

## Frank A. Voorvaart, Ph.D.

Dr. Voorvaart specializes in the evaluation of economic damages in complex commercial disputes. He has over fifteen years of experience in various dispute-related matters including patent infringement matters, breach of contract matters, real estate litigation consulting, and matters requiring economic and econometric analyses. Dr. Voorvaart's patent infringement experience centers on computer hardware, software and cellular communication technologies. His experience also includes the evaluation of class certification criteria and the assessment of property value diminution claims in residential class action litigation. Dr. Voorvaart has testified on matters pertaining to real estate valuation methodologies and to lost profits damages related to multi-family residential housing.



Dr. Voorvaart co-authored a chapter on quantifying damages in real estate litigation in the Litigation Services Handbook, 4th edition, published in 2007. He has also co-authored an article on residential real estate damages due to a property's proximity to high-voltage transmission lines.

### **Selected Experience**

#### **I. PATENT INFRINGEMENT MATTERS**

- Evaluated Plaintiff's royalty damages claim against a major computer and mobile communication company. Plaintiff claimed that Defendant's products infringed the Patents-in-Suit through the Defendant's use of a playlist feature for media files. Rebutted Plaintiff's expert's profit allocation approach for deriving a running royalty rate by demonstrating that the profit allocation was speculative and overstated the claimed benefits of the Patents-in-Suit. Developed affirmative royalty opinion based on Plaintiff's attempts to sell and otherwise monetize the Patents-in-Suit and related patents owned by Plaintiff.
- Plaintiff, owner of a patent allegedly related to certain software code in the Linux operating system, sued several major internet search providers and commerce companies for patent infringement. Rebutted Plaintiff's expert opinions by analyzing the costs associated with economically acceptable and technically feasible design-around alternatives. Also evaluated Plaintiff's expert use of the Nash Bargaining Solution in arriving at the claimed reasonable royalty rate.
- Plaintiff sued several media companies for patent infringement related to the displaying of advertisement on Defendants' websites. Evaluated Plaintiffs' expert

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derivation of the claimed royalty rate and his use of the 25% Rule. Developed affirmative royalty damages opinion based on comparable license agreements and economic indicators of value such as Plaintiff's prior licensing and commercialization attempts of the Patents-in-Suit.

- Evaluated Plaintiff's royalty damages claim related to internet search technology. Plaintiff claimed that a major internet search provide was incorporating Plaintiff's technology in its search and advertising placement products. Assisted in the evaluation of company and market specific information as well as the relevant Georgia-Pacific factors in determining the outcome of a hypothetical negotiation between Plaintiff and Defendant.
- In a patent infringement matter related to the secure communication between computers over the internet, evaluated market and company specific information, Plaintiff's expert use of the 25% Rule, and federal court decisions related to the entire market value rule and the appropriate standard of analysis for the use of comparable patent license agreements. Assisted in the development of an alternative damages estimate.
- Plaintiffs, the current and former owners of a patent related to the processing of documents with XML elements, sued a major software manufacturer for allegedly incorporating the patented technology in one of its software applications. Evaluated Plaintiffs' claimed reasonable royalty damages. Based on an evaluation of the Plaintiffs' historical financial performance before and after the time of the hypothetical negotiation, market demand for and supply of products allegedly similar to the claimed technology, the economic contributions of the Defendant to the successful commercialization of the accused products, and the Georgia-Pacific factors, assisted in the development of alternative damages estimate. Additionally, analyzed the four factors outlined in the eBay Inc. v. Mercexchange L.L.C. matter to determine if, based on economic considerations, an injunction against the Defendant's accused products would be warranted.
- In a patent infringement matter related to UMTS/WCDMA cellular phone technology, Plaintiff alleged it had offered Defendant a license to Plaintiff's patent portfolio on fair, reasonable, and non-discriminatory ("FRAND") terms (as required by the European Telecommunications Standards Institute's intellectual property right policy). Analyzed and evaluated a number of issues relating to the economic benefits associated with patents, the economic benefits associated with standard setting organizations, and the economic evidence related to the FRAND principles.
- Plaintiff, a patent holding company which had acquired a patent related to the faster loading of software applications, sued a major software manufacturer for reasonable royalty damages. Evaluated Plaintiff's damages claim by analyzing the financial performance of the company who would have negotiated a license for the patent-in-suit with the Defendant. Further evaluated the demand for the products allegedly

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embodying the patent-in-suit, Defendant's contributions to the successful commercialization of the accused products, and Defendant's patent licensing approach.

- In a patent infringement matter against two major microprocessor manufacturers, assisted in the calculation of Plaintiff's reasonable royalty damages due to the manufacturers' infringement of Plaintiff's patents related to the faster execution of microprocessor operating instructions. The analysis included an evaluation of the market conditions for Defendants' products, Defendants' patent licensing approach, Defendants' pricing of the accused products, and the Georgia-Pacific factors relevant to the matter at hand.
- Assisted in the quantification of damages suffered by an internet-based market place resulting from Defendant's alleged infringement of Plaintiff's patent. Plaintiff, a leading provider of on-line customer new-car purchase requests, claimed lost profits due to diminished sales and reasonable royalty damages for Defendant's infringing sales for which Plaintiff was not claiming lost profits. Also evaluated Plaintiff's increased costs incurred as a result of Defendant's alleged infringement.

## **II. COMMERCIAL DISPUTES**

- In a False Claims Act matter, assisted in the evaluation of Plaintiffs' expert report related to the submission of allegedly false claims against the U.S. Government. Plaintiffs' expert developed a cointegration regression model to estimate the alleged overcharge paid by the U.S. Government for military household transportation services due to a claimed conspiracy. Rebutting the validity of the regression model by analyzing the internal consistency of the model and the economic conditions not incorporated in Plaintiffs' model.
- In an alleged breach of contract related to the acquisition of an apartment complex in the Houston, Texas area, evaluated the contract language to ascertain if, from an economic perspective, the contract contained all relevant elements of a put option contract. Further, evaluated the economic conditions of the 2007-2008 financial crises to determine how Defendant's economic position was affected by the changing market conditions from 2007 to 2008.
- Evaluated the monetary damages sustained by Plaintiff due to the delayed closing on a multi-family residential rental property. Reviewed Plaintiff's and Defendant's income statements, rent rolls and other financial data, and local real estate market data to calculate Plaintiff's lost profits. Analyzed the terms and conditions of Plaintiff's financing to derive Plaintiff's increased financing costs. Provided deposition and trial testimony.
- Assisted in the calculation of Counter-Plaintiff's damages related to Counter-Defendant's failure to provide the former with a continued license to Counter-Defendant's semiconductor-related patent portfolio. Both parties entered into a

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license agreement which Counter-Plaintiff claimed allowed it to receive a lower royalty rate based upon a most-favored licensee clause contained in the license agreement. Assisted with the economic interpretation of certain licensing terms and determined Counter-Plaintiff's royalty payments should the court affirm the most-favored licensee provision in favor of the Counter-Plaintiff.

- Evaluated Plaintiffs' damages claim arising from an alleged breach of contract related to the sale of a community club house and other related recreational facilities in an age-restricted residential neighborhood. Plaintiffs claimed that since they were not given the opportunity to exercise their right-of-first refusal to purchase the contested real estate assets, they lost the value of the equity associated with the real estate assets and that they were required to make operating expense payments in excess of the payments they would have made had they been able to purchase the real estate assets in question. Evaluated the reports submitted by Plaintiffs' experts and assisted in the determination that Plaintiffs' experts failed to properly consider the economic factors driving the value of the real estate assets in question.
- Evaluated Plaintiff's claim that the alleged wrongful conduct of the Defendants caused Plaintiff to lose his medical privileges at a hospital and sustain past and future reduction in earnings. Rebutted Plaintiff's claim by analyzing the financial data of the doctor's medical practice, the earnings life-cycle of physicians, and other potentially mitigating factors.
- Evaluated Plaintiffs' damages claim related to the losses associated with Plaintiffs' fixed income securities holdings. The declines in value of the fixed income securities were precipitated by the discovery of accounting irregularities within the company issuing the fixed income securities. In addition to claiming damages from the issuing company, Plaintiffs sought to recover damages from the brokerage company advising Plaintiffs. Analysis demonstrated Plaintiffs' expert did not properly consider mitigating factors, incorrectly allocated damages to the brokerage company, and did not consider Plaintiffs' trading activity showing inconsistencies with Plaintiffs' allegations.
- Assisted in the evaluation of lost profits incurred by Plaintiffs due to Defendants' alleged non-performance of certain contractually agreed upon services. Plaintiff contracted with Defendants, a telemedia servicing company, for order taking and fulfillment services. Developed a database to reconstruct the order taking system of the telemedia servicing company and evaluated customer records to evaluate Plaintiff's lost profits due to the alleged failure of Defendants to properly process customer orders. Also evaluated consumer response rates to Plaintiff's advertising.
- Evaluated a business proposal within an uncertain regulatory and economic environment. Analyzed the financial and regulatory feasibility of storing and selling water stored in underground reservoirs.

### III. REAL ESTATE LITIGATION / CONSULTING

- Evaluated the potential impact of high-voltage transmission lines on residential property values in Massachusetts and Connecticut. Field data was collected on over 1,200 sale transactions relative to proximity to and visibility of transmission line towers, and the extent of property encumbrance by the transmission line easement. Through the use of a multiple regression model studied if (and to what extent) proximity to, visibility of, or encumbrance by a transmission line easement impacted property values.
- Evaluated Plaintiff's real estate appraisal methodologies used to demonstrate that Plaintiff's property was diminished in value due to alleged radioactive contamination from a proximate a nuclear power generating facility.
- Rebutted an opposing expert's use of a contingent valuation methodology to assess damages to residential real property in Norco, CA. Submitted a declaration addressing the validity of Plaintiffs' expert methodology. Plaintiffs claimed that at time of sale Defendants provided inadequate disclosure related to certain environmental conditions causing Plaintiffs to overpay for their real property purchases. As part of the Plaintiffs' valuation approach, Plaintiffs' expert used a contingent valuation survey to demonstrate that Plaintiffs suffered damages. Reviewed opposing expert's survey instrument and performed literature review to demonstrate that the use of contingent valuation methodologies is not a reliable valuation approach and that the survey instrument did not incorporate basic real estate valuation concepts.
- Used appraisal-based methodologies to evaluate Plaintiffs' claim that a proposed class of several hundred residential properties were suited for class treatment. Plaintiffs claimed that their properties in the Spring Valley neighborhood of Washington, DC were diminished in value due to the presence of heavy metals and other toxic substances. Developed arguments to oppose class certification based on the unique characteristics of the class area and assisted in the drafting of an affidavit opposing certification.
- Performed analyses and drafted affidavit opposing class certification in a property value diminution matter in Columbus, Georgia. Plaintiffs alleged that Defendant's carbon black emissions caused wide spread diminution in property values within a 2-mile radius of Defendant's manufacturing plant. Used GIS-based analysis to demonstrate diversity of housing stock and predominance of individualized factors precluding the use of a common valuation approach.
- Evaluated Plaintiffs' property and neighborhood characteristics with respect to class certification criteria in Wilton, CT. Plaintiffs claimed that MTBE contamination emanating from a local gas station diminished nearby property values. Performed research of local housing characteristics to demonstrate (a) the diversity of the proposed class membership, that Plaintiffs' properties were not representative of the remaining class members, and that, given the environmental history of the named

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Plaintiffs, individualized factors with respect to the valuation issues would predominate over common issues.

- Assisted in the analysis of the impact of PCB contamination on commercial and residential property values in Rome, GA. Performed primary real estate market research in the Rome, GA area and consulted with a local appraiser and surveyor to determine the impact of the PCB contamination on the development potential of a large residential parcel and a former home improvement retail building.
- Used an appraisal and statistics-based valuation process to assess the alleged impact of PCB contamination on of single-family residential property values in Pittsfield, MA. Assisted in the drafting of a declaration opposing class certification and of a report evaluating Pittsfield's real estate market conditions from 1982 through 2001. The analyses involved several hundred residential properties within the Housatonic River floodplain and other affected properties within the city boundaries.
- Developed a database to capture residential sales transactions of lake front properties in central Alabama. Used statistical methods to evaluate Plaintiffs' claims that PCB contamination negatively affected Plaintiffs' property values.
- Evaluated property value diminution claims arising from arsenic soil contamination in Fort Valley, GA. Performed a review of media accounts to ascertain public knowledge with respect to the environmental history of the affected neighborhood.
- Analyzed claims of property value diminution for approximately 1,000 residential property owners due to soil and groundwater contamination in Pompton Lakes, NJ.
- Analyzed allegations of property value diminution arising from soil and groundwater contamination for a large number of residential properties in Houston, TX.
- Analyzed the effect of a proposed expansion of a power generating facility on surrounding residential property values in Gilbert, AZ.
- Performed real estate market research in Colorado to demonstrate diversity of proposed class with respect to impact of a potentially defective product and resulting damages.
- (Non-litigation setting). Conducted an in-depth review of relevant appraisal literature and performed statistical analyses with respect to the impact of high voltage transmission lines on residential properties in Southern California.
- Assisted in the evaluation of potential residential property value impacts from high-voltage transmission lines in Connecticut and Massachusetts.

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### IV. ECONOMIC/BUSINESS ANALYSES AND AUDIT-RELATED FUNCTIONS

- Assisted a major telecommunications company in preparing for Sarbanes-Oxley 404 internal controls testing.
- Tested internal controls of an aerospace manufacturing company for Sarbanes-Oxley 404 purposes.
- Assisted in the investigation of a \$1 billion purchase price dispute between two major international manufacturing companies. Analyzed company financial statements and other internal documents to evaluate management knowledge of certain material facts relevant to the acquiring company.
- Analyzed the payroll records of a major U.S. airline company to determine its eligibility for tax credits.
- Evaluated the statistical analysis of an opposing expert relating to mortgage insurance premiums.
- Assisted in the statistical modeling of copper prices to ascertain potential damages arising from the manipulation of the world copper market.
- Developed a statistical model to assess the impact of a changing competitive retail environment on retail store revenues.

### **Professional and Business History**

**EconLit LLC**, Director, Economic and Litigation Consulting (July 2011 – present)

**Analysis Group, Inc.**, Various Positions (Manager – Vice President), Economic and Litigation Consulting (April 2006 – June 2011)

**PricewaterhouseCoopers LLP**, Various Positions (Staff – Director), Financial Advisory Services (April 1996 – April 2006)

**Arizona State University**, Teaching Assistant/Lecturer, Department of Economics (June 1994 – December 1995)

### **Education**

Doctor of Philosophy (Economics), Arizona State University, August 2004

Master of Science (Economics), Arizona State University, May 1994

Bachelor of Science (Economics), Arizona State University, August 1992

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## Publications

Weil, Roman L., Michael J. Wagner and Peter B. Frank. *Litigation Services Handbook: The Role of the Financial Expert (4<sup>th</sup> ed.)*, New York: John Wiley & Sons, Inc., 2007. Real Estate Damages, (with Thomas E. Kabat).

“High-Voltage Transmission Lines: Proximity, Visibility, and Encumbrance Effects” (with James A. Chalmers), *The Appraisal Journal*, Summer 2009.

## Presentations

2009 EEI/NRECA Utility Siting Workshop, *Transmission and Generating Siting In a Changing Economic and Regulatory World*, Burlington, VT, October 18-21, 2009.

American Law Institute | American Bar Association, *Eminent Domain and Land Value Litigation*, Coral Gables, FL, February 17-19, 2011.

## Deposition Testimony

***Beaudet, et al. v. Western Pacific Housing - Norco Estates, LLC, et al.***, Superior Court of the State of California for the County of Riverside - Corona District, Case No. 369796. Deposition testimony, October 2005.

***Warner Alan Properties, LLC, and Warner Alan/Westcliff, Ltd. v. Paciwest, Inc.***, In the District Court of Tarrant County, Texas, 96<sup>th</sup> Judicial District, Cause No. 096-214350-05. Deposition testimony, February 2007.

***Warner Alan Properties, LLC, and Warner Alan/Westcliff, Ltd. v. Paciwest, Inc.***, In the District Court of Tarrant County, Texas, 96<sup>th</sup> Judicial District, Cause No. 096-214350-05. Deposition testimony, December 2009.

## Trial Testimony

***Warner Alan Properties, LLC, and Warner Alan/Westcliff, Ltd. v. Paciwest, Inc.***, In the District Court of Tarrant County, Texas, 96<sup>th</sup> Judicial District, Cause No. 096-214350-05. Trial testimony, February 2010.