

TECHNICAL PROPOSAL



**Speed Management and Automated Speeding Enforcement Management
Solicitation No. DTHN22-07-R-00056**

Submitted To:

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Demonstration and Evaluation of Speed Management and Enforcement Project

II. INTRODUCTION

Nearly seventy years ago, J. Stannard Baker began publishing a series of comprehensive training manuals for police that soon became a veritable bible for crash investigators nationwide. While these workhorse reference books were primarily dedicated to the “How To” aspects of crash investigations, in later versions he concentrated on why crashes occurred.

In the 1975 *Traffic Accident Investigation Manual* (Northwestern University Traffic Institute) he described his thoughts on the issue of the causation factors for accidents. He defined cause as “the combination of simultaneous and sequential factors without which the result could not have occurred”. He then defined factor as “any circumstance contributing to a result without which the result could not have occurred”. He further said that each factor is an element which is necessary to produce the result, but not, by itself, sufficient. Substitute “crash” or “accident” for “result” and you have the birth of Baker’s “Accident Causation Chain Theory”.

His theory holds that if you modify or eliminate any one factor in the chain, the chain would be broken and the crash would not have occurred. For example, a very young driver is driving down a rain slick roadway, at night, with faulty wiper blades, on bald tires and at a speed too fast for conditions, runs off the roadway and strikes a tree. Baker would hold that by making a positive change to any one of these factors (i.e. a seasoned driver versus a young, inexperienced, risky driver or ample tire tread versus bald tires), the crash would have been avoided.

Modern causal relationship theorists would argue, correctly so, that a favorable modification to a single factor might not be sufficient to erase the crash event. But, they would agree that it would reduce the potential of the crash taking place to some greater or lesser degree – depending upon the factor involved.

This discussion is intended to focus attention on the premise that there may be any number of factors that, together, contribute to a traffic crash. However, the entire traffic safety community would agree that one that contributes far too frequently to serious crashes is speeding. An analysis of too many fatal crashes concludes with speeding, or speed too fast for conditions, as a principal contributing factor.

Speeding reduces a driver’s ability to steer safely around curves or objects in the roadway, extends the distance necessary to stop a vehicle, and increases the distance a vehicle travels while the driver reacts to a dangerous situation.

This proposed NHTSA demonstration project is intended to reduce incidents of speeding on targeted roadways and, thereby, reduce the number and severity of crashes taking place on those roadways. The special focus of this demonstration project is on the integration of automated speed enforcement (ASE) with traditional speed enforcement countermeasures to maximize the impact of both strategies.

Also, an inherent objective of this demonstration project is to assess the overall and specific impact of the integration of these enforcement speed countermeasures and associated communication and education plan. Additionally, any lessons learned that would be helpful to other communities implementing a similar program needs to be reported. These lessons should include, if possible, the configuration of resources which appeared to be effective and challenges that prospective communities should be prepared to address.

The MDAC Team proposes the research question for this demonstration project could be:

“How are vehicle speed and crash rates and public perceptions impacted by the implementation of a long-term, rigorous enforcement campaign of targeted high speed, high crash roadways possessing appropriately posted speed limits which integrate automated and traditional selective enforcement speed countermeasures as well as a focused public education campaign?”

II-A. UNDERSTANDING OF STATEMENT OF WORK

NHTSA's primary objective is to save lives by reducing injuries and fatalities on the nation's roadways. Research projects, such as this integrated enforcement demonstration program to reduce speeding on targeted roadways are a major component of the agency's strategy for achieving that objective. Given NHTSA expends substantial resources for a multitude of intervention programs and has many partners, NHTSA needs to understand the effectiveness of its initiatives nationally, regionally and by other dimensions of interest. The capability to obtain and disseminate this information to States and other partners is a core component of NHTSA's role as a leader, facilitator and resource in identifying, making operational and promoting effective intervention approaches within traffic safety behavioral program areas depends upon the core component of obtaining and disseminating information to States and other partners. The process involves an ongoing evaluation of the effectiveness of intervention initiatives and programs.

The issue of speed and its relationship to crashes and attendant injuries and fatalities has always been a NHTSA priority. NHTSA considers a crash being speed related if any driver involved in the crash is charged with a speeding-related offense or if a police officer indicates that racing, driving too fast for conditions, or exceeding the posted speed limit was a contributing factor in the crash.

In the latest available US DOT sponsored report *Analysis of Speeding-Related Fatal Motor Vehicle Traffic Crashes, August 2005*, the following data were reported. About a third of all fatalities in 2002, or 13,713, that occurred in motor vehicle traffic crashes were speeding-related. That is at least one of the drivers involved in the crash was speeding. The 2002 data indicates the highest number of speeding-related fatalities since 1991, when 13,915 persons were killed.

The enforcement of speed laws has been a law enforcement duty and responsibility almost since the advent of the automobile. The mechanisms for speed enforcement have evolved from stopwatches, to pacing speeders, to VASCAR, to RADAR to LIDAR (Laser) – and now to automated speed enforcement (ASE) using photo-radar technology.

Photo-radar equipment combines a camera and radar with electronic controls to detect and photograph a speeding vehicle. The unit can photograph the driver's face and the front license plate if deployed to photograph oncoming traffic or the rear license plate if deployed to photograph receding traffic, or both. The equipment extracts the license number of the speeding vehicle from the photo and a citation is sent to the registered owner of the vehicle. The latest versions of ASE incorporate digital imaging and laser technology (instead of radar) to achieve the same outcome in a more efficient and effective manner.

The special focus of this demonstration project utilizes the integration of ASE with traditional speed enforcement countermeasures to maximize the impact of both strategies on reducing speeds and crashes.

Over a dozen countries worldwide have been using automated speed enforcement for over 30 years. In the United States, ASE use has been spottier and less successful with only about a dozen states and three dozen cities adopting the technology over the past decade or so. The relative lack of use of ASE in the US appears not to be a function of legal acceptance but public and political approval. Even in locations permitting ASE, its use is often restricted to rail road crossings and school zones. Concerns about “big brother” tactics and how the revenues gained from ASE will be used seem to be principal concerns. Still, in those locations where ASE is allowed, public approval ratings are almost always favorable.

NHTSA considers ASE to be a supplement to, not a replacement for, traditional speed enforcement countermeasures. The purpose of this project is to establish a long-term, consistent application of integrated automated speed enforcement and traditional speed enforcement countermeasures combined with a sustained public information and education initiative. The desired output of this project is to showcase ASE in a successful speed enforcement initiative that reduces overall speeds and crashes associated with them while raising public awareness and understanding. In doing so, the merits of ASE may be documented and presented nationwide in an effort to promote its use.

Therefore, the MDAC Team is an appropriate partner for NHTSA given it is multi-disciplined, has exceptional expertise in speed enforcement and general traffic safety issues, advertising and promotions, behavioral programs, evaluation methodologies, the capability to initiate telephone surveys both quickly and appropriately, multi-task and provide a high level of experienced staff for contract tasks.

M. Davis and Company, Inc.'s team is exceptional by all standards and is committed to providing superior service and results. MDAC successfully manages project teams to deliver high quality. MDAC is known for seamlessly transitioning from previous contractors and exceeding previous performance levels. The team provides redundancy within key tasks and a level of collaboration that ensures highly qualified and experienced team members are collectively addressing NHTSA project needs.

II-B. PROJECT OBJECTIVES

Develop a self sustaining and effective speed management program using both traditional and automated enforcement methods. The project will incorporate setting rational speed limits, a public communications plan, and rigorously enforced speed limits over a defined geographic area to achieve higher compliance with speed limits and reduction in speeding related crashes.

II-C. STUDY SUCCESS FACTORS

The approach in this proposal rest on key success criteria, inclusive of the following:

- ***Proven expertise in traffic safety and the design, implementation and management of selective speed enforcement countermeasures.***

The MDAC Team has retained the services of Inspector Richard Miller, Michigan State Police (retired), a seasoned and credible law enforcement professional with a long and extensive traffic safety background of over 35 years. While with the Michigan State Police (MSP), Mr. Miller was once responsible for planning and implementing all MSP selective enforcement programs involving speed, alcohol and safety belts. While serving a one-year assignment with NHTSA, he authored much of the original NHTSA Police Traffic RADAR training program still in use nationwide. He later was personally responsible for selective speed enforcement efforts as a MSP post commander at both general service and expressway post operations over a twelve year period. Mr. Miller is the recipient of the coveted Michigan State Safety Commission Traffic Safety Award for Outstanding Long Term Contributions to Traffic Safety.

- ***Extensive knowledge regarding the history and present application of Automated Speed Enforcement (ASE) technology.***

The MDAC Team, through Mr. Miller, has acquired an in depth knowledge of ASE technology and issues. Mr. Miller spent a second career as Community Safety Services Manager for AAA Michigan. In that capacity he served on a number of state and national committees having an expressed interest in ASE and red light cameras. Mr. Miller has testified before the Michigan legislature and presented on law enforcement panels on the issue of automated enforcement.

- ***An ability to conduct precise traffic safety engineering studies, road safety audits and the professional experience to compile and make meaningful the data derived.***

Opus International Consultants, an engineering firm with a long history of providing and documenting in depth engineering studies for traffic safety projects has been retained as a sub-contractor for the MDAC Team. Opus has conducted many similar studies under the purview of the Federal Highway Administration and has an outstanding reputation in this specialized field.

- ***The project design, sampling and data analysis expertise is exemplary.***

The MDAC Team, most notably Opus International Consultants and HDR/HLB Decision Economics, Inc, has undertaken significant projects nationally and internationally, which has required a rigorous level of project design expertise, data analysis, report development and consultation.

- ***A demonstrated ability to achieve response rates in excess of industry norms.***

The MDAC team has extensive experience completing large RDD telephone studies. The studies have been related to multiple industries, government agencies, geographies, incomes, races/ethnicities, languages and many other variables. Our experience with various clients and diverse populations, interviewing training and staffing continues to contribute to our success in achieving high response rates.

The MDAC Team has achieved response rates of 40% or greater in studies fielded in less than two weeks. However, given we will not utilize pre-notification letters we intend to suggest other measures to achieve or exceed industry norms for surveys that do not use extraordinary means for raising response rates.

- ***Capability to complete the required surveys for NHTSA per specifications, within budget and on schedule.***

The MDAC Team has successfully completed RDD telephone projects for Fortune 500 companies, NHTSA and other agencies and offices within DOT, and other federal agencies, including HHS and HUD.

- ***Experience developing, evaluating advertising and promotion campaigns designed to increase awareness, change attitudes and modify behavior.***

Ron Campbell, a senior consultant for this project is a preeminent authority on advertising and promotion campaigns. Ron developed his skills over two and one-half decades at “blue chip” advertising agencies, like Foote, Cone & Belding, Benton & Bowles and other agencies where his responsibilities included accounts such as Proctor & Gamble, Richardson Vick, Sears, The Southland Corporation, and The Drackett Company. Additionally, he has managed projects for government agencies, such as, The Fannie Mae Foundation, The Fannie Mae Corporation, Department of Housing and Urban Development and the Food and Drug Administration.

II-D. PROJECT TEAM

The project team for this project is lead by M. Davis and Company, Inc. (MDAC), one of the premier market research, strategic market planning, opinion measurement and program evaluation organizations with extensive experience completing quick turnaround, RDD surveys and while surpassing response rates of 50%. Additionally, the Principal Investigator for the Team will be Inspector Richard Miller, Michigan State Police (retired). Mr. Miller is an expert in traffic safety with extensive experience in development of enforcement plans, automated enforcement technology, traditional speed enforcement measures and the dynamics and challenges of implementing an integrated speed enforcement campaign. MDAC will be supported, by Worth Associates, Inc. a renowned communications firm that has former State Dot communications directors on their team; Opus International Consultants, a well respected engineering firm with exceptional expertise in conducting engineering studies; and, HDR/HLB Decision Economics, Inc., a premier transportation consulting company serving DOT and other government entities as well as the private sector both nationally and, internationally.

M. Davis and Company, Inc. is the prime MDAC Team, a role it has undertaken on government projects for HUD, DOD, DOT and HHS. As the prime MDAC Team, MDAC will provide management oversight, interface with the COTR, ensure deliverables are provided per specifications and on-time and maintain client satisfaction. Additionally, MDAC will lead the research design, questionnaire modifications, sample generation, interviewer training/refusal avoidance, execution of surveys, data base preparation and processing, analysis and report development.

M. Davis and Company, in business for 21 years, has worked with all business sectors, from Fortune 500 corporations (Exxon Mobil, General Motors, Motorola) to a variety of state and Federal agencies. Within the public sector, MDAC has worked with such governmental organizations such as the U.S. Department of Transportation, Federal Transit Administration, South Carolina Department of Highways, U.S. Department of Health and Human Services, U.S. Department of Housing and Urban Development, U.S. Army Reserve, and the Pennsylvania Department of Economic Development to name a few, along with other

transportation entities such as AMTRAK, Septa, and FirstGroup America (First Transit Management and First Transit Contracting).

At present, MDAC is conducting studies for NHTSA related to Impaired Driving, Nighttime Driving and Passenger Fatalities. Additionally, MDAC is conducting The Omnibus Household Survey for the Bureau of Transportation Statistics (BTS), Department of Transportation. MDAC is the prime on all of the aforementioned projects. MDAC consistently achieves response rates as high as 50% or greater for the surveys it conducts.

Additionally, MDAC has conducted over 100,000 interviews for health care providers serving the Medicaid and Medicare eligible communities. These interviews were designed, in-part, to assess the health of respondents, their housing and living conditions, ability to travel to medical appointments, the pharmacy and undertake shopping for household essentials. The information was used to develop health risk scores and specific interventions to help respondents cope with ongoing quality of life challenges. The interviews were conducted in-language (e.g. English, Spanish and Russian).

MDAC headquarters are located in downtown Philadelphia office. MDAC has 100 state of the art telephone interviewing stations (CATI). The call centers have both in-bound (toll-free number access) and out-bound, remote monitoring capability suitable for survey research and administration, customer satisfaction tracking, quality assurance monitoring, help desk operations and many other functions.

Overall, the firm has worked with Fortune 500 companies, federal agencies, housing authorities, housing and community development agencies community organizations, transit providers, government agencies and other entities on large, complex, highly sensitive and visible projects/engagements to develop, implement and evaluate strategic and action plans to improve programs, service delivery and outcomes. We have experience with multi-cultural populations (Latino, Russian, Haitian, Portuguese, Chinese, Vietnamese, and other populations where English is not the primary language spoken at home), and have successfully worked with low-income, elderly, physically and mentally challenged, homeless, and other special needs populations.

At MDAC, we believe our clients are buying results, not volumes of data. To achieve success we supply our clients with solutions, not just more information about existing problems. Our holistic approach not only includes forging a close relationship with our clients by becoming their trusted partner, but a strategic initiative to address problems facing the respective organization. We build bridges between objectives and performance through our holistic approach of providing the appropriate design, unending pursuit of excellence and commitment to execution and project outcomes.

In sum, the MDAC Team is an exemplary combination of expertise committed to working with the National Highway Traffic and Safety Administration to

successfully implement and manage a demonstration speed management program.

III. TECHNICAL APPROACH FOR PROJECT COMPLETION

TASK 1: ATTEND KICKOFF MEETING

The MDAC Team will meet with the NHTSA Contracting Officer's Technical Representative (COTR) and other invited parties at the Department of Transportation (DOT)/NHTSA headquarters building located in Washington, D.C. within two weeks following contract award to provide an informal briefing of the work plan based on the proposal. At this meeting the MDAC Team shall present its overall approach to the project and an exchange will occur with the COTR and other invited parties that will clarify any ambiguities that may have arisen.

TASK 2: PREPARE WORK PLAN

The MDAC Team will prepare a detailed work plan and schedule for conducting the demonstration project based on comments from NHTSA at the kickoff meeting. The work plan shall describe the roadway types and amount of data to be collected, procedures and equipment to be used, plans for engineering, enforcement, including automated speeding enforcement, and a communications and media plan. The plan shall also contain a description of the major events along with a schedule and a major time scale identifying the beginning and completion dates for each task. The sequence in which the tasks shall be performed and the major milestones established in conformance with the project objectives shall be provided. The work plan shall contain specific evaluation research questions or issues to be addressed in this project. If needed, MDAC will revise the work plan as NHTSA requests.

TASK 3: PREPARE DRAFT OF FEDERAL NOTICE

The MDAC Team will collaborate with NHTSA in the development and submission of the Federal Register Notice. The MDAC Team will address all OMB concerns until the Federal Register Notice is approved.

TASK 4: GEOGRAPHIC AREA (SITE) SELECTION

The success of this demonstration project will be dependent on finding a host jurisdiction that meets a large number of critical criteria, many already listed within the NHTSA RFP. To expedite the screening process, these factors will need to be placed in a hierarchal order. In doing so, opportunities to screen out potential sites without further time or consideration wasted will be identified. The MDAC Team intends to approach this process in the following manner.

Task 4.1 Establish Whether ASE is Currently Permitted or, at Least, Not Prohibited

The first criterion that must be met is whether a potential host agency already has the authority to conduct Automated Speed Enforcement (ASE) within their jurisdiction. Attachment 1 represents a literature search list of states and municipalities within states that appear to be currently conducting ASE as of July, 2007. This list, which is very likely incomplete, was compiled using information gained from the Insurance Institute for Highway Safety website as well as contacts made with a handful of ASE equipment vendors. This first review yielded about three dozen total sites for consideration.

Assistance from NHTSA as well as a deeper investigation will likely reveal additional agencies for consideration - including where ASE may be lawful but not currently being conducted. It appears that about half of all states have no law specifically permitting or prohibiting ASE. Unfortunately, at first glance, there also appears to be little or no automated speed enforcement activity on the horizon for these states.

It must be stressed that simply the absence of a law prohibiting automated enforcement does not imply that it is, therefore, lawful. In any case, unless a state not currently conducting ASE is identified as primed and ready to go, the process for introducing ASE to law enforcement, government and the public and then implementing it may fall well outside the time constraints of this project proposal. As importantly, there is no guarantee that any such effort undertaken to introduce ASE would be successful.

A related issue for jurisdictions already conducting ASE will be whether the program has grown so mature that all appropriate roadways have already been repeatedly targeted for speed enforcement, either ASE or traditional countermeasures. The focus of this demonstration project is to establish a sustained speed enforcement effort on roadways where doing so can result in a positive modification in overall vehicle speeds and crashes. Agencies already having exercised aggressive, successful speed enforcement strategies throughout their jurisdictions over a long period of time may not be suitable candidates. Also, the public may have already formed an opinion, positive or negative, about ASE that might not be swayed by this demonstration project. Ideally, this effort should be targeted within a jurisdiction that has just recently added ASE as an option and may not have exhibited intensive levels of traditional speed enforcement on all problem roadways.

Task 4.2 Size of City or Municipality

A host jurisdiction must possess a sufficient population base to support satisfactory traffic volumes and attendant crashes to permit evaluation methodologies to assign statistical significance to data. While some smaller jurisdictions, neighboring much larger ones, may demonstrate significant numbers of crashes on their arterial roadways, it is unlikely they will possess sufficient law enforcement resources to meet the intensive needs of this demonstration project.

Attachment 2 represents a first screening of the known ASE jurisdictions based on population figures obtained from the US Census Bureau. For purposes of this discussion, the minimum population for consideration will be 200,000 and the maximum 1,500,000. Screening all known potential ASE sites by population reduces the number of possible sites by nearly two thirds.

Task 4.3 The Geographic Area Should Have a Mixture of Suburban and Rural Roadway Characteristics (From C.2 GENERAL REQUIREMENTS):

The NHTSA RFP stipulates that this project target urban arterial, collector, suburban and rural roadways. This effectively describes posted speed limits typically ranging from 35-55MPH. Preliminary research on the current applications of ASE indicates that many states and/or municipalities restrict ASE to low-speed enforcement of school zones and/or residential neighborhoods.

Attachment 3 represents a first screening of probable applications of ASE and posted speed limits within the existing list of candidates. It is not yet clear what the ASE speed limit policies are of some these states and municipalities. Even so, by applying this criterion, other ASE issues identified in this process, plus basic population requirements, the total number of currently known ASE jurisdictions drops to less than one third of the original list of candidates.

The MDAC Team does not imply that the attachments represent a final listing of all possible ASE project candidate sites or a completely accurate picture of population and basic ASE program issues to consider. It is only intended to provide a rough outline of these issues in respect to what the MDAC Team will face in searching out possible candidates for this project. An in-depth literature search will be conducted, with NHTSA assistance, including contact with appropriate existing ASE sites upon award of the contract.

Task 4.4 Rationally Set Speed Limits (From C.2 General Requirements)

The NHTSA RFP clearly requires that road segments being considered for enforcement have been evaluated as being posted with rational speed limits, a concept central to the demonstration.

While it is certain that some road agencies around the country may unduly react to political or public pressure in setting speeds, that should not infer all do so. The MDAC Team will make every effort to ascertain during the site selection process whether candidate jurisdictions are stringent about setting appropriate speed limits or, at least, determine how promptly posted speed limits can be modified.

The RFP language requires that sites selected having inappropriately set speed limits have those speed limits changed prior to project implementation. In the MDAC Team's experience, these changes are neither a swift or certain process. The RFP timetable seems to describe identifying and changing speed limits within a very short period. If successful at all, such changes typically take a minimum of six months and more likely a year or more to work through the system.

Choosing enforcement locations already demonstrating suitable posted speed limits will significantly speed up the implementation of the program while simultaneously meeting the core and important objective of fairness to the public. In the MDAC Team's opinion, this will represent a critical criterion.

Task 4.5 Additional Site Selection Criteria

The following criteria from the RFP require minimal discussion and will need to be established through additional literary research and sites visits of candidate jurisdictions:

- The existence of an identified speeding problem as evidenced by crash data;
- A traffic data system capable of providing required data on crashes, speeds, citations, and enforcement hours;
- Operational data that are readily available and that will indicate where and when traffic activities and when traffic related criminal arrests occur; (Written permission from authoritative sources who control access to that data must be obtained);
- Sufficient law enforcement resources to conduct the study and to support the types of enforcement strategies proposed and that agency personnel are trained to NHTSA approved standards for speed enforcement (RADAR, LIDAR, etc.)
- An onsite manager who has a close association with the patrol, data and traffic sections of the law enforcement agency;
- A written agreement from the chief administrative officer, or other political equivalent, of the site's willingness to participate in the study. The

agreement must also demonstrate the willingness of applicable law enforcement, highway engineers, prosecutors, judges and required other persons (i.e., driver improvement personnel) to also participate.

Task 4.6 Identify a Minimum of Three ASE Candidate Sites for NHTSA Review

To the maximum extent possible, the MDAC Team will screen possible sites remotely through written and telephone communications. However, the MDAC team Principal Investigator will need to visit an agreed upon short list of potential candidate jurisdictions to personally assess viability for final NHTSA review. NHTSA staff may wish to accompany the MDAC representative on these site visits.

From the final, screened list of candidate sites identified for this project, NHTSA will select one for demonstration project implementation. MDAC will, of course, provide their best analysis regarding the suitability of each of these sites. If requested, the sites will be ranked by the MDAC team.

TASK 4 SITE SELECTION – ATTACHMENT 1

COMMUNITIES WITH AUTOMATED ENFORCEMENT SPEED CAMERAS A PARTIAL LIST AS OF JULY 2007

Arizona

Avondale
Chandler
Glendale
Mesa
Paradise Valley
Phoenix
Pinal County
Prescott Valley
Scottsdale
Tucson
Tempe

Colorado

Boulder
Denver
Fort Collins

District of Columbia

Iowa

Davenport

Louisiana

Lafayette

Maryland

Montgomery County`

New Mexico

Albuquerque

North Carolina

Charlotte/Mecklenberg

Ohio

Akron

East Cleveland

Northwood

Toledo

Oregon

Beaverton

Medford

Portland

Tennessee

Jackson

Red Bank

Texas

Cactus

Chillicothe

Marble Falls

Rhome

Washington

Auburn

Lakewood

Bonney Lake

Tacoma

Spokane

TASK 4 SITE SELECTION – ATTACHMENT 2

COMMUNITIES WITH AUTOMATED ENFORCEMENT SPEED CAMERAS A PARTIAL LIST AS OF JULY 2007

	<u>Population (<200K)</u>
<u>Arizona</u>	
Avondale	55K
Chandler	211K
Glendale	233K
Mesa	432K
Paradise Valley	14K
Phoenix	4million
Pinal County	271K
Prescott Valley	26K
Scottsdale	218K
Tucson	508K
Tempe	158K
<u>Colorado</u>	
Boulder	93K
Denver	557K
Fort Collins	126K
District of Columbia	581K
<u>Iowa</u>	
Davenport	97K
<u>Louisiana</u>	
Lafayette	112K
<u>Maryland</u>	
Montgomery County`	932K
<u>New Mexico</u>	
Albuquerque	472K

North Carolina
Charlotte/Mecklenberg 584K/827K

Ohio
Akron 212K
East Cleveland 26K
Northwood 5K
Toledo 309K

Oregon
Beaverton 80K
Medford 67K
Portland 538K

Tennessee
Jackson 61K
Red Bank 12K

Texas
Cactus 3K
Chillicothe 1K
Marble Falls 5K
Rhome .5K

Washington
Auburn 45K
Lakewood 59K
Bonney Lake 10K
Tacoma 197K
Spokane 196K

TASK 4 SITE SELECTION – ATTACHMENT 3

COMMUNITIES WITH AUTOMATED ENFORCEMENT SPEED CAMERAS A PARTIAL LIST AS OF JULY 2007

(Communities in **Bold** represent possible target sites as of this writing)

<u>Issues</u>	<u>Population (<200K)</u>	<u>ASE Enforcement</u>
<u>Arizona</u>		No apparent restrictions
Avondale	55K	
Chandler	211K	
Glendale	233K	
Mesa	432K	
Paradise Valley	14K	
Phoenix	4million	School zones only
Pinal County	271K	
Prescott Valley	26K	
Scottsdale	218K	
Tucson	508K	
Tempe	158K	
<u>Colorado</u>		School zones & residential areas - I.E very low speeds
Boulder	93K	
Denver	557K	
Fort Collins	126K	
District of Columbia	581K	Any moving infraction
<u>Iowa</u>		Unknown
Davenport	97K	
<u>Louisiana</u>		Unknown
Lafayette	112K	
<u>Maryland</u>		School zones & ≤35MPH residential only
Montgomery County`	932K	
<u>New Mexico</u>		
Albuquerque	472K	No apparent restrictions

<u>North Carolina</u>		
Charlotte/Mecklenberg	584K/827K	Suspended as of the end of 2006 by ACLU suit??
<u>Ohio</u>		
Akron	212K	No apparent restrictions
East Cleveland	26K	
Northwood	5K	
Toledo	309K	
<u>Oregon</u>		No apparent restrictions
Beaverton	80K	
Medford	67K	
Portland	538K	City saturated with ASE
<u>Tennessee</u>		No apparent restrictions
Jackson	61K	
Red Bank	12K	
<u>Texas</u>		Unknown
Cactus	3K	
Chillicothe	1K	
Marble Falls	5K	
Rhome	.5K	
<u>Washington</u>		School zones only
Auburn	45K	
Lakewood	59K	
Bonney Lake	10K	
Tacoma	197K	
Spokane	196K	

TASK 5: DEFINE SURVEY OBJECTIVE, DEVELOP/PROGRAM SURVEY INSTRUMENT AND CONDUCT PRE-TEST

Task 5.1 Define Survey Objective

The MDAC Team will work with the Client in understanding its goals and objectives for the public attitude and perception surveys prior to and after changes and enhancements have been made to speed limits and enforcement tactics in the demonstration sites. Given that the implementation stage spans 24 months in duration, the MDAC Team recommends an optional third survey to be administered 12 months into the program implementation to detect early signals of changing public perception. This optional survey will enable the Team and the Client to address any misconceptions or even lack of awareness that the public may have about the enhanced enforcement activity and possibly modify the enforcement and communications plans to improve chances of its success.

At this stage, it is essential that clarity is achieved in the definition of the survey's target population (the population to which inferences are applied). The public can constitute many different elements: residents, businesses, tourists, commuters or frequent, moderate or infrequent users of the road segments. The location(s) from which to select respondents for the survey is vital so that the survey population actually overlaps with the users of the road segments. The team will discuss and confirm with the client, its desired level of precision for population parameters at the overall target population level or at any finer levels of population aggregations (often referred to as strata or sub-populations). The Team recommends producing critical opinion estimates with a margin of error ± 5 percent at the 95 percent confidence level. Having different levels of stratification for which precise estimates are required impacts final sample size. The team will discuss, recommend and gain approval from the client as to the nature and definitions of the target population including stratification, the unit in the population that is to be sampled (household, person, etc), geographic boundaries from which the units are sampled, the levels of precision per sub-population, and finally the method and frequency of survey collection.

It is the opinion of the Team, that telephone interviewing be the preferred collection method as it allows for the screening of respondents who do not qualify as members of the survey's target population. Depending on the collection method, the source for the sampling frame can vary. It can range from available residential and business telephone exchanges if the surveys are to be administered using telephone interviewing or to electronic lists from database brokers if the client desires a mail out survey.

In summary, by defining the following survey elements per survey phase, survey objectives can be set allowing for the best possible survey design and analysis.

1. Target population(s)
2. Sampling Unit
3. Sampling Frame

4. Method of collection (e.g., telephone interview, mail-out, on-line)
5. Frequency and timing of surveys (2 or 3 phases)
6. Level of desired precision

The proposal is based on conducting 500 interviews in the demonstration site and an equal number of interviews in the comparison site. With this sample configuration changes of +/- 6.2% would be significant at a 95% level of confidence assuming an observed percent of 50%. The MDAC Team proposes three waves of surveys (pre, mid-term and post).

TASK 5.2 Develop/Program Survey Instrument and Conduct Pre-Test

In conjunction with the Client, the MDAC Team will carefully craft questions that will solicit in an unbiased manner opinions and perceptions of the public using the selected demonstration sites. Questionnaires for the pre-program, post program and possibly mid-term implementation phases will be developed at this stage. This makes sense as questions can be designed so that pre, in progress and post analytic results can be compared in a consistent manner. This task is iterative in nature as feedback needs to be collected from all stakeholders.

An introductory greeting appropriate for selected method of collection will be developed at this stage in collaboration with the Client. An agreement needs to be reached as to who will be recognized as the survey sponsor with contact information in the form of a phone number or e-mail such that the public can voice concerns or questions.

Prior to the launch of the two surveys, both pre-program and post-program questionnaires will be piloted to ensure that the questions are comprehensible and that responses meet planned ranges and values. (Since Program Implementation survey will be identical to post-program questionnaire, only one questionnaire needs to be piloted even if both phases will be implemented). Team will run a test with members of the public using the same survey collection method. For example, if the client has agreed to a telephone interviewing, then the pilot tests will be run using the same collection method. A minimum of 10 surveys needs to be completed for the pre-test per survey (pre-program/post-program). The survey instrument and possibly table shells will be adjusted based on feedback.

- Selection of potential testers
- Evaluate data responses from test surveys
- Adjust instrument as required based on test results and feedback

TASK 6: PREPARE DOCUMENTATION FOR APPROVAL OF THE SURVEY BY THE OFFICE OF MANAGEMENT AND BUDGET (OMB)

The agency must not only respond to the comments in the Federal Register itself, but must also address them in the OMB package. The MDAC Team will assist the client's project staff in formulating responses to comments for both the Federal Register and the OMB package. The types of responses will, of course,

depend on the nature of the comments. However, based on the comments received thus far on other surveys, it is reasonable to expect that one major category of issues that will arise is adding topics (and therefore questions) to the survey to gain additional information not initially anticipated, but without compromising the purpose and focus of the survey or unduly increasing the interview length.

The MDAC team will create the survey instrument in the English language first. After the survey instrument is completed in the English language, a Spanish version will be created utilizing a Spanish translator. MDAC has utilized Spanish translators for survey instruments for many previous federal government studies.

TASK 7: CONDUCT ENGINEERING STUDIES

A critical component to the success of this demonstration project will be the identification of a sufficient number of road segments within the host community having a statistically significant number of traffic crashes for analysis. These crashes will need to be reviewed to determine associated causation factors to establish that speed is a factor in a significant enough number of cases to warrant speed enforcement interventions.

An in depth analysis of the architecture and environment of the roadways, traffic flow and count, speeds and other factors will also be needed to ascertain if the roadways are posted with appropriate speed limits.

At the end of the demonstration project a complete analysis of the crash and speed data compiled will ascertain the effectiveness of the project in reducing speeds and crashes. Specifically, this will include the following subtasks.

Task 7.1 Identification of Target Segments

Using a minimum of three years of baseline crash distribution data provided by the host agency or municipal road agency:

- Identify high crash segments using several methods including crash frequency and crash rate. The segment crash rates will be compared to an established average crash rate for the region. Using the concept of the critical crash rate, those segments with crash rates “critically” higher than the average rate will be identified. A second analysis of the critical crash rate will be conducted using the crash prediction models recently developed for the Federal Highway Administration’s SafetyAnalyst software. Segments with critically high crash rates generally exhibit site-specific safety issues that may be correctable through safety improvements which include enforcement.

- Determine if crashes on these segments have any relationship to excessive speed.
- Establish whether the volume of these crashes represent a statistically significant sample for analysis.
- Attempt to confirm that the environment for these segments will not likely change over the course of the enforcement period (i.e. major road improvements, traffic volume changes due to a new shopping mall, factory, etc.).

A list will be prepared containing approximately 20 candidate segments that exhibit critically high crash rates. For these intersections, the crash data will be revisited and a crash type (e.g. angle, rear end, off road) will be assigned to each record. The number and proportions of each crash type will be tabulated for each segment. A statistical analysis will be conducted to compare the proportions of crash types at the segments to regional and national averages. Those crash types that are identified as being over-represented will be highlighted. The list of intersections with critically high crash rates, supplemented by the list of over-represented crash types, will be presented to the host agency for review.

Task 7.2 Choose Target Segments

Obtain concurrence from the host agency on suitable segments for ASE and traditional speed enforcement

- From the total number of viable segments, select a reasonable number for enforcement purposes.
- If feasible, approximately 25% of these segments will represent ASE enforcement locations.
- If a minimal number of segments are validated, revisit the ratio between ASE and traditional selective enforcement segments.
- Establish optimal periods within each segment for enforcement.

Task 7.3 Review Existing Speed and Volume Data

Review existing speed and volume data, if available, for these high crash segments.

- If unavailable, conduct traffic studies to obtain the data as needed.
- Existing data or traffic studies conducted through a sub-contract with a local traffic data collection vendor to gather appropriate speed related data including time of day, day of week, 50th percentile, 85th percentile, average, individual vehicle headway or arrival time, etc. in accordance with the established NHTSA standard: Guidelines for Setting Safe and Reasonable Speed Limits

Task 7.4 Review Posted Speed Limits of Target Segments

Establish if the segments identified have rational speed limits posted

- If not, seek appropriate changes, if feasible, within the timeframe of this project
- If not feasible, seek alternative segments that do have rational speed limits posted

Task 7.5 Identify a Reference Group

Using the same methodology, identify similar road segments in a community separated from the host community's media market (and within the same state) to use as statistical controls

- Establish that the control community law enforcement and road agencies will not be targeting these segments for special speed selective enforcement patrols or road improvements.
- Attempt to confirm that the environment for these segments will not likely change over the course of the enforcement period (i.e. traffic volume changes due to new shopping mall, factory, etc.)

Task 7.6 Traffic Data Collection for the Study Period (Duplicated in Task 12a)

Through a sub-contract with a local traffic data collection vendor, quarterly traffic surveys will be conducted to record traffic volumes and speed data as stipulated in Task 12a...

- For the duration of the 24 month enforcement project plus 3 months prior and 3 months post data
- For both enforcement and control segments
- 100 % of the enforcement and control sites will be surveyed at the beginning, mid-point and end of the implementation phase
- At least 50% of the enforcement and control segments will be surveyed on a quarterly basis with the specific segments rotated each quarter
- If the segments involve over 1 mile of urban roadway or 5 miles of suburban or rural roadways, multiple survey points may be needed.
- Assess the impact on traffic operations when gathering and reviewing data

TASK 8: DESIGN ENFORCEMENT PLAN

The specific design of the enforcement plan will be dependent on a number of variables, most important the current capabilities and enforcement policies of the host agency and the environment, traffic flow and crash history of the road segments selected. The selection and procurement process for suitable ASE and other speed enforcement equipment will be impacted by the agency's current status in terms of both. That agency's level of experience with ASE will be a decisive factor in how quickly and smoothly this project will get underway.

An agency with no previous ASE background will require an extended period of time for gaining necessary governmental, public and judicial acceptance, obtaining needed equipment, officer training, as well as the ratification of an acceptable citation processing system. There would likely then be a testing phase of some length before active speed enforcement using ASE could be initiated.

Task 8.1 Host Agency

The site selection screening process should have already identified a host law enforcement agency exhibiting a clear and long-term commitment to traffic safety. Any city with a population of 200,000 or greater will likely have a well staffed and trained traffic enforcement unit possessing state of the art equipment (RADAR, LIDAR, etc.) for traditional selective speed enforcement.

An optimal agency will also have a traffic enforcement activity reporting system that includes either a quick turnaround for data entry if paper citations and daily activity written reports are used or, better yet, point of contact input of the enforcement activity by in-car computer.

Task 8.2 ASE and Other Speed Equipment Selection and Procurement

In a best case scenario, the host agency will already have an existing contract for ASE and other speed enforcement equipment. If so, the MDAC Team could arrange for an additional ASE unit to be purchased/leased or take over the cost of an already acquired ASE unit that would then be committed to this demonstration project. If the selected agency has no previous experience with ASE, the MDAC Team would assist the agency in obtaining bids and selecting a suitable ASE vendor. However, this is a scenario considered a last resort given it would likely add months to the timeline required for getting the project up and running.

As a point of budgetary interest, the costs associated with ASE appear to range widely depending on the vendor selected. Also, in every case found so far by the MDAC Team, ASE equipment is leased rather than purchased outright. In most cases, the vehicle (usually a van) housing mobile ASE equipment is also part of the lease arrangement. At this point, the MDAC enforcement plan proposed does not include fix mounted (non-staffed) ASE equipment as they would be too costly to install and maintain at the number of enforcement sites contemplated.

ASE equipment leases are expensive. The cost ranges from \$2,500 per month for a dated "wet film" technology camera system used in Portland, Oregon (with an agency supplied vehicle) to \$10,500 per month for a state of the art digital ASE system (with vehicle) in Phoenix, Arizona. In all cases found to date, this cost includes a vendor supplied citation processing system. This citation processing portion of the lease represents the largest share of the cost. It should also be noted that there does not appear to be any appreciable economy of scale in leasing additional ASE equipment. In other words, a second ASE unit would

likely cost roughly double what a single unit would cost. Not knowing which vendor will be used, for purposes of this proposal the MDAC Team will need to cite the highest lease cost known for a single ASE unit.

Additional equipment to be considered for this project would include RADAR and LIDAR speed detection devices, a speed display trailer and portable signage to be used to help inform the public about the existence of the enforcement zones.

Task 8.3 Enforcement Sites

Working with the on-site manager and city engineering staff, the MDAC Team will, again, review the enforcement sites selected in the engineering task for overall suitability from an officer and public safety standpoint. Safe locations within each site will be identified for active enforcement using ASE and traditional speed enforcement countermeasures.

Task 8.4 Enforcement Strategies

To the extent that crash and speed data permits, MDAC Team will work with the on-site manager to identify specific time of day and day of week periods within each enforcement zone where speeds are highest and contributing to crashes. An enforcement plan will be developed which targets enforcement in two to four hour blocks, systematically and consistently rotating ASE and traditional speed enforcement through the multiple sites selected.

As stipulated within the RFP, the MDAC Team will strive to achieve an ASE component of the enforcement representing about 25% of the overall enforcement. However, discussion will need to be held over exactly how this 25% is targeted. One aspect of ASE is that the identification and citing of a motorist is accomplished without officer interaction and the need for the motorist to pull off the roadway at the time of the violation. This permits ASE to be used during higher traffic volume periods where traditional selective enforcement countermeasures can constitute a danger to the officer and the public. Assuming NHTSA supports this strategy, the MDAC Team intends to encourage the participating agency to target ASE during these high-volume, high risk periods to maximize the impact of the overall enforcement plan.

TASK 9: DEVELOP PUBLIC INFORMATION AND EDUCATION CAMPAIGN

The public information campaign is centered on three key objectives:

1. Create buy-in to the project among law enforcement officials, judicial stakeholders (judges, prosecutors, etc.), and related transportation agency leaders and staff, to build relationships that will enhance the effectiveness of the effort, and leverage available resources in support of the campaign.
2. Attract a cadre of private sector partners to expand NHTSA's and local officials' capabilities in carrying out the campaign.

3. Reach the broad audience of potential “speeders,” while concentrating special effort on the segments of the target population most involved in speeding fatalities.

The challenge inherent in the need for the campaign is how to sustain a dialogue and influential relationship with an audience in a populous media market throughout the full two-year project period with a limited and cost-effective budget for outreach activity.

Task 9.1 Campaign Strategies

The MDAC Team proposes a two-year public outreach campaign strategy that leverages local private sector resources and highly creative use of popular media to penetrate deeply into the consciousness of a population typical of the likely candidate sites.

The team anticipates working with local entities such as the state Office of Highway Safety, state and municipal transportation agency public information staff, other state and regional law enforcement staff with duties related to public outreach, local traffic safety committees and any academic or other programs in the region involved with influencing safe driving behavior. It should be noted, however, that the proposed budget is sufficient that this campaign does not depend upon their contributions toward direct costs for success.

Campaign strategies must be developed around the specific demographics and outreach costs of the site selected as well as the specific timing of the two-year project period. That said, a campaign is envisioned that will include sustained, consistent public communication with common elements that are easily recognizable and quite memorable.

Task 9.2 Pre-Enforcement Program Activities

The campaign begins behind the scenes with outreach to all official stakeholders in law enforcement, the judiciary, and transportation agencies. In this sense, the campaign begins as technical efforts get underway and initial steps involve individual outreach to key influencers by credible personnel from NHTSA and the MDAC team. Any necessary documentation describing the project is created as these efforts get underway and personal outreach begins to public information, safety resources, and other entities and individuals to attract their creative input and involvement and determine the level of support resources available.

As technical and other preparations near completion, a series of stakeholder briefings on the goals, objectives and design of the proposed public information campaign – conducted in person, by web, by teleconference or in briefing documents, as appropriate, will be undertaken. This will include sharing of the evolving campaign material and plans, with an opportunity for feedback and input into all activities. As the campaign launch date nears, a staging meeting is

conducted with those who will be instrumental to the campaign's success within agencies who have become full participants, through which final details are addressed, such as those related to the kick off press conference and attendant event logistics.

Task 9.3 Public Outreach Campaign

As official stakeholder roles, responsibilities and commitments begin to take form, outreach to a wide group of community partners with affinity to the issues involved in the speed enforcement project begins. These might include lead partners such as a local hospital center, news organization (newspaper, radio and/or TV), and/or major employer as well as high profile local businesses such as an automobile dealership, popular retailers, regional insurance companies, and similar businesses.

A relationship with each will be developed in which the partner commits to a specific set of activities over the two year period. These might include:

- “flagging” the partner’s routine advertisements with campaign messages
- creating a website linked to the partner’s site that serves as a central clearinghouse for campaign information
- hosting public events, distributing campaign materials, creating co-branded campaign collateral materials such as hats or t-shirts,
- and a host of other possible efforts customized to the partner’s needs and stake in the issue

The goal is a consistent drumbeat of activity and level of visibility across the two-year time period, with strategic peaks that are aligned with more general public outreach to be carried out with project funding.

Task 9.4 Campaign Kickoff

A kick-off phase is envisioned that would center on a two-month period in which the campaign would reach a high level of initial public recognition, and expectations would be set for the duration of the full campaign.

Key to influencing public behavior is capturing public attention early in the project process. The volume of information showering the average person on a daily basis demands either a large budget or a high volume of consistent outreach – or both – in order to penetrate the public consciousness and remain relatively front of mind. Thus, the kick-off begins with a press conference featuring a local male hero – an athlete, musician, cultural icon, or other figure – who would appeal to the leading audience of speed-related offenders, young males between the ages of 18 and 34, while also drawing attention and respect from the broad population. The community of local partners is introduced at this press conference and initial announcements are made about the slate of activities planned for the two-year period. Local (and possibly State or National) leaders, including those in law enforcement, are also featured in the press conference.

Simultaneously, distribution of an attractive promotional/educational brochure begins, and pre-recorded radio PSAs delivering the campaign's message begin to air. Each is offered in English and Spanish languages.

After two weeks, a four week "splash" campaign is folded into the ongoing kick-off activities. This campaign targets an audience that can have a major impact on a reduction in speeding violations, such as males 18-34. It includes highly creative use of "out of home" media and might feature a concentrated outreach effort in a popular gathering place for the audience, such as a nightclub, shopping or recreation district. If this demographic is chosen, the elements of the splash campaign might involve:

- An illuminated billboard featuring a compelling message appearing in a prime location.
- Individuals might be employed on a temporary basis to pass out the campaign's brochures on street corners in the district on at least one peak volume day for each of the four weeks
- "pop" promotions such as outreach items (water bottles, energy bars, coffee cup wrappers, temporary tattoos, restaurant or snack shop table tent cards)
- indoor media such as posters
- outdoor media such as street signage, among other possible items

Participating radio stations can be asked to concentrate use of the PSAs during this period or stations with the proper demographic can be targeted for a paid media campaign to ensure message delivery during this heavy outreach period.

Since research shows the possible target demographic spends a number of hours each week online for both professional and personal purposes, opportunities to leverage that media for this campaign are also indicated. A tier of internet and viral media in both English-speaking and Hispanic online destinations is envisioned as budget permits.

The power of television in penetrating audience consciousness remains strong. Even in a multi-media world, if it can be accomplished within the financial parameters of the project, production of a television commercial is factored into the recommendations. This would be executed as a PSA, with heavy working of local stations to ensure its use and delivery during key campaign windows. Or it can be used as a paid advertisement in order to control the delivery and ensure the success of the production investment. In addition, all partners will be asked to roll out, through their own marketing capabilities (i.e., scheduled ads, flyers, billboards, bill stuffers, etc.), their plans and commitments for the campaign throughout the two-month "splash" period.

Task 9.5 Ongoing Campaign Activities

As the more intensive level of the splash campaign wanes, two more weeks of heightened partner activity continue to establish the ongoing campaign. This will

include higher than average radio coverage to maintain the public outreach level as it transitions into a sustained degree of consistency.

A steady series of outreach opportunities and events delivered by partner organizations (and local officials, as appropriate) carries forward the theme. This will expand its geographic focus to include all key enforcement areas or similarly relevant locations, establishing a reliable 'heart beat' of messaging and visibility for the campaign throughout the remainder of the project period.

A second and third press event to address needs, announce progress and roll out planned or new activities is envisioned at the mid- and end-points of the long-term campaign.

It is important to note that this overall campaign, while targeting a specific demographic, such as young adult males, is designed to also reach those with affinity to the target audience, such as young women, who track similarly to males in their driving behavior regarding speeding fatalities.

The campaign strategy, thus, leverages a two-month core period to attract significant partner relationships and launch sustaining, dynamic activity to influence public opinion and behavior. The core "splash" period targets a high value audience of potential offenders, while concentrating paid media on relatively low-cost, high-impact delivery mechanisms effective at reaching that audience.

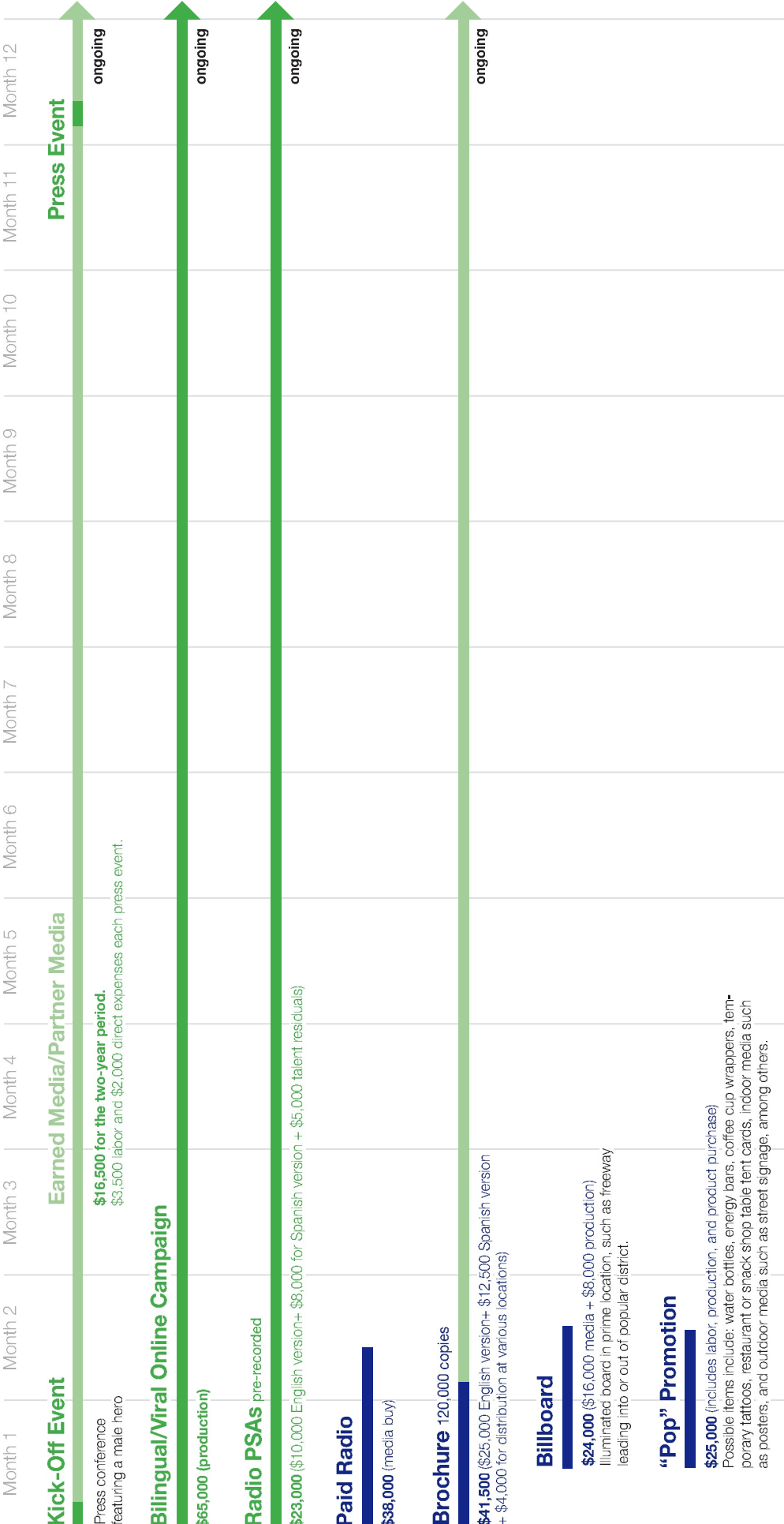
Project funds are thus concentrated on leverage points that deliver additional paid media and high impact activity (each through the involvement of private sector partners) at minimal cost to the project.

Public awareness will, of course, be measured prior to the campaign kick off and at the end of the project period.

Enclosed is a sample campaign, indicating timeline, proposed activities and costs for a market typical of the likely candidate sites for the speed enforcement project, namely Tucson, Arizona.

First year sample of 2-year public outreach campaign (Tucson, AZ)

Tier 1: approx. \$235,000



Tier 2

add to Months 1-2:
TV PSA
\$50,000
(production)

Tier 3

add to Months 1-2:
Paid TV
\$500,000
(media buy: 250 “points” X 8 weeks)

Task 10: IMPLEMENT SPEED MANAGEMENT PROGRAM

Implementation of the speed management plan will be coordinated between the host jurisdiction, NHTSA and the MDAC Team. Representatives of the MDAC Team will be on hand for program implementation and be readily available to address operational issues that may arise.

Task 10.1 ASE Project Launch

Working with the host agency, the MDAC Team will conduct a media launch for the implementation of the speed enforcement project.

Task 10.2 Managing the ASE Project

The MDAC Team will remain in contact with the on-site manager on a weekly basis to keep apprised of the ongoing status of the program. The MDAC Team will provide detailed contact information sufficient to permit the host agency instant communication, as needed, to address any issues impacting the program.

It is important that the MDAC Team be perceived as available and committed to this enforcement project. The MDAC Team will send a representative for a brief site visit once per quarter throughout the enforcement period. During this quarterly visit, the MDAC Team's representative will review enforcement, speed, engineering data and other pertinent information as well as personally confirm compliance with the stated speed management program objectives and the guidance provided in Appendices A, B & C of the RFP. Significant issues and project milestones will be reported to NHTSA in a quarterly progress report.

Task 10.3 Midpoint Assessment of ASE Project

At the one-year anniversary of the speed management program or earlier, if necessary, an assessment process will be initiated to determine how program objectives are being met and take a snapshot of the current impact of the program on speeds and crashes in the target segments.

An extended site visit by the MDAC Team will take place for a complete review of all available enforcement, speed, crash and engineering data as well as any other available information regarding the program. Key persons and offices involved in this project will be interviewed and any necessary program course corrections will be coordinated between the host jurisdiction, NHTSA and the MDAC Team. (Note: This is not to imply that adjustments will not be made at other points, as needed.)

Task 10.4 Project Conclusion

At the two-year end point for the enforcement phase, the MDAC Team will make an extended site visit to assist the host agency with any necessary steps in bringing the ASE project to closure. This will include the termination of NHTSA financial support ASE equipment leases and citation processing systems. The other NHTSA purchased speed enforcement equipment (RADAR, LIDAR, speed trailers, etc.) will remain with the host agency.

Meetings will be held with all key officials involved in this project to receive their perspectives on the success of the effort.

TASK 11: FINALIZE DESIGN AND CONDUCT COMMUNICATIONS AND MEDIA SURVEY

After defining the survey's objective and target population, the Team can move on to the next stage to design the sample survey methodology. This includes the sampling strategy, minimum sample size calculations and estimates of sampling weights if applicable. The type of population parameter estimators (averages, totals, proportions, ratio) and their corresponding variance estimators are defined. If the Client's wish is to run a telephone survey, random digit dialing will be used to select respondents. Based on the survey's goals, the sample will be either a simple random sample (SRS) or stratified SRS of households, businesses or other types of units of analyses. Conservative minimum sample sizes will be derived based on the possibility that the most variable situation unfolds where respondents tend to provide answers yielding 50 percent selection of one question option over another and an assumed average non-response rate of 40 percent. The non-response rate can be adjusted once the method of collection is confirmed. In summary, the following sub-tasks will be implemented to satisfy the overall project objectives:

1. Develop sampling strategy (simple, stratified, etc)
2. Set sample size
3. Define population parameter estimators and variance estimators
4. Define sampling weights

Task 11.1 Design of Table Shells (Table Stubs)

The Team recommends at this stage to introduce the development of the table shells or stubs that will house the results of survey collection and analyses. Ultimately, the table shells will form part of the interim draft results and final results of the surveys. A mark as to the efficiency of the questionnaire is that every probing question provides data directly into at least one of the table shells. In this manner, superfluous questions can be avoided and hence reduce response burden for the respondent. Prior to the collection of response, the Team will look to the client for final acceptance of table shell designs.

Task 11.2 Interviewer Training

The interviewers will be trained on the administration of the specific questionnaire.

Task 11.3 Execute the Survey: Pre-Program (MDAC)

The primary task of this survey administration is to conduct a uniform and systematic data collection effort among the target population (18 and older) that live in the demonstration and comparison markets. The MDAC Team employs appropriate measures to ensure quality control, conversion of refusals into completed interviews and gaining high response rates. The MDAC Team monitors 10% to 20% of the interviewers work. MDAC puts experienced interviewers and supervisors on the refusal conversion team to provide the best possible chance of converting a refusal into a completion. MDAC also calls at different times of the day to reach respondents and gain high response rates. Finally, MDAC offers special training on Confidentiality issues by a Project Manager who also is an attorney. The project manager explains all requirements the law imposes upon all team members from the interviewers to the Project Director.

Task 11.4 Process and Analyze the Data: Pre-Program

Upon delivery of the survey results to the Team, the Team's statisticians and programmers will develop an analytical file in preparation for statistical analysis. The following sub-tasks summarize the activities that will support Task 11.9.

1. Develop the analytical file
2. Re-adjust sampling weights based on non-response rates
3. Run preliminary data analysis on each question to identify outliers
4. Determine if problem responses per question require imputation
5. Impute missing or problematic responses as defined in task 11.3
6. QC/QA (quality control, quality assurance) programming code used to process data

Task 11.5 Estimate Population Preferences Based on Survey Data: Pre-Program

Once data issues have been resolved, statistical algorithms will be applied to the data to estimate population preferences. All estimates will be weighted according to the sample design and the finite population correction will be used if the relative sizes between final sample and target populations warrant so. Unbiased variance estimates of population parameters will be used to measure the spread in the estimates. Sub-tasks within Task 11.5 are summarized as follows:

1. Estimate totals, averages, percentages with associated margins of error and confidence levels
2. QC/QA programming code that produced estimates
3. Output results in table shells

Task 11.6 Document Results and Report from Pre-Program Survey

An interim report will be issued describing the survey results, survey methodology and lessons learned. The Team plans to deliver this report within 6 months of award date, dependent on when OMB approval is obtained..

Task 11.7 Questionnaire Revisions for Subsequent Surveys

If any unexpected problems arise after full implementation of the pre-program survey in terms of respondent comprehension and acceptance, the Team would like to use this opportunity to incorporate lessons learned from the first phase into the second phase. If no complications arose in the first phase, this task may be by passed.

Task 11.8 Execute Mid-Term Implementation Program Survey

The MDAC Team recommends that a mid-term survey be undertaken to determine the successes and challenges of the demonstration speed management program. The mid-term assessment will be intended to provide information that will be utilized to develop recommendations for mid-term adjustments, if needed, to facilitate the success of the demonstration program. Given the program will be enforce for two years it is possible to make adjustments prior to its conclusion. In summary, the mid-term survey is intended to provide a means to gain a pulse of public attitudes and perception prior to the end of the demonstration period. Early knowledge may prove beneficial to the Client as it allows for modifications to the enhanced enforcement program or communications plan to ensure success of the program.

Task 11.9 Process and Analyze the Data: In Progress Program Implementation Survey

Upon delivery of the survey results to the Team, the Team's statisticians and programmers will develop an analytical file in preparation for statistical analysis.

1. Develop the analytical file
2. Re-adjust sampling weights based on non-response adjustment
3. Run preliminary data analysis on each question to identify outliers
4. Determine if problem responses per question require imputation
5. Impute missing or problematic responses as defined in task 11.3
6. QC/QA programming code used to process data

Task 11.10 Estimate population preferences based on survey data: Mid-term Program Implementation Survey

Once data issues have been resolved, statistical algorithms will be applied to the data to estimate population preferences. All estimates will be weighted according to the sample design and finite population correction will be used depending on the size of the target population. Unbiased variance estimates of population parameters will be used to measure the spread in the estimates.

1. Estimate totals, averages, percentages with associated margins of error and confidence levels
2. QC/QA HDR code that produced estimates
3. Output results in table shells
4. Run inferential statistics to determine if shifts in public perception before and during the program are statistically significant and meaningful.

Task 11.11 Document Results and Report from Pre-Program and Mid-term Program Implementation Surveys

An interim report will be issued describing the survey results, survey methodology and lessons learned. The analysis will focus on shifts if any between the pre-program and program implementation phases. Unexpected results or results moving in a contrary direction to what has been intended will be highlighted such that appropriate action can be taken by the Client and the enhanced enforcement plan and communications Teams.

Task 11.12 Questionnaire Revisions for Post-Program Survey

If any unexpected problems arise after full implementation of the in progress program implementation survey in terms of respondent comprehension and acceptance, the Team would like to use this opportunity to incorporate lessons learned from the previous phase into the third and final phase. If no complications arose in the previous phase, this task may be by passed.

Task 11.13 Execute Post Program Survey

The post program survey will largely replicate the previous two surveys (assuming the mid-term option is exercised). However, we will accommodate changes where appropriate.

Task 11.14 Process and Analyze the Data: Post-Program Survey

Upon delivery of the survey results to the Team, the Team's statisticians and programmers will develop an analytical file in preparation for statistical analysis.

1. Develop the analytical file
2. Re-adjust sampling weights based on non-response adjustment
3. Run preliminary data analysis on each question to identify outliers
4. Determine if problem responses per question require imputation
5. Impute missing or problematic responses as defined in task 11.3
6. QC/QA programming code used to process data

Task 11.15 Estimate population preferences based on survey data: Post-Program Survey

Once data issues have been resolved, statistical algorithms will be applied to the data to estimate population preferences. All estimates will be weighted according to the sample design and finite population correction will be used depending on the size of the target population. Unbiased variance estimates of population parameters will be used to measure the spread in the estimates.

1. Estimate totals, averages, percentages with associated margins of error and confidence levels
2. QC/QA HDR code that produced estimates
3. Output results in table shells
4. Run inferential statistics to determine if shifts in public perception between before and after program are statistically significant and meaningful.

Task 11.16 Document Results and Report from completed Media Survey(s)

A draft report of survey results and analysis will be submitted to the Client for review and input. Based on feedback from the Client, the Team will update report accordingly. The Team plans to deliver this report within 36 months of award date, depending on when OMB approval is received.

TASK 12: DATA COLLECTION AND EVALUATION

We propose to conduct the Data Collection and Evaluation requirement under a work breakdown structure composed of the following sub-tasks.

Task 12a Speed and Crash Data

This data evaluation of the crash and speed data involves:

- Data collection and preparation of the multivariate crash prediction models.;
- Conducting an evaluation using these multivariate prediction models and determining the reliability of these crash and speed reduction estimates.

Task 12a.1 Target and Control Segment Data Collection

Through a sub-contract with a local traffic data collection vendor by Opus International, quarterly traffic surveys will be conducted to record traffic volumes and speed data.

- For the duration of the 24 month enforcement project plus 3 months prior and 3 months post data
- For both enforcement and control segments
- 100 % of the enforcement and control zones will be surveyed at the beginning, mid-point and end of the implementation phase
- At least 50% of the enforcement and control segments will be surveyed on a quarterly basis with the specific segments rotated each quarter

- If the segments involve over 1 mile of urban roadway or 5 miles of suburban or rural roadways, multiple survey points may be needed.
- Assess the impact on traffic operations when gathering and reviewing data

The data collected will document individual vehicle speeds, individual vehicle headway or arrival time and measurement locations, dates and times

Task 12a.2 Target and Reference Group Data Collection

Using the target and control sites data identified in Task 4, the data collected for each of these sites will include:

1. Number of crashes and their severity;
2. Average Daily Traffic (ADT);
3. Speed Data
4. Geometric configuration of the roadway;
5. Number of approach lanes; and,
6. Geographic location.

Task 12a.3 Develop Multivariate Crash Prediction Models

Crash prediction models will be used to estimate what the crash frequency at treatment sites had no ASE been implemented. In addition to supporting a post-improvement evaluation, the development of multivariate crash prediction models can provide a powerful analytical tool. These models can also be used to identify and prioritize crash-prone locations where ASE would be potentially providing a safety benefit.

The scope of each model will be based both roadway configuration and severity. The MDAC team anticipates using a software package such as Generalized Linear Interactive Modeling (GLIM), a statistical software package produced by the Numerical Algorithms Group (NAG). The goodness-of-fit of equations and the number and quality of the prediction variables will be examined. This will be done through an examination of the GLIM statistics and by plotting the prediction results. The reliability of the safety estimates will provide a level of confidence in each safety prediction. The result will be a final set of recommended collision prediction equations.

Task 12a.4 Conduct Traditional Before-and-After Statistical Analyses

Traditional statistical analyses will be conducted to identify the change in speeds, crash frequency and severity using the traditional statistical methods such as the t-test and the chi-square test.

Task 12a.5 Conduct Empirical-Bayes Analyses

The Empirical Bayes (EB) refinement process is an important step because it corrects for the regression to mean effects. There are two indicators used to describe the “safety” of a roadway: Traffic and road characteristics and the observed crash frequency. By combining these two pieces of information in a systematic fashion the safety estimate will be improved. A sensitivity analysis will be conducted to determine the impact of each variable in the model expression. The results will indicate the impacts of traffic volume, crash frequency and speeds.

The Empirical-Bayes Approach Defined

A statistically more robust approach than the “Simple Before and After” methodology is to follow an Empirical-Bayesian (EB) refinement process. In an EB analysis, the crash prediction for a site is based on two clues: the historical crash experience for similar intersections (Reference Group) as well as the crash experience at the treatment site. Both of these traits are combined to provide a more refined safety estimate that accounts for the RTM effect. Persaud & Nguyen (1998) describe the EB refinement as a tool to “smooth out the random fluctuation in crash data.” The process of determining the EB safety estimate is described in detail in Hauer (1997), and is summarized below in equation (2).

$$EB\ Safety\ Estimate = a \times (Predicted) + (1-a) \times (Counted) \quad (2)$$

Where: $a = \frac{1}{1 + \frac{Var(Predicted)}{Predicted}} \quad (3)$

And: Predicted = number of crashes predicted from a model
Counted = number of crashes counted at the treatment site
Var (Predicted) = variance of the model’s estimate

According to Hauer (1997), the variance of the EB Safety Estimate never exceeds the EB Safety Estimate and is almost always smaller. The variance of the EB Safety Estimate can be calculated using equation (4):

$$Var(EB\ Safety\ Estimate) = (1-a) \times EB\ Safety\ Estimate \quad (4)$$

In the case of the negative binomial distribution, the variance of the predicted crash frequency is defined by equation (5):

$$Var(Predicted) = \frac{(Predicted)^2}{k} \quad (5)$$

Where k is a parameter of the negative binomial distribution.

Therefore, when using the negative binomial assumption, equations (2) and (4) can be rearranged to yield equations (6) and (7):

$$EB\ Safety\ Estimate = \frac{(Predicted) \times (k+Counted)}{(k+Predicted)} \quad (6)$$

$$Var(EB\ Safety\ Estimate) = \frac{(Predicted)^2 \times (k+Counted)}{(k+Predicted)^2} \quad (7)$$

The treatment effect of a safety improvement is ideally expressed as an estimated percent reduction (or increase) in crash frequency. In the context of the EB approach, the treatment effect may be defined as the difference between the estimated crash frequency at the treatment site, had the treatment not been implemented and the actual post-improvement crash frequency at the treatment site.

The EB refinement process accounts for the RTM effect. In order to account for the other two confounding factors (history and the time trend effect), a comparison group may be defined. The comparison group comprises a small group of non-treatment sites considered to be similar to the treatment sites, and may be extracted from the reference population. The comparison group accounts for unrelated changes in crash frequency over time. By combining the simple before-and-after change in crash frequency within the comparison group, the change of crash frequency at the treatment site, and the EB safety estimate, an Odds Ratio (O.R.) is calculated as shown in equation (8).

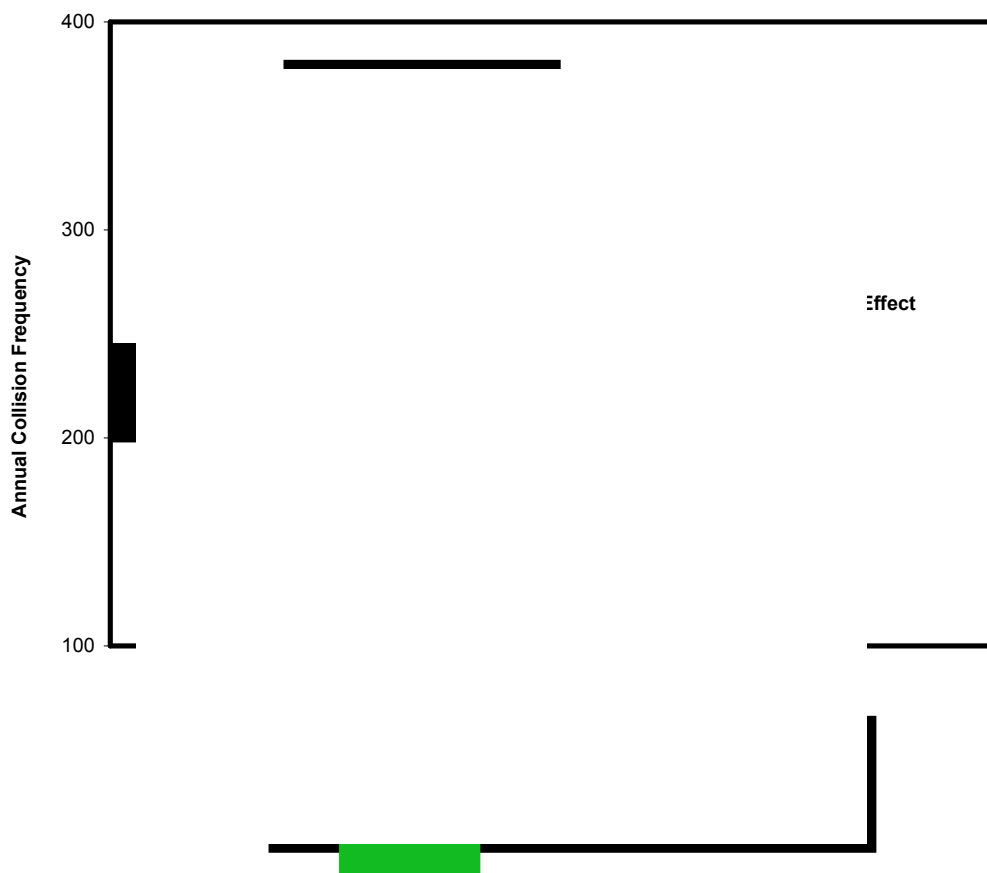
$$O.R. = \frac{(A/C)}{(B/D)} \quad (8)$$

Where A = Pre-improvement crash frequency of comparison group
 B = EB safety estimate
 C = Post-improvement crash frequency of comparison group
 D = Post-improvement crash frequency at treatment site

Finally, the treatment effect is calculated as shown in equation (9). The treatment effect is converted to a percentage to indicate either a percent decrease in crash frequency (a negative value) or an increase (a positive value).

$$Treatment\ Effect = O.R. - 1 \quad (9)$$

The graph below illustrates how, in theory, the treatment effect is calculated for a typical intersection. In reality, depending on the actual characteristics of the treatment and comparison group data being analyzed, the points on the graph fluctuate.



Task 12a.6 Estimate the Safety Impact of the Speed Enforcement Project

Using the control group we will combine the traditional before-and-after change in crash frequency and speeds within the reference group, the change of crash frequency at the treatment sites, the EB estimate, and an Odd Ratio will be calculated. These values will indicate the estimated safety of the demonstration project

Task 12b Enforcement Data

Task 12b.1 Evaluation of Enforcement Activity Data Quality and Availability

The first task the Team proposes doing after demonstration sites have been confirmed is to meet with jurisdiction officials to assess if its enforcement activity data is available in electronic file format with accompanying data dictionaries and consistent record layouts. The Team will search if the data structure and code sets are based on standard reporting formats such as the Uniform Crime Reporting (UCR) used by many police agencies to record and track enforcement activities. It is possible that the data may not be stored in an ideal format; however, the jurisdiction may be able to process an ad hoc request from the Team such that the raw data files are processed and output in accordance to our

needs. If that is not possible, the Team may be able to use with permission the raw electronic files and directly process and standardize the files.

The Team will make a request to the officials responsible for highway safety and enforcement at the control sites to review what type of data is publicly available without specific mention that these sites have been chosen for control purposes. If the data has been recorded in a consistent manner or is based on UCR standards and is accessible to the public, the data will be gathered as is and modified by the Team in preparation for evaluation with enforcement activity data tracked at the demonstration sites. In summary, the following activities outline what needs to be done in order to fulfill task 12b.1

1. Evaluate data enforcement data at demonstration and control sites;
2. Identify if the following data elements are available by enforcement category, site, segment and date
 - a. Number of citations issued
 - b. Enforcement threshold
 - c. Enforcement hours
 - d. Adjudications (if available)
 - e. Criminal activities;
3. Determine if enforcement activity data can be collected as is or if custom requests need to be submitted to agencies responsible for policing sites, or if the Team can directly access raw data files and process files for reporting and evaluation (IBID)

Task 12b.2 Collection of Enforcement Activity Data

The actual collection method employed by the Team is based on certain conditions. The following summary outlines possible courses of action.

1. If the Team uncovers that enforcement activity data can be collected for the purpose of standard reporting and evaluation, it will request data tracking activities going back at least three months prior to program implementation and continually during program implementation.
2. If data is not readily available in a standard format from the jurisdictions of interest but has the potential to be reformatted, the Team will collect the information commencing three months prior to program implementation and continually during program implementation.
3. If data is publicly available at the control sites in a standard and consistent manner comparable to that found in the demonstration sites, the team will collect data going back at least three months prior to program launch and during regular intervals over the program's implementation.
4. If data at the control sites can only be gathered by submitting an ad hoc request to authorities, then a request for the information will be made near the end of the program so as not to impact enforcement strategies at these control sites.

Task 12b.3 Data Processing and Reporting Structure

If task 12b.1 uncovers suitable enforcement activity data, the Team will prepare programming code in either MS Access or SAS to process the data in a consistent manner. In preparation for regular reporting of collected data, the Team shall prepare table shells that will house collected enforcement activity data. During this development phase, the Team will assess if imputation methods need to be employed to deal with missing information. The following activities summarize the steps required to fulfill task 12b.3:

1. Develop specifications to load and transform collected data
2. Assess if imputation procedures are required to handle missing observations and implement if necessary
3. Generate data dictionaries for all processed enforcement activity data files.
4. Design table shells used in the reporting of collected enforcement data
5. Obtain Client approval on table shells and reporting structure

Task 12b.4 Interim Reporting

The RFP has requested that enforcement data be reported on regular intervals. If the Team finds that enforcement activity data from the sites is easily accessible on a monthly basis, the Team recommends providing reports commencing at 6 months after award date and every three months until 33 months after award date or up to 10 reports. Ultimately, the frequency of the reports will rest on availability of data from the jurisdictions overseeing highway traffic enforcement at the demonstration and control sites. A compilation of all reports will be provided within the final report due 36 months after award date.

Task 12b.5 Specification for Dependent Variables (Measures) and Control Variables

Experimental design guidelines will drive the methodology used by the Team to detect if modifying the speed management program on selected sites in conjunction with a publicity campaign can influence and change the degree and intensity of traffic violations and overall driving enforcement activity characteristics. The collections of enforcement data will be what the Team tests and will be referred to as either the dependent variables or measures of the experimental design or control variables to verify if enhanced speed management plan met planned objectives.

In order to compare if the enhanced speed management program impacts the number and type of enforcement activity outcomes, the enforcement activity observations need to be normalized to account for changes in vehicle density. Total observed counts or numbers cannot be used as population density plays a major role in determining final enforcement activity data counts. Recommended test variables could be average number of citations per Average Daily Travel (ADT), average number of citation per daily enforcement hours worked or average number of miles over speed limit on all citations issued within a fixed

time period. Control variables that need to be tracked are number of enforcement hours by enforcement category (traditional, ASE), enforcement threshold or possibly criminal activities. At this stage, the Team will review possible dependent and control variables and recommend the ones that are most realistic based on the availability of data at the selected site. In summary, task 12b.5 will include the following sub-tasks:

1. Define dependent variables that could be influenced by type of enforcement tactics and can be derived from available data.
2. Define control variables that can be used to validate the degree and intensity of the implemented enhanced enforcement plan.
3. Recommend most meaningful dependent variables for testing the impact of program and control variables for validating proof that enhanced enforcement plan has been implemented as intended.
4. Transform and standardize raw enforcement activity data into dependent variables for testing or control variables for validating.

Task 12b.6 Evaluation of Enforcement Activities by Site

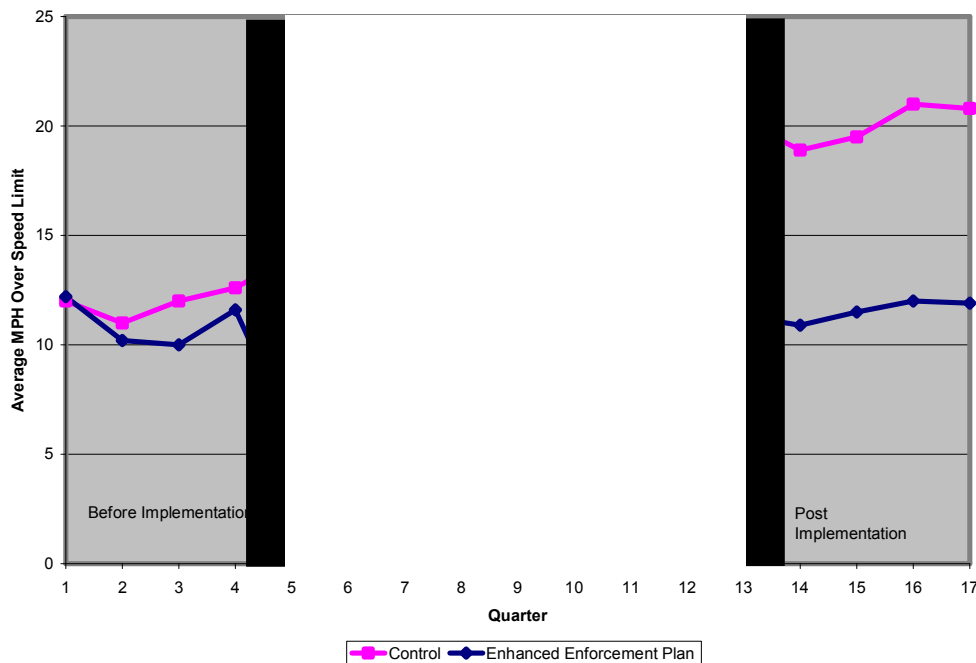
If enforcement activity data is available prior to the program's implementation and this data is comparable in nature within demonstration sites' post program implementation, then statistical tests will be used to assess if observed changes are likely due to the enhanced and sustained speed management program or could they have happened by chance. Depending on the dependent variable of interest, the Team will apply inferential tests for differences between two populations if we want to look at simply pre and post program periods. Of interest, is the story of enforcement activities as the program unfolds over the two year period. A time series analysis of dependent observations can uncover if changes are following a trend or not. By comparing where the trend in values would have been if no change in the speed management program had taken place, we can test if observed values could have been due to the program or could have occurred by chance.

If data from control sites can be collected over the same time span as data collected from the demonstration sites and the definitions of the various enforcement activities are identical, the statistical tests will be used to test if trends and observations are statistically significant or not. Tests that may be employed will be tests of different population means, regression analysis over time and chi-square goodness of fit tests.

Exhibit 12.1 presents the results of tracking a hypothetical dependent variable for a given road segment from the demonstration and control sites that measures the average miles per hours over the road segment's set speed limit for all citations that occurred on the road segment of interest over a given quarter. Both road segments from the two sites have identical speed limits. In the graph, it appears that the dependent variable has a significantly dropped after implementation of the enhanced speed management program within the

demonstration site relative to the demonstration site's historical observations and relative to the control site's observations.

Exhibit 12.1. Example Trend of a Hypothetical Dependent Variable over Time



The Team will test if the averages per time period are statistically different between the control and demonstration sites. It will also compare averages over the time periods within the demonstration site. Finally, regression models will be fit to the data prior and after program implementation to test if slopes are significantly different. Tests for adequacy of fit and presence of autocorrelation will be incorporated into the analysis if required.

The following sub-tasks summarize activities for Task 12b.6 provided data is available.

1. Implementation of statistical t-tests between population means by time and site.
2. Development of linear regression models (appropriate for each dependent variable) over time by site and road segment
3. Implementation of Chi-square tests for significance of association provided dependent variable of interest can be modeled with this method.

Task 12b.7 Documentation of Evaluation Results

The Team recommends running preliminary comparison tests before and after program implementation and between demonstration and control sites at 12 months after start of program implementation in order to obtain a pulse as how final outcomes may transpire. Within 3 months after program implementation has completed, a complete evaluation will be done to test if the intervention program has dramatically impacted enforcement activity outcomes. The following sub-tasks outline activities that support task 9.7:

1. Document interim evaluation results at 12 months post implementation start date
2. Document final evaluation results 3 months post implementation end date
3. Within documentation, provide the following:
 - a. Summary of statistical inferences, tests and model parameters in tabular form
 - b. Graphical depiction of changes in dependent variables of interest over time, segments and sites
 - c. Graphical depiction of trend lines produced by final regression models
 - d. Evaluation of enforcement activity data with reference to results from perception survey and speed/crash data evaluation.

Task 12c. Communication and Media Campaign

The communications and media campaign should essentially raise the priority of speeding as a traffic safety issue. There is general agreement that raising the priority of speeding is perhaps one of the most important steps to be taken and is essential to facilitate achievement of other objectives. Raising the priority of speeding often entails achieving the following:

- Clearly defining “speeding” and educating the public on the rationale for setting speeding limits;
- Establishing among the public that speeding is a problem and that speeding-related crashes are avoidable;
- Establishing the human capital and financial losses resulting from speeding;
- Shifting the public’s beliefs from “I will probably not be caught when speeding” to, closer to, “I probably will be caught when speeding”;
- Modifying public perceptions such that speeding is viewed as a serious social problem;
- Developing compelling “propositions” that overcome public resistance to modify their behavior and not speed; and,
- Convince government officials, employers and other stakeholders to actively participate and allocate resources to combat speeding.

Public attitudes and perceptions will be assessed prior during and after the campaign to assess changes, if any, between survey periods and between the demonstration and comparison sites. Specifically, the surveys will be conducted prior to, during and following speed limit changes and traditional and automated enforcement changes to determine their linkages to specific outcomes, if any, in the demonstration area.

TASK 13: PREPARE QUARTERLY PROGRESS REPORTS

MDAC will provide electronic and hard copy quarterly progress reports to NHTSA staff that detail the previous quarter's activities along with the other areas requested in the statement of work. These reports will include accomplishments during the past quarter, budgetary information, plans for the next quarter, areas of interest to NHTSA, problems or delays experienced and anything MDAC wishes NHTSA to undertake to alleviate problems or delays.

TASK 14: PREPARE FINAL REPORT

The ASE demonstration project conclusion will be finalized with a report documenting the findings of the project. The principle research question identified for this project is:

"How are vehicle speed and crash rates and public perceptions impacted by the implementation of a long-term, rigorous enforcement campaign on targeted high speed, high crash roadways possessing appropriately posted speed limits, integrating automated and traditional selective enforcement speed countermeasures coupled with a focused public education campaign?"

Task 14.1 Final Report Draft

Approximately 120 days after the completion of the enforcement campaign stage (permitting post intervention speed, crash and public perception data to be compiled), a draft final report will be assembled by the MDAC Team describing the methodology and project findings and forwarded to NHTSA for review and comment. This time table may be impacted by the availability of comprehensive crash data within 120 days.

The reporting format will include three principal sections: An Introduction, Procedures and Findings. These sections will describe the procedures and outcomes associated with the speed management program including, the rational setting of speed limits; the implementation and use of automated and traditional enforcement, and the communications plan. An additional section entitled "Lessons Learned" will present any information that can be used by other communities when implementing a similar program.

Task 14.2 Final Report Submission

After receiving NHTSA feedback, the MDAC Team will integrate those comments into a final report to be delivered in a timely manner. The final report will represent a clear, concise documentation of the overall ASE demonstration project in an easy to read format. Appropriate multicolor charts and tables will be included or attached as needed to support the findings. The report will include contact information for all key players in the project, including the MDAC team.

TASK 15: FINAL BRIEFING

The MDAC Team will present the findings of the demonstration project to NHTSA in Washington, DC at a briefing in accordance with the schedule of deliverables.

IV. RELATED EXPERIENCE AND MANAGEMENT CAPABILITY

Our management plan is reflective of the many years of experience of the MDAC Team in speed management programs, traditional and automated enforcement, engineering studies and associated equipment, market research, traffic and consumer data analysis, communication and education campaign, working on large-scale projects and our ability to consistently deliver quality and excellence to our clients.

For the **Demonstration and Evaluation of Speed Management and Enforcement Project**, a Senior Project Manager, Project Manager Principal Investigator and Administrative Coordinator will be assigned. The **Senior Project Manager** will be responsible for management oversight of the overall project, proactively identifying opportunities to improve services and outcomes, and periodic client satisfaction assessments with the COTR. Additionally, the Senior Project Manager will be available for consultations, as needed, per the contract. The **Project Manager** supervises the day-to-day operations of the project and has extensive project management experience. The **Principal Investigator** will be responsible for management and oversight of all speed enforcement specific components of the project and report deliverables. Collectively, they have both the accountability to assure the successful completion of client assignments on time and within budget, and the authority to resolve client issues, concerns, and problems hindering project progress.

The **Administrative Coordinator** facilitates execution of project tasks and submission of deliverables, and ensures required resources/support services are available to team members.

The project team for the **Demonstration and Evaluation of Speed Management and Enforcement Project** will be organized on a task basis, whereby sub-teams are responsible for specific tasks. Each sub-team will,

minimally, have a team leader and an associate team leader who are **equally aware of their role within each task requirement, the relevant deliverables and the task performance measures**. Assigning two team members to each task assures that if one team member becomes unavailable (e.g. sick, personal emergency, etc.) the other member can complete the task on time and per project specifications.

M. Davis and Company (MDAC) has over twenty two years experience managing large scale integrated projects as the prime contractor. This experience has proven that large-scale intensive projects are successful when there is frequent periodic communication, a specific work plan, ongoing training, experienced staff, clearly delineated rules and responsibilities, and reporting and monitoring systems. Consequently, MDAC has refined its overall management system to permit the simultaneous execution and successful completion of multiple engagements. Key elements to MDAC's management system for the Demonstration and Evaluation of Speed Management and Enforcement Project are discussed below.

Project Management Software: The MDAC team utilizes Microsoft Project to manage projects and resources. We have also developed specific decision rules, protocols and standards to facilitate quality customer service.

The MDAC team has developed task protocols based on completing tasks in less time than required and involving "contingency days" in each task, where feasible. Also, redundancy has been built into our project management and operations to ensure consistently timely deliverables per specification.

Weekly project meetings will be scheduled to review overall project operations, critical paths, content and due dates of deliverables, budget and customer satisfaction. Decisions are made, where needed; regarding project priority for staffing allocation to ensure deliverables are per specifications and on time.

Project Communications and Client Satisfaction: The Senior Project Manager will contact the client periodically to discuss recommendations to continually improve services and outcomes, address any issues that arise and assess satisfaction with MDAC team personnel's technical capability and responsiveness. Also, after a first draft or final deliverable is received, the Senior Project Manager may contact the client to assess their satisfaction with timeliness (delivery or performance), problem responsiveness, quality of services, technical competency, cost containment and overall satisfaction.

Project Quality Control, Confidentiality and Security

Minimally, the Project Manager, Principal Investigator, Administrative Coordinator, Key Task Leaders and CATI Facility Directors will conduct project meetings (as frequently as weekly) to discuss tasks objectives, deliverables and scheduling. A number of mechanisms may be employed to keep the client well informed throughout the project. Weekly updates will include the number of

completed surveys, the response rate and other agreed upon metrics. Quarterly progress reports will be developed to discuss: Accomplishments during the reporting period; Funds status by major cost element, the quarter's obligations, cumulative obligations, estimated cost to complete, and percent of cost expended versus percent of completion; Plans for accomplishments in next reporting period; Preliminary or interim results, conclusions, trends or other items of information that the MDAC team believes are of interest to NHTSA; Problems or delays that the MDAC team has experienced in the conduct of his/her services; and specific action that the MDAC team would like NHTSA to undertake to alleviate a problem. Additionally, regular telephone meetings, may be scheduled to follow-up on outstanding tasks, discuss new or emerging developments/tasks and solicit client feedback.

A project schedule will be created and maintained. It will include due dates of draft deliverables, for example, analyses, reports, recommendations, survey and sampling designs, scripts, draft questionnaires, training templates and materials and performance standards. Internally, the schedule incorporates deliverable content reviews by the administrative staff, team leader, associate team leader and project manager. The content review will include, where appropriate, checking of data sources, data validation, re-interviews to check accuracy of data collectors, data references and citations, formulas, calculations, methodology, tasks objectives addressed, grammar and spell checking.

Confidentiality and Security: M. Davis and Company, Inc. has a strict confidentiality/non-disclosure agreement that is signed and filed for each team member and staff of other entities with access to respondent data. The agreement specifically addresses the importance of safeguarding client and respondent confidentiality, as well as project documents.

MDAC identifies public use data and non-public use data within the data sets. The non-public use data is safeguarded by not transmitting this data over the Internet, encryption and adhering to CASRO standards.

Project documents and related materials are assigned a unique, designated location at our facility. This is to ensure that other MDAC personnel working on a particular project only has access to materials associated with that particular project.

For security purposes, we employ passwords on our computer file directors and servers; again, this is ensuring that electronic files are only available to specific project staff members. Finally, we maintain nightly backup tapes of all servers and employ off-site storage of these files.

PROJECT MANAGEMENT/ DELIVERABLES - MDAC

**Engineering Studies
/ Crash and Speed
Data Collection and
Evaluation**
Opus International
Consultants

**Enforcement Activity
and Survey Result
Data Collection and
Evaluation**
HDR/HLB Decision
Economics, Inc.

**Communications
and Education
Campaign**
Worth Associates

**Communications
and Media Survey**
MDAC

V. Proposed Staff Qualifications and Experience

The following are the names and labor categories of all proposed staff members. Also, included is a chart of the tasks and the personnel/sub-contractors associated with each task. Please see Appendix A for the resumes of selected MDAC Team members.

Principal Staff Members (Include Subcontractors and Consultants)	Role/Title in Study
Morris Davis	Senior Project Manager/Principal
Michael Campbell	Project Manager
Richard Miller	Principal Investigator
Ron Campbell	Senior Consultant
Consultant	Consultant
Louisa Elfman	Project Coordinator
Programmer	Programmer
Administration	Support Staff
Call Center Manager	Call Center Manager
Call Center Supervisor	Call Center Supervisor
Interviewers/Data Entry	Interviewer
HDR, Inc.	Sub-contractor
Opus	Sub-contractor
Worth Associates	Sub-contractor

SUB-TEAMS and RESPONSIBILITIES

<u>Task Name and Team Members</u>	<u>Responsibilities/Deliverables</u>
Project Administration/Prepare Quarterly Progress Reports *M. Campbell, MDAC; *R. Miller, MDAC; M. Davis, MDAC; L. Elfman, MDAC	Project Preparations, Contractual Issues, Detailed Task Scheduling, Quarterly Progress Reports, Procure Relevant Materials, Time Reporting, Billing Issues
Kickoff Meeting * R. Miller, MDAC; *M. Campbell, MDAC; M. Davis, MDAC; Jeffrey S. Bagdade, OPUS; S. Gros, HDR; Monica Worth, Worth	Informal Briefing of Work Plan and Working Session
Prepare Work Plan * R. Miller, MDAC; *M. Campbell, MDAC; R. Campbell, MDAC; M. Davis, MDAC; Jeffrey S. Bagdade, OPUS; S. Gros, HDR; Monica Worth, Worth	Develop Work Plan and Schedule including Specific Evaluation Research Questions or Issues to be Addressed

Prepare Draft of Federal Register Notice Announcing the Study: *M. Campbell, MDAC; *S. Gros, HDR	Drafting a short (two to three page) notice for submission by NHTSA to the Federal Register as required under the procedures established by OMB for granting clearances to Federal Agencies.
Geographic Area (Site) Selection *R. Miller, MDAC; *J. Bagdade, Opus	Develop site selection criteria and identify potential sites.
Define Survey Objective/Develop Survey Instrument/Pre-Test *M. Campbell; *R. Campbell, MDAC; S. Gros, HDR; Call Center Mgr., MDAC	Define goal and objectives of the survey, develop survey instrument and undertake pre-test.
Prepare Documentation for Approval of the Survey by the Office of Budget and Management (OMB) *M. Campbell, MDAC; *S. Gros, HDR	OMB clearance request documentation and submit to COTR for submission to OMB
Conduct Engineering Studies *R. Miller, MDAC; *J. Bagdade, Opus	Conduct engineering studies on select roadways in the demonstration area.
Design Enforcement Plan *R. Miller, MDAC; *M. Campbell, MDAC; J. Bagdade, Opus	Develop an enforcement plan following the guidelines outlined by NHTSA.
Develop Public Information and Education Campaign *R. Campbell, MDAC; *Monica Worth, Worth; F. Masson, Worth	Develop the public information and education campaign specific to selected demonstration market.
Implement Speed Management Program *R. Miller, MDAC; *M. Campbell, MDAC; R. Campbell, MDAC; M. Worth, Worth; J. Bagdade, Opus; S. Gros, HDR	Implement the Enforcement and Communications Plans in accordance with the guidelines provided by NHTSA.
Brief/Train Interviewers and Conduct Communications and Media Survey *Call Center Mgr., MDAC; *Call Center Supervisors, MDAC	Train interviewers and Administer Surveys
Data Collection and Evaluation * R. Miller, MDAC; *J. Bagdade, Opus; S. Gros, HDR	Gather speed and enforcement data to assess impact, if any, of speed management program.
Prepare Final Report: *R. Miller, MDAC; *M. Campbell, MDAC; R. Campbell, MDAC; M. Worth, Worth; J. Bagdade, Opus; S. Gros, HDR	Prepare a report that includes— introduction, procedures, findings and lessons learned.
Final Briefing *R. Miller, MDAC; *M. Campbell, MDAC; R. Campbell, MDAC; M. Worth, Worth; J. Bagdade, Opus; S. Gros, HDR; *M. Davis, MDAC	Present the findings of the demonstration project.

** Team leader(s)*

VI. RELATED CORPORATE EXPERIENCE AND PAST PERFORMANCE

M. Davis and Company, Inc.

The projects listed below were conducted with “pre-contact mailings” and mail pieces were sent to approximately 54% of all available numbers. As NHTSA has requested examples of projects and their response rates, we submit these studies.

Omnibus Household Survey

Client: U.S. Dept. of Transportation (DOT),
Bureau of Transportation Statistics

Contact: Ms. Lori Putman, COTR 202-366-3556

Project Duration: July 2001 to Present

Sample Methodology: *Random Digit Dialing*

Sample Size: 1000 interviews per 10 day period. (Note: The data collection period for December was extended to 17 days in part because of the holiday season.)

The M. Davis and Company, Inc. project team was selected from a national search to conduct the U. S. Department of Transportation’s Omnibus Household Study, which is a monthly telephone survey of 1,000 randomly selected households in the nation to gather information regarding commuting habits and awareness of various Federal safety initiatives through market communication campaigns. This is the preeminent survey for the U.S. Department of Transportation (DOT), used to test new initiatives and improve their knowledge base regarding the prevailing attitudes and perceptions of the American Public. The survey serves as an information source for the DOT modal administrators, who can use the survey to support congressional requests, ensure informed planning and decision making, as well as monitor internal DOT performance.

Surveys are conducted in English and Spanish.

The Omnibus Household Survey employs Random Digit Dialing samples, a usability study, expert panels, cognitive interviews, pre-tests, ID-Plus to purge business/non-working numbers, monthly interviewer training, CATI interviewing, toll free numbers, refusal avoidance and conversion, interviewer monitoring and validation, data weighting, variance estimation, data processing and detailed documentation. The components of the study are extensive and rigorous.

Other notable factors about this project are as follows:

- MDAC has achieved a response rate significantly higher than any contractor for this project;
- Sections of the questionnaire are changed every wave;

- Data collection must be completed in 10 days;
- More than ten attempts, on average, are made to each number;
- 15% to 20% of all calls are monitored;
- 10% to 20% of all completed interviews are validated;
- A weighting methodology and variance estimation is utilized for the results;
- Daily updates and weekly project telephone meetings are maintained with the client; and
- Data and reports are made available to the client on a password-protected website developed by MDAC, specifically for the project.

The following response rate (AAPOR, RR3) project listings are various survey months of the U.S. Bureau of Transportation Statistics, Omnibus Household Survey. In each of the surveys below, there are distinct differences in content, but also other sections of the survey instrument changed from month to month.

Survey #1: August Survey (Distinct differences in content: Questions about Mobility)

Total Sample Size: 1102
 Total Response Rate: 49.2%
 Data Collection Period: 10 days

Survey #2: September Survey (Distinct differences in content: Questions about Environment)

Total Sample Size: 1047
 Total Response Rate: 48.1%
 Data Collection Period: 10 days

Survey #3: October Survey (Distinct differences in content: Questions about National Security, Overall Customer Satisfaction of different modes of transportation)

Total Sample Size: 1091
 Total Response Rate: 49.9%
 Data Collection Period: 10 days

Survey #4: December Survey (Distinct differences in content: Questions about Safety, Telecommuting, Alternate Work Sites, Operating Administration Modal Questions, Overall Customer Satisfaction of different modes of transportation)

Total Sample Size: 1125
 Total Response Rate: 52.2%
Data Collection Period: 17 days (extended time period due to December holiday season.)

Client: U.S. Dept. of Housing and Urban Development,
Economic and Market Analysis Division,
Office of Economic Affairs,

Contact: Marie Lihn, 1-202-708-0590 Extension 5866

Project Duration: September 2006 to Present

Sample Methodology: Random Digit Dialing

Sample Size: 200-250 per market Recent Movers; open number
Non-recent movers

MDAC conducts Fair Market Rent Telephone Surveys for the U.S. Department of Housing and Urban Development (HUD). The surveys are Random digit dialing (RDD) telephone surveys and are conducted in areas designated by HUD staff. The RDD survey is used to re-benchmark the Fair Market Rent (FMR) if there is a significant difference. Both metropolitan and non-metropolitan areas are surveyed.

Section 8 program Fair Market Rents (FMRs) serve as the payment standard used to calculate subsidies under the Rental Voucher program. The U.S. Department of Housing and Urban Development (HUD) annually estimates FMRs for about 350 metropolitan areas and 2,330 non-metropolitan county FMR areas. HUD uses the most accurate and current data available to develop the FMR estimates.

Given affordable rental housing is limited in many communities, there are millions of renter households, particularly low-income households spending more than 50 percent or 30 percent to 50 percent of their income on housing. Consequently, the Fair Market Rent estimates significantly impact many American households. HUD sets FMR's to ensure a sufficient supply of rental housing is available to Section 8 program participants. However, setting the FMR's so they are high enough to permit a selection of units and neighborhoods and low enough to serve as many low-income families as possible can be a formidable task.

HUD contracts MDAC to conduct the area surveys and in the first wave of four locations a total of 44, 158 (5,954 + 38,204) call attempts were made to complete and/or screen the required number of interviews (See table below). Because of the low incidence rate MDAC completed 653,289 calls to reach the appropriate number of respondents and attain the desired information.

Type of Survey	Total Number of Attempts	Total Number of Phone Numbers	Average Number of Attempts per Phone Number	Average Number of Minutes Per Attempt	Average Number of Minutes Per Phone Number	Total Number of Minutes	Total Number of Hours
Total Interviewed (movers and stayers)	5,954	2,666	2.23	4.02	8.99	23,956	399.3
Number who picked up phone but are screened out	38,204	18,338	2.08	1.70	3.54	64,996	1,083.3
Rest of Calls	609,131	102,983	5.91	1.41	8.34	858,805	14,313.4
TOTAL	653,289	123,987				947,757	15,796.0

MDAC achieved the following response rates:

Los Angeles, CA: 52.8%

Bakersfield, CA: 40.5%

Orlando, FL: 40.6%

Hawaii County (non-metropolitan), HA: 58.9%

The above response rates are higher than the previous contractor was able to attain in recent years according to HUD. MDAC also conducts other studies with response rates reported including studies with NHTSA.

National Alcohol Crackdown Campaign

Client: National Highway Traffic Safety Administration,

Contact: Alan Block, 1-202-366-6401

Project Duration: July 2006 to Present

Sample Methodology: Random Digit Dialing

Sample Size: 1200 per wave (pre and post intervention)

MDAC conducts the National Alcohol Crackdown Campaign for NHTSA to assist in the determination of the impact of the National Alcohol Campaign on the American Public by measuring public awareness levels of the Campaign and various initiatives, attitudes and changes in behavior, if any. The response rate for the first year's waves are:

Response Rate: Wave 1, 26.6%

Wave 2, 40.3%

Nighttime Safety Belt Enforcement Demonstration Project

Client: National Highway Traffic Safety Administration

Contact: Alan Block, 1-202-366-6401

Project Duration: March 2007 to Present

Sample Methodology: Random Digit Dialing

Sample Size: 1200 per wave (pre and post intervention) with 8 waves

MDAC conducts the Nighttime Safety Belt Enforcement Demonstration Project for NHTSA to assist in the evaluation of the effectiveness of different approaches to nighttime enforcement of safety belt laws, and their impact over time. Moreover, the study is designed to foster implementation and evaluation of improvements to those techniques based upon the results of each succeeding intervention wave. The response rates for the first three waves conducted so far are:

Response Rate: Wave 1, 46.3%
2, 45.6%
3, 48.6%

OPUS

RECENT PROJECT EXPERIENCE

AAA Road Improvement Demonstration Program

Client: AAA Auto Club Group

Launched in 1996, the AAA Road Improvement Demonstration Program is an award winning public-private partnership designed to enhance traffic safety by reducing the frequency and severity of crashes at intersections. AAA Michigan worked with municipal, county and state, transportation agencies to more than 400 intersections in the Detroit and Grand Rapids areas. As part of the program traffic engineering studies were conducted to identify safety and operational deficiencies, develop mitigation measures and assist with the identification of funding to implement the improvements. Agencies which have been involved in the partnership include the City of Detroit, City of Grand Rapids, City of Milwaukee, City of Madison, Michigan DOT and the Wisconsin DOT. As a result of this program crashes have been reduced at target locations by more than 25 percent and injuries have been reduced by more than 40 percent. Opus has conducted more than 150 safety audits as part of this program since 1997

Road Safety Audit Case Studies

Client: Federal Highway Administration, Office of Safety

To demonstrate the effectiveness of Road Safety Audits (RSA), Opus was retained to organize and lead a series of ten RSA's and three additional tribal RSA's. The goal of these case studies was to demonstrate the usefulness and effectiveness of RSA's for a variety of projects and project stages (design and in-service), and in a variety of agencies (state, county, city, and Tribal) throughout the United States. Opus compiled the results of all RSA's in two case studies documents which will be released by FHWA in 2007.

Road Safety Audit Tribal Case Studies

Client: Federal Highway Administration, Office of Safety & Western Federal Lands

As a follow-up to the RSA Case Studies project, Opus was retained to conduct four RSA case studies on tribal lands in New Mexico, Arizona and North Carolina. The results will be compiled into a case studies document which will be targeted to tribal transportation agencies.

Road Safety Audits for Locals Training Course

Client: Federal Highway Administration, Office of Safety

In May 2004, the FHWA Office of Safety retained Opus to prepare material (Powerpoint slides with explanatory notes) for a two-hour presentation on road safety audits, to be given by FHWA staff. Subsequently, FHWA retained Opus to expand these materials into a two-day course to be given in a series of "train-the-trainer" sessions designed to introduce staff who worked with local governments (at the tribal, county, and city levels) to the concept of RSA's, and equip them to teach these concepts to others. The Opus materials have been used extensively by FHWA staff in their presentations on RSA's, and Opus staff have led four two-day "train-the-trainer" workshops on behalf of FHWA. Opus has recently been chosen by FHWA's National Highway Institute to teach the "Road Safety Audits and Reviews" training course to State DOT's and local governments for a five-year term starting in 2007.

Pedestrian Road Safety Audits Guidelines & Checklists

Client: Federal Highway Administration, Office of Safety

In 2005 Opus was retained as part of a team by FHWA to develop pedestrian guidelines and checklists for Road Safety Audits. FHWA was concerned that the existing documentation did not provide practitioners with enough information on the types of issues to target in a road safety audit when considering pedestrians.

Road Safety Audits and Review Course Development

Client: Federal Highway Administration, National Highway Institute

In 2007 Opus was retained as part of a team to develop a new Road safety Audits course which will be targeted to traffic engineers, enforcement and other local officials. The course will be completed by September 2008.

Wisconsin Road Safety Audit Master Contract**Client: Wisconsin Department of Transportation**

In March 2007, the Wisconsin Department of Transportation retained Opus to lead their first Road Safety Audits Master Contract. As part of this contract Opus is assisting to develop a framework for the implementation of Road Safety Audits within WisDOT. Opus will also be conducting Road Safety Audits and providing other traffic safety advisory services on an as-needed basis for WisDOT until 2009.

Evaluation of Pedestrian Safety in the City of Detroit**Client: Michigan Department of Transportation**

NHTSA has identified the City of Detroit as having a disproportionately high rate of pedestrian fatalities. As a result, Michigan DOT retained Opus as part of a team to conduct an evaluation of pedestrian safety within the City of Detroit. This study will include engineering studies which are extremely similar to those discussed in Task 7.

Evaluation of Automated Enforcement in British Columbia**Client: Insurance Corporation of British Columbia (ICBC)**

Opus (formerly Hamilton Associates) was retained by ICBC to conduct a safety evaluation of a province wide red light camera program. The study included reviewing sites and conducting a post-improvement evaluation study using crash data.

In addition to the projects above, within the past two years Opus International Consultants has conducted traffic engineering studies using the methods outlined in Task 7 for the following transportation agencies:

- City of Champaign, IL
- City of Urbana, IL
- City of Adrian, MI
- City of Detroit, MI
- City of Farmington Hills, MI
- City of Kettering, OH
- City of Green Bay, WI
- Champaign County, IL
- Brown County, WI
- Dane County, WI
- Waukesha County, WI
- Wayne County, MI
- Illinois Department of Transportation
- Michigan Department of Transportation
- Wisconsin Department of Transportation

HDR, Inc.

RECENT PROJECT EXPERIENCE

Title of Project: NYC DOS Recycling Pilot Project
Client: Bureau of Waste Prevention, Reuse and Recycling, NYC Department of Sanitation, Robert Lange
Contact: Dan Harkins, HDR Inc.
Contact Number: 617-357-7742
Contract Value: \$35K (Cdn) (subcontract value)
Project Duration: January 2007 to present
Sample Methodology: Stratified Simple Random Sample/Census
Sample Size: 2,636 sampled bags from a population of 3,505 bags

For the New York Bureau of Waste Prevention, Reuse and Recycling, HDR has been retained to design a survey that would measure the effectiveness of a Paper and Metal, Glass, Plastic (MGP) recycling pilot program implemented in five boroughs of New York City. The survey requires the counting and sorting of material collected from 160 receptacles to conform to scientific methods of sample estimation. Each week, HDR samples the bags according to a stratified sample design such that estimates as to the total weight collected, percent contamination of recyclables and total weight of contamination can be estimated for the pilot program. Based on the percent contamination, the Bureau can then make recommendations as to the cost effectiveness of the program should it expand to all public spaces in the city.

Title of Project: Economic Impact Analysis of New Jersey's Recreational Boating Industry
Client: Marine Trades Association of New Jersey, Melissa Danko
Contact: Jennifer Curran, HDR Inc.
Contact Number : 854-735-8300
Contract Value: \$28.2K (Cdn) (subcontract portion)
Project Duration: September 2006 to present
Sample Methodology: Stratified Simple Random Sample
Sample Size: 4,000

For the Marine Trades Association of New Jersey, HDR designed a survey of New Jersey boat owners conducted to assess their boating activities and boating related expenditures to estimate the total amount of recreational boating related expenditures in New Jersey. The survey is an integral part of an Economic Impact Analysis to quantify the economic contribution the recreational boating industry makes to New Jersey's economy.

Title of Project: Services Canada Enhanced Risk Management Proof of Concept

Client: Accenture

Contact: Wai-Ming Yu

Contact Number: 416-641-5613, wai-ming.m.yu@accenture.com

Contract Value: \$49K (Cdn)

Project Duration: February 2007 to June 2007

Analysis: Predictive Risk Model Development

Sample Methodology: Stratified Simple Random Sample of Administrative Records

Sample Size: 20K

For Service Canada, HDR has been retained by Accenture to develop and test within a proof of concept framework statistical risk models for Service Canada's Employment Insurance (EI) program. Service Canada must ensure that programs are delivered in accordance with legislation and policy to assure that the right person receives the right service or benefit at the right time and for the intended purpose. The Enterprise-wide Risk Management Framework identifies the risks to the integrity of programs and the mitigations in place to effectively control those risks. Service Canada's accountability is supported by reporting to Parliament and Citizens on the integrity of programs and the effectiveness of risk management strategies as required under the Management Accountability Framework. HDR provided professional services for developmental expertise, implementation of predictive risk model methodology and validation, knowledge transfer and strategic advice on new risk management approaches to the Employment Insurance (EI) program. Based on the model that HDR developed, the top 30% at risk correctly captured 50% of known cases in overpayment. In fact, the monetary value for those cases in top 30%, represented 74% of all money owed to the federal government.

Title of Project: Optimized CVP Selection Criteria - Regional Municipality of Waterloo

Client: Regional Municipality of Waterloo

Contact: Fazal Al Rahamut, Manager, Automation and Administration

Contact Number: (519) 883-2309 , rfazal@region.waterloo.on.ca

Contract Value: \$77.2K

Project Duration: June 2006 – April 2007

Analysis: Predictive Risk Model Development

Sample Methodology: Stratified Simple Random Sample

Sample Size: 3,034

For the Municipality of Waterloo, HDR developed enhanced risk factor scores which will optimize Waterloo's Consolidated Verification Process Selection Criteria. The scores will enable the Ontario Works program within the municipality to identify cases most likely to be ineligible for benefits or in overpayment. HDR's knowledge and familiarity with the Service Delivery Model Technology database has helped it identify program elements essential for

building a model with robust predictive abilities. HDR employed techniques of preliminary data analysis to prepare and identify elements most likely to correlate with ineligibility or overpayment. Inputs are tested and associated with either ineligibility or overpayment using logistic regression techniques. Results are always validated using an independent sample.

Title of Project:	Transportation Plan
Client:	Large Corporation
Contact:	David Peters, HDR Inc.
Contact Number:	425-450-6359
Contract Value:	\$138.3K (Cdn)
Project Duration:	June 2006 to May 2007
Analysis:	Stated Preference Survey and Model
Sample Methodology:	Stratified Simple Random Sample
Sample Size:	7,632

For a large corporation based in the U.S.A, HDR designed a stated preference (SP) survey and model that estimated market share and future demand for various transportation mode choices within its campus. As the employer was still in the exploratory phase of identifying the ideal transportation mode solution, it did not want to present known mode brands to questionnaire respondents. A generic approach was required so that selections were based on what the mode provided in terms of trip length and comfort as opposed relying on the brand. A mathematical rule was developed that related the attributes of a mode to the percentage of people who would choose to travel by that method. Once the employer narrowed down its search for the best mode and had the mode's travel specifications, it would have an estimate of the percent of people who would use that mode based on the mathematical rule. With the availability of statistically sound forecast demands per mode, the employer could then decide which mode would make the most

Title of Project:	Drought Management Plan and EIS
Client:	Bureau of Indian Affairs, Bob Dachs
Contact:	Bob Beduhn, HDR Inc.
Contact Number:	763-591-5460
Contract Value:	\$29.4K (Cdn) (subcontract portion)
Project Duration:	January 2007 – July 2007
Analysis:	Predictive Risk Modeling & Principal Component Analysis
Sample Size:	56 years of Hydroclimate Data

For the Bureau of Indian Affairs, HDR has been retained for the development of a statistically based algorithm that forecasts the chance of a severe drought based on observed monthly environmental factors such as large-scale climatic regimes, basin precipitation and stream flow. This provides key input for the development of a drought management plan (DMP) for the operation of the Kerr Hydroelectric Project on Flathead Lake, Montana. HDR is using logistic regression techniques to associate observed environmental factors with severe drought incidence and

to produce an index between 0 and 1 that would indicate the chance of a severe drought. Further analysis identified the cut-off value of the index that would correctly predict for a severe drought while keeping the incidence of false positives to a minimum. Model performance is validated against latest observed years not used in model development.

Title of Project: Caseload Assessment and CVP Priority Scoring Analysis
Client: Ontario Works in Peel
Contact: Margaret Radisa, 21 Coventry Road, Suite 203, Brampton, Ontario, L6T 4V7
Contract Value: \$195K (Cdn)
Project Duration: June 2003 – May 2006
Analysis: Predictive Risk Modeling
Sample Methodology: Stratified Simple Random Sample of Administrative Records
Sample Size: 351 Observations

For the Municipality of Peel, HDR conducted an analysis of their social assistance caseload in light of numerous policy changes. The aim was to identify and to quantify the effect of the underlying cause(s) of recent caseload increases following the introduction of a new technological database system and recent economic developments, in order to facilitate a plan of action. Refined the existing scoring algorithm used to prioritize the sequence of case reviews within the Ontario Works Program. The purpose of the priority-scoring algorithm is to optimize the identification of high-risk ineligible cases with a view to reducing welfare fraud.

Title of Project: Water and Wastewater Utility Study
Client: Anchorage Water and Wastewater Utility
Contact: Timothy Ament [Timothy.Ament@awwu.biz]
Contract Value: \$14K (cdn)
Project Duration: January 2006 to April 2006
Analysis: Review of sample methodology and results
Sample Methodology: Simple Random Sample
Sample Size: 745 Household Water Meters (random component)

For Anchorage Water and Wastewater Utility (AWWU), HDR was contracted to carry out a statistical audit of the data collected under the AWWU Single-Family Residence Water Use Test Meter Program. The key objective of the analysis was to assess if the sample date was representative of the population in order to ensure accuracy in estimates of water consumption per meter per single family dwelling household. To carry out the objective, the following analysis was undertaken:

An assessment of the level of accuracy and confidence value of the average water consumption estimate under the assumption of simple random sampling;
An assessment and analysis of the variability in the meter readings;
Testing for possible bias related to sample collection;

A review and critique of the sampling methodology used in the collection of meter readings and recommended improvements to future data collection efforts.

For the Ontario Ministry of Community and Social Services, HDR performed third-party benefits measurement and risk assessment in relation to a \$600 million contract between the Department and Accenture Corporation. Using econometric and probabilistic risk assessment methods, HDR tracked the performance of the business case. HDR also measured the realization of productivity and related benefits as a basis for determining vendor payments under the partnering agreement for a period of seven years (on-going).

Worth Associates, Inc.

RECENT PROJECT EXPERIENCE

Title of Project:	ACTT Workshop Documentation
Client:	USDOT/Federal Highway Administration
Contact:	Christopher Schneider, 1200 New Jersey Ave., SE, Washington, DC 20590 202/404-6272
Contract Number:	DTFH61-06-P-00270
Contract Value (if available):	\$45,760
Project Duration:	9/12/2006 to 6/30/2007
Sample Methodology:	n/a
Sample Size:	n/a

10012, LLC's assignment was to support the Accelerated Construction Technology Transfer (ACTT) program in the Construction and System Preservation/Office of Asset Management. The tasks involved providing a series of workshop reports, annual reports, and promotional material.

Title of Project:	ACTT Workshop Documentation
Client:	USDOT/Federal Highway Administration
Contact:	Christopher Schneider, 1200 New Jersey Ave., SE, Washington, DC 20590, 202/404-6272, christopher.schneider@dot.gov
Contract Number:	DTFH61-02-Z-00123
Contract Value (if available):	
Project Duration:	May 2005-April 2006
Sample Methodology:	n/a
Sample Size:	n/a

Worth Associates, Inc. was a subcontractor to LGB & Associates, Inc., which holds the above contract. Worth Associates' assignment was to support the Accelerated Construction Technology Transfer (ACTT) program in the Construction and System Preservation/Office of Asset Management. The tasks involved providing a series of workshop reports, annual reports, and promotional

material and participating on Public Information skill set teams at State DOT workshops. The value of the project to Worth Associates, Inc. was approximately \$178,149.

Title of Project:	Transportation Curriculum Coordination Council (TCCC) Website Development
Client:	USDOT/FHWA
Contact:	Christopher Newman, 1200 New Jersey Ave., SE, Washington, DC 20590, 202-366-2023, christopher.newman@dot.gov
Contract Number:	DTFH61-06-D-00041
Contract Value (if available):	\$149,930 (first phase of a 5-year IDIQ @ \$425,000)
Project Duration:	10/2/06 to 10/1/07 (first phase)
Sample Methodology:	n/a
Sample Size:	n/a

Worth Associates, Inc. is a subcontractor to Total Network Systems, Inc., which holds the above contract. Worth Associates' assignment was to support the Transportation Curriculum Coordination Council (TCCC), in the Construction and System Preservation/Office of Asset Management. The task was to develop a website for this initiative to coalesce into a national curriculum all highway transportation workforce training courses nationwide, including gap identification. The website is scheduled to launch September 2007, and includes front end customer functionality, as well as back end collaboration tools for course intake/development and TCCC operations by State DOT volunteers who manage this program as leaders/committee members. The value of the project to Worth Associates, Inc. is approximately \$148,437, with \$247,563 as the approximate value to Worth Associates in Option Years 2-4.

Title of Project:	Transportation Asset Management (TAM)
Case Studies	
Client:	USDOT/FHWA
Contact:	Francine Shaw-Whitson, , 1200 New Jersey Ave., SE, Washington, DC 20590, (202) 366-9981, francine.shaw-whitson@dot.gov
Contract Number:	DTFH61-02-Z-00123
Contract Value (if available):	
Project Duration:	April 2006 – September 2007
Sample Methodology:	n/a
Sample Size:	n/a

Worth Associates, Inc. is a subcontractor to LGB & Associates, Inc., which holds the above contract. Worth Associates' assignment was to support the Transportation Asset Management program in the Office of Asset Management/Evaluation and Economic Investment. The task was to research, write and produce series of case studies, traveling to and working with State DOTs to debrief their approaches and activities in a variety of asset management

subject areas. The value of the project to Worth Associates, Inc. was approximately \$58,000.

Title of Project	TCCC Business and Communications Plans
Client:	USDOT/FHWA
Contact:	Christopher Newman, 1200 New Jersey Ave., SE, Washington, DC 20590, 202-366-2023, christopher.newman@dot.gov
Contract Number:	DTFH61-02-Z-000123
Contract Value (if available):	
Project Duration:	March 2005 to July 2006
Sample Methodology:	n/a
Sample Size:	n/a

Worth Associates, Inc. was a subcontractor to LGB & Associates, Inc., which holds the above contract. Worth Associates' assignment was to support the Transportation Curriculum Coordination Council (TCCC), in the Construction and System Preservation/Office of Asset Management. The task was to develop a 5-year Business Plan for this initiative and to develop and implement a subsequent communications and marketing plan, including all related materials (brochure, PPT, etc.). The value of the project to Worth Associates, Inc. was \$27,450.

Title of Project	Highways for LIFE Success Stories
Client:	USDOT/Federal Highway Administration
Contact:	Mary Huie, 1200 New Jersey Ave., SE, Washington, DC 20590, 202-366-3039, mary.huie@dot.gov
Contract Number:	DTFH61-02-Z-000123
Contract Value (if available):	
Project Duration:	August 2005 to April 2006
Sample Methodology:	n/a
Sample Size:	n/a

Worth Associates, Inc. was a subcontractor to LGB & Associates, Inc., which holds the above contract. Worth Associates' assignment was to support the Highways for L.I.F.E. program in the Office of Asset Management/Construction and System Preservation. The task was to identify projects, research, write and produce 25 "success stories" illustrating HFL principles. The value of the project to Worth Associates, Inc. was \$62,500.

VII. Disclosures of Conflict of Interest

To our knowledge M. Davis and Company, Inc. has no conflict of interests because of any related past, present, or currently planned interest, financial or otherwise, in organizations regulated by DOT or organizations whose interest may be substantially affected by Departmental activities.

Appendix A: Resumes

MORRIS R. DAVIS PRESIDENT

EDUCATION

The Wharton School, University of Pennsylvania
B.S. Finance and Decision Sciences

AFFILIATIONS

American Public Transit Association
African-American Chamber of Commerce of Philadelphia
American Marketing Association
Center for the Advancement and Study of Entrepreneurship, Temple University
Conference of the Minority Transportation Officials
Council of the American Survey Research Organizations
Board Member and Secretary
The Council for Marketing & Opinion Research
Task Force Member
Delaware Minority and Women-Owned Business Association
National Association of Housing and Resources Organizations
National Association of Market Developers

PROFESSIONAL EXPERIENCE

M. Davis and Company, Inc.
Philadelphia, PA

President

National Corporate Research:

- Conducted landmark multiple city transportation study to quantify differentials in travel time between auto and transit for the Federal Transit Administration. Data is the basis for the book "Policy and Planning as Public Choice (Mass transit in the United States)".
- Developed research design and sample design for national door-to-door field survey in twenty-four cities and managed a workforce of over 200 surveyors.
- Designed and managed first ever multi-state field study for the health care industry. Observers utilized personal recorders to memorialize their discussions and observations of respondents. Managed over 100 observers.
- Developed first ever multi-stage stratified sample for a multi-year national field study of thirty-six hundred customers to assess shopping behavior, attitudes and usage.
- Designed and conducted customer satisfaction study (15,000 member mailing) of over 170 health care providers serving Medicaid recipients. Developed individual reports for each provider to direct their efforts to better service Medicaid patients.
- Developed research design and sampling methodology for multiple nationwide evaluation field studies for Fortune 500 companies, including Anheuser-Busch,

Buick Motor Division, Chrysler Corporation, Coca-Cola USA, Dial Corporation and Hyatt Corporation.

- Developed sampling design for two nationwide retail audit systems, one for the hair care industry and the other for the beverage industry. Both included twenty or more cities and 1,000 retailers.
- Conducted major tracking and attitudinal studies for the Delaware River and Bay Authority, Denny's Inc., Department of Health and Human Services, Georgia Power, Mobil Oil Corporation, Motorola Corporation, Prudential and other health corporations throughout the United States.

Strategic Planning, Marketing and Evaluation:

- Developed Empowerment Zone and Enterprise Community application (submitted to the Department of Housing and Urban Development) for the city of Chester, PA. This is a depressed city with 40,000 residents, of which twenty-five percent (25%) live below the poverty level, have limited access to and utilization of health care and a high proportion of low birth weights. Created a comprehensive 10 years strategic plan with extensive input from residents, community leaders, major corporations, federal, state, county and city officials. The plan addressed economic, health, housing and infrastructure/municipal service department.
- Conducting a comprehensive study of long-term health and social service needs for the Delaware Department of Health and Social Services (DHSS). Its focus was the entitlement eligible and working poor populations. The study included: 1) determining whether there was a need for an additional State Service Center in New Castle County, DE, 2) reviewing and developing health and service access utilization data, 3) conducting a financial feasibility of operational costs, and 4) conducting construction/rehabilitation and environmental abatement costs assessments of probable physical locations. Presented findings to the Secretary of DHHS, the State Budget office and state legislators.
- Conducted national tracking study for the U.S. Department of Health and Human Services to evaluate their Childhood Immunization Campaign and recommend additional strategy and tactics to improve the campaign's effectiveness. The campaign is part of a major initiative of the Clinton Administration, which is dedicated to improving infant immunization rates, and sustaining them long term.
- Evaluated for several managed Medicaid Plans their member handbook, PCP directory, newsletters, health brochures and other literature to assess recall, overall effectiveness and comprehension among members with low literacy and/or poor eyesight. Utilized focus groups and surveys to gain feedback from Medicaid eligible members.
- Developed marketing plans in conjunction with our clients for numerous health care planning and Medicaid managed care plans. The specific objectives of these engagements were to: 1) increase retention of existing members 2) gain new members from the ranks of dissatisfied members of competing health plans, and 3) develop plans to increase quality of services, utilization, decrease the proportion of missed PCP and specialist appointments, and decrease inappropriate use of emergency care services.

- Designed and conducted first ever baseline and media effectiveness study for a Medicaid managed care client. Conducted focus groups to help develop positioning statements and advertising themes. Additionally, identified deficiencies in information systems from senior management's perspective.
- Designed and conducted customer satisfaction studies specific to health care providers serving Medicaid recipients. Developed proprietary individual reporting for system and tools to help improve service to their Medicaid patients.

Recent Conferences, Seminars and Workshops:

- "Uncovering Interviewer Satisfaction/Motivation" Presenter, 2003 CMOR Annual Respondent Cooperation Workshop
- Serving Unique Transportation Needs, 2002 APTA Bus and Paratransit Conference
- "Market Research, An Undervalued and Under Used Tool for Success" 2001 NFBPA Annual Forum
- Evaluator of projects for Transit Cooperative Research Program's governing board (TOPS) for consideration in formulating the Fiscal Year 1999 Research Program
- "*Customer Service for the 21st Century*" 1999 COMTO National Meeting and Training Conference
- Participation in "*New Paradigms for Public Transportation: A Future Search and Next Steps*" Transit Cooperative Research Program
- TCRP Screening Panel-Member (1998)
- Problem Statements of Selected Research Fields-Transit Planning, Policy-Related and Selected Forward Looking Topics
- African American Mobility Symposium, Moderator (1997)
The Impact of Welfare Reform and The Market Opportunity for Transit Systems in the Lower Income Market. Lower-income Americans, notably African Americans, particularly in the metropolitan areas are the largest segment of Public Transit Users. The majority of travel for low-income users are intra-city routes, however, these routes have generally been under funded and services reduced.
- American Public Transit Association Annual Meeting, Moderator (1997)
"Leaders with Vision: Turning Challenges into Opportunities"
- New Paradigms for Transportation Sponsored by TCRP, Moderator (1997)
The TCRP Oversight and Project Selection Committee has initiated a process to assist transit agencies in their efforts to identify, understand and capitalize on the new paradigms for transportation. The transportation industry is experiencing challenges not unique to their industry.

The Wellington Group

Philadelphia, PA

Partner and Vice President-Marketing Services 1983-1985
Responsible for strategic planning, development of new account areas

Director-Marketing Services 1980-1983

Developed new accounts, serviced current accounts, supervised and conducted secondary research, supervised field research staff and conducted analyses of market research data

Research Associate

1978-1980

Solicited small business accounts, conducted secondary research, assisted in the development of research plans, participated in field research, gathered data on the target industries and consumer markets and wrote industry reports

Richard James Miller

WORK EXPERIENCE

**Community Safety Services Manager
AAA Michigan/Auto Club Group (ACG)
Dearborn, Michigan - 2000-2006**

Managed a staff of 10 professionals engaged in the development and implementation of AAA traffic safety programs.

Responsible for the administration and presentation of specialized programs on alcohol driving awareness, teen driving/driver education, senior mobility, occupant restraints/child passenger safety, distracted driving, traffic safety workshops for school children – as well as other traffic safety issues as they become public priorities.

Assisted in the identification and development of key traffic safety policies and priorities on behalf of the company.

Media spokesperson on traffic safety and corporate liaison with state and local officials with responsibility in these areas. Over 200 interviews completed.

Managed the AAA Michigan Road Improvement Demonstration Program (RIDP) directed at reducing serious crashes at high-risk urban signalized intersections through low-cost engineering improvements. This program has reduced total traffic crashes by more than 25% and injury crashes by more than 40% at hundreds of dangerous intersections in Detroit and Grand Rapids, Michigan. The AAA RIDP has been successfully exported to Madison and Milwaukee, Wisconsin where similar results are expected.

Represented the company's safety interests to federal, state and local traffic safety organizations including the National Highway Traffic Safety Administration, Federal Highway Administration, AAA Foundation for Traffic Safety, and numerous state and local law traffic safety groups.

Coordinated the eleven AAA Michigan/Michigan Office of Highway Safety Planning traffic safety committees spread throughout Michigan. These regional AAA/OHSP groups are committed to bringing transportation related professionals from every discipline together for networking opportunities to impact traffic safety problems in their local areas.

Provided support to AAA Michigan's Government Relations management staff on legislation related to traffic safety issues including alcohol enforcement, teen driving,

distracted driving, child passenger safety, truck safety, speed enforcement, and motorcycle helmet laws - including frequent testimony before state legislature.

Key Accomplishments:

2005-06 The ACG representative on AAA National's Alcohol Safety Workgroup committed to using AAA's collective resources to positively impact the problem of drinking and driving.

2005-06 The ACG representative for the U.S. Road Assessment Program (USRAP) pilot project targeted on assigning risk values to primary roadways in Michigan and Iowa. Both state's Departments of Transportation, the FHA and AAA Foundation for Traffic Safety were partners.

2005 Served as a pilot AAA club for the implementation of CarFit, a program to assist seniors better "fit" within their motor vehicles.

2005 Partnered with the University of Michigan to develop a children's booster seat story and coloring book, "Sammy the Squirrel". Over 200,000 copies of these books were subsequently distributed nationwide to elementary schools, day care centers and other child education facilities.

2004-05 Served on the R&D committee for AAA National's "Roadwise Review – A Tool to Help Seniors Drive Safely Longer".

2003-04 Participated as an executive steering committee member for the first North American Conference on Elderly Mobility, held in Detroit, Michigan in August 2004.

2002-06 Michigan Network of Employers for Traffic Safety Executive Committee member.

2002-04 Chaired the Data Action Team under the Governor's Traffic Safety Advisory Commission. Charged with transitioning Michigan's traffic crash report from paper to electronic entry by police officers.

2002 Served on the Michigan Office of Highway Safety Planning Driver Education Committee and helped produce a new parent orientation kit (including video) for parents of novice GDL drivers.

2001-06 Member of the Michigan Office of Highway Safety Planning (OHSP) Drunk Driving traffic safety committee. This committee was charged with advising OHSP on enforcement and education opportunities to address drunken driving issues in Michigan.

2001-06 The ACG representative on the AAA National Traffic Safety Sub-committee. This small, select group represented all 80 plus AAA clubs nationwide on traffic safety policy and education issues.

2001-06 Member of the Michigan Association of Chiefs of Police Traffic Safety Committee.

2001-06 Chair of the Michigan Deer Crash Coalition – directed and produced the video “Stay Clear of Deer All Year” distributed to driver education classes statewide

Chief of Police City of Plymouth, Plymouth, Michigan - 2000

Directed 14 sworn police officers for the City of Plymouth and a budget of over one million dollars.

Served as the city's law enforcement representative in the Downriver Mutual Aid Task Force, a consortium of agencies committed to mutual assistance during critical events.

Responded to numerous inquiries and policy requests from the City of Plymouth Commission, the citizens of Plymouth, and the media.

Managed the renovation of the police facilities to the extent that budget permitted.

Began several initiatives to upgrade critical police equipment, departmental policy, and enforcement strategies to the extent that city commission and union restrictions allowed.

Michigan State Police (MSP) East Lansing, Michigan – 1973-1999

Inspector, Assistant Sixth District Commander (1996-99)

Operational responsibility over eight state police posts with 250 sworn and civilian staff in the western portion of Michigan's lower peninsula.

Directed MSP efforts at critical incidents (hostage situations, natural disasters, etc.).

Trained as a Public Information Officer and handled numerous significant media issues for the District.

Audited post operations and conducted internal investigations on behalf of the Department.

F/Lieutenant, Flat Rock Post Commander (1985-96)

Commanded a Detroit metropolitan area MSP expressway post comprising over 60 sworn and civilian staff. The Flat Rock Post was one of only three of 60 MSP posts dedicated

to highway patrol functions. Drunk driving enforcement, speed enforcement, and other high-risk driver violations formed the core of the post's enforcement responsibilities.

The Flat Rock Post won the Michigan Mother's Against Drunk Driving annual award for enforcement excellence for four consecutive years. Over the eleven year tenure as Flat Rock Post Commander the post averaged over 1000 drunken driving arrests per year.

Responsible for managing critical incidents on the expressway, hostage situations as requested by local police, VIP motorcades and investigations of other police agencies as assigned by county prosecutors and the Michigan Attorney General's office.

F/Lieutenant, Sandusky Post Commander (1983-85):

Commanded a rural MSP post in the eastern thumb area of Michigan comprised of 15 sworn and civilian staff.

Basic responsibilities similar to Flat Rock Post Commander with greater emphasis on responding to criminal calls for service.

Sergeant & Lieutenant, Traffic Services Division (1978-83)

Responsible for oversight of all HQ directed alcohol, selective enforcement, and speed related projects.

Wrote and administered over \$2 million in federal traffic safety grants

Authored the Michigan State Police Traffic RADAR Training curriculum. This training ultimately served as the basis for the NHTSA national curriculum.

MSP Director's representative on Michigan's legislative Drunk Driving Task Force. Served legislature as a primary technical resource in revising Michigan's OUIL laws to include Per Se and Pre-arrest Breath Testing provisions. Developed the Michigan Pre-arrest Breath Testing equipment training course.

Trooper, Erie & Lansing Posts (1973-78)

Duties included general patrol with special emphasis on traffic enforcement.

Key Accomplishments:

1990-2000 Responsible for conducting several resource allocation studies for the Department to determine appropriate Trooper staffing levels for over 60 state police posts.

1993 Recipient of the Michigan State Safety Commission Traffic Safety Award for Outstanding Long Term Contributions to Traffic Safety.

1989-94 Over a five-year period, chaired and co-chaired Monroe County, Wayne County and Huron Valley AAA Michigan/OHSP Traffic Safety Committees.

1979-80 One-year IPA assignment with the National Highway Traffic Safety Administration (NHTSA) in Washington, DC. Served as technical advisor on a variety of police traffic services programs involving speed, alcohol and occupant restraint enforcement.

EDUCATION

Michigan State University East Lansing, Michigan
Bachelor's Degree in Criminal Justice - 1973

Central Michigan University
Mt. Pleasant, Michigan
Masters Degree program in Public Administration
24 Credits completed

OTHER RELATED TRAINING

Certified as a AAA CarFit instructor-trainer.

Certified as a AAA Driver Improvement Program Instructor for Fleet, Mature Operator and First Offender training.

Certified as a NHTSA/SAFE KIDS Child Passenger Safety Seat Technician.

Graduate of the Northwestern University Traffic Institute (NUTI) School of Police Staff & Command, Evanston, Illinois. A ten-week intensive management training course with emphasis on traffic safety issues. Class standing: Number 1. Later accepted as an adjunct faculty member at both NUTI and Eastern Michigan University Schools of Police Staff and Command. Areas of expertise: Traffic Safety Management; Resource Allocation & Work Scheduling.

Alcohol Preliminary Breath Test device instructor.

Horizontal Eye Gaze Nystagmus/drug recognition expert instructor.

RADAR & LASER speed device instructor.

Graduate of the Northwestern University Traffic Institute Advanced Accident Investigation Training.

AFFILIATIONS

Northwestern University Traffic Inst. Alumni Association
Michigan Association of Chief's of Police

Michael G. Campbell, Esquire

*Member of Bar of PA and NJ
Since 1988

EXPERIENCE

M. DAVIS AND COMPANY, INC., MARCH 2000 TO PRESENT,

PROJECT DIRECTOR: Direct the handling of project issues and interact with all levels in the organization. Responsible for all client contact.

Manage Multi-million dollar contract with the U. S. Department of Transportation,

Bureau of Transportation Statistics conducting nationwide monthly Random Digit

Dialing Omnibus Household Survey of 1,000 respondents asking about transportation

usage and opinions. Coordinate all phases of project from Planning and Pre-testing

through Fielding and Report-Writing. Chair weekly teleconference with government

personnel for progress updates. Also, manage U.S. Department of Housing and Urban

Development Fair Market Rent Random Digit Dialing survey to determine appropriate

subsidization levels for market areas across the United States.

Other Duties Include:

- Reviewing and modifying existing protocols; developing new operational protocols and standards document (eg.,: lead time to complete specific tasks before starting new tasks; standardization of procedures, checklist of specific standardized tasks with an audit trail) to ensure timely, high quality and cost-effective deliverables.
- Writing and editing proposal document sections for bids.
- Downloading proposal documents and information from the Internet.
- Coordinating proposal project details with outside professional partner team members using telephone, fax machine and Internet e-mail.
- Devising Questionnaires: Writing and editing questions and potential responses for mail and Internet surveys.
- Creating coding categories for open-ended questions and coding into computer system.
- Tabulating data using survey system and the statistical package for the Social Sciences (SPSS).
- Conducting data analysis and interpretation for projects.
- Creating data tables and charts for projects.
- Writing and editing sections of reports: Top-line and final reports for projects.

- Utilizing SPSS 9.0 on computer to format database, input data, maintain database, tabulate data, analyze data, run appropriate statistical tests, cross tabulations and prepare charts, graphs, tables.
- Using WordPerfect Office and Microsoft Office: Access, Excel, Word.

EDUCATION

TEMPLE UNIVERSITY SCHOOL OF LAW, JURIS DOCTOR

UNIVERSITY OF PENNSYLVANIA, THE ANNENBERG SCHOOL OF COMMUNICATION, MASTER OF ARTS DEGREE IN COMMUNICATION

- Multiple Regression, scaling and path analysis methodological training for large sample data.
- Content analysis methodological training.
- Analyzed Federal Communications Commission (FCC) Policy and Regulations and First Amendment Caselaw in relation to traditional media (broadcast and print) and new communications technology (satellite communication, high-definition TV and cable TV).
- Conducted study in SPSS analyzing how political, social, economic and cultural relationships among over 100 nations predicted importation patterns of communications products (films) from six highly-industrialized nations. Assimilated numerous data sources; formatted database; entered data; checked data for outlying values; transformed data where appropriate; recoded data where necessary; ran frequencies, summaries, central tendency tests; described Univariate characteristics, Bivariate relationships; ran tests for linearity and homogeneity of variance; ran statistics, tables, charts and graphs; and conducted Multiple Regression analysis with a variance explained of .47 overall and .87 for an individual country analysis. Wrote a final report accepted as a Master's Thesis.
- Conducted study in SPSS analyzing how increased cable TV penetration reduced traditional network television station advertising revenues. Researched data sources, formatted database, entered appropriate data, tabulated data, conducted cross tabulations and statistical tests, analyzed the data and wrote a final report.

CREIGHTON UNIVERSITY, BACHELOR OF ARTS

MAJOR: Journalism/Mass Communications

MAJOR: Organizational Communications

- Used SPSS data system for statistical coursework and training.
- Conducted study of Doctors, Dentists and Lawyers and their opinions and beliefs as to professionals being allowed to advertise their services. Devised mail questionnaire, entered data, tabulated data, conducted analysis and wrote final report.
- Coursework: Statistics I and Statistics II

RONALD CAMPBELL SENIOR CONSULTANT,
STRATEGIC PLANNING AND QUALITATIVE RESEARCH

Ron is a senior consultant/strategic planner for M. Davis and Company, Inc. In this role he manages major engagements and undertakes analysis and report writing. He is also a professional moderator and conducts focus groups and in-depth interviews. Ron has expertise in strategic planning and media consulting. He also has specialized competency in regard to multi-cultural populations inclusive of the development of targeted marketing plans and executions. Long term clients of over a decade include: The Fannie Mae Foundation and The Fannie Mae Corporation, as well as GSD&M.

Ron developed his skills over two and one-half decades at “blue chip” advertising agencies, like Foote, Cone & Belding and Benton & Bowles, where his responsibilities included accounts such as Proctor & Gamble, Richardson Vick, Schlitz Brewing Co. and Sears.

As a Group Director at the Uniworld Group, one of the largest African-American owned advertising companies in the nation, Ron lead the account teams in the development of innovative ideas and new product roll-outs, for The Coors Brewing Company, The Southland Corporation, and The Drackett Company.

Ron has provided his unique skills to The Chisholm-Mingo Group, another premier African-American owned advertising company, where his responsibilities included the integration of Media, Research and Account Planning, to develop insightful and effective communications plans for The Chisholm Mingo Group clients. While at The Chisholm-Mingo Group Ron was involved in evaluating a General Motors Seat Belt Campaign designed to motivate seat belt use.

As a result of Ron’s expert experience he is an exemplary strategic planner and developer with extensive experience in media and the marketing communications process.

Ron holds a B.S. from New York University and an M.S. in Advertising from the University of Illinois, at Champaign Urbana. He is a native New Yorker and a disciple of Tai Chi Chuan, as well as an avid skin diver.

Ron is past president of the Ethnic Marketing Leadership Council, of the American Marketing Association/NY.

LOUISA ELFMAN**PROJECT COORDINATOR****Education**

Drexel University Philadelphia, PA
Bachelor of Science International Area Studies
Concentration: Marketing and Latin American Studies

Experience

March 2004 – Present M. Davis & Company Philadelphia, PA
Project Coordinator/Database Manager/Data Analyst

Responsible for assembling background research in all phases of assigned projects. Assists Senior Project director and Project Director in running all aspects of a project. Assists Sales Director in coordinating meeting, lunch and/or dinner presentations, and other arrangements, as needed. Responsible for coordinating the working CATI production to be used during the project fielding. Collaborates with computer programmers to develop surveys for fielding. Coordinates with sub-contractors and in-house staff during all phases of project. Monitors Call Center operations, to ensure all phases of project are running optimally.

June 2003 – March 2004 M. Davis & Company Philadelphia, PA
Market Research Assistant

Responsible for undertaking research to support projects. Helps members of the call center team with computer and survey questions. Assists call center supervisor and other members of management team with the administrative duties of market research projects, as assigned.

June 2003-Present Private Consultant Philadelphia, PA
Research/Business Consulting/Administrative/Bookkeeping

Assisted businesses and people with daily transactions and report writing. Taught computer basics to people of various ages. Bookkeeping for restaurants and product related businesses. Responsible for finding information on the internet, telephone, and library to improve product placement, marketing, and customer service.

June 1997 – June 2001 The Meyers Group Philadelphia, PA

Research Administrator

Supervised research operations and general office administration for information services firm, consisting of an inbound/outbound call center, data processing unit, and data quality unit for the Delaware Valley and Northern New Jersey regions. Participated in primary research activities through daily interaction with clients and industry sources to ensure consistent quality metrics and standards are met in a deadline-driven production

environment. Utilized proprietary database and management tools to create specific reports for internal and external clients, primarily on a weekly and monthly basis. Assisted research manager in administration of decentralized field personnel, forecasting staffing needs to meet monthly production deadlines, coordinating training and support of existing staff, and new hire orientation.

Computer Skills:

Proficient in the use of Macintosh and IBM computer systems.

Software Proficiency: Windows NT Server, Fox Pro, Microsoft Windows 2000, Microsoft Office 2000, WordPerfect Office, Database (Various packages), Pascal, Basic, Lotus, Excel, Filemaker, Access 2000 PageMaker, Quick Books, Claris Cad, Access, Mymstat, Veritas, Microsoft Outlook, Wincati, Ci3, Sensus, etc.

MONICA WORTH

RESUME OF EXPERIENCE: TRANSPORTATION

PROFESSIONAL HISTORY

PRESIDENT, WORTH ASSOCIATES, INC. September 1987 to Present, Sperryville, Virginia. Provide public affairs, marketing, Washington representation, and organizational development services to national and international clients, including the U.S. federal government. Transportation is Worth Associates' primary client sector.

Recent Duties:

- ♦*Manage communications support to U.S. Federal Highway Administration (FHWA) Highways for L.I.F.E. program, including supervision of tasks such as identification, research, writing, editing, and production of "success stories" illustrating innovation in highway delivery at the State DOT level (includes Section 508 compliance services).*

- ♦*Manage communications support to FHWA Office of Asset Management on Transportation Curriculum Coordination Council (TCCC), Accelerated Construction Technology Transfer (ACTT), and Transportation Asset Management programs, including oversight of tasks such as development of a five-year business plan, communications plan and website (TCCC); research, writing, editing, and production of workshop and annual reports (ACTT); and research, writing, editing, and production of State DOT case histories (TAM) – including Section 508 compliance services on all.*

- ♦*Supervise communications support to FHWA Office of International Programs on print material (including Section 508 compliance services).*

- ♦*Managed development of comprehensive communications audit, subsequent communications plan, individual marketing plans to accelerate adoption of innovative technologies and all resulting products and services for American Association of State Highway and Transportation Officials (AASHTO)/FHWA Technology Implementation Group (AASHTO TIG).*

- ♦*Provide communications counsel to coalition of U.S. Federal Highway Administration, AASHTO and leading transportation industry construction groups; produce all*

marketing material including brochures, videos, and reports, provide website content and oversee website design, provide all industry and mainstream press relations, assist with conference planning and thematic development, create and produce collateral material in support of organization's programmatic aims, provide annual communications plan.

Recent Achievements:

•Worth led a subcontracting team for LGB & Associates, Inc. that was credited with providing, within 6 months, 40% of the basis for the firm's selection as USDOT's 2005 Prime Contractor of the Year.

•Worth is the recipient of a 2006 Federal Highway Administration "Partnership in Excellence Award" from Acting Administrator, J. Richard Capka.

DIRECTOR OF CLIENT RELATIONS December 1990 to August 1992, The Funding Center, Alexandria, Virginia. Directed client relations activity for international fund raising consulting group. *•Analyzed needs and designed service packages for small community groups to major multilateral agencies (budgets of \$300,000 to \$100+ million). •Instituted and managed quality assurance program.*

PUBLIC AFFAIRS/FUND RAISING CONSULTANT August 1987 to December 1990, Washington, D.C. Provided public affairs and fund raising counsel to regional and national not-for-profit organizations, with emphasis on comprehensive resource development. Consultant to association management and public relations firms. Taught organizational development workshops and board seminars. *•Edited guidebook to U.S. trade system for council of Pacific governments. •Coordinated corporate fund raising for \$300,000 annual gala for Spina Bifida Association of America. •Managed fund raising for religious life center at The George Washington University, including direct mail, events, and major gifts.*

DEVELOPMENT COORDINATOR/EAST COAST July 1985 to July 1987, The American Film Institute, Washington, D.C. Coordinated East Coast fund raising for \$12 million national arts organization. *•Coordinated top two Washington support groups, including council of 15 leading corporations. •Conducted special project fund raising. •Managed 35 special events in one year (corporate/congressional receptions, major celebrity galas). •Managed individual and corporate major gift development. •Provided diplomatic, Congressional, and celebrity liaison.*

PUBLIC AFFAIRS/DEVELOPMENT CONSULTANT November 1982 to August 1984, Auckland, New Zealand. Served clients ranging from tourist attractions to investment banking group. *•Provided pro bono fund raising counsel to N.Z. national symphony. •Raised start-up funds for PBS documentary on aboriginal art (in conjunction with Metropolitan Museum of Art tour). •Performed industry relations services for venture capital group on \$60+ million film production agreement. •Wrote copy for major airline's Pacific market campaign (largest advertising account in New Zealand).*

PROFESSIONAL AFFILIATIONS

Worth chairs the Ad Hoc Roadway Public Affairs Committee (AHRPAC), a group of communications directors from major transportation associations and Congressional committees. AHRPAC seeks to improve outreach to the public regarding transportation needs and expectations in order to increase investment in infrastructure. AHRPAC members include senior communications staff from AAA, AASHTO, the Associated General Contractors, the American Highway Users Alliance, the National Stone, Sand and Gravel Association and the U.S. House of Representatives Transportation and Infrastructure Subcommittee.

Member, IABC and PRSA.

PERSONAL

Age 50. U.S. Citizen.

Flavio Masson

Experience

10012, LLC, New York, NY

Creative Director, Founding Partner
2003 - Present

Interactive and traditional accounts. Key Clients: AARP, Bravo TV, Comcast, The Golf Channel, HBO, IDT/Tuyo, KNBC and Showtime.

Lumina Americas, Inc., New York, NY

Senior Art Director
2001-2003

Interactive and traditional accounts. Key Clients: Bustelo Coffee, JPMorgan Chase, KMart, Kraft Foods and Nike

Small World Media, Inc., New York, NY

Senior Graphic Designer & Producer
1998-2001

Head of a group of designers, production artists and interns. Assisted in managing the production & localization of large scale websites for the U.S., Latin American & Asian Markets; led the creation of online & off line ad campaigns.

Novas Imagens, São Paulo, Brazil

Graphic Designer
1995-1998

Education

School of Visual Arts, New York NY

Escola Superior de Propaganda e Marketing, São Paulo, Brazil
Marketing and Advertising

Languages

Fluent in Portuguese, Spanish and German.

Awards

ADDYs
"Voices of Civil Rights" Project

Client: AARP

Mature Media Awards
"Voices of Civil Rights" Project
Client: AARP

Webby Awards
"Voices of Civil Rights" Project
client: AARP

PR Week
Voices of Civil Rights Project
Targeted Audience Award Finalist/Multicultural Marketing Campaign of the Year
Client: AARP

Media Relations HQ
Voices of Civil Rights Project
Bulldog Award and Bronze Award: Public Service/Public Education
Client: AARP

Society of National Association Publications
Excel Competition/Gold Award
"Voices of Civil Rights" Project
client: AARP

APEX
Award of Excellence
"Voices of Civil Rights" Project
client: AARP

NABJ
Finalist – Salute to Excellence / New Media – Best Online Project
"Voices of Civil Rights" Project
client: AARP

Cine Golden Eagle 2005
Original soundtrack for "Dorothy Height: A Woman of Excellence"
Client: AARP

Communicator Award 2007
Original Soundtrack for "The Lure of Money: Save it, Invest it, Protect it"
Client: AARP

Latino Marketing Awards
Interactive Marketing, Best Campaign
Client: Kraft Foods

EXPERIENCE SUMMARY

Charlotte Grieve specializes in applied statistics. Through her academic excellence, she has acquired an advanced knowledge of statistical theory, while her work experience has enabled her to develop strong analytical skills in survey design and analysis, regression modeling, time series analysis, and multivariate statistics. Additionally, Charlotte has developed sound programming skills in SAS, SPSS and S-Plus. Her diverse knowledge of statistics in combination with her programming abilities provides the necessary foundation to successfully apply statistics to a variety of projects.

PROFESSIONAL QUALIFICATIONS

- M.Math, Statistics, University of Waterloo, Waterloo, Ontario, Canada (2006)
- B.Sc. (Honours), Mathematics and Statistics, McMaster University, Hamilton, Ontario, Canada (2005)

SELECTED PROJECTS

For MBIA Insurance Corporation, conducted an independent risk analysis of traffic, revenue and financial forecasts for a series of 4 toll roads in central Mexico in support of the firm's due diligence process for a debt refinancing transaction. Uncertainty inherent in key forecast parameters was assessed probabilistically and a model with a risk analysis simulation overlay was developed to forecast toll road traffic and revenues. The risk-adjusted revenue forecast was then linked into the Concessionaire's financial model to evaluate the probability outcomes of financial variables such as debt service coverage ratio and claims on senior debt.

For the New York City Department of Sanitation (DSNY), provided statistical support for the development of a sample survey conducted to assess the efficacy of a pilot program that placed recycling receptacles in selected city parks and ferry terminals. The pilot was initiated to gauge the cost effectiveness of this method of recycling, measured as the net yield of recyclables as a percentage of total material deposited. Developed a stratified sampling scheme, and conducted statistical analysis of survey results to estimate the average percentage of contamination in Paper and Metal, Glass and Plastic (MGP) recycling receptacles. The results of this survey will be used as a decision making tool by DSNY in determining whether and how the pilot recycling program will be expanded.

For the Marine Trades Association of New Jersey, assisted in the sample survey design and sample size determination for a survey of New Jersey boat owners conducted to assess their boating activities and boating related expenditures to estimate the total amount of recreational boating related expenditures in New Jersey. The survey is an integral part of an Economic Impact Analysis to

quantify the economic contribution the recreational boating industry makes to New Jersey's economy. Estimation, analysis and preparation of the survey results are future responsibilities.

For Environment Canada, utilized academic research papers as guidance to develop a recipe to assess the accuracy of self-reported facility pollutant emissions data collected and maintained in the National Pollutant Release Inventory.

For HDR, provided statistical support for the development of a strategic planning model to be used in support of the HDR 2012 strategic planning process. Developed a database for analysis using historical HDR financial data and U.S. Economic growth factor data. Built linear regression models to assess the relationship between HDR's financial performance over time and internal and external factors of interest. Model results were used to forecast HDR's financial performance through 2012 in the face of varying economic scenarios.

For HDR, assisted in the development of a logistic regression model for the Bureau of Indian Affairs to forecast the likelihood of a severe drought occurring in the Flathead Lake Basin. This was in support of the development of a drought management plan for the operation of the Kerr Hydroelectric Project on Flathead Lake, Montana. Key responsibilities were the development of the modeling database and conducting a preliminary data analysis to identify potential modeling variables.

For Hamilton Health Science's Ontario CitiCall Program, conducted collaborative research with critical care physicians to establish patient transfer trends and report on critical care resource availability in Ontario. Presented findings at the 2005 American Thoracic Society conference. Used cluster analysis and regression modeling techniques to evaluate the effectiveness of the Ontario CitiCall Program as an emergency referral service for physicians in Ontario hospitals.

For the United Nations Environment Programme (UNEP) Global Environment Monitoring System for Freshwater Quality and Assessment (GEMS/Water), developed and implemented methodology to identify freshwater quality trends on a per country basis. Using historical global water quality data archived by UNEP GEMS/Water, conducted a time series analysis on key water quality parameters (nutrients, organic contaminants, microbiological agents, etc.) to ascertain temporal patterns of water quality in a given country, with a special interest in African countries. Results were used to support UNEP GEMS/Water capacity building initiatives in developing countries for the acquisition and management of water quality information.

EMPLOYMENT HISTORY

- Statistician, HDR Decision Economics, November 2006 - Present

- Teaching Assistant, University of Waterloo, Department of Statistics and Actuarial Science, September 2005-August 2006
- Data Analyst, Hamilton Health Sciences (Ontario CritiCall Program), May 2004-December 2004
- Data Analyst, Environment Canada (United Nations Environment Programme (UNEP) Global Environment Monitoring System for Freshwater Quality and Assessment), January 2003-August 2003
- Teaching Assistant, McMaster University, Department of Mathematics and Statistics, December 2001-December 2003

EXPERIENCE SUMMARY

Ms. Raad-Young holds an M.Sc in Mathematics, and has over eighteen years of experience in statistical and marketing fields. May has proven ability and experience at synthesizing the central problem from an overall business issue. Extensive managerial and organizational skills combined with hiring, managing and coaching a team of professionals allow May to manage complex projects to ensure timely delivery. A strong understanding of marketing principles both strategic and tactical planning, market research, and business case analysis provides May with the versatility to tackle the challenges facing businesses and agencies. May has advanced analytical and planning skills, advanced knowledge of statistical theory and modelling, market research and problem solving techniques. She has eighteen years of experience using SAS (Statistical Analysis Software, Base SAS, SAS STAT, SAS ETS, SAS IML) on her many and varied statistical projects and surveys. Prior to joining HDR Decision Economics Inc., May gained a thorough knowledge of the telecommunications industry, with ten years experience with Bell Canada and Stentor Resource Centre Inc.

HDR Decision Economics**May 2007 – June 2007****MBIA Mexico Toll Project**

For MBIA Insurance Corporation, May and her team conducted an independent analysis of traffic forecast models for four toll roads located Mexico in support of the firm's due diligence process for a debt refinancing transaction. These regression models would provide a measure of uncertainty related to forecast parameters. Uncertainty inherent in key forecast parameters was assessed probabilistically and a model with a risk analysis simulation overlay was developed to forecast toll road traffic and revenues. The risk-adjusted revenue forecast was then linked into the Concessionaire's financial model to evaluate the probability outcomes of financial variables such as debt service coverage ratio and claims on senior debt.

Roles and Responsibilities:

- Defining tasks, deliverables
- Project management and development of regression models
- Providing advice and recommendations as to which models were the most suitable for purpose at hand
- Planning, directing, controlling the activities of team within scheduled times and budget parameters
- Reporting on progress of project on a predetermined schedule
- Meeting with stakeholders to discuss and resolve problems
- Preparing plans, charts, tables and diagrams to assist in analyzing or displaying problems; documentation of project and results.

- Supervising the testing of various regression models in order to find the model with the best fit and whose price and GDP elasticities landed in the range of economic theory

**HDR Decision Economics
Accenture Resource Allocation Model**

April 2007 – May 2007

For Accenture, May provided support in Accenture's task of building a resource allocation model for the US Customs and Border Protection Agency. May provided statistical analysis insight and support to synthesize and analyze client-provided data. She assisted Accenture personnel in developing the model, primarily by providing assistance with algorithms, statistical analysis, and application of best practices. The client was challenged with selecting the best regression variables to use from a list of dozens. May suggested an approach as part of a preliminary data analysis phase that quickly sifted through the large set to find the optimal for modelling. The client was pleased with the approach and accepted it as valid for the project at hand. Through her analysis and evaluation, May was able to show that problems with the data and data collection method prevented the creation of models whose parameters could be used in a resource allocation method. She documented her results in a whitepaper with recommendations as how future data collection should be implemented and what types of regression models could be used to support the client's needs.

Roles and Responsibilities:

- Provide statistical consultation
- Develop and validate various regression techniques
- Participate in client meetings to discuss best practices in statistical analyses
- Document and present results

**HDR Decision Economics
Service Canada Proof of Concept**

February 2007 – March 2007

HDR has been retained by Accenture to develop and test within a proof of concept framework statistical risk models for Service Canada's Employment Insurance (EI) program. Service Canada must ensure that programs are delivered in accordance with legislation and policy to assure that the right person receives the right service or benefit at the right time and for the intended purpose. The Enterprise-wide Risk Management Framework identifies the risks to the integrity of programs and the mitigations in place to effectively control those risks. Service Canada's accountability is supported by reporting to Parliament and Citizens on the integrity of programs and the effectiveness of risk management strategies as required under the Management Accountability Framework. May and her team provided professional services for developmental expertise, implementation of predictive risk model methodology and validation, knowledge transfer and strategic advice on new risk management approaches to

the Employment Insurance (EI) program. The client had originally set a project timeline of 6 months. Due to budget and time considerations, the project was scaled back to 8 weeks. May and her team met their commitments and deliverables despite the reduction of time. Based on the model that May developed, the top 30% at risk correctly captured 50% of known cases in overpayment. In fact, the monetary value for those cases in top 30%, represented 74% of all money owed to the federal government.

Roles and Responsibilities:

- Project management and implementation
- Briefing senior management
- Defining tasks, costs, deliverables
- Obtaining approval for recommended solutions
- Planning, directing, controlling the activities of project team within scheduled times and cost parameters
- Monitoring the design and implementation against goals, objectives and milestones
- Reporting on progress of project on a predetermined schedule
- Meeting with stakeholders to discuss and resolve problems
- Preparing plans, charts, tables and diagrams to assist in analyzing or displaying problems; documentation of project and results.
- Defining specifications for modeling database extractions
- Validating extracts with client's ISIT group
- Sampling of modeling and validation datasets
- Performing a preliminary data analysis to identify potential modeling variables
- Developing logistic regression equations
- Validating model predictions
- Optimizing risk criteria for highest return on investment

**HDR Decision Economics
Public Space Recycling Pilot Project**

February 2007 – Present

HDR has been retained by the Bureau of Waste Prevention, Reuse and Recycling to design a survey that would measure the effectiveness of a Paper and Metal, Glass, Plastic (MGP) recycling pilot program implemented in five boroughs of New York City. The survey requires the counting and sorting of material collected from 180 receptacles to conform to scientific methods of sample estimation. Each week, HDR samples the bags according to a stratified sample design such that estimates as to the total weight collected, percent contamination of recyclables and total weight of contamination can be estimated for the pilot program. Based on the percent contamination, the Bureau can then make recommendations as to the cost effectiveness of the program should it expand to all public spaces in the city.

Roles and Responsibilities:

- Project management and implementation of survey design

- Briefing senior management
- Defining tasks, costs, deliverables
- Sample survey design
- Sample size determination
- Estimation and analysis of results
- Sample collection form: development and design
- Design and implementation of data collection and processing methodologies
- Table stub design
- Preparation and presentation of results

HDR Decision Economics

December 2006 – Present

Predictive Models for the Drought Management Plan for the Operation of the Kerr Hydroelectric Project on Flathead Lake, Montana

HDR has been retained by the Bureau of Indian Affairs to develop an Environmental Impact Statement and a drought management plan (DMP) for the operation of the Kerr Hydroelectric Project on Flathead Lake, Montana. May is providing a key component of the DMP with its development of a statistically based algorithm that forecasts the chance of a severe drought based on observed monthly environmental factors such as large-scale climatic regimes, basin precipitation and stream flow. May is using logistic regression techniques to associate observed environmental factors with severe drought incidence and to produce an index between 0 and 1 that would indicate the chance of a severe drought. Further analysis will identify the cut-off value of the index that would correctly predict for a severe drought while keeping the incidence of false positives to a minimum. Model performance is validated against latest observed years not used in model development.

Roles and Responsibilities:

- Project management and implementation
- Briefing senior management
- Defining tasks, costs, deliverables
- Obtaining approval for recommended solutions
- Planning, directing, controlling the activities of project team within scheduled times and cost parameters
- Reporting on progress of project on a predetermined schedule
- Meeting with stakeholders to discuss and resolve problems
- Preparing plans, charts, tables and diagrams to assist in analyzing or displaying problems; documentation of project and results.
- Sampling of modeling and validation datasets
- Performing a preliminary data analysis to identify potential modeling variables
- Developing logistic regression equations
- Validating model predictions

HDR Decision Economics**December 2006 – Present****Evaluation of the Effectiveness of the Policy Frameworks for Accessible Transportation in Canada and the United States**

Transport Canada has retained HDR to evaluate the impact of existing legislative provisions and codes of practice, and to determine whether other measures are needed to improve access to the federally regulated transportation system. The results of this evaluation will be drawn on by the Department for future discussions on a proposed National Disability Act. As such, an assessment of a standards-based approach to barrier removal versus a performance-based approach is sought in preparation for upcoming interdepartmental discussions. In addition, HDR's evaluation and study will subsequently allow the Department to assess the effectiveness of the U.S. regulatory model and compare it to the effectiveness of the Canadian regulatory/voluntary model. Advice to the Department on whether the U.S. regulatory model could be successfully implemented in the Canadian federal transportation network is also sought. The study is to include a state-of-the-art review of methods of evaluating voluntary versus mandatory regulatory models, formulation of an effectiveness and gap analysis framework based on the state-of-the-art and application of the effectiveness and gap analysis on the existing frameworks based on in-house measurement tools.

Roles and Responsibilities:

- Review current Canadian (federal/provincial) and US accessibility regulatory models
- Review existing evaluation methodologies
- Perform comparative analysis of US and Canadian regulatory frameworks
- Perform comparative analysis of Performance-based versus Standards-based assessments
- Prepare and present proposed evaluation framework approaches
- Customize statistical/analytical framework to evaluate effectiveness of current TC codes of practice
- Preparation and presentation of results

HDR Decision Economics**November 2006 – Present****Recreational Boating Survey in New Jersey**

The Marine Trades Association of New Jersey retained HDR to conduct an Economic Impact Analysis in an effort to quantify the economic contribution of the recreational boating industry to New Jersey's economy. Activities involve development of a survey of boat owners on their boating activities and boating related expenditures, estimation of total boating related expenditures in New Jersey, and the use of the IMPLAN model to estimate the economic impact of these expenditures. The impacts will be estimated in terms of output, employment, income, and tax revenue in the local economy and in terms of direct, indirect, and induced impacts.

Roles and Responsibilities:

- Sample survey design
- Sample size determination
- Estimation and analysis of results
- Questionnaire development and design
- Design and implementation of data collection and processing methodologies
- Preparation and presentation of results

HDR Decision Economics

October 2006 – November 2006

Estimating Framework and Results Pertaining to Defense Logistics Agency Transition Costs

For Accenture, May estimated slippage in contractor and user productivity related to transitioning IS/IT teams responsible for the maintenance and development of the Defense Logistics Agency's (DLA) Business Modernization (BSM) effort. The estimates of the transitional costs will be used by Accenture in their bid for the contract renewal. As Accenture is currently the incumbent, the Defense Logistics Agency would not need to bear the full cost of transition if the contract were awarded to Accenture. May used non-linear estimation techniques to uncover Accenture's learning curve during its contract on the BSM. Any new team taking over the project would require a ramp up time before it could perform at the same level of efficiency as the incumbent. The rate of learning based on the Accenture learning curve model at 9, 12 and 18 months earlier was used as starting points for any new team to produce a range in the costs of productivity slippage. The methodology used to produce final cost impacts was summarized using structure and logic diagrams.

Roles and Responsibilities:

- Review and analyse client's business problem
- Prepare and present proposed approaches
- Define information specifications required from client
- Meet with client stakeholders to understand client's method of project costing
- Develop statistical method to model ramp up time for new IS/IT team
- Document results

HDR Decision Economics

June 2006 – September 2006

Campus Transportation Plan: Stated Preference Survey and Model

For a large corporation based in the U.S.A, May designed a stated preference (SP) survey and model that estimated market share and future demand for various transportation mode choices within its campus. As the employer was still in the exploratory phase of identifying the ideal transportation mode solution, it did not want to present known mode brands to questionnaire respondents. A generic approach was required so that selections were based on what the mode provided in terms of trip length and comfort as opposed relying on the brand. A

mathematical rule was developed that related the attributes of a mode to the percentage of people who would choose to travel by that method. Once the employer narrowed down its search for the best mode and had the mode's travel specifications, it would have an estimate of the % of people who would use that mode based on the mathematical rule. With the availability of statistically sound forecast demands per mode, the employer could then decide which mode would make the most economical sense.

Roles and Responsibilities:

- Project management of SP model creation and implementation
- Briefing senior management
- Defining tasks, costs, deliverables
- Obtaining approval for recommended solutions
- Planning, directing, controlling the activities of project team within scheduled times and cost parameters
- Monitoring the design, implementation and survey launch against goals, objectives and milestones
- Reporting on progress of project on a weekly basis
- Meeting with stakeholders to discuss and resolve problems
- Preparing plans, charts, tables and diagrams to assist in analyzing or displaying problems; documentation of project and results.
- Designing SP questionnaire in order to collect population estimates from which to gauge performance of SP model
- Designing SP survey sampling methodology, creating sample lists per survey
- Designing optimal SP experimental design under constraint of only 8 choices per subject
- Developing programs to cleanse questionnaire response
- Analyzing and presenting survey results
- Estimating and validating transportation utilities by means of conditional logit modeling

HDR Decision Economics

May 2006 - Present

Ontario Works Caseload Cost Savings through Enhanced CVP Risk Flags for the Regional Municipality of Waterloo

For the Municipality of Waterloo, May is developing enhanced risk factor scores which will optimize Waterloo's Consolidated Verification Process Selection Criteria. The scores will enable the Ontario Works program within the municipality to identify cases most likely to be ineligible for benefits or in overpayment. May's knowledge and familiarity with the Service Delivery Model Technology database has helped her identify program elements essential for building a model with robust predictive abilities. She employs techniques of preliminary data analysis to prepare and identify elements most likely to correlate with ineligibility or overpayment. Inputs are tested and associated with either ineligibility or overpayment using logistic regression techniques. Results are always validated using an independent sample.

Roles and Responsibilities:

- Project management and implementation
- Briefing senior management
- Defining tasks, costs, deliverables
- Obtaining approval for recommended solutions
- Planning, directing, controlling the activities of project team within scheduled times and cost parameters
- Monitoring the design and implementation against goals, objectives and milestones
- Reporting on progress of project on a predetermined schedule
- Meeting with stakeholders to discuss and resolve problems
- Preparing plans, charts, tables and diagrams to assist in analyzing or displaying problems; documentation of project and results.
- Defining specifications for monthly SDMT extractions
- Validating monthly extracts with client's ISIT group
- Creating modeling analytical database
- Sampling of modeling and validation datasets
- Performing a preliminary data analysis to identify potential modeling variables
- Developing logistic regression equations
- Validating model predictions
- Designing pilot test for enhanced CVP scores
- Optimizing risk criteria for highest return on investment

HDR Decision Economics

March 2006 – May 2006

Ontario Works Regional Municipality of Peel's Optimization of the CVP Selection Criteria and Caseload Review

Upon joining HDR Decision Economics, May completed an in-progress project for the "Ontario Works Regional Municipality of Peel's Optimization of the CVP Selection Criteria and Caseload Review" project. Using models built by the HDR Decision Economics, she updated the monthly scoring process for the Region of Peel Ontario Works program. She provided the Municipality of Peel with technical documentation on the Enhanced CVP risk ranking algorithm and built a process for them so that the region can continue updating the risk scores on their own. May presented results to Peel and summarized total savings to the municipality due to the implementation of the Enhanced CVP Selection Criteria. Her work with Peel exposed her to the details of the SDMT database and CVP review methodology and case lifecycle.

Roles and Responsibilities:

- Project management and implementation
- Briefing senior management
- Defining tasks, costs, deliverables
- Obtaining approval for recommended solutions

- Planning, directing, controlling the activities of project team within scheduled times and cost parameters
- Monitoring the design and implementation against goals, objectives and milestones
- Reporting on progress of project on a predetermined schedule
- Meeting with stakeholders to discuss and resolve problems
- Preparing plans, charts, tables and diagrams to assist in analyzing or displaying problems; documentation of project and results.
- Transferring monthly risk ranking process from SPSS to Excel in preparation of delivery to client
- Documenting model development, results and implementation rules
- Training client's ISIT prime to run monthly process
- Tracking performance of model against observed results

HDR Decision Economics
Transit Cooperative Research Program

March 2006 – May 2006

In support of the Transit Cooperative Research Program in the U.S.A, May built a statistical model that can forecast ridership demand for complementary paratransit services required by the Americans with Disabilities Act (ADA). The model uses survey data provided by selected agencies currently complying with service regulations. Through preliminary data analysis and regression diagnostics, May found that a log-linear model best explained the relationship between agency and population characteristics with variation in ridership demand.

Roles and Responsibilities:

- Creating an analytical database from survey components
- Testing various regression models in order to find model with the best fit and whose price elasticities in the range of economic theory
- Presenting results of tests with recommendations to client

HDR Decision Economics
Anchorage Water and Wastewater Utility (AWWU)

March 2006 – April 2006

AWWU required a statistical analysis of the data collected under the single-family residence test meter program. The purpose of the test meter program is to determine the appropriate monthly flat rates for single-family residential customers, based on the consumption patterns of households with test meters installed. The key objective of this analysis was to assess the representativeness of the sample data to ensure accuracy in the extrapolation of consumption to the population of single-family dwelling households. It was found that the test meters groups reasonably represent the same population and that there was no indication of bias in sample collection. However, the estimates proposed were 10.6% lower and 41% higher than AWWU's estimates for line size of 0.63+0.75 and 1.0 inch respectively, after removing extreme outliers,

evaluating the consistency of historical data and using improved extrapolation methods.

Roles and Responsibilities:

- Reviewing statistical analysis of survey data and provided expertise as to whether the analysis supported client's objective
- Preparing analyses and recommendations within report format for client
- Meeting with client to discuss findings and recommendations

**HDR Decision Economics
Toluca**

March 2006 – April 2006

HDR Decision Economics was retained by MBIA to provide an independent opinion with respect to the methodology utilized to determine the value of the residual interest component of the refinancing of the existing Mexico-Toluca Toll Road concession and debt. The outcome of this review was an assessment by HDR as to the reasonableness of the approach used to estimate the residual interest.

Roles and Responsibilities:

- Reviewing methodological approaches taken
- Evaluating and documenting implications of modeling results

**HDR Decision Economics
Electronic Health Records**

March 2006 – May 2006

HDR was retained by Accenture to assist in the ground-breaking initiative to improve health care quality and reduce unnecessary costs by minimizing errors, speeding diagnosis, and improving information sharing among providers in New York's neediest communities in the City of New York. The City sought an appropriately qualified vendor to provide an electronic health record system to approximately 800 primary care providers who serve the poorest and sickest New Yorkers. The program will reduce disparities in the quality of care by making available to safety net providers electronic health records that can interface with each other, with existing electronic information systems, and with emerging regional health information exchanges.

Roles and Responsibilities:

- Researching and reporting current epidemiological statistics on diabetes, heart disease and Alzheimer's disease by state, race, poverty level and age within the United States

**Bell Canada
Associate Director, Small Medium Business Markets**

January 2003 – February 2006

As the team lead for the Customer Intelligence Analytics team, May provided leadership and vision to team members. She championed and guided

implementation of customer focused marketing for the Small and Medium business market. May led a team of professional statisticians, market analysts and programmer analysts. She was responsible and accountable for projects related to customer focused marketing, customer vulnerability risk indices, customer sales potential indices, customer segmentation, optimized contact strategy and marketing research programs. Many of her projects related to identifying which customers should or should not be targeted for various programs. May and her team maintained a set of 30 different vulnerability, sales potential, and identification models. Her team built the first statistically based customer segmentation models for both the Small and Medium Business markets. Her team provided training to marketing primes as how to incorporate the segmentation into marketing plans. Assignment of segment categories and analyses of customer movements from one segment to another was completely done within May's team. The viable segmentation scoring system allowed marketing to develop strategic and tactical plans and operationalized service queue rules for the call centers. All predictive models and segmentation scores were updated on a scheduled basis and validation of models' performance provided to marketing.

Key Projects and Achievements:

SMB Retail Roll-out Plan - Proposed, developed and implemented process to identify which Bell World Stores were ideal stores to introduce Bell business products and services.

Regional New Product Introduction Plan - Proposed, developed and implemented process to recommend regions most suitable for new product introduction

List Potential Index – Proposed, developed, implementation and monitored process to rank telemarketing campaign lists as to their potential to purchase per product category

SMB Customer Needs Segmentation - Proposed, developed, implementation and monitored process to assign each Bell customer into a segment based on the needs and attitudes of those customers in the Small and Medium Business Markets. This was Bell's first business segmentation model based on statistical modeling work.

New Business identification - Proposed, developed, implemented and monitored process as how Bell can identify customers that are new to Bell.

Decision Maker Index – Proposed and specified process as how to identify which Bell customers' location housed the Business' decision maker. May directed developers as how to implement the process.

DM Campaign Management System – Reviewed current DM process, identified gaps that prevented measurement of direct mail campaigns' performance, recommended, tested and implemented interim solution.

Customer Segmentation Training – Developed marketing plans that demonstrated how marketing can use customer segmentation to implement customer focused marketing.

Home Based Business Identification - Proposed, developed, implemented and monitored process as how to identify which Bell Business customer ran the business out of a home office.

Bell SMB Customer Risk Identification System – Developed and implemented business rules and approaches that would rank which of Bell's customers were most at risk in the era of voice over internet competitive services

Market Research Program Coordination – Prioritization, planning and budgeting of market research and survey proposals across all marketing teams within SMB.

Bell Mobility Sales Potential Index – Built Bell Mobility's first sales potential model. Model ranked which Bell Customers were most likely to purchase wireless service from Bell Mobility.

Web Site Builders Propensity Model – Built a model that would rank which customers were most likely to build a web site. Team used external information to help define identification rules.

High Speed Internet and Basic DSL Response Models – Proposed, developed, implemented and monitored response models - This project marked the first time that response models based on telemarketing campaign results were built for the SMB team.

Telemarketing (TM) Optimization Project – Audit of current TM process, identification of gaps in the process, recommendations as how Bell can improve the process to reduce costs and grow sales

High Value Customer Segmentation – Team implemented proof of concept to validate if Bell can maintain and benefit from this type of segmentation developed by an outside consulting firm. Tested impact of segmentation within call centre environment to see if segmentation aided sales

Next Logical Product - Proposed, developed, implemented and monitored process to identify what are the top 3 products to offer a customer in the telemarketing channel.

Roles and Responsibilities:

- Project management of team and implementation of team's projects
- Briefing senior management on progress of team and deliverables
- Defining tasks, costs, deliverables
- Obtaining approval for recommended solutions
- Planning, directing, controlling the activities of project team within scheduled times and cost parameters
- Monitoring the design and implementation against goals, objectives and milestones
- Reporting on progress of projects on a weekly basis
- Meeting with stakeholders to discuss and resolve problems
- Preparing plans, charts, tables and diagrams to assist in analyzing or displaying problems
- Documenting projects and results
- Identifying and prioritizing modeling, segmentation and analytical activities to drive strategic marketing goals and customer management planning
- Providing leadership and vision to team members
- Providing subject matter expertise on statistical and business matters

- Developing and implementing analyses in support of customer focused marketing
- Promoting team and results across marketing groups in Bell Canada
- Hiring and developing staff

Bell Canada

January 2001 – December 2002

Associate Director, Segment Expansion Team

In this role, May was expected to develop market plans or analyses to recommend or support strategic objectives for markets of interest. May's focus on the team was to develop marketing plans for Bell's entry into new markets. She developed and finalized the 2002 Bell Nexxia Western Marketing Plan within two months of joining the team. With the success of the Western Plan, May was asked to co-author the 2002 and 2003 Bell Nexxia National Marketing Plans. May was able to incorporate her analytical skills to create take-to-market plans using her own primary analyses, market analysis and implementation methodology. Her approach was later used by the team lead as a template for future take-to-market plans.

Roles and Responsibilities:

- Developing market plans or analyses for markets of interest.
- Establishing/compiling Western and International customer database (firmographics, revenues, products) to support market plan and offer development, and market analysis and revenue forecasting
- Forecasting market size by business segment, line of product and geography.
- Providing guidance to team members on using marketing information system files for the purpose of take to market activities
- Providing marketing support for sales persons
- Targeting new marketing opportunities for Western, International and general Nexxia markets.
- Analyzing, developing and supporting Western and International offers in conjunction with take to market activities.

**Bell Canada/Stentor Resource Centre Inc.
Database Marketing Specialist**

November 1995 - December 1998

May's main role was to develop and implement predictive models and segmentation for business markets. May's recruitment into SRCI in 1995 was timely as the telecommunication industry was undergoing transformation from monopolistic environment to equal access. Companies such as Bell Canada, AGT, BCTel and Manitoba Tel formed an alliance in 1992 to prepare for competition. That alliance was the Stentor Resource Centre Incorporated. SRCI realized that new marketing tools such as data mining, predictive modeling and customer focused marketing were the key to maintaining revenue growth in the era of competition. May's achievements included building the first set of business predictive models for SRCI and its owner companies, Bell Canada, AGT, BCTel, Manitoba Tel, SaskTel, Maritime Tel and Newfoundland Tel. She was one of

three designers of a modeling database that allowed the company to generate models from conception to list generation from 4 months to 4 weeks. The modeling database combined customer profiles from all provinces across Canada into a model ready state. May and her team designed, built and tested the database within a three month period. Prior to the termination of the alliance, May ran a workshop for AGT and BCTel to transfer intellectual property on the data mining and predictive modeling process. After the dissolution of SRCI in 1998, May was immediately hired into Bell Canada to continue in her role as database marketing specialist. The database that she and her two colleagues built is still being used to generate and build new models for Bell Canada. May was prime modeler on the following projects:

- Toll-Free Vulnerability Index Model: Generation I
- Outbound Long Distance Vulnerability Index Model: Generation I
- Toll-free Vulnerability Index Model : Generation II
- Frame Relay Sales Potential Index Model
- Composite Vulnerability Index Model
- Advantage Optimum Contract Sales Potential Model
- Long Distance Contract Sales Potential Model
- Frame Relay Contract Sales Potential Model
- Calling Card Stimulation Model

Roles and Responsibilities:

- Investigating the aims of proposed modeling objectives or data collection and processing activities through discussions with telecommunications clients or subject matter personnel on precise modeling or survey objectives, related constraints, considerations and concepts.
- Planning the methodological activities required in accordance with approaches specified, taking account of implications of cost, timeliness and quality of data outputs.
- Collaborating in interdisciplinary project teams assembled for the planning, development and implementation of DBRM models or data collection and processing procedures in order to ensure that their own activities are completed within established target dates.
- Designing specifications for creation of a DBRM database that is suitable for data mining, modeling and relationship marketing activities.
- Developing, programming and verifying specifications to meet customized market/product/customer analyses
- Formulating, programming and verifying statistical models for utilization in database relationship marketing (DBRM), survey, study or test applications.
- Initiating and conducting evaluation projects related to DBRM (as they pertain to the telecommunications industry), sample surveys and administrative data.
- Solving programming challenges related to work with large data files.
- Testing and evaluating new technology and new data sources to meet needs of DBRM models and of business ad hoc requests.
- Evaluating software packages for use in data mining, modeling or surveys.

- Identify and solving problems of data quality through a review of specified data collection and processing activities.
- Analyzing historical information related to a project for purpose of documentation.
- Identifying and implementing specific activities which would benefit from new methods and techniques.
- Uncovering reasons for data inconsistencies and advising subject matter personnel of the problem and recommending solutions for correction.
- Initiating activities to ensure that deliverables meet time frames and that the results are of highest quality.
- Independently managing assigned project tasks.
- Preparing project proposals that assess clients' needs, project requirements and deliverables.
- Training and coaching team recruits in the techniques of DBRM modeling as they pertain to the telecommunications industry.
- Interviewing candidates for role of DBRM specialist.
- Advising marketing, content and analysis personnel on the presentation of DBRM models, survey statistics, including quality measures, and the statistical analysis of data and interpretation of results.
- Preparing technical notes and reports on the data quality aspects of, and methodology employed in, the DBRM models, survey, studies or tests, and the results obtained.
- Preparing and lecturing in seminars on results of DBRM models and data analysis.
- Readily transferring statistical and programming knowledge to team members.
- Organizing and managing a statistical and programming reference library for team members.
- Communicating to team members the availability of statistical and programming courses.

**Statistics Canada
Sample Survey Methodologist**

December 1987 - November 1995

May's role was to investigate and develop statistical methodology to implement sample survey collection, data analyses and statistical modeling. May began her career in the federal government. Her achievements included analyses that linked air borne pollution to urgent and emergent respiratory admissions in Ontario hospitals. The success of that project led to further national funding to apply research methods to data from all provinces in Canada. Her work on the International Travel Survey led to the first report that documented the history, methodology and nature of the survey reports. During her career at Statistics Canada, May worked on the following projects:

- Annual Motor Carrier of Freight Survey Level III
- Passenger Bus Surveys

- International Travel Survey
- Ontario Human Health and Acid Rain Project
- Canadian School Art Survey
- Data Analysis Resource Centre
- Federal Information Collection Group

Roles and Responsibilities:

- Investigating the aims of proposed modeling objectives or data collection and processing activities through discussions with telecommunications clients or subject matter personnel on precise modeling or survey objectives, related constraints, considerations and concepts.
- Planning the methodological activities required in accordance with approaches specified, taking account of implications of cost, timeliness and quality of data outputs.
- Collaborating in interdisciplinary project teams assembled for the planning, development and implementation of models or data collection and processing procedures in order to ensure that their own activities are completed within established target dates.
- Developing, programming and verifying specifications to meet customized statistical analyses, and for the estimation of survey statistics.
- Formulating, programming and verifying statistical models for utilization in survey, study or test applications.
- Developing, verifying and testing methods for data coding, editing and imputation using generalized edit and imputation software.
- Initiating and conducting evaluation projects related to sample surveys and administrative data.
- Solving programming challenges related to work with large data files.
- Evaluating software packages for use in modeling projects or surveys.
- Identifying and solving problems of data quality through a review of specified data collection and processing activities.
- Analyzing historical information related to a project for purpose of documentation.
- Identifying and implementing specific activities which would benefit from new methods and techniques.
- Uncovering reasons for data inconsistencies and advising subject matter personnel of the problem and recommend solutions for correction.
- Initiating activities to ensure that deliverables meet time frames and that the results are of highest quality.
- Independently managing assigned project tasks.
- Coordinating with universities, Statistics Canada Personnel Division, and managers in the methodology divisions the interviewing and hiring of statistics co-operative students for work-term assignments.
- Preparing technical notes and reports on the data quality aspects of, and methodology employed in, surveys, studies or tests, and the results obtained.
- Preparing and lecturing in seminars on results of data analysis.

- Readily transferring statistical and programming knowledge to team members.
- Organizing and presenting information sessions to recruited co-operative students at the beginning of their work term.

EDUCATION

- Dalhousie University, Master of Science in Mathematics, 1988
- Dalhousie University, Bachelor of Science in Mathematics, 1986

EXPERIENCE SUMMARY

Dr. Stéphane Gros is an applied economist with diverse skills in research, data analysis, econometrics and computer programming. Dr. Gros holds a graduate degree in statistics and has used his quantitative skills in empirical studies in the areas of transportation economics, urban economics, and public and private finance. He has been involved in various research projects in the United States, Canada and Europe.

PROFESSIONAL QUALIFICATIONS

Professional Associate, Economics & Finance, HDR Engineering
Ph.D., Economics, University of Delaware
M.Sc., Economics, University of Delaware
M.Sc., Applied Statistics, Université Lumière Lyon II, France
B.Sc., Econometrics, Université Lumière Lyon II, France

SELECTED PROJECTS

- For the U.S. Army Corps of Engineers (USACE), helped conduct a comprehensive market analysis and cost and schedule risk analysis for the construction of a multi-billion-dollar 100-year hurricane protection system, in the city of New Orleans (Louisiana). Led the development of the risk analysis model.

- For the New York Department of Environmental Protection (NYDEP), participated, as lead risk modeler, in the assessment of a variety of capital investment projects aimed at increasing the supply of water to New York City, under the Water Dependability Program. Projects included the reactivation of an abandoned water treatment plant in Yonkers, NY, interconnections with the New Jersey water conveyance system, the construction of a major water desalination facility on Staten Island, and the construction of a 76-mile aqueduct for intakes in the Catskill/Delaware watersheds.

- For the New York Department of Environmental Protection (NYDEP), led the assessment of cost and schedule risks associated with the dewatering and repair of the Delaware aqueduct, a major arterial in the New York City water conveyance system.

- For the Community of Financial Services of America (CFSA), led a statistical analysis of payday advance services customer data to estimate expected service duration, and to assess its determinants. Failure-time analysis techniques were applied to millions of customer records, collected from service providers located across the country.

- For the Washington State Department of Transportation (WSDOT), led the development of a Cost-Benefit analysis model for assessing the construction of SR-704 (a six-mile east-west link between I-5 and SR 7 in Pierce County, Washington) and four other build alternatives, including transit service expansion, addition of HOV lanes, and widening of existing roadways.

- For the Columbia River Crossing (CRC) consortium, led the cost and schedule assessment of sixteen improvement alternatives, along a portion of the I-5 corridor over the Columbia River, between Vancouver, Washington and Portland, Oregon.

- For the Washington State Department of Transportation and Federal Highway Administration, developed an innovative approach and risk-based model for assessing alternative construction sites and methods to be used in the SR 520 floating bridge replacement project.

- For the Utah Department of Transportation (UDOT), led the development of a risk analysis simulation model for assessing the cost and schedule of five improvement alternatives (alignments) for State Route 108 (from West Haven in Weber County to Syracuse in Davis County). Also helped facilitate the risk analysis workshop conducted as part of the assessment.

- For the Port of Seattle (POS), led the development of a simulation model used in the assessment of cost and schedule risks associated with the construction of a rental car facility at Seattle International Airport, in the City of SeaTac.

- For the New York, New Jersey Port Authority (NYNJPA), developed a methodology and helped develop a simulation model for assessing a variety of “small projects” (projects under \$250 million) included in the Port Authority’s annual capital plan.

- For Texas Utilities (TXU), led the development of a risk analysis model for assessing the cost and schedule associated with the rehabilitation and conversion of five power plants.

- For the Arizona Department of Transportation Aeronautic Division, helped develop and implement a methodology for assessing the economic benefits (and return on investment) of the division's capital grant and loan programs.

- For the New York Department of Environmental Protection (NYDEP), led the development and estimation of a simulation model used in the assessment of cost and schedule risks associated with the construction of a major ultraviolet water treatment facility.

- For the Montana Department of Transportation (MDT), led a major regional economic development study aimed at assessing whether the Montana portion of the Theodore Roosevelt Expressway corridor (a designated high-priority trade corridor between Canada and the Dakotas) should be expanded from two to four lanes. The study included a survey of local stakeholders and repeated outreach efforts in the impacted communities.

- For the Dakota, Minnesota & Eastern Railroad (DM&E), led the assessment of construction cost and schedule risks for the new build portion of a major rail line investment project between Wyoming and Minnesota.

- For the Federal Highway Administration (FHWA), Transportation Infrastructure Finance and Innovation Act (TIFIA) Joint Program Office, developed a revenue forecasting and financial simulation model to assess the financial feasibility of an intermodal (car rental and passenger train) facility at Warwick international airport, in Providence, Rhode Island.

- For the Washington State Department of Transportation (WSDOT), developed a simulation model for the assessment of cost and schedule risks associated with the widening of Interstate 5 between Grand Mound and Maytown, under WSDOT's Cost Risk Assessment (CRA) program.

- For the South Placer Regional Transportation Authority, conducted a financial feasibility study (including the estimation of risk adjusted toll revenue and of construction, operating & maintenance costs) for the Placer Parkway, a proposed 15-mile transportation corridor linking Sutter County and Placer County, in Northern California.

- For the Minnesota Department of Transportation (MNDOT), developed a methodology and risk analysis model to estimate the costs and benefits associated with the acceleration of highway projects, through design/build contracts or other means. The model was demonstrated with data from the ROC52 construction project, located west of Rochester, Minnesota.

- For CSX Corporation, Virginia, conducted cost-benefit analysis for seven rail improvement projects in the Richmond – Norfolk Corridor. Projects included replacements of air operated switches, implementation of WYE tracks, and various rail-road connections. Benefits to both CSX Corporation and the State of Virginia (in the form of reduced passenger train delays, reduced highway congestion, and reduced highway maintenance costs) were estimated.

- For the Knik Arm Bridge and Toll Authority (KABATA), developed transaction and revenue projections for a 2-mile toll bridge across Knik Arm, connecting the Municipality of Anchorage and the Mat-Su Borough, in Alaska.

- For the Wisconsin Department of Transportation (WisDOT), examined the relationship between federal, state and local funding assistance and state-wide transit ridership. Developed 20-year projections for transit ridership, benefits, and costs.

- For the Alaska Railroad Corporation, participated in risk analysis workshops and developed cost and schedule risk analysis models for the Northern Rail Extension project (an 80-mile rail extension south of Fairbanks).

- For the Federal Transit Administration, Lower Manhattan Recovery Office (LMRO), led the statistical modeling efforts for the assessment of budget and event risks associated with the construction of the Fulton Street Transit Center and the rehabilitation of the South Ferry Station.

- For Accenture and Lockheed Martin, developed and implemented a business case model for Lockheed Martin's technical proposal to the Department of Homeland Security Customs and Border Protection, under a forthcoming initiative aimed at strengthening the Southern and Northern borders (the America's Shield Initiative, or ASI).

- For the San Diego Association of Governments (SANDAG), helped design and implement a survey-based assessment of the economic impacts of border wait times in the San Diego - Baja California Border region. Economic impacts were estimated for both personal trips and freight movements.

- For the Federal Highway Administration (FHWA), Transportation Infrastructure Finance and Innovation Act (TIFIA) Joint Program Office, developed risk-adjusted toll revenue projections for the LA-1 Leeville Bridge project, in Louisiana.

- For MBIA Insurance Corporation, developed a traffic and toll-revenue risk analysis forecasting model for the privatization of the Chicago Skyway, Chicago Illinois (MBIA was the bond insurer for one of the bidding teams). Also produced risk tables for the associated debt service coverage ratio and other financial indicators.

- For the Federal Highway Administration (FHWA), Transportation Infrastructure Finance and Innovation Act (TIFIA) Joint Program Office, developed risk-adjusted revenue projections for the Miami Airport Rental Car Facility. Reviewed and updated a financial model to help assess the feasibility of the facility. Produced risk tables for the project life coverage ratio and the annual TIFIA debt service coverage ratio.

- For the Washington State DOT, participated in risk analysis workshops organized under the Cost Estimate Validation Process (CEVP). Also helped draft recommendations to improve the existing processes and tools.

- For the Columbus Ohio Transit Agency (COTA), reviewed and updated the agency's financial model and financial plan for the construction of a light rail system through the northern section of Columbus, Ohio.

- For MBIA Insurance Corporation, developed a traffic and toll-revenue forecasting model to help assess the coverage of revenue bonds issued by the Dulles Greenway, a 14-mile privately owned toll-road located in Eastern Loudoun County, Virginia.

- For Transport Canada, conducted a cost-benefit analysis for a major light rail investment in the Richmond-Vancouver corridor (British Columbia).

- For the Colorado Department of Transportation (CDOT), helped estimate the economic benefits associated with relocating a major rail route along the Colorado Front Range (away from downtown Denver).

- For the National Business Association of Aviation (NBAA), developed a model for estimating the economic impacts of DCA closure and Temporary Flight Restrictions (TFR) in the aftermath of 9/11.

- For Accenture and the U.S. Department of Homeland Security, participated in the development and implementation of a business case for Accenture's technical proposal to the Department of Homeland Security, under the US-VISIT program (Releases 2B and higher).

- For the U.S. Department of Housing and Urban Development (HUD), provided statistical and programming support for maintaining and updating the Department's Moving To Opportunity (MTO) research database.

- For the University of California in Los Angeles (UCLA), helped develop a sampling plan and sample design for surveying households living in selected Transit Oriented Development (TOD) neighborhoods in the San Francisco and San Diego areas. Developed computer code (in SAS) to read, re-structure and distribute survey data.

- For the Bureau of Transportation Statistics (BTS), U.S. Department of Transportation, developed templates and computer code (in SAS) to analyze data collected through the Omnibus Survey Program. Estimated frequencies and standard errors, wrote survey documentation, and distributed survey datasets and survey results (the survey was conducted on a monthly basis).

- For L.A. Access, helped develop and estimate a series of econometric models for predicting the demand for paratransit services in the Los Angeles area.

- For the Federal Transit Administration (FTA), U.S. Department of Transportation, participated in the development of a Geographic Information System (GIS) - based decision support tool to help evaluate public transportation projects across the United States.

- For the Wisconsin Department of Transportation (WISDOT), helped develop a methodology for assessing the social and economic benefits of public transportation in various sectors (including education, healthcare, and tourism) in the State of Wisconsin.

- For MBIA Insurance Corporation, developed a risk-based toll-revenue forecasting model to assess the financial consolidation of two major toll-road agencies in Orange County, California.

- For the City of Vincennes, Indiana, developed a cost-benefit analysis model to assess a multi-million dollar investment project aimed at relocating CSX tracks to the east of the City.

- For the Federal Highway Administration (FHWA), provided recommendations for updating assumptions in the Highway Economic Requirements System (HERS) model; including value of time estimates for freight and travel time reliability metrics.

- For the Canada - United States, Ontario - Michigan Transportation Partnership, provided technical assistance on a number of economic issues, including the economic assessment of various road-based investment alternatives.

- For the City of Dayton, Ohio, developed a spreadsheet-based benefit-cost analysis model to help evaluate transit improvement alternatives along the

“Heritage Trail.” The model estimates traditional public transportation benefits (travel cost savings, low-cost mobility, etc.) as well as economic impacts associated with increased visitor spending.

- For the City of Palmdale, California, conducted an economic risk analysis of the tunneling costs, and overall construction costs, associated with building a High Speed Rail system in California.
- For the Maricopa Association of Governments (MAG), Arizona, conducted a benefit cost analysis and ranking of eighteen public transportation investment projects in the greater Phoenix area.
- For the Federal Highway Administration (FHWA), Transportation Infrastructure Finance and Innovation Act (TIFIA) Joint Program Office, developed a risk analysis model to evaluate the financial feasibility of a major toll road project in San Diego County, California (SR-125).
- For the Federal Highway Administration (FHWA), Office of Freight Management, helped develop a methodology for estimating the benefits of highway improvements to the freight sector, including the long-term impact of highway performance on shippers’ logistic organization.
- For the Ohio Kentucky Indiana (OKI) Regional Council of Governments, developed and implemented a methodology for evaluating major transportation initiatives in the I-75 Corridor, including transit investments and highway improvements (e.g., lane addition, HOV lane, peak period truck restrictions).
- For the Federal Highway Administration (FHWA), participated in the development of a methodology for assessing the economic development impacts of highway investment projects in economically depressed areas. Case studies included the evaluation of a highway bypass and improved highway interchange in Imperial County, California.
- For the Federal Highway Administration (FHWA), Transportation Infrastructure Finance and Innovation Act (TIFIA) Joint Program Office,

helped develop an econometric model for projecting future sales tax revenue aimed at financing a major highway investment project in Reno, Nevada.

- For MBIA Insurance Corporation, developed a risk analysis model to evaluate the financial feasibility of a major toll road project (part of the Central Texas Turnpike) in the Austin metropolitan area. The model provided an assessment of the risk profile of existing traffic and revenue projections, along with projected debt service coverage ratios under alternative risk scenarios.
- For the Southwest Ohio Regional Transit Authority (SORTA), developed ridership, fare-box revenue, and operating cost projections for MetroMoves, a major bus improvement project in the Greater Cincinnati area.
- For Transport Canada, developed and implemented a risk analysis computer model (*TransDEC*) for analyzing transit investments. The model allows for the evaluation of investments in new transit capacity (new starts) and modernization investments (such as tracks rehabilitation, improved signaling or fleet replacement).
- For the Southeastern Pennsylvania Transportation Authority (SEPTA), provided an econometric analysis of the demand for two ride-sharing programs, the federally mandated ADA program and the Shared-Ride Program (SRP), for the elderly. Demand projections were generated in a risk-analysis framework.
- For the Ohio Kentucky Indiana (OKI) Regional Council of Governments, Southwest Ohio Regional Transit Authority (SORTA), and Transit Authority of Northern Kentucky (TANK), developed a computer program to evaluate a major bus expansion and light rail investment project. The program uses risk analysis to estimate congestion relief benefits, affordable mobility benefits, and economic development benefits associated with light rail.
- For the Ontario Ministry of Community and Social Services (MCSS), performed multivariate data analysis to help develop an activity-based approach to funding the costs incurred by delivery agents when administering the financial and employment services provided under the Ontario Works program.

- For Consulting and Audit Canada, reviewed and evaluated various methodologies for assessing the impact of federal user fees on the commercial shipping industry in Canada.

- For the Southern California Association of Governments (SCAG), developed a financial model to evaluate the feasibility of extending SR-91 High Occupancy Toll (HOT) lanes from their present terminus, and of adding intermediate access points.

- For the Houston - Galveston Area Council (HGAC), conducted a cost-benefit analysis for the Flex-Van Initiative, an innovative vanpool commuter services program. The objective of the study was to develop threshold demand estimates to ensure that van pool services can be efficiently provided in a given geographic area.

- For the Montana Department of Transportation (MDT), assessed the economic feasibility of building a bypass connecting US 87 and US 191, northeast of the Town of Lewistown, Montana. The benefits and costs of the project were estimated with *StratBENCOST*.

- For the Placer County Department of Public Works, California, reviewed the Department of Public Works 2000-2001 Master Plan and helped reconcile revenue estimates for the County Road Fund.

- For Consulting and Audit Canada, developed taxonomy to help compare marine charges levied in Canada and the United States. Estimated comparative fees for a representative number of point-to-point movements along alternative Canada versus U.S. oriented routes.

- For the Agency for Motorway Construction and Operation, Poland, integrated risk analysis components into a financial model developed by Deutsche Bank AG London to evaluate the financial feasibility of a major toll road project (the A2 motorway).

- For the City of Palmdale, California, helped conduct a critical review of a preliminary alignment choice made by consultants for the California High

Speed Rail Commission. Reviewed the modeling procedures, ridership forecasts, alignment costs, and environmental impacts within a risk analysis framework.

- For the Maricopa Association of Governments (MAG), Arizona, developed a model to estimate the social benefits associated with future park-and-ride lots along existing and planned freeway facilities throughout the County. The ultimate goal of the model is to help select target areas and sites for the park-and-ride lots.
- For the Arizona Department of Transportation (ADOT), developed a spreadsheet model to conduct cash flow analysis. The model estimates year-end cash balances based on revenue projections, underway programs and expected future program expenditures spread over a 5-year horizon.
- For the Arizona Department of Transportation (ADOT), updated econometric models and computer simulation programs to forecast revenues flowing into the Arizona Highway User Revenue Fund and the Maricopa County Regional Area Revenue Fund.
- For the National Cooperative Highway Research Program (NCHRP), updated a Risk Analysis model used in the evaluation of highway, rail, and airport investment projects. Improved the user interface from a Fortran-based program to a Visual Basic platform.
- For the Federal Transit Administration (FTA), U.S. Department of Transportation, developed an econometric model to test the impact of transit on the magnitude of agglomeration economies in major U.S. metropolitan statistical areas.
- For Federal-Express (FedEx) and United Parcel Services (UPS), developed a simulation model to evaluate the economic impact of granting co-terminalization rights and Fifth-Freedom rights in the U.S.-Canada air cargo bilateral agreement. The model uses commodity flow data and carrier cost data to provide a quantitative estimate of the impact.

- For Transport Canada, Highway Policy Division, updated a model to evaluate the economic and environmental impacts of nationwide highway investment projects (totaling \$17 billion worth of highway improvements).
- For the Metropolitan Transit Authority of New-York City (NYMTA), updated econometric models to forecast the demand for, and productivity of, Access-A-Ride paratransit services.
- For the Federal Transit Administration (FTA), U.S. Department of Transportation, developed a hedonic price model to measure the impact of transit on commercial property value, in central business district for various cities in the U.S.
- For the University of Delaware, International Programs and Special Sessions, created a record-keeping and reporting system for the financial transactions associated with domestic and international study programs.
- For the Ecole Supérieure d'Application du Génie, co-managed Computer Aided Education Center; developed multimedia software and other computer-based education tools; exchanged information with other centers.
- For Rhône-Poulenc Ltd., investigated various statistical techniques to help summarize and analyze laboratory measurements (data reduction and storage was performed in GRAMS/IR).

EMPLOYMENT HISTORY

- Principal Economist, HDR Inc., March 2005 – Present
- Principal Economist, HLB Decision Economics Inc., October 2003 – March 2005
- Senior Economist, HLB Decision Economics Inc., March 1999 – October 2003
- Economist, HLB Decision Economics Inc., November 1998 – February 1999
- Research/Teaching Assistant, University of Delaware, Department of Economics and Department of Mathematical Sciences, September 1994 – December 1998
- Programmer/Database Manager, University of Delaware, International Programs and Special Sessions, summer 1996 and summer 1997

- Programmer/Assistant Manager, Ecole d'Application du Génie at Angers, France (12-month military service in the Engineer Corps), September 1993 – August 1994
- Data Analyst, Rhône-Poulenc Ltd., France, three-month internship, summer 93
- Teaching Assistant, Université Lumière Lyon II, Faculté de Sciences Economiques et de Gestion, France, October 1992 – May 1993
- Programmer/Database Manager, Caisse Régionale d'Assurance Maladie Rhône-Alpes, France, two-month internship, summer 92

AFFILIATIONS

- Phi Kappa Phi, the National Interdisciplinary Honor Society
- Omicron Delta Epsilon, the International Economics Honor Society
- American Economic Association

Jeffrey S. Bagdade, P.E.
Vice President & Senior Transportation Engineer



Synopsis:

- Eight years of work experience throughout the United States and Canada.
- Experienced in road safety, traffic operations, traffic control devices, pedestrians, bicycles and older drivers.
- Expert in road safety audits.
- Extensive experience in developing partnerships between public-sector agencies.
- Effective project manager for multi-disciplinary teams on complex projects with constrained schedules.
- Comprehensive experience in developing safety related policies.

Main Qualifications:

- Registered Professional Engineer (Michigan, Wisconsin)
- Bachelor of Science, Civil Engineering, Michigan State University, 2000
- Master of Science, Civil Engineering, Michigan State University, 2002
- Master of Business Administration (in-progress), Wayne State University, expected 2008

Key Memberships and Appointments:

- Voting Council Member representing AAA, National Committee of Uniform Traffic Control Devices
- Member, NCUTCD Signals Technical Committee
- Vice Chair, Transportation Safety Council of the Institute of Transportation Engineers
- Member, TRB Traffic Control Devices Committee
- Member, TRB Road Safety Audits Subcommittee
- Member, State Advisory Committee, Michigan MUTCD
- Member, GTSAC Intersection Safety Advisory Committee (Michigan)
- Member, GTSAC Pedestrian/Bicycle Safety Action Team (Michigan)

Awards

While managing the Road Improvement Demonstration Program for AAA, it was the recipient of the following awards:

- 2001 Southeast Michigan Council of Governments/Metropolitan Affairs Coalition Joint Public Service Award for the best public/private partnership in Southeast Michigan
- 2003 AAA National Recognition Award for the best Public Affairs project
- 2004 Council of State Governments Associate Award for best public/private partnership between a private organization and a state government
- 2005 Michigan Governor's Traffic Safety Advisory Committee Award for Outstanding Contributions to Traffic Safety

Transportation Engineering and Planning

Major Project Achievements:

AAA Michigan Road Improvement Demonstration Program

Project Manager and Engineer, 1999-2005.

Managed and coordinated all aspects of this innovative program both internally and externally for AAA Michigan while employed as their traffic engineer. Tasks included developing public/private partnerships identification of hazardous locations and directing road safety audits and reviews.

Examples include:

- Evergreen Road Corridor Study, Detroit, MI
- Seven Mile Road Corridor Study, Detroit, MI
- McNichols Road Corridor Study, Detroit, MI
- Warren and Cass, Warren and Anthony Wayne Intersection Safety Audits, Detroit, MI
- Michigan Street Corridor Study, Grand Rapids, MI
- Lake Michigan Dr. (M-45) and Collindale Intersection Safety Audit, Grand Rapids, MI
- 24th Street Corridor In-Service Safety Audit, Port Huron, MI

AAA Wisconsin Road Improvement Demonstration Program

Project Manager, 2004-2005

Consultant Project Manager, 2006-Present

Tasks included program development, setting up public/private partnerships, stakeholder consultation, identification of hazardous locations, directing and conducting road safety audits and reviews and public information component. Examples include:

- South 27th Street (STH 241) Corridor Study, Milwaukee and Greenfield, WI
- Layton Blvd. (STH 57) and National (STH 59) Safety Audit, Milwaukee, WI
- STH 100 and Bluemound Road, Wauwatosa, WI
- Fish Hatchery Rd. and Greenway Cross Intersection Safety Audit, Madison, WI
- Park St and Regent Street Intersection Safety Audit, Madison, WI

AAA Road Improvement Demonstration Program Evaluation

Project Manager, 2001-2005

Provided oversight of several program evaluations which included the application of several statistical methods including traditional before-and-after and Empirical Bayes. Tasks also included participation in the dissemination of the results to government leaders, the engineering community and the public.

City of Detroit/AAA Michigan Road Safety Partnership

Project Manager. 1999-2005.

Managed the long-term road safety partnership between the City of Detroit's Traffic Engineering Division and AAA Michigan. Conducted road safety audits at all stages of design (conceptual, preliminary and detailed design) for City of Detroit corridor, intersection and interchange improvement projects. Safety reviews were conducted at hundreds of the city's intersections as part of their annual road project development process. These reviews included a site visit, review of the collision history, identification of collision causes, suggesting engineering countermeasures (vehicular and pedestrian) and cost benefit analyses. Various citywide traffic safety engineering

initiatives were also evaluated to identify the safety and economic benefits. Some notable projects are listed below:

- Livernois Road Design Stage Safety Audit for the conversion to a boulevard
- Warren & I-75 Interchange Safety Improvements
- Harper & Chalmers & Hayes Intersection Safety Improvements
- Traffic Signal Removal at low volume intersections
- Countdown Pedestrian Signal Conversion

Kettering School Zone and Major Crossing Review

Project Manager, 2006

Client: City of Kettering, Ohio

Opus was retained by the City of Kettering to review pedestrian facilities from a safety perspective around all the City's schools. The study included a review of Safe Routes to School, designated school crossings and related signing and intersection control. This study focused on the review of existing facilities, identifying deficiencies from the perspective of vulnerable road users, and developing solution options.

Burlington Bypass Road Safety Audit

Project Manager, 2007

Client: Wisconsin Department of Transportation

Tasks included conducting a Road Safety Audit of the proposed Burlington Bypass (portions of STH 11, STH 36 and STH 83) which is planned for Racine and Walworth Counties. Seven safety issues were been identified in this RSA. Suggestions for improvements were identified and are described in an audit report to the WisDOT Project Manager.

FHWA Road Safety Audit Case Studies

Project Engineer, 2007

Client: Federal Highway Administration

To demonstrate the effectiveness of Road Safety Audits, the FHWA Office of Safety retained Opus to organize and lead a series of ten RSA's and three additional tribal RSA's. The goal of these case studies was to demonstrate the usefulness and effectiveness of RSA's for a variety of projects and project stages (design and in-service), and in a variety of agencies (state, county, city, and Tribal) throughout the United States.

Detroit Pedestrian Safety Evaluation

Project Manager, 2007

Client: Michigan Department of Transportation

Opus was recently retained by the MDOT as part of a team with Wayne State University to conduct an evaluation of pedestrian safety in the City of Detroit. This study will involve a detailed analysis of the crash data to help pinpoint the specific issues related to pedestrian safety and countermeasures.

USRAP (Road Assessment Program)

Project Engineer, 2004-2005

Participated in the advisory committee for the AAA Foundation for Traffic Safety and helped plan the pilots in Michigan and Iowa, Project Engineer, 2004-05.

Pedestrian and School Traffic Safety Studies with AAA Michigan

Project Engineer, 1999-2005

Conducted site evaluations of over 150 schools throughout Michigan which included analyses of traffic flow, circulation, pedestrian facilities, walk routes, bus stops and site access. Project Engineer, 1999-2005

Rural Road Safety Partnership between 3M and AAA Wisconsin

Project Engineer, 2005

Organized the partnership between the private organizations and the public agencies, which conducted safety reviews of stop-controlled intersections and curves on low volume roads in Polk, Rusk and St. Croix counties in Northern Wisconsin.

Michigan Senior Driver Showcase Corridor

Project Engineer, 2003-2004

Working closely with Michigan DOT and FHWA Michigan Division, developed a corridor which included many of the recommendations from the FHWA *Older Driver Handbook* to determine which items would be feasible for widespread implementation by MDOT, county and municipal road agencies in Michigan.

Guest lecturer for traffic engineering graduate courses at Wayne State University and Marquette University, 2002-Present.

Transportation Policy and Advocacy***Major Project Achievements:***

Represent AAA on the National Committee on Uniform Traffic Control Devices, 2003-Present.

- Participated in the development of the following items related to traffic safety policy in Michigan:
 - Michigan Manual on Uniform Traffic Control Devices, 2002-Present
 - Michigan Comprehensive Highway Safety Plan, 2004
 - Michigan Intersection Safety Action Plan, 2002-2004
 - Michigan Non-Motorized Safety Action Plan, 2005
 - Michigan DOT policy on the use of Clearview Font on freeway guide signs, 2004
 - Michigan DOT policy on the timing of traffic signal clearance intervals, 2001-2003
 - Michigan DOT policy on the use of pedestrian countdown signals, 2003-2004
 - Michigan Traffic Records System Improvement, 2001-2004
 - Southeast Michigan Council of Governments policy on the use of automated enforcement, 2000

- Assisted AAA in the development of the road safety engineering components of the *Get there America* public awareness campaign for the US congressional transportation reauthorization plan, 2001-2005.

Major Publications and Papers:

- **Bagdade, J.**; Bryson, R.; Quesnell, C.; Gibbs, M., (2006) *Road Safety Audits: The Milwaukee Experience*, Compendium of Papers, Institute of Transportation Engineers Annual Meeting, Milwaukee, Wisconsin, USA.
- **Bagdade, J.**; Lariviere, K.; Morena, D., (2006) *Michigan's Senior Driver Showcase Corridor: Implementation of Low Cost Safety Improvements for Senior Drivers*, ITE Journal, January 2006, Institute of Transportation Engineers, Washington, DC, USA.
- Gibbs, M.; and **Bagdade, J.**, (2004) *In-Service Safety Audits: The AAA Michigan Road Improvement Demonstration Program*, Compendium of Papers, Institute of Transportation Engineers Annual Meeting, Orlando, Florida, USA.
- **Bagdade, J.**, (2004) *Low Cost Intersection Improvements Reduce Crashes for Senior Drivers*, Compendium of Papers, Institute of Transportation Engineers Annual Meeting, Orlando, Florida.
- **Bagdade, J.**, (2004) *AAA's Road Improvement Program Make's Intersections Safer*, Compendium of Papers, Institute of Transportation Engineers Technical Conference, Irvine, California.
- **Bagdade, J.**, (2004) *AAA Expands Intersection Safety Program to Wisconsin*, Urban Transportation Monitor Vol. 18, No. 16, Lawley Publications, Burke, Virginia.
- **Bagdade, J.**, (2003) *AAA's Road Improvement Program Makes Urban Intersections Safer: Analysis of Five-Year Results Released*, Urban Transportation Monitor Vol. 17, No. 3, Lawley Publications, Burke, Virginia.
- **Bagdade, J.**, (2002) *AAA's Road Improvement Demonstration Program Makes Urban Intersections Safer*, Michigan ITE Fall Edition, Institute of Transportation Engineers Michigan Section.

**SECTION K - REPRESENTATIONS, CERTIFICATIONS, AND OTHER
STATEMENTS OF OFFERORS**

1. 52.204-7 - ANNUAL REPRESENTATIONS AND CERTIFICATIONS (JAN 2005).

- (a) (1) If the clause at 52.204-7, Central Contractor Registration, is included in this solicitation, paragraph (b) of this provision applies.
- (2) If the clause at 52.204-7 is not included in this solicitation, and the offeror is currently registered in CCR, and has completed the ORCA electronically, the offeror may choose to use paragraph (b) instead of completing the corresponding individual representations and certifications in the solicitation. The offeror shall indicate which option applies by checking one of the following boxes:

☒ (i) Paragraph (b) applies.

☐ (ii) Paragraph (b) does not apply and the offeror has completed the individual representations and certifications in the solicitation.

(b) The offeror has completed the annual representations and certifications electronically via the On-Line Representations and Certifications Applications (ORCA) website at <http://orca.bpn.gov>. After reviewing the ORCA database information, the offeror verifies by submission of the offer that the representations and certifications currently posted electronically have been entered or updated within the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard applicable to the NAICS code referenced for this solicitation), as of the date of this offer and are incorporated in this offer by reference (see FAR 4.1201); except for the changes identified below [*offeror to insert changes, identifying change by clause number, title, date*]. These amended representation(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer.

<u>FAR CLAUSE</u>	<u>TITLE</u>	<u>DATE</u>	<u>CHANGE</u>
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Any changes provided by the offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications posted on ORCA.

(End of Provision)

2. 52.219-9 – SMALL BUSINESS SUBCONTRACTING PLAN (JAN 2002)

- (a) This clause does not apply to small business concerns.

(b) *Definitions.* As used in this clause--

“Commercial item” means a product or service that satisfies the definition of commercial item in section 2.101 of the Federal Acquisition Regulation.

“Commercial plan” means a subcontracting plan (including goals) that covers the offeror’s fiscal year and that applies to the entire production of commercial items sold by either the entire company or a portion thereof (*e.g.*, division, plant, or product line).

“Individual contract plan” means a subcontracting plan that covers the entire contract period (including option periods), applies to a specific contract, and has goals that are based on the offeror’s planned subcontracting in support of the specific contract except that indirect costs incurred for common or joint purposes may be allocated on a prorated basis to the contract.

“Master plan” means a subcontracting plan that contains all the required elements of an individual contract plan, except goals, and may be incorporated into individual contract plans, provided the master plan has been approved.

“Subcontract” means any agreement (other than one involving an employer-employee relationship) entered into by a Federal Government prime Contractor or subcontractor calling for supplies or services required for performance of the contract or subcontract.

(c) The offeror, upon request by the Contracting Officer, shall submit and negotiate a subcontracting plan, where applicable, that separately addresses subcontracting with small business concerns, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business concerns, small disadvantaged business, and with women-owned small business concerns. If the offeror is submitting an individual contract plan, the plan must separately address subcontracting with small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns with a separate part for the basic contract and separate parts for each option (if any). The plan shall be included in and made a part of the resultant contract. The subcontracting plan shall be negotiated within the time specified by the Contracting Officer. Failure to submit and negotiate the subcontracting plan shall make the offeror ineligible for award of a contract.

(d) The offeror’s subcontracting plan shall include the following:

(1) Goals, expressed in terms of percentages of total planned subcontracting dollars, for the use of small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns as subcontractors. The offeror shall include all subcontracts that contribute to contract performance, and may include a proportionate share of products and services that are normally allocated as indirect costs.

(2) A statement of --

(i) Total dollars planned to be subcontracted for an individual contract plan; or the offeror’s total projected sales, expressed in dollars, and the total value of projected subcontracts to support the sales for a commercial plan;

(ii) Total dollars planned to be subcontracted to small business concerns;

- (iii) Total dollars planned to be subcontracted to veteran-owned small business concerns;
- (iv) Total dollars planned to be subcontracted to service-disabled veteran-owned small business;
- (v) Total dollars planned to be subcontracted to HUBZone small business concerns;
- (vi) Total dollars planned to be subcontracted to small disadvantaged business concerns; and
- (vii) Total dollars planned to be subcontracted to women-owned small business concerns.

(3) A description of the principal types of supplies and services to be subcontracted, and an identification of the types planned for subcontracting to --

- (i) Small business concerns,
- (ii) Veteran-owned small business concerns;
- (iii) Service-disabled veteran-owned small business concerns;
- (iv) HUBZone small business concerns;
- (v) Small disadvantaged business concerns, and
- (vi) Women-owned small business concerns.

(4) A description of the method used to develop the subcontracting goals in paragraph (d) (1) of this clause.

(5) A description of the method used to identify potential sources for solicitation purposes (*e.g.*, existing company source lists, the Procurement Marketing and Access Network (PRO-Net) of the Small Business Administration (SBA), veterans service organizations, the National Minority Purchasing Council Vendor Information Service, the Research and Information Division of the Minority Business Development Agency in the Department of Commerce, or small, HUBZone, small disadvantaged, and women-owned small business trade associations). A firm may rely on the information contained in PRO-Net as an accurate representation of a concern's size and ownership characteristics for the purposes of maintaining a small, veteran-owned small, service-disabled veteran-owned small, HUBZone small, small disadvantaged, and women-owned small business source list. Use of PRO-Net as its source list does not relieve a firm of its responsibilities (*e.g.*, outreach, assistance, counseling, or publicizing subcontracting opportunities) in this clause.

(6) A statement as to whether or not the offeror included indirect costs in establishing subcontracting goals, and a description of the method used to determine the proportionate share of indirect costs to be incurred with --

- (i) Small business concerns;
- (ii) Veteran-owned small business concerns;
- (iii) Service-disabled veteran-owned small business concerns;
- (iv) HUBZone small business concerns;
- (v) Small disadvantaged business concerns; and
- (vi) Women-owned small business concerns.

- (7) The name of the individual employed by the offeror who will administer the offeror's subcontracting program, and a description of the duties of the individual.
- (8) A description of the efforts the offeror will make to assure that small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns have an equitable opportunity to compete for subcontracts.
- (9) Assurances that the offeror will include the clause of this contract entitled "Utilization of Small Business Concerns" in all subcontracts that offer further subcontracting opportunities, and that the offeror will require all subcontractors (except small business concerns) that receive subcontracts in excess of \$550,000 (\$1,000,000 for construction of any public facility) to adopt a plan similar to the plan that complies with the requirements of this clause.
- (10) Assurances that the offeror will --
- (i) Cooperate in any studies or surveys as may be required;
 - (ii) Submit periodic reports so that the Government can determine the extent of compliance by the offeror with the subcontracting plan;
 - (iii) Submit Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and/or SF 295, Summary Subcontract Report, in accordance with the paragraph (j) of this clause. The reports shall provide information on subcontract awards to small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns, women-owned small business concerns, and Historically Black Colleges and Universities and Minority Institutions. Reporting shall be in accordance with the instructions on the forms or as provided in agency regulations.
 - (iv) Ensure that its subcontractors agree to submit SF 294 and 295.
- (11) A description of the types of records that will be maintained concerning procedures that have been adopted to comply with the requirements and goals in the plan, including establishing source lists; and a description of the offeror's efforts to locate small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns and award subcontracts to them. The records shall include at least the following (on a plant-wide or company-wide basis, unless otherwise indicated):
- (i) Source lists (e.g., PRO-Net), guides, and other data that identify small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns.
 - (ii) Organizations contacted in an attempt to locate sources that are small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, or women-owned small business concerns.
 - (iii) Records on each subcontract solicitation resulting in an award of more than \$100,000, indicating --

- (A) Whether small business concerns were solicited and if not, why not;
- (B) Whether veteran-owned small business concerns were solicited and, if not, why not;
- (C) Whether service-disabled veteran-owned small business concerns were solicited and, if not, why not;
- (D) Whether HUBZone small business concerns were solicited and, if not, why not;
- (E) Whether small disadvantaged business concerns were solicited and if not, why not;
- (F) Whether women-owned small business concerns were solicited and if not, why not; and
- (G) If applicable, the reason award was not made to a small business concern.

(iv) Records of any outreach efforts to contact --

- (A) Trade associations;
- (B) Business development organizations;
- (C) Conferences and trade fairs to locate small, HUBZone small, small disadvantaged, and women-owned small business sources; and
- (D) Veterans service organizations.

(v) Records of internal guidance and encouragement provided to buyers through --

- (A) Workshops, seminars, training, etc., and
- (B) Monitoring performance to evaluate compliance with the program's requirements.

(vi) On a contract-by-contract basis, records to support award data submitted by the offeror to the Government, including the name, address, and business size of each subcontractor.

Contractors having commercial plans need not comply with this requirement.

(e) In order to effectively implement this plan to the extent consistent with efficient contract performance, the Contractor shall perform the following functions:

- (1) Assist small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation by such concerns. Where the Contractor's lists of potential small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business subcontractors are excessively long, reasonable effort shall be made to give all such small business concerns an opportunity to compete over a period of time.

- (2) Provide adequate and timely consideration of the potentialities of small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns in all “make-or-buy” decisions.
 - (3) Counsel and discuss subcontracting opportunities with representatives of small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business firms.
 - (4) Confirm that a subcontractor representing itself as a HUBZone small business concern is identified as a certified HUBZone small business concern by accessing the Central Contractor Registration (CCR) database or by contacting SBA.
 - (5) Provide notice to subcontractors concerning penalties and remedies for misrepresentations of business status as small, veteran-owned small business, HUBZone small, small disadvantaged or women-owned small business for the purpose of obtaining a subcontract that is to be included as part or all of a goal contained in the Contractor’s subcontracting plan.
- (f) A master plan on a plant or division-wide basis that contains all the elements required by paragraph (d) of this clause, except goals, may be incorporated by reference as a part of the subcontracting plan required of the offeror by this clause; provided --
- (1) The master plan has been approved;
 - (2) The offeror ensures that the master plan is updated as necessary and provides copies of the approved master plan, including evidence of its approval, to the Contracting Officer; and
 - (3) Goals and any deviations from the master plan deemed necessary by the Contracting Officer to satisfy the requirements of this contract are set forth in the individual subcontracting plan.
- (g) A commercial plan is the preferred type of subcontracting plan for contractors furnishing commercial items. The commercial plan shall relate to the offeror’s planned subcontracting generally, for both commercial and Government business, rather than solely to the Government contract. Commercial plans are also preferred for subcontractors that provide commercial items under a prime contract, whether or not the prime contractor is supplying a commercial item.
- (h) Prior compliance of the offeror with other such subcontracting plans under previous contracts will be considered by the Contracting Officer in determining the responsibility of the offeror for award of the contract.
- (i) The failure of the Contractor or subcontractor to comply in good faith with --
- (1) The clause of this contract entitled “Utilization Of Small Business Concerns;” or
 - (2) An approved plan required by this clause, shall be a material breach of the contract.
- (j) The Contractor shall submit the following reports:
- (1) *Standard Form 294, Subcontracting Report for Individual Contracts*. This report shall be submitted to the Contracting Officer semiannually and at contract completion. The report covers subcontract award data related to this contract. This report is not required for commercial plans.

(2) *Standard Form 295, Summary Subcontract Report*. This report encompasses all the contracts with the awarding agency. It must be submitted semi-annually for contracts with the Department of Defense and annually for contracts with civilian agencies. If the reporting activity is covered by a commercial plan, the reporting activity must report annually all subcontract awards under that plan. All reports submitted at the close of each fiscal year (both individual and commercial plans) shall include a breakout, in the Contractor's format, of subcontract awards, in whole dollars, to small disadvantaged business concerns by North American Industry Classification System (NAICS) Industry Subsector. For a commercial plan, the Contractor may obtain from each of its subcontractors a predominant NAICS Industry Subsector and report all awards to that subcontractor under its predominant NAICS Industry Subsector.

(End of Clause)

Alternate I (Oct 2001). When contracting by sealed bidding rather than by negotiation, substitute the following paragraph (c) for paragraph (c) of the basic clause:

(c) The apparent low bidder, upon request by the Contracting Officer, shall submit a subcontracting plan, where applicable, that separately addresses subcontracting with small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns. If the bidder is submitting an individual contract plan, the plan must separately address subcontracting with small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns, with a separate part for the basic contract and separate parts for each option (if any). The plan shall be included in and made a part of the resultant contract. The subcontracting plan shall be submitted within the time specified by the Contracting Officer. Failure to submit the subcontracting plan shall make the bidder ineligible for the award of a contract.

Alternate II (Oct 2001). As prescribed in [19.708\(b\)](#) (1), substitute the following paragraph (c) for paragraph (c) of the basic clause:

c) Proposals submitted in response to this solicitation shall include a subcontracting plan that separately addresses subcontracting with small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns. If the offeror is submitting an individual contract plan, the plan must separately address subcontracting with small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns with a separate part for the basic contract and separate parts for each option (if any). The plan shall be included in and made a part of the resultant contract. The subcontracting plan shall be negotiated within the time specified by the Contracting Officer. Failure to submit and negotiate a subcontracting plan shall make the offeror ineligible for award of a contract.

3. 52.230-1 COST ACCOUNTING STANDARDS NOTICES AND CERTIFICATION (JUN 2000)

(NOTE: This notice does not apply to small businesses or foreign governments. This notice is in three parts, identified by Roman numerals I through III.)

Offerors shall examine each part and provide the requested information in order to determine Cost Accounting Standards (CAS) requirements applicable to any resultant contract.

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If the offeror is an educational institution, Part II does not apply unless the contemplated contract will be subject to full or modified CAS coverage pursuant to 48 CFR 9903.201-2(c)(5) or 9903.201-2(c)(6), respectively.

I. Disclosure Statement--Cost Accounting Practices and Certification

(a) Any contract in excess of \$500,000 resulting from this solicitation will be subject to the requirements of the Cost Accounting Standards Board (48 CFR Chapter 99), except for those contracts which are exempt as specified in 48 CFR 9903.201-1.

(b) Any offeror submitting a proposal which, if accepted, will result in a contract subject to the requirements of 48 CFR Chapter 99 must, as a condition of contracting, submit a Disclosure Statement as required by 48 CFR 9903.202. When required, the Disclosure Statement must be submitted as a part of the offeror's proposal under this solicitation unless the offeror has already submitted a Disclosure Statement disclosing the practices used in connection with the pricing of this proposal. If an applicable Disclosure Statement has already been submitted, the offeror may satisfy the requirement for submission by providing the information requested in paragraph (c) of Part I of this provision.

Caution: In the absence of specific regulations or agreement, a practice disclosed in a Disclosure Statement shall not, by virtue of such disclosure, be deemed to be a proper, approved, or agreed-to practice for pricing proposals or accumulating and reporting contract performance cost data.

(c) Check the appropriate box below:

☐ (1) Certificate of Concurrent Submission of Disclosure Statement. The offeror hereby certifies that, as a part of the offer, copies of the Disclosure Statement have been submitted as follows:

- (i) Original and one copy to the cognizant Administrative Contracting Officer (ACO) or cognizant Federal agency official authorized to act in that capacity (Federal official), as applicable; and
- (ii) One copy to the cognizant Federal auditor.

(Disclosure must be on Form No. CASB DS-1 or CASB DS-2, as applicable. Forms may be obtained from the cognizant ACO or Federal official and/or from the loose-leaf version of the Federal Acquisition Regulation.)

Date of Disclosure Statement: _____

Name and Address of Cognizant ACO or Federal Official Where Filed: _____

The offeror further certifies that the practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in the Disclosure Statement.

☐ (2) Certificate of Previously Submitted Disclosure Statement. The offeror hereby certifies that the required Disclosure Statement was filed as follows:

Date of Disclosure Statement: _____

Name and Address of Cognizant ACO or Federal Official Where Filed: _____

The offeror further certifies that the practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in the applicable Disclosure Statement.

☐ (3) Certificate of Monetary Exemption. The offeror hereby certifies that the offeror, together with all divisions, subsidiaries, and affiliates under common control, did not receive net awards of negotiated prime contracts and subcontracts subject to CAS totaling \$50 million or more in the cost accounting period immediately preceding the period in which this proposal was submitted. The offeror further certifies that if such status changes before an award resulting from this proposal, the offeror will advise the Contracting Officer immediately.

☐ (4) Certificate of Interim Exemption. The offeror hereby certifies that (i) the offeror first exceeded the monetary exemption for disclosure, as defined in (3) of this subsection, in the cost accounting period immediately preceding the period in which this offer was submitted and (ii) in accordance with 48 CFR 9903.202-1, the offeror is not yet required to submit a Disclosure Statement. The offeror further certifies that if an award resulting from this proposal has not been made within 90 days after the end of that period, the offeror will immediately submit a revised certificate to the Contracting Officer, in the form specified under subparagraph (c) (1) or (c) (2) of Part I of this provision, as appropriate, to verify submission of a completed Disclosure Statement.

Caution: Offerors that are currently required to disclose because they were awarded a CAS-covered prime contract or subcontract of \$50 million or more in the current cost accounting period may not claim this exemption (4). Further, the exemption applies only in connection with proposals submitted before expiration of the 90-day period following the cost accounting period in which the monetary exemption was exceeded.

II. Cost Accounting Standards--Eligibility for Modified Contract Coverage

If the offeror is eligible to use the modified provisions of 48 CFR 9903.201-2(b) and elects to do so, the offeror shall indicate by checking the box below. Checking the box below shall mean that the resultant contract is subject to the Disclosure and Consistency of Cost Accounting Practices clause in lieu of the Cost Accounting Standards clause.

☐ The offeror hereby claims an exemption from the Cost Accounting Standards clause under the provisions of 48 CFR 9903.201-2(b) and certifies that the offeror is eligible for use of the Disclosure and Consistency of Cost Accounting Practices clause because during the cost accounting period immediately preceding the period in which this proposal was submitted, the offeror received less than \$50 million in awards of CAS-covered prime contracts and subcontracts. The offeror further certifies that if such status changes before an award resulting from this proposal, the offeror will advise the Contracting Officer immediately.

Caution: An offeror may not claim the above eligibility for modified contract coverage if this proposal is expected to result in the award of a CAS-covered contract of \$50 million or more or if, during its current cost accounting period, the offeror has been awarded a single CAS-covered prime contract or subcontract of \$50 million or more.

III. Additional Cost Accounting Standards Applicable to Existing Contracts

The offeror shall indicate below whether award of the contemplated contract would, in accordance with subparagraph (a)(3) of the Cost Accounting Standards clause, require a change in established cost accounting practices affecting existing contracts and subcontracts.

☐ yes ☐ no

Alternate I (Apr 1996). As prescribed in 30.201-3(b), add the following subparagraph (c) (5) to Part I of the basic provision:

☐ (5) Certificate of Disclosure Statement Due Date by Educational Institution. If the offeror is an educational institution that, under the transition provisions of 48 CFR 9903.202-1(f), is or will be required to submit a Disclosure

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Statement after receipt of this award, the offeror hereby certifies that (check one and complete):

☐ (i) A Disclosure Statement Filing Due Date of _____ have been established with the cognizant Federal agency.

☐ (ii) The Disclosure Statement will be submitted within the 6-month period ending _____ months after receipt of this award.

Name and Address of Cognizant ACO or Federal Official Where Disclosure Statement is to be filed:

4. TYPE OF BUSINESS

Check the appropriate selection(s) from the following:

☒ **Small Disadvantaged Business**

☐ Other Small Business

☐ Large Business

☐ JWOD

☐ Nonprofit Educational Org.

☐ Nonprofit Hospital

☐ Women-Owned Business

☐ Historically Black College/Univ.

☐ Minority Institution

☐ Other Non-Profit Organization

☐ State/Local Govt - Education

☐ State/Local Govt - Hospital

☐ Other State/Local Government

☐ Foreign Contractor

☐ Domestic Contractor Performing

☐ Outside US

☐ Veteran-Owned Small Business

☐ Service Disabled Veteran-Owned

☐ Small Business Concern

Concern

5. AUTHORIZED NEGOTIATORS

The offeror or quoter represents that the following persons are authorized to negotiate on its behalf with the Government in connection with this request for proposals or quotations: (list names, titles, and telephone numbers of the authorized negotiators).

Name

Title

Telephone #

Morris R. Davis

President

(215)790-8900

6. TECHNICAL DATA CERTIFICATION

The offeror certifies that it has not delivered or is not obligated to deliver to the Government under any contract or subcontract the same or substantially the same technical data included in its offer, except as set forth below:

☒ None

☐ Contract No. (Subcontract No., if applicable):

Agency Name and Place of Delivery:

7. REPRESENTATION OF COMPLIANCE WITH THE ELECTRONIC AND INFORMATION TECHNOLOGY ACCESSIBILITY STANDARDS (*Applicable to contracts which furnish Electronic and Information Technology (EIT) products and services.*)

- (a). Submission of the representation referenced in paragraph (b) and (c) is a prerequisite imposed by 36 CFR 1194 for making or entering into this contract.
- (b). The offeror represents by fully completing the Electronic and Information Technology Accessibility Standards Evaluation spreadsheet (attachment located in Section J of this solicitation) that the products and services offered in response to this solicitation comply with the Electronic and Information Technology Accessibility Standards at 36 CFR 1194, unless stated otherwise within the spreadsheet.
- (c). The offeror further represents that all EIT products and services represented in the Electronic and Information Technology Accessibility Standards Evaluation spreadsheet (attachment located in Section J of this solicitation) that are less than fully compliant are offered pursuant to extensive market research, which ensures that they are the most compliant products and services available to satisfy this solicitation's requirements.

8. NOTIFICATION OF DEFECTIVE INVOICES

Each Contractor receiving an award will be requested to identify a person or office to be contacted for prompt notification regarding the receipt by the Government of a defective invoice.

Name P. Ashley Chanthamaly
Title Assistant Business Manager
Address 1520 Locust Street, 3rd Floor
City & State Philadelphia, PA Zip Code 19102
Telephone No. (215)790-8900 Fax No. (215)790-8930

9. OTHER COMMUNICATIONS

To facilitate other communications, please provide your organizational FAX number(s):

Fax Number: (215)790-8930