



## **Staff Report**

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RESOLUTION APPROVING A PROFESSIONAL SERVICES AGREEMENT WITH CAL ENGINEERING & GEOLOGY FOR SOIL INVESTIGATION AND REPAIR DESIGN FOR AN AMOUNT NOT TO EXCEED \$45,166 FOR THE MARBURGER AVENUE ROADWAY REPAIR, CITY CONTRACT NUMBER 499

Honorable Mayor and Council Members:

### **Summary**

City Council approval is requested to complete a Professional Services Agreement (PSA) with Cal Engineering and Geology for professional services to perform soil investigation and design or a repair project for an amount not to exceed \$45,166 for the Marburger Avenue Roadway Repair.

### **Background**

The City of Belmont has executed a Settlement Agreement in which the City agrees to design and repair a section of Marburger Avenue through the construction bidding process. The settlement agreement included reference to a preliminary design concept and proposal for repair of a section of Marburger Avenue where roadway width has been lost due to a landslide. There are also larger landslides underlying and surrounding the proposed location of the repair. The proposed repair is to the section of roadway where the roadway width has been reduced, and does not repair the larger landslides. The location of this larger landslide is generally shown on the San Juan Canyon Engineering Geologic Map (1985, Cottonshires and Associates) and described in letter dated October 26, 2006 prepared by Cottonshires and Associates.

The funding of the repair is expressly conditioned upon and subject to approval of all engineering plans, specifications, and construction drawings by the City and its Geotechnical Consultant. The first step towards completion of the construction is to retain a qualified consultant to complete the soils investigation, and prepare Plans, Specifications, and Estimate for the repair project. The City is now, subject to council approval, proceeding with a contract to complete the soils investigation and prepare plans and specification. The type of retaining wall system and other features of the repair, as approved by the City Council prior to award of the construction contract, will be based on final Plans, Specifications, and Estimate reflecting the results of the investigation and design performed by the engineering consultant.

The Public Works Department solicited for proposals from fifteen consulting firms and the City received three proposals. California law requires selection of Architectural and Engineering (A&E) contract services on the basis of demonstrated competence and professional

qualifications. Negotiations shall begin with the most qualified consultant. Should negotiations not result in a price the City considers to be fair and reasonable, negotiations shall be formally terminated and the City shall then undertake negotiations with the second most qualified consultant. If the negotiation with the second most qualified firm is not successful, negotiations shall be formally terminated and the City shall then undertake negotiations with the third most qualified consultant, etc. until the price is determined to be fair and reasonable by the City. (California Government

Code, Chapter 10, Sections 4525 through 4529.5). The City staff procurement committee consisting of the City Engineer/Assistant Public Works Director, and Senior Civil Engineer independently screened and ranked these proposals based on the following criteria and a selection of a consultant was made: Team Experience for Similar Services; Team Members Experience; Project Approach; Understanding of City's Needs; References.

The top three consultants were Steven C. Devin P.E., G.E., Cal Engineering & Geology, and Treadwell & Rollo. All firms were considered qualified to perform the work. After initial discussion with Steven Devin did not result in an acceptable final proposal and cost that would allow execution of an agreement the City concluded its negotiation with Mr. Devin. The City then received a final proposal and negotiated an agreement with Cal Engineering & Geology to complete the work.

### **General Plan/Vision Statement**

There is no impact from this report.

### **Fiscal Impact**

The value of the professional services agreement with Cal Engineering & Geology is not to exceed \$45,166 as shown on the scope of work, Exhibit A. Funding will be drawn from Street Improvement (Measure A/Grants) Capital Improvement Account Number 234-4312-3084-9030 (Retaining Wall Inspection and Repair)

The resulting cost of the construction will be approved by the City Council before the contract for construction is awarded.

### **Public Contact**

Public contact consists of posting the City Council agenda. The claimants will also receive a copy of the Staff Report.

### **Recommendation**

City Council approval is requested to complete a professional services agreement with Cal Engineering & Geology for Soil Investigation and Repair Design for an amount not to exceed \$45,166 for the Marburger Avenue Roadway Repair, City Contract Number 499

### **Alternatives**

1. Take no action.

2. Refer back to staff for additional information.
3. Deny approval.

**Attachments**

- A. Resolution
- B. Exhibit A

Respectfully submitted,

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Karen Borrmann  
City Engineer

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Raymond E. Davis III, PE, PTOE  
Director of Public Works

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Jack R. Crist  
City Manager

**Staff Contact:**

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**RESOLUTION NO. \_\_\_\_\_**

**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BELMONT APPROVING  
A PROFESSIONAL SERVICES AGREEMENT WITH CAL ENGINEERING &  
GEOLOGY FOR SOIL INVESTIGATION AND REPAIR DESIGN FOR AN AMOUNT  
NOT TO EXCEED \$45,166 FOR THE MARBURGER AVENUE ROADWAY REPAIR,  
CITY CONTRACT NUMBER 499**

**WHEREAS**, the City requires a qualified and experienced geotechnical consultant to conduct the investigation and complete the design for a roadway repair project on a section of Marburger Avenue, as agreed to in an approved settlement agreement; and,

**WHEREAS**, the approved settlement agreement includes reference to a proposal for repair of a section of Marburger Avenue where roadway width has been lost; and,

**WHEREAS**, the proposal for repair of a section of Marburger Avenue where roadway width has been lost includes a preliminary design concept; and,

**WHEREAS**, the settlement agreement requires the City approval of all final engineering plans, specifications, and construction drawings by the City and its Geotechnical Consultant; and,

**WHEREAS**, The first step towards completion of the construction is to retain a qualified consultant to complete the soils investigation, and prepare Plans, Specifications, and Estimate for the repair project; and,

**WHEREAS**, Cal Engineering and Geology is qualified to performed this work; and,

**WHEREAS**, Cal Engineering and Geology has submitted an acceptable proposal for geotechnical investigation and design and has signed a Professional Services Agreement and agreed to do the investigation and other work.

**NOW, THEREFORE, BE IT RESOLVED:**

1. The City Council of the City of Belmont directs the City Manager to execute a Professional Services Agreement with Cal Engineering & Geology, approved as to form by the City Attorney, in an amount not to exceed \$45,166 and directs the City Clerk to affix her signature thereto.
2. Funding for this agreement is from Street Improvement (Measure A/Grants) Capital Improvement Account Number 234-4312-3084-9030 (Retaining Wall Inspection and Repair).

\* \* \* \* \*

I hereby certify that the foregoing Resolution was duly and regularly passed and adopted by the City Council of the City of Belmont at a regular meeting thereof held on January 27, 2009 by the following vote:

AYES, COUNCILMEMBERS: \_\_\_\_\_

NOES, COUNCILMEMBERS: \_\_\_\_\_

ABSTAIN, COUNCILMEMBERS: \_\_\_\_\_

ABSENT, COUNCILMEMBERS: \_\_\_\_\_

\_\_\_\_\_  
CLERK of the City of Belmont

APPROVED:

\_\_\_\_\_  
MAYOR of the City of Belmont

## EXHIBIT A

Work is to be performed as shown on the Proposed Scope of Services for Soil Investigation & Repair Design, Marburger Avenue, Belmont, California, January 16, 2009. The hourly rate is as shown on the enclosed proposal. The maximum amount is not to exceed \$45,166.



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## EXHIBIT A

Proposed Scope of Services for Soil Investigation & Repair Design,  
Marburger Avenue, Belmont, California  
16 January 2008

### PROJECT TEAM

The Cal Engineering & Geology team consists of CE&G professional staff, surveying subconsultant Bellecci Associates, drilling subcontractor Exploration Geoservices, and laboratory subconsultant Cooper Testing Laboratories.

### PROJECT STAFFING

Cal Engineering & Geology's proposed project team for the Marburger Avenue Road Project will be comprised of experienced principal, senior, and project level geologists and engineers from CE&G. Each of the project team members has worked on several similar projects within the past five years.

Principal Engineer Phillip Gregory, P.E., G.E. will be the Principal-in-Charge, contract manager, and the primary contact with the City. He will be responsible for coordinating contracting issues with the City. Mr. Gregory will also serve as the primary technical reviewer and quality control manager.

Senior Engineer Mark Myers, P.E., G.E. will be Cal Engineering & Geology's proposed project manager. As project manager, Mr. Myers will oversee all aspects of the geotechnical and design services to be provided for the project. He will also be the primary author of the geotechnical design report and lead design engineer for preparation of the PS&E. He will coordinate with the City staff and residents regarding access and encroachment issues. Mr. Myers will also be responsible for all coordination with subcontractors.

Senior Engineering Geologist Patrick Drumm, P.G., E.G. will be responsible for field mapping of the landslide and implementation of the subsurface exploration and testing program.

Project Engineers Chris Hockett, P.E. and Elijah Zane, P.E. will report to Mr. Myers and be responsible for developing the subsurface exploration and testing programs for the project, completing design analysis, and preparing the project plans and specifications.

## PROJECT APPROACH AND SCHEDULE

### **Potential Methods of Stabilization**

Based on our site reconnaissance and review of the Cotton Shires & Associates preliminary evaluation letter, we believe that the roadway should be stabilized by isolating the road prism from the remainder of the landslide below through the use of reinforced concrete stabilization piles and/or a combination of soil nails, micropiles, and possibly tiebacks. The preferred alternative will depend upon the depth of movement indicated in the exploratory borings and the configuration of the sliding.

### **Scope of Services**

Cal Engineering & Geology will the work into three main phases: 1) Site Exploration and Characterization, 2) Design Engineering, and 3) Construction Support Services.

#### Phase 1 Site Exploration and Characterization and Report

##### *Task 1: Topographic Map*

A topographic survey of the site will need to be prepared to serve as the base for the geologic mapping and roadway stabilization plans. The survey will be prepared by Bellecci & Associates. The survey will include the right-of-way location and private property lines within the area of distress. Topography will be developed for roughly 200 feet downslope and 100 feet up slope of the road and 50 to 100 feet on each side of the current sliding.

##### *Task 2: Geology and Landslide Features Mapping*

A site geology and landslide features map will be developed using the topographic map developed under Task 1. The map will include landslide features, scarps, pavement and slope distress, outcrops, and other pertinent surface features. The topographic map prepared under Task 1 will be used as the base for the geologic mapping.

A second landslide features map of the larger underlying landslide will also be prepared. This map will utilize available topographic maps of the area and will be based on interpretation of stereopaired aerial photographs and field observations.

##### *Task 3: Subsurface Investigation and Testing*

We propose to complete three exploratory borings using Exploration Geoservices as our drilling subcontractor. The borings will be drilled from the road using hollow stem auger and/or rotary wash methods. Two borings will be excavated within the active sliding and one beyond. The locations of the

borings may end up being controlled by the locations of both the underground and overhead utilities which are present. We will coordinate with the drilling subcontractor when we mark the site for USA clearance so that the best potential boring sites are identified prior to the drilling date. Boreholes will be drilled and sealed in accordance with County standards.

We anticipate that each boring will be extended to between approximately 60 and 80 feet in order to facilitate assessment of both the larger underlying landslide and the current active landslide. To the extent possible continuous sampling of the borings will be completed in the upper 20 to 30 feet of each hole until the depth of the active sliding is exceeded. Below the apparent depth of the active movement, samples will be taken at 5 to 10 foot intervals. The borings will be logged by an engineering geologist from our firm and the samples will be retained for potential laboratory testing.

We do not anticipate that the installation of instrumentation such as inclinometers and piezometers will be needed to characterize the site sufficiently to design stabilization measures.

*Task 4: Laboratory Soils Testing*

Following completion of the exploratory drilling, samples from the borings will be selected for index properties and strength testing. Undrained triaxial shear tests with pore pressure measurements will be completed on samples of slide plane and bedrock materials. Laboratory soils testing will be completed at Cooper Labs in Palo Alto.

*Task 5: Soils Investigation Report*

We will prepare a soils investigation report which will include the results of Tasks 1 through 4 and will provide the basis for design for the recommended stabilization system for the roadway. The report will include 1) geologic characterization of the site and of both the active and underlying inactive landslide, 2) slopes stability analyses of the current condition of the active and underlying landslides, 3) analyses and discussion of the stability of the landslide after the recommended stabilization measures have been completed, and 4) design parameters for design of the recommended stabilization measures. A draft report will be provided to the City and its peer review consultant and a final report will be prepared after the review comments have been considered and discussed with the City and its review consultant.

*Task 6: Meetings with City and Review Consultant*

We will meet with the City and its peer review consultant prior to the start of the investigation, following the completion of the subsurface exploration, and following review of the draft report.

*Alternative Scope of Work*

As requested in the RFP, we will can provide additional services relating to evaluating and developing recommendations for addressing adjacent areas of the roadway where there are signs of potential instability, but not active movements. This work is relatively minor compared to the primary scope and can be completed with very little additional effort and will be included within the base work described and proposed herein.

Phase 1 Deliverables: Draft and Final Soils Investigation Reports

Phase 2: Design Engineering

*Task 1: Stabilization System Design Calculations*

We will complete design calculations for the roadway stabilization system including slope stability analyses based on cross-sections developed from Phase 1, structural calculations for the anticipated stabilization piles and grade beam/retaining wall, and drainage calculations. The design calculations together with the slope stability analyses included in the soils investigation report will be intended to demonstrate that the recommended stabilization measures will not adversely impact the stability of the older underlying landslide on the adjacent properties.

*Task 2: Plans, Specifications, and Engineer's Estimate*

We anticipate that the plans will consist of five to seven sheets including: general notes, symbols and project description; site plan and the layout of the proposed stabilization measures; drainage plan; typical sections; developed elevation of the retaining wall; details; erosion control plans; and traffic control and construction staging. We assume that City will assist in preparation of the plan cover sheet. Plans will be prepared in standard Imperial units in general conformance with the Caltrans Drafting and Plans Manual. Details from Caltrans Standard Plans will be used where appropriate. Plans will be prepared using AutoCAD. If the plans need to be prepared using the City's drafting standards, we assume that the City will provide the necessary digital files for their standards.

Review submittals will be 11x17 inch half size plots. The final (approved) plans will be stamped and signed reproducible full-size plots on vellum. Final unsigned half-size plots will also be provided. If requested, electronic drawing files (AutoCAD 2008 "DWG" files) will be provided with the understanding that they will not be modified in any way without the consent of Cal Engineering & Geology. Signatures will not be digitized.

We will prepare project technical specifications pertinent to the retaining wall in general conformance with the Caltrans Standard Special Provisions (SSP) format which will augment, as necessary, the 2006 Standard Specifications. The project technical specifications which we prepare will become a part of

the overall project specification package prepared together with the City staff. The technical specifications will be provided as hard copy until the final approved submittal at which time a Word or WordPerfect file will also be provided.

An engineers estimate of the probable construction cost will be prepared based on known unit costs for similar public works projects on which we have worked in the past three years.

*Task 3: Meetings with City and Review Consultant*

We will meet with the City and its peer review consultant prior to the start of Phase 2 and following the completion of the Preliminary for Review PS&E.

Phase 2 Deliverables: The plans, specifications, and engineer's estimate will each be developed in three stages: A) Preliminary for Review (approximately 70%) in conjunction with the soils investigation report and a preliminary engineer's estimate; B) Pre-Final for Review (approximately 95%); and C) Final (stamped and signed).

Phase 3: Construction Support Services

The scope of construction support services will depend upon the level of assistance required by the project inspectors with regard to the retaining wall construction. We propose to provide a baseline of construction engineering services consisting of the following tasks:

- Attendance at pre-bid and pre-construction meetings;
- Review and respond to RFI's and project submittals;
- Observations during construction of the road stabilization system and pavement repairs;
- Special inspection and testing of the construction; and
- Preparation of summary of construction report and record drawing.

We assume that contract administration, construction staking, and all other inspection services will be handled by the City.

**Access to Adjacent Property**

Based on our proposed scope of work we anticipate that it will be necessary to access portions of apparent private properties below and above the road for the purpose of developing the site topographic survey, geologic mapping, and potential geophysical survey. We do not anticipate the need to drill or do destructive testing outside of the apparent road right of way.

Depending on the final design of the stabilization measures, it will may be necessary to obtain permanent or temporary encroachment permits for construction of stabilization piles and possibly tieback anchors.

**Proposed Schedule**

The proposed schedule for Phases 1 and 2 is provided in Table 1. The proposed schedule is based on good weather conditions and rapid turn around of reviews by the city and its review consultant. Should inclement weather develop, drilling may be delayed until safe conditions exist.

**PROPOSED LEVEL OF EFFORT AND COST**

The proposed level of effort and costs for Phases 1 and 2 are provided in Tables 2 and 3. The level of effort and cost for Phase 3 will depend upon the efficiency and scheduling of the contractor selected to complete the work and are not included herein. The proposed schedule is based on good weather conditions and rapid turn around of reviews by the city and its review consultant. Should inclement weather develop, drilling may be delayed until safe conditions exist.



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EXHIBIT A

**CAL ENGINEERING & GEOLOGY, INC.  
 2009 FEE SCHEDULE**

**Professional Services.** These are “all-up” rates, and include direct salary cost, overhead, general and administrative costs not separately accounted for, and profit.

<u>Classification</u>	<u>Rate</u>
Principal Engineer/Geologist	\$180 per hour
Associate Engineer/Geologist	\$150 per hour
Senior Engineer/Geologist	\$125 per hour
Project Engineer/Geologist	\$95-\$105 per hour
Staff Engineer / Geologist	\$85-\$90 per hour
Technician	\$80 per hour
Administration/Clerical	\$60 per hour
Deposition/Court Testimony (minimum 4 hours)	\$250 per hour

**Expenses.** All direct costs will be billed at actual cost plus 15%, unless there is explicit agreement otherwise. Direct costs include:

- ▶ Third party services – Fees for subcontracted third party services (including drilling and backhoe services, special consultant fees, permits, special equipment rental, overnight mail or messenger services and other similar project related costs)
- ▶ Reproduction costs, including photocopy, blueprints, graphics, photo prints or printing.

EXHIBIT A

**TABLE 2 - PROPOSED LEVEL OF EFFORT  
MARBURGER AVENUE ROAD STABILIZATION PROJECT**

PHASES	STAFFING REQUIREMENTS (hours)							EQUIPMENT HOURS AND REIMBURSABLES							
	Princ. Eng. P. Casper	Princ. Geol. M. Weiss	Sr. Eng. M. Myers	Sr. Geol. P. Dorman	Prin. Eng. S. Zurek	Prin. Eng. C. Housatt	Sr. Technician	TOTAL HOURS	Permits	Drilling (hours)	Topographic Survey (lump sum)	Lab. Testing (lump sum)	Aerial Photos (lump sum)	Messing	Copy/printing (lump sum)
Phase 1 - Site Exploration and Characterization and Report															
Task 1 Topographic Map	2	0	4	0	0	0	0	6	0	0	1	0	0	80	1
Task 2 Geology and Landslide Features Mapping	1	4	2	12	0	0	0	19	0	0	0	0	1	180	0
Task 3 Subsurface Investigation and Testing	0	0	4	22	0	0	0	26	1	22	0	0	0	0	0
Task 4 Laboratory Soils Testing	0	0	0	0	0	0	0	0	0	0	0	0	0	200	0
Task 5 Soils Investigation Report	4	4	12	6	8	0	0	34	0	0	0	0	0	200	0
Task 6 Meetings with City and Review Consultant	2	0	6	0	0	0	0	8	0	0	1	0	0	0	0
subtotal	11	12	26	40	8	0	0	99	1	22	1	1	1	640	1
Phase 2 - Design Engineering															
Task 1 Stabilization System Design Calculations	2	0	8	0	16	0	0	26	0	0	0	0	0	0	0
Task 2 Plans, Specifications, and Engineer's Estimate	2	0	8	0	20	80	20	130	0	0	0	0	0	0	0
Task 3 Meetings with City and Review Consultant	4	0	8	0	0	0	0	10	0	0	0	0	0	0	0
subtotal	8	0	22	0	36	80	20	146	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>19</b>	<b>12</b>	<b>50</b>	<b>40</b>	<b>44</b>	<b>80</b>	<b>20</b>	<b>245</b>	<b>1</b>	<b>22</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>640</b>	<b>1</b>

**TABLE 3 - PROPOSED COSTS  
MARBURGER AVENUE ROAD STABILIZATION PROJECT**

PHASES	STAFFING REQUIREMENTS (hours)							EQUIPMENT HOURS AND REIMBURSABLES							TOTAL DIRECT COSTS	TOTAL COST	
	Princ. Eng. P. Casper (\$150/hr)	Princ. Geol. M. Weiss (\$120/hr)	Sr. Eng. M. Myers (\$120/hr)	Sr. Geol. P. Dorman (\$120/hr)	Prin. Eng. S. Zurek (\$100/hr)	Prin. Eng. C. Housatt (\$100/hr)	Sr. Technician (\$50/hr)	TOTAL STAFF COST	Permits (\$500)	Drilling (\$21.0/hr)	Topographic Survey (lump sum)	Lab. Testing (lump sum)	Aerial Photos (lump sum)	Messing (\$0.15/mi)			Copy/printing (lump sum)
Phase 1 - Site Exploration and Characterization and Report																	
Task 1 Topographic Map	\$360	\$0	\$500	\$0	\$0	\$0	\$0	\$860	\$0	\$0	\$7,500	\$0	\$0	\$52	\$150	\$7,702	\$8,562
Task 2 Geology and Landslide Features Mapping	\$180	\$720	\$250	\$1,500	\$0	\$0	\$0	\$2,650	\$0	\$0	\$0	\$0	\$600	\$104	\$0	\$704	\$3,354
Task 3 Subsurface Investigation and Testing	\$360	\$720	\$0	\$2,750	\$0	\$0	\$0	\$3,830	\$500	\$4,620	\$0	\$0	\$0	\$0	\$0	\$5,120	\$8,950
Task 4 Laboratory Soils Testing	\$0	\$0	\$900	\$0	\$0	\$0	\$0	\$900	\$0	\$0	\$0	\$0	\$0	\$130	\$0	\$130	\$670
Task 5 Soils Investigation Report	\$720	\$720	\$1,500	\$750	\$800	\$0	\$0	\$4,490	\$0	\$0	\$0	\$0	\$130	\$150	\$280	\$4,770	\$4,770
Task 6 Meetings with City and Review Consultant	\$360	\$0	\$750	\$0	\$0	\$0	\$0	\$1,110	\$0	\$0	\$2,000	\$0	\$0	\$0	\$0	\$3,000	\$3,110
subtotal	\$1,980	\$2,160	\$3,500	\$5,000	\$800	\$0	\$0	\$13,440	\$500	\$4,620	\$7,500	\$2,000	\$600	\$416	\$300	\$18,336	\$29,276
Phase 2 - Design Engineering																	
Task 1 Stabilization System Design Calculations	\$360	\$0	\$1,200	\$0	\$1,600	\$0	\$0	\$2,960	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,960
Task 2 Plans, Specifications, and Engineer's Estimate	\$360	\$0	\$1,000	\$0	\$2,000	\$8,000	\$1,700	\$13,060	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$13,060
Task 3 Meetings with City and Review Consultant	\$720	\$0	\$750	\$0	\$0	\$0	\$0	\$1,470	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,470
subtotal	\$1,440	\$0	\$2,750	\$0	\$3,600	\$8,000	\$1,700	\$15,790	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$15,790
<b>TOTAL</b>	<b>\$3,420</b>	<b>\$2,160</b>	<b>\$6,250</b>	<b>\$5,000</b>	<b>\$4,400</b>	<b>\$8,000</b>	<b>\$1,700</b>	<b>\$29,230</b>	<b>\$500</b>	<b>\$4,620</b>	<b>\$7,500</b>	<b>\$2,000</b>	<b>\$600</b>	<b>\$416</b>	<b>\$300</b>	<b>\$15,936</b>	<b>\$45,166</b>

