

AGREEMENT TO PERFORM PROFESSIONAL SERVICES

This agreement for pavement analysis and rehabilitation recommendation services (“Agreement”) is made and entered in this 2nd day of July, 2013 (“Effective Date”), by and between the City of Redlands, a municipal corporation (“City”) and Dynatest Consulting Inc. (“Consultant”). City and Consultant are sometimes individually referred to herein as a “Party” and, together, as “Parties.” In consideration of the mutual promises contained herein, City and Consultant agree as follows:

ARTICLE 1 – ENGAGEMENT OF CONSULTANT

- 1.1 City hereby engages Consultant to provide pavement analysis and rehabilitation recommendation services for various streets located throughout the City of Redlands (the “Services”).
- 1.2 The Services shall be performed by Consultant in a professional manner, and Consultant represents that it has the skill and the professional expertise necessary to provide the Services to City at a level of competency presently maintained by other practicing professional consultants in the industry providing like and similar types of Services.

ARTICLE 2 – SERVICES OF CONSULTANT

- 2.1 The Services that Consultant shall perform are more particularly described in Exhibit “A,” entitled “Scope of Services,” which is attached hereto and incorporated herein by reference.
- 2.2 Consultant shall comply with applicable federal, state and local laws and regulations in the performance of this agreement including, but not limited to, State prevailing wage laws.

ARTICLE 3 – RESPONSIBILITIES OF CITY

- 3.1 City shall make available to Consultant information in its possession that may assist Consultant in performing the Services.
- 3.2 City designates Chris Diggs, Deputy Municipal Utilities and Engineering Director, as City’s representative with respect to performance of the Services, and such person shall have the authority to transmit instructions, receive information, interpret and define City’s policies and decisions with respect to performance of the Services.

ARTICLE 4 – PERFORMANCE OF SERVICES

- 4.1 The term of this Agreement shall be for six months, commencing upon the Effective Date of this Agreement.
- 4.2 If Consultant’s Services include deliverable electronic visual presentation materials, such materials shall be delivered in a form, and made available to the City, consistent with

City Council adopted policy for the same. It shall be the obligation of Consultant to obtain a copy of such policy from City Staff.

ARTICLE 5 – PAYMENTS TO CONSULTANT

- 5.1 The total compensation for Consultant’s performance of the Services shall be in the amount not to exceed Two Hundred Six Thousand Three Hundred Ninety Five Dollars (\$206,395.00) and shall be paid on a time and materials basis based upon the rates shown in Exhibit “B” entitled “Project Cost,” which is attached hereto and incorporated herein by reference.
- 5.2 Consultant shall submit monthly invoices to City describing the Services performed during the preceding month. Consultant’s invoices shall include a brief description of the Services performed, the dates the Services were performed, and the number of hours spent and by whom. City shall pay Consultant no later than thirty (30) days after receipt and approval by City of Consultant’s invoice.
- 5.3 All notices shall be given in writing by personal delivery or by mail. Notices sent by mail should be addressed as follows:

City
Chris Diggs
City of Redlands
35 Cajon Street, Suite 15A
P.O. Box 3005 (mailing)
Redlands, CA 92373

Consultant
T. Booth Harris
Senior Vice President
Dynatest Consulting Inc.
165 South Chestnut Street
Ventura, CA 93001

When so addressed, such notices shall be deemed given upon deposit in the United States Mail. Changes may be made in the names and addresses of the person to whom notices and payments are to be given by giving notice pursuant to this section 5.3.

ARTICLE 6 – INSURANCE AND INDEMNIFICATION

- 6.1 Insurance required by this Agreement shall be maintained by Consultant for the duration of its performance of the Services. Consultant shall not perform any Services unless and until the required insurance listed below is obtained by Consultant. Consultant shall provide City with certificates of insurance and endorsements evidencing such insurance prior to commencement of the Services. Insurance policies shall include a provision prohibiting cancellation or modification of the policy except upon thirty (30) days prior written notice to City.
- 6.2 Consultant shall secure and maintain Workers’ Compensation and Employer’s Liability insurance in accordance with the laws of the State of California, with an insurance carrier acceptable to City as described in Exhibit “C,” entitled “Workers’ Compensation Insurance Certification,” which is attached hereto and incorporated herein by this reference.

- 6.3 Consultant shall secure and maintain comprehensive general liability insurance with carriers acceptable to City. Minimum coverage of One Million Dollars (\$1,000,000) per occurrence and Two Million Dollars (\$2,000,000) aggregate for public liability, property damage and personal injury is required. City shall be named as an additional insured and such insurance shall be primary and non-contributing to any insurance or self-insurance maintained by City.
- 6.4 Consultant shall secure and maintain professional liability insurance throughout the term of this Agreement in the amount of One Million Dollars (\$1,000,000) per claim made.
- 6.5 Consultant shall have business auto liability coverage, with minimum limits of One Million Dollars (\$1,000,000) per occurrence, combined single limit bodily injury liability and property damage liability. This coverage shall include all Consultant owned vehicles used in connection with Consultant's provision of the Services, hired and non-owned vehicles, and employee non-ownership vehicles. City shall be named as an additional insured and such insurance shall be primary and non-contributing to any insurance or self insurance maintained by City.
- 6.6 Consultant shall defend, indemnify and hold harmless City and its elected officials, employees and agents from and against any and all claims, losses or liability, including attorneys' fees, arising from injury or death to persons or damage to property occasioned by and negligent or intentionally wrongful act, omission or failure to act by Consultant, or its officers, employees and agents in performing the Services.

ARTICLE 7 – CONFLICTS OF INTEREST

- 7.1 Consultant covenants and represents that it does not have any investment or interest in any real property that may be the subject of this Agreement or any other source of income, interest in real property or investment that would be affected in any manner or degree by the performance of Consultant's Services. Consultant further covenants and represents that in the performance of its duties hereunder, no person having any such interest shall perform any Services under this Agreement.
- 7.2 Consultant agrees it is not a designated employee within the meaning of the Political Reform Act because Consultant:
- A. Does not make or participate in:
- (i) the making or any City governmental decisions regarding approval of a rate, rule or regulation, or the adoption or enforcement of laws;
 - (ii) the issuance, denial, suspension or revocation of City permits, licenses, applications, certifications, approvals, orders or similar authorization or entitlements;
 - (iii) authoring City to enter into, modify or renew a contract;
 - (iv) granting City approval to a contract that requires City approval and to which City is a party, or to the specifications for such a contract;
 - (v) granting City approval to a plan, design, report, study or similar item;

(vi) adopting, or granting City approval of policies, standards or guidelines for City or for any subdivision thereof.

B. Does not serve in a staff capacity with City and in that capacity, participate in making a governmental decision or otherwise perform the same or substantially the same duties for City that would otherwise be performed by an individual holding a position specified in City's Conflict of interest Code under Government Code section 87302.

7.3 In the event City officially determines that Consultant must disclose its financial interests, Consultant shall complete and file a Fair Political Practices Commission Form 700, State of Economic Interests with the City Clerk's office pursuant to the written instructions provided by the City Clerk.

ARTICLE 8 – GENERAL CONSIDERATIONS

8.1 In the event any action is commenced to enforce or interpret any of the terms or conditions of this Agreement the prevailing Party shall, in addition to any costs and other relief, be entitled to the recovery of its reasonable attorneys' fees, including fees for the use of in-house counsel by a Party.

8.2 Consultant shall not assign any of the Services, except with the prior written approval of City and in strict compliance with the terms and conditions of this Agreement.

8.3 Project related documents, records, drawings, designs, cost estimates, electronic data files, databases and any other documents developed by Consultant in connection with its performance of the Services, and any copyright interest in such documents, shall become the property of City and shall be delivered to City upon completion of the Services, or upon the request of City. Any reuse of such documents, and any use of incomplete documents, shall be at City's sole risk.

8.4 Consultant is for all purposes under this Agreement an independent contractor and shall perform the Services as an independent contractor. Neither City nor any of its agents shall have control over the conduct of Consultant or Consultant's employees, except as herein set forth. Consultant shall supply all necessary tools and instrumentalities required to perform the Services. Assigned personnel employed by Consultant are for its account only, and in no event shall Consultant or personnel retained by it be deemed to have been employed by City or engaged by City for the account of, or on behalf of, City. Consultant shall have no authority, express by City for the account of, or on behalf of City. Consultant shall have no authority, express or implied, to act on behalf of City in any capacity whatsoever as an agent, nor shall Consultant have any authority, express or implied, to bind City to any obligation.

8.5 Unless earlier terminated as provided for below, this Agreement shall terminate on January 1, 2014, provided, however this Agreement may be terminated by City, in its sole discretion, by providing ten (10) days prior written notice to Consultant (delivered by certified mail, return receipt requested) of City's intent to terminate. If this Agreement is terminated by City, an adjustment to Consultant's compensation shall be made, but (1) no amount shall be allowed for anticipated profit or unperformed Services, and (2) any

payment due Consultant at the time of termination may be adjusted to the extent of any additional costs to City occasioned by any default by Consultant. Upon receipt of a termination notice, Consultant shall immediately discontinue its provision of the Services and, within five (5) days of the date of the termination notice, deliver or otherwise make available to City, copies (in both hard copy and electronic form, where applicable) of project related data, design calculations, drawings, specifications, reports, estimates, summaries and such other information and materials as may have been accumulated by Consultant in performing the Services. Consultant shall be compensated on a pro-rata basis for Services completed up to the date of termination.

- 8.6 Consultant shall maintain books, ledgers, invoices, accounts and other records and documents evidencing costs and expenses related to the Services for a period of three (3) years, or for any longer period required by law, from the date of final payment to Consultant pursuant to this Agreement. Such books shall be available at reasonable times for examination by City at the office of Consultant.
- 8.7 This Agreement, including the Exhibits incorporated herein by reference, represents the entire agreement and understanding between the Parties as to the matters contained herein, and any prior negotiations, written proposals or verbal agreements relating to such matters are superseded by this Agreement. Except as otherwise provided for herein, an amendment to this Agreement shall be in writing, approved by City and signed by City and Consultant.
- 8.8 This Agreement shall be governed by and construed in accordance with the laws of the State of California.
- 8.9 If one or more of the sentences, clauses, paragraphs or sections contained in this Agreement is declared invalid, void or unenforceable by a court of competent jurisdiction, the same shall be deemed severable from the remainder of this Agreement and shall not affect, impair or invalidate the remaining sentences, clauses, paragraphs or sections contained herein, unless to do so would deprive a Party of a material benefit of its bargain under this Agreement.

IN WITNESS WHEREOF, duly authorized representatives of City and Consultant have signed in confirmation of this Agreement.

CITY OF REDLANDS

DYNATEST CONSULTING INC.

By: _____
Pete Aguilar, Mayor

By: _____
T. Booth Harris, Senior Vice
President

Attest:

Sam Irwin, City Clerk

“EXHIBIT "A"”

Scope of Work

Introduction

The scope of work calls for Consultant to investigate 75 lane miles of asphalt concrete streets and provide a cost effective rehabilitation strategy for each of the provided segments. The information will be used by the City for preparation of plans, specifications, and estimates (PS&E) for the PARIS 2013 Resurfacing Project.

All project related services will be conducted through our local office:

Dynatest Consulting Inc.
165 South Chestnut Street
Ventura, California 93001
Phone: (805) 648-2230
Fax: (805) 648-2231

Technical Approach

Based on Consultant’s significant experience with similar projects, Consultant will complete the following major tasks in order to successfully accomplish this project:

Task 1	Project Setup, Management, and Meetings
Task 2	Data Collection
Task 3	Data Analysis and Pavement Rehabilitation Recommendations
Task 4	Technical Specifications
Task 5	GIS Maps
Task 6	Final Report
Task 7	Inspection and Training During Construction
Task 8	ELMOD License and Training

Task 1 – Project Setup, Management, and Meetings

Consultant will provide the City with a schedule and start date for testing as soon as the Notice to Proceed is issued. When needed, a meeting with City will be scheduled at a location proposed by City. All project related activities will be reviewed prior to testing in order to ensure that all stakeholders understand the plan of action prior to commencement of work.

Task 2 - Data Collection

Consultant will perform field testing on the entire 75 lane miles of streets that are to be included the next phase of the PARIS paving project. The objective is to collect structural and functional condition data in order to determine the best rehabilitation strategy for each of the provided

segments. Consultant will collect all the data using its own equipment. In addition, Converse Consultants will provide coring services to determine the thickness of the different pavement layers in order to perform a proper structural analysis and design.

Non-Destructive Deflection Testing

Non-destructive deflection testing will be performed using the Consultant's falling weight deflectometer (FWD) on all the selected streets. The testing interval will range from 50 ft to 200 ft depending on the section length. The tests will be staggered in all lanes to obtain a representative coverage of the entire roadway. The approximate total number of test points is 2,265 for the 75 lane miles. The FWD applies a dynamic load that simulates a moving wheel load. The pavement response measured are deflections at the surface that are analyzed to determine the elastic modulus of each layer, the weakest layer, residual life and the required overlay rehabilitation thickness. The FWD is shown in Figure 1. At every test location, one unrecorded seating drop will be applied at a 6,000-lbs load level to ensure proper contact between the loading plate/geophones (deflection sensors) and the pavement, and three recorded drops will be applied at 6,000, 9,000, and 12,000 lbf \pm 10 % load level. The 9,000 lbf corresponds to the effect of a standard 18,000-lbs single axle load. The FWD will be setup with the 12" diameter plate and 9 geophones spaced at 0, 8, 12, 18, 24, 36, 48, 60, and 72". The pavement surface temperature, air temperature, station/mile point, GPS coordinates (latitude, longitude and elevation), date and time will be automatically recorded during FWD testing at every test point.



Geotechnical Work

Pavement layer thicknesses and type of material of each layer are required in order to perform the structural analysis. It was estimated that a total of 161 cores will be needed to perform the structural analysis adequately. Converse Consultants (Converse), a sub-contractor to Consultant, will perform the work. Converse will mark the core locations, which will be provided by Consultant. Underground Service Alert (USA) will be notified at least 48 hours prior to drilling. Converse will collect 4-inch diameter asphalt concrete cores, measure existing pavement thickness, and classify sub-grade soils by visual observation. The necessary traffic control will be provided during coring. A letter report will be prepared which will include:

- A description of the observed distress at each core location
- Photograph of each core
- Existing pavement thickness (asphalt concrete and aggregate base)
- Visual classification of sub-grade soils at the core locations
- A plan showing the location of the cores and coordinates obtained using a hand held device

Task 3 – Data Analysis and Pavement Rehabilitation Recommendations

Consultant believes that a customized set of rehabilitation strategies is fundamentally important to the success of affordable, high quality and long lasting pavement network. In-depth pavement structural and functional analyses provide solutions to common street failures in the City (e.g., excessive cracking, or rutting).

All street segments on which data was collected in Task 2 will be analyzed. The first step is to assess the structural condition of these pavements. Deflection data from the FWD testing will be analyzed to determine the structural condition. This will be accomplished by calculating in situ stiffness of each layer in the pavement structure through a backcalculation process using the deflection data. The analysis will be performed using Dynatest's ELMOD (Evaluation of Layer Moduli and Overlay Design) software, which utilizes mechanistic-empirical analysis techniques that work over a wide variety of pavements types, traffic loading and local environmental conditions. This information will be essential to determine the service life of the pavement and the need (or not) of structural rehabilitation.

City has been experiencing accelerated deterioration of its pavement network mostly due to refuse vehicles – estimated 56% load impact on residential roads, 15% on collectors and 9% on arterial (Pavement Deterioration Analysis Report, 2012). Vehicle-specific structural analysis will provide means to design solutions to mitigate vehicle-specific problems and achieve longer lasting pavements.

The second step is to evaluate the surface condition using the data collected with the RSP, the collected ROW images, and the distress data and PCI that will be provided by City. The analyzed data will be used in conjunction with the analyzed structural data to determine the best rehabilitation strategy for each of the street segments.

At the end of this task, the project team will deliver a memorandum containing the rehabilitation strategies for the selected segments. The results will be discussed with the City before finalizing the recommendations.

Task 4 – Technical Specifications

In this Task, the team will provide City with the technical specifications for the selected rehabilitation strategies. The specifications that are available and already used by the City will be reviewed and any changes that are necessary will be discussed with the City and provided. Specifications for rehabilitation strategies that are new to the City will be obtained from different government agencies (i.e. Cities, Caltrans, other States, FHWA) and will be discussed with the City.

Task 5 – GIS Maps

At the end of the project, Consultant will provide City with a GIS shapefile showing the color coded rehabilitation strategies for all provided segments. City will have to provide a GIS shapefile of the different segments that are selected for this project in order for this task to be performed successfully.

Task 6 - Final Report

Following the completion of all activities, Consultant will submit a draft report to City for review. The report will include a summary of all data collected, analysis approach, findings, and recommendations. Consultant will finalize the draft report after receiving all comments from the City.

Task 7 – Inspection and Training During Construction

City has estimated that approximately 30 days for 6 hours per day will be needed for this task. During rehabilitation/construction of the streets, Converse will perform the following:

- Review asphalt concrete mix design for conformance with the project specification
- Provide an inspector at the batch plant to verify that batching was done in accordance with approved mix design.
- Observe preparation of street sub-grade and take in-place density of compacted fill
- Observe placement of aggregate base and take in-place density
- Observe placement of asphalt concrete, check temperature and conduct in-place density testing using a thin lift nuclear gauge

Task 8 – ELMOD License and Training

For processing of the FWD data, Consultant provides the ELMOD program for Windows™ on a one-time software license agreement. The program runs on Windows™ 7, NT, 2000, XP and Vista operating systems. A brochure of the ELMOD 6 program is included in Appendix A. There are over 270 users of ELMOD worldwide including State road, airport authorities, pavement consulting firms and universities.

Consultant will provide City with one license of the ELMOD 6 core module that can be installed on one computer. Additional licenses, modules, and support packages are available for an additional cost. ELMOD can be used for analysis of FWD data from flexible pavements as well as from rigid pavements. ELMOD is used to backcalculate the mechanistic material layer properties of the pavement structure and its foundation. ELMOD is also able to undertake pavement analysis to determine pavement remaining life, pavement responses, needed overlay, and new pavement design. In addition, the program is capable to assign various (user controlled) seasonal adjustments to predict, based on the laboratory to field adjusted transfer functions, the remaining service life of the pavement section using a Mechanistic-Empirical pavement design and analysis methodology.

Consultant will provide three days of training for up to 5 City staff. The outline for the ELMOD main module training is as follows:

- Introduction
- ELMOD Overview
- Pavement Performance
- Types of Pavements
- FWD Testing
- Theory of Elasticity
- Boussinesq
- Method of Equivalent Thickness
- Surface Modulus
- Introduction to ELMOD
- Backcalculation (Manual)
- Backcalculation (Automated)
- Testing and Analyzing JPCP
- Westergaard
- Overlay Design (Example)
- Overlay Design (ELMOD)
- New Design
- Case Studies
- Workshop - Running ELMOD 6 with client data
- Parameter File Setup

In order to conduct the training, the City will provide:

- Classroom of suitable size to accommodate the anticipated number of students
- At least one computer workstation for every two students
- Whiteboard or Smartboard with markers
- Computer projector

Quality Control and Quality Assurance (QC/QA)

Internal and external QC/QA processes will be utilized to ensure that all data and deliverables are thoroughly reviewed before acceptance by the City. Consultant will adhere to the principle of third party review of data collected and analyzed, which means that staff who collected and analyzed data *will not* perform the final review of their own work. Instead, data will be reviewed by another Consultant staff prior to submission to the City. Specifically, Consultant will perform in-the-field quality control checks during the field data collection and in-the-office quality assurance reviews following the completion of the data collection. Similar checks and reviews of all data analyzed and all reports submitted to the City will also be performed.

Requested Assistance by the City

In order to successfully complete this project, Consultant will request assistance from the City for the following activities:

- ✓ Project personnel contact information
- ✓ City's current pavement specifications
- ✓ Any as-builts that are available for the selected street segments
- ✓ Any pavement thickness information that is available
- ✓ Current pavement management database showing the detailed distress data
- ✓ A GIS file of the street segments to be tested
- ✓ City's detailed and projected traffic data
- ✓ City's current pavement rehabilitation practices
- ✓ Pavement rehabilitation unit costs – *If available*
- ✓ Any permits required
- ✓ Review and approval of submitted data and reports

Exhibit “B”

Project Cost

Task	Description	Dynatest				Converse Consultants								Equipment and Other Expenses	Estimated Fee		
		Project Engineer		Field Technician		Principal in Charge		Project Professional		Staff Professional		Field Technician				Drafting Professional	
		Hours	Rate	Hours	Rate	Hours	Rate	Hours	Rate	Hours	Rate	Hours	Rate			Hours	Rate
1	Project Setup, Management and Meetings	20	\$ 150			9	\$160	14	\$115	24	\$85		\$85		\$55	\$1,575	\$ 9,665.00
2	Data Collection (FWD Testing, Coring, and Traffic Control)	4	\$ 150	102	\$85	5	\$160	24	\$115	90	\$85		\$85		\$55	\$37,420	\$ 57,900.00
3	Data Analysis and Rehabilitation Recommendations	298	\$ 150				\$160		\$115		\$85		\$85		\$55		\$ 44,700.00
4	Technical Specifications	60	\$ 150			5	\$160	20	\$115		\$85		\$85	30	\$55		\$ 13,750.00
5	GIS Maps	20	\$ 150				\$160		\$115		\$85		\$85		\$55		\$ 3,000.00
6	Final Report	40	\$ 150				\$160		\$115		\$85		\$85		\$55	\$2,000	\$ 8,000.00
7	Inspection and Training during Construction (30 days @ 6hrs/day)		\$ 150			6	\$160	18	\$115		\$85	180	\$85	10	\$55		\$ 18,880.00
8	ELMOD License and Training															\$10,500	\$ 10,500.00
Total		442		102		25		76		114		180		40		\$51,495	\$ 166,395.00

*Additional lane sections can be added at an estimated cost per lane mile of \$1,698 excluding Tasks 1, 7, and 8.

**If City performs the analysis in house, Consultant will collect FWD data and cores as an estimated cost per lane mile of \$772 excluding Tasks 1, 3, 4, 5, 6, 7, and 8.

These estimates assume that the streets are residential streets and the total length is 75 lane miles. Any significant variation from these assumptions might affect the estimates.

City has elected to add 20 lane miles to this agreement for an additional \$33,960.00 (\$1,698 X 20 lane miles).

EXHIBIT "C"

WORKERS' COMPENSATION INSURANCE CERTIFICATION FOR ENGINEERING SERVICES

Every employer, except the State, shall secure the payment of compensation in one or more of the following ways:

- (a) By being insured against liability to pay compensation in one or more insurer duly authorized to write compensation insurance in this State.
- (b) By securing from the Director of Industrial Relations, a certificate of consent to self-insure, either as an individual employer or as one employer in a group of employers, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his or her employees.

I am aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of the work of this Agreement. (Labor Code §1861).

DYNATEST CONSULTING INC.

By: _____
Robert C. Briggs

Date: