorize the study areas #1, 2 and 3 where potential revisions to the Regional Transportation Plan are proposed by the Purdue Master Plan.

The **black** boxes categorize the study areas #4, 5 and 6 where potential revisions to the Regional Transportation Plan are proposed by the Purdue Master Plan.

55 Approx. 55 intersections to study that already have been counted in 2008.

30 Approx. 30 intersections that will need PM peak hour vehicular manual turning movement counts for study area #1, 2 and 3.

Approx. 85 intersections total for the study areas #1, 2 and 3

5. Jischke, Russell, Waldron, University and Third

2. State Street

6. Harrison, Nimitz, Halsey, Arnold and Airport

3. University, Marsteller and Sheetz

4. Jischke, Steven Beering, University and Cherry

1. Village Area and Chauncey Hill Area

West Lafayette and Purdue Traffic Study

2/9/12

Figure 1
Intersections for
Study Areas #1, 2 and 3