Maryland SHA Partnering

An Analysis of the Maryland Department of Transportation State Highway Administration's Partnering Program and Process

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These are exciting times at SHA. Our partnering program is now, arguably, the "business as usual" model. Partnering, like any relationship, takes time and effort. With a little patience and a willingness to learn with our partners, SHA is beginning to reap the benefits of the partnering process. Partnering now replaces instances of conflict with a culture of cooperation. Where we may previously have had instances of communication challenges we now have a transparent, effective and timely communication model in place. Collective problem solving and a sense of a bigger mission prevail where individual interests may have once dominated the agenda.

How do I know this? We commissioned an independent study, funded by the Maryland Judiciary‟s Mediation and Conflict Resolution Office (MACRO) and undertaken by the Center for Conflict Resolution (CCR) at Salisbury University, to conduct a critical examination of our partnering program and partnering process. We wanted to know what is working, but more importantly we wanted to learn from what wasn‟t working. In order to accomplish this task we became completely transparent. SHA gave the researchers complete access to the individuals and organizations we partner with, unfettered access to our internal records and personnel, and responded to any and all inquiries.

In years past we relied heavily on testimonials on how the process has benefited participants or descriptions of the process and other indirect evidence that highlighted satisfaction with the performance of the partnering program. Yet, we never had empirical results, to demonstrate the impact of the partnering program on SHA and its partners or even how participants experience the process in action. Now we do, and the results, presented here, verify much of what we knew by analogy, and prescriptive or descriptive testimonials. Now we know what really works well and where we can focus more time and attention in our efforts to further improve the process so everyone, especially the citizens of Maryland, can benefit.

By making this report available to the public we hope that others in state government and the business community will learn from our experience and consider the obvious benefits of constructing a collaborative problem solving process, such as partnering, as both a core philosophy and a means of relating to others especially when dealing with complex and often controversial public decision making endeavors.

Douglas R. Rose
Deputy Administrator/Chief Engineer for Operations
State Highway Administration

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Acknowledgements

This study is a prime example of partnering in action. Bridgid Seering, the State Highway Administration (SHA) Partnering Coordinator, originally wanted to conduct a study on the partnering program and process in order to measure progress and identify areas where SHA could focus more time and attention to improve the program. Her full and candid participation in the study is the primary reason why we were able to gain unprecedented access to key individuals as well as a plethora of supporting SHA documentation. A total of 138 individuals, representing all facets of SHA, contractors, consultants and utility companies, took part in the study by completing surveys, while 88 of those participants also took part in focus groups. Their willingness to participate and provide concrete feedback on both the program and the process is a direct indication of the importance they place on collaborative problem solving, conflict prevention and early warning systems.

All programs need champions. Bridgid Seering is the person who shoulders the majority of the day to day leadership. However, the Deputy Administrator/Chief Engineer for Operations of the State Highway Administration, Doug Rose, is also a champion of the program who should be commended for taking part in the study, encouraging us to present the results to a national audience of state highway officials and also for taking the time to read the study and ask the tough questions. We would also like to thank Neil Pedersen, Administrator of the State Highway Administration, for generously giving us complete access and the time to interview him specifically on the topics of how the partnering program has empirically impacted SHA, promoted a cultural shift within the agency and its relationship with outside entities and other state agencies.

The research team has many talents. Frank Carr, a highly experienced partnering expert who helped develop the process over the past 25 years, was the co-designer of the study and took part in the collection of data and the write up of the experiential based recommendations. His expert eyes assisted the data collection process immensely, by making sense of sometimes complex data patterns and translating technical and scientific terminology. Robert LaChance managed the preliminary analysis of the qualitative data, a major task given the volume of data provided, as well as the input and manipulation of the quantitative data. Haleigh LaChance has been an invaluable editor, cleaning up some of my nonsensical ramblings and turning them into coherent thoughts.

Special thanks to Matt Creamer, board member at the Center for Conflict Resolution, who has been involved in state highway construction projects for more years than he would like to mention. His assistance in the project was invaluable.

All errors, omissions and inaccuracies in the study fall solely on me. While writing the study, I made final judgment calls on data analysis, interpretation and presentation.

Brian Polkinghorn, Ph.D. Salisbury Maryland July 2006

Table of Contents

List of Figures and Tables

Figures

Tables

List of Charts

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I. Introduction

The Maryland State Highway Administration‟s (SHA) construction partnering program ("partnering") is a collaborative problem solving process used by major stakeholders to effectively manage SHA construction projects. Partnering typically starts early, before a construction project begins, and lasts until the project is completed. A significant function of the process is to focus major stakeholders‟ attention on the early identification of potentially costly and time consuming issues and provide a clear step-by-step process for managing such disputes. Safety, as most participants in this study indicate, always comes first. In practice, partnering has become, for many experienced in the process, an early warning conflict prevention system and is glowingly described as, among other things, "common sense in action" and "what happens on all great projects." Some participants in this study also indicate that partnering is essentially the repackaging of all the right interpersonal skills, and problem solving techniques, as well as management and leadership abilities.

Empirical evidence, detailed in previous reports[1] and in combination with this study, suggests that partnering directly impacts the timely completion of highway construction projects and substantially assists in keeping them within budget while simultaneously allowing contractors to realize a profit.[2] Partnering also has non quantifiable benefits, discussed in detail later, such as clearly demarcating lines of authority, putting names to faces, understanding other stakeholders reporting structuring and their specific needs; all of which lead to greater appreciation and recognition of the others‟ skills and greater levels of cooperation. As such, those who use Maryland roads (e.g. visitors to the state, commerce and Maryland citizens) are well served by the SHA partnering program that reinforces safety, sound construction and efficient use of taxpayer funds.

Partnering is unique in that it is operated by a public agency but has taken lessons learned from the private sector in regard to various forms of efficiency. Indeed, partnering is a prime example of a "network organization" or a group of independent organizations or companies that bring highly specific skills and abilities to accomplish a given mission that no one member of the network could accomplish on its own. The network reinforces cooperation by working to help others satisfy their needs and goals, which ultimately helps their own organization achieve its needs and goals. Each construction project is, in essence, a mission and the degree of complexity (e.g. size, duration, design and engineering challenges, traffic flow and physical geography challenges) ranges from side walk improvements to the construction of the $2.45 Billion Woodrow Wilson Bridge Project. Partnering is necessary and most beneficial in complex construction projects involving multiple parties and long-range timetables.

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[1] See Pratt-Carder, Stephanie. (2001). "Comparison of Partnering Versus Non-Partnering Management Styles on Maryland State Highway Administration Construction Projects." Project Management, Department of Civil Engineering, University of Maryland. (Scholarly Paper)

[2] See SHA internal memo entitled "Partnering – Going to the Next Level" dated February 27, 2004. Provided by Bridgid Seering, SHA, Statewide Partnering Coordinator.

Purpose of the Study

The *purpose of this research study* is to answer two research questions. The primary line of inquiry is to obtain and examine data that focuses on "how effective is the SHA partnering *process* in accomplishing its goals as indicated by stakeholders who use it?" In essence, does the partnering process function differently than the usual "construction management" method and if so, how? The secondary line of inquiry focuses on "how well is the SHA partnering *program* operating?" In other words, is SHA being a good steward of the process, providing structure and resources that will allow partnering to become a fully integrated and institutionalized part of SHA"s "business as usual" approach?

The first research question focuses exclusively on the dynamics of the partnering *process.* In particular, the study examines specific tasks and activities that the participants do within the process, and how effective participants think they are in managing disputes. Participants link activities to their perceptions of the process outcome. This link establishes a clear relationship between activities and tasks that obtain constructive outcomes and those that do not.

Early on Bridgid Seering, the SHA Statewide Partnering Coordinator, made one statement that fundamentally altered the research team"s original research focus thus adding this second line of inquiry. According to the Statewide Partnering Coordinator SHA was in the process of training internal SHA managers in the facilitation process as well as how to effectively manage meetings, in anticipation of them managing the partnering process. In other words, she was saying that SHA made the conscious decision to train participants to run their own process. This is unique in that many state agency programs across the country use external process facilitators. This comment led to other probing lines of inquiry that resulted in the second research question examining the SHA program within which the partnering process is embedded. This second research question acknowledges that there is a link between the partnering process and how it is managed programmatically. In one respect, a good process managed poorly can lead to unintended results and vice versa. The reasoning for this line of inquiry is to ascertain how well SHA personnel who oversee the program are adjusting or evolving the process to changing external conditions and the desires of major stakeholders.

Scope of the Study

The *scope of the research study* encompasses direct feedback from primary and secondary stakeholders who have used the partnering process in SHA construction projects including: internal SHA personnel, contractors, consultants, and utilities personnel. The study also includes interviews with key SHA decision makers and people no longer working for SHA, but who have considerable institutional history and expertise in partnering. The entire range of construction projects, from simple to complex, has incorporated the partnering process, making the scope of the study the same as that of most SHA projects.

Not included in the scope is direct feedback from the public for several practical reasons. First, each project is unique and as such often involves specific concerns related directly to a specific project and not an overall procedural concern that can be generalized from one setting to another. For instance, in building a new bridge in the mountains of Western Maryland, where there are fewer roads, a detour may go for several miles; whereas the building or repair of a bridge in a major metropolitan area may create a detour that is much shorter in length. The issue of delays and detours may appear the same, but in reality the consequences on the ground are different. Such issues relate more to project design and not how the bridge is actually being built within the partnering network. Second, while there are public meetings that are used primarily to keep the public informed as to project design, progress reports, changes and other key facts these forums are, once again, geared to specific projects and often do not focus directly on issues that are the result of the internal workings of the partnering process. Third, while one can argue that the public is the primary client or customer in any SHA construction project, there is some limited participation depending on the specifics of the case within the process for members of the public to directly take part in the partnering process itself.

II. Providing a Context and History of Partnering

During the course of interviews for this study one question we asked everyone was their impression of how the partnering process came into existence. In particular, we wanted to know what parties, forces or trends (e.g. social, economic, legal, business) they thought may have played a role in shaping the development and evolution of partnering in the construction industry. Participants invariably provided a narrative that essentially went like this: "Before partnering, things weren't that good. People fought all the time and used the courts or the threat of litigation to extract concessions from other partners in the process." After a critical mass of highway construction cases reached the courts during the mid to late 1980's a common mantra borne of frustration was sounded by state agencies and courts that "there has to be a better way." During this time, many in the construction, legal and business communities understood that the situation had reached a crisis level and individuals from various institutions and organizations starting working on finding "a better way."

When it comes to the first developments, evolutionary steps and overall use of construction partnering both at the national level and in Maryland, the history is relatively short. At the national level various economic, legal and social trends that inspired partnering began to force change in the 1980s. In Maryland, the major trends that led to the development of partnering go back to the early 1990s.

Partnering is relatively new in comparison to other conflict management processes used by state and federal agencies. For instance, over the last 80 years many federal laws and programs have been created to address labor relations disputes, and an entire federal program office, the Federal Mediation and Conciliation Service was created to oversee disputes that arise in this part of industry.[3] For over 20 years federal and state

[3] See for instance, Barrett, Jerome T. (2004). A History of Alternative Dispute Resolution: The Story of a Political, Cultural, and Social Movement. San Francisco: Jossey Bass.

agencies have been using such processes as negotiated rulemaking to solve disputes between major stakeholders.[4]

Yet, while highway construction involves the coordination of various state agencies, contractors, consultants, utility companies, and the general public there was, until relatively recently, little effort (e.g. legislative, policy, regulatory or processes) to address systemic problems in highway construction other than through the use of litigation. This approach pitted major stakeholders against one another in a "free for all" where relationships were easily destroyed; cost overruns exceeded state budgets and the courts became increasingly frustrated in their expanding role and involvement. Under these circumstances a culture and attitude was fostered in which overruns and delays were the norm. Most of all, the public was the largest and most invisible casualty in this whole affair and the exception to the rule was the rare project that was completed on time and under cost. The time was ripe for change.

Partnering from a National Perspective

Partnering in construction has its roots in the 1980s, when the total quality management (TQM) movement was changing the nature of business in the United States and the legal and business communities were concerned about the rapid rise of unresolved claims and litigation in commercial cases. At this time, new strategies were being examined to change the traditional adversarial environment that plagued the construction community.[5]

Under the total quality management movement, the business community started to focus on moving from adversarial business relationships to a new paradigm of initiating continuous improvement in process and services, ensuring quality workmanship, and addressing customer satisfaction. Business often leads the way in service and performance evolution due to the nature of competition and the need to stay in close contact with client or customer needs. The same is not always true of government, as it is insulated from these market shifts. At the same time, the business and legal communities were experiencing the destructive impact of the rising numbers and economic costs associated with litigation, and were experimenting with alternative dispute resolution methods such as mediation and mini-trials.[6]

In 1987, the Construction Industry Institute (CII) at Texas A&M University formed a task force to explore a process to achieve the goals of total quality management and reverse the trend of litigation in construction. The task force consisted of 20

[4] Coglianese, Cary. (1997, April). "Assessing consensus: The promise and performance of negotiated rulemaking." *Duke Law Journal, 46* (6), 1255-1349. Also see, Polkinghorn, Brian. (1999). "Further findings on the use of negotiated rulemaking at the United States Environmental Protection Agency." *The Journal of Practical Dispute Resolution, 1* (2), 33-45.

[5] Associated General Contractors of America, "Partnering: Changing Attitudes in Construction," Washington, D.C. *AGC Publication #1225*, October 1995.

[6] Carr, Frank, "Partnering in Construction: A Practical Guide to Project Success," American Bar Association, *Forum on the Construction Industry*, 1999.

academic, construction-company, and federal government representatives.[7] The process examined by the task force was referred to as "partnering." The objective of the CII task force was to identify the risks and benefits of partnering, provide guidelines on the process, and to define the relationship between partnering and the construction contract.

The CII task force report was published in July 1991 as a special publication titled "In Search of Partnering Excellence." In the report, partnering is defined as a "long-term commitment between two or more organizations for the purpose of achieving specific business objectives by maximizing the effectiveness of each participant's resources." The report went on further to state that "the relationship is based upon trust, dedication to common goals, and an understanding of each other's individual expectations and values." The benefits of partnering were described as "improved efficiency and cost effectiveness, increased opportunity for innovation, and the continuous improvement of quality products and services."[8]

The specific findings and conclusions of the CII task force were also listed in the report. Several examples were: partnering is not a legal "partnership" with its associated joint liabilities; there is a lack of understanding about partnering's meaning and application; partnering enhances the attainment of total quality management; the partnering process is applicable to both large and small construction projects; and evaluation and feedback are essential to the success of the relationship.

In the summary of the report, CII found that partnering was an improved process for establishing and maintaining cooperative business relationships. It noted that partnering can replace the traditional adversarial business relationships with a collaborative new team approach that can enhance the competitive advantage of the partnering participants. Further, it reported that several organizations in the construction industry were beginning to get involved with partnering.

The first company to try partnering was DuPont Engineering.[9] Its use of partnering was as an attempt to be more competitive in the global market. Fluor-Daniel was the first construction company to participate with DuPont on partnering. Both companies became strong believers in the partnering process as a result of their experience on the project.[10] A senior manager at Fluor-Daniel noted that partnering is a new environment that nurtures team-building and cooperation while replacing the "we" verses "them" attitude with an "us" mind-set. Fluor-Daniel had a representative on the CII task force.[11]

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[7] Construction Industry Institute, "In Search of Partnering Excellence," Austin, TX: Report of the Partnering Task Force, *Draft Final Report*, February 1991.
[8] Construction Industry Institute, "In Search of Partnering Excellence," Austin, TX: Report of the Partnering Task Force, *Special Publication 17-1*, July 1991.
[9] Casey, T. M., "Partnering: A New Way to Do Business," *Construction Magazine*, Spring 1992.
[10] Schriener, J., "Partnering Paying Off on Projects," *ENR Magazine*, October, 1991.
[11] Moore, C., Maes, J., and Shearer, R., "Recognizing and Responding to the Vulnerabilities of Partnering," *PM Network*, September 1995.

At the forefront of organizations exploring the use of partnering in construction at this time was the U.S. Army Corps of Engineers. A representative from the Corps of Engineers was also on the CII task force. In the late 1980"s, the Corps of Engineers used partnering on two construction projects in two separate engineering districts: Portland, OR and Mobile, AL. These two projects became, for all practical purposes, test case pilot studies for the federal government"s use of the partnering process. The first project was in 1988 and involved the construction of a navigation lock. The second project followed shortly thereafter and also involved construction associated with a navigation lock.[12] The use of partnering on these two projects was highly acclaimed by the participants, especially the Project Engineers. The detailed benefits of partnering included: no outstanding claims or litigation at the completion of the project; substantial value engineering savings; no lost-time injuries; completion on schedule; costs within budget; and a significant reduction in paperwork.

As a result of these two pioneering partnering projects, the Corps of Engineers in 1991 established the first partnering program in the federal government. The program was established at a special 2-day meeting of all senior managers and leaders of the Corps of Engineers. At the meeting the participants were informed about the success of the two projects, briefed on the partnering process, and presented with model partnering guidelines. At the conclusion of the meeting, the participants fully endorsed the partnering concept and made a commitment to use it Corps-wide.[13]

Later in 1991, the Corps of Engineers published the first pamphlet on partnering in the construction industry. This 28-page pamphlet described the partnering process, the underlying reasons for using it, the potential benefits of partnering, and the Corps of Engineers actual experience with the process. The pamphlet also contained sample forms for initiating partnering. This highly-acclaimed publication was widely disseminated throughout the construction industry[14] and many of the ideas developed by the Corps are now incorporated in many statewide programs.

In February 1992, the Commanding General of the Corps of Engineers issued the first policy statement in the federal government in support of partnering. He noted that the essence of partnering is the promotion of a cooperative attitude among all parties involved in the project and that partnering can minimize disputes that are time consuming and costly. In a clear expression of the Corps of Engineers support for partnering, he stated that "therefore, it is the clear policy of the Corps of Engineers to develop, promote and practice partnering on all construction contracts, and to universally apply the concept to all other relationships."[15]

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[12] Carr, Frank, "Partnering: Disputes Avoidance the Army Corps of Engineers Way," *The Punchlist*, American Arbitration Association, vol.14, no. 3, 1991.
[13] U.S. Army Corps of Engineers, "Executive Seminar on Partnering," Atlanta, GA, *Office of Chief Counsel Publication*, October, 1991.
[14] Edelman, L., Carr, F., and Lancaster, C., "Partnering," Washington, DC, U.S. Army Corps of Engineers Publication, *IWR Pamphlet 91-ADR-P*, December 1991.
[15] Hatch, LtG H. J., "Partnering," *U.S. Army Corps of Engineers, Commander's Policy Memorandum #16,* February 1992.

In January 1991, the Associated General Contractors of America (AGC) Quality in Construction Task force endorsed the Corp of Engineers partnering concept. This was followed several months later by an announcement by the President of AGC that one of its objectives for the year was building construction quality through partnering.[16] In a further effort to encourage the use of partnering by its membership, in September 1991, AGC published a pamphlet and accompanying video entitled "Partnering: A Concept for Success." The introduction stated that AGC "strongly believes that the time has come for all the parties in the construction process to step forward and work together to take control of this costly and intolerable situation" by using partnering.[17]

Another early initiative by AGC to promote partnering among its members was the establishment in 1992 of the Marvin M. Black Excellence in Partnering Awards for the construction projects that best epitomized the principles of partnering.[18]

Shortly thereafter the Corps of Engineers and AGC initiated a joint training program on partnering that was conducted across the United States. The training program was designed to clearly describe the partnering process and to build support among the senior management of both organizations.

In the decade that followed the pioneering work of the Corps of Engineers and AGC, numerous other federal government agencies and construction companies began to use partnering and promote its success. These included the U.S. Air Force, the Naval Facilities Engineering Command, The Army Material Command, and the General Services Administration, to list but a few. For instance, the U.S. Air Force and the Corps of Engineers used partnering in 1991-92 on the construction of a large rocket test facility in Alabama. An article about this project in The Military Engineer, stated that partnering enabled the program to flourish and that "partnering with open trust, communications, and the right people can go a long way to enhancing and ensuring the success of a project."[19]

The Army Material Command (AMC) initiated its partnering program in the mid-1990s with the publication of an undated brochure entitled "Partnering for Success: A Blueprint for Promoting Government-Industry Communication & Teamwork." It introduced partnering as "an essential component of the AMC Alternative Dispute Resolution Program aimed at avoiding contract disputes before they impact contract performance." The brochure contained the AMC model partnering process and a section

[16] Associated General Contractors of America, "Partnering: Changing Attitudes in Construction," Washington, D.C. *AGC Publication #1225*, October 1995.
[17] Associated General Contractors of America, "Partnering: A Concept for Success," Washington, D.C. *AGC Publication #1205*, September 1991.
[18] Associated General Contractors of America, "Partnering: Changing Attitudes in Construction," Washington, D.C. *AGC Publication #1225*, October 1995.
[19] Demoret, LtC G. W., Root, LtC P. B., Abeln, M. T., Jones Jr., L. F., "Partnering Brings Success," *The Military Engineer*, May-June 1993.

on the benefits of partnering. Also, the brochure had sample partnering charters and an appendix addressing questions and answers about partnering.[20]

The Naval Facilities Engineering Command (NAVFAC) also began to use partnering on its construction programs in the 1990"s.[21] Later, NAVFAC entered into a Partnering Agreement with AGC on March 9, 2000, "to promote good faith, trust, and communications among all the stakeholders in the construction process through the use of Partnering."[22] This was followed in May 2002 with the publication of its "Construction Project Partnering System" handbook. The handbook expresses the NAVFAC command policy on partnering and the command"s goals and objectives. The attachments to the handbook included a sample partnering charter, evaluation forms, a partnership rating form, and an issue resolution ladder.[23]

At the General Services Administration, the Public Buildings Service began to use partnering in 1994 on all new construction projects over one million dollars. On projects smaller than one million dollars partnering was strongly encouraged. Currently, partnering is a standard business practice for the GSA"s nationwide design and construction program.[24]

There are a few states, along with Maryland, that are clearly leaders in the use of construction partnering. One of them is Arizona. At the Arizona Department of Transportation (ADOT) state construction project teams started using partnering in July 1991.[25] From June 1997, the ADOT developed and implemented the "Fine-Tuned Partnering Processes" that is currently in use within ADOT. During this time ADOT also published the "Building Partnerships Handbook" and in the following year issued a partnering policy memorandum.[26] In the latest version of the ADOT policy on partnering, it defines partnering as "a process of collaborative teamwork to achieve measurable results through agreements and productive working relationships." The memorandum went on to state that partnering is an ADOT business practice and is becoming a part of our work ethic and culture.[27]

Of note, all highway construction projects in Arizona use the partnering process. This produces the challenge of monitoring and assisting every partnering construction process. To accomplish this task ADOT has developed a substantial, easy to use, online

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[20] U.S. Army Material Command, "Partnering for Success, A Blueprint for Promoting Government-Industry Communications & Teamwork," Alexandria, VA, *AMC Publication*, undated.
[21] Schriener, J., "Partnering Paying Off on Projects," *ENR Magazine*, October, 1991.
[22] Naval Facilities Engineering Command/Associated General Contractors of America, "Partnering Agreement," *MOA*, March 2002.
[23] Naval Facilities Engineering Command, "Construction Project Partnering System," *NAVFAC Booklet*, May 2002.
[24] U.S. General Services Administration, "Construction Excellence," GSA Website, 2005.
[25] Arizona Department of Transportation, "Building Partnerships," *ADOT Partnering Office Publication*, 2002.
[26] Arizona Department of Transportation, "Partnering Advisory Committee Key Accomplishments," *ADOT Website*, 2005.
[27] Arizona Department of Transportation, "Partnering Advisory Committee Key Accomplishments," *ADOT Website*, 2005.

assistance program called "Partnership Evaluation Program" (PEP). In part this program was developed to automatically monitor key variables of the partnering process, check on key milestones for each construction project and to "flag" (read: sound the alarm) if a key indicator falls below a tolerable threshold. Using ADOT"s secure PEP database, a stakeholder can instantaneously gather data on past and current projects.[28]

Using the PEP system we were able to easily examine data from every partnering project from January 1995 to January 2006 based upon 41,601 evaluations on 883 projects. Taking just one year (January to December 2005) we were able to easily gather tabulated aggregate data from 4315 surveys representing 137 projects. Easily searchable measurement categories include:

- *Participation* – "Who are the parties" e.g. ADOT, contractors, subcontractors, suppliers and other stakeholders.
- *Goals* – The primary indicators are: quality, communication, issue resolution, team work and schedule – much like Maryland"s SHA program. Other indicators include: public relations, traffic management, environmental issues, design quality, and design responsiveness.
- *Averages* – For each participant"s performance – ADOT, contractors, subcontractors, suppliers and other stakeholders.
- *Project Flags* – This is the "dynamic" part of the evaluation system. A red flag will rise if, for two months, the evaluation ratings for a particular project are 3.0 or below (on a scale of 4). The team is contacted to determine what are the challenges being faced and how to solve them. Or, on the other hand, if a project is rated 3.4 or higher for a two month period, it will be green flagged and a call is made to the team leader and facilitator to tell them they need to call team members to formally recognize their excellent work.
- *Flag exception* – If a particular construction project is longer than 60 days then it must be evaluated monthly. If, for whatever reason, people on a project are not using the PEP program to evaluate the project, then it becomes a flag exception and a call is made to learn why the system isn"t being used.

Electronic assistance of this caliber will eventually become a key feature of most, if not all, partnering programs in the United States.

Today, as Maryland and Arizona demonstrate, partnering is a widely used and highly acclaimed process in the construction industry. In both the private and public sectors, partnering is now a common tool regularly used by experienced stakeholders. In many regards, as this in-depth study of the Maryland SHA program and process makes clear, it is one of the best management practices for construction projects.

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[28] Conversation between Brian Polkinghorn and Gary R. Sharp, ADOT Partnering Section Automation & Team Support, (602) 712-7167. January 5, 2006.

Maryland State Highway Administration Partnering History and Milestones

In order to fully appreciate the role and impact of the SHA Partnering Program it is necessary to recognize the organization within which the program is housed. The State Highway Administration‟s mission is to "efficiently provide mobility for our customers through a safe, well-maintained and attractive highway system that enhances Maryland‟s communities, economy and environment." In order to accomplish this mission, the accompanying vision statement indicates that SHA will do so by "providing our customers with a world class highway system." In order to exercise the vision that fulfills this mission, SHA places value on:

- **Our People:** SHA employees are energetic, loyal and supportive of one another. We encourage each other to reach our highest potential and are committed to gaining the skills, knowledge, and training to achieve our goals.
- **Our Work:** As a team, we strive to know the needs of our internal and external customers. We fulfill commitments in a timely and accurate manner, using resources responsibly, and observing all legal, moral, and ethical standards.
- **Our Relationships:** We value each other's opinions and ideas as well as those of our customers. We earn the respect and trust of our internal and external customers through fairness, honesty, integrity, and open communication. We accept responsibility and are accountable for our performance.
- **Our Work Environment:** SHA provides a professional environment that is committed to putting the safety of its people and customers first. We strive to continually improve the workplace by rewarding accomplishments and encouraging employee involvement at all levels of the organization.[29]

The partnering program‟s mission is "to develop, initiate, and promote partnering which offers opportunities to improve communication and provide structured issue resolution throughout the highway industry."[30] An examination of both missions indicates that the partnering process is the active exercise of SHA‟s values and falls squarely within the mission and vision of the organization.

The Maryland SHA turned to partnering in response to the increase in claims and related litigation that plagued the construction industry in the late 1980‟s and early 1990‟s. Litigation had become, for many stakeholders, the way to do business for the settlement of claims. Efforts to correct this problem were met by some with skepticism and by others with resistance.

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[29] Source Maryland Department of Transportation State Highway Administration web page. http://www.sha.state.md.us/aboutus/orgChart/OC/missionvision.asp (January 9, 2006).

[30] Source Maryland Quality Initiative (MdQI) "Initiatives in Action Partnerships for Quality" Partnering Subcommittee web page http://www.mdqi.org/partnering.asp (January 9, 2006).

The first formal SHA partnering project was the Severn River Bridge, entering Annapolis, in the early 1990's. MD 450 over the Severn River, built in 1922-1924, was a two lane draw bridge that was receiving many complaints from the traveling public (both vehicular and maritime) of lengthy delays due to the opening and closing of the draw span. Due to the deteriorated condition of the existing structure, SHA took the opportunity to replace the existing bridge with a higher level fixed structure.

Although this project was welcomed by the traveling public, the historic community was vehemently opposed to demolishing the seventy year old existing structure. While the bridge was not in the National Register of Historic Places, it had been designed by Joseph B. Strauss, designer of the Golden Gate Bridge, and thus some saw national, historical significance deserving of preservation. Residents, some calling themselves the Citizens for a Scenic Severn Bridge, responded by launching a major media campaign against the project. The campaign also included a lawsuit filed in US District Court that demanded a halt to the construction of the new structure. In December 1991, the lawsuit was rejected by Judge Joseph C. Howard, at which point it was appealed in the 4th Circuit Court of Appeals in Richmond, VA. On June 3, 1992, the 4th Circuit Court agreed with the original ruling. During the time the appeal process was going on, SHA and the contractor, Cianbro Corporation, began construction of the $34+ million dollar new bridge project and completed construction of the 2,835 feet long structure in February 1995.

This project was selected to be partnered due to the project's complexity and the expected issues with the community. SHA modeled their partnering process after the U.S. Army Corp of Engineer's process mentioned previously and thus used a representative from Corp of Engineer to facilitate the Partnering Workshop.

Early in 1991, after the contract was awarded, the SHA District 5 office made arrangements with the contractor to start the partnering *process*. A workshop was set-up with representatives of Cianbro Corp (1-2 people), SHA District 5 Construction Office (2-3 people) and the Corp of Engineer representative acting as the facilitator. Halfway through the workshop, when the stakeholders started working on collective goals, SHA realized that the partnering group needed representation from the design offices (SHA and Consultant). This workshop was postponed until SHA made arrangements to have the designers join the partnering team.

In April 1991, a new two day partnering workshop was set-up with representatives from Cianbro Corporation, SHA District 5 Construction Office, SHA Office of Bridge Development, Greiner Inc. and the Corp of Engineer facilitator. No one from the community was on the team, since the Assistance District Engineer in Construction had monthly community meetings to update them on the construction schedule and discuss community issues to be brought back to the partnering team. Tangible outcomes of the workshop brainstorming sessions included a "Mission Statement & Goals" (i.e. the "Charter" that is discussed later); and a "Bumps in the Road" document, which is a list of potential problems to watch out for. An "Issue

Resolution Ladder" (also discussed later) was not used at that time. Monthly progress/partnering meetings were held at the jobsite to discuss various issues and update everyone of the upcoming construction schedule.

By all accounts the process went well, and a good objective indicator of success was that there were no unresolved claims at the end of the project. However, through the course of the project, many requests for equitable adjustments (REA) were made and resolved at the project level. Design issues also surfaced, were discussed, and resolved at the project level. The good communication at the project level helped to get timely resolution to issues that involved both internal and external stakeholders. Under normal circumstances, some of these issues may easily have resulted in or contributed to litigation.

Between 1992 and 1994 the capital construction program was extremely small due to the recession. SHA froze advertisements, bid openings, and notices to proceed for the contracts already signed. As the number of construction projects decreased, there was an accompanying decrease in investment in the construction industry. Several contractors went out of business and SHA partnering efforts became stagnate during this time period.

As SHA entered the mid 1990"s and the construction program began to increase, several districts started to use partnering principles to help manage conflict on their projects. At this time, two of SHA"s internal trainers developed an in-house partnering training course that was presented through most of 1995. Even though contractors were invited to participate, the majority of the participants were SHA designers, construction staff and a few maintenance personnel.

By this time, partnering was regularly being utilized throughout SHA in the seven engineering districts. But usage was inconsistent at best. SHA"s biggest problem, ironically, was the informal approach to partnering used by each of the seven districts. There was not yet a formalized step-by-step program developed and this resulted in some difficulties for all the stakeholders who were involved with SHA on a statewide basis.

In 1997, the Maryland Quality Initiative"s (MdQI) Steering Committee, which is supported by key highway industry members and made up of six subcommittees, formed the Partnering Subcommittee. The Partnering Subcommittee was created to help the statewide partnering effort on SHA construction projects. Committee members include SHA construction and design personnel, contractors, and consultant designers. The subcommittee"s mission is:

> *To develop, initiate, and promote partnering which offers opportunities to improve communication and provide structured issue resolution throughout the highway industry.*

Since the creation of the Partnering Subcommittee, the process has undergone refinement and enhancements through the development of formal guidelines including:

1) rating forms to measure team effectiveness; 2) tracking sheets for timely decision making; 3) training and; 4) most noteworthy in 2000, the appointment of a full-time Statewide Partnering Coordinator. This position is responsible for ensuring uniformity of partnering throughout the state. The Statewide Partnering Coordinator is also responsible for promoting partnering to the highway industry stakeholders, leading the MdQI Partnering Subcommittee, and meeting with the contracting and consulting communities to encourage active participation in partnering of all projects. The establishment of this position clearly demonstrates SHA"s commitment and focus on managing an effective partnering program. Through the use of these tools and the leadership of the partnering coordinator, SHA has institutionalized a consistent state-wide approach to partnering.

Another step in institutionalizing the partnering process was the development of the first SHA *Field Guide to Partnering on SHA Projects* in January 2001. The purpose of the guide was to provide consistency and uniformity throughout SHA. It provided a set of clearly understandable tools and methods, as well as serving a secondary purpose as a training manual. It wasn"t long before the Partnering Subcommittee started receiving suggestions for improvements from the users, in particular SHA Project Engineers (PE) and contractor"s representatives. Based on feedback, the manual was updated and revised in 2002 and can be found at www.mdqi.org.

In an effort to track partnering progress, communication, and to assist stakeholders in staying focused, SHA developed a "Partnering Project Rating Form" (see Appendix A). It also provides SHA "dynamic" data (i.e. measures of key process variables) to assess how partnering is doing statewide. The resulting feedback is tracked monthly to reveal trends and to evaluate progress in the following key areas:

- Communication
- Teamwork
- Cooperation and Respect
- Issue Resolution
- Job Progress
- Safety
- Material Clearance
- Maintenance of Traffic
- Erosion and Sediment

Timely resolution of issues is paramount to any project. Stakeholders are impacted if a project is held up, and no individual has the right to delay a job or cause unnecessary expense. To ensure timely issue resolution a means had to be devised to identify and resolve issues before they impacted a project (e.g. causing delays). This is handled through the "Issue Resolution Process." Major issues are tracked and progress monitored using the "Issue Resolution Chart" (see Appendix B). The types of issues that are typically tracked include matters that cause monetary adjustments, time extensions, quality of work, or loss of public use. Not only is the issue brought to light, but a settlement at the lowest possible level is expected, including persons responsible and resolution dates, thus reinforcing accountability to the stakeholders in the partnering

network. Use of the chart keeps the project moving with timely issue resolution, and prevents any single individual from causing additional expense or delay.

As with any new concept or program, training is the key to stakeholder "buy-in" of the process as well as eventual "ownership" of the finished product. To kick-off the training, SHA had a facilitator from the US Army Corps of Engineers conduct a two day training session for SHA managers, design professionals and field personnel. The Partnering Subcommittee decided it was necessary to hold pilot partnering training sessions to identify the trainer they thought could best deliver the partnering message. Training began in 2000 with Larry Bonine, and by April 2004, over 425 SHA, contractor and consultant personnel had attended partnering training sessions. Training topics included communication, negotiation, personality types, and leadership skills. SHA"s goal was to train all of their construction Project Engineers (PE) in this endeavor since they are the leaders of the projects.

In a series of customer focus meetings held throughout 2001, SHA"s Chief Engineer, Statewide Partnering Coordinator, and others met with construction personnel from each district office and with the Maryland Highway Contractor"s Association (MHCA) Executive Board. The meetings were held to promote the new partnering vision, receive feedback on the Field Guide and training, emphasize measurement of the partnering performance indicators, and promote participation in partnered projects.

In early 2002, many of SHA"s senior managers, along with contractor CEOs, went on a two day retreat. The purpose of this retreat was to improve how they do business together and create a shared vision on communications and operations in the planning, development and construction of highways. One of the results of the retreat was the development of a Leadership Council, consisting of contractor CEO"s and SHA managers in design, construction, and operations. The council continues to meet quarterly to discuss and resolve industry issues.

During May 2002, a pilot was conducted on a new partnering database that would track the partnering performance measures (mentioned above in bullet points). By July of that same year, all new projects were to enter their partnering ratings into the database. The results were then reviewed monthly by the project team to track, evaluate and monitor the progress of both the project and the team. It also provides statewide ratings for use by the Statewide Partnering Coordinator and industry leaders to evaluate performance and identify areas for improvement.

Currently, SHA"s partnering program is voluntary, with the exception of Design Build projects. Each district office is responsible for asking the contractor if they are interested in partnering once they have been awarded the project. If they respond yes, the team proceeds with the Partnering Kick-off workshop (see Appendix C – Partnering Process: Step by Step). Depending on the scope, size, and complexity of the project, there are several options for the Partnering Kick-off workshop (see Appendix D – Partnering Workshop Options). The team must also decide if they want an external consultant facilitator or if they want to conduct the workshop themselves. Many Project

Engineers and contractor‟s representative have participated in the workshops with the hired consultant and have had training in partnering; therefore, the majority of current workshops are co-facilitated by the Project Engineer, the contractor‟s representative and the partnering coordinator. A small group from the team usually prepares for the workshop by gathering the list of attendees, finding a location, developing a draft mission and goals (see Appendix E – Pre-meeting Checklist), and putting together the workshop agenda (see Appendix F – Sample Partnering Workshop Agenda).

The purpose of the kick-off workshop is to provide an opportunity for stakeholders to meet each other, putting a face to a name. When stakeholders become more familiar with one another the issue resolution process tends to function smoother. The workshop allows participants to work together to find common ground (e.g. goals), develop direction (e.g. mission), and share issues and/or concerns (e.g. action planning, issue resolution ladder). The team leaves the kick-off workshop with knowledge of who the key stakeholders are and a plan on how the project will be accomplished.

After the workshop, the team meets monthly (see Appendix G – Sample Partnering/Progress Agenda) to continue resolving project issues and planning for upcoming construction activities. During these monthly meetings, the team evaluates the effectiveness of partnering on the project through use of the Partnering Project Rating Forms (see Appendix A). Each team member completes the form and then it is entered into the statewide database. A summary of the ratings is then provided for all team members for them to review and discuss.

Since the Project Engineers are taking the lead in the Kick-off Workshops and monthly meetings, SHA decided it was necessary to conduct “Meeting Bootcamp” classes to help them plan, conduct, and evaluate partnering meetings. The content of this training includes preparing agendas, taking minutes, developing action plans, and keeping the meeting on track.

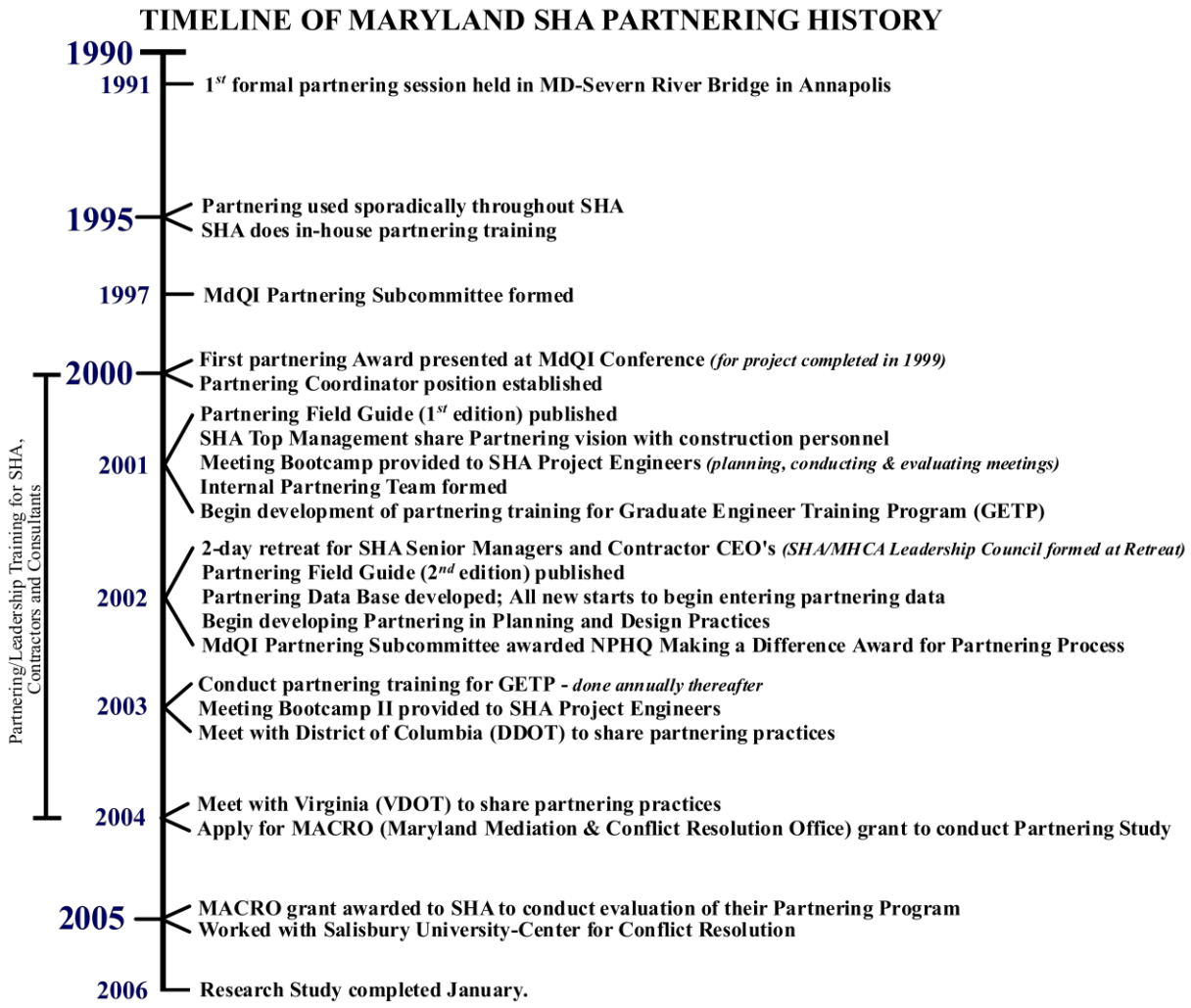
Recognition is important to any program. The MdQI Steering Committee holds a 2-day conference annually for the highway industry that includes technical and leadership workshops, as well as an awards dinner banquet. The projects and the people involved are recognized for the work they have done at the banquet. One of these awards is the Partnering Award, given to a major and minor project. Applications are submitted to the Partnering Subcommittee which reviews and rates each, before selecting the winners.

Since Maryland is a leading state in the partnering field, they participate in the American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Quality (SCoQ‟s) Partnering Subcommittee. This committee meets monthly and has made a short video explaining partnering in construction and recently published the *AASHTO Partnering Handbook.*

Partnering has evolved since its inception in Maryland in the early 1990‟s. Today, it is arguably a key driving force for *the way SHA does business* in Maryland. The use of the partnering process, which is straightforward in nature and does not require

cutting edge technology, shows that communication and problem solving skills can have the greatest impact on achieving the delivery of successful high-quality construction projects. For a summary of key milestones in SHA‟s partnering process see Figure 1.

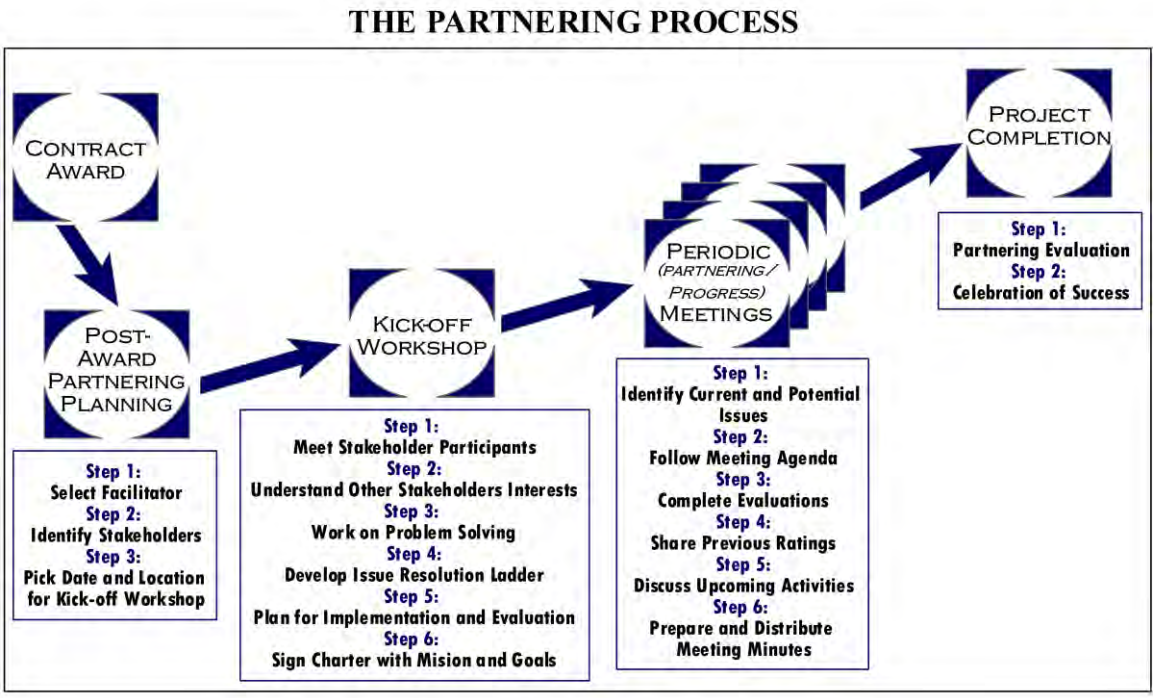
Figure 1: Key Milestones in the SHA Partnering Program History



A Description of the SHA Partnering Process

A flow chart of the typical steps in the partnering process (shown in Figure 2) provides a means of visualizing specific milestones throughout the process. This flow chart should assist anyone unfamiliar with the partnering process in making sense of the key components that are discussed later in the data analysis and discussion sections (see Appendix – C for Step by Step details and a SHA outline of key steps and milestones in the process.)

Figure 2: Key Milestones in the SHA Partnering Process



III. Research Methodology

This section provides details on the research: questions, design, protocol, data collection and instruments; interviews conducted with SHA personnel, the questionnaire, focus groups, online data gathering (e.g., online questionnaire), archival materials used, participant observation, and interviews with SHA administrators. Those interested in the results of the study may want to bypass this section and go directly to Section IV.

The Research Questions

Recall from the introduction that the two research questions being examined are:

1. How effective is the SHA partnering *process* in accomplishing its goals as indicated by stakeholders who use it?
2. How well is the SHA partnering *program* operating?

In order to obtain reliable, valid and generalizable answers to these questions, the research design employs multiple methodologies, tools and forms of data analysis within a structured research protocol. These particular items are described and discussed here so that 1) the overall approach to the research topic is clearly articulated, 2) the credibility of the data findings are seen as reliable, and 3) as a courtesy to other researchers who may choose to replicate this study.

Every research decision in some way repairs back to the types of questions being asked. The research design is therefore dependent on the question. If this were a classic

research study that employed a series of testable hypotheses using "if-then" statements and Null hypotheses, then we could easily set up a laboratory simulation or some other controlled research setting, run many treatments, and pop out an answer.[31] This study, however, asks questions that focus on real time events, in a far less controlled setting; therefore the research methodology being used needs to compensate for these conditions. In addition, various forms of data are necessary to answer the research questions, such as ascertaining participant"s thoughts, impressions, and opinions as it relates to key dynamics of the partnering process, on essential components of the process, and on the program itself. This study also makes use of archival data sources and empirical data sources.

The Research Design

The research design being employed here first and foremost relies heavily on participants who have had some level of experience in the SHA partnering process. Those possessing experience are able to provide information and answer various lines of research inquiry. While this may sound obvious, it is important to note that some participants (only a few) are coming to partnering for the first time and have no experience to repair to when taking part in a study of this nature. This is important because the partnering sessions being examined are actually a conglomerate of individual"s experiences with perhaps many partnering projects. So, in one sense, participant"s experiences in numerous partnering sessions act as a substitute treatment (X), in quasi-experimental language, and the questionnaire becomes the observation (O) in a classic quasi-experimental post-test design (X-O).[32] This is a common research design in field research where the data can"t be collected during the actual treatment (partnering session) but can be collected shortly thereafter.

Because the research questions are open-ended, a mixed methodology is employed where quantitative data collection and analysis is combined with qualitative data collection and analysis. Although some might find a mixed methodology "messy," this approach also possesses some major analytical strengths in that it allows researchers to make both narrow, closed-ended (yes-no) inquiries with "hard" (objective, empirical)[33] data methods along with broad open-ended inquiries with "soft" (subjective, descriptive, prescriptive and antidotal) data methods.[34]

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[31] For an excellent discussion on research methods in the social sciences see Druckman, Daniel (2005). Doing Research: Methods of Inquiry for Conflict Analysis. London: Sage Press.

[32] See the classic book on research design by Cook, Thomas D. and Donald T. Campbell. (1979). Quasi-Experimentation: Design & Analysis Issues for Field Settings. Dallas: Houghton Mifflin. For more information also see, Creswell, John W. (1994). Research Design: Qualitative & Quantitative Approaches. London: Sage, especially chapters 8-10.

[33] For a classic source see Beveridge, W.I.B. (1950). The Art of Scientific Investigation: An entirely fresh approach to the intellectual adventure of scientific research. New York: Vintage Books.

[34] See, Bogdan, Robert C. and Sari Knopp Biklen. (1998). 3rd Edition. Qualitative Research in Education: An Introduction to Theory and Methods. Boston: Allyn and Bacon. Also see, Shaffir, William B. and Robert A. Stebbins (editors) (1991). Experiencing Fieldwork: An Inside View of Qualitative Research. London: Sage.

When it comes to specific lines of inquiry that demand detailed measurement, a more "precise" quantitative method is employed. If, for instance, we are asking participants how many years they have been using partnering, how many projects they have used partnering, or how many projects using partnering have come in on time, it is appropriate to use these methods. When moving into areas of inquiry where it is not clear what, if any, relationships exist, a more "exploratory" qualitative method is used. In such instances, open-ended questions are employed, much like a fishing net, to gather as much information as possible, in the hopes of then conducting a content analysis to identify and develop data pattern relationships that can then be used later for more detailed (more closed-ended) inquiries. A mixed methodology uses multiple sources of data collection, methods and tools.

The Research Protocol, Data Collection and Instruments

This study began by employing a qualitative methodological field research approach. The logic behind this approach can be likened to a funnel. In the beginning, when the research setting is most unfamiliar, gathering data from various sources allows for the development of an understanding. This is similar to the "wide" end of the funnel. As the research progresses and new information is analyzed into knowledge the learning process allows the researcher to ask more specific or narrow questions. This is akin to the narrowest point in the funnel. Conducting research, from the opposite end of the spectrum, inquiring from narrow (specific) to wide (general) makes little practical sense, especially in unfamiliar settings, as it is often subject to logical flaws and biases associated with pre-existing assumptions that can lead the research team down the wrong path of inquiry.

a. Interviewing the Statewide Partnering Coordinator

In order to address this known obstacle, the research team first gathered a variety of archival data which was used to create a preliminary understanding of the partnering program and partnering process. The next step was to construct from the first analysis of these documents a semi-structured interview schedule that we employed while interviewing the Statewide Partnering Coordinator. From that interview we learned more details of the program and process, and as a result requested additional written material. Once they were read and the interview was analyzed we were able to construct a more detailed set of working data patterns (much like the development of working hypotheses in grounded theory).

b. Interviewing the MdQI Partnering Subcommittee

During the next step we constructed another interview schedule and proceeded to meet with the entire "MdQI Partnering Subcommittee." Using standard neutral interviewing techniques in a focus group format we gathered their collective input on the

history, challenges, and successes of the partnering program and process.[35] From this group interview, along with the identification and collection of additional reports, brochures and internal memos, we were able to identify a number of consistently strong recurring patterns from this dataset that allowed us to construct the prototype questionnaire which we used to gather data from 138 participants.

Developing, Field Testing and Administering the Questionnaire

The questionnaire (see Appendix H – SHA Research Questionnaire Version 7) is the primary instrument used in this study to collect novel and unique data on the partnering process. This instrument was field tested by being administered to a few SHA employees who were not going to be in the study. It should be noted that when the questionnaire was first administered to the first group of actual participants in the study, we did encounter two unforeseen problems that we were able to immediately address and correct for the subsequent rounds of data collection.

The research team visited all seven District Offices to administer the questionnaire and conduct focus group interviews. Each District Office meeting took 2 hours. After introductions were made, the participants completed the questionnaire which took roughly 15 minutes to complete. Each interview was collected by a member of the team, numbered, and discretely checked for completeness. Having a captive audience insured nearly 99.8% compliance and nearly 97% content completion. Of the 88 participants in the focus groups at the District Office meetings, 86 questionnaires were completed and used in the study (see Appendix I – List of Focus Group Participants).[36]

One member of the research team entered both the quantitative and qualitative data from questionnaires into SPSS. An examination of the quantitative data in the questionnaire was conducted by two team members for accuracy and completeness. The qualitative data were put into chart form and content analyzed using a constant and comparative method within the grounded theory framework.[37]

Focus Group Interviews

Immediately following the administration of the questionnaire, the participants were divided into two groups making a total of 14 focus groups. Deliberate measures were taken in assigning specific people, based on their respective roles, into one or the other group. This was done to first manage the openness of the process, making sure a supervisor or superior was not in the same group as a subordinate; and second to create a balanced representation of contractors, consultants, and SHA participants anticipating, that a diverse group would increase the chances of lively discussion. We are confident

[35] See Bradburn, Norman; Seymour Sudman and Brian Wansink. (2004). (Revised Edition.) Asking Questions: The Definitive Guide to Questionnaire Design – For Market Research, Political Polls, and Social and Health Questionnaires. San Francisco: Jossey Bass.

[36] Two Administrators were not present at the beginning to complete the questionnaire but took part in the rest of the meeting.

[37] See Glaser B. and Strauss, A. L. (1967). The Discovery of Grounded Theory: Strategies for Qualitative Research. Chicago: Aldine.

both objectives were achieved due to the massive volume of information the groups provided.

Each focus group examined the following topics in an open ended dialogue: training (preparation), kick-off workshops, charters, partnering/progress meetings, measurement (issues) of partnering, and other topics (see Appendix J– Focus Group Interview Schedule). After each district meeting was completed, the research team would debrief by comparing the data collected to determine the types of categories that the participants presented.

Online Questionnaire Data Collection

At the end of each session, the participants were asked to identify specific individuals, entities or organizations who were not present but who should nonetheless be contacted to participate by completing the questionnaire online.[38] To facilitate online submission the research team subsequently translated the questionnaire into a web document, wherein people could go directly to the Center for Conflict Resolution's website and fill in their responses and submit their survey responses. The data merged directly into the statistical software program database (SPSS) with the 86 questionnaires previously completed in the visits to the District Offices.

Archival Materials: Charters, Internal and External Documents

The research team performed basic content analysis[39] on a number of archived documents. A major source of rich (qualitative) archival data patterns was developed through a systematic analysis of the content of partnering Charters (the details are found in Section V Part II). Another source of archival data was SHA internal documents (e.g. memorandum, formal reports, report notes, subcommittee notes) that provides a clearer understanding of the history of the partnering program (discussed earlier), the issues that have arisen, the ideas that have been generated and the adjustments made by SHA over the years to continue the evolution of the partnering program. Another source of archival materials was external documents (e.g. trade publications, public brochures and fact sheets). Some of these documents were prepared by SHA for public consumption, while some originated from other sources. These documents helped establish the "public face of the program." In all, these external documents were clear, organized, and complimentary to the stated goals of the program.

[38] This is called a "snow ball" sampling technique. Some criticize this technique because it may inadvertently provide participants' the ability to "hijack" the data collection process. We addressed this issue by also asking participants why these newly identified individuals, entities or organizations should take part. The nearly universal answer was that these folks are a part of the partnering process or in some way impact how the process operates.

[39] For an excellent resource on content analysis see Krinnendorff, Klauss. (2003). Content Analysis: An Introduction to Its Methodology. Thousand Oaks, CA: Sage Publications.

Interviews with SHA administrators and Key Partnering Personnel

The investigators[40] waited until after the field research had been completed and two complete data "runs" had been thoroughly analyzed before going to SHA headquarters to interview two key SHA Administrators[41] and former SHA employees[42] who took part in the early developments of the partnering program. Together, these four individuals provided a clear understanding of the institutional history, which was backed up by the internal memo analysis, of how the program had been institutionalized and most importantly, how the partnering process is now firmly entrenched in the "business as usual" operations of SHA.

A Note on Participation in Actual Partnering Sessions

Because of the timing of the grant cycle, the data collection took part during the height of the construction season (summer) when few kick-off workshops are planned. However, in the spirit of action research,[43] the investigators facilitated several construction partnering kick-off sessions for SHA prior to and just after the data collection period. Our role as facilitators in the kick-off workshops was a form of participant observation[44] on the target study area; as such, our notes from these meetings are also included in the represented research data set and also assist in the development of "further external recommendations" in the conclusion.

Summary

In summary, because the scope of the research questions is fairly broad, this study employs a multitude of research methodologies and tools that, in combination, most effectively address these questions. This research design takes advantage of 1) multiple *data sources and collection methods*, 2) numerous *data types* and, 3) a variety of appropriate *data analysis* techniques. The benefits of such an approach are many, but the most obvious is that multiple sources of data and numerous data types gathered in a variety of ways allows for 1) a rich data set that can produce greater quantitative empirical understanding and qualitative meaning and 2) a much stronger means of data triangulation that directly assists in verifying the validity and reliability of the results. Table 1 summarizes the key data sources, collection methods, and analysis methods.

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[40] We would also like to thank Mr. Matthew E. Creamer, Member of the Board of Directors, Center for Conflict Resolution, for taking part in these final four high level interviews. As county administrator for more than 30 years Mr. Creamer has a long professional working relationship with SHA and is exceptionally well versed in the operation and culture of the Agency. This knowledge and experience was extremely helpful in the interviews.

[41] Personal interviews with Neil Petersen, State Highway Administrator and Doug Rose, Deputy Administrator/Chief Engineer for Operations, SHA Headquarters, October 28, 2005.

[42] Personal interviews with Gradon Tobery and Jeff Amoriello, SHA Headquarters, October 28, 2005.

[43] For more on action research see McNiff, Jean and Jack Whitehead. (2006). All You Need To Know About Action Research. Thousand Oaks, CA: Sage Publications.

[44] For more on participant observation research techniques see Spradley, James P. (1980). Participant Observation. New York: Holt, Rinehart and Winston.

Table 1: Summary of Key Elements of the Research Methodology

Data Sources and Collection Methods	*Data Types*	*Data Analysis Method*
Archival (a system method of collection)	**Qualitative** (written materials and reports)	**Content Analysis**
Questionnaire (structured set of mostly closed-ended statements)	**Quantitative** (categorical data)	**Statistical** (Descriptive and Inferential)
Focus Group (semi-structured interview schedule employing open-ended categories of inquiry)	**Qualitative** (meeting minutes, field notes)	**Constant and Comparative Method**
Personal Interviews (semi-structured interview schedule employing open-ended categories of inquiry)	**Qualitative** (field notes, written documents)	**Constant and Comparative Method**
Participation-Observation (high semi-structured interaction within the research setting)	**Qualitative and Quantitative** – (field notes, memos, reports)	**Content**

IV. An Examination of the Partnering Process from the SHA Database

This section opens with a brief summary of internal research results pertaining to the impact of the partnering process. It then quickly moves to an analysis of the basic elements used by SHA to evaluate its partnering program. A cumulative summary of the data for all partnering projects from January 2002 to January 2006 is presented to provide a baseline for the data analysis discussion of the present research found in Section V.

Using internal SHA database sources[45] and interviews with key SHA Administrators in charge of the partnering program,[46] the research team has been able to identify a number of the partnering project impacts on "the way business is being conducted" by SHA. Some of the encouraging empirical results of partnering are:

- A decrease in the number of change orders (Greater attention to team work and detail lowers change orders and claims)

[45] These and similar data come from an internal memo dated February 27, 2004 and from the Office of Construction Monthly Statistics report October 2005.
[46] Personal interviews with Neil Petersen, State Highway Administrator and Doug Rose, Deputy Administrator/Chief Engineer for Operations, SHA Headquarters, October 28, 2005.

- An increase in the number of Value Engineering Change Proposals (VECP)
- A significant number of jobs being partnered in Maryland -- 117 (82%) of the 142 active construction projects, as of October, 2005
- A dramatic decrease in the number of claims
- Faster completion of projects
- A dedication of approximately $1,377,000,000 or 98% of the total project funds, as partnering dollars
- Quick and easy completion of paperwork, along with an overall reduction

These are encouraging indicators and an examination of the internal evaluation of the partnering process, using SHA data, further indicates this positive impact.

The Partnering Evaluation Tool (PET)

SHA developed a software program called the partnering evaluation tool (PET). This program is connected to a partnering database that holds all the evaluation data used to monitor and evaluate all partnering projects in Maryland. During 2001, the data base was developed and piloted; in July 2002, all new projects were to begin inputting evaluation data into the database.

SHA has developed a systematic way to collect this data on all partnered projects. At monthly meetings, team members complete the Partnering Project Rating Form (see Appendix A). After the meeting the Project Engineer (PE) or someone on their staff enters the ratings into the database. It takes about 10 minutes to enter the data. The PE then creates charts and/or summaries to share with the team. The team uses the data to evaluate how they are functioning as a team in regards to the following core elements: communications, teamwork, cooperation and respect, issue resolution, and job progress. The database also tracks how well the project is doing with more technical elements such as: safety, material clearance, maintenance of traffic, and erosion and sediment rating. The team also has the option to add a tenth element specific to their project.

In Project Engineer meetings and partnering workshops, the Statewide Partnering Coordinator has stressed to team members that if they are receiving an average rating of 3 or better (on a scale of 1 to 4, where 1 signifies poor and 4 signifies excellent), then the team is doing a good job. This is called a "green flag"[47] and is meant to recognize teams that are working well. Likewise, if the team is receiving an average rating under 3, then the team needs to discuss what challenges they are facing. This is called a "red flag" and is meant to alert the team to specific challenges that need their collective attention. Recently, the Statewide Partnering Coordinator has been emphasizing that team members use the comments section of the evaluation forms (see Appendix A) to elaborate on the

[47] SHA does not use term "green flag" to indicate that an element is in the acceptable range (3.0 or higher) but it is used here complete the metaphor as SHA does make use of the term "red flag" to indicate elements that are in the unacceptable range.

specific issue(s) and suggestions on how to improve the situation.[48] PET is an early warning system, designed specifically to prompt critical and timely discussions on technical or personal issues that some team members are unaware of or trying to ignore.

The PET process is not yet used uniformly statewide. In an effort to reinforce the feedback process, the Statewide Partnering Coordinator has requested that the District Construction Managers instruct the Project Engineers about the utility of the partnering rating forms, the need for summaries, and other partnering tools that are available when they visit the projects, as this process information is as important as the data collected on the final (outcome) product.[49]

In the future, when PET is more uniformly used, the district level managers will be able to use and view the PET database to track all the projects they are responsible for. This will allow district level managers to see how the teams are performing and come to the meetings prepared to either recognize the team for their good efforts or provide assistance where they need it.

At the statewide level, the Statewide Partnering Coordinator has access to data on all partnered projects, which she shares with Senior SHA managers and CEO"s of contracting companies annually. This allows the higher level managers to be kept informed as to the progress across the state in the partnering arena. It also allows her to examine the database and identify a variety of trends in individual projects, particular regions, types of projects (e.g. bridge building, resurfacing, etc.), or size of projects (small versus big).[50]

The following section presents descriptive data on the various elements used by SHA when evaluating partnering projects. There are five core elements, and four technical elements.[51] These data are taken and summarized from all SHA partnering projects from January 2002 to January 2006. The results are broken down and presented by stakeholder, or key team role player. These elements measured here are similar to those used by other states, such as Arizona, which makes for a more uniform standard, plus a means to compare and contrast projects in various parts of the country. A brief description is provided for each element, along with a general trend analysis.

Part I: Core Elements in the Partnering Process

The core elements of the partnering process, i.e. how the team members work together (network) to accomplish the larger mission of the project, largely relate to human relation conditions. In a simplified manner, the core elements are related in the

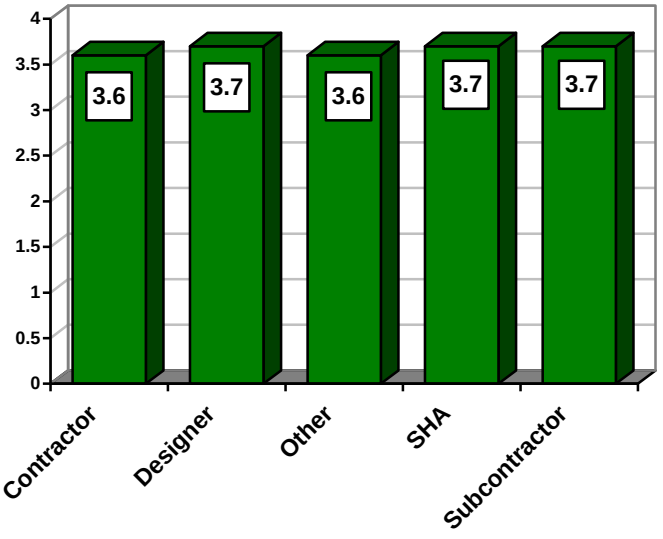
[48] An examination of the data indicates that few people are using this comment space on the evaluation forms. However, in the recommendations section of this study, this issue will be addressed.
[49] The uniform use of partnering tools will be addressed in the recommendations section.
[50] The database can identify particular projects by name and number. It would be good if the database allowed the PET program to interact with other databases in SHA to allow for more detailed analysis.
[51] I developed "core & technical" terminology to draw a distinction between human focused elements and site specific activity elements.

following way: *How people communicate with one another is related to how they cooperate and respect one another and together impacts their ability to work as a team. These elements then influence how the team will manage to solve challenging issues and get the job done*. Part I focuses on this part of the partnering elements.

The first core element, communication, (see Chart 1) is critical. Without it a project will suffer on all levels. SHA asks the general question of each team member about "communications;" it is entirely up to the respondent team member to select a number on a scale of 1 to 4 (where 1 signifies poor and 4 signifies excellent) what their overall opinion or impression is. This same scale is used for all nine elements. As can be seen in Chart 1, the communication element is measured by particular team member's roles. Overall, the chart depicts the communication element, averaged for each job from January 2002 to January 2006, is well within in the "green flag" region above 3.0 for each role or stakeholder, with only a .1 difference between all five stakeholders.

As can be expected, some partnering projects do not operate as intended and communication becomes an issue. Participants in the study mention that they usually know early on if there is going to be a problem. An exemplary quote from a focus group participant was "you knew right when you walked into the room and saw who was there that ‚ah crap' we're going to have problems." This comment is based on past experience with a contractor but it could come from either side and also be a self-fulfilling prophecy. (For each Chart in Section IV a green bar represents a "green flag" and a yellow bar represents an element that while still in the acceptable range is close to being a "red flag.")

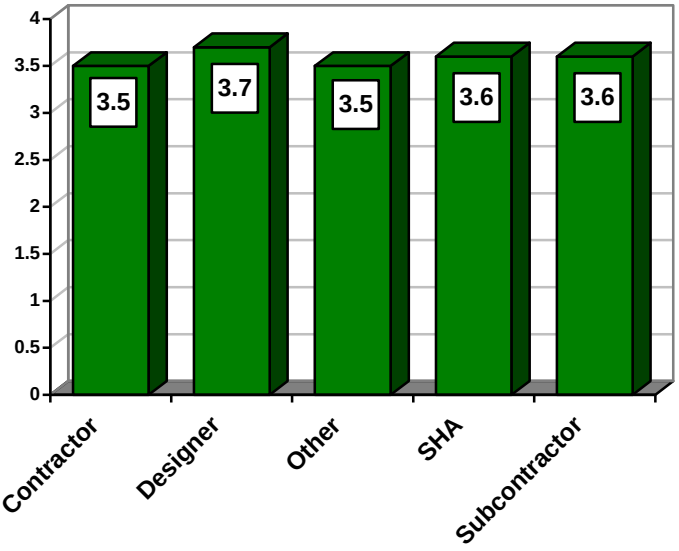
Chart 1: Average for Communications



The next core element is teamwork (see Chart 2) which is a measure of network effectiveness. Some participants indicate that teamwork for them means how they are living up to their agreed upon responsibilities, while for others it is a function of how they manage the larger project with other team members. Still a few others indicate that

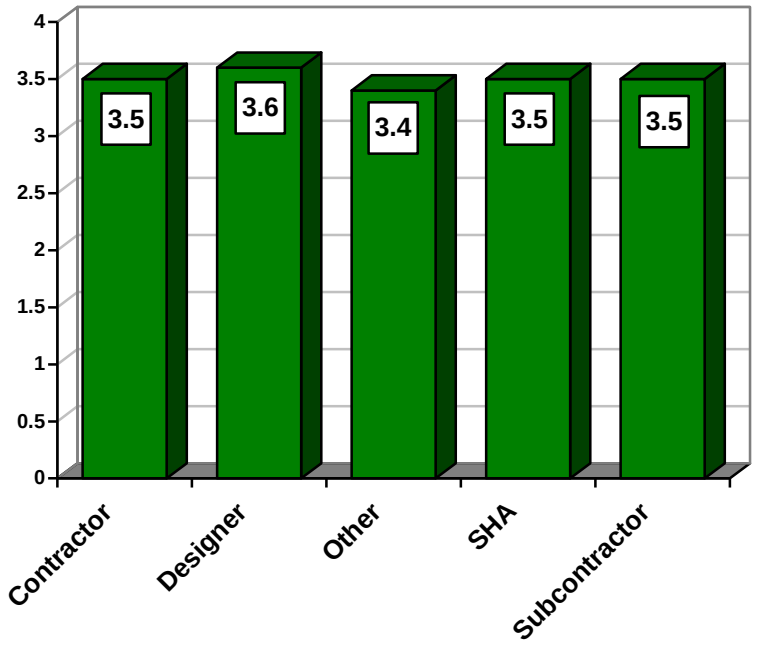
teamwork is more a measure of how they see other participants performing, as if it is an internal self-regulating element where everyone reports on each other. While there are a host of meanings for teamwork, at its core, it has to do with knowing that each partner is part of a larger network. That complex projects require cooperation, with each partner following through on their responsibilities at the correct time in the project (barring weather and other forces beyond their control). Chart 2 shows that all team members‟ averages are within the ‚green flag" area with a range of 3.5 to 3.7.

Chart 2: Average for Teamwork



The core element of cooperation and respect (see Chart 3) is as important to any collaborative process as is communication (see Chart 1). These elements are reciprocal, and likely demonstrate a positive correlation.[52] If one element is highly rated, then one would expect a positive correlation. A comparison between Charts 1 and 3 lends support to this hypothesis. More specifically, Chart 3 depicts assessment of the cooperation element based on key team player roles. The cooperation indicators are high ("green flags") as expected, which correlates to the communication indicators (see Chart 1). However, the fact that cooperation indicators are not as high as communication suggests that there are other elements playing a role in the variance. It is worth noting the tight grouping of responses – all stakeholders rated within .1 of each other – which suggests a reliable pattern.

Chart 3: Average for Cooperation and Respect

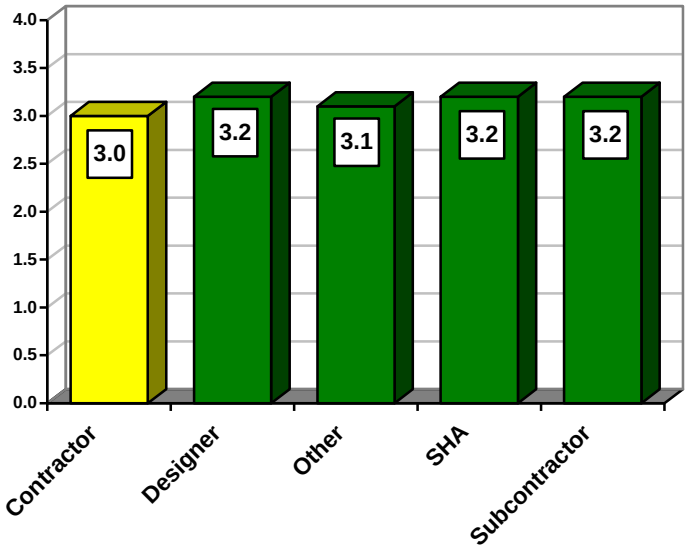


[52] The correlation of these elements is not a primary focus of this study but the data analysis in Section V indirectly addresses this topic.

The issue resolution element (see Chart 4) is the first to show measurements that come extremely close to being considered a "red flag." The range for this element is from 3.0 (borderline "red flag") to 3.2. As important as the issue resolution element is to the partnering process, this element"s low ranking has to be of concern. However, when issues do arise, one must acknowledge that there are a considerable amount of variables that can impact how they are addressed using the issue resolution ladder. When asked what human-induced problems may interfere with a project"s progress, the following categories emerged:

- *Personal traits* – While there may be an issue resolution ladder in place, an individual with an issue may simply not use it, may not have the interpersonal skill to use it effectively, or could be a classic conflict avoider.
- *Organizational traits* – In some instances, participants expressed frustration that some team members consider their organization the predominant member and work internally to address issues, thus largely downplaying or ignoring the on-the-ground face-to-face, organization to organization first steps in the ladder. Sometimes other team members would bring up an issue on-site, only to learn that it had already moved up another organization"s decision-making hierarchy.

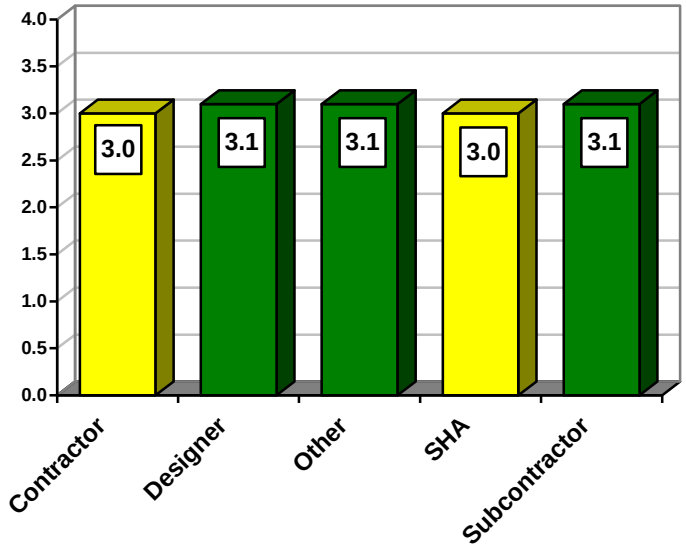
Chart 4: Average for Issue Resolution



The last core element measured is job progress (see chart 5). This too is a borderline "red-flag" element with a range of 3.0 to 3.1. A correlation between job progress and issue resolution is not surprising, since issue resolution has a direct impact on completing a project. The borderline "red-flag" ranges of both elements support this correlation.

What is interesting about this element is that various participants can be exceptionally clear about *their individual* progress on a project, to the extent of providing a quantitative percentage for their own level of completion. However it is not necessarily clear if this percentage is referring to time, actual construction, both time and construction, or something else altogether. Overall, PET provides a means for stakeholders to empirically measure job progress, even though it remains to be seen how the individual team member is interpreting the concept of job progress of others when rating this element.[53]

Chart 5: Average for Job Progress



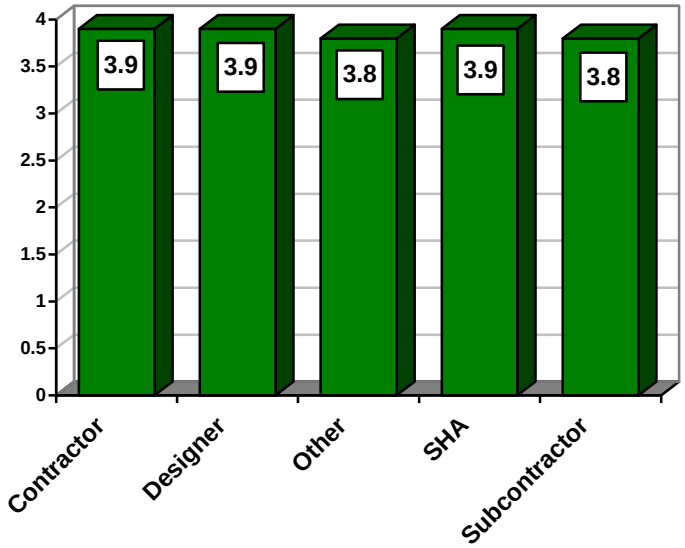
Part II: Technical Elements in the Partnering Process

The technical elements of the partnering process, safety (e.g. maintaining safety at the work site and ultimately safety for the users), material clearance (e.g. paperwork), maintenance of traffic, and erosion/sediment grade, largely relate to conditions and activities at the project site. In a simplified manner, the technical elements are related in the following way: *How the team maintains safety on the site is a function of everything else going on at that location, including: material clearance, safe and effective maintenance of traffic flow, and maintaining environmental integrity by managing erosion and sediment runoff. These elements then influence how the team will manage to safely get the job done.* Part II focuses on this part of the partnering elements.

[53] The ability to quantify and track project progress within the PET database is discussed in the recommendations section.

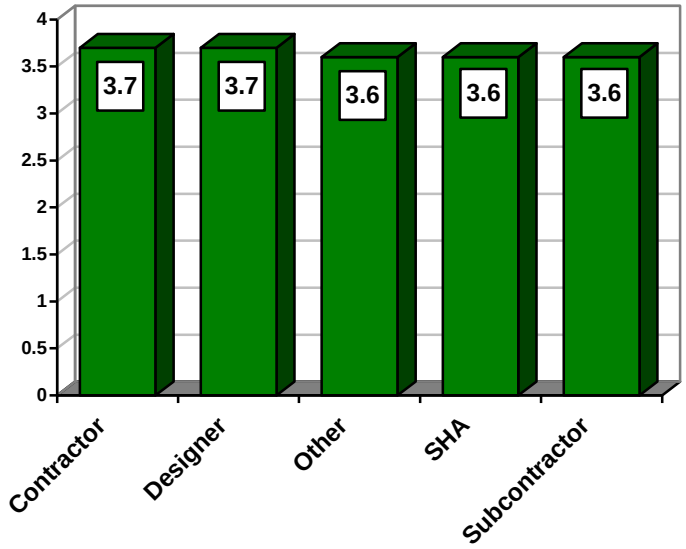
The first technical issue, is one that is mentioned in every focus group as well as seen in most Charters (see Section V Part II), that is the issue of safety (see chart 6). Overall, safety is the most consistently mentioned element in all of the qualitative data gathered; the importance placed on it is readily apparent in the PET averages from January 2002 to January 2006. Of all the elements, either core or technical, this is the highest rated ("green flag") of all.

Chart 6: Average for Safety



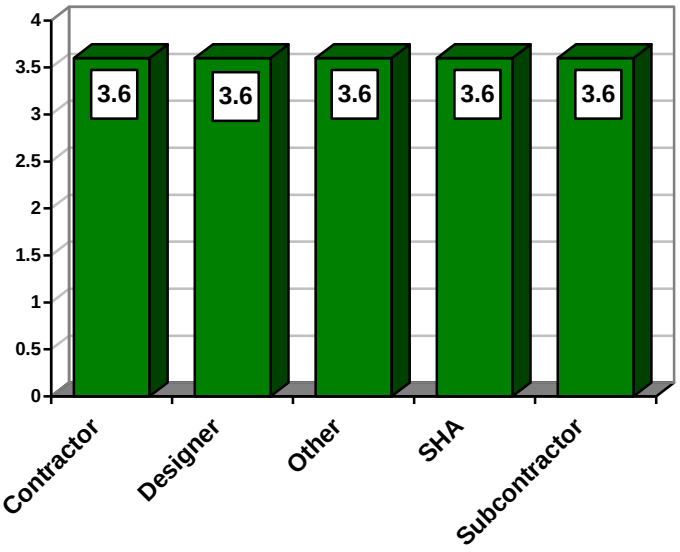
The technical issue material clearance (see Chart 7) relates to having all materials on the site approved through the SHA lab. Previously, this was a problem where material clearance issues could linger for years after the project was completed. Currently, while some materials are pre-approved, others must go through SHA. Arguably, SHA has done a much better job in approving materials and moving paperwork so projects can remain on track, rather than tying up progress with clearance, as in years past. Chart 7 indicates that since 2002, this technical element is consistently rated highly (3.6 to 3.7) for all participants.

Chart 7: Average for Material Clearance



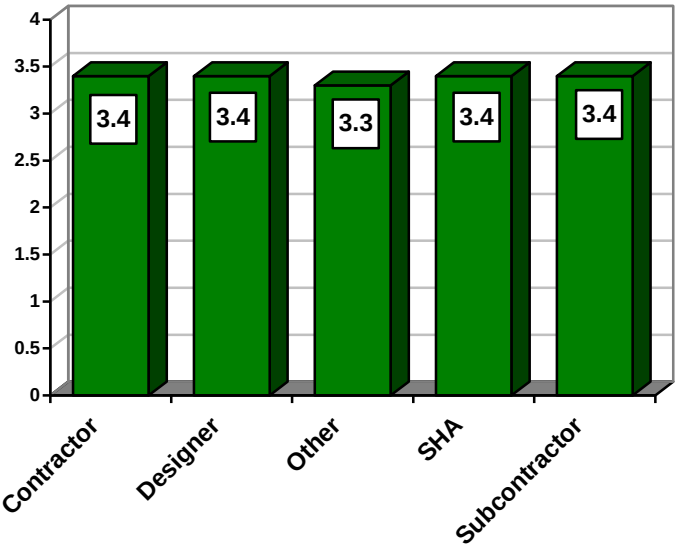
Following the trend towards rating on-site technical elements highly, the maintenance of traffic (MOT) element (Chart 8) is also rated well within the "green flag" range, at 3.6, with no variance on averages between any of the stakeholders. This element, aside from safety, is probably the most visible and obvious dynamic affecting public perception of the project. Based on comments from a few focus group participants and formal interviews with SHA employees (see Section V Part II), there may be an *external* factor impacting the level of importance teams place on this element. One focus group participant (paraphrasing a contractor) indicates that it may well be that the average driver going through a project site has no idea what the other elements are but if there is a delay the public will let their dissatisfaction be known. Working as an effective team, with an on-site issue such as MOT should, in theory, show higher (within and between) partnering ratings. This may or may not contribute to an explanation but it is nonetheless an unsolicited point of view expressed by some participants in this study.

Chart 8: Average for Maintenance of Traffic



The final technical element focuses on the environmental impacts of the project (see Chart 9). Chart 9 provides the averages by partnering team members on erosion and sediment that are clearly in the "green flag" range and tightly grouped (3.3 to 3.4).

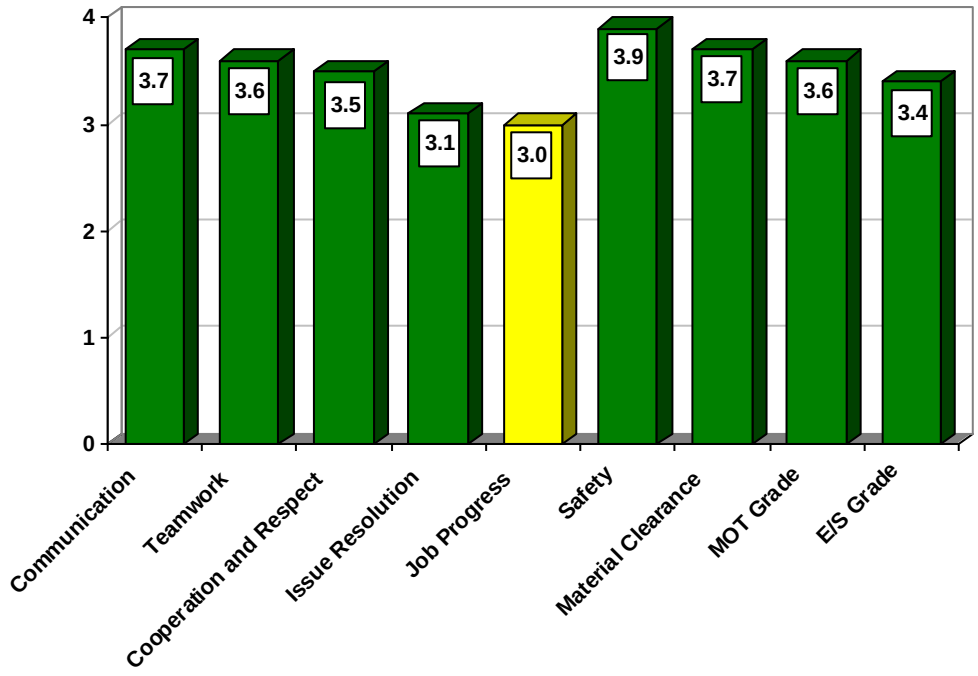
Chart 9: Average for Erosion and Sediment



Summary of SHA Internal PET Element Measurements

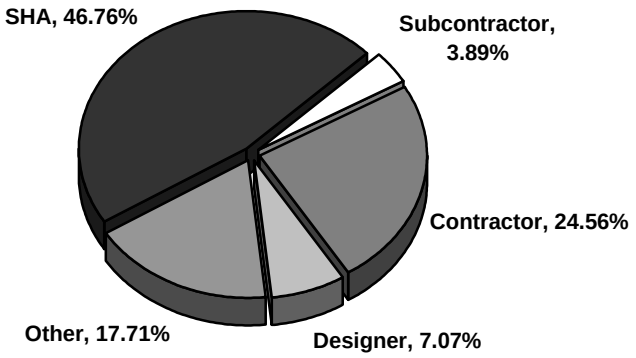
Dividing the measured elements into categories of core (e.g. human relations) and technical (e.g. on-site conditions/activities) allows one to see the team dynamics in terms of *process* and in terms of *outcome*. Process relates to the core elements, and how team member‟s relationships impact the overall progress of the project. Outcome is related to the technical measures, how activities and conditions at the site impact the completion of the job. It is interesting to note that when putting the mean for each element into a summary (see Chart 10), job progress is the one element that should summarize all the other elements (core-process and technical-outcome). However, it is the lowest rated of them all and in fact skirts the "red flag" range. Two general sources are identified to explain project delays from the focus group interviews (see Section V Part II) and the open-ended questions on the questionnaire (see Section V Part I). The first is partnering group process disputes such as "having to work with an outfit that always seems to cause delay" and external causes such as the weather, material delays and unforeseen changes on the project (e.g. designers have to come in and do some re-engineering.)

Chart 10: Cumulative Averages for all Elements



Finally, an examination of the dataset from January 2002 to January 2006 indicates that roughly 47% of the participants are SHA personnel, 7% are designers (although they can be contract designers or internal designers); roughly 30% are contactors/subcontractors and 17% are others (utilities, some public officials, and occasional citizens groups). The breakdown of the participants (see Chart 11) in this study is different than that of the participants in the present study (see Table 2). This will be discussed in detail at the beginning of the next section.

Chart 11: Cumulative Averages for Participation



V. Data Analysis and Discussion

Part I of the data analysis and discussion section presents a profile of the study participants‟ demographic information. This is followed by a presentation of the descriptive statistics for the remaining sections of the questionnaire. Some sections have both quantitative and qualitative data that will be discussed in unison. In one part of this section, comparisons are made between responses of the following groups of participants: SHA employees to non-SHA stakeholders; male to female; participant‟s level of experience (inexperienced, moderately experienced, and experienced); and rural districts to metropolitan districts. If any of these comparisons show a statistical significance at $p < .05$[54] level, it will be highlighted in bold.

Part II of this section presents the data analysis and discussion of some of the accompanying qualitative sources including 1) 14 focus groups totaling 88 participants, 2) content analysis of a representative sample of 35 partnering charters, and 3) content

[54] The notation $p< .05$ means that 95% of the time whatever the data are depicting is not due to chance or by reversal that we can expect that 5 times out of 100 that the observed measurement could be due to chance. The smaller the probability (p) is (e.g. .05. 01 or even .001) the more confidence there is in stating the findings are significant (read not due to chance.)

analysis of four personal interviews. In order to make this section read more easily when discussing certain topics, reference will be made to supporting data in both sections.

Part I. Analysis of the Questionnaire Results

a. Basic Demographics

Of the 138 participants in this study, 88 took part in one of 14 face-to-face focus group meetings (the qualitative data for these groups is found in Part 2 of this section). Of those, 86 (63% of the overall survey population) completed a questionnaire during the focus groups. The remaining 52 surveys (37%) were either completed online at the Center for Conflict Resolution‟s secure site (n=46 or 33%) or forwarded through SHA headquarters in previously sealed envelopes to prevent tampering (n=6 or 4.3%).

The demographics for all participants are presented in Table 2. Approximately 69% of participants in this study are from SHA – that figure is 21% higher than the overall profile from the data presented at the end of Section IV using internal SHA PET data from January 2002 to January 2006. The discrepancy is due to the following factors. First, utility members of the partnering team usually come to partnering when they are needed and otherwise can‟t attend due to their schedules. Utilities personnel make up a much larger percentage in the internal data, as it measures people actually taking part in a partnering process. A discrepancy of 14% is seen between this research population and the actual population (2.9% in the study and 17.7% in the internal SHA database). From the focus group interviews, it is noteworthy that many participants see utilities as a major problem, in that if they participate at all, it is late in the process, and often causes logistical problems. This pattern is exceptionally strong, being seen in 10 of the 14 groups. This study represents a slightly higher ratio of consultant designers than that of the internal SHA database (10.9% vs. 7.1%) and finally, roughly 15% are contractors or subcontractors, a figure which is approximately 10% below the internal longitudinal SHA data.

In regard to the education of the participants, 31% report some college and another 53% report earning a bachelors degree or higher. Roughly 2% have been to trade school, 11% have a high school education and 3% did not answer the question. In short, participants are highly educated, which is not surprising given the technical nature of the industry. Men constitute 87.7% of the group while 9.4% report being female and the remaining 2.9% did not answer the question. Based on discussions with SHA personnel, this roughly 90-10 split on gender is an accurate representation for the highway construction industry. The ethnicity of the participants is almost 90% white, again a not unusual figure, according to some SHA personnel. The average number of years in the construction industry is nearly 22 years (with a standard deviation of roughly 10 years), meaning the vast majority (83%) have considerable (12 > years) industry experience.

Table 2: Demographics of the Participants

Demographics	**Responses (n, %)**
Participants	
SHA: Headquarters	22, 15.9%
SHA District(s)	48, 34.8%
Other SHA personnel	25, 18.1%
Total SHA Participants:	95, 68.8%
Non-SHA: Contractor	21, 15.2%
Non-SHA: Consultant Designer	15, 10.9%
Non-SHA: Utilities	4, 2.9%
Total Non-SHA Participants:	40, 29.0%
Not Reported	3, 2.2%
Total	138, 100%
Education *(highest level achieved)*:	
High School	15, 10.9%
Trade School	3, 2.2%
Some College	43, 31.2%
Associates Degree	12, 8.7%
Bachelors Degree	42, 30.4%
Masters Degree	19, 13.8%
Not Reported	4, 2.9%
Total	138, 100%
Gender:	
Male	121, 87.7%
Female	13, 9.4%
Not Reported	4, 2.9%
Total	138, 100%
Ethnicity:	
African American	3, 2.2%
Asian American	3, 2.2%
White	124, 89.9%
Multiethnic	1, 0.7%
Other	2, 1.4%
Not Reported	5, 3.6%
Total	138, 100%
Years in the construction industry *(11, 8% did not answer)*:	
mean	21.81 yrs
median	22 yrs
Standard Deviation	10.235

b. Familiarity with SHA Partnering (Tables 3-6)

Noting that participants are predominantly SHA personnel (68%), and a higher percentage of participants have at least 12 years experience in the construction industry (83%), and an even higher percentage have some post secondary education (84%), it might be expected that a large percentage have heard of partnering from an SHA source such as a brochure, outreach program, training, workshop or conference. Table 3 presents the sources where participants learned of partnering and, not surprisingly, a corresponding 81% identify an SHA source. What is most noteworthy is of that percentage roughly 3% specifically mention first learning of partnering from the Maryland Quality Initiative (MdQI), where the partnering subcommittee is located. Finally, roughly 16% heard of it from non-SHA workshops, trainings or conferences or had experience in partnering prior to hearing of the SHA program.

Table 3: How Participants Learned about Partnering

Responses	**Frequencies**	**Percentage**
MDQI conference[55]	4	2.9%
SHA Source		
SHA Project	33	24.3%
Through SHA (in general, no specifics mentioned)	33	24.3%
SHA Personnel	16	11.8%
SHA partnering meeting or workshop	15	11.0%
SHA training program	6	4.4%
Won or bid on SHA contract ("partnering" contract)	5	3.7%
Partnering subcommittee	1	0.7%
SHA Training Manual	1	0.7%
Total for SHA responses	**110**	**80.9%**
Non-SHA Source		
Non-SHA project that was partnered	15	11.0%
Non-SHA partnering workshop	4	2.9%
Non-SHA personnel	1	0.7%
Expo construction conference	1	0.7%
Non-SHA co-workers	1	0.7%
Total for Non-SHA responses	**22**	**16.2%**
Total Number of Responses	**136**	**100.0%**

Participants were also asked to identify any written sources on partnering they have read. In Table 4, roughly half of the participants report having read the SHA partnering manual, while another quarter have read SHA seminar brochures. The remaining 23% report various sources. Of those, roughly 13.4% have read about it in trade magazines, company materials, accompanying bid invitations, books, study guides and manuals from other states. Another 5.2% reported receiving materials from a private

[55] This is the MdQI statewide conference not the MdQI partnering subcommittee although the two are related.

facilitator and the remaining report reading of partnering in lectures and courses (2.5%). The pattern is easy to see: three quarters of the participants have read materials on partnering that have come from SHA.

Table 4: Materials Read on Partnering

Responses	**Frequencies**	**Percentage**[56]
Partnering Manual (SHA)	78	50.3%
Seminar Brochures (SHA)	41	26.5%
Magazine Articles (trade, i.e., ENR)	9	5.8%
Materials Distributed by Private Facilitator	8	5.2%
Books	5	3.2%
Courses	3	1.9%
Partnering Manuals/Materials from Other States	3	1.9%
In Company Materials	2	1.3%
Materials in Bid Invitations	1	0.6%
Lectures	1	0.6%
Summaries	1	0.6%
Study Guides	1	0.6%
Video	1	0.6%
Outside SHA Resources	1	0.6%
total	155	100.0%

Examining first the bottom half of Table 5, participants are asked if they had an opinion of partnering before using it. Fifty-three percent of the participants reported having a preconceived idea of the partnering process. Furthermore 37% of participants reported a positive opinion, 15% said it was negative, and 48% did not respond. Taking into account those who did not respond to the question because they had no preconceived idea prior to using partnering, tells us that of those responding, over two thirds (69.9%) thought of it in a positive way. When asked to further elaborate on the basis of their opinion, the overwhelming majority either reports something positive or neutral about the process while roughly 12% describe negative attributes (e.g. more work, a means to exploit the system, rumors).

While half of the participants say they have read the SHA partnering manual (Table 4), 87% report using it (see Table 5). This may indicate that the manual is used more like a reference guide by many participants. Another 89% have heard of partnering as a topic in seminars and conferences and roughly 80% have been trained in it. These data support the assertion that partnering is becoming well entrenched in the industry.

When asked if senior management supports partnering (this is for all organizations participating in partnering and not just SHA), 97.1% indicate that their upper management supports partnering. Asked if the local SHA District supports partnering, 93.5% indicate they do. These two statistics are remarkable in their strength

[56] Note: The percentages given are a function of the total number of responses, unless otherwise noted.

and indicate how much the process has been imbedded in the way highway construction business is being conducted across the state.

Table 5 Familiarity with Various Forms of Support for the Partnering Process

Questions	Responses		
	Yes (n, %)	**No (n, %)**	**Not answered (n, %)**
Have you used the SHA partnering manual?	120, 87.0%	18, 13.0%	0, 0.0%
Have you heard about partnering at seminars or conferences?	123, 89.1%	15, 10.9%	0, 0.0%
Did you receive any training about partnering?	111, 80.4%	26, 18.8%	1, 0.7%
Does your senior management support partnering?	134, 97.1%	3, 2.2%	1, 0.7%
Does the local SHA District support partnering?	129, 93.5%	4, 2.9%	5, 3.6%
Prior to participating in partnering did you have an opinion about the partnering process?	73, 52.9%	65, 47.1%	0, 0.0%
If you had a prior opinion was it generally positive?	51, 37.0%	21, 15.2%	66, 47.8%[57]

What was your opinion based on?		
Responses	**Frequencies**	**Percentage**
Experience[58]	17	16.7%
Word of Mouth	14	13.7%
Cooperation	13	12.7%
Brings together "Shareholders"	12	11.8%
Better Conflict or Issue Resolution	10	9.8%
Efficiency (time saving, avoid claims and litigation)	6	5.9%
Accounts for all Interests	5	4.9%
Partnering is "an attitude" Turned into a Process	5	4.9%
Open Communication	5	4.9%
Negative: More Work	4	3.9%
Negative: Way for One Party to Exploit the System	4	3.9%
Negative: Allows for Rumors and/or Misperceptions	4	3.9%
Available Information	2	2.0%
It is a Reality of Low-Bid Procurement	1	1.0%
total	102	100%

[57] The larger number of non responses to the question "If you had a prior opinion was it generally positive?" is deceptively high. The number of non responses directly corresponds to those participants that indicate "no" to the previous question "prior to participating in partnering did you have an opinion about the partnering process?"

[58] Some participants, who responded that their opinion was based on experience, may have misinterpreted the question which is asking about their opinion prior to participating in the partnering process.

Table 6 depicts participants‟ experience with SHA partnering in terms of the number of years since they began working within the process. Participants‟ level of experience (in years) is one of the statistical tests performed later in this section, so three categories have been constructed. Participants new to the process are labeled "inexperienced" (category 1) and their time frame constitutes less than 3 years experience; "moderately experienced" (category 2) participants have a range of 3 to 6 years experience with the process; the third category is "experienced" participants‟ (category 3) with more than six years of experience. While these divisions may seem arbitrary, some consideration was made based on other factors discussed below. Table 6 indicates that the majority of participants (58%) in this study are experienced with the process. Those moderately experienced make up roughly 30%, and 12% are inexperienced or brand new to the process.

What is interesting to note is the second part of Table 6. Just short of three quarters of the participants (73%), half of which where experienced in terms of years, report having partnered between 1 and 10 construction projects. This highlights a skewed distribution and raises some questions about the actual use of partnering, what constitutes partnering, and the average number of overall projects SHA undertakes in a given year. On the other hand it may also highlight a tremendous variability among participants as to what they consider to be partnered and non-partnered projects.

Table 6: Years Experience with SHA Partnering and Number of Partnering Projects

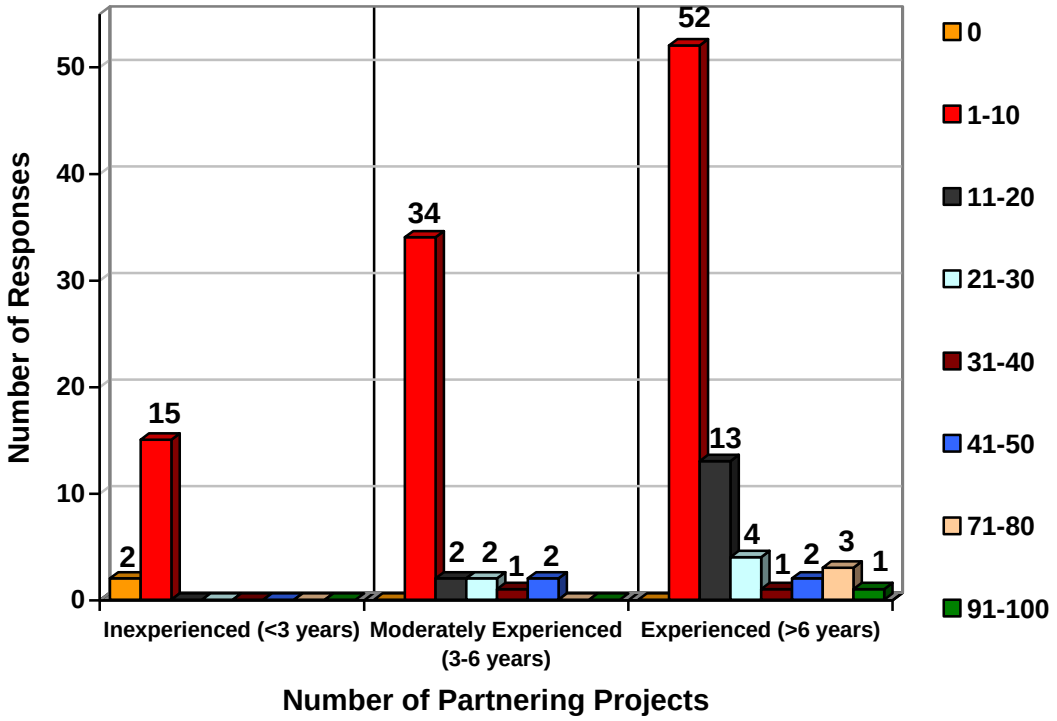
How many years experience do you have with SHA partnering?		
Responses	**Frequencies**	**Percentage**
Experienced (over 6 yrs)	80	58.0%
Moderately Experienced (3-6 yrs)	41	29.7%
Inexperienced (less than 2 yrs)	17	12.3%
total	**138**	**100%**
In the years that you have had experience with SHA partnering approximately how many partnering projects have you participated in?		
Responses	**Frequencies**	**Percentages**
No projects	2	1.4%
1-10 projects	101	73.3%
11-20 projects	15	10.8%
21-30 projects	6	4.4%
31-40 projects	2	1.4%
41-50 projects	4	2.9%
51-60 projects	0	0.0%
61-70 projects	0	0.0%
71-80 projects	3	2.2%
81-90 projects	0	0.0%
91-100 projects	1	0.7%
Not Answered	4	2.9%
total	**138**	**100%**

In order to more fully understand the relationship between years experience using partnering to the number of cases actually partnered, a simple cross-tabulation is found in Table 7. The results are clearly depicted in bar chart (see Chart 12). Table 7 is striking because it verifies that, regardless of ones level of experience (as reported in years), the majority of participants report taking part in ten or less partnering projects.

Table 7: Cross Tabulation of Years Partnering and Number of Projects

Experience Level of Participant	Number of Partnering Projects										
	0	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Inexperienced (less than 3 yrs)	**2**	**15**	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*
Moderately Experienced (3-6 yrs)	*n/a*	**34**	**2**	**2**	**1**	**2**	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*
Experienced (more than 6 yrs)	*n/a*	**52**	**13**	**4**	**1**	**2**	**3**	*n/a*	*n/a*	*n/a*	**1**

Chart 12: Experience in Partnering by Number of Cases Partnered



c. The Mechanics of the Partnering Kick-off Workshop

The participants were asked how long the partnering kick-off workshops tend to last, knowing full well that the length depends on a number of factors, *inter alia*, the size and complexity of the project, the number of stakeholders, inclination of the project personnel (PE and contractor), the presence of an outside facilitator, and guidance from

SHA partnering personnel. A little more than half respond that the workshop is less than a day, while another 36% indicates it takes a day and approximately 7% indicate it is over one day. These results align well with figures provided in interviews with SHA personnel.[59]

Table 8: Average Length of Workshops

	Responses			
Questions	**Less than a day (n, %)**	**One day (n, %)**	**Over one day (n, %)**	**Not answered (n, %)**
Generally speaking the SHA partnering kick-off workshops you attend are	75, 54.3%	50, 36.2%	10, 7.2%	3, 2.2%

In addition to the length of the kick-off workshop, participants were asked to identify the percentage of workshops led by particular types of people. Chart 13 presents three distinct scenarios for the type of facilitation used at the kick-off workshop: 1) an internal SHA facilitator (gray); 2) someone from within the partnering group but not SHA personnel, as the facilitator (red); and 3) an outside, private facilitator (light blue). There is another category 4) where no facilitator was used (dark blue), added to check for consistency among the participants" responses. If participants answer consistently, their responses to "no facilitator" should reflect the exact opposite percentage where they report one being used. This is indeed the case as the use of no facilitator (dark blue) has 104 responses in the 0% category, meaning it is practically unheard of not to have a facilitator.

Starting from the left side of Chart 13 at 0% and going up to 100%, an examination of the use of an internal facilitator (gray) indicates that the overwhelming majority of participants indicate that they used an internal facilitator on at least half the projects. The exact opposite is true for someone from within their group (non-SHA) facilitating the meeting (red), and someone from the outside facilitating (light blue), where the overwhelming majority indicates that workshops use these types 0% of the time. A closer examination of the categories after 0% (e.g. 1-10%, 11-20%... 91-100%) indicates there are few private outside facilitators (light blue) being used, and when they are being used, they are mostly found within the 1-30% range. In other words, a majority of the participants had little or no experience with outside private facilitators. Even fewer groups use someone from within the group that is not an SHA employee (red), as can be seen with the red bars being decidedly skewed closer to the smaller percentages.

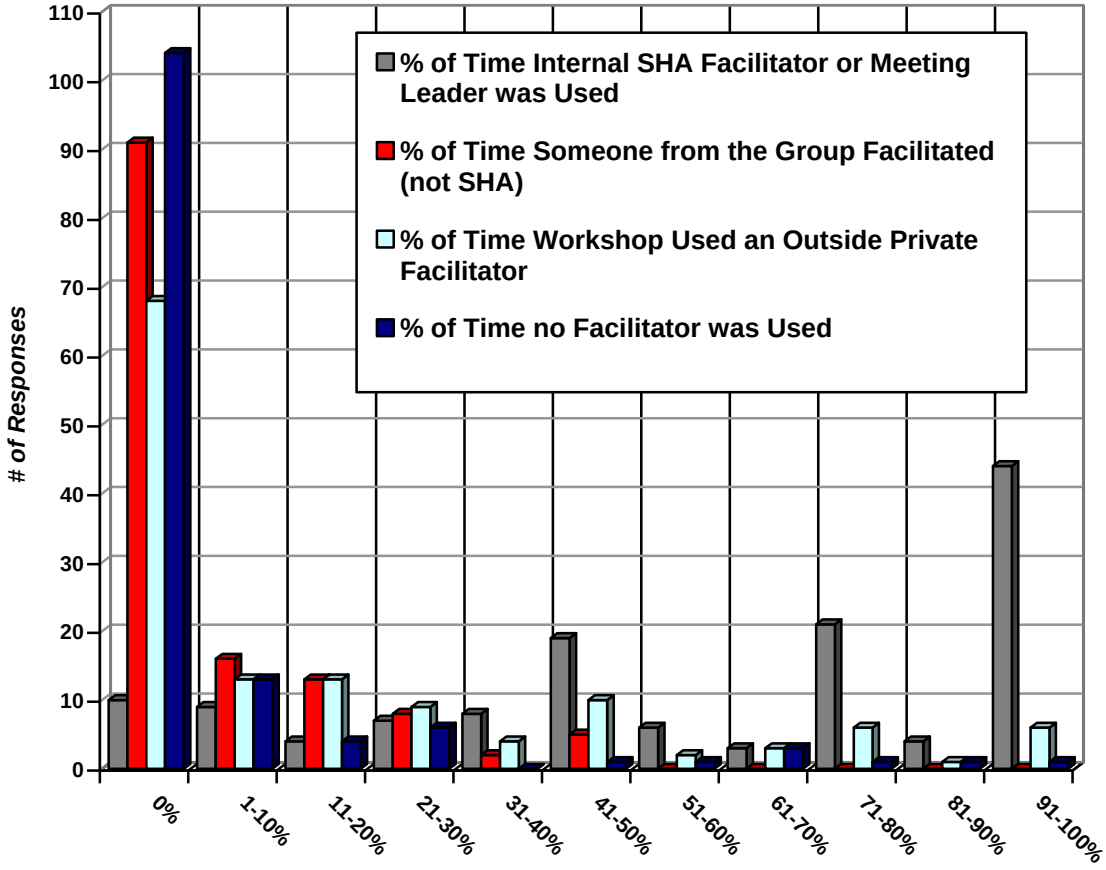
It is only the internal facilitator (gray) that demonstrates the most use; this trend was expected based on interviews with the Statewide Partnering Coordinator and the MdQI subcommittee.[60] SHA management initially used private outside facilitators; however, in a program decision to make the process self-sufficient, they began training

[59] Interview with Bridgid Seering, SHA Statewide Coordinator, June 21, 2005.
[60] Interview with the MdQI Partnering Subcommittee on April 28, 2005 as well as an interview with the Statewide Partnering Coordinator June 21, 2005.

SHA participants to lead the processes start to finish. The reasons gathered in interviews for using internal SHA personnel to facilitate and lead the process are that it:

- allows the facilitator to bring greater substantive familiarity on the specifics of the project, which may also increase the benefit from the facilitator/meeting leader function
- provides further process skills and leadership competencies for those taking the lead
- creates an in-house stable of cross-trained personnel who can assist on other projects if needed
- creates a cultural shift by institutionalizing the process
- helps reduce costs, and,
- reduces participant complaints about process oriented outsiders who don't appreciate the pressure and responsibility of deadlines on complicated jobs

Chart 13: Percentage of Time Workshop(s) Used a Particular Type of Facilitator



d. Partnering Workshop Experience Other than SHA

Participants were asked if they had taken part in partnering processes with entities other than SHA (e.g. other state agencies, the federal government or the private sector). The top of Table 9 provides the statistical breakdown where 44% indicated they had

partnering experience outside SHA and nearly 56% indicated that they have no experiences other than SHA partnering.

Participants who responded that they had had partnering experiences outside SHA (44%) were then asked three follow-up questions constituting the remainder of Table 9. The first question was, "if the process was different, what made it different?" Many responses related to: *skills* (e.g. motivational speaking, team building) and *leisure or ease* (e.g. golf, informal partnering, short meetings, no formal manuals used). The second question asked, "what was done differently that was beneficial to you?" The largest category is "*nothing*" (21%) which speaks well of SHA partnering. The next largest category focuses on the *process* (e.g. open discussion, interesting speakers, quick meetings) followed by *skills* (e.g. determine personality types, understanding working relationships, better understanding of conflict resolution, facilitators spends time "training" people new to partnering), and *efficiency* (e.g. quick meetings, quicker issue resolution – issues resolved during course of meeting, addressing only issues that needed addressing). The final question asked, "what recommendations would you make to SHA based on your outside partnering workshop experiences?" Again, the largest response is "nothing" (11%), followed by some ideas in the areas of: *process* (e.g. require participation by senior management, more structure, more defined roles, don't use a facilitator unfamiliar with SHA process, encourage working together, encourage communication), *content* (e.g. understanding/explaining basics of partnering, better defining/understanding of conflict resolution, only address issues in need of resolving and resolve at meeting), and *outcome* (e.g. use outside facilitator for large projects, prevent power imbalance between stakeholders.)

In summary, these three questions asked participants with outside experience in partnering what they would recommend SHA do differently that they found beneficial, and the major thrust is not much. There are various process suggestions, content pieces revolving around specific skills and understanding, and some outcome issues as to how the process impacts the actual project.

Table 9: Partnering Workshop Experiences Other Than SHA

	Responses		
Questions	**Yes (n, %)**	**No (n, %)**	**No Non-SHA Partnering Experience (n, %)**
Was the workshop format the same as SHA?	50, 36.2%	11, 8.0%	77, 55.8%

If the workshop was different than SHA, what was done differently?		
Responses	**Frequencies**	**Percentage**
Motivational speaking, team building exercises	2	16.7%
Short meetings	1	8.3%
Not formal (informal partnering to get job done)	1	8.3%
Golfing	1	8.3%
No formal manuals	1	8.3%
Agenda created by stakeholders	1	8.3%
No kick-off meeting	1	8.3%
Less participants or stakeholders at meeting(s)	1	8.3%
Workshop geared to specific issues identified prior to meeting	1	8.3%
No focus on project	1	8.3%
Simple response times enforced	1	8.3%
total	12	100.0%
2) What was done differently that was beneficial to you?		
Responses	**Frequencies**	**Percentage**
Nothing	4	21.1%
Open discussion (all stakeholders can talk)	2	10.5%
Attempt to understand other points of view	1	5.3%
Determine personality types	1	5.3%
Quick meetings	1	5.3%
Interesting speaker (outside partnering experience)	1	5.3%
Understanding working relationships (not called partnering)	1	5.3%
Better understanding of conflict resolution	1	5.3%
Used outside facilitator	1	5.3%
Not formal	1	5.3%
Encouraged cooperation	1	5.3%
No tracking paperwork (people tracking)	1	5.3%
Facilitators spend time "training" people new to partnering	1	5.3%
Addressing only issues that needed addressing	1	5.3%
Quicker issue resolution (issues resolved during course of meeting)	1	5.3%
total	19	100.0%
3) What recommendations would you make to SHA based on your outside partnering workshop experiences?		
Responses	**Frequencies**	**Percentage**
Nothing/None	3	11.1%
Require participation (by senior management)	2	7.4%
Short time frame for meetings	2	7.4%

Don‘t use facilitator unfamiliar with SHA process	2	7.4%
Encourage working together	2	7.4%
Encourage communication	2	7.4%
Understand/explain basics of partnering	2	7.4%
Only address issue in need of solving and resolve at meetings	2	7.4%
Outside facilitator for large projects	1	3.7%
Better defining/understanding of conflict resolution	1	3.7%
Formalize non-specific partnering agreement with outside stakeholders	1	3.7%
More structure	1	3.7%
More defined roles	1	3.7%
Prevent power imbalances between stakeholders	1	3.7%
Get rid of SHA partnering	1	3.7%
Role playing during meetings	1	3.7%
Universal partnering of SHA projects	1	3.7%
Make sure contractors understand structural design build	1	3.7%
total	27	100.0%

e. Specific Components of the Partnering Process (Tables 10-16)

This section of the analysis focuses on specific elements of the partnering process and, at the same time, any differences between team members based on opposing group perspectives. During the course of the data collection, a number of working hypotheses[61] or patterns were identified relating to possible differences in perspectives between: *SHA and non-SHA team members*; *men and women* (gender); team members with various *levels of experience* (three categories measured in years); and team members working in *rural versus metropolitan* areas (geography).[62] For each element of the partnering process discussed in this section (the meeting leader (Tables 10a and 10B), the facilitator (Tables 11a and 11b), specifics about the kickoff workshop (Tables 12a and 12b) and implementation (Tables 13a through 16b)), these group comparisons are made. Within each cell are three numbers. The top number is the mean score (on a scale of 1 to 5 with 1= totally disagree to 5= totally agree). Below the mean are two associated numbers: the number of participants and its accompanying percentage within that category (the total (n) for each category is represented at the top of each column).

[61] This is a methodological technique often referred to as “grounded theory” otherwise known as the process of developing working hypotheses while collecting or analyzing data. See Glaser B. and Strauss, A. L. (1967). The Discovery of Grounded Theory: Strategies for Qualitative Research. Chicago: Aldine.

[62] The possibility exists that some participants work in numerous districts during any given period and that may confound the data analysis. In order to attend to this potential problem we ask participants to list the districts they are working in and for those in multiple districts, if they overlap from one type (rural-metropolitan) to another they are separated out. Only a few participants reported this so the data in this regard are largely intact.

Any statistically significant differences between these groups (p<.05 level of probability) is highlighted in bold. The reader can draw their own conclusions as to the reasons for these differences, as no interpretation will be provided.

The meeting leader, (i.e. person from the partnering group who runs the process), is generally seen in a positive light. As Table 10 indicates, most people in the SHA/non-SHA and gender groupings rate meeting leader‟s preparation and familiarity with construction issues above a mean of 4.

Table 10a also presents results pertaining to the meeting leader‟s ability to: bring stakeholders to the table, explain the process, discuss the issue resolution ladder, use meeting time wisely, discuss next steps, and provide action plans and project plans in a positive manner. Each of these elements has a mean score between 3.74 and 3.97. The lowest rankings come when measuring neutrality hovering at 3.5. Interestingly enough, it is SHA personnel who provide the lowest mean score (3.45), which is followed closely by men (3.48), while woman and non-SHA provide higher scores on the concept of meeting leader neutrality (3.64 and 3.67 respectively).

It is worth noting that in this table and subsequent tables, the small number of females taking part in the study makes it statistically difficult to reach any significant conclusions on their differences with men‟s answers.

Table 10a: The Meeting Leader (General-SHA-Gender)

Statement	***Means by Category***				
A1. The Meeting Leader	General **(n=138)**	SHA **(n=95)**	Non-SHA **(n=40)**	Male **(n=121)**	Female **(n=13)**
a. The meeting leader was prepared	4.05 (132, 95.7%)	4.09 (93, 97.9%)	3.94 (36, 90.0%)	4.04 (116, 95.9%)	4.17 (12, 92.3%)
b. The meeting leader was familiar with construction issues	4.18 (132, 95.7%)	4.20 (93, 97.9%)	4.11 (36, 90.0%)	4.16 (116, 95.9%)	4.33 (12, 92.3%)
c. The meeting leader got all the stakeholders to the table	3.74 (131, 94.9%)	3.75 (92, 96.8%)	3.72 (36, 90.0%)	3.71 (115, 95.0%)	3.92 (12, 92.3%)
d. The meeting leader clearly explained the partnering process	3.82 (130, 94.2%)	3.85 (91, 95.8%)	3.75 (36, 90.0%)	3.77 (114, 94.2%)	4.08 (12, 92.3%)
e. The meeting leader clearly discussed “issue resolution”	3.97 (132, 95.7%)	4.05 (93, 97.9%)	3.78 (36, 90.0%)	3.94 (116, 95.9%)	4.17 (12, 92.3%)
f. The meeting leader understood my interests	3.79 (131, 94.9%)	3.86 (92, 96.8%)	3.64 (36, 90.0%)	3.76 (115, 95.0%)	4.08 (12, 92.3%)
g. The meeting leader used time wisely	3.78 (132, 95.2%)	3.82 (93, 97.9%)	3.67 (36, 90.0%)	3.75 (116, 95.9%)	4.00 (12, 92.3%)
h. The meeting leader discussed next steps (e.g. next meetings)	3.89 (130, 94.2%)	3.96 (91, 95.8%)	3.75 (36, 90.0%)	3.88 (114, 94.2%)	4.00 (12, 92.3%)
i. The meeting leader discussed the action plan for issues	3.88 (132, 95.2%)	3.89 (93, 97.9%)	3.89 (36, 90.0%)	3.88 (116, 95.9%)	3.83 (12, 92.3%)
j. The meeting leader discussed the project plans	3.74 (132, 95.2%)	3.85 (93, 97.9%)	3.53 (36, 90.0%)	3.73 (116, 95.9%)	3.92 (12, 92.3%)
k. The meeting leader acted neutral	3.52 (132, 95.2%)	3.45 (93, 97.9%)	3.64 (36, 90.0%)	3.48 (116, 95.9%)	3.67 (12, 92.3%)

Table 10b provides results for the meeting leader in relation to participants‟ level of experience and geographical location. Being prepared and being familiar with

construction are ranked high across both experience and geography. The other indicators are ranked high, and generally the meeting leader is looked upon favorably. The inexperienced participants rate the meeting leader substantially lower on explaining the process (it may be that new people are unfamiliar with the language and shared definitions that others take for granted). Once again, the meeting leader received the lowest overall mean scores for neutrality.

Table 10b: The Meeting Leader (Experience-Geography)

Statement	***Means by Category***				
A1. The Meeting Leader	In-experienced[63] **(n = 17)**	Moderately experienced[64] **(n = 41)**	experienced[65] **(n = 78)**	Metro **(n=70)**	Rural **(n=42)**
a. The meeting leader was prepared	3.93 (14, 82.4%)	4.08 (40, 97.6%)	4.08 (76, 97.4%)	4.06 (68, 97.1%)	3.97 (38, 90.5%)
b. The meeting leader was familiar with construction issues	4.07 (14, 82.4%)	4.30 (40, 97.6%)	4.14 (76, 97.4%)	4.16 (68, 97.1%)	4.21 (38, 90.5%)
c. The meeting leader got all the stakeholders to the table	3.93 (14, 82.4%)	3.68 (40, 97.6%)	3.75 (75, 96.2%)	3.74 (68, 97.1%)	3.79 (38, 90.5%)
d. The meeting leader clearly explained the partnering process	3.57 (14, 82.4%)	3.93 (40, 97.6%)	3.80 (74, 94.9%)	3.73 (66, 94.3%)	3.84 (38, 90.5%)
e. The meeting leader clearly discussed "issue resolution"	3.86 (14, 82.4%)	4.08 (40, 97.6%)	3.95 (76, 97.4%)	3.91 (68, 97.1%)	3.95 (38, 90.5%)
f. The meeting leader understood my interests	3.86 (14, 82.4%)	3.73 (40, 97.6%)	3.83 (75, 96.2%)	3.78 (67, 95.7%)	3.79 (38, 90.5%)
g. The meeting leader used time wisely	3.64 (14, 82.4%)	3.65 (40, 97.6%)	3.88 (76, 97.4%)	3.71 (68, 97.1%)	3.87 (38, 90.5%)
h. The meeting leader discussed next steps (e.g. next meetings)	3.71 (14, 82.4%)	3.79 (39, 95.1%)	3.97 (75, 96.2%)	3.79 (68, 97.1%)	3.92 (37, 88.1%)
i. The meeting leader discussed the action plan for issues	3.57 (14, 82.4%)	4.08 (40, 97.6%)	3.84 (76, 97.4%)	3.85 (68, 97.1%)	3.89 (38, 90.5%)
j. The meeting leader discussed the project plans	3.79 (14, 82.4%)	3.85 (40, 97.6%)	3.67 (76, 97.4%)	3.69 (68, 97.1%)	3.95 (38, 90.5%)
k. The meeting leader acted neutral	3.43 (14, 82.4%)	3.60 (40, 97.6%)	3.50 (76, 97.4%)	3.43 (68, 97.1%)	3.55 (38, 90.5%)

Table 11a shows that the participants, across the board, rank highly that the facilitator was prepared (4.24), explained the process (4.25), clearly discussed the issue resolution ladder (4.17), used time wisely (4.02), discussed next step (4.09), discussed the action plan (4.12), and acted neutral (4.08). This profile is different than the meeting leader, whose general mean scores are all consistently lower (see Table 10a). Yet, generally speaking according to the participants, while the facilitator is seen as being more neutral, they are also seen as being less familiar with construction issues (3.43) and didn"t always understand participants" interests (3.68). The relationship between substantive knowledge and process expertise on neutrality is discussed in more detail in the recommendations section.

[63] This represents people who have less than 3 years experience in partnering
[64] This represents people who have 3 to 6 years experience in partnering
[65] This represents people who have over 6 years experience in partnering

Table 11a: The Facilitator (General-SHA-Gender)

Statement	*Means by Category*				
A2. The Facilitator	**General (n=138)**	**SHA (n=95)**	**Non-SHA (n=40)**	**Male (n=121)**	**Female (n=13)**
a. The facilitator was prepared	4.25 (129, 93.5%)	4.28 (92, 96.8%)	4.12 (34, 85.0%)	4.24 (112, 92.6%)	4.46 (13, 100%)
b. The facilitator was familiar with construction issues	3.43 (128, 92.8%)	3.47 (92, 96.8%)	3.33 (33, 82.5%)	3.48 (111, 91.7%)	3.38 (13, 100%)
c. The facilitator got all the stakeholders to the table	3.74 (126, 91.3%)	3.80 (90, 94.7%)	3.55 (33, 82.5%)	3.75 (109, 90.1%)	3.77 (13, 100%)
d. The facilitator clearly explained the partnering process	4.25 (128, 92.8%)	4.27 (91, 95.8%)	4.15 (34, 85.0%)	4.26 (111, 91.7%)	4.15 (13, 100%)
e. The facilitator clearly discussed "issue resolution"	4.17 (126, 91.3%)	4.20 (90, 94.7%)	4.12 (34, 85.0%)	4.18 (109, 90.1%)	4.08 (13, 100%)
f. The facilitator understood my interests	3.68 (126, 91.3%)	3.70 (91, 95.8%)	3.56 (32, 80.0%)	3.65 (109, 90.1%)	3.85 (13, 100%)
g. The facilitator used time wisely	4.02 (128, 92.8%)	4.08 (91, 95.8%)	3.79 (34, 85.0%)	3.99 (111, 91.7%)	4.31 (13, 100%)
h. The facilitator discussed next steps (e.g. next meetings)	4.09 (127, 92.0%)	4.11 (90, 94.7%)	4.02 (34, 85.0%)	4.11 (110, 90.9%)	4.08 (13, 100%)
i. The facilitator discussed the action plan for issues	4.12 (127, 92.0%)	4.08 (90, 94.7%)	4.18 (34, 85.0%)	4.13 (110, 90.9%)	4.15 (13, 100%)
j. The facilitator discussed the project plans	3.20 (127, 92.0%)	3.24 (91, 95.8%)	3.00 (33, 82.5%)	3.14 (110, 90.9%)	3.62 (13, 100%)
k. The facilitator acted neutral	4.08 (128, 92.8%)	4.07 (91, 95.8%)	4.03 (34, 85.0%)	4.05 (111, 91.7%)	4.23 (13, 100%)

Table 11b provides strong statistical evidence that the level of experience has a noticeable impact on the participants‟ perceptions of the facilitator, especially when it comes to familiarity with construction issues, discussing next steps and discussing action plans. When it comes to other items (e.g. getting stakeholder to the table, clearly explaining the process, discussing issue resolution ladder, wise use of time) participants, regardless of experience, all had similar mean ratings (mid- to high- 3‟s). The geographical location has no appreciable impact on participants‟ perceptions of the facilitator; although the geographical location mean scores are higher for all items in comparison to the experience mean scores.

Table 11b: The Facilitator (Experience-Geography)

Statement	*Means by Category*				
A2. The Facilitator	**In-experienced (n = 17)**	**Moderately experienced (n = 41)**	**experienced (n = 78)**	**Metro (n=70)**	**Rural (n=42)**
a. The facilitator was prepared	4.00 (13, 95.1%)	4.14 (37, 90.2%)	4.36 (77, 98.7%)	4.34 (68, 97.1%)	4.14 (35, 83.3%)
b. **The facilitator was familiar with construction issues**[66]	**2.77 (13, 95.1%)**	**3.67 (36, 87.8%)**	**3.43 (77, 98.7%)**	3.60 (67, 95.7%)	3.31 (35, 83.3%)
c. The facilitator got all the stakeholders to the table	3.46 (13, 95.1%)	3.75 (36, 87.8%)	3.79 (75, 96.2%)	3.86 (65, 92.9%)	3.77 (35, 83.3%)
d. The facilitator clearly explained the partnering process	3.85 (13, 95.1%)	4.25 (36, 87.8%)	4.32 (77, 98.7%)	4.34 (67, 95.7%)	4.17 (35, 83.3%)

[66] There are two statistically significant differences between the inexperienced and moderately experienced ($p < .002$) and between inexperienced and experienced ($p < .008$).

e. The facilitator clearly discussed "issue resolution"	3.85 (13, 95.1%)	4.23 (35, 85.4%)	4.22 (76, 97.4%)	4.27 (66, 94.3%)	4.09 (34, 81.0%)
f. The facilitator understood my interests	3.38 (13, 95.1%)	3.60 (35, 85.4%)	3.79 (76, 97.4%)	3.85 (65, 92.9%)	3.63 (35, 83.3%)
g. The facilitator used time wisely	3.69 (13, 95.1%)	4.00 (36, 87.8%)	4.10 (77, 98.7%)	4.12 (67, 95.7%)	4.03 (35, 83.3%)
h. **The facilitator discussed next steps (e.g. next meetings)**	**3.62 (13, 95.1%)**	**4.23 (35, 85.4%)**	4.12 (77, 98.7%)	4.18 (67, 95.7%)	3.94 (34, 81.0%)
i. **The facilitator discussed the action plan for issues**[67]	**3.46 (13, 95.1%)**	**4.25 (36, 87.8%)**	**4.18 (76, 97.4%)**	4.23 (66, 94.3%)	4.06 (35, 83.3%)
j. The facilitator discussed the project plans	3.00 (13, 95.1%)	3.14 (35, 85.4%)	3.25 (77, 98.7%)	3.17 (66, 94.3%)	3.43 (35, 83.3%)
k. The facilitator acted neutral	3.92 (13, 95.1%)	4.06 (36, 87.8%)	4.13 (77, 98.7%)	4.13 (67, 95.7%)	3.97 (35, 83.3%)

Table 12a shows results regarding the kick-off workshop. There is a great deal of consistency across the SHA or non-SHA variable, as well as the gender variable for most items (e.g. workshop conducted early, used only after a conflict arose, conducted at a neutral site, clear agenda, relevant stakeholders in attendance, cooperative atmosphere). There are, however, significant differences between SHA and non-SHA participants when it comes to rating the remaining three questions. SHA participants more strongly agreed that they were able to discuss the problems of the project (4.11 versus 3.73); indicated that they got more out of the process (3.67 versus 3.22); and were more likely to agree that the group discussed issue resolution ladders (4.33 versus 4.11) than did non-SHA participants.

Table 12a: Specifics about the Kick-Off Workshop (General-SHA-Gender)

Statement	***Means by Category***				
B. Specifics about the Kick-off Workshop	**General (n=138)**	**SHA (n=95)**	**Non-SHA (n=40)**	**Male (n=121)**	**Female (n=13)**
a. The workshop was conducted early in the project	4.53 (135, 97.8%)	4.56 (95, 100%)	4.43 (37, 92.5%)	4.58 (118, 97.5%)	4.38 (13, 100%)
b. Partnering was used only after a conflict arose	2.08 (134, 97.1%)	2.10 (94, 98.9%)	2.14 (37, 92.5%)	2.09 (117, 96.7%)	1.69 (13, 100%)
c. The workshop was conducted at a neutral site	3.47 (134, 97.1%)	3.45 (94, 98.9%)	3.46 (37, 92.5%)	3.44 (117, 96.7%)	3.54 (13, 100%)
d. There was a clear agenda	4.16 (134, 97.1%)	4.22 (94, 98.9%)	4.00 (37, 92.5%)	4.16 (117, 96.7%)	4.38 (13, 100%)
e. All the relevant stakeholders were in attendance	3.70 (135, 97.8%)	3.71 (95, 100%)	3.70 (37, 92.5%)	3.73 (118, 97.5%)	3.31 (13, 100%)
f. The workshop atmosphere was cooperative	4.21 (135, 97.8%)	4.24 (95, 100%)	4.14 (37, 92.5%)	4.22 (118, 97.5%)	4.31 (13, 100%)
g. **We were able to discuss the problems of the project**	4.00 (133, 96.4%)	**4.11 (94, 98.9%)**	**3.73 (37, 92.5%)**	3.97 (116, 95.9%)	4.31 (13, 100%)
h. **I normally get a lot out of the partnering process**	3.54 (135, 97.8%)	**3.67 (95, 100%)**	**3.22 (37, 92.5%)**	3.55 (118, 97.5%)	3.62 (13, 100%)
i. **We discussed an issue resolution ladder**	4.27 (135, 97.8%)	**4.33 (95, 100%)**	**4.11 (37, 92.5%)**	4.30 (118, 97.5%)	4.00 (13, 100%)

[67] There are two statistically significant differences between the inexperienced and moderately experienced ($p < .023$) and between inexperienced and experienced ($p < .035$).

j. My project concerns were clearly addressed	3.71 (135, 97.8%)	3.79 (95, 100%)	3.54 (37, 92.5%)	3.69 (118, 97.5%)	4.00 (13, 100%)
k. The stakeholders agreed on mutual goals	4.02 (134, 97.1%)	4.10 (94, 98.9%)	3.84 (37, 92.5%)	4.03 (117, 96.7%)	4.00 (13, 100%)
l. **A charter is a useful outcome of the kick-off workshop**	3.47 (133, 96.4%)	**3.63 (94, 98.9%)**	**3.11 (36, 90.0%)**	3.49 (116, 95.9%)	3.38 (13, 100%)
m. Appropriate measurement criteria were developed	3.64 (134, 97.1%)	3.71 (95, 100%)	3.50 (36, 90.0%)	3.67 (117, 96.7%)	3.38 (13, 100%)

Table 12b represents the data comparison for different levels of experience and geography on the subject of the kick-off workshop. Most of these groups provide means above 4 for: the workshop was conducted early in the project, the agenda was clear, and the workshop atmosphere was cooperative. All groups rated the following six statements closely: relevant stakeholders in attendance (3.6 to 3.9); "I normally get a lot out of partnering" (3.2 to 3.59); "my project concerns were clearly addressed" (3.4 to 3.8), stakeholders agreed on mutual goals (3.93 to 4.09), and a charter is a useful outcome of the kick-off workshop (3.36-3.61).

There are two statistically significant differences seen between the geography groups (rural and metropolitan). The first pertains to the workshop being on a neutral site, where the metropolitan participants were much more likely to agree (3.64) than the rural participants (3.03). The second difference is over whether "appropriate measurement criteria were developed," where the metropolitan participants (3.57) were less likely to agree than the rural participants (3.92).

The inexperienced participants were more likely than any group to report the lowest means of all, and when it comes to being able to discuss problems on the project, there is a difference between inexperienced and moderately experienced participants (3.73 versus 4.10). There is another statistically significant difference between inexperienced and experienced participants when it comes to "we discussed and issue resolution ladder" (3.47 versus 4.41).

Table 12b: Specifics about the Kick-Off Workshop (Experience-Geography)

Statement	***Means by Category***				
B. Specifics about the Kick-off Workshop	**In-experienced (n = 17)**	**Moderately experienced (n = 41)**	**experienced (n = 78)**	**Metro (n=70)**	**Rural (n=42)**
a. The workshop was conducted early in the project	4.07 (15, 88.2%)	4.55 (40, 97.6%)	4.60 (78, 100%)	4.61 (69, 98.6%)	4.43 (40, 95.2%)
b. Partnering was used only after a conflict arose	2.27 (15, 88.2%)	1.98 (40, 97.6%)	2.10 (77, 98.7%)	2.16 (69, 98.6%)	2.13 (39, 92.9%)
c. **The workshop was conducted at a neutral site**	3.47 (15, 88.2%)	3.35 (40, 97.6%)	3.51 (77, 98.7%)	**3.64 (69, 98.6%)**	**3.03 (39, 92.9%)**
d. There was a clear agenda	3.73 (15, 88.2%)	4.18 (40, 97.6%)	4.25 (77, 98.7%)	4.28 (68, 97.1%)	4.00 (40, 95.2%)
e. All the relevant stakeholders were in attendance	3.60 (15, 88.2%)	3.83 (40, 97.6%)	3.64 (78, 100%)	3.67 (69, 98.6%)	3.90 (40, 95.2%)
f. The workshop atmosphere was cooperative	4.00 (15, 88.2%)	4.25 (40, 97.6%)	4.23 (78, 100%)	4.23 (69, 98.6%)	4.18 (40, 95.2%)

g. **We were able to discuss the problems of the project**	**3.73 (15, 88.2%)**	**4.10 (39, 95.1%)**	3.99 (77, 98.7%)	3.88 (69, 98.6%)	4.11 (38, 90.5%)
h. I normally get a lot out of the partnering process	3.20 (15, 88.2%)	3.58 (40, 97.6%)	3.59 (78, 100%)	3.57 (69, 98.6%)	3.55 (40, 95.2%)
i. **We discussed an issue resolution ladder**	**3.47 (15, 88.2%)**	4.35 (40, 97.6%)	**4.41 (78, 100%)**	4.30 (69, 98.6%)	4.18 (40, 95.2%)
j. My project concerns were clearly addressed	3.40 (15, 88.2%)	3.68 (40, 97.6%)	3.79 (78, 100%)	3.64 (69, 98.6%)	3.80 (40, 95.2%)
k. The stakeholders agreed on mutual goals	3.93 (15, 88.2%)	3.97 (39, 95.1%)	4.08 (78, 100%)	4.09 (69, 98.6%)	4.05 (39, 92.9%)
l. A charter is a useful outcome of the kick-off workshop	3.36 (14, 82.4%)	3.38 (40, 97.6%)	3.55 (77, 98.7%)	3.48 (69, 98.6%)	3.61 (38, 90.5%)
m. **Appropriate measurement criteria were developed**	3.36 (14, 82.4%)	3.58 (40, 97.6%)	3.74 (78, 100%)	**3.57 (69, 98.6%)**	**3.92 (39, 92.9%)**

The final set of tables in this section of the data analysis focuses on the implementation of partnering, which is a large topic. This section is therefore divided by the following subtopics: 1) monthly follow-up partnering/progress meetings, 2) intermediate follow-up workshops, 3) partnering impact on stakeholders, and 4) partnering impact on outcomes. Implementation issues are a key factor in the assessment of any process or program; this section provides some input on how the process is being used and how it impacts participants and outcome. In the end, highly effective implementation measures should point toward the successful institutionalization of the process.

In order to insure participants were paying close attention to the statements, and therefore indicating that they were being contemplative to some degree in their responses, the statements in this section of the questionnaire alternate between positive and negative statements. Thus, if a participant really believes and supports the partnering process, we should see positive and negative responses alternating in a predictable fashion. If we see someone respond with all the same indicators (say all 5s or all 2s) then we know they were not paying close attention to the statements. This technique serves as a reliability check in terms of the degree of attention participants used in responding to each statement.

Table 13a focuses on the monthly follow-up partnering progress meetings as compared between SHA and non-SHA and men and women. Generally speaking, the measures on the monthly follow-ups meetings are positive. One issue, follow-up meetings used a facilitator, ranked low (2.13 to 2.77), squarely disagreeing with the statement. There are two statistically significant relationships. The first is over the statement that "partnering was always discussed at these meetings," where SHA participants agreed more fully (3.98) than non-SHA participants (3.57). The other significant difference between males and females (and the only one of its kind in the entire study) is that females are more likely (3.92) than males (3.32) to agree with the statement "follow-up monthly progress meetings used the same meeting leader as the kick-off workshop." Furthermore this table indicates the participants found the follow-up meetings beneficial (3.98), despite reporting a lower mean (3.53) when asked if they believed these meetings accomplished the stated goals.

Table 13a: Implementation Partnering/Progress Meetings (General-SHA-Gender)

Statement	*Means by Category*				
C1. Implementation: Monthly Follow-up partnering/process meetings	**General (n=138)**	**SHA (n=95)**	**Non-SHA (n=40)**	**Male (n=121)**	**Female (n=13)**
a. **Partnering was always discussed at these meetings**	3.86 (134, 97.1%)	**3.98 (94, 98.9%)**	**3.57 (37, 92.5%)**	3.86 (117, 96.7%)	3.92 (13, 100%)
b. **Follow up monthly progress meetings used the same meeting leader as the kick-off workshop**	3.38 (134, 97.1%)	3.49 (94, 98.9%)	3.19 (37, 92.5%)	**3.32 (117, 96.7%)**	**3.92 (13, 100%)**
c. Follow up monthly progress meetings used a facilitator	2.19 (134, 97.1%)	2.21 (94, 98.9%)	2.14 (37, 92.5%)	2.13 (117, 96.7%)	2.77 (13, 100%)
d. Follow up monthly progress meetings accomplished stated goals	3.53 (134, 97.1%)	3.61 (94, 98.9%)	3.41 (37, 92.5%)	3.50 (117, 96.7%)	3.69 (13, 100%)
e. Follow up monthly progress meetings are beneficial	3.98 (135, 97.8%)	4.02 (95, 100%)	3.97 (37, 92.5%)	3.97 (118, 97.5%)	3.92 (13, 100%)

Table 13b examines the same information through the lens of experience and geography, and the results are quite consistent across the groups in this table, as well as being similar to results in Table 13a. The item "follow up monthly progress meetings used a facilitator" are again ranked low, as was seen in Table 13a, and this time there is a statistically significant difference in the geography variable. The metropolitan participants are more likely to disagree (1.96) than the rural participants (2.33) on this item.

Table 13b: Implementation Partnering/Progress Meetings (Experience-Geography)

Statement	*Means by Category*				
C1. Implementation: Monthly Follow-up partnering/process meetings	**In-experienced (n = 17)**	**Moderately experienced (n = 41)**	**experienced (n = 78)**	**Metro (n=70)**	**Rural (n=42)**
a. Partnering was always discussed at these meetings	3.60 (15, 88.2%)	3.85 (39, 95.1%)	3.92 (78, 100%)	3.96 (68, 97.1%)	3.88 (40, 95.2%)
b. Follow up monthly progress meetings used the same meeting leader as the kick-off workshop	3.13 (15, 88.2%)	3.50 (40, 97.6%)	3.35 (77, 98.7%)	3.23 (69, 98.6%)	3.38 (39, 92.9%)
c. **Follow up monthly progress meetings used a facilitator**	2.27 (15, 88.2%)	1.95 (40, 97.6%)	2.25 (77, 98.7%)	**1.96 (69, 98.6%)**	**2.33 (39, 92.9%)**
d. Follow up monthly progress meetings accomplished stated goals	3.40 (15, 88.2%)	3.40 (40, 97.6%)	3.62 (77, 98.7%)	3.50 (68, 97.1%)	3.63 (40, 95.2%)
e. Follow up monthly progress meetings are beneficial	3.73 (15, 88.2%)	3.80 (40, 97.6%)	4.12 (78, 100%)	4.04 (69, 98.6%)	3.95 (40, 95.2%)

Table 14a, represents data on the intermediate workshops, and shows a consistent pattern of mostly neutral responses. Responses to the first three statements; (use of workshops in projects of long duration (2.91), use when major changes in personnel (2.5), and use when significant problems arise (2.68)) tend to lean toward disagreement. The participants‟ responses are more in the neutral range, tending slightly toward agreeing (3.18), when asked if they find these intermediate workshops beneficial. Table 14a, for the most part, provides unremarkable or neutral patterns.

Table 14a: Implementation Intermediate Workshop (General-SHA-Gender)

Statement	*Means by Category*				
C2. Implementation: Intermediate Partnering Workshops	**General (n=138)**	**SHA (n=95)**	**Non-SHA (n=40)**	**Male (n=121)**	**Female (n=13)**
a. An intermediate workshop has been used when the project is two or more years in length	2.91 (115, 83.3%)	2.81 (85, 89.5%)	2.93 (29, 72.5%)	2.89 (99, 81.8%)	3.08 (12, 92.3%)
b. An intermediate workshop has been used when major change in personnel occur	2.50 (117, 84.8%)	2.48 (85, 89.5%)	2.58 (31, 77.5%)	2.48 (102, 84.3%)	2.55 (11, 84.6%)
c. An intermediate workshop has been used when significant problems arose	2.68 (117, 84.8%)	2.61 (85, 89.5%)	2.94 (31, 77.5%)	2.71 (102, 84.3%)	2.45 (11, 84.6%)
d. I find these intermediate workshops beneficial	3.18 (106, 76.8%)	3.18 (77, 81.1%)	3.25 (28, 70.0%)	3.20 (92, 76.0%)	3.18 (11, 84.6%)

Table 14b examines the intermediate partnering workshop, this time via participants‟ experience and geography. Just as in Table 14a, the first three statements tend toward neutral or slight disagreement, while the responses to the participants finding the intermediate workshop beneficial tend to lean toward slight agreement. Together, Tables 14a and 14b indicate that the intermediate workshop is either not used as much in projects of long duration, or is not the place to discuss changes in personnel or major problems.

Table 14b: Implementation Intermediate Workshop (Experience-Geography)

Statement	*Means by Category*				
C2. Implementation: Intermediate Partnering Workshops	**In-experienced (n = 17)**	**Moderately experienced (n = 41)**	**experienced (n = 78)**	**Metro (n=70)**	**Rural (n=42)**
a. An intermediate workshop has been used when the project is two or more years in length	2.90 (10, 58.8%)	3.03 (36, 87.8%)	2.85 (67, 85.9%)	2.98 (61, 87.1%)	2.87 (30, 71.4%)
b. An intermediate workshop has been used when major change in personnel occur	2.67 (9, 52.9%)	2.53 (36, 87.8%)	2.44 (70, 89.7%)	2.49 (63, 88.6%)	2.56 (32, 76.2%)
c. An intermediate workshop has been used when significant problems arose	2.78 (9, 52.9%)	2.56 (36, 87.8%)	2.71 (70, 89.7%)	2.76 (63, 88.6%)	2.63 (32, 76.2%)
d. I find these intermediate workshops beneficial	3.13 (8, 47.1%)	3.03 (34, 82.9%)	3.26 (62, 79.5%)	3.35 (57, 81.4%)	3.00 (27, 64.9%)

The impact a partnering program has on stakeholders is found in Tables 15a and 15b. Table 15a provides strong evidence that partnering improves communication (4.20), makes project coordination easier (3.91), helps resolve conflict (3.98), improves trust (3.69) and helps stakeholders gain respect for others (3.76). Likewise, they do not agree with the negative statement “partnering does not improve personal relationships (2.68), which, being a double negative, is an affirmation that partnering does improve personal relationships.

Interestingly enough there are two statistically significant differences in the responses of SHA and non-SHA participants. The first is seen in responses to the statement "partnering does not prevent conflict." SHA participants are more likely to agree (3.86) than non-SHA participants (3.49), meaning SHA personnel are less likely to see the preventative benefits of the process than non-SHA participants. The other differences is seen in responses to the statement "partnering has been abused by some stakeholders," where SHA participants tend to agree (3.55) while non-SHA participants tend to slightly disagree (2.97). So SHA participants are less likely to see the preventative benefits of the partnering process and more likely to see it being abused by some stakeholders.

Table 15a: Implementation Impact on Stakeholders (General-SHA-Gender)

Statement	***Means by Category***				
C3. Implementation: Partnering Impact on Stakeholders	**General (n=138)**	**SHA (n=95)**	**Non-SHA (n=40)**	**Male (n=121)**	**Female (n=13)**
a. Partnering improves communication	4.20 (133, 96.4%)	4.23 (94, 98.9%)	4.11 (37, 92.5%)	4.22 (117, 96.7%)	4.08 (12, 92.3%)
b. **Partnering does not prevent conflict**	3.78 (134, 97.1%)	**3.86 (95, 100%)**	**3.49 (37, 92.5%)**	3.80 (118, 97.5%)	3.67 (12, 92.3%)
c. Partnering makes project coordination easier	3.91 (134, 97.1%)	3.95 (95, 100%)	3.81 (37, 92.5%)	3.90 (118, 97.5%)	4.00 (12, 92.3%)
d. Partnering does not improve personal relationships	2.68 (133, 96.4%)	2.73 (94, 98.9%)	2.51 (37, 92.5%)	2.68 (117, 96.7%)	2.50 (12, 92.3%)
e. Partnering helps resolve conflicts	3.98 (134, 97.1%)	3.99 (95, 100%)	3.97 (37, 92.5%)	3.98 (118, 97.5%)	4.08 (12, 92.3%)
f. **Partnering has been abused by some stakeholders**	3.39 (134, 97.1%)	**3.55 (95, 100%)**	**2.97 (37, 92.5%)**	3.40 (118, 97.5%)	3.17 (12, 92.3%)
g. Partnering improves trust	3.69 (134, 97.1%)	3.73 (95, 100%)	3.59 (37, 92.5%)	3.69 (118, 97.5%)	3.75 (12, 92.3%)
h. Partnering helps gain respect for others	3.76 (134, 97.1%)	3.80 (95, 100%)	3.68 (37, 92.5%)	3.75 (118, 97.5%)	3.75 (12, 92.3%)

In Table 15b, the partnering impact on stakeholders is compared between participants with different levels of experience and by geography. The results are similar to those in Table 15a, in that there is general agreement that: partnering improves communication, does not prevent conflict, makes project coordination easier, (inversely) improves personal relationships, helps resolve conflict and helps gain respect for others. There is slight agreement that partnering has been abused by some stakeholders. Finally, there is one statistically significant difference between inexperienced and experienced participants, in that experienced participants are more likely to agree (3.81) than inexperienced participants (3.36) that partnering improves trust. In other words, those who have been exposed to and used partnering indicate that it improves trust.

Table 15b: Implementation Impact on Stakeholders (Experience-Geography)

Statement	*Means by Category*				
C3. Implementation: Partnering Impact on Stakeholders	**In-experienced (n = 17)**	**Moderately experienced (n = 41)**	**experienced (n = 78)**	**Metro (n=70)**	**Rural (n=42)**
a. Partnering improves communication	4.00 (14, 82.4%)	4.30 (40, 97.6%)	4.18 (77, 98.7%)	4.32 (69, 98.6%)	4.16 (38, 90.5%)
b. Partnering does not prevent conflict	3.79 (14, 82.4%)	3.78 (40, 97.6%)	3.79 (78, 100%)	3.78 (69, 98.6%)	3.56 (39, 92.9%)
c. Partnering makes project coordination easier	3.57 (14, 82.4%)	4.05 (40, 97.6%)	3.91 (78, 100%)	3.93 (69, 98.6%)	3.97 (39, 92.9%)
d. Partnering does not improve personal relationships	2.86 (14, 82.4%)	2.45 (40, 97.6%)	2.75 (77, 98.7%)	2.54 (69, 98.6%)	2.79 (38, 90.5%)
e. Partnering helps resolve conflicts	3.79 (14, 82.4%)	3.95 (40, 97.6%)	4.04 (78, 100%)	4.07 (69, 98.6%)	3.95 (39, 92.9%)
f. Partnering has been abused by some stakeholders	3.21 (14, 82.4%)	3.25 (40, 97.6%)	3.49 (78, 100%)	3.48 (69, 98.6%)	3.05 (39, 92.9%)
g. **Partnering improves trust**	**3.36 (14, 82.4%)**	3.60 (40, 97.6%)	**3.81 (78, 100%)**	3.77 (69, 98.6%)	3.67 (39, 92.9%)
h. Partnering helps gain respect for others	3.50 (14, 82.4%)	3.60 (40, 97.6%)	3.91 (78, 100%)	3.83 (69, 98.6%)	3.79 (39, 92.9%)

The final two tables under implementation focus specifically on the relationship between the partnering process and potential outcomes. Table 16a examines these items as they are compared between SHA and non-SHA personnel and by gender. Overall, the participants agree that partnering improves project quality (3.76), minimizes the number of issues in conflict (3.46), reduces the time it takes to resolve issues (3.82), and (inversely) they disagree that partnering does not save time to project completion (2.70), thus reinforcing the notion that partnering is a time saving device.

Table 16a: Implementation Impact on Outcome (General-SHA-Gender)

Statement	*Means by Category*				
C4. Implementation: Partnering impact on Outcome	**General (n=138)**	**SHA (n=95)**	**Non-SHA (n=40)**	**Male (n=121)**	**Female (n=13)**
a. Partnering improves the overall project quality	3.76 (134, 97.1%)	3.80 (95, 100%)	3.70 (37, 92.5%)	3.74 (118, 97.5%)	3.92 (12, 92.3%)
b. Partnering does not save time to project completion	2.70 (133, 96.4%)	2.76 (94, 98.9%)	2.49 (37, 92.5%)	2.69 (117, 96.7%)	2.67 (12, 92.3%)
c. Partnering minimized the number of issues in conflict	3.46 (134, 97.1%)	3.45 (95, 100%)	3.46 (37, 92.5%)	3.42 (118, 97.5%)	3.67 (12, 92.3%)
d. Partnering reduces the time it takes to resolve issues	3.82 (134, 97.1%)	3.84 (95, 100%)	3.76 (37, 92.5%)	3.85 (118, 97.5%)	3.58 (12, 92.3%)
e. Overall, my experience with SHA partnering has been positive	3.96 (124, 89.9%)	3.59 (86, 90.5%)	3.94 (36, 90.0%)	3.95 (110, 90.9%)	4.00 (10, 76.9%)

Finally, Table 16b examines the impact of patterning on the outcome; the patterns for the experienced and geography groups are similar to the patterns for the SHA/non-SHA and gender groups is Table 16a. There is one final statistically significant relationship to report. The experienced participants are more likely to agree (3.67) that

partnering minimizes the number of issues in conflict than those that have moderate experience (3.15).

Table 16b: Implementation Impact on Outcome (Experience-Geography)

Statement	*Means by Category*				
C4. Implementation: Partnering impact on Outcome	**In-experienced (n = 17)**	**Moderately experienced (n = 41)**	**experienced (n = 78)**	**Metro (n=70)**	**Rural (n=42)**
a. Partnering improves the overall project quality	3.64 (14, 82.4%)	3.68 (40, 97.6%)	3.83 (78, 100%)	3.81 (69, 98.6%)	3.77 (39, 92.9%)
b. Partnering does not save time to project completion	2.64 (14, 82.4%)	2.70 (40, 97.6%)	2.70 (77, 98.7%)	2.67 (69, 98.6%)	2.61 (38, 90.5%)
c. **Partnering minimized the number of issues in conflict**	3.21 (14, 82.4%)	**3.15 (40, 97.6%)**	**3.67 (78, 100%)**	3.42 (69, 98.6%)	3.72 (39, 92.9%)
d. Partnering reduces the time it takes to resolve issues	3.50 (14, 82.4%)	3.75 (40, 97.6%)	3.92 (78, 100%)	3.88 (69, 98.6%)	3.85 (39, 92.9%)
e. Overall, my experience with SHA partnering has been positive	3.64 (14, 82.4%)	3.89 (38, 92.7%)	4.07 (70, 89.7%)	4.02 (59, 84.3%)	4.03 (39, 92.9%)

f. Thoughts on the Characteristics and Other Aspects of the Partnering Process (Tables 17-20)

This section presents data analysis pertaining to participants‟ perceptions, experiences or observations about what makes the process work well or work poorly. In an effort to make sure participants provided as much written comments on these two topics as possible, the questionnaire was designed to essentially ask the questions twice. The first two questions ask about characteristics indicative of 1) a well run partnering project and 2) a poorly run partnering project. The reason for asking both questions is to avoid making the assumption that if a particular comment is declared to be a characteristic of a well functioning process then the inverse is the equivalent of a poor functioning process. Furthermore it provides the participants with a second chance to highlight any characteristics of the partnering process good or bad. The second set of questions follows the same format for the exact same reasons, but this time focusing on "aspects" that are 1) most beneficial and 2) least beneficial. Together all four inquiries provide a rich description of characteristics of the partnering process and any associated benefits.

Table 17 highlights participants‟ thoughts on characteristics of a well run partnering process. It is worth noting that the major categories described here are, in many ways, similar to patterns reported earlier (Table 9) by participants who had experience in partnering with entities other than SHA. The patterns identified here are: *communication* (e.g. open communication and discussion); *efficient proces*s (e.g. attendance, clear agenda, consistent meetings, good meeting minutes, good facilitator, maintenance of meeting rules, coordination); *support for the process* (e.g. leadership engagement); *relationships* (e.g. good relationships, respect and trust, cooperation, team members empowered to make decisions); and *outcome* (e.g. low or no claims, low paperwork, good rating forms, conflict resolution – issue resolution and action plan).

Table 17: Characteristics Indicative of a Well Run Partnering Project

Responses	**Frequencies**	**Percentage**[68]
Open Communication and Discussion	51	20.2%
Conflict Resolution/Issue Resolution/Action Plan	46	18.2%
Attendance (stakeholder participation & preparedness)	27	10.7%
Clear Agenda	25	9.9%
Respect and Trust	24	9.5%
Good Relationships (defined roles, checking ego)	18	7.1%
Cooperation	13	5.1%
Good Facilitator	9	3.6%
Leadership Engagement	9	3.6%
On Time (Project)	7	2.8%
Low or No Claims	5	2.0%
Buy-in	4	1.6%
Consistent Meetings	4	1.6%
Quality Product (meet goals)	4	1.6%
Good Rating Forms	2	0.8%
Coordination	1	0.4%
Good Meeting Minutes	1	0.4%
Low Paperwork	1	0.4%
Maintaining Meeting Rules	1	0.4%
Team Members Empowered to Make Decisions	1	0.4%
total	253	100.0%

Table 18 conveys one extremely substantial pattern and a few less salient categories of concern. By far, the most prominent pattern are concerns over *process efficiency*, in particular over how the process of partnering meetings is *managed* (e.g. poorly run, no agenda, poor preparation and/or poor effort, not following issue resolution, slow issue resolution, lack of consistent meetings – infrequent, too many or unnecessary meetings, and side conversations during partnering meetings), *attendance* (e.g. low attendance, poor attendance especially among required personnel, and unnecessary attendees at meeting), and *participation/commitment* (e.g. non participation, lack of buy-in, lip service, going thru the motions, meetings becoming gripe sessions, and too much issue "overkill"). The concept of commitment simply addresses active attendance rather than passive participation among stakeholders.

The next category relates to the characteristics of the *outcome* (e.g. high number of claims, behind schedule, poor quality project, over budget, project does not improve, and lack of unified goal) that, for the most part are the opposite of the characteristics cited in Table 16. Next, in order of saliency, is *strained relationship* (e.g. uncooperative stakeholders, an „us vs. them" mentality, lack of respect, distrust and/or no trust among stakeholders, undefined roles, blame game and/or finger pointing, system abuse, "hidden" agendas, and unusually high amounts of conflict) that either are a result of conflict or

[68] Unless otherwise noted, the percentages given are a function of the total number of responses.

help to perpetuate it. Finally, the least salient characteristic, in terms of percentage is *poor communication* (e.g. poor and lack of communication) which is surprising. In Table 17, communication is the highest single characteristic of a good process; one might expect a negative correlation, making communication the most evident characteristic of a poorly run partnering project. This, however, is not the case.

Table 18: Characteristics Indicative of a Poorly Run Partnering Project

Responses	**Frequencies**	**Percentage**
Non-Participation (lack of buy-in, lip service, going thru the motions)	20	11.3%
Not Following Issue Resolution Process (unresolved issues)	18	10.2%
Poor and/or Lack of Communication	18	10.2%
Uncooperative Stakeholders (i.e., us vs. them mentality)	14	7.9%
System "Abuse" (hidden agendas)	13	7.3%
Lengthy Conflict Resolution (i.e., slow issue resolution)	12	6.8%
No Agenda (or weak agenda)	10	5.6%
Distrust and/or no Trust Among stakeholders	8	4.5%
Poorly Run Meetings	7	4.0%
Poor Preparation and/or Poor Effort	7	4.0%
Lack of Respect	7	4.0%
Poor Attendance (especially among required personnel)	6	3.4%
Blame Game and/or Finger Pointing (i.e., faulting contractors or SHA)	6	3.4%
High Number of Claims	5	2.8%
Unusually High Amounts of Conflict	4	2.3%
Behind Schedule (slow progress)	3	1.7%
Poor Quality Project	3	1.7%
Side Conversations During Partnering Meetings	3	1.7%
lack of consistent meetings (infrequent meetings)	2	1.1%
over budget	2	1.1%
Undefined roles	2	1.1%
Meetings Become Gripe Sessions	2	1.1%
Lack of Unified Goal	1	0.6%
Project Doesn"t Improve	1	0.6%
Too Many or Unnecessary Meetings	1	0.6%
Issue "Overkill" (i.e., bringing up issues that we resolved earlier)	1	0.6%
Unnecessary Attendees at Meetings	1	0.6%
total	177	100.0%

Tables 19 and 20 follow the same format as Tables 17 and 18. This repeated examination of the strengths and weaknesses of partnering from a slightly different angle is designed to tease out as much data as possible, and to identify consistent patterns across all four lines of inquiry. Table 19 presents participants‟ responses on what aspects of partnering they think are most beneficial. Here we find a reordering of the preferences. When examining the "aspects" that are most beneficial, the most salient category, by far, is *outcome* (issue resolution, meeting all aspects of design and construction, set and meet goals, project finished early or on time, limit additional costs, low cost overrun and, low or no claims). The next three categories which, by percentage of responses, are smaller are: *good relationships* (know responsibilities and roles, respect and trust among stakeholders, cooperation, and a clear chain of command); *good communication* (good communication, understand other stakeholders‟ perspectives, positive feedback and open-mindedness); and *process* (stakeholder participation and attendance, monthly progress meetings, accurate contact list, strong early/initial meeting, timely decision and good food at meetings).

Table 19: Aspects of the Partnering Process that are Most Beneficial

Aspects of the Partnering Process that are Most Beneficial.		
Responses	**Frequencies**	**Percentage**
Issue Resolution (action plan & resolution ladder)	64	36.4%
Good Communication	29	16.5%
Stakeholder Participation and Attendance (good relationships & buy-in)	24	13.6%
Know Responsibilities and Roles (coordination among stakeholders)	10	5.7%
Understand other Stakeholders Perspectives	9	5.1%
Respect and Trust Among Stakeholders	6	3.4%
Cooperation	5	2.8%
Monthly Progress Meetings	4	2.3%
Clear Chain of Command	4	2.3%
Accurate Contact List	4	2.3%
Meet all Aspects of Design and Construction (set and meet goals)	3	1.7%
Project Finished Early or On Time	3	1.7%
Strong Early Meeting (initial meeting)	2	1.1%
Timely Decisions	2	1.1%
Positive Feedback	2	1.1%
Open-Mindedness	2	1.1%
Limit Additional Costs (low cost overrun)	1	0.6%
Good Food at Meetings	1	0.6%
Low or No Claims	1	0.6%
total	176	100.0%

Once again, Table 20 provides a similar set of patterns as Table 18 (characteristics of a poorly run partnering project), although not identical. Those aspects of partnering

that are least beneficial reflect Table 18, in that the major category of concern related to *process* (e.g. too many meetings; lack of full participation – lack of buy-in, abuse of process by stakeholders, too formal a process; bad facilitators – poor icebreakers, poorly planned meetings, lack of knowledge about SHA; meetings used to finger point; repeating previously resolved issues in meetings; no agenda; and side talk in meetings.) A sub-category of process is *specific tasks* (e.g. rating forms, too much paperwork and/or documents, issue resolution chart or ladder – not used or used badly and not taking evaluations seriously). Three exceptionally smaller categories (in terms of percentage) are: *outcomes* (e.g. formal charters being a waste of time and having "no teeth"); *relationship* (e.g. lack of compete cooperation by some stakeholders); and a *general set of comments* (e.g. takes too much time and effort to do partnering, expectations beyond scope of the project, partnering is a total waste of time).

Table 20: Aspects of the Partnering Process that are Least Beneficial

Responses	**Frequencies**	**Percentage**
Too Many Meetings (unnecessary meetings)	13	17.8%
Rating Forms (evaluations)	9	12.3%
More Time and Effort (to do partnering)	7	9.6%
Lack of Full Participation (lack of buy-in)	7	9.6%
Too Much Paperwork and/or Documents	7	9.6%
Abuse of Process by Stakeholders	5	6.8%
Too Formal a Process	5	6.8%
Issue Resolution Chart or Ladder (not used or bad)	4	5.5%
Lack of Compete Cooperation by Some Stakeholder(s)	3	4.1%
Bad Facilitators (i.e.- poor icebreakers, poorly planned meetings, lack of knowledge about SHA)	3	4.1%
Formal Charters (waste of time and have "no teeth")	2	2.7%
Expectations Beyond Scope of Project	1	1.4%
Meetings Used to Finger Point	1	1.4%
Repeating Previously Resolved Issues in Meetings	1	1.4%
No Agenda (in meetings)	1	1.4%
Side Talk in Meetings (chatter)	1	1.4%
Partnering is a Total Waste of Time	1	1.4%
Offsite Workshops	1	1.4%
Not Taking Evaluations Seriously	1	1.4%
total	73	100.0%

In combination, Tables 17 (well run) and 19 (most beneficial), provide a clear understanding of what participants in this study indicate constitutes the benefits of a well run partnering process. Partnering, especially early-on where timely decisions are made to set the tone, leads to a more efficient process, especially when it has clear, direct and unambiguous support from superiors. Improved communication is described as having a better understanding of other stakeholders‟ perspectives, gaining positive feedback, and generally being opening minded toward one another and the challenges the team faces. A clear chain of command which allows everyone to know their role and responsibilities,

along with an accurate contact list, leads to improved working relationships, and fosters cooperation, respect, and trust within the group. This benefit, however, can only be achieved when all stakeholders actively participate. Finally, participants indicate that partnering improves outcome indicators. Meeting everyone‟s goals, in particular all aspects of design and construction, and making use of such things as issue resolution lead to limited cost overruns and fewer claims. The last outcome of partnering is having good food at the meetings.

In combination, Tables 18 (poorly run) and 20 (least beneficial) provide a clear understanding of those challenges of the partnering process which the participants believe need to be addressed. The way the process is managed is filled with basic and correctable mistakes. Typical complaints about the management include meetings being unorganized, having no agenda, not having previous meeting notes, participants not knowing why they are present, and meetings being infrequent or unnecessary. If there are too many meetings where major stakeholders are absent, or those that are present are there only to pay lip service to the process, then people who want to take partnering seriously are faced with a problem. Sometimes unnecessary people are present, or the atmosphere changes from issue identification and problem solving to a never ending gripe session over issues that have long been resolved. Such instances of poor management of the process can lead to complacency. It may also cause other problems relating to specific tasks being completed, such as not taking the evaluation seriously, complaining about paperwork, and worse, not using such tools as the issue resolution ladder. The strain on relationships is evident in poor or limited communication, which can lead to uncooperative stakeholders who would rather caste blame than cooperate with people they don‟t respect and trust, and this can lead to abuse of the process. A lack of commitment by a stakeholder is sometimes described as a “one-way street.” The outcome of a poorly partnered process is similar to outcomes seen before partnering was introduced, including a high numbers of claims, projects that are behind schedule, over budget, and a sense that the overall outcome quality is poor. Overall, when partnering is run this way, it requires more time and effort, expectations go beyond the scope of the project, and it will never provide the benefits which come with a well-run partnering program.

These are two completely different pictures, and the empirical evidence presented in this section strongly supports the depiction of the process as well run and providing considerable benefits. How to effectively address the challenges raised in poorly run partnering processes that provide the least benefit will be discussed in the recommendation section.

g. Improvements, Measurements and Whether to Recommend the Process (Tables 21-23)

The participants provided a number of suggestions for improving the partnering process that are found in Table 21. The vast majority of suggestions fall into the category of *process adjustments* (e.g. increase stakeholder participation – buy-in, understanding, trust; maintain SHA control; increase stakeholder understanding of the process; hold more frequent meetings; hold informal subsequent meetings; have more open

communication and more preparation from meeting leader; maintain a schedule of meetings; provide good food at meetings; have more discussion of change orders). Many of these suggestions can be found in basic meeting management books and represent minor adjustments. On the other hand, another category of suggestions *reduce some tasks* (e.g. fewer meetings, limit paperwork, get rid of the issue resolution ladder and/or charter) essentially suggests that some parts of the process be eliminated.

There are related items that support the partnering process, which could be modified, such as *improved tools and abilities* (e.g. better issue tracking forms, better evaluation forms, better computer rating program), which participants think may be good to examine. Likewise, participants include some *process modification* suggestions (e.g. use facilitator familiar with SHA, make partnering voluntary, make content more technical and structured, give PE more issue resolution powers); and some *outcome modifications* (e.g. speed resolution, have all stakeholders sign a partnering agreement, include an arbitration clause in agreements, stick to goals).

Table 21: Suggestions for Improving the Partnering Process

Responses	**Frequencies**	**Percentage**
Stakeholder participation (buy-in, understand, trust)	15	22.7%
Less Meetings	5	7.6%
Use Facilitator Familiar with SHA	4	6.1%
Make Voluntary	4	6.1%
Maintain SHA Control	4	6.1%
Should be more Technical (and more structured)	4	6.1%
Limit Paperwork	4	6.1%
Speeding Resolution	3	4.5%
Better Issue Tracking Forms	2	3.0%
Stakeholders Better Understanding of Process	2	3.0%
More Frequent Meetings	2	3.0%
Subsequent Meetings Should be More Informal	2	3.0%
More Open Communication	2	3.0%
More Preparation from Meeting Leader	1	1.5%
Maintaining a schedule for Meetings	1	1.5%
Give PE more Issue Resolution Powers	1	1.5%
Get Rid of Issue Resolution Ladder and or Charter	1	1.5%
Better Evaluation Forms	1	1.5%
Good Food at Meetings	1	1.5%
Signed Partnering Agreements (by all stakeholders)	1	1.5%
Early Starts (in project phase)	1	1.5%
Clause for Arbitration	1	1.5%
Stick to Goals	1	1.5%
Go Back to Basics (of partnering)	1	1.5%
More Discussion of Change Orders	1	1.5%
Improve the Computer Rating Program	1	1.5%
total	66	100.0%

As noted earlier in Section IV, SHA collects data on at least nine partnering process elements. Five of these are core process elements centering on human relations; the remaining four are largely of a technical nature and relate to the job itself. Table 22 provides more ideas on the measurement of the process from those who use it. In general, the patterns are: q*uantifiable outcome measures* (e.g. points for meeting schedule, meeting budget, number of claims, number of change orders, number of issues, lack of litigation, number of formal revisions made, erosion and sediment grades, meeting stated goals, reaching common goals); actual *use of process tools* (e.g. issue resolution ladder used, issue resolution reached); *measuring human factor elements* (e.g. "level" of communication, attitudes at the end of the project, satisfaction levels); *different times to measure during the process* (e.g. post partnering survey, during the course of the project, or during the close-out partnering session/meeting); or other data collection techniques (make use of interviews). Other ideas are to: keep the same measurement system, improve the partnering rating form, use a better rating form (mentioned quite a few times in pervious tables), and to stop using partnering altogether.

Quantifiable outcome measures constitute, by far, the largest percentage of responses (54.4%). The most prevalent category of responses falls under the umbrella "points for meeting schedule" which is constituted mostly of check off items that must be met in order for the project to reach completion. Also embedded within this category are items that may arise in periodic meetings that were not a part of the original items or issues that the partnering team anticipated having to address. In summary, the points for meeting the schedule is a list of items that are specific to a particular project.

Table 22: Measurement Criteria/Ideas for Evaluating Partnering

Responses	**Frequencies**	**Percentage**
Points for Meeting Schedule	27	20.8%
Meeting Budget (lack of cost overruns)	17	13.1%
Keep Same Measurement System	10	7.7%
Issue Resolution (used)	9	6.9%
Number of Claims	9	6.9%
Number of Change Orders	9	6.9%
Time to Resolve Issues	7	5.4%
Improved Partnering Rating Form	6	4.6%
Project "Quality"	5	3.8%
Post-Partnering Survey	5	3.8%
"Level" of Communication	4	3.1%
Attitudes at End of Project (satisfaction levels)	4	3.1%
Evaluate During the course of the Project (on site and making use of periodic evaluations)	4	3.1%
Number of Issues	2	1.5%
Litigation (lack of, i.e., for claims, etc.)	2	1.5%
Meeting Stated Goals (in Charter and elsewhere)	2	1.5%
Better Rating Forms	2	1.5%
Erosion and Sediment Grades	1	0.8%
Make use of Interviews	1	0.8%

Number of Formal Revisions	1	0.8%
Close-out Partnering Session/Meeting (to evaluate)	1	0.8%
Common Goals Reached	1	0.8%
Partnering is No Longer Needed	1	0.8%
total	130	100.0%

Twenty-three percent of the participants did not respond to the question, "would you recommend the process and why?"[69] If we set aside the non responses and examine only those 76.8% who did respond, an overwhelming majority (93%) indicated that yes, they would recommend the process. The second half of Table 23 provides responses to the statement, "elaborate on why they would or would not recommend the partnering process to others." Fully 89% of the responses can be construed as positive comments, while the remaining 11% are clearly negative. Some important reasons reported by participants include: it resolves problems quickly and is an effective tool (top two responses); gets the job done faster and saves money; creates a better work environment; it leads to better communication; and reduces tension and improves relationship. Negative comments indicate that the program structure is poor (4.3%) and needs improvement (4.3%), although that may be a vague constructive comment rather than a negative comment. On a tactical side, some say that stakeholders are not honest and use the process for their personal agenda. Obviously this is not the fault of the process itself, but if the process is geared toward collaboration, some might be prone to abuse it for their own gain. Overall, these percentages and comments indicate, for those answering the question, that they would clearly recommend the process and have constructive experiences and ideas to convey about it.

Table 23: Would You Recommend the Process and Why?

	Responses		
Questions	**Recommend (n, %)**	**Not Recommend (n, %)**	**Not answered (n, %)**
Would you recommend or not recommend partnering process to others?	98, 71.0%	8, 5.8%	32, 23.2%
Elaborate as to why you would or would not recommend the partnering process to others.			
Responses		**Frequencies**	**Percentage**
Resolves Problems Quickly (+)		10	14.5%
Effective Tool (w/ buy-in) (+)		8	11.6%
Good Experience (+)		7	10.1%

[69] This is an exceptionally large number of non responses. Upon further examination we found that the majority of those that did not respond came from the group completing the questionnaire using a hard copy (n=94). Of that group 33% or 30 participants didn't answer the question. As for the online participants (n=44) 4% or 2 participants didn't answer the question. Going back to the questionnaire we note that this is the last question and is placed just below the demographic response table and it appears, in hindsight, that this question is easy to miss on the hard copy version of the questionnaire.

Better Communication (+)	7	10.1%
Job Done Faster (project runs smoother) (+)	7	10.1%
Better Relationships (+)	6	8.7%
Reduces Change orders and/or Claims (+)	3	4.3%
Negative: Bad Structure (-)	3	4.3%
Negative: Needs Improvement (-)	3	4.3%
Works with Good Teamwork (+)	2	2.9%
Useful on certain types of projects (not all though)	2	2.9%
Develops Team Work Attitude (+)	1	1.4%
Necessary for Successful Project (+)	1	1.4%
Saves Money (+)	1	1.4%
Beneficial to all Parties Involved (+)	1	1.4%
Eliminates Positional Barriers (+)	1	1.4%
Creates a Better Work Environment (+)	1	1.4%
Decreases Tension (+)	1	1.4%
Produces a Quality Project (+)	1	1.4%
VDOT adopted SHA partnering process	1	1.4%
Negative: Works for Personal Agendas (-)	1	1.4%
Negative: Lack of Honesty Among Stakeholders (-)	1	1.4%
total	69	100.0%

Part II: Analysis of Focus Group, Charters and Interview Data

In an effort to identify consistent and inconsistent data patterns through data triangulation, the research team also undertook analysis of other sources of information. This section closely examines three of those sources through an analysis of the focus group materials, a sample set of Charters and interviews with Administrators and key partnering program personnel.

a. Analysis of the Focus Group Data

As part of the research protocol, the research team, in cooperation with SHA, conducted a series of focus groups. Two simultaneous focus groups were held at each of the 7 designated SHA District Offices throughout the State of Maryland during June and July of 2005, for a total 14 groups.[70] Each of these focus groups underwent a semi-structured interview process consisting of six topical areas – training, the kick-off meeting, the Charter, partnering/progress meetings, the measurement of partnering, and other topics relating to the SHA partnering process.[71] Center staff transcribed the data from these groups and conducted a content analysis from which more than 200 distinct points and 43 suggestions were made.

[70] There were actually a total of 15 focus groups conducted. The earlier one with the MdQI Partnering Subcommittee is not a part of the current analysis and discussion as it took place when the research team was formulating research questions and developing research tools.

[71] These six topics were developed from a preliminary analysis of SHA documents, information gathered from the MdQI partnering subcommittee focus group and, to a lesser extent, the researcher's own experience in construction partnering with SHA.

i. Training

This topic relates generally to various types of training that the participants have taken, either to facilitate meetings or to participate in the partnering process. The following are the most prominent data patterns:

- Boot camp training content and delivery is excellent. It assists in learning how to lead the team, set up meetings and prepare agendas and minutes; and it provides good process information.
- Some Project Engineers could benefit from more training, specifically on how to run the meetings (e.g. how to run meetings, preparing agendas, scheduling meetings, "nuts and bolts," etc). Without training a PE to be effective, the meetings could turn into a disaster.
- Training could also to include more practical information and materials about partnering (structure, format, conflict tracking charts, issue resolution ladders, forms and administration, etc).
- Trainings can be shortened to a half-day, especially for those who have been through it many times. It might also incorporate discussions about the specific project.
- The Field Guide is meaningful and assists in learning issue resolution.
- It's important to get all stakeholders at the table early on. Design and all contractors, especially, need to be more involved in training.
- A refresher course would be beneficial.
- Trainers do not need to know all the specifics of the situation, but it is helpful to have some knowledge of construction and SHA.

The participants who lead partnering/progress meetings are especially complimentary of the "Meeting Bootcamp" training, as it provides them such things as: "a map and structure," "a schedule," "expectations of the meeting leader role," "specific advice on how to deal with difficult people," "sample documents and forms," "a clear picture of the support network," and "who to go to for help [key personnel in the partnering program]." For others, the training they went through could be streamlined and some specific discussion on the project would be helpful.[72] The characteristics of trainers will be discussed in the recommendations section.

[72] On a separate note, in at least one focus group in all 7 District Offices, the trainer and facilitator Larry Bonine was voluntarily mentioned. Participants, in particular, liked him because he comes from within the construction industry, has exceptional training skills and does not waste time on "needless" "useless" or "touchy feely" exercises. As one participant states, and this sums up a general impression, "He [Larry Bonine] was fun and entertaining with his stories that all of us in the room could relate too." See Section VI in regard to the findings on the Trainer Characteristics.

ii. Kick-Off Workshop

The kick-off workshops, when well run, are extremely useful to participants and set the tone; or at least provide participants with a sense of how they will be able to relate to other team members. In a few instances, participants discussed poorly run kick-offs. It not only becomes a lost opportunity, but also irritates people. Most participants indicate that the kick-off workshop is useful. The major patterns in the data include:

- It"s a good chance to meet people you will be working with and helps put a face to the name.
- It improves communication down the road.
- It defines everyone"s responsibilities.
- It begins the issue resolution ladder – you can start resolving issues immediately.
- The length of the workshop should be proportional to the complexity of the job – for many small jobs a mini or ½ day kickoff would be sufficient; the length should also vary based on the level of experience participants have with partnering.
- It"s important to explain the partnering process to new participants, but not to spend so much time on it that it bores the more experienced participants.
- It is vital that all the key players attend the kick-off.
- Utilities should be involved at the kick-off as well.
- It establishes clear expectations about what partnering is, and its impact on a particular construction project.
- It can be focused to the specific job – needs more focus on the issues at hand than on the process (*one district disagreed, that kick-off should focus more on team-building than on the current project).*
- Facilitator should be neutral.
- Participants should come prepared; there should be a set agenda.
- A good free lunch should be provided (seriously – this is a strong pattern).

The participants" concrete examples of the numerous benefits of the kick-off meeting solidly back up its critical importance to the success of the project.[73] In all the focus groups, this topic clearly stands out as the most impressive in terms of consistent patterns. Participants see the kick-off as the chance to: put faces with names, express concerns, decide how to handle issues, determine the decision-making process, appreciate the needs of others on the team/network, and get people new to the process familiar with the "business as usual" partnering approach. Some even mention that this is the "time to identify the trouble makers" or to "talk to people who have been difficult on previous projects and start off on a better footing."

[73] Oftentimes when interviewing a participant the researcher may not explore ideas, concepts or assertions in an in-depth manner and instead record either descriptive accounts (e.g. testimonials) or prescriptive points (e.g. things that people "should do, could or would do" and not what they are actually doing) both of which, while perhaps rooted in their experience, are not concrete examples of what actually happened. By asking participants for concrete examples each time they made an assertion we were deliberately working to avoid the collection of descriptive or prescriptive data that is hard to verify.

Just a few see partnering as a waste of time or see the human factor "touchy feely" part of the process worthless. A few engineers indicated that only technical matters should be discussed at the workshop, forgetting that they were doing it within a relationship and network, and that by clarifying key responsibilities and accountabilities they were also clarifying the relationship and the network. This perspective can then be seen, not so much as a criticism, but as a different focus within the larger collaborative problem solving process.

iii. The Charter

The Charter is the non-contractual document that memorializes the good faith agreements participants are making in regard to the mission, vision and values encasing a particular project. The major patterns from this topic include:

- Waste of time/worthless
- All charters are the same/redundant – detracts from their impact
- It can be a good reminder of what people agreed to
- Way to set goals and a reminder of those goals
- Can be reviewed at meetings
- Keeps the focus on the project, and makes sure everyone is on the same page about their responsibilities
- Good ice-breaker
- Not needed for smaller projects, or a shorter version can be used for smaller projects
- Takes too long – helpful to have a draft mission statement or a sample to start from

The Charter depicts a polarized picture. Many mention the basic utility of the Charter, but when pressed to give concrete examples of how it is used, the responses provide a completely different picture. The majority of participants aren't sure why they create a Charter. Some half jokingly say they pull it out of the trash, point to it behind a door or on the wall or "prominently display it in one of my desk drawers." For participants who responded in this fashion, the Charter is a waste of time. It has lost any credible value and is not taken seriously. The majority express this sentiment in varying degrees.

For others, the Charter serves as an informal agreement to uphold shared ideas and goals. In a rare instance or two, a Charter is tied into key accountabilities and clearly is a centerpiece of the entire network's operation and mission. This view is in the minority.

Part of the reason the Charter is not taken seriously is because it has no enforceability; many see its limited utility as just one more "team building" (read: "touchy feely," "cheerleader") exercise. This topic is revisited in detail in the recommendations section, with a discussion on how the Charter can be altered to re-

establish the original intent (also, see the detailed content analysis of the Charter in the next section).

iv. Partnering/Progress Meetings

In early focus groups a distinction was made between ongoing partnering meetings and periodic progress meetings. It became evident almost immediately that, in practice, that because the content of the meetings (process issues in partnering meetings and content based within progress meetings) takes part simultaneously, participants overwhelmingly don't make this distinction. The following patterns are repeatedly mentioned in all groups:

- It is very helpful and the most beneficial part of the partnering process.
- The length, regularity, and scheduling of meetings should be proportional to the complexity of the job; big jobs need these meetings monthly.
- Don't have a meeting just to have the meeting.
- Meetings allow everyone to get updates on the project.
- Meetings are a place to bring up any new problems and resolve them. However, if a problem comes up, don't wait until the next meeting to address it. Use the problem solving process all the time.
- Meetings are a place to search collectively for win-win solutions, make decisions, and look ahead to future problems.
- These meetings are vital for all stakeholders to attend, including Design and Utilities.
- Minutes are a good way to track issues and provide information for those who cannot be present.

One group came up with the following basic ideas:

- Rule 1: "The more parties there are, the more often you have progress meetings."
- Rule 2: "The more issues you have, the more often you meet."
- Rule 3: "Various districts have different chains of command so you may or may not need to have meetings."

Perhaps one of the most useful parts of this process is the use of regular meetings to measure progress, discuss issues and otherwise check in with others to make sure the project is moving along safely, on time and within budget. All participants, including those who may play a smaller day-to-day role should attend, and these meetings should be documented with meeting notes.[74] One group in particular, designers, appear to be useful in these meetings. One designer, however, indicated "if I am going to all these progress meetings on all these projects then I am not designing." Another common element is that 1) the partnering/progress meetings should be proportional to the size of the project and 2) don't hold meetings simply to have them. If things are going well ("all

[74] SHA strongly suggests that meeting leaders prepare minutes each time they meet and in about 80% of the cases they do. In some cases the meeting minutes are sent only to those stakeholders who attend. For the sake of clarity and up-to-date information, minutes should be sent to everyone.

green flags"), and people are communicating, then many participants indicate that some meetings may not be necessary. This issue is discussed more fully in the recommendation section.

v. Measurement of Partnering

This is not only a highly technical and tangible part of the partnering process, but a subjective and symbolic part as well. Some stakeholders steadfastly maintain that the only measures that can be used are: 1) safety, 2) within the stated timeframe, and 3) within the budget. However, there are just as many who indicate that other variables are also critical in order to capture a fuller understanding the partnering process. The most common themes are:

- Better way to measure tangible items, particularly the length of the job and the final cost (in-budget or over?).
- Rating forms would be much more beneficial with more comments – comments should be encouraged and shared.
- The presence of change orders should not be taken necessarily as a negative measurement – look at it as if they are positive or negative, how many got resolved, and how long it took to resolve them.
- Measurement needs a reduction in paperwork.
- A Post-Construction meeting to ask specific questions and gather data could be beneficial.
- Success shouldn't be predicated on the percentage of projects partnered as there are some that don't need partnering.

Every focus group saw the need to conduct some form of measurement on the partnering process and on the specific project being partnered. There appears to be two distinct categories of feedback: process considerations and project considerations. Interestingly enough, in the process category there is little mention of the core elements already being measured using PET (see Section IV). The wording of the question ("what else should we be measuring") may easily explain this, as participants were identifying those items which are not already being measure. When it comes to project considerations, many mention that change orders do not need to be viewed as negative. Many would also like to see some reduction in the partnering paperwork. This is discussed further in the recommendations section.

vi. Other Topics Not Covered

This last category of inquiry acts as a "safety net," providing an opportunity, before the end of the focus group meeting, for anyone to bring up topics not already covered or to add to a topic already discussed. This ensures an opportunity for everyone to say what they think is important. For this reason, the data patterns here may not blend as well with one another as is seen in the previous five lines of inquiry. The most common comments are:

- Partnering is useful for projects that have:
    - many parties
    - many issues
    - relationships not long or strong
- Metropolitan areas need this more than rural areas.
- Rule: "Partnering is predicated on the strength of the relationship between the parties."
- Trust, open relationships, and communication are key factors. The key players must trust each other. Trust is very important and partnering can not correct that.
- Get support from people higher up to solve problems in the field.
- "People up the chain of command have to support the project and process."
- Partnering has allowed us to take bigger risks.
- Partnering gives you the big picture – lets you understand the other party's goals.
- Should all contractors be required to partner? Should it be mandatory or voluntary?
- It comes down to people performing, so it boils down to the weakest link. We need whole team performing.
- Consider developing more than one issue resolution ladder.
- What we are trying to achieve with partnering is not clear.
- Partnering does not mean that SHA throws away the specification book.
- One perception is that this is one way for a contractor to get what they want if SHA gets what they want; or a way for contractors to get out of their obligations in the contract.
- The process is good, but contractors hate hearing "no." Partnering only works when the contractor is committed to do it, and in those cases the answer will not always be "yes."

Within this catch-all "other topics" section, there are seven themes or categories of responses, which are seen across some but not all focus groups. One category deals with the utility of partnering and the conditions under which it is useful. In particular, it points out characteristics where participants think the process is particularly useful (and subsequently led to two working hypotheses focusing on project size and geography). The next two categories are closely related. Partnering works best when there is trust between stakeholders and when there is support from above. When both are in place, the process allows people to take more risks. These two points go to the core of the human relations element.

Some participants ask if it is good to make partnering mandatory; upon further elaboration there are two veins of thought. First, some participants would rather not take part and second, some think that making all projects mandatory will lead to resentment, with participants treating the process without seriousness, or complying with as little effort as possible.

The next theme examines the pitfalls of a collaborative process like partnering. Some participants indicate that the process is only as strong as the "weakest link;" if one person wants to be deceptive, manipulative or act in bad faith it may impact the entire

process and project. However, with partnering in place it at least acts, as was mentioned in the introduction, as an early warning system, to identify signs of such activity.

One topic that doesn't fit well into the weaving of these themes is to have "more than one Issue Resolution ladder." Upon further probing, participants discussed dual lines of authority, two tracks of decision making, or a "built-in redundancy" so that "if one person is not available another can take his place" or the issue skips over to the next ladder where it rises to the proper level for resolution.

In the final category, many participants express concern that the partnering process can be misused. Some discuss how people have used it to push for something they don't deserve. Upon hearing "no," they try to manipulate the process much like they may have previously used litigation to force their solution on the others. In rare instances, partnering can also be misunderstood and misperceived as SHA dispensing with other aspects of its construction protocol. In actual practice, however, partnering may really be a reorganizing of these tasks in a more streamlined and coordinated fashion.

b. Summary of Focus Group Patterns

These six forays garnered a good deal of information and insight. This summary acts as a meta-analysis of those categories and will focus on: 1) those aspects of the partnering process that participants say works well and should be preserved; 2) those parts of the partnering process that are useful but need some adjustment; and 3) those aspects of the partnering process that should be done away with in order to make the process more useful and beneficial. In all, this meta-analysis (referred to as "the good, the bad and the ugly") is useful in the evolution of the partnering process.

i. What is Working Well and Should be Left Alone

In a near universal claim by all participants, the *partnering/progress meetings* are seen as the most useful part of partnering. If anything, what might make the meetings more beneficial is to make sure the meeting leaders have gone through "meeting bootcamp" and that meeting minutes be taken and posted (perhaps on a secure web page).

ii. What is Working Well and Could be Modified

Training works well and some folks even ask for more. It should be tailored to fit the level of experience, and be connected to substantively relevant information. At the same time, much of the „touchy feely" might be modified from learning about yourself and others to more practical applications, such as how to deal with certain types of people or situations.

The *Kick-off workshops* serve quite a few practical purposes, and could be tailored to meet the needs of team members in regard to their level of experience in

partnering, the type of project where partnering is used, and other specifics of the project. This would allow for some flexibility within a uniform partnering policy.

The *measurement of key partnering elements* is necessary; but needs modification in regards to how, when, and what types of information are useful to measure for those managing the process and the program.

iii. What Should be Eliminated Altogether

The *Charter* either needs to be completely modified and given some weight to impact the partners in the process, or it should be evolved out of the process altogether. This is, by far, the one part of the process that is mocked, misused or done as a matter of checking it off the list. While this could in theory, be a beneficial tool, without meaning it serves no purpose.

c. Analysis of Charters

One of the outcomes of a partnering kick-off workshop is a partnering "Charter." A Charter is a non-contractual non-binding document that memorializes the key values, goals, vision and mission of the team members working on a particular construction project. From a practical perspective, its primary function is to capture the good faith intentions of all team members and their organizations to effectively work together (in a network fashion) in achieving the mission safely, on time and within budget. When team members sign off on the Charter, often by signing their name right on it, they are affirming that the statements and goals listed in the Charter reflect the intentions of themselves, their organizations, and the entire team.

If stakeholders found this charter critical then the research team would expect to see triangulated data patterns that consistently reflect this positive sentiment. However, when conducting data triangulation on the Charter topic, the research team exposed a great deal of inconsistency. While some stakeholders see the Charter as a vital, practical and symbolic roadmap for a construction project, others see it as a complete waste of time. The questionnaire results and focus group patterns clearly reflect this mixed sentiment.

The wide range of opinions pertaining to the utility of Charters has led the research team to conduct a content analysis on a sample set of Charters. A Salisbury University student[75] and one of the investigators systematically examined and analyzed the content of a representative sample[76] of Charters from each of the 7 Districts (n=35).

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[75] The investigators would like to thank Mr. Mark Hopson an Honors Senior in the Conflict Analysis and Dispute Resolution program (and former office manager for the Center for Conflict Resolution) for his assistance to Dr. Polkinghorn in reviewing and analyzing the sample set of Charters.

[76] The selection of the Charters employed a representative sampling technique that relies on a pre-existing knowledge of the entire "universe" within which charters are employed. In this case the investigators relied on their own experience as construction partnering facilitators and construction arbitrators as well as the information gleamed from SHA personnel to construct the following selection categories: "Geography" (each of the 7 District Offices). "Size of the project" (*small* = less than $1million; *medium* = to $1 million

From this analysis, four basic data patterns were constructed. The first pattern focuses on a set of "common themes" found in all 35 charters. The second pattern focuses on "unique elements" within the Charters (e.g. "No lawyers, no lawsuits, no kidding!"), while the third exposes "challenges" pertaining to the seriousness, content and the use of icons (e.g. clipart) in Charters, which appear to make it a "touchy feely" exercise and nothing more. The fourth pattern is largely a subjective call on the part of the research team; it focuses on the detailed contents of a clear charter, or one that outside experts can examine and see a direct impact on a particular partnering network on a particular construction project. The analysis of the charter closes with a discussion on "overall impressions."

i. Common Themes

There are certain topics that can be clumped into broader categories that are present in most of the Charters examined. In many cases the wording is exactly the same, suggesting a core pattern or simply the means of duplicating of effort on the part of stakeholders. In others, the wording may not be exactly the same but the intended meaning is clearly similar. The following categories may constitute the common themes, fundamental goals, and aspirations present in nearly all Charters sampled including:

- *Safety* – This includes safe practices by workers on the construction site, as well as the safety of users such as future drivers and maintenance people.
- *Being on budget and on time* – These two empirically quantifiable and measurable outcomes are perhaps the most unambiguous goals found in the Charters.
- *Minimization of Environmental Damage* – There appears to be an appreciation of the project and its impact on the biological and physical environment. This seems to be one of the "big picture" elements found in most Charters and is expressed using a wide range of noble ideas. Some notable observations include the preservation of wetland areas, minimization of erosion, and sediment control.
- *Aesthetically Pleasing/ Award Winning/ "Proud of Project"* – This theme appears to focus on yet another "big picture" item, in terms of the final product. In some Charters, this is the ultimate ideal future state that the team is aiming to achieve. So, in one sense, team members in dispute can be reminded of the "super-ordinate" goal of an aesthetically pleasing and award winning project.
- *Communication/Cooperation* – This theme focuses on interpersonal skills and thinking of the team as a network where each member uses their specialized skill and abilities to collectively complete the mission. This theme also pertains to people off–site, such as management and agency personnel.

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and less than $5 million and, *large* meaning more than $5 million); complexity (a subjective call but not difficult given a street widening falls on one end of the continuum and the Woodrow Wilson Bridge falls on the other), and "Duration" (a *few months*, *up to a year* and, *more than a year*).

ii. Unique Elements

There is a general blandness to many of the Charters. Quite a few participants indicate that they all say the same thing and that writing a charter "is as simple as finding an old one and maybe adding a line or two." This may help explain some of the language incorporated in a number of the Charters to make them seem "fun" and "outside the box." The challenge is to make these documents fun, while balancing the seriousness and intent they are meant to express. Some Charters lack any sense of seriousness, using icons and other visual aids that, from an outside research perspective, distract from the content, which is often boilerplate language. Some charters, such as a few in District 3, do display an energy that resulted in creativity. For example, the Carroll Avenue Streetscape Team used the theme, "What a Bright Idea!" for their few-paragraph long mission statement. Those involved then signed their names to form the shape of a light bulb on one side of page.

iii. Challenges

If the Charters are, in any way, a reflection of the seriousness or intent of the team, then this may further explain the wildly varying opinions on the usefulness of the Charter within the partnering process. In particular, the following items are continuing challenges:

- *Seriousness* – Many charters mention, among other things, that they want the project to be "fun" for everyone involved. This may simply portray that the stakeholders enjoy what they do but some Charters attempt to convey this through unconventional formatting or by use of clever jokes or acronyms (VIAGRA). This informal tone, along with what might be considered by some to be mere jokes, provides a reason for these Charters to not be taken seriously. Although this is clearly the opinion of some of the research team, we do think the use of some "clip art" conveys, to outsiders like us, a less than serious tone.
- *Equivocal Language* – Almost all of the charters employ ambiguous goals in broad generalities, with almost no elaboration. If the Charter had some weight (e.g. minor legal sway, as in a non-contractual element, a "good faith declaration," or a memorandum of understanding), then there would be a need to clarify their goals and methods. Clarity is useful regardless of weight of the Charter, to impact the signatories; vague language may reinforce the lack of seriousness or commitment to the mission. Clarity not only provides those involved with a clear plan, but also helps to reduce confusion and future problems.

iv. Detailed Contents of a Clear Charter

The common themes listed above constitute one element of the sample of Charters examined. By themselves, the common elements are "static," especially if there are no plans to address various items. Most Charters appear to be written in this "static"

manner. However, there is one exemplary Charter in the sample, because it provides detailed instructions and maps out specific tasks for a variety of issues. This attention to detail makes it a more "dynamic" Charter document.

A Charter describes the mission statement, and then lays out a clear outline of specific goals. This is then linked to supplementary material that meticulously details how these goals are to be accomplished. For each item in this District 6 Charter, there is an accompanying goal, objective, strategy, action plan, and personnel responsible or in charge for particular tasks relating to that item. This ideal Charter also lays out the time tables expected to achieve specific tasks, and the chain of command for both SHA and the contractors involved. For example, under "Maintenance of Traffic," the charter provides a major goal and then clear objectives, such as "correct any deficiencies in M.O.T. immediately" and "maintain a „B" average on WZTC rating form." It then details a strategy and performance measures to manage this challenge. It concludes with an action plan listing the persons responsible, resources needed, timetable, and status for this "performance area."

v. Overall Impressions

Most Charters display an optimistic attitude about the project, and there is clearly a sense of enthusiasm that the signatories wish to convey. However, most lack precise language or clarity, especially in regard desired goals. Most Charters in the sample do not provide an explicit, detailed plan of how to accomplish the stated goals, how to operate under a common vision, or how to execute the network to meet the mission. For most charters, a basic goal such as "safety" is listed with no reference to time, cost, method, responsibility, or how to gauge results. For example, one Partnering Mission Statement includes, "we agree to openly communicate, develop trust, build teamwork, and facilitate solving issues at the lowest, appropriate level." Unfortunately, there is no mention in any part of the mission statement of who, where, when, or how to achieve such a goal. The Charter acts simply as a reminder for the people involved that safety is the key issue. If that"s the only purpose of the Charter then it meets its goal.

The sample Charters contain some key topics including: 1) safety, 2) being on budget and on time, 3) minimization of environmental damage, 4) aesthetically pleasing/award winning/ "proud of project," and 5) "communication/cooperation." Recalling the core and technical elements discussed in Section IV, it is interesting to note that 1 and 3 are technical elements, 2 and 4 are outcomes, and 5 is the only core human element. There is a partial overlap between the PET core and technical elements and some outcome points found in the Charter. This topic is addressed more fully in the recommendation section.

The sample charters also demonstrate that engineers and other technically-oriented people can be humorous and "think outside the box" by use of creative language, especially through the use of slogans and decorative icons. However, while it is clearly a judgment call on the part of the research team, this poses some challenges in the level of seriousness and clarity the Charter conveys. If the Charter is, as one participant put it

merely "a feel good send off," then it has lost its original intent. This might explain the lack of seriousness expressed in the questionnaire, focus groups, and the sample Charters examined. If the Charter is meant to be a symbolic and tangible roadmap or guide, and is to have any bearing whatsoever on the project, then some changes need to be made. This will be elaborated upon in the recommendations section.

d. Analysis of the Interviews

Toward the end of the data collection phase interviews were conducted with SHA Administrators and former key SHA partnering personnel. The research team waited to interview these key individuals in order to gather enough data, to conduct a preliminary analysis, and establish a few working hypotheses and data patterns in order to develop concise lines of inquiry. In particular, these lines of inquiry focus on the SHA culture; its hierarchy and structure; how, why, and where the partnering process is placed (this is a key indicator of how closely a program aligns with the values and mission of the organization); and key institutional and external challenges facing the program. The themes from these interviews are summarized here, but have also been used elsewhere, particularly the history section.

i. Partnering as Seen From the Top of SHA

- *Partnering is a vision and a way*. Top SHA administrators view the partnering process in a more encompassing way than do people who regularly take part in partnering projects. SHA administrators emphasize characteristics of partnering that are remarkably absent in the focus groups or the qualitative results from the questionnaire.

- *Partnering verifiably helps SHA in its relationship with other state agencies.* SHA had a less than stellar relationship with agencies, especially environmental, which it needed to improve. Ten years ago, SHA began to use partnering to improve relationships with outside agencies and "it made true believers of all of us."

- *Partnering has verifiably dropped change orders* from 12% to less than 10%, then to less than 5%, and we are still pushing them down through direct and early communication that partnering has been made possible. "Partnering projects are consistently lower on changes orders."

- *What we have learned in construction partnering is transferable and applicable in other areas, such as engineering*.

- *Partnering is necessary in all large projects.* The Administrator indicates that "we have predictable issues, people and projects where we see potential problems." Further on he states, "when you are in charge of mega-projects [1 billion or more] such are WWB [Woodrow Wilson Bridge] at 2.45 billion, it is the poster child for

partnering. It could be a disaster. Partnering is a big part of the reason the WWB is going on time and within budget." "Be vigilant in using partnering!"

- *Partnering is a bridge to the general public*. For top SHA Administrators and key partnering personnel, it is about getting the public involved in SHA projects. This is a striking comparison to the data in the study, as only an extremely small number of participants in the focus groups emphasize this point. Stakeholders who use the process see it almost exclusively as a process within the relationship and network of those in the construction project (the public is not seen as a member of the partnering process).

- *Partnering has internal champions going all the way to the top*. "You need champions, missionaries, cult leaders – and more than one – to get it done." SHA meets with industry officials regularly, and always talks about the importance of partnering on 1) individual projects, 2) systems issues, and 3) policy issues. "Doug Rose is important to partnering – he is the key that makes it happen…Bridgid Seering is the missionary/preacher who makes it all happen…In Planning and engineering we don't have as much missionary zeal or key people like Bridgid" (note: Bridgid works within 30 feet from the Administrators office).

- *Partnering needs a uniform policy; at the same time it needs to be flexible so the process can be tailored to individual projects.*

- *Partnering is part of the cultural shift*. Once someone has gone through it and seen the benefits first hand, especially if they had a bad relationship or a contentious project before, then they become the true converts. However, not everyone goes through partnering. For instance, the "engineers mind's are structured for procedure and rationale and may not be as flexible in trying partnering out…" Also, "on the design side, we had a massive set of retirements [due to a good retirement bill that people took full advantage of], and junior people took over and did [partnering] like ducks to water."

- *Partnering is about changing the way we share or use information*. Partnering has fundamentally altered how much information is shared, when it is shared and how it is presented (telling others versus providing clear facts and intentions; being transparent versus being vague and aloof).

- *Partnering is the way to communicate with the public to inform, educate and learn together.* It reinforces the collaborative relationship necessary to conduct "business in a better way." A prime example coming from a former partnering specialist is:

> The Towson roundabout is a great example of educating the public on the planning, preparation, and design of the project…we need to make lots of accommodations for business and residents. It is a continual refocusing of resources to try and accommodate

> competing interests. Usually, we focus on the contract and the contractor; but prior to that, we need to do outreach with the community to talk, prepare and explain. We [need to] communicate what is about to happen, and what can happen. Information sharing at the beginning is most important to stakeholders, especially those who are the first point of contact.

- *Partnering is a strategic plan*. It exposes, for all to read, the intent of SHA. Partnering, just like a strategic plan, provides certainty, transparency and predictability.

- *Partnering is the reversal from what SHA used to do*. In years past, when SHA simply told others what to do, it took a top down power-over approach. SHA has changed its relationship to emphasize the benefit of working together to get things done.

- *Partnering focuses on others' interests*, lays bear SHA"s interests and focuses on getting interests met through a mutual gains approach.

- *Partnering has a formula – key ingredients that must be present to work.* These ingredients are: trust, honesty and personalities. In regard to personalities there are two parts; the first is having people who can manage conflict and not take it personally, fall apart, fight or run away. The second has to do with key personnel, and is the next point.

- *"You take a champion and they will follow."* Personalities need to be in key positions as they are the ones to champion the process. All projects and programs need a champion, specifically people who are trusted, have built strong networks (especially in the contracting community), are known to be fair and honest, have developed a good deal of capital, and can stake the success of the program on the force of their character. While this may sound risky and hard to successfully complete, this appears to be the way SHA has run the partnering program since its inception.

- *Partnering is a revolution that has great support from senior management*. When it came to buy-in, senior management impressed upon everyone that this is the way SHA is going; and that while change is difficult, especially for old-timers, the new "business as usual" and new relationships will prevail. As new guys have latched on to this approach, the "cultural shift" supported and led by senior managers is happening.

- *Partnering prevents SHA from being caught in the middle* of battles between contractors, design teams, and other stakeholders.

ii. Upcoming Challenges for the SHA and the Partnering Program

This is a summary of challenging issues identified by SHA Administrators and former partnering personnel. They are either current challenges, or challenges which will, in the coming years, directly impact SHA and the partnering program.

1) SHA needs to get all the stakeholders to the table, even those who are not under contract with SHA. Utilities personnel are a prime example. "You can't force anything on them as it goes directly against partnering, but you can use personal relationships to get people to the table." Part of the *tailoring* of the process would be "how well do you know those you are partnering with?" The better you know them, the more often you should be working with them.

2) SHA needs to establish very clear boundaries between partners because of ethics concerns. It is one thing to partner and work well together, and it is wholly another to cross a professional boundary. SHA is "under the gun" because of some problems with outsiders (e.g. gifts to purchasers from contractors).

3) Continuity is a problem. Partnering has to be done in a uniform fashion; currently it is not the same in all districts, and it is not the same between projects of varying size and complexity.

4) Technically, SHA is partnering close to 100% of the time, but in some cases corners are being cut. For instance, a participant will come up to other stakeholders and say "here, sign the Charter."

5) Some parts of SHA aren't supportive of partnering. For example some people in "traffic and bridges" aren't taking part as they should.

6) SHA over uses and wears out terms such as "quality," "partnering," and "workshops." Overuse of "terms and products leads to stereotypes and fatigue." SHA does use some terms generic to the industry and some of their own that are unique, such as "rocks in the road," but these too get worn out. When terms become overused the meaning becomes vague and then it is easy use the terms in jokes or in order to mock the process.

7) Partnering agendas need to be specific, especially on who needs to be attending the meetings. Unless people are required, or know that they need to be there, they are not likely to show up. The agenda should indicate who needs to be there and who, based on issues do not.

8) It has been hard to get buy-in from old-timers who have trouble with partnering and the computer database. There is technology that assists partnering communications, but some either don't have the capacity or the tools to do it.

9) There needs to be more appropriate measurements of partnering projects. It is difficult to get outcome or performance measures on partnering. SHA mostly gets output measures.

10) Partnering criteria for smaller jobs should be examined and redefined. There"s room for flexibility, as the real focus is mostly on those projects costing more than $1 millions or are longer than 40 days in duration.

11) "SHA partnering needs revitalization – we are burned out." When asked what revitalization looks like, the interviewee went on to say: "Look at Maryland in the next 6 years. We have billions in construction and we"re swamped."

12) SHA probably doesn"t have enough contractors to get the job done. There"s going to be too much work and not enough people, especially inspectors, to get all jobs completed on time. Where will we get the people to inspect the projects, run these processes and otherwise keep pace?

13) SHA is going to be retiring key people in the next few years that have considerable experience. On further elaboration, experience was clarified to encompass field experience, technical knowledge, institutional history, strong relationships and networks, and the ability to understand processes and get things done when others might not see a way.

14) Partnering has suffered from its success. Though it stresses collaboration, some people misuse and abuse that form of interaction, and use relationship building to meet there own goals.

These interviews provide a unique organizational perspective of partnering. Understanding how the process/program is integrated into the larger SHA structure and, seeing how partnering in practice is a core element of the SHA mission helps to explain why the process is taken so seriously. The other unique perspective gained from these interviews focuses on the inherent challenges or external control factors that will impact SHA and partnering in the short term.

The next section pulls all these data results together into individual findings as well as categorical trends that summarize the key functions, components, and overall utility of the partnering process.

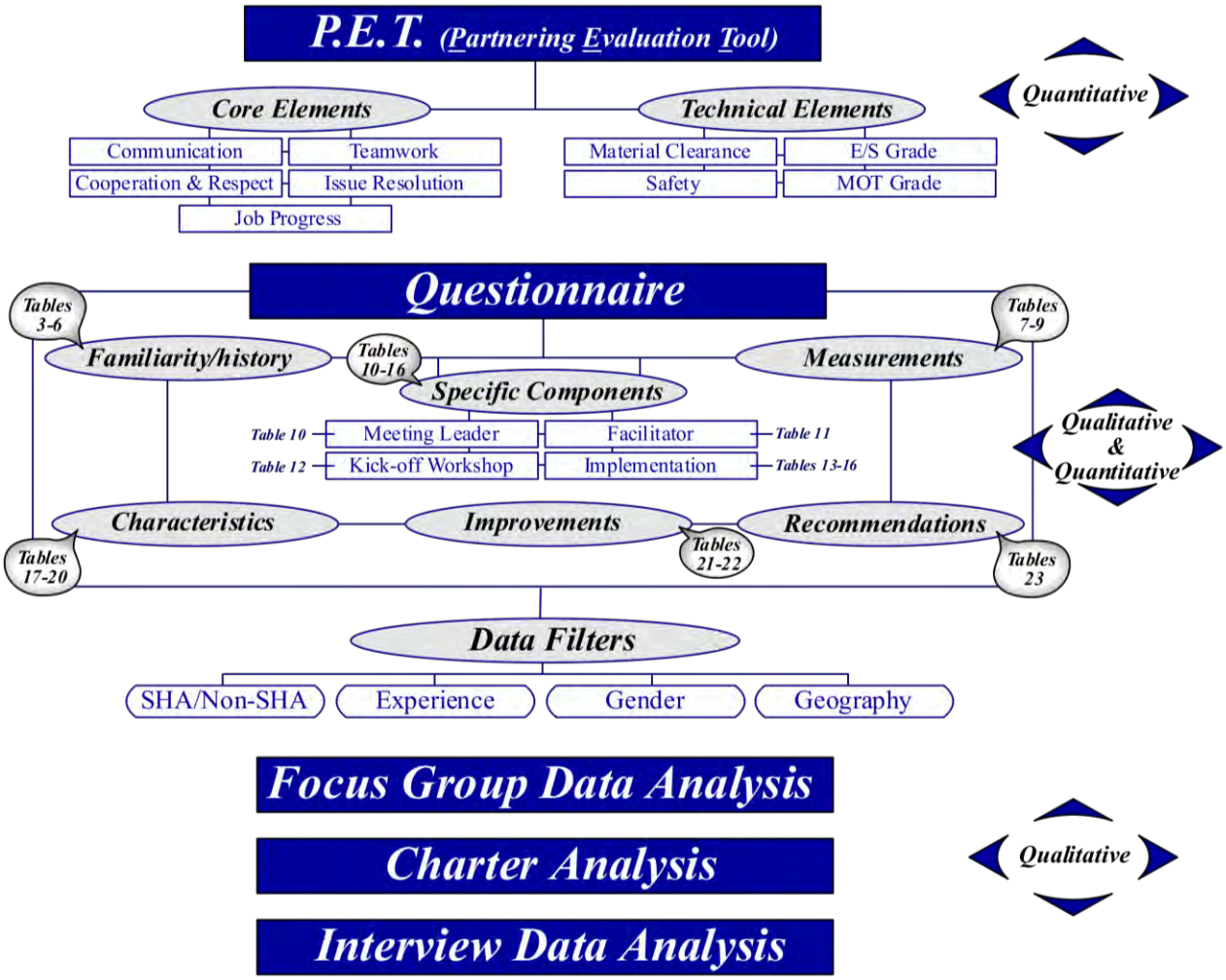
VI. Summary and Discussion of Findings

This study is an analysis of multiple data sources that provide clear evidence on the efficacy of both the partnering process and the SHA partnering program. Figure 3 provides a Data Source Map that shows where key data findings highlighted throughout Sections IV and V are found in various data sources. This map is also used to provide a trail back into these data sources in order to demonstrate the validity and reliability of the major findings presented in this section.

The process of triangulation becomes easier when making use of numerous complimentary data sources. In particular, checking for consistency across various sources helps illuminate and verify certain data findings. The use of multiple forms of data also assists in affirming the robustness of the findings. While the quantitative data help to establish the strength of relationships, the associated qualitative data serves to provide greater meaning to the findings through rich and descriptive examples.

This section is divided into three parts. Part I briefly recaps the data sources and key categories of data examined. Part II highlights the major findings, which are reported in Table 24 as *trends*, in recognition that: 1) many of them have existed for some time and will continue to evolve as time passes and 2) the findings can be clumped into even larger categories. Finally, Part III reexamines the two research questions in light of the major findings.

Figure 3: Data Source Map



Part I: Recap of the Data Sources and Key Categories

a. SHA Partnering Evaluation Tool

SHA provided access to its internal Partnering Evaluation Tool (PET) database. The database stores information on 5 core partnering elements pertaining to human relations (communications, teamwork, cooperation and respect, issue resolution and job progress) and 4 technical elements (safety, materials clearance, maintenance of traffic, and erosion of sediment) mostly found on the job site.

b. Research Study Questionnaire

The questionnaire data trends specifically examine the internal workings of the partnering process. The data analysis also takes into account differences between participants‟ demographics such as: SHA or non-SHA; male or female; participants‟ level of experience (in years) with SHA partnering; and their geographical (rural and metropolitan) location.

The questionnaire provides data trends on participants‟ familiarity with the partnering process including how they learned about the process and what materials they read. Other data focus on participants‟ backgrounds, their years of experience with partnering and number of jobs they have partnered, in order to provide more credibility to the other sections of the data analysis. Participants also provide information on length of workshops, other experiences with partnering, and how they see key leaders supporting the process. The key process components of partnering measured in the questionnaire include: the meeting leader; the facilitator; the kick-off workshop; and implementation in regard to partnering and progress meetings, intermediate workshops, impact on stakeholders and impact on the outcome. The questionnaire then requests information on what constitutes a well run or poorly run partnering process, and the procedural aspects of partnering that are most or least beneficial. Together, these two lines of inquiry provide a clear understanding of what does and does not work in partnering. This is followed by data analysis on how to improve the process, what types of measurement is necessary, and participants‟ willingness, in light of their other statements, to ultimately recommend the process.

c. Focus Groups

The 86 participants who took part in the focus groups provide considerable information on trainings, kick-off workshops, the content and utility of the Charter, the utility and function of partnering/progress meetings, the variables presently used in PET measurement and those that could be added, and any other topics not covered. The PET data trend analysis and the questionnaire trend analysis easily integrate with the focus group data.

d. Sample Charters

The content analysis of the sample Charters, likewise, can also be linked back into the questionnaire and focus group data trends. Data is categorized into five trends, namely; common themes, unique elements, challenges, an ideal charter and overall impressions.

e. Interviews

Finally, the data trend analysis from interviews with key administrators and current and former SHA partnering personnel focus on where partnering fits into the structure and function of SHA, what its benefits are to all stakeholders and what challenges SHA and the partnering program will face now and in the near future. In some respects, these data trends are unique and are not seen in the other data sources; but nonetheless, links can be made.

The following section presents a summary of the major findings that cut across many, if not all, of these data sources.

Part II: Major Findings

This study has produced various findings that can be grouped into trends. A trend is a cluster of findings that are grouped together based on a larger theme. A theme represents some aspect of the data that clearly describes major aspects of the analysis. Trends, when combined together, should, in theory, provide an accurate summary of the research results. Each section of Table 24 (centered in bold) focuses on a particular trend and underneath to the left are the specific findings that constitute the core aspects of these trends. The right side of the Table 24 provides the data sources where the findings were found, either as empirical results or as qualitative patterns.

Table 24: Basic Trends and Their Sources

Partnering Roles (Trend 1)	
Findings	**Sources**
Meeting Leader	Questionnaire and Focus groups
Facilitator	Questionnaire and Focus groups
Trainer	Questionnaire and focus groups
Statewide Partnering Coordinator	Focus Groups and Interviews
Study Participants	Questionnaire (and secondarily the Focus group responses)
Process Components (Trend 2)	
Training	Questionnaire, Focus Groups, Interviews
Kick-off Workshop	Questionnaire, Focus Groups, Interviews
Length and Content of Workshops	Questionnaire And Focus Groups
Training “Bootcamp”	Questionnaire And Focus Groups

Partnering and Progress Meetings	Questionnaire, Focus Groups, Interviews
• Management	Questionnaire, Focus Groups
• Level and Degree of Participation	Questionnaire
Intermediate Workshops	Questionnaire, Focus Groups, Interviews
Human Relations (Trend 3)	
Communication	PET, Questionnaire, Focus Group, Charters, Interviews, Internal Memos
Teamwork	PET And Focus Groups
Clarification of:	
• Chain of Command	Focus Groups
• Roles	Focus Groups
• Rules	Focus Groups
• Responsibilities	Focus Groups
Cooperation/collaboration	PET, Questionnaire, Focus Groups, Interviews
Relationship Changes	Questionnaire and Focus Groups
• Respect	PET and Focus Groups
• Trust	Focus groups
• Appreciation	Focus groups
• Recognition	Focus groups
• Empathy	Focus groups
Utilization of Partnering Tools (Trend 4)	
Issue Resolution	Focus Groups
Charter Evaluation Forms	Questionnaire, Focus groups, Charter
Evaluation Forms	Focus Groups
Process Measurements (Trend 5)	
PET Components	PET
Other Human Factor items	Focus Groups
Tangible items	Focus Groups, Interviews
Institutionalization of Partnering (Trend 6)	
Partnering‟s Impact on SHA	Focus groups, Interviews
Support of Partnering	Questionnaire, Focus Groups, Interviews
General Inclinations (Trend 7)	
Overall Impressions	Questionnaire and Focus Groups
Willingness to Recommend	Questionnaire and Focus Groups

a. Partnering Roles

There are at least five distinct and vital roles within the partnering process. The characteristics or attributes identified in the study that make the partnering process meaningful and effective are:

- The Meeting Leader – Stakeholders prefer knowledgeable and organized meeting leaders who effectively identify, frame and neutrally address the resolution of project issues. Other concrete attributes include meeting leaders who develop various means of communicating (up to date contact lists, e-mail, memos, meeting minutes and field contact) with stakeholders, as well as those who know how to manage difficult people and contentious issues.

- The Facilitator – Facilitators who know the construction industry and SHA, and who are able to understand stakeholder issues from an insider perspective are preferred to others who, while having excellent process skills, have no substantive background. Participants are able to connect to a facilitator who knew the substance of their industry more so than a facilitator whose knowledge is more process focused. Facilitators who effectively make use of time on items such as: issue resolution, action plans, strategic plans and next steps are preferred over those who focus on team building or other human factor elements. In short, a facilitator can engender team building, cooperation and respect, while in the process of addressing substantive issues.

- Trainer Characteristics – Participants indicate from the questionnaire and focus groups that the type of process trainer they prefer is a person who:
    - understands how SHA operates and its partnering goals
    - understands the construction industry
    - understands the perspective of key stakeholders
    - understands conflict processes
    - creates exercises relating specifically to the construction industry
    - provides skills on how to solve problems specifically within construction contexts
    - provides ways to deal with an angry public
    - tells good construction-related stories

- Statewide Partnering Coordinator – The Statewide Partnering Coordinator is a vital role. Stakeholders, especially meeting leaders, indicate that this role is necessary as a process resource that provides materials, guidance and advice on how to execute the partnering process from beginning to end. Key attributes of this role include someone with a personal commitment to the process, someone who uses a network of contacts and relationships spanning many organizations to promote the process and someone who is seen as synonymous with partnering. For many participants in this study, the Statewide Partnering Coordinator is highly respected and clearly seen as the leading champion with a missionary zeal for the process.

- The Study Participants – The individuals represent a sample of people who use the partnering process. They are, in essence, the consumer so whatever we know about them impacts the process. These people are well informed of the partnering process and the vast majority report experience using it. Many have been trained and have read a variety of materials on partnering. About one third report having

partnering experiences other than with SHA, and provide unique insights into the process. A little more than half report having an opinion about partnering before using it and, adjusting for non responses, the majority report favorable preconceptions.

b. Process Components

There are numerous findings regarding process components that constitute partnering. Specific steps in the process from training and orientation to conclusion impact the outcome of the project. Findings include:

- Training – Participants who lead meetings consistently praise the meeting "bootcamp" training as it provides practical process advice and skills and tools for running efficient meetings. Also offered are facilitation trainings and an orientation to the partnering process. Participants indicate that the "bootcamp" and some facilitation trainings are useful, and refresher courses are welcome. This will assist SHA in continuing to cultivate process competencies with internal meeting leaders and facilitators.

- Kick-off Workshops – Kickoff workshops work well when they are scheduled early in the project, have all stakeholders present, are organized and focus on clear lines of authority, responsibility, and familiarizing stakeholders with one another. Participants indicate that they do receive some benefit from skill exercises on topics such as "dealing with difficult people" and how to recognize and work with people of differing (conflict) interaction styles (e.g. controller, avoider, accommodator, compromiser and collaborator). Kickoff workshops do not work well when there is too much emphasis on human relations exercises such as team building.

- Length and Content of Workshops – The length of the workshop, given the complexity of the project, would ideally be less than a day, and focused sharply on substantive contents and specific project issues. The more experienced stakeholders are with partnering, the more the workshop should focus on substantive discussions.

- Partnering/Progress Meetings – Getting the right people together for *regular*, *engaging*, *organized*, *efficient*, *recorded*, *problem identification and problem solving* meetings is the hallmark of partnering. These characteristics are necessary for engineering, politics and problem solving to mix, so that creative solutions are found. These meetings are exceptionally productive in instances where there are many parties that are new to one another, many issues arise and a high degree of complexity is present. *Ownership is the mindset*. Irregular, gripe sessions where people dig up old issues that have already been resolved, or where participants are not engaged and are only paying lip service to the process, become infectious and tend to increase complacency. When people don't show

up, or people who shouldn‟t be there attend, it impacts trust and candor. *Simple compliance and perhaps some degree of buy-in is the prevailing mindset*.

- Intermediate Workshops – These workshops are relatively rare, and could be useful if major changes in personnel, major changes in the project or a large number of issues arise.

c. Human Relations

Some of the findings in this section are found in all data sources. Together they cluster around how stakeholders interact and treat one another. Some of these findings are measured using PET, but are clarified here with detailed meaning and properties that may assist SHA in grasping what stakeholders indicate they mean (see recommendations).

- Communication – Participants indicate that partnering increases the quantity and quality of communication. In particular, within well managed processes, where stakeholders have taken advantage of the communication network, communication impacts the positive quality of problem solving and relationships.

- Teamwork – The way stakeholders plan complex tasks is a function of many talents, both in communication and technical excellence. In particular, participants identifying a clear chain of command within their organization and with the partnering team are essential in increasing the level of predictability, certainty and control associated with well defined and understood roles, rules and responsibilities.

- Cooperation/Collaboration – This is an exceptionally strong finding. In every instance, regardless of the data source, cooperation and/or collaboration are mentioned as a condition or result of the environment fostered by partnering. It is also noteworthy to mention that in the questionnaire, participants generally reported that their agreement with the outcome of partnering is moderately high in meeting outcome expectations. Their general response to how they like the process itself, however, is even higher. This is a classic procedural justice pattern, meaning that while a stakeholder may not be as satisfied with the outcome as he or she indicated, they were indeed satisfied with the process used.

- Relationship Changes – Going through the partnering process has an impact on relationships. If parties enter into the process in good faith, then one of benefits they report is an increase in the level of respect for fellow stakeholders. It follows that trust is also positively correlated. Participants also indicate, particularly in the qualitative data from the questionnaire and the focus groups, that better communication and increased respect and trust make it easier to understand other stakeholders‟ points of view, interests and needs. Taken as a whole, and within the context of a process entered into in good faith, participants are better able to recognize and appreciate the talents and skills of other stakeholders.

- It is noteworthy that many participants in the study are quite familiar with one another, and that the conditions mentioned above may exist prior to the partnering process, thus nullifying the effects of the process on their relationship. However, some participants indicate that the process reinforces and supports cooperative relationships therefore the process acts as a "booster" in maintaining cooperative relationships.

d. Utilization of Partnering Tools

SHA has developed a number of tools to assist stakeholders in managing and utilizing the process. Management tools include forms, and process tools involve step-by-step instructions. Together, these tools substantially assist in the "how to" of partnering.

- Issue Resolution – As a process, issue resolution is a core element of partnering, and works well under the following conditions: 1) when it is understood by all, 2) when it is used consistently and initiated at the lowest level, and 3) when the stakeholders know exactly what is expected of them and how and where they fit into the issue resolution ladder/process.

- The Charter[77] – Charters are useful if they capture the mission, affirm unambiguous mutual goals, and clarify roles. Charters are not seen as useful if they possess the standard vague boilerplate language. In many instances producing a Charter is so routine that the intended linkages between individuals, organizations, tasks, goals and the mission are lost.

  Evaluation forms – The evaluation forms capture the basic elements of the partnering process and job specifications. The forms need to be filled out consistently, and more use of the comment areas will help SHA modify and evolve the process. A large percentage of participants indicate that paperwork, including the evaluation forms need to be reduced.

e. Process Measurement

Overall, the participants indicate that PET is useful in measuring core and technical components. When asked to provide additional ideas on what else might be measured, the participants provided numerous suggestions. They include overall length of the job; final cost; perceptions of the public; and perceptions of the stakeholders (in the project). Some thought should be given to conducting evaluations on-line and the use of intermittent semi-structured interviewing techniques.

[77] The responses in the questionnaire to the statement "A Charter is a useful outcome of the kick-off workshop" are generally supportive but, on further inquiry during the focus groups, the comments are interspersed with numerous concerns. Therefore, another inquiry was made by conducting a content analysis of a sample group of Charters.

f. Institutionalization of Partnering

Partnering embodies key SHA values, including collaborative problem solving using a mutual gains approach. Through partnering, SHA is evolving its day-to-day interaction with the public and their construction partners. To that end, partnering is the process that is creating major changes in SHA culture – in some areas. More specifically:

Partnering Impacts on SHA – SHA administrators and partnering personnel view the process as a fundamental shift in the way SHA is doing business (also see above the discussion of findings in "Partnering Roles" – Statewide Parenting Coordinator). Partnering is reshaping outside impressions of SHA, in particular, those held by stakeholders who first found themselves in a construction project that was bombarded with problems and then were introduced to the partnering process on another project. These stakeholders are exceptionally supportive of SHA, and are helping to realign external relationships with SHA.

Support for Partnering – Participants, regardless of who they work for, overwhelmingly indicate in the questionnaire that their senior management supports partnering. In the focus groups, participants mention that direct support is, essentially, a necessary condition in getting new stakeholders to take the process seriously. On an individual level, many stakeholders take the partnering process seriously and do so by actively engaging others. Commitment can be reinforced at the individual level through various forms of respect; recognition and appreciation (see relationship changes above). Modeling commitment is necessary for the morale and for the efficacy of the partnering process.

g. General Inclinations

There are at least two major themes that constitute "mega-trends," arising out of impressions gained from conducting a wide sweep of the trends listed in Table 24. As a whole, they tie together the basic trends (i.e. partnering roles, process components, human relations, the utilization of partnering tools, process measurements and the institutionalization of partnering) into a coherent framework. They are:

1. Overall Impressions – Peppered throughout the data are consistent patterns of participants providing concrete examples of how partnering has worked on specific projects. These data elements are not captured by PET or any other collection method (see Process Measurements). A dissection of the step-by-step process indicates that the key roles and events that constitute partnering are in place and function well (see Partnering Roles and Process Components).

Participants also indicate that when the process is used as intended, complex problems can be managed in a *face-to-face, problem solving context at the lowest level on the ladder*. This is where participants indicate that *the right people are making decisions at the right time and under the right conditions*. Thus, the process is empowering the entire team (see Teamwork above especially in regard to Roles, Rules and

Responsibilities). Under the right conditions partnering directly impacts the relationships of the stakeholders; if managed properly, it reinforces the notion that constructive controversy is permissible, as long as stakeholders respect each other and the process itself (see Relationship Changes). Some consideration will need to be made on how to continue the internal support of the process (see Utilization of Partnering Tools and Process Measurements). One thing is clear. When partnering is supported up the chain of command in SHA and in partnering organizations (public and private), the potential for optimal performance and quality results can be reached.

2. Willingness to recommend – If the participants in this study are any indication of the temperament, mindset and perspective of the construction community throughout Maryland, then the partnering process is here to stay. Conversely, it is likely the partnering process has had a great deal to do with the shift in focus among stakeholders and the way everyone does business. In the end, the most consistent theme throughout the data collected for this study is that, weighing everything at once, participants are much more inclined to partner – formally and informally – rather than take part in power games and legal battles.

Part III: Reexamining the Research Questions

Although the two research questions in this study are broad in scope we can now adequately address them in light of the specific findings and trends within the data analysis. The first line of inquiry examines the question: "How effective is the SHA partnering process in accomplishing its goals as indicated by stakeholders who use it?" The results tend to suggest that the partnering process has been effective in addressing the nine PET measurements. There are both empirical external measurement indicators as well as internal process data patterns (quantitative and qualitative), that support this conclusion as discussed in Sections IV and V. Partnering also impacts relationships, attitudes and overall conduct and demeanor – non-contractual elements that defy measurement under the current system – that arguably influence collaborative problem solving and teamwork.

The second line of inquiry examines the questions: "How well is the SHA partnering program operating?" While the major focus of this study is on the partnering process, it would be an incomplete study if the process was not placed within the context of the SHA structure. There are two ways to examine the question. The first is to adopt the "process to outcome" approach whereby the partnering program supports and manages the partnering process, and therefore any outcome is an indicator of the utility of the process. The second is to examine how the partnering program impacts not only the stakeholders within the process, but how, when and where the program impacts SHA as an institution. This second line of inquiry needs elaboration.

The partnering program is located at SHA headquarters. The Statewide Partnering Coordinator and immediate supervisor have offices within feet of the Administrators office. The Statewide Partnering Coordinator has direct access to the Administrator, who has been a consistent supporter and co-champion of the partnering

process. The partnering process is unquestionably a key element in the mission of SHA; there are irrefutable data showing that partnering embodies the values within the SHA culture of a new business model.

In summary, through the use of various data sources and subsequent data triangulation, a series of findings and trends have been developed to provide clear evidence that the partnering process and the partnering program are functioning well. In this instance, this research study has acted as an external review of both the process and the program. Finally, a series of recommendations are made in the conclusion to assist the Administrator, Deputy Administrator/Chief Engineer for Operations, Statewide Partnering Coordinator and the MdQI Partnering Subcommittee in their collective effort to evolve the process and program based on stakeholder interests and needs.

VII. Conclusion

Undertaking this study has provided the research team with a tremendous opportunity to closely examine a complex organization, system, process and network that has fundamentally altered the way a public sector organization is "doing business." From this study comes an understanding of partnering that few may realize or appreciate.

Partnering is a dynamic process involving a continuously changing set of interactions, whose interpretations are largely constructed in the minds of the stakeholders. In order to understand such complex ideas like partnering, people build heuristic devices (cheat sheets), sometimes in the form of simple models or acronyms, to remind them of key components of the larger phenomenon. We believe partnering can be accurately thought of as a specific type of *system* and *network*. In the process of building this *system and network* heuristic device, through the intense data analysis, it became easy to first say what it was not. Partnering is not, as some mention, a mechanical system where energy is supplied to a device which then predictably operates in a given fashion. Partnering, as we have learned, is too dynamic, often with unpredictable qualities, to fit this heuristic. Partnering is also not akin to an organic system, as some in the study have mentioned, where component parts (organs) are dependent on one another and expected to function in a complex, pre-ordained, self regulating and harmonious manner. Partnering operates within an environment that can produce high levels of uncertainty; thus lacking, by analogy, the built-in internal controls to match the complexity of, say, a brain or kidney. Likewise, a partnering project may still function even when a component part (person/heart) is absent or non-cooperative (kidney failure). Finally, an organic system is not capable of reconstituting or redesigning itself as partnering is.

As we have come to appreciate partnering, as an early warning system that focuses on the prevention and timely management of conflict, we recognize that its aim is to produce some degree of predictability, control and certainty for those who use it. Partnering is, therefore, a process or soft *system* that operates through a human network, all of which, at any one of many points, can breakdown. In order for partnering to work, the process *system* must have internal checking mechanisms – people talking to one

another regularly to clarify ideas, solve problems and address anything that may be misattributed, misunderstood, misinterpreted or misperceived.

Likewise, partnering, like many processes, can change or evolve; how this occurs is influenced by structure and function. Structure adheres to external and internal tension (for instance how exactly does SHA support the process?; how do stakeholders support and use the process?). Function adheres to form and structure (for instance, how does the partnering process operate under varying conditions of support or tension?). Structure and function together create the basis of process dynamics. In cases that the structure (SHA and partnering organizations) supports the function (utility of partnering), then the process system analogy fits the description of partnering that this study has developed.

We have also come to view partnering as a *network* of interdependent organizations, both public and private, that in isolation would be incapable of undertaking or completing complex highway construction projects. Network organizations are composed of various organizations supplying particular skills and talents to get a complex task accomplished. Network organizations thrive in the competitive environments such as the business sector, where change is the only constant. Network organizations are rarely seen in the public domain, as the conditions of competition and survival do not have the same impact on public organizations. From this study it is clear that partnering is one of the rare and exceptional examples of the *network* organization structure operating (functioning) within the public sector. This indicates that lessons from the private sector have impacted the way public administrators "do business," and clearly, the cross over impact has been well worth the risk.

As mentioned, process systems change and evolve. Networks shift and realign. Priorities change and members of the network migrate in and out based on the project. In light of these ever changing dynamics, this study makes recommendations relating to the evolution of the process and program. Before doing so, however, there needs to be a discussion on the limitations of the study.

Limitations of the Study

In order to fully appreciate the weight of the recommendations, it is necessary to remark on the limitations of this study. It is by no means methodologically ideal, given the nature of the topic being studied, the lack of variable controls, and the lack of other devices that ideally would help to isolate the topic under study in a controlled setting. Therefore, the recommendations can be generalized only to SHA partnering, or other state programs structured in a similar fashion.

We did not collect the data during the winter – the ideal construction down time. This may impact the findings, as we did collect data during the summer season, which is the height of construction activity. This arguably limits the availability of personnel to participate in the study and may, but not likely, impact the results.

The study does not track particular partnering cases, but opted to examine across the board trends in participants‟ partnering experiences. As such, we recognize that some partnering projects are ideal examples of the process and others are not. Taking these variations into account doesn‟t necessarily alter the data patterns presented in Sections V and VI, but it does recognize a limitation that can be overcome only if all partnering cases are somehow examined.

In hindsight, there are other ways to address some of the program indicators that tie into a construction project. One way to fully appreciate measurements such as the total time to complete the project or budget issues is to track these indicators using other SHA databases. While PET doesn‟t interact with other databases, it is more than reasonable to conclude that SHA does have data on such things as: change orders, budget and time lines. These can be used to link, by project number or name, to a spectrum of partnering cases ranging from simple to complex, inexpensive to expensive or other means of comparison.

As mentioned, the investigators did not take part in any partnering workshops or meetings during the data collection period, but have considerable experience facilitating such events. This may pose a limitation, only insofar as the necessity to examine process dynamics at the individual level is somehow different than these dynamics being examined in the aggregate. We think the deliberate design of the research tools, especially the questionnaire, effectively addresses this potential concern.

Ideally, it would have been better to have conducted a comparison between partnered and non-partnered projects, to examine differences between the interaction amongst the team members and the outcome indicators. This simply wasn‟t possible since the vast majority of projects are now partnered. It would have been problematic to examine a sample of pre-partnering cases due to the time lag, as well as getting people to participate in such a study. Our approach to addressing this lack of comparison was to focus on aggregate data, in the hopes of capturing some of the characteristics of poorly run construction projects.

Recommendations

There are two sets of recommendations. The first is linked directly to the data analysis and can thus be clearly traced back to various data patterns and multiple data sources. However, while these recommendations are empirically derived from the findings and trends in the study that provides guidance of a comprehensive nature, the data analysis is not the only source from which recommendations are being offered. The second set of recommendations derives from more specific points that come from the investigators observations and other experiences with SHA outside this study.

The purpose of these recommendations is to assist SHA partnering experts and stakeholders in addressing and improving upon some of the challenges that are currently being expressed within partnering projects. Keep in mind that the researchers are fully aware that external conditions (e.g. weather), forces (e.g. politics), and actors (e.g. the

public, secondary parties, politicians) often impact the project and thus the partnering process. So, when it comes to complete control of the partnering process, SHA has to work in a climate that often produces less control, certainty and predictability *even when* the partnering process is in place. The recommendations are also meant to assist SHA in evolving the process by taking note of what works well, what needs to be adjusted and perhaps, in a rare instance or two, what could be discontinued.

a. Data Driven Recommendations

Having said that it is clear from this research study that the partnering process functions exceptionally well and the institutional structure that supports the process is extraordinary and can hardly be improved upon.

- Facilitators should have some knowledge of SHA and the construction industry. The ability to substantively connect to the participants and to understand their perspectives and interests is more beneficial than someone who is "substantively neutral" and ignorant of the language and context.

- Trainers, likewise, should be knowledgeable of SHA and the construction industry, and provide concrete skills that assist stakeholders in managing or participating in the partnering process.

- Participants indicate that the "bootcamp" and some facilitation trainings are useful, and refresher courses are welcome. This will assist SHA in continuing to cultivate process competencies with internal meeting leaders and facilitators.

- The Charter should be discussed more thoroughly in the Field Guide and during Kick-Off Meetings, in order to provide specific information to stakeholders on its function and utility. A better example of an exemplary charter that at least mentions the common themes, seen in Section V Part II, should go in the Field Guide. Part of the focus should be placed on the mission and or vision of the project. The Charter, as we see it, has two distinct functions. One is project specific. The Charter is the mission in *action* and is the direct result of the quality of the workshop that produced it. If the workshop is taken seriously, the Charter should reflect that and vice versa. The other function of the Charter is more general. The Charter reflects the SHA partnering *process* and exemplifies the project from beginning to end all within the mission of SHA. Taking both Charter functions into consideration, the ideal purpose is for the Charter to take the partnering group from the present state of affairs to the future state (the quality of the end point or outcome) by acting as a roadmap on "how to" get there in a collaborative and efficient manner.

- Charters should also focus on the specific goals of the projects and the transparency of the process of obtaining them. These items should then be linked to the overall group mission.

- The Field Guide should contain some uniform language on partnering/progress meetings, in relation to those practices and functions that participants say works.

- If things are going well on a project, the meeting leader might consider communicating this to the partnering team and then foregoing a periodic meeting or hold a brief update meeting just to maintain consistent contact. This may help avoid the feeling that some meetings are a waste of time.

- A uniform policy on partnering should be created across SHA that also allows built-in flexibility to accommodate the specifics of particular projects. There should also be a clause in there that partnering tools are to be used uniformly.

- Measurement of the partnering process should evolve to go on-line. It is much *more efficient* for everyone involved and *reduces paperwork*. It will also allow more datasets to be linked in order to more accurately track job progress.

    - There may be some consideration to adding, at the end of the project, values for total number of days and final cost, in order to make more detailed comparisons.
    - Change orders, when being measured, should not automatically be considered negative.
    - Project Engineers should have access to all their projects through PET.
    - The PET program should have some interface capabilities with other SHA databases, so that information on projects contained in each can be merged to more effectively provide empirical evidence of the impact of partnering on projects and on the way SHA "does business" overall.

- More specifically, the PET Measurement of partnering elements could under-go a gradual evolution to attend to some of the following ideas.

    - Consider consistently labeling each incremental category in the current PET scale. This may help crystallize that a score of 1 readily means poor and unacceptable and a score of 4 means excellent and commendable.
    - Consider using a 5-point scale, so participants are not placed in a scenario where they must make a forced choice between 2 (leaning toward unacceptable) and 3 (acceptable) when, in reality, their inclination is indeed neutral. This will lead to a more accurate measurement of stakeholder opinions and ultimately better serve the process and program.
    - Consider comparing measurement outcomes to the original goals spelled out in that project‟s Charter.
    - Develop tools for a separate evaluation of specific partnering roles, including ones for the meeting leader and the facilitator. Some specific areas to consider are: organization, leadership, content knowledge and neutrality.

- The comments area of the rating forms needs to be used, as it provides continuous data that can be used not only to monitor the particular project, but also to monitor and improve the partnering process. A rating (evaluation) form that only has numerical responses is of little value, except to indicate if the project is going well (green flag) or is in trouble (red flag) without indicating via comments as to why. If the rating forms are electronic SHA might consider a program default mechanism that forces the rater to write something in the comments section in order to allow the form to be submitted.

- Team members must be able to see feedback on the rating forms.

b. Further External Recommendations

The following sets of suggestions provide more detailed ideas on how to approach the major recommendations listed above.

- *Consider Conducting Refresher Basic Bootcamp Training and Partnering Training for New Participants*

  People who took the Meeting Bootcamp training indicate that it was useful because it prepared them to run meetings by providing them with tools to plan, conduct and follow up on partnering meetings. In essence, the training provided a solid process perspective for meeting leaders. At periodic intervals various types of training or refreshers should be considered to maintain or improve the quality of the process.

  More specifically consider:
  - Content – Conduct basic Bootcamp training with more emphasis on process and procedure, especially by showing participants how to use various forms and by providing step-by-step procedures.
    - SHA might consider expanding meeting Bootcamp training to include topics such as how to identify stakeholders and issues.
  - Who should participate – All new SHA personnel should attend the meeting Bootcamp training.
    - SHA should seriously consider including non-SHA stakeholder personnel in the training to emphasize consistent process skills acquisition.
  - Types of training – Consider conducting a "refresher" advanced training program for experienced meeting leaders.
  - Providing partnering training for new participants – To avoid making too many assumptions, those experienced in partnering need to remember that new people do not always have the basic partnering foundations. New personnel need basic partnering training so that everyone is working from the same set of process principles.

- *Review the Partnering Kick-Off Workshop Structure and Agenda*

Under the right conditions the Kick-Off Workshops are typically viewed as helpful however the workshop structure varies slightly from District to District.

More specifically consider:

- Make wise use of time:
  - In the workshop continue to emphasize agenda-specific topics relevant to the project.
  - Provide advanced materials, such as brief handouts, that describe the partnering concept and process, especially for the new people, so there can be a short but meaningful discussion of it at the beginning of the workshop.
  - Be flexible and build a hybrid kick-off process for small partnering projects.
- Do two things at once. Teach process via substance. Participants with little partnering experience may need some communication or team-building exercises. It would be best to do so within the context of specific substantive issues within the particular project, so that experienced participants can also gain value from the exercise.
- Continue to provide food (breakfast, lunch, and beverages) as many study participants comment that it is an incentive for attending the meeting and thus increases networking opportunities.
- Build in face time. Build in considerable amounts of time for face-to-face discussion as participants indicate that this is meaningful in getting to know people and their roles and responsibilities.
- Utilities can have a major impact on construction projects. There should be a program with each utility company to communicate the coordinated activities for specific projects and, if possible, major incentives should be considered to get utilities to take part in training, kick-off and periodic meetings.
  - Since utilities are reluctant to participate at the Kick-Off Workshops use a collaborative discussion with them to find out how to get them into the process.
- Use the facilitator to assist in identifying the right participants for the workshop.
- Use senior management to get SHA traffic and bridge divisions involved at the workshop.
  - Have a facilitated meeting(s) between the Partnering Committee and the traffic and bridge divisions within SHA to discuss interests in partnering participation.
- Communicate:
  - Just prior to the Kick-Off Workshops personally remind subcontractors of the meeting and the importance of attendance.
  - Send an e-mail message reminding all participants of the kick-off workshop and ask for a response.

- *Establish More Effective Communication*

  Partnering is predicated at its core on multiple forms of effective and timely communication. More lines of communication that convey meaningful dialogue can positively impact the quality and timing of collaborative problem solving and decision making. The process leaders should be responsible for open lines of communications.

  More specifically consider:
  - All participants should have:
    - Up-to-date contact information, including individual e-mail addresses.
    - A detailed explanation of the need for and the use of the issue resolution ladder at the partnering workshop.
  - Consider developing a model for more than one issue resolution ladder, such as operational and contractual.
  - On the workshop agenda there can be options to offer training in things such as:
    - Effective communication skills building
    - Dealing with difficult people
    - How to handle difficult conversations
    - Understanding and managing differing conflict styles
    - Impression management (tact and diplomacy)
    - Impulse control (keeping your cool)
  - Clarify the means for contractors to raise "good ideas," whether at the workshop or during the project.
  - Discuss negative perceptions of partnering and means to overcome these mindsets (e.g. partnering is a "one-way street" or a means for one stakeholder to take advantage of the other stakeholders).

- *Hold Informal But Structured Periodic/Progress Meetings*

  Along with effective communication the use of periodic progress meetings is at the core of partnering. It is here that partnering is most useful in preventing and managing problems in a timely manner. These meetings are the appropriate place to get the right stakeholders to the table to focus on resolving current challenges and issues.

  More specifically consider:
  - Publishing a schedule of the meetings and maintain flexibility to set additional meetings when necessary.
  - Give the stakeholders the opportunity to provide input on the agenda.
  - Prepare a written agenda in advance and distribute it to all stakeholders prior to the meeting.
  - Publish a summary of the meeting and distribute it.

- Invite other subcontractors to attend as they become actively involved in the project.
- If possible, establish a template core agenda in order to provide some uniformity from District to District.

- *Develop Additional Partnering Measurements*

At strategic times during the project and at the completion of the project, SHA needs to know how well partnering is working and whether an adjustment or an intervention is necessary to increase its effectiveness and efficiency. Additional partnering measurement tools are needed to provide this critical feedback.

More specifically consider:

- Develop standards for the measurement of paper reduction.
- Evaluate at the beginning of meetings, disclose the results to participants during the meeting, and discuss low scores at the meetings (this may be a high risk tactic).
- Capture historical partnering data from other internal SHA functional elements and try to get their reporting systems to interface with a partnering measurement system.
- Inform stakeholders of the underlying reasons and interests SHA has in measuring certain items.
- Give stakeholders feedback on measurement.

- *Use an Experienced Partnering Facilitator*

SHA primarily uses internal personnel as both meeting leaders and facilitators. On some occasions, external facilitators with construction experience are used.

More specifically consider:

- Developing a roster of qualified facilitators with construction experience for more complex projects.
- Conducting an advanced internal facilitator skills-building training program for meeting leaders and facilitators.
- Developing an evaluation form for meeting leaders and facilitators performance.
- Establishing clear guidelines on when to use outside facilitators.
- Continuing to use co-facilitation to train inexperienced internal meeting leaders.

- *Continue to Develop Partnering Guides/Brochures*

SHA has done an excellent job of developing informative partnering materials.

More specifically consider:

- Taking the results of this study and incorporating them into materials provided to the construction community and general public.
- List both anecdotal comments from stakeholders and quantifiable results in brochures.
- Consider publishing case studies on several highly successful partnering projects.
- Promote the use of partnering best management practices.
- Ask for other stakeholders‟ comments and recommendations on SHA materials.

- *Conduct Outreach to External Stakeholders*

SHA does conduct outreach through its Districts and the Partnering Subcommittee. However, there is more of a need to conduct more partnering training/outreach in those districts with high contractor turnover. This applies mainly to the larger metropolitan areas within Maryland, rather than the rural districts.

More specifically consider:

- Invite contractors and consultants to attend trainings.
- Continue to have non-SHA members on the Partnering Subcommittee.
- Describe the specific benefits and value of partnering to external stakeholders and the public.

- *Discuss Problem Solving and Issue Resolution*

Problem solving is a big part of the Kick-Off Workshops and periodic meetings already; however, the development and use of issue resolution ladders and dispute resolution alternatives can be improved.

More specifically consider:

- Providing more training on the purpose, development and use of issue resolution ladders.
- Using a facilitator at periodic meetings when difficult issues are discussed.
- Developing an intervention plan when partnering is not working or on a project without partnering.
- Discussing other forms of dispute resolution such as dispute review boards and mediation on mega-projects.
- Providing guidance on dispute resolution alternatives in Bootcamp training, advance training workshops, and in field guides.

Implications for Future Research

The findings from this study have produced a clear image of where future research inquiries should focus. There are numerous conditions to consider when conducting research on complex problem solving and, in general, it is often highly problematic to do this type of research when the conflict is on-going. However, there is something to be said about action research and being intimately involved in specific cases. Taking part in partnering activities, such as issue resolution at the site-specific level can contribute to greater understanding of the partnering process, and thus is a ripe area for future research.

Another area of research, unlike the active participant research mentioned above, is to systematically examine all data sources within SHA, to obtain more direct empirical data on specific partnering projects. SHA has the data in various program databases which can, when combined, create a longitudinal trend analysis on key measures such as change orders, value engineering, delay days, time to completion and budgetary items. The findings from such a study could be compared to this more focused study, to provide the clearest depiction of the impact of partnering on SHA and Maryland taxpayers.

Another area of future research is to examine why certain organizations prefer not to partner. Still another area of future research is to examine the interests and needs of utility companies, who are major stakeholders playing only a diminished role, to learn how to better engage and coordinate functions at the site-specific level. Finally, in order to view the process from the reverse, it would be highly beneficial to examine partnering cases that did not go well at all, for it is from an examination of our failures that we really learn the most.

VIII. Glossary of Terminology

Active or Reflective Listening – is a critical interpersonal communication skill that emphasizes the not only the substantive content but affective messages of the speaker in order to capture the *meaning* behind his or her intended communication. Active or reflective listening is absolutely critical for effective communications in partnering as it is the core building block of all problem solving and decision making. A common statement that emphasizes the importance of active or reflective listening is – "if you are doing more than one thing at a time then you are not listening."

Alternative Dispute Resolution (ADR) also known as dispute settlement, dispute resolution or conflict intervention – refers to a continuum or series of dispute intervention processes such as negotiation, mediation or arbitration that are used by parties to resolve or settle disputes most often in lieu of, or in comparison to, litigation.

Action Plans – are specific written guides or procedures focusing on the "what" "who" and "when" to overcome "rocks in the road" (see below). The development and execution of an action plan requires the impacted stakeholders work in a collaborative manner.

Boot-Camp Training – is the basic training used by the Maryland SHA to introduce individuals to planning, conducting and follow-up for partnering meetings.

Champion – a person who oversees a project or program to insure it is completed in a timely manner. A "project" champion is a person who agrees to monitor the partnering relationship on a specific project from beginning to end. A "program" champion is a person who oversees the entire partnering program for SHA and whose job it is to make sure the process is being used consistently and transparently on all projects over $5 million.

Change Order – a modification to the contract made in accordance with the contract terms by a person authorized to approve the change.

Charter – a written statement by the stakeholders constructed at the kick-off workshop that creates a visual reminder of their mutual commitment to the partnering mission, vision and their relationship. It is usually a one-page document signed by all the participants at the end of the workshop.

Claim – is a request by a contractor for the payment of money, an adjustment of the contract terms, granting of a time extension, or other relief relating to the contract.

Collaborative Problem Solving – is a process where stakeholders can meet in 1) a face-to-face real time context and 2) take advantage of their collective skills and talents to 3) build a creative, long lasting solution to a shared problem.

Core Elements – is not a term used by SHA. It represents the five human factor elements periodically measured with the evaluation forms (see below) and entered into the SHA Partnering Evaluation Tool (see below). These core elements reflect the essential attributes of partnering: establishing effective **communication**, creating an atmosphere for **teamwork**, building **cooperation and respect**, facilitating **issue resolution**, and achieving quality **job progress**.

Evaluation Forms – are periodically completed by the stakeholders to measure nine specific elements of the partnering process (see Partnering Evaluation Tool or PET below). These forms serve multiple purposes including: monitoring progress on specific projects and thus useful for the preparation for periodic meetings; monitoring the partnering program statewide and, to a lesser extent, measure stakeholders commitment to the partnering relationship and desire to achieve the mutual goals (see below) set out in the Charter (see above.)

Facilitator – is a third party process specialist who assists stakeholders in designing and conducting the kick-off workshop. The facilitator brings communication and problem solving skills to the workshop and is often experienced in or knowledgeable of the construction industry. The facilitator may also assist in periodic follow-up meetings.

Green Flags – is also not a term used by SHA. It is used in the study as a means of signaling that one of the nine PET elements (see below) is above a mean rating of 3.0. This indicates that the partnering team is doing well on this element and that should be conveyed to the team via the meeting leader.

Guiding Principles – these are written expressions of underlying constructive behaviors (conduct) on the project site that the stakeholders have agreed to uphold. They are sometimes found in the Charter (see above).

Implementation Strategy – a proactive planning tool for nurturing and evaluating the partnering relationship during the life of the project with the additional intent of continuously improving the partnering relationship and process.

Issue Resolution Ladder – is a problem solving procedure, developed by the stakeholders, to identify issues in a timely manner and have the right people resolve them quickly in order to prevent destructive conflicts. Ideally, the procedure starts at the lowest level in the chain of command with face-to-face interest-based discussion, sometimes at the construction site, and barring resolution the issue rises up through the partners‟ organizations to the appropriate level for resolution.

Kick-Off Workshop – is a facilitated meeting where stakeholders develop their partnering team and establish a network relationship. It is scheduled to occur early in the project often just after the contract award. Generally speaking, it is desirable to hold the kick-off workshop as early as possible in order to take advantage of the strategic planning, teamwork and collaborative problem solving benefits that are the established during the workshop.

Meeting Leader – is typically a Maryland SHA person other than a facilitator that conducts an informal content-oriented kick-off workshop.

Mutual Goals – are the commonly agreed upon outcomes that the stakeholders have developed in the kick-off workshop. Mutual or shared goals act as an end point in the partnering process.

Network Organization – a term used sparingly, to describe the relationship between various organizations (e.g. contractors, subcontractors, utilities, SHA) who, on their own, can‟t complete a project using only their own skills and resources but who realize that by joining in an affiliation and using collaborative processes such as partnering, can achieve individual and collective goals. This terminology is related to Organizational Structure (see below).

Organizational Structure – is the hierarchy of decision making for each organization/stakeholder taking part the partnering process. Understanding another stakeholder‟s organizational structure allows the partnering team to more fully appreciate the strengths and weaknesses each stakeholder brings to the process and thus allows the partnering process to focus on the early identification of potential challenges, problems or conflicts.

Partnering – is a collaborative problem solving process that is used to achieve quality project outcomes by use of effective communication, teamwork, and strategic planning. It thus acts as a preventative process and early warning system foe the stakeholders as they network together to attain individual and mutual goals that they couldn‟t otherwise achieve on their own.

Partnering Evaluation Tool (PET) – is a software program developed and piloted in 2001 by the Maryland SHA to collect and monitor nine specific types of data that measure key elements of the partnering process. Since July 2002 partnering projects have been monitored using PET.

Periodic or Progress Meetings – these meetings are almost always held after the kick-off workshop to reinforce the partnering relationship and to address project issues. The meetings are often held by the project leader and may include the entire partnering team or those members of the team necessary to address a specific issue. These meetings ideally form the core of the partnering process.

Red Flags – a means of signaling that one of the nine PET elements (see above) has fallen below a mean rating of 3.0. This indicates that there is a problem that needs the attention of not only the meeting leaders but the Statewide Partnering Coordinator.

Rocks in the Road – a slang term that refers to the problems or challenges that stakeholders recognize may occur on the project and, if not resolved, could have a significant adverse impact on meeting project goals (e.g. time line and budget). To

complete the analogy, partnering is the early warning system that identifies the roads in the road also as to avoid (prevent) a collision.

Team Building – a multifaceted process that evolves over time that brings individual stakeholders together within a cooperative relationship and network that emphasizes mutual gains through collaborative problem solving.

Technical Elements – is not a term used by SHA. It represents the essential attributes of partnering evaluation on site: these include: **safety**, **material clearance**, **maintenance of traffic**, and **erosion and sediment control**.

Total Quality Management (TQM) – a project management process that uses an integrated approach to improving project quality by focusing on customer satisfaction, seeking continuous improvement, and fully involving the workforce.

Triangulation – the process of using numerous data sources to examine a particular research question thus increasing the probability that the findings are reliable and valid.

Vision – is an expression of what all the stakeholders ideally want to accomplish as a result of the project. It is what the "mission" is intent on accomplishing.

IX. Appendices

Appendix A – Partnering Project Rating Form

Partnering Project Rating Form

Contract:_____ Description:_____ Evaluation Period:_____

Representing: (Check One)
SHA____ Contractor_____ Subcontractor_____ Design Consultant____ Other_____

STANDARD EVALUATION ELEMENTS

Circle Rating for Each Element

(1) Communication Open and honest communication among the group members is:	Non-Existent **1**	Cautious/Guarded **2**	Meeting Needs **3**	Open/Free **4**	I don't know **N/A**
	Comments:_____ _____ _____				

(2) Teamwork The group encourages all of its members to participate:	Never **1**	Infrequently **2**	Often **3**	Always **4**	I don't know **N/A**
	Comments:_____ _____ _____				

(3) Cooperation and Respect On this project, relationships among team members as a whole are characterized by:	Lack of Cooperation and Respect is the Norm **1**	Cooperation and Respect Often Prevail **2**	Cooperation and Respect Almost Always Prevail **3**	Cooperation and Respect are Strong and are Being Nurtured **4**	I don't know **N/A**
	Comments:_____ _____ _____				

(4) Issue Resolution Team members and their counterparts identify issues and find that the process of timely resolution or escalations is:	Not Functioning **1**	Functioning, but Untimely **2**	Established and Functioning **3**	Exceeding Expectations **4**	I don't know **N/A**
	Comments:_____ _____ _____				

(5) Job Progress The process to monitor and assure the project"s on time completion is:	Unresponsive **1**	Marginally Successful **2**	Meeting Expectations **3**	Exceeding Expectations **4**	I don"t know **N/A**
	Comments:_____ _____ _____				

(6) Safety The process to monitor and assure safety this period is supported by all stakeholders:	Little Regard to Safety **1**	Unsatisfactory Compliance **2**	Meets Minimal Safety Regulations **3**	Zero Lost Time Accidents (This Period) **4**	I don"t know **N/A**
	Comments:_____ _____ _____				

(7) Material Clearance Cleared During This Evaluation Period of the Project	<50% of Materials **1**	50-59% of Materials **2**	60-79% of Materials **3**	80-100% of Materials **4**	I don"t know **N/A**
	Comments:_____ _____ _____				

The following information to be supplied by Project Engineer:

(8) Maintenance of Traffic Rating (Average for this period, using Form #52.4.01)	D **1**	C **2**	B **3**	A **4**	 **N/A**
	Comments:_____				

(9) Erosion and Sediment Rating (Average for this period, using Form #72.0-C-28)	D **1**	C **2**	B **3**	A **4**	 **N/A**
	Comments:_____				

Optional: Project specific measurements (to be established by Partnering Team)

(10)	 **1**	 **2**	 **3**	 **4**	I don"t know **N/A**
	Comments:_____ _____ _____				

This form should be completed monthly and the results entered into the Partnering Data Base.

Appendix B – Issue Resolution Chart

ISSUE RESOLUTION CHART

SHA Project Number_____ **Date**_____

Project Description_____

Issue Description	Date & Time (issue id.)	Target Date (for resolution)	Lead Person(s)	Date & Time Resolved	Resolution	Key Players	Status of Issue

NOTE: Charts with <u>new</u> entries should be submitted once a month to the district‟s Area Engineer(s)/ADE-C.

The Partnering Process: Step-by-Step

The partnering process begins after two or more organizations reach an agreement or sign a contract to work together on a project. The best time to initiate the partnering process is immediately after the award is made. The benefit to an early start in partnering is to create a set of expectations that instill good communications, teamwork and collaborative problem solving from the start of the relationship.

The partnering process can be separated into several distinct steps for clarity and understanding. These steps are: Contract Award, Post-Award Planning, Kick-Off Workshop, Periodic Partnering Meetings, and Project Completion.

Contract Award

1. Agree to Partnering

The contract between the two parties may contain a provision that encourages or requires partnering. If the contract does not have a partnering provision, then the parties can orally initiate partnering.

2. Plan to Start Early

The best time to start the partnering process is early before problems arise; however, partnering can be initiated at any time during the project.

Post-Award Partnering Planning

1. Select Facilitator

The facilitator is selected during the planning phase because he or she needs to begin working closely with the major stakeholders early in the process to plan the content and agenda for the kick-off workshop.

2. Identify Stakeholders

The primary stakeholder or those directly impacted by the terms of the contract and the outcome of the project must be identified early on to determine who needs to take part in what parts of the partnering process. The kick-off workshop brings together all the parties that are impacted by the project. These may include among others the design firms, subcontractors, suppliers, public utilities, and the end user of the project.

3. Pick Date and Location for Kick-Off Workshop

The final planning activity is to pick a date, time and place for the kick-off workshop that is acceptable and convenient to the stakeholders. The location is often at a neutral site such as a hotel meeting room.

Kick-Off Workshop

1. Meet Stakeholder Participants

At the kick-off workshop the (stakeholder) participants have the chance to meet each other, put a face to specific names (and their respective roles) and otherwise become familiar with the people they will be working directly or indirectly with throughout the process. For many participants this is the first time that they have met the other participants in person.

2. Understand Other Stakeholders Interests

During the discussions participants will often learn from others information that helps to surface hidden issues or issues that they didn't anticipate arising later in the construction process. Many of the discussions are typically structured to focus on the participants' project interests such as goals, priorities, problems, and issue resolution. In orchestrating the discussions around these topics it assists all participants in grasping how their organization and their interest, issues and needs fit into the larger scheme.

3. Work on Problem Solving

The participants first identify issues that are or may cause problems and are introduced to a structured format for addressing them. Likewise, joint problem solving also includes a realization that issues are linked and, as such, the problem solving process will need to take into consideration a systems approach. The participants select the most critical problems that they want to jointly develop a plan to resolve.

4. Develop Issue Resolution Ladder

An issue resolution ladder is a device that participants use to address issues as they arise. Each rung of the ladder (sometimes called step) identifies the key personnel from the appropriate partnering organizations and the time frame they have to address the issue. At the lowest rung issues are quickly addressed face-to-face in an interest based format – often times on-site. As issues become more complex and impact more partners the issue progresses one rung at a time into the appropriate partnering organizations to be resolved at the more appropriate level. At the highest level of the ladder issues may take several days or more to resolve.

5. Plan for Implementation and Evaluation

A final workshop activity is to create an implementation plan for meeting the partnering mission, vision and goals reached at the workshop that will be undertaken during contract performance. This plan usually includes scheduling periodic partnering meetings to follow-up on the workshop and having the stakeholders evaluate in written or oral forms how well the relationship is working.

6. Sign Charter with Mission and Goals

At the end of the workshop, the stakeholders prepare a written Charter as a visual reminder of their mutual commitment to the partnering mission, vision, goals, and relationship. It is usually a one-page document signed by all the participants at the end of the workshop.

Periodic Partnering/Progress Meetings

1. Identify Current and Potential Issues

A core action at the periodic meetings is to check on the issues that are still pending and to address new issues that may become problems. As a result, action plans developed at the kick-off workshop may be reviewed and, if necessary, modified and new action plans for problems just arising may be developed.

2. Follow Meeting Agenda

The Project Manager (sometimes referred to as the Project Engineer) will schedule the periodic Partnering meetings that follow the kick-off workshop and will draft an agenda for the meeting. These meetings are attended by stakeholder participants that have an interest in the topics on the meeting agenda; however, the meetings are often open to all participants to attend.

3. Complete Evaluation

At times during contract performance there is a need to check on whether the stakeholders are meeting the partnering goals and other objectives specified in the Charter. This evaluation is usually accomplished by the use of a printed evaluation form with space for comments and is completed by the stakeholder participants.

4. Share Previous Ratings

After the evaluation forms are collected, the Project Manager tabulates the results and distribute them at or before the meeting to the stakeholders. Poor ratings and written comments are usually addressed at the meeting.

5. Discuss Upcoming Activities

A final item on the meeting agenda is to discuss upcoming activities. These activities are generally partnering or project related.

6. Prepare and Distribute Meeting Minutes

The last activity for the Project Manager is to prepare a summary of the discussions and agreements reached at the meeting. These are usually distributed to all stakeholders and provide an excellent record of the partnering progress.

Project Completion

1. Partnering Evaluation

When the project is complete, the stakeholders can use final evaluation forms to measure whether the project goals were meet and what was accomplished by partnering.

2. Celebration of Success

To bring closure to the partnering effort the stakeholders may want to schedule an activity for the stakeholder participants. The activity is often a lunch, dinner or family picnic with all the stakeholders.

Appendix C continued

PARTNERING PROCESS

Pre-meeting - Core group **plans Kick-off Workshop**
(PE, Area Engineer, Contractor rep(s),
Design if Detail-Build, QRC,
Partnering Coordinator, external facilitator if used,
others if needed)

See attached: Pre-meeting Checklist
Workshop Options
Sample Workshop Agenda

Kick-off Workshop - **Develop Charter –** Mission/Goals
Provide structure for **Communications** and
Issue Resolution processes (Ladder & Chart)
Schedule monthly Partnering meetings in
advance (i.e. 2nd Tues/month)

Monthly Partnering Meetings
Agenda sent 1 week in advance to all members
cc: Partnering Coordinator
Invite **Stakeholders** as needed or as phases change
Complete **Partnering Rating Forms**
Review Last Partnering **Rating Summary**
Review/Update **Issue Resolution Chart**
Identify/discuss **new issues**
Develop **Action Plan** (What, Who, When)

After Meeting:
Enter Partnering Ratings into **Data Base**
Send meeting **Minutes** to all members
Send Updated Issue Resolution Chart
to **ADE-C and Contractor's Manager Rep.**

Intermediate - **Intervention** for projects who need to get the Partnership back on track.
Half-way point for large projects – rejuvenate
New Members – awareness of Charter, Partnering Processes

Closing - **Lessons Learned/Celebration**

February, 2004

Partnering Workshop Options

Type of Workshop depends on:

- Scope, Size, & Budget
- Familiarity with partnering principles by the contractor.

Option 1

1-2 day workshop using external facilitator

- Usually held off-site

Option 2

½ day-1 day with in-house facilitation

- Using leaders of the project (PE, AE, ADE, PM, Super, etc.), QRC"s, and Partnering Coordinator
- Hold pre-meeting with core project team to plan the workshop (can do some prework here…draft mission, goals, ladder to be presented at workshop – streamlines the process, allows more time to be spent on resolving issues).

Option 3

2 hour workshop conducted by Project Leaders

- Can be done on-site, in the field

Option 4

Combine Pre-construction meeting with Partnering workshop

- A lot of the same people
- Bring more value to pre-con

Option 5

Any combination of the above, so long as meet the requirements listed below

Requirements for Partnering Projects:

1. Charter (mission and goals)
2. Issue Resolution Ladder
3. Use of Partnering Forms and Database
   -Partnering Project Rating Form
   -Issue Resolution Chart

PRE-MEETING CHECKLIST
Planning the Partnering Workshop

- ❒ Workshop Logistics
  - ❒ Use Internal or External Facilitation
  - ❒ Date/time
  - ❒ Location/Menu
  - ❒ Participants/Addresses
  - ❒ Invites (sample on page 10 in Field Guide) - develop and send approx. 3-4 weeks prior to workshop, along with agenda

- ❒ Develop <u>DRAFT</u> Mission Statement to be presented at workshop

- ❒ Develop Goals/Measurement and Expectations for this project

- ❒ Review Partnering Project Rating Form

- ❒ Identify Issue Resolution Process (ladder)

- ❒ Review Issue Resolution Chart

- ❒ Build Workshop Agenda (see sample agenda)

- ❒ Select Team building activity for workshop (i.e. Introduction Activity, Jungle Escape, Tricky Tales, Other)

- ❒ Assign Agenda items to specific team members (PE, PM, AE, Superintendent, - the leaders of the project) and practice.

- ❒ Determine handouts/posters / supplies needed:

___Workshop Invite
___Workshop Agenda
___Draft Mission (8 ½ x 11 and large version)
___Issue Resolution Ladder (8 ½ x 11 and large version)
___Flip Chart/Markers
___Digital Camera
___Debrief
___Enlarged plan of project limits, Photos, Other visuals
___Goals/Expectations (8 ½ x 11 and large version)
___Participants Info. Sheet
___Name Tags
___Partnering Field Guides
___Other

SAMPLE

PARTNERING WORKSHOP AGENDA
PROJECT:_____

DATE:**_____**

- Welcome, Purpose, Partnering Principles/Expectations _____
- Introductions (Name, Organization, Role on Project, other) _____
- Ground Rules _____
- Project Overview _____
- Mission Statement _____
- Goals/Expectations _____
- Partnering Project Rating Form _____
- Issue Resolution Process _____
  - Ladder
  - Chart
- Identify Issues and Action Planning _____
- Maintaining Partnering _____
- Signing of Charter / Group Photo _____
- Workshop Debrief _____
- Closing _____

~SAMPLE AGENDA~
For Monthly Meetings

Partnering/Progress Meeting
(project #)
(date and meeting #)

Time	Agenda Item	Lead Person
9:00-9:10	**Welcome/Introductions**	**PE/PM**
9:10-9:20	Partnering Project Rating Forms Complete this months Summary of last months Rating Forms	PE
9:20-9:25	Review Mission and Project Goals (to be done quarterly)	PE/PM
9:25-9:40	Status of Project Schedule	PM
9:40-10:40	Issues/Ideas List specific issues; Use Numbering System to track i.e. 0102.01 (mo/year.issue #)	(person resp. for issue)
10:40-10:50	Summarize Meeting/Action Items	(person taking minutes)
10:50-11:00	Plan Next Meeting Date: Time: Location: Agenda Items:	PE/PM

Appendix H – SHA Research Questionnaire

Maryland State Highway Administration
Partnering Questionnaire

The Maryland State Highway Administration (SHA) is working with partnering researchers from the Center for Conflict Resolution at Salisbury University to examine how the partnering process is being used and how participants in the process perceive the overall strengths and weaknesses of partnering. You are being asked to participate in this research study due to your intimate knowledge and involvement in the partnering process.

In the Maryland SHA Field Guide it states that "the purpose of partnering is to create a multi-participant team in which all key participants are committed to a common purpose, goals and work approach for which they hold themselves mutually accountable." This research also is interested in the best practices for achieving this purpose.

Participation in this research is completely voluntary and you may stop at any time. All information gathered in this questionnaire will remain confidential. Your responses will be entered into a software program and the printed copies of the questionnaire will be kept in a locked filing cabinet with all your personal information removed and replaced with an ID number. Once the study is complete the printed questionnaires will be destroyed.

Thank you for taking part in this research study. Your input will provide SHA, other state highway agencies and private organizations with valuable insight on the partnering process.

Bridgid Seering
Partnering Coordinator
State Highway Administration

Frank Carr
Partnering Facilitator
Carr, Swanson & Randolph

Brian Polkinghorn, PhD
Executive Director
Center for Conflict Resolution
Salisbury University

Section I

Familiarity with SHA Partnering

1) *When* and *how* did you first hear about partnering?

2) What materials have you read about partnering?

Questions	*Response*	
	Yes	**No**
Have you used the SHA partnering manual?		
Have you heard about partnering at seminars or conferences?		
Did you receive any training about partnering?		
Does your senior management support partnering?		
Does the local SHA District support partnering?		
Prior to participating in partnering did you have an opinion about the partnering process?		
If you had a prior opinion was it generally positive?		
What was your opinion based on? *Please use the space below*.		

3) How many years experience do you have with SHA partnering?

#Years _____

4) In those years, approximately how many Partnering projects have you participated in?

# of Partnering Projects _____

A. About the Partnering Kick-off Workshops

1) Generally speaking are the SHA partnering kick off workshops you attend:
(check the *one* that most accurately reflects your general experience)

Less than a day? □
One day? □
Over one-day? □

2) Generally speaking what percentage of the time did the workshop you took part in use:

Type of facilitator used:	*Percentage of workshops*
An internal SHA facilitator/meeting leader	
Someone (not SHA) from the group facilitated	
Use an outside private facilitator	
No facilitator was used	
Total	**100%**

B. Partnering Experience – Other Than SHA

1a) Was the workshop format the same as SHA? Yes □ No □
1b) If not, what was done differently?

2) What was done differently that was beneficial for you?

3) What recommendations would you make to SHA based on your outside partnering workshop experiences?

Section II

General Impressions of the Partnering Process

Instructions: Please think about all your experiences in partnering (good, mediocre, not good) to form your general impression of the process and use that to respond to each statement. Later, you will have the opportunity to provide your own feedback on what you consider to be good and poor characteristics of the partnering process.

Note: For the purposes of this questionnaire a **"meeting leader"** is defined as the person who is content oriented and connected to the project. An example is a Project Engineer or superintendent. A **"facilitator"** is a person who is process oriented and not directly connected to the project. Examples are external consultants or the partnering coordinator.

Response Scale: Please respond to the following statements using the five point scale:
1 = Totally disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree and,
5 = Totally agree

Statements	Response Scale				
A1. The Meeting Leader					
	1	**2**	**3**	**4**	**5**
The meeting leader was prepared					
The meeting leader was familiar with construction issues					
The meeting leader got all the stakeholders to the table					
The meeting leader clearly explained the partnering process					
The meeting leader clearly discussed "issue resolution"					
The meeting leader understood my interests					
The meeting leader used time wisely					
The meeting leader discussed next steps (e.g. next meetings)					
The meeting leader discussed the action plan for issues					
The meeting leader discussed the project plans					
The meeting leader acted neutral					
A2. The Facilitator					
	1	**2**	**3**	**4**	**5**
The facilitator was prepared					
The facilitator was familiar with construction issues					
The facilitator got all the stakeholders to the table					
The facilitator clearly explained the partnering process					
The facilitator clearly discussed "issue resolution"					
The facilitator understood my interests					
The facilitator used time wisely					
The facilitator discussed next steps (e.g. next meetings)					
The facilitator discussed the action plan for issues					
The facilitator discussed the project plans					
The facilitator acted neutral					
B. Specifics about the Kick-off Workshop					
	1	**2**	**3**	**4**	**5**
The workshop was conducted early in the project					
Partnering was used only after a conflict arose					
The workshop was conducted at a neutral site					
There was a clear agenda					
All the relevant stakeholders were in attendance					
The workshop atmosphere was cooperative					
We were able to discuss the problems of the project					
I normally get a lot out of the partnering process					
We discussed an issue resolution ladder					
My project concerns were clearly addressed					
The stakeholders agreed on mutual goals					
A charter is a useful outcome of the kick-off workshop					
Appropriate measurement criteria were developed					

C. Implementation					
	1	**2**	**3**	**4**	**5**
1. Monthly follow up partnering/progress meetings					
Partnering was always discussed at these meetings					
Follow up monthly progress meetings used the same meeting leader as the kick-off workshop					
Follow up monthly progress meetings used a facilitator					
Follow up monthly progress meetings accomplished stated goals					
Follow up monthly progress meetings are beneficial					
2. Intermediate partnering workshops					
An intermediate workshop has been used when the project is two or more years in length					
An intermediate workshop has been used when major change in personnel occur					
An intermediate workshop has been used when significant problems arose					
I find these intermediate workshops beneficial					
3. Partnering impact on stakeholders					
Partnering improves communication					
Partnering does not prevent conflict					
Partnering makes project coordination easier					
Partnering does not improve personal relationships					
Partnering helps resolve conflicts					
Partnering has been abused by some stakeholders					
Partnering improves trust					
Partnering helps gain respect for others					
4. Partnering Impact on Outcome					
Partnering improves the overall project quality					
Partnering does not save time to project completion					
Partnering minimized the number of issues in conflict					
Partnering reduces the time it takes to resolve issues					
Overall, my experience with SHA partnering has been positive					

Your specific feedback on the partnering process

1. List characteristics that you consider to be indicative of a <u>well run</u> partnering project.

2. List characteristics that you consider to be indicative of a <u>poorly run</u> partnering project.

3. What parts of the partnering process do you see as <u>most</u> beneficial to you?

4. What parts of the partnering process do you see as <u>least</u> beneficial to you?

5. What suggestions do you have for improving the partnering process?

6. What measurement criteria should SHA be using to evaluate partnering?

Section III - Confidential Individual Information

Note: All information including individual information will be reported as a group.

Demographic			
Years in the construction industry			
I represent:			
		SHA	
		Headquarters	
		District	
		Other	
		Contractor	
		Consultant Designer	
Other Professional Credentials			
Professional Certifications		Please List:	
Professional Licenses		Please List:	
Other credentials		Please List:	
Education (Check highest level achieved)			
High School		Bachelors Degree	
Trade School		Masters Degree	
Some College		Doctoral Degree	
Associates Degree			
Gender		Male	
		Female	
Ethnicity (check one)			
African American		White	
Asian American		Multiethnic	
American Indian		Other	
Non White Hispanic			

Finally, would you **recommend** □ or **not recommend** □ the partnering process to others? Please elaborate.

Appendix I – List of Focus Group Participants

List of 88 Participants who agreed to be identified as taking part in the study

Note:
ADE = Asst. District Engineer
AE = Area Engineer
PE = Project Engineer
PM = Project Manager

District 1 Participants

Name	Title	Organization	Partnering Exp. (in yrs)
Tony Mawry	Partner	Wallace, Montgomery & Associates	6
Don Conner	PE	SHA/CID	10
Dave Propper	Office Engineer	JMT	6
James Egbert	Inspector	JMT	10
John Zanetti	Transport. Engineer	SHA/OHD	10
Ravi Ganvir	ADE Construction	SHA-D1	7
Hicham Baassiri	Engineer system design	SHA-D1	5
Mike Sturdevant	PM	David A. Bramble, Inc.	11
Paige Kim Ward	PE	SHA/CID	5
Ed Meredith	PE	SHA/CID	5
Donnie Drewer	District Engineer	SHA-D1	17

District 2 Participants

Name	Title	Organization	Partnering Exp. (in yrs)
George Bartholomew	Supt.	David A. Bramble, Inc.	17
Tom Revelle	Team leader	SHA-D2	7
Pete Quinn	PE	SHA/CID	7
Jeff Robert	PE	SHA/CID	7
Ed Stein	Team Leader	SHA	10
Robert Tucker	PE	SHA/CID	7
Tim Stephens	PE	JJID, Inc.	2
Norris Embert	ADE Construction	SHA-D2	10
Scott Kiebler	PM	Daisy Concrete of MD	7
Greg Filar	Design Engineer	Nolan Assoc.	3

District 3 Participants

Name	Title	Organization	Partnering Exp. (in yrs)
Dennis March	AE	SHA-D3	7
Dave Peake	AE	SHA-D3	5
W.J. Bradley III	Reg. Construction Engineer	SHA/OOC	7
Eddie Poffenberger	PE	SHA/CID	
Keith Kucharek	Team Leader	SHA/OHD	8
Danelle Bernard	PM	SHA/OBD	5
Duane Bernard	AE	SHA-D3	5
Gary Grabill	Regional Manager	Balfour Beatty	15
Ardeshir Kalantar	PM	Fort Myer Construction Corp	1
Kevin Nowak	ADE Construction	SHA-D3	7
Charlie Watkins	District Engineer	SHA	
Neil Haines	PE	SHA/CID	4
Kip Gwinn	PM	Francis O. Day Contractor	4
Bill Babcock	VP	Francis O. Day Contractor	
Ken Sines	PM	Corman Construction	
Bob Riley	PM	SHA/OHD	

District 4 Participants

Name	Title	Organization	Partnering Exp. (in yrs)
Dan Witt	ADE Construction	SHA-D4	17
Fred Valente	PM	J.B. Fay Co.	20
Deborah Shafer	PE	SHA/CID	15
Jay Stallings	PE	SHA/CID	10
Denise Wilson	TETIV	SHA-D4	6
Maurice Agostino	Team Leader	SHA/OBD	5
Eric Marabello	Team Leader	SHA/OHD	7
David Creighton	AE	SHA-D4	20
Mike Krupsaw	Associate	RK&K	11
Bill Hoff	PE	SHA/CID	7

District 5 Participants

Name	Title	Organization	Partnering Exp. (in yrs)
Mark Coblentz	ADE Construction	SHA - D5	11
Brian Romanowski	TE – Hwy. Design	SHA/OHD	2
Chris Fronheiser	Highway Project Manager	DMJM Harris	4
Robert Murphy	AE	SHA – D5	4
Wes Chan	ESTM	SHA – D5	3
Dan Beck	Team Leader	SHA/OBD	8
Bob Ziemski	AE	SHA/CID	6
Jamie Mills	PE	SHA/CID	15
Tim Fletcher	PE	SHA/CID	10
Ted Bertch	PE	SHA/CID	

District 6 Participants

Name	Title	Organization	Partnering Exp. (in yrs)
Joe Gaudio	Foreman	Carl Belt	1
Dale Fike	Foreman	Carl Belt	1
Rick McGraw	AE	SHA – D6	10
John True	ADE Construction	SHA – D6	9
Bill Bowen	Area Manager	IA Contr. Corp.	8
John Narer	PE	SHA/OBD	9
Barry Ritchie	Project Design Engineer	SHA – D6	10
Craig Kenny	Team Leader	SHA – D6	8
James Smith	Chief Sp Project	JMT	1
Tom Wolf	Treasurer	Carl Belt	1
David Phillips	PM	SHA/OHD	8
Mike Dignan	Facilitator	SHA – D6	10
Jeffery Foreman	PE	SHA/CID	9
Michael Wilmore	PE	Wallace, Montgomery & Associates	4
Rance Ritchie	PE	SHA/CID	9
Larry Myers	VP	Carl Belt	8
Randy Wampler	PE	Carl Belt	1
Butch Foreman	PE	SHA/CID	1

District 7 Participants

Name	Title	Organization	Partnering Exp. (in yrs)
Steve Sites	AE	SHA – D7	10
Ross Clingan	PE	SHA/CID	1
Devin Miller	PE	SHA/CID	9
Brian Pickens	PE	SHA/CID	2
Todd Hammond	PE	SHA/CID	3
Robert Snyder	Reg. Const. Engineer	SHA/OOC	15
Vance Tsiamis	PE	RK&K	6
Abdul Choudhary	PE	SHA/CID	2
Ali Chaharbaghi	PE	SHA/Bridge Design	12
Gary Bush	Assc. Engineer	WR&A	6
Mark Flack	ADE Construction	SHA – D7	15
Victor Rodgers	PM	Kibler Construction	6
Tracey Barnhart	PES/UTC	SHA – D7	10

Appendix J – Focus Group Interview Agenda

SHA PARTNERING STUDY
Focus Group Interview Agenda

What's Working?
What's Most Beneficial To You?
What's Not Working?
How Can It Be Improved?

1. **Training**

2. **Partnering Kick-off Workshop**

3. **Partnering Charter**

4. **Partnering/Progress Meetings**

5. **Measurement of Partnering**

6. **What topics were not covered in the questionnaire or this group discussion?**

Appendix K – Participants Credentials

The following table provides more details on the participants‟ professional credentials.

Other Professional Credentials (Professional Certifications, Professional Licenses, and other credentials)		
Responses	**Frequencies**	**Percentage**
Professional Engineer (MD, VA, DC, PA, & FL noted)	24	32.0%
NICET (not specified)	6	8.0%
NICET level IV	5	6.7%
EIT	5	6.7%
NICET level III	3	4.0%
BSCE	3	4.0%
Master's in Engineering	2	2.7%
Engineer Technician Certification	1	1.3%
CPM/Scheduling for Primavera	1	1.3%
Project Manager/Estimator	1	1.3%
MDE L & S Greencard	1	1.3%
MARTCP	1	1.3%
Mid Atlantic Soil, asphalt & nuclear certification	1	1.3%
ACI concrete certification	1	1.3%
Environment certifications (MD & VA noted)	1	1.3%
ITE	1	1.3%
ASHE	1	1.3%
ASNT level III	1	1.3%
Erosion and Sediment control certification (MDE)	1	1.3%
EIT	1	1.3%
HMA field testing	1	1.3%
Concrete field testing	1	1.3%
Soil and Aggregates analysis and compaction	1	1.3%
E+SC certified	1	1.3%
MD CPA	1	1.3%
MOT (Manager excavation certificate)	1	1.3%
Landscape architect	1	1.3%
All SHA certifications	1	1.3%
Completed LEAD program	1	1.3%
MCE	1	1.3%
Work zone specialist/supervisor	1	1.3%
MBA	1	1.3%
Adjunct Professor	1	1.3%
Published author	1	1.3%
total	75	100.0%