

17-1

**RESOLUTION TO APPROVE  
THE EXECUTION OF A CONTRACT BETWEEN  
LSA ASSOCIATES, INC. AND  
THE SPRINGFIELD-SANGAMON COUNTY REGIONAL PLANNING COMMISSION**

**WHEREAS**, the Springfield Area Transportation Study (SATS) wishes to hire LSA Associates, Inc. through the Springfield-Sangamon County Regional Planning Commission (SSCRPC) to provide certain professional planning services in connection with the update of the Springfield Sangamon County Travel Demand Model; and

**WHEREAS**, the updating of this model will be necessary for a number of critical projects, including railroad relocation planning; and

**WHEREAS**, the Springfield-Sangamon County Regional Planning Commission will provide \$50,280.00 to LSA Associates, Inc. for this service; and

**WHEREAS**, funding for this contract is available using Federal Transportation Planning funds and is included in the Springfield-Sangamon County Regional Planning Commission's approved FY-2013 Budget.

**NOW THEREFORE BE IT RESOLVED** by the members of the Finance Committee of the Sangamon County Board in session this 14th<sup>th</sup> day of May, 2013, that the execution of a contract between the Springfield-Sangamon County Regional Planning Commission and LSA Associates, Inc. is hereby approved.

Respectfully Submitted,

*Andy Van Meter*

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\_\_\_\_\_  
\_\_\_\_\_

**NOW THEREFORE BE IT RESOLVED**, by the Sangamon County Board in session this 14th day of May, 2013, that the execution of a contract between the Springfield-Sangamon County Regional Planning Commission and LSA Associates, Inc. is hereby approved.

**FILED**

MAY 06 2013

*Joe Aiello*  
Sangamon County Clerk

\_\_\_\_\_  
Andy Van Meter  
Chairman, Sangamon County Board



LSA ASSOCIATES, INC.  
132 WEST MOUNTAIN AVENUE  
FORT COLLINS, COLORADO 80524

970.494.1568 TEL  
970.494.1579 FAX

BERKELEY  
CARLSBAD  
FRESNO

IRVINE  
PALM SPRINGS  
POINT RICHMOND

RIVERSIDE  
ROCKLIN  
SAN LUIS OBISPO

Mrs. Linda Wheeland  
Senior Planner, Transportation Planning  
Springfield Sangamon County Regional Planning Commission  
200 S. 9th Street Room 212  
Springfield, IL 62701

**RE: Agreement to Provide Modeling Services to Update the Springfield Sangamon County Travel Demand Model.**

Dear Mrs. Wheeland:

This letter Agreement serves as a contract between the parties, Springfield Sangamon County Regional Planning Commission, Illinois (MPO) and LSA Associates, Inc. (Consultant) for the Consultant to provide travel modeling services to update the MPO's travel demand model.

The Consultant shall begin services under this Agreement upon receiving notice to proceed from the MPO as represented by full execution of signatures below by the Consultant and the MPO. Agreement shall remain in effect through December 31, 2013, although the analysis and work products will be completed by the Consultant within 4 months from notice to proceed.

The Consultant shall bill its charges to the MPO on a monthly basis and include a description of work performed with each invoice. The proposed scope of work is provided in Attachment A. The Standard LSA Agreement is provided as Attachment B. The MPO will pay each bill which it finds to be in accordance with this Agreement within thirty (30) days of its receipt.

Thank you for the opportunity to provide you with these services. We look forward to continue working with you and your staff. If you agree to the provisions of this agreement, please sign the below and return copy to LSA, which will be our notice to proceed. Thank you again for considering LSA for these services.

THE ABOVE STATED TERMS ARE HEREBY ACCEPTED AND AUTHORIZED

CONSULTANT:

LSA Associates, Inc.

CLIENT:

Springfield Sangamon County Region  
Planning Commission  
\_\_\_\_\_  
Company

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

## ATTACHMENT A

### MEMORANDUM

DATE: January 23, 2013

TO: Dale Schultz

FROM: Ray Moe & Ravi Palakurthy

SUBJECT: Scope of Services - Springfield, IL Travel Demand Model Update

Per your email request and our following phone conversation, LSA has developed the following suggested scope of services, and a budget to assist the MPO with the model update.

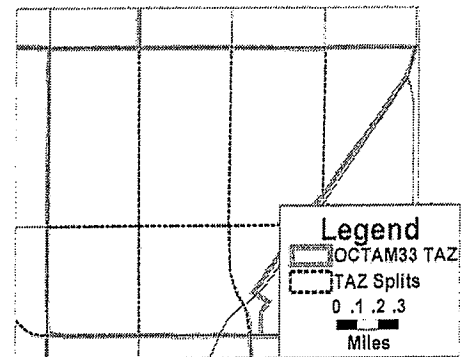
#### TASK1: PROJECT MANAGEMENT

The model update will require coordination between the MPO and LSA. This coordination will begin with a kickoff meeting at the outset of work and will continue through regularly scheduled monthly coordination meetings. MPO and LSA may cancel these meetings when not needed. Additional informal coordination also will occur as needed to facilitate project work. LSA will use the web conferencing technologies and conference calls to conduct these coordination meetings. LSA will also provide a monthly progress report along with each invoice that summarizes work performed and key deliverables during the previous month.

#### TASK2: TAZ UPDATES

##### TAZ Structure Updates

Springfield travel model currently contains 531 internal zones. The consultant team with the MPO will review the TAZ structure for any possible changes due to proposed future developments, and roadway alignment changes since the previous model update. TAZ structure will also be compared against 2010 census blocks to identify possible modifications. Other TAZ splits desired by the MPO can also be incorporated into the TAZ structure at the same time. Maps with TAZ changes will be presented to the MPO for review before finalizing the changes. Model inputs such as roadway network, socioeconomic data, and other input variables will be appropriately addressed for the zone disaggregation.



##### Socioeconomic data Updates

In initial discussions with the MPO, it was indicated that the base year for the model will be updated from 2007 to 2011 because most of the traffic counts were available from 2011. Household data for 2011 will be developed by aggregating households from 2010 census block to TAZs and adding the building permit data from 2010 to 2011. Updated employment data for 2011 will be provided by the MPO in GIS format as before during the previous update effort. LSA will distribute the employment

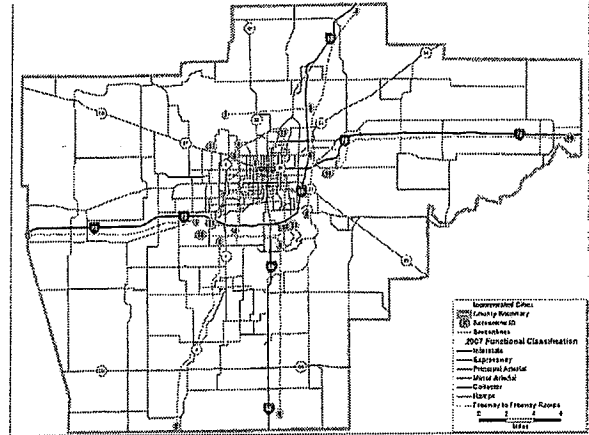
data by type using NAC IS code and aggregate it to the new TAZ system. LSA will review the updated data for reasonableness using household/employment ratio, review growth rates from 2007, and compare the data against other data sources such as BLS etc.

### TASK3: ROADWAY NETWORK UPDATES

The roadway network updates will be focused on changes that have occurred since the previous model's base year along with any TAZ changes that might be identified in the above task. The network will be reviewed for accuracy, connectivity, and consistency.

#### Center Turn Lanes

LSA also proposes to include the modeling capability of continuous left turn lanes in the model. This capability will allow the model to be more sensitive to two and three lane roadways and four and five lane roadways. This feature can also be used as a tool in testing improvements such as a two to three lane conversion where a center turn lane is to be added to an existing 2-lane facility. This tool proved to be valuable in quantifying the benefits of a center turn lane in the planning process and helped communities in greater utilization of limited funding by avoiding major widenings at the same time addressing congestion concerns on the corridors.



#### Recent Network Changes/Improvements

LSA will obtain the list of roadway improvements constructed since the model's base year (2007) and will update the network accordingly. Network maps identifying the improvements will be provided for MPO's review.

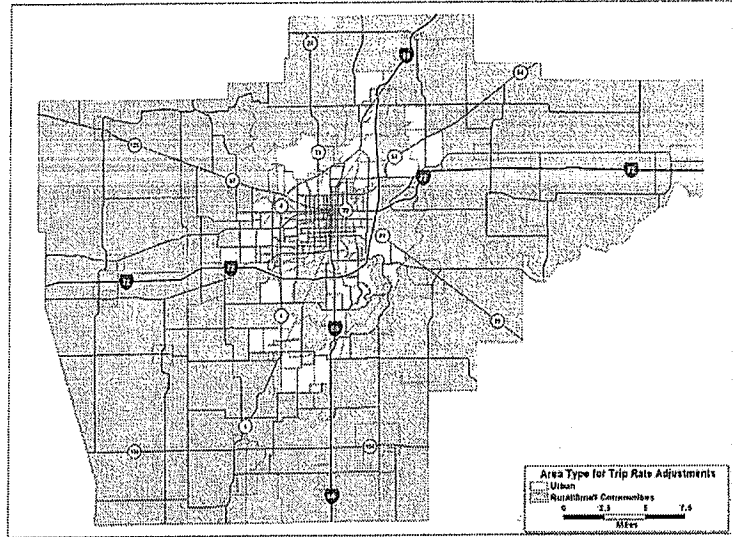
#### Traffic Counts

Updates to the roadway network will also include coding of latest available traffic counts onto the network for validation purposes. The consultant will obtain the latest counts from IDOT's website, and also gather any count data available from other sources. Collected count data will be plotted on a roadway network map and reviewed for consistency and reasonability. Review of the count data will also include verification that the model network and screenlines are sufficiently covered for validation.

## TASK 4: MODEL UPDATE

### Trip Generation

Bivariate household variables household size, and household income used in the previous model update were based on 2000 census. LSA proposes to update the bivariate variables using latest available 2010 census data. A concern was expressed by the MPO regarding the quality of census2010 data so a careful review will be performed by the consultant and the MPO staff before any of the changes are carried into the model update. Certain quality control checks such as comparing the data to the previous model and also comparing the information with data from similar jurisdictions will shed light on any discrepancies with the quality of data. Regional bivariate distributions by household size and income will be updated using the 2010 PUMS data available.

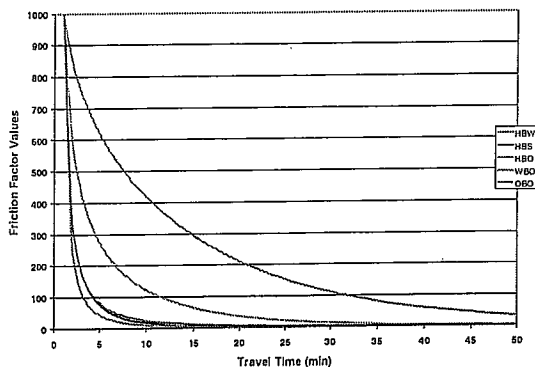


University of Springfield was the only special generator identified in the previous model. Even though other facilities such as Airport and Museums were identified as potential special generators, a need did not arise to include them in the previous model because trip generation rate along with TAZ employment data resulted in good validation around those facilities. Similarly these locations will be observed closely during validation and depending on the validation outcome new special generators may be suggested for inclusion in the model.

LSA has analyzed NHTS datasets for multiple jurisdictions since the development of current Springfield travel model. Trip rates from the model will be compared with the latest datasets available and any necessary changes will be included in the update after MPO's review.

External station traffic counts will be updated to the new base year 2011. No changes are proposed to methodology for external trips other than a simple update of the counts. Internal/External trip splits, EE trip interchanges between external stations are not proposed for any modification.

### Trip Distribution



HBW trip lengths and travel times for the Springfield model were calibrated to 2000 Census Transportation Planning Products (CTPP) data available at the time. Trip length distributions will be recalibrated using latest 2010 Census CTPP data. Friction factors from the previous model will be used as a starting point and modified to match the new CTPP targets. Since CTPP data is only available for the HBW trips, friction factors

for other trip purposes will be updated using a pivot point analysis similar to the previous model update.

### Mode Split

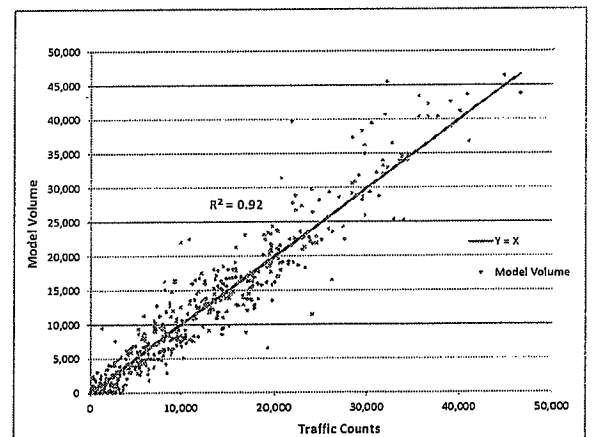
LSA will also analyze 2010 CTPP data to derive at the percent of non-motorized trips for HBW trip purpose and compare it with the current model results. Non-motorized parameters from the previous model will be updated to achieve the new target mode shares. Auto occupancy parameters will also be updated using new census data. New mode share targets will be reviewed for reasonableness by comparing them with the previous model, and targets from other regions of similar characteristics.

### Time of Day

Based on hourly count data available for the region at the time, 1 AM peak hour (7:00-8:00AM) and 1 PM peak hour (4:30-5:30PM) are defined in the current Springfield model. LSA doesn't expect the percent peak hour trips, or peak hours to change drastically or get any longer hence LSA does not recommend modifications to time of day factors from the current model. In case a good sample size of hourly count is available with new count data, LSA will compare the peak hour percents from the count data with information from the current model. Changes to time of day factors may be recommended based on the outcome of the comparison. This particular subtask has not been accounted for in the budget enclosed, so this would be an additional subtask in case any changes are identified in the peak hour percents.

### Validation

Model validation occurs throughout the model update process. It begins with the verification of the trip rates and continues forward to trip length analysis, mode analysis and traffic assignment. LSA will monitor model calibration and reasonableness measures throughout the model update process and include such measures in the documentation. Model validation will focus primarily on the model's ability to match observed traffic count data but also will include comparisons of model parameters and statistics to generally accepted guidelines.



### Validation Workshops

LSA proposes a validation workshop for the MPO during model validation task to increase their involvement with the process and also to improve their confidence in using the model. In this workshop, MPO staff will work directly with LSA to review the model results and investigate problem areas. Adjustments will be made in real time to determine the most appropriate changes. The workshop serves an important purpose in learning from local experts who can provide valuable insight into validation process. In addition, the validation workshop help participants vested in model's success, improving confidence in the mode's ability to provide useful information. The workshop can be conducted either using web based technology like WebEx or in-person. Decision regarding the details of workshop can be made during the model update process. Current proposed budget includes a trip for an in-person validation workshop at the MPO.

## Sensitivity tests

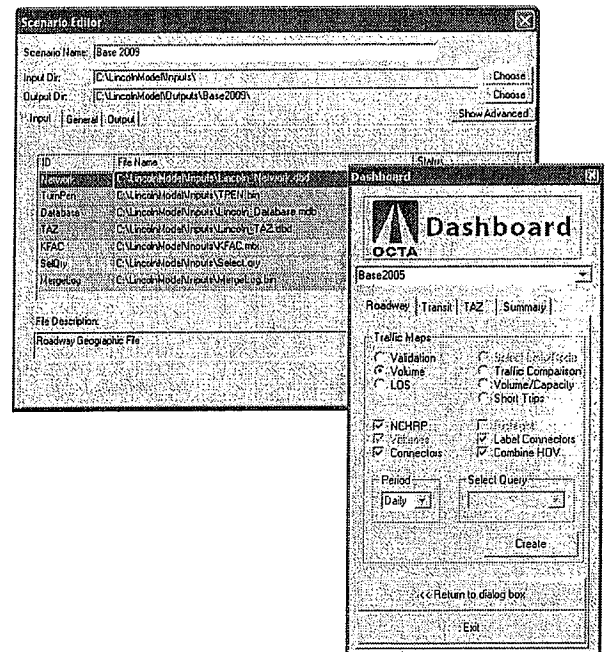
A key component of the validation process is sensitivity testing. Sensitivity testing will be applied to both base year and future year scenarios. This important step can draw out any problems or inconsistencies in the model dataset and algorithms prior to application of the model for planning purposes. LSA will perform sensitivity tests, including small and medium changes to demographic data, network changes, and wholesale changes. Model outputs from these sensitivity runs will be reviewed to identify any potential problems with the model.

## TASK5: MODELING SYSTEM

Since initially developing the Springfield MPO model, LSA has made improvements to the scenario management and macro system on which the model is built. LSA will update the model macros to use this latest scenario management system and to run in the current version of TransCAD 6.0, which now is in full release. Improvements to the scenario management system will include:

- Improved dialog box layout;
- Color-coded scenario information that allows easy identification of potential problems;
- A “Dashboard” system that provides greater control over map creation and easier access to model results;
- Numerous improvements to the summary reporting system, including conversion of the model summary report from HTML to Excel format.
- A turn module to estimate turns from the model and export them to Synchro format

As part of the model system update, LSA will work with the MPO to identify any specific changes that should be made to the model system and summary report.



## TASK6: FORECAST DATA

### Socioeconomic Data

LSA has developed the 2035 forecast socioeconomic data set as a part of previous model update. LSA will update the dataset to reflect a horizon year of 2040 using a simple linear or compound extrapolation methodology depending on the data sources available. Forecast year data will be reviewed for reasonableness in growth rates, forecast jobs/housing ratio, and average household size etc. Any potential problems will be identified for discussion with the MPO. Also, the review will focus on potential localized problems such as decrease over time, unexpectedly high densities, and areas with very high growth rates. Once the socioeconomic data has been finalized, LSA will incorporate the new data into the travel model database. The assumptions and input data used for the process will be available for review by the MPO before its use in the model update.

## Roadway Network

The input roadway network for the Springfield model is a legacy format network which would allow multiple years and alternatives to be coded in one roadway network. LSA will review the current TIP, previous long range transportation plan, and any other studies available to identify roadway improvement projects to include in the forecast network. LSA will update the roadway network with the addition of a forecast network year and code up the improvements provided by the MPO.

## TASK7: DOCUMENTATION

Throughout the course of the update, LSA will document the model update process as work is performed with detail about model processes, parameters, and assumptions. Sections of the final documentation will be provided to the MPO for review and individual sections will be integrated into a complete document. This document will be provided with the intention that a person with good understanding of the travel modeling process would be able to fully understand the model development and validation process.

LSA will provide an updated User's Guide document that outlines the process required to prepare and run travel model scenarios, defines the data structures used in the model, and documents standards required to correctly maintain and modify travel model inputs. The User's Guide will also include updated graphical depictions of the user interface, as well as a data dictionary describing the input and output files and parameters.

## TASK8: TRAINING

LSA will prepare model training sessions that are tailored to the specific skill sets of participants. LSA proposes on one full-day training session. The training session will be imperative in ensuring that staff planning to use the model will have a full understanding of the model data, processes, and parameters. The interactive training sessions will include detailed instructions on the use of the model, along with interactive examples and exercises to help reinforce the material. Upon completion of the training session, participants will be able to successfully install and run the travel model; edit and maintain model inputs; view model outputs; and test proposed roadway and demographic alternatives.

## BUDGET

The proposed budget for the project is shown in the following table by task. It should be noted that the current budget is less than 50% of the original budget for Springfield model development project. Even though most of the tasks are similar to previous project, this update does not include the upfront setup and conversion costs for the model inputs such as developing a legacy network, TAZ layer, and input database as the core essence of the model created last time will remain intact. Familiarity with TransCAD and especially with the MPO's modeling system also helps LSA to be very efficient and effective by avoiding system learning time for this update. LSA also included a validation workshop, and a training session at the request of the MPO to improve their confidence and comfort level in using the model for planning exercises.

Even though the update appears minor, LSA will redo all the tasks performed in the previous model development project. LSA is open to discussions with the MPO whether MPO would want to provide



staff time in some of the input data development tasks such as roadway network coding, and develop socioeconomic data and if so we could adjust the budget accordingly.

## **SCHEDULE**

LSA is currently proposing a 3-4 month schedule for the project from the date of notice to proceed. This schedule is flexible and may be accelerated or extended depending on the availability and needs of the MPO. In case of an accelerated schedule LSA would like to make sure that the MPO staff has sufficient time to review and comment on the model update products as they are developed. LSA would appreciate the opportunity to continue our working relationship

**Springfield, IL Travel Model Update  
LSA Associates, Inc. Cost Proposal**

Tasks		LSA Associates, Inc.				
		Ray A. Moe	Ravikumar Palakurthy	Kaushik Sabba	Jessica Kramer	Total LSA
		\$190.00	\$100.00	\$90.00	\$100.00	
1	Project Management	4	14	10		\$3,060
2	TAZ and Socioeconomic Data Updates	1	18	32		\$4,870
3	Roadway Network Updates		28	44		\$6,760
4	Model Updates and Validation	7	64	96		\$16,370
5	Modeling System Update		32	6		\$3,740
6	Forecast Data	2	28	24		\$5,340
7	Documentation	6	24	12	4	\$5,020
8	Training	2	24	6	4	\$3,720
<b>Total Labor and Expenses</b>		<b>22</b>	<b>232</b>	<b>230</b>	<b>8</b>	<b>\$48,880</b>
Expenses - Travel (\$700 per trip)					2	\$1,400
<b>Total Labor and Expenses</b>						<b>\$50,280</b>

**ATTACHMENT - B  
SCHEDULE OF STANDARD CONTRACT PROVISIONS  
AND BILLING RATES**

**FEES FOR PROFESSIONAL SERVICES**

**Fixed-Fee Contracts**

If a fixed-fee proposal, the professional services described in the Scope of Services Section of the attached proposal shall be provided for the fixed fee noted in the proposal. All other professional services are considered extra services. Extra services shall be provided on a time and expenses basis at the same rates specified for hourly contracts, unless other arrangements are made in advance.

**Hourly Contracts**

If an hourly plus expenses proposal, the professional services described in the Scope of Services Section of the attached proposal shall be provided on a time and materials basis at current hourly rates. These rates are as shown on a Rate Schedule that is attached, or can be made available. Hourly rates are subject to review at least annually on or about August 1 of each year, and may be adjusted to reflect changing labor costs, at our discretion, at that time. (A schedule can be made available upon request.)

Direct costs (including cost of subconsultants) shall be reimbursed at cost plus ten percent, unless other arrangements are made in advance, and are not included in the hourly fee for professional services.

The total estimated amount of time and expenses noted in the proposal will serve as a control on the services to be provided. The specified amount will not be exceeded without prior approval of the client.

**INVOICING**

Monthly invoices shall be submitted for progress payment based on work completed to date. Clients requesting changes to LSA's standard invoice may be billed for the time to develop the invoice and monthly administration of the billing.

**PAYMENT OF ACCOUNTS**

Terms are net 30 days. LSA offers a one percent discount on invoices paid within 30 days of the invoice date. A service charge of 1.5 percent of the invoice amount (18 percent annual rate) may be applied to all accounts not paid within 30 days of invoice date. Any attorney's fees or other costs incurred in collecting any delinquent amount shall be paid by the client.

## **STANDARD OF CARE**

Services provided by LSA under this Agreement will be performed in a manner consistent with the degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances.

## **INDEMNIFICATION**

Client and consultant each agree to indemnify and hold the other harmless and their respective officers, employees, agents, and representatives from and against liability for all claims, losses, damages, and expenses, including reasonable attorneys' fees, to the extent such claims, losses, damages, and expenses are caused by the indemnifying party's negligent acts, errors, or omissions.

## **ELECTRONIC FILE DATA CHANGES**

Copies of documents that may be relied upon by client are limited to the printed copies (also known as hard copies) that are signed or sealed by LSA. Files in electronic media format or text, data, graphic, or other types that are furnished by LSA to client are only for convenience of client. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. When transferring documents in electronic media format, LSA makes no representations as to long-term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those of LSA at the beginning of the assignment.

## **FORCE MAJEURE**

Neither party shall be deemed in default of this Agreement to the extent that any delay in performance of its obligation results from any cause beyond its reasonable control and without its negligence.

## **LITIGATION**

In the event that either party brings action under the proposal for the breach or enforcement thereof, the prevailing party in such action shall be entitled to its reasonable attorneys' fees and costs whether or not such action is prosecuted to judgment.

## **NOTICES**

Any notice or demand desired or required to be given hereunder shall be in writing, and shall be deemed given when personally delivered or deposited in the mail, postage prepaid, sent certified or registered, and addressed to the parties as set forth in the proposal or to such other address as either party shall have previously designated by such notice. Any notice so delivered personally shall be deemed to be received on the date of delivery, and any notice mailed shall be deemed to be received five (5) days after the date on which it was mailed.

## **TERMINATION OF CONTRACT**

Client may terminate this agreement with seven days prior notice to LSA for convenience or cause. Consultant may terminate this Agreement for convenience or cause with seven days prior written notice to client. Failure of client to make payments when due shall be cause for suspension of services, or ultimately termination of the contract, unless and until LSA has been paid in full all amounts due for services, expenses, and other related charges.

If this Schedule of Standard Contract Provisions is attached to a proposal, said proposal shall be considered revoked if acceptance is not received within 90 days of the date thereof, unless otherwise specified in the proposal.

## HOURLY BILLING RATES EFFECTIVE JANUARY 2013

Job Classification							Hourly Rate Range <sup>1,2</sup>
Planning	Environmental	Transportation	Air/Noise	Cultural Resources	Biology	GIS	
Principal	Principal	Principal	Principal	Principal	Principal	Principal	\$125-300
Associate	Associate	Associate	Associate	Associate	Associate	Associate	\$90-195
Senior Planner	Senior Environmental Planner	Senior Transportation Planner/Engineer	Senior Air Quality/Noise Specialist	Senior Cultural Resources Manager	Senior Biologist/Botanist/Wildlife Biologist/Herpetologist/Soil Scientist/Arborist	Senior GIS Specialist	\$70-170
Planner	Environmental Planner	Transportation Planner/Engineer	Air Quality/Noise Specialist	Cultural Resources Manager	Herpetologist/Arborist	GIS Specialist	\$65-125
Assistant Planner	Assistant Environmental Planner	Assistant Transportation Planner/Engineer	Air Quality/Noise Analyst	Cultural Resources Analyst	Ecologist/Soil Scientist/Herpetologist/Arborist	Assistant GIS Specialist	\$50-100
<b>Field Services</b>							
Senior Field Crew/Field Crew							\$50-85
<b>Office Services</b>							
Research Assistant/Technician							\$30-55
Graphics							\$90-115
Office Assistant							\$45-95
Word Processing/Technical Editing							\$75-100

<sup>1</sup> The hourly rate for work involving actual expenses in court, giving depositions or similar expert testimony, will be billed at \$400 per hour regardless of job classifications.  
<sup>2</sup> Hourly rates are subject to review at least annually, on or about August 1 of each year, and may be adjusted to reflect changing labor costs at LSA's discretion at that time.

**LSA IN-HOUSE DIRECT EXPENSES  
JANUARY 2013**

	Unit Cost
Reproduction (8.5 x 11) B/W	\$ .07 per page
Reproduction (8.5 x 11) Color	\$ .40 per page
Reproduction (11 x 17) B/W	\$ .10 per page
Reproduction (11 x 17) Color	\$ .75 per page
CD Production	\$5.00 per CD
Plotting	\$3.75 per sf
Mileage On Road	\$ .565 per mile
Mileage Off-Road	\$ .715 per mile
GPS Unit	\$75.00 per day
Total Station Surveying Instrument	\$50.00 per day
Level (Laser or Optical)	\$25.00 per day
Laser Rangefinder	\$25.00 per day
Sound Meter	\$75.00 per day
Aerial Photo	Cost
Boat Rental	\$50.00/day
Water Quality Meter	\$25.00/day