

Final Report

Entry-Level Transportation Construction Workforce Shortages

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<p>16. Abstract</p> <p>This study investigates the factors which have the greatest impact on job choice decisions of youth entering the workforce, with the goal of informing marketing and recruitment efforts of transportation construction within the state. To examine this issue, we used a combination of multiple methods, including literature review and analysis, baseline assessment, best practices analysis, and a survey of potential candidates. We found that the job choices of young people are most affected by the following factors: Type of Work and Work Setting, Flexibility/Autonomy, Financial Compensation/Benefits, Perceptions of the Recruitment Process, Advancement Potential, Level of Fit/Similarity, Interest in Additional Training/Education, and Contextual Influences.</p> <p>To successfully recruit entry-level workers, transportation construction firms must address challenges not faced by other construction firms, including a generally negative public image and a perceived lack of “transportability” of job skills. Furthermore, the industry has difficulty recruiting individuals from two demographic groups: youth and non-traditional labor pools (e.g., women), primarily because of a lack of awareness of job opportunities in the industry and a poor industry image. We recommend three broad strategies for addressing Marketing and Recruitment challenges and offer 42 ideas on how to implement them. Additionally, to fully address the workforce shortage, transportation construction companies must become more effective at managing their organizations. We offer 13 ideas for how companies can improve their organizational management.</p>					
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EXECUTIVE SUMMARY

1. PURPOSE

According to the Department of Labor's Employment and Training Administration (ETA), the construction industry is expected to be among the economy's ten largest sources of employment growth through 2012 (U.S. Department of Labor, 2004). In his *High Growth Job Initiative*, President George W. Bush identified the construction industry as one of the highest growth jobs for which additional attention must be put toward sustaining the workforce. The Bureau of Labor Statistics (BLS) projects that total employment in the construction industry will increase by over one million jobs (Berman, 2004). Additionally, the Bureau of Labor Statistics reports that construction workers are paid more than other hourly workers in most other fields. For example, the average hourly wage of construction workers is \$18.51 as compared to \$15.03 for all hourly workers in the private sector, and \$17.75 for all hourly paid occupations (U.S. Department of Labor, 2003). Despite the attractive pay, the transportation construction industry is faced with a daunting shortage of workers (Funderburg, 2002; Jahren, 2006). This shortage is complicated by two trends: the rapid growth of the industry and the retirement of the "baby boomers" (U.S. Department of Labor, 2004).

To successfully recruit entry-level workers, transportation construction firms must address challenges not faced by other construction firms, including a generally negative public image and a perceived lack of "transportability" of job skills. As a result, it is particularly difficult to recruit and retain entry level transportation construction workers. Furthermore, the transportation construction industry has difficulty recruiting individuals from two demographic groups: youth and non-traditional labor pools (e.g., women), primarily because of a lack of awareness of job opportunities in the industry and a poor industry image (U.S. Department of Labor, 2004).

Workforce shortages are expected to affect transportation construction nationwide and impact the abilities of departments of transportation to fulfill their missions. This study was sponsored by the Florida Department of Transportation (FDOT) in an effort to better understand the problem and possible solutions.

2. METHOD

To examine this issue, we have used a combination of multiple methods, including literature review and analysis, baseline assessment, best practices analysis, and a survey of potential candidates. These methods have complimentary strengths and given that they are used together, have created a complete picture of the workforce shortage issues and potential solutions.

Exhibit 1 summarizes the various research procedures and data collections used in this study.

EXHIBIT 1		
SUMMARY OF RESEARCH PROCEDURES AND DATA COLLECTIONS		
Data Collection	Objective	Sources/Participants
Literature Review	Identify all of the issues that young job applicants likely consider when making job/career choices.	Literature on job choice
Baseline Assessment Interviews	Develop understanding of FDOT contractor’s workforce challenges and solutions. Determine feasibility of best practices solutions.	Transportation Construction Contractors in Florida
Baseline Assessment Surveys	Develop understanding of FDOT contractor’s workforce challenges and solutions. Determine feasibility of best practices solutions.	Transportation Construction Contractors in Florida
Best Practices Interviews	Compare themes in workforce challenges and solutions across industry and state boundaries. Identify potential best practices.	Construction Contractor Associations in Florida and Transportation Construction Associations outside of Florida
Survey of Potential Job Candidates	Obtain a ranked list of factors affecting job choice of potential candidates for transportation construction jobs.	Recently graduated Florida high school students

3. SUMMARY OF FINDINGS

3.1 Factors Affecting Job Choice

We found that the job choices of young people are most affected by the factors listed in Exhibit 2. The exhibit presents information taken from the literature review, interviews, and surveys and correlates it to construction worker jobs with respect to each of the identified factors.

EXHIBIT 2		
RELATIONSHIP OF FACTORS THAT AFFECT JOB CHOICE TO TRANSPORTATION CONSTRUCTION JOBS		
Factor	Definition	Status Quo of Transportation Construction Worker Jobs
Type of Work and Work Setting	The degree to which the work fits with the interests of the individual. The work context where the work is performed (e.g., indoors vs. outdoors, interacting with others vs. working alone).	<ul style="list-style-type: none"> ■ When asked why they thought someone might be deterred from taking a job in transportation construction, 80% of the Florida DOT contractors interviewed suggested that it was due to the nature of the work and job description. Specific responses from the contractors as to why the transportation construction job might appear unattractive to some include “long hot working hours”; “working outdoors”; “working outside in elements, hard work”; and “being outdoors, sun, insects, dirt, getting dirty, nasty job”. ■ When we asked potential applicants why they would not consider a career in transportation construction, over 70 percent of them mentioned their lack of interest in the type of work or the work setting.
Flexibility/Autonomy	The degree to which flexibility in scheduling, working independently, and commuting impact perceptions of a job.	<ul style="list-style-type: none"> ■ Almost 60% of the FDOT contractors surveyed in our study reported that they felt the lack of flexibility and autonomy in the transportation construction job accounted for some to a great extent of the workforce challenges they faced. ■ Our Baseline Assessment and Best Practices Analyses confirm that applicants value flexibility and autonomy, but suggest that the nature of the work makes it difficult to offer such arrangements.
Financial Compensation/Benefits	Level of current or immediate financial benefits provided upon entry into the job. All financial compensation offered to the employee, including hourly wage, salary, and all benefits such as healthcare cost and quality; retirement plans; and bonus structures.	<ul style="list-style-type: none"> ■ Our survey of potential applicants for transportation construction worker jobs in Florida suggested that financial compensation is the most important factor affecting job choice. ■ Published research suggests that pay level and benefits are non-compensatory factors that often serve as ‘deal breakers’ for individuals investigating jobs (Osborn, 1990) ■ Respondents to our Baseline Assessment indicated that wages are considered virtually the only motivator in recruiting workers.
Perceptions of Recruitment Process	Perceptions of the recruitment process include appropriate interpersonal treatment, timely and consistent information, job-related perceptions, and whether the selection instruments appear to be valid and procedurally fair.	<ul style="list-style-type: none"> ■ The Baseline Assessment, Best Practices Analysis, and the Survey of Factors affecting Job Choice all indicated that the Transportation Construction Industry’s reputation is contributing to the current workforce challenge. Jobs in this industry are considered undesirable. ■ All of our research indicated that young people who pursue higher education are not pursuing courses that are useful to this industry. Young people who are entering the workforce straight out of high-school are avoiding transportation construction jobs.

EXHIBIT 2 (CONTINUED)		
TRANSPORTATION CONSTRUCTION WORKER STANDING ON FACTORS THAT AFFECT JOB CHOICE		
Factor	Definition	Status Quo of Transportation Construction Worker Jobs
Advancement Potential	The degree to which the job provides opportunities to advance within the same line of work, to greater responsibilities, and thus, higher compensation.	<ul style="list-style-type: none"> ■ Our survey of potential applicants for transportation construction worker jobs in Florida suggested that advancement potential is the second most important factor affecting job choice. ■ Our survey of FDOT construction contractors indicated that over 55% of them believe that lack of awareness regarding advancement potential has some to a great extent of impact over why youth are not pursuing jobs in this field. ■ According to one FDOT contractor interviewed, the biggest challenge for transportation construction companies may be that these jobs are not seen as viable long-term careers.
Level of Similarity/Fit	The extent to which the potential applicant would share similar background, likes/dislikes and interests with prospective coworkers if he/she took the job.	<ul style="list-style-type: none"> ■ Females may not be choosing transportation construction jobs because the jobs are perceived as having gender barriers such that females cannot be successful in the career or that females might be discriminated against on the job. The National Association of Women in Construction states that only 10 percent of the construction workforce is female. ■ The benchmarking partners we interviewed stated that 10 percent of the workforce in the companies they represent were comprised of female workers.
Interest in Additional Training/Education	Perceptions held by an individual regarding accessibility of the job, dependent in part upon the individual's own level of achievement and the extent to which a job seems desirable when it does or does not require advanced education or training.	<ul style="list-style-type: none"> ■ Our survey of potential applicants suggests that most of these individuals have a more positive view of careers that require more education or training. ■ In the web survey we conducted, Florida DOT contractors acknowledged that offering better training and developmental opportunities to workers would help address the workforce shortages faced; this solution ranked fourth among 18 answer choices provided in the question as possible solutions to address workforce shortages.
Contextual Influences	Includes influence of parents, peers, teachers, and culture on job selection decisions. Cultural influence is the persuasive power that ethnicity, race, and culture (individualistic versus collectivistic) has on initial job choice. It includes the influence that societal norms, stereotypes regarding the "maleness" or "femaleness" of jobs, and cultural stereotypes have on job perceptions.	<ul style="list-style-type: none"> ■ More than half of our potential applicant survey respondents indicated that support from family and friends is important when choosing a career. ■ In the Baseline Assessment web survey of FDOT contractors, over 40% of the respondents believe that cultural and/or background influences such as family and friends had some to a great extent of influence on why individuals are not seeking out transportation construction jobs.

3.2 Recommendations

Improve Marketing and Recruiting

We recommend three broad strategies for addressing the marketing and recruitment challenges:

- Improve Branding
- Develop a Recruiting Toolkit
- Improve outreach

These approaches could be implemented by a variety of entities interested in improving the transportation construction workforce, including FDOT, FTBA, and individual contractors. We offer 42 ideas on how these strategies could be implemented.

Improve Management of Organizations

To fully address the workforce shortage, transportation construction companies must become more effective at managing their organizations. More effective management will attract and retain employees because it will make the organization a better place to work. We offer 13 ideas for how companies can improve their organizational management.

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I. INTRODUCTION

According to the Department of Labor's Employment and Training Administration (ETA), the construction industry is expected to be among the economy's top ten largest sources of employment growth through 2012 (U.S. Department of Labor, 2004). In his *High Growth Job Initiative*, President George W. Bush identified the construction industry as one of the highest growth jobs for which additional attention must be put toward sustaining the workforce. The Bureau of Labor Statistics (BLS) projects that total employment in the construction industry will increase by over one million jobs (Berman, 2004). Additionally, the Bureau of Labor Statistics reports that construction workers are paid more than other hourly workers in most other fields. For example, the average hourly wage of construction workers is \$18.51 as compared to \$15.03 for all hourly workers in the private sector, and \$17.75 for all hourly paid occupations (U.S. Department of Labor, 2003). Despite the attractive pay, the transportation construction industry is faced with a daunting shortage of workers (Funderburg, 2002; Jahren, 2006). This shortage is complicated by two trends: the rapid growth of the industry and the retirement of the "baby boomers" (U.S. Department of Labor, 2004).

To successfully recruit entry-level workers, transportation construction firms must address challenges not faced by other construction firms, including a generally negative public image and a perceived lack of "transportability" of job skills. Such challenges render it difficult to recruit and retain entry level transportation construction workers. Furthermore, the transportation construction industry has difficulty recruiting individuals from two demographic groups: youth and non-traditional labor pools (e.g., women), primarily because of a lack of awareness of job opportunities in the industry and a poor industry image (U.S. Department of Labor, 2004).

The Florida Department of Transportation has sponsored this study to investigate the factors which have the greatest impact on the job choice decisions of youth entering the workforce. The goal of the study is to increase understanding of workforce shortage issues facing transportation construction in Florida and identify potential solutions and strategies.

To examine this issue, we have used a combination of multiple methods, including literature review and analysis, baseline assessment, best practices analysis, and a survey of potential candidates. These methods have complementary strengths and, given that they are used together, have created a complete picture of the workforce shortage issues and potential solutions. This document summarizes the methods we used as well as these potential solutions.

Exhibit I-1 summarizes the various research procedures and data collections used in this study.

EXHIBIT I-1			
SUMMARY OF RESEARCH PROCEDURES AND DATA COLLECTIONS			
Data Collection	Objective	Sources/Participants	Chapter Where Results are Presented
Literature Review	Identify all of the issues that young job applicants likely consider when making job/career choices.	Literature on job choice.	II
Baseline Assessment Interviews	Develop understanding of FDOT contractor's workforce challenges and solutions. Determine feasibility of best practices solutions.	Transportation Construction Contractors in Florida	III
Baseline Assessment Surveys	Develop understanding of FDOT contractor's workforce challenges and solutions. Determine feasibility of best practices solutions.	Transportation Construction Contractors in Florida	III
Best Practices Interviews	Compare themes in workforce challenges and solutions across industry and state boundaries. Identify potential best practices.	Construction Contractor Associations in Florida and Transportation Construction Associations outside of Florida	IV
Survey of Potential Job Candidates	Obtain a ranked list of factors affecting job choice of potential candidates for transportation construction jobs.	Recently graduated Florida high school students	V

Chapter VI concludes the report with a synthesis of the findings and a series of recommendations.

III. LITERATURE REVIEW OF PREDICTORS OF JOB CHOICE

The first step of this study is to examine the literature to identify predictors of job choice. This chapter describes our process for conducting the literature review, summarizes the findings of previous work on job choice, and discusses the relevance of this work to the difficulties faced by the field of transportation construction. The findings described here are then used to inform benchmarking and best practices reviews of recruiting practices, a survey of potential applicants for transportation construction jobs, and a series of marketing/recruiting recommendations.

1. METHOD

To conduct the literature review, we engaged in the following steps:

- Define the scope
- Identify source documents
- Create database and annotated bibliography
- Summarize findings into factors

We review these steps in more detail below.

1.1 Define the scope

The focus of this project is to increase understanding of transportation construction workforce shortage issues in Florida and to identify strategies for addressing the shortage, in particular, recruitment and marketing practices that may be used to attract more young people into transportation construction jobs. The project includes a benchmarking study of transportation construction organizations' recruitment practices and a survey of high school students to determine the weight each factor carries in predicting job decisions. To inform these two components of the project, we conducted a thorough review of the literature on job choice to determine which variables have been found in previous research to contribute to job choices of youth.

We defined "job choice" broadly to include ratings of intentions to either accept or pursue a particular job, as well as the decision to accept or reject a particular job offer. Studies that included outcome variables such as job transition (choice to leave one job and accept another), decision to apply for a job, and structure of career path were also included in this review. We targeted studies with student samples and paid special attention to variables that organizations could manipulate to influence perceptions of a job as desirable.

1.2 Identify source documents

To identify relevant literature, we used the following electronic search engines: *EBSCO Host*, *PsychInfo*, *ProQuest*, and *Google*. Keyword searches included the following terms: “career choice,” “job decision,” “occupation,” “job choice influences,” “job factors,” “organization choice,” “high school,” “entry-level job choice,” “person-organization fit,” “vocational choice,” “higher education,” and “workforce”. We identified additional literature of interest by exploring the reference sections of relevant articles. Benchmarking partners in other state transportation agencies and other construction companies (e.g., residential and commercial construction) also identified articles on workforce issues and solutions during the interviews conducted during the study.

We collected articles from peer-reviewed journals, relevant chapters from the *Handbook of Industrial-Organizational Psychology* (Rynes, 1992) and other research publications, databases of high school career decisions, white papers, technical reports, vocational interest surveys (Campbell, 2002), and unpublished scientific studies conducted with students and unskilled worker populations that outline predictors found to influence job choice decisions. We explored articles that examined predictors of variables related to job choice, including job satisfaction and turnover.

Most of the literature reviewed consisted of articles that featured empirical studies of job choice. We also reviewed the results of two meta-analytic reviews (Chapman et al, 2005; Fouad & Byars-Winston, 2005) covering 71 and 16 studies respectively. To ensure the timeliness and relevance of the articles, we focused on articles for which research was conducted within the last 30 years. Furthermore, most of the studies focused on American youth with the exception of two studies that occurred in other countries with native English speaking populations (Lightbody & Nicholson, 1997; Scharfenberg, 2000).

1.3 Create database and annotated bibliography

The literature review team created a database for storing and easily accessing references for the studies and documents identified. The following characteristics were documented and used to organize the studies:

- Document Type (e.g., journal article; press release)
- Title
- Author(s)

- Reference
- Degree of Relevance (Low, Med, High)
- Applicability to Project Phase (e.g., policy capturing, benchmarking, recruitment practices, marketing)
- Research Sample (e.g., high school students; trade schools)
- Key Words
- Job Factor(s) / career choice influences
- Outcome Variable(s) (e.g., job choice; retention; satisfaction)
- Hyperlink to Summary
- Team member responsible

1.4 Summarize findings into factors

To identify a manageable set of factors to examine in this review, a team of five researchers sorted all of the predictors of job choice examined in the various studies into eight factors and three categories. To assist in this factor consolidation process, the members of the five-person team each independently reviewed the annotated bibliographies and the list of predictor terms, and then developed categories to consolidate the terms. The research team also rated the degree of independence among the factor terms.

2. RESULTS

We identified 24 articles that examined predictors of job choice, including two meta-analytic reviews (Chapman et al, 2005; Fouad & Byars-Winston, 2005) that covered 71 and 16 studies respectively. The articles used varying terminology to refer to potential predictors.

To discuss the predictors in a meaningful way for this review, we developed the list of terms provided in Exhibit II-1 to cover all of the predictors examined in this research. In the remainder of the results section, we define each of these predictors and introduce the relevant job choice literature.

EXHIBIT II-1
PREDICTORS EXAMINED IN THE LITERATURE REVIEW
Cultural influence
Parental/familial influence
Perceived societal stereotypes
Interests
Personality
Efficacy
Perceived intelligence
Talent, skill, abilities
Work environment
Financial rewards
Advancement potential
Perceptions of recruitment process

2.1 Cultural influence

Many researchers (cf. Cheatham, 1990, Smith, 1983, as cited in Fouad & Byars-Winston, 2005; Fouad & Byars-Winston, 2005) have argued that the concept of work holds different meanings across groups as a function of their socio-cultural, historical and political experiences. Cultural influence is the persuasive power that ethnicity, race, and culture (individualistic versus collectivistic) has on initial job choice. It includes the influence that societal norms, stereotypes regarding the “maleness” or “femaleness” of jobs, and cultural stereotypes have on job perceptions. For example, Leung et al. (1994) found that Asian males were more likely to seek out male-dominated jobs than White males, thereby suggesting an interaction between cultural influence and gender stereotypes about the job. Furthermore, Fouad and Byars-Winston (2005) conducted a meta-analysis of 16 studies on the impact racial differences in career choice. They noted that race and ethnicity do not seem to impact initial desires or dreams about careers but do ultimately impact job choice. Specifically, Fouad and Byars-Winston (2000) found that racial/ethnic minorities perceived fewer career opportunities and greater career barriers than did Whites.

Another study on cultural and racial influence on career choice identified that certain ethnic groups attach higher value to education in general and that in socially competitive situations, different ethnicities place different weights on education as a means of economic success in socially competitive situations (Singh, 1990; Lightbody & Nicholson, 1997). Specifically, among immigrant populations, parents who struggled to make their way into the country tend to put greater pressure on their children to seek more advanced careers and educational opportunities; however, these populations also tend to perceive the opportunities to be more limited for them.

Leung et al. (1994) also found that Asian students consider choosing occupations with higher societal prestige more often than White students. The reputation and prestige of a job is more important in Asian communities, where a collectivist culture (rather than an individualistic culture) is likely to be dominant (Lightbody & Nicholson, 1997). Persons who identify with collectivist cultures tend to place high importance on the views of their family rather than their personal work values whereas individuals from more individualistic societies are not as strongly influenced by these factors (Brown, 2002). Thus, individuals from collectivist societies tend to be more concerned with the gender stereotypes of a certain career. For example, females from a collectivist society may avoid taking a job in transportation construction if the field is viewed by her family as more appropriate for men.

2.2 Parental/ familial influence

This factor includes the stated and unstated support for or rejection of a particular profession by the parents, influence of extended family members and siblings on career decision-making, family role models, and perceptions of family members' professions. Other indirect aspects of the family that affect career decisions are family socio-economic status and family financial constraints.

Research has consistently shown parental influence to be one of the most important factors young people consider when choosing a course or career (Arnold et al., 1998; Cherry & Year, 1987; Hoffman et al., 1992; Kelly, 1989; Young et al., 1991; Lightbody et al., 1997). In a telephone survey of 809 high-school juniors and seniors, 54 percent of the interviewees stated that both of their parents were primarily responsible for helping them plan for a career or job (Ferris State University, 2002). Sixty-four percent of the respondents said that the career and occupations of their parents and other family members had influenced their choice about what kind of career or job to pursue.

There are many reasons why parental influence may be so powerful. Children learn about the world of work by observing their parents work and by listening to their parents' views. Children are both directly and indirectly influenced by their parents.

The amount of parental involvement in their children's career decision making is also affected by culture. Parents in individualistic societies (like that found in the U.S.) may try to minimize their interference in the child's job decisions whereas in collectivist societies, job decision is associated with family prestige, and, thus, parents have more stake in the job their child chooses (e.g., Leung et al., 1994).

Kniveton (2004) concluded that parents have a greater influence than teachers on youth job choice. In his survey study of 384 high school students, Kniveton found that children tend to be influenced to a greater degree by the same sex parent than the opposite sex parent, and that the eldest child is influenced more by the father, whereas the youngest is influenced more by his/her mother. He also found that the older siblings are influenced more by their parents, while the younger siblings are more influenced by the older siblings. Other research (Ferris State University Career Institute for Education and Workforce Development, 2002) suggests that when fathers exercise more influence over job choice, the individual is more decisive about the career choice.

Still other research suggests that family financial status may affect the career options for the individual (Ferry, 2006). Youth in families with limited financial resources are less likely to seek additional education or training. Also, individuals tend to pursue careers that they are exposed to during adolescence; therefore, if an individual lives in an area exposed to little or no transportation construction, then he or she will be less likely to pursue a career in transportation construction.

2.3 Perceived societal stereotypes

This factor represents the influence of perceived barriers that individuals face based upon their gender. This is a contextual factor because it refers to gender stereotypes in the society that affect a person's perception of available options or expectations from a career. Gender stereotypes about the types of jobs a male or female can and should perform may be at the root of why individuals reject certain job types.

These stereotypes can influence job choices by impacting men's and women's perceptions of how well they might perform in non-stereotypical careers. Feedback from parents, peers, and counselors, lack of knowledge about jobs, and insufficient gender role models in positions of interest may further allow these stereotypes to permeate and result in rejection of specific jobs. The effect of gender stereotypes on job choice is evidenced by the sheer number of strongly male- or female-dominated careers. For example, according to the National Association of Women in Construction, women make up only 10 percent of the construction industry; and according to a survey done in 2000 by the National Sample Survey of Registered Nurses, men make up only 5.4 percent of registered nurses.

Read (1991), in her survey research study of attitudinal and demographic factors which influence women's choices of traditional and nontraditional training programs, found that women in traditional versus women in nontraditional careers differ in the support they receive to

pursue non-traditional career paths, their prior experience with such fields, their knowledge of the fields, and their self-efficacy pertaining to these jobs.

Wilgosh (as cited in Kniveton, 2004) reported that gender stereotyping impacts academic attainment and interest in subjects through sources such as popular media images that promote certain jobs as male- or female-only professions. Research also suggests that women assign lower importance to the centrality of work in their lives than men and this could be due to the difference in other life roles and expectations that men and women face (e.g. Brown, 2002).

2.4 Interests

This predictor pertains to the degree to which the individual's interests match the goals of the job/organization. Research (Scharfenberg, 2000) suggests that *interest* in a particular type of work is perhaps the most important attitude affecting career choice. In this study, Scharfenberg used focus groups and questionnaires to collect data regarding the attitudes that affect career choice. Three quarters of the participants were part of a small group interview where five open-ended questions were discussed. The remaining third responded to a questionnaire with 152 attitude and knowledge statements in which the respondent indicated the extent to which they agreed with each statement on a Likert scale. This data was mostly qualitative in nature and researchers coded each response. Scharfenberg's findings are consistent with studies like those of Powell and Bloom (1962, as cited in Scharfenberg, 2000), whose study showed that 36.2% of males and 27% of females from a population of 1000 high school students indicated that they choose jobs based on "interest in [the] work" (Scharfenberg, 2000). Interest in work was also chosen by 86.9% of the sample in Kotrlík and Harrison study, where participants were asked to reveal factors that influenced their job choice (Scharfenberg, 2000).

Further support for the influence of interest comes from a nationwide study by Ferris State University's Career Institute for Education and Workforce Development (2002), which indicated that the most popular reason high school juniors and seniors choose jobs is because the job is either "Something I like" or "Something I have always been interested in." Females were more likely than males to choose jobs based on personal interest rather than for pragmatic reasons, although all groups decision-making was based on personal interests more strongly than on pragmatism.

2.5 Personality

Personality often drives job choice among youth. Some jobs seem to demand certain personality characteristics. For example, for sales jobs, individuals are often expected to be extroverted. Not only is personality important when a person has a job but it is also important

when finding a job. Borchert (2002) reports that individuals with self-motivated personalities will end up with the best jobs because they will go out and find them whereas the procrastinators choose the best from the leftovers. Borchert (2002) had over 300 students rank order factors that contribute to their career decisions. After conducting an analysis of variance on the data, Borchert found that personality, rather than opportunity and environment, exerted the most influence on students when choosing a career.

In a study with over 400 high school students, Paa and McWhirter (2000) had participants complete a self-report instrument where they rank ordered factors within each of the following three categories: background, personal, and environmental. Next, the students rank ordered the categories themselves. Of the categories, personal was listed as having the greatest influence over job choice. Of the factors in the personal category, both males and females identified interests and personality as the highest among a list of personal factors in influencing job choice. Paa and McWhirter's (2000) results were consistent with past literature that personal variables have more influence on job choice than do background and environmental.

2.6 Efficacy

Another important individual factor is efficacy or one's belief that he/she has the "ability to do the job." Higher levels of career decision-making self-efficacy are related to both a more differentiated vocational identity and a greater engagement with career exploration tasks (Gushue et al, 2006). This finding suggests that participants who felt that they would perform well at a task were more likely to report a clearer understanding of their own job interests, abilities, talents, and career goals. Participants who have high-self efficacy also reported being more likely to learn about or pursue new job opportunities. Finally, perception of fewer barriers was found to be related to a more integrated vocational identity. This is consistent with Scharfenberg's (2002) study where "ability to do the job" was found to be a significant contributing factor in career decisions.

2.7 Perceived intelligence

Similar to self-efficacy, perceived intelligence is another variable that has been found to have significant influence on career choices (Ferris State University, 2002). Individuals can develop a sense of their intelligence via intelligence related assessments such as GPA or IQ exams. IQ is a measure of general intelligence whereas GPA is a measure of academic achievement. However, school grades are often viewed as a true measure of intelligence. In fact, low test scores or low GPA may be perceived as a barrier to one's perceived ability to be successful in certain jobs and may have a negative effect on one's motivation to seek out a new job.

Interestingly, despite GPA serving as a good predictor of future success, a nationwide study by Ferris State University's Career Institute for Education and Workforce Development (2002) showed that less than five percent of high school juniors and seniors think grades do not affect career choice. Of those students who think that grades matter, there was a strong racial divide with Blacks ranking grades as important while Hispanics primarily saying grades are less important.

2.8 Talent, skill and abilities

This predictor pertains to the degree to which the individual perceives a match between his or her talents, skills, and abilities, and the goals of the organization or the job. Research indicates that talent, skills, and abilities are potentially strong predictors of job choice (Scharfenberg, 2000). Some talent- and skill-related questions that individuals will ask themselves when considering a position are "What are the required physical abilities for the job?" and "What unique skills, such as musical ability or hand-eye coordination, are required for this job?"

2.9 Work Environment

Work environment includes the physical and social context of work. For transportation construction jobs, factors such as location of work (indoors v. outdoors), commute, and scheduling of work are important components of the work environment. Chapman et al. (2005) found that work environment is one of the strongest predictors of job acceptance intentions.

2.10 Financial

Financial concerns are frequently among the most heavily weighted factors in job choice (e.g., Osborn, 1990). While salary is the most prominent indicator of a job's financial reward, there are others that play a role. The overall level of compensation includes benefits such as healthcare cost and quality, retirement plans, and bonus structures. The varying cost of health care plans from employer to employer, as well as each employer's contribution to the cost of the plan, has a powerful impact on take home pay. It may be an even stronger factor in careers that involve physical exertion and outdoor work. Retirement plans are highly variable, as well; some employers may not provide a retirement plan at all, while others may contribute generously to an employee's 401(k), pension, or other fund.

Osborn (1990) found that pay level and benefits were noncompensatory factors that often served as deal breakers for individuals investigating jobs. A study of accounting students and how they differentiate among perspective employers revealed that financial factors were the most

important job characteristics in choosing between jobs (Phillips & Phillips, 2006). The financial factors included opportunity for advancement, job security, a good training program, a good retirement plan, health insurance, and good pay. Malgwi, Howe, and Burnaby (2005) found that perceived pay of a career was the second most important factor in making college plans, and this effect was greatest among men.

Financial factors are, naturally, relatively easy to quantify for researchers. However, they are not always that easy to weight for job seekers. For example, comparing salary to a retirement plan is difficult because it involves tradeoffs between the present and the future.

Research on financial factors is usually done by presenting potential job seekers with various scenarios that vary each component of compensation. By asking job seekers which overall compensation package they prefer, researchers can infer the various weights that employees assign to each factor. These surveys are typically followed with a few questions that ask straightforward questions about the survey taker's job preferences.

2.11 Advancement potential

An issue related to financial is the degree to which the job provides opportunities to advance within the same line of work, to greater responsibilities, and thus, higher compensation. Osborn (1990) found advancement potential to be one of the three most important factors in applicant attraction to a job; the others being immediate financial gain. The Ferris State University Career Institute for Education and Workforce Development study (2002) found that 89% of participants were concerned with advancement and good pay and thus believed that training in technology is necessary to ensure such success.

2.12 Perceptions of the recruitment process

Researchers have found applicants' perceptions of the recruiting-selection process as focal predictors of recruiting outcomes (Ryan & Ployhart, 2000; Chapman et al., 2005). Due to insufficient information about job attributes, applicants may be highly influenced by the recruitment process as well as recruiter characteristics (gender, function) and behavior (personable, competent, informative, and trustworthy) (Chapman et al., 2005). Perceptions of the recruitment process include appropriate interpersonal treatment, timely and consistent information, job-related perceptions, and whether the selection instruments appear to be valid and procedurally fair (Chapman et al., 2005).

3. DISCUSSION

3.1 Summary of Findings by Category of Predictor

To facilitate our discussion of the results and to focus the review on issues most relevant to transportation construction, we sorted the predictors into eight factors and three categories. Exhibit II-2 lists the factors by category. The remainder of the text under this heading provides a summary of the findings by category.

EXHIBIT II-2	
JOB CHOICE FACTORS BY CATEGORY	
Category	Factor
Job Characteristics	Type of Work and Work Setting
	Flexibility/Autonomy
	Financial Compensation/Benefits
	Perceptions of Recruitment Process
Personal Characteristics	Advancement Potential
	Level of Similarity/Fit
	Interest in Additional Training/Education
Contextual Influences	Contextual Influences

Job Characteristics

This category of predictors refers to the design of a job and the work setting. A well researched job motivation model called the Job Characteristics Theory model (JCT), originally proposed by Hackman and Oldham (1980), argues that individuals experience critical psychological states based on a set of core job characteristics that, in turn, lead to affective and motivational responses to the job. Skill variety (i.e., complexity and variety of tasks), task identity (i.e., extent to which the job contributes to a whole task), task significance (i.e., impact of the job on others), autonomy (i.e., extent to which job allows independent work) and feedback from the job (i.e., extent to which results of performance are evident) are the job characteristics of the JCT model. Jobs that have high levels of these five factors are seen as more meaningful and, thus, more attractive. In other words, individuals are more motivated to stay with jobs that offer high levels of the core characteristics mentioned. Likewise, the perceived characteristics of a job can influence how attractive the job is to potential candidates (e.g., Chapman, et al., 2005).

Job characteristics have been found to be an important determinant of variables related to job choice, including job satisfaction and turnover. In particular, work environment, task significance, skill variety, and autonomy all predict job satisfaction (Hackman & Oldham, 1980), which is an antecedent of turnover (Griffeth, Hom & Gaertner, 2000). Herzberg, Mausner, &

Snyderman (1959) refer to job factors such as wages, working conditions, and feelings of job security as hygiene factors that influence feelings of dissatisfaction with the job, and factors related to personal achievement and growth as motivator factors that predict job satisfaction. Griffeth, Steel, and Allen (2005) found that job market perceptions accounted for a large portion of variance in employee turnover.

Exhibit II-3 summarizes the findings for the factors associated with job characteristics. Factors are ranked in order of their importance to job choice.

With the knowledge that job characteristics are an important determinant of job choice, organizations seeking to hire transportation construction workers can take several actions, including the following:

- Acknowledge that some aspects of the job cannot be changed (e.g., working outdoors), and recruit individuals that would be interested in those aspects of the job.
- Redesign the jobs to enhance workers' sense of personal growth, challenge, and responsibility.
- Adjust compensation and benefits to ensure that they are competitive.
- Develop a formal career path for transportation construction workers that would specify the training and experience needed for each step along the path; ensure that the training and experiences are made available to well-qualified workers.
- Emphasize the rapid promotion track for those transportation construction workers who are successful.
- More specific recommendations will be provided in Chapter IV.

EXHIBIT II-3		
THE IMPACT OF JOB CHARACTERISTICS ON JOB CHOICE		
Factor	k	General Findings
Type of Work and Work Setting	23	<ul style="list-style-type: none"> ■ Type of work, and a pleasant working environment and location were the most important job characteristics affecting job choice (Chapman et al. 2005) ■ Type of work was usually tied to personal interests and social standing of the job. ■ Desire to 'help others' and altruistic motivations are high, especially among females (Kniveton, 2004).

EXHIBIT II-3 (CONTINUED)		
THE IMPACT OF JOB CHARACTERISTICS ON JOB CHOICE		
Factor	k	General Findings
Flexibility or Autonomy	4	<ul style="list-style-type: none"> ■ Defined: degree to which flexibility in scheduling, working independently, and commuting impact perceptions of a job. ■ Personal growth, creativity, challenge, and responsibility are highly important issues affecting job choice. ■ Personal growth and the desire for autonomy and flexibility at work are of greater importance to job seekers under the age of 20 (Lightbody & Nicholson, 1997) ■ Other research supports the importance of flexibility and autonomy in predicting job satisfaction and turnover. ■ This factor is especially relevant to transportation construction jobs which often require long and sometimes awkward work hours (e.g., middle of the night) and demand individuals commute far from home.
Financial Compensation and Benefits	17	<ul style="list-style-type: none"> ■ Defined: Level of current or immediate financial benefits provided upon entry into the job. ■ Though an important influence (Kniveton, 2004), financial compensation and benefits was not the most influential factor of job choice (e.g., Judge & Bretz, 1992; Chapman, et al., 2005; Read, 1999).
Advancement Potential	15*	<ul style="list-style-type: none"> ■ The potential for advancement was a moderately important factor in job choice decisions, frequently combined with financial compensation (Osborn, 1990).
Perceptions of Recruitment Process	40	<ul style="list-style-type: none"> ■ Applicants place a lot of weight on what they imagine their future job will be like when forming acceptance intentions. Perceptions of the work environment, the recruitment process, and the recruiter are thus strong predictors of acceptance intentions. (Chapman, et al., 2005). ■ Individuals are more likely to accept a position if the recruiter and the recruitment process are seen as fair and job related (Chapman et al., 2005)

Notes: *k* = number of studies with positive findings (this indicates the stability of the effect, but not necessarily the size of the effect). * A subset of the articles also included Advancement Potential in the category of Financial Compensation.

Personal Characteristics

Personal characteristics are major factors that influence career choice. Personal characteristics are relatively stable features of an individual that may be inherited or developed through social, economic and cultural upbringing.

Exhibit II-4 summarizes the findings for the factors associated with personal characteristics. Factors are ranked in order of their importance to job choice.

With the knowledge that personal characteristics are an important determinant of job choice, organizations seeking to hire transportation construction workers can take several actions, including the following:

- Emphasize the intrinsic benefits of the transportation construction work (e.g., building something that improves the economy and quality of life for all).
- Focus recruitment on individuals who have a demonstrated aptitude and interest in construction.
- Develop a formal career path for transportation construction workers that would specify the training and experience needed for each step along the path; ensure that the training and experiences are made available to well-qualified workers.

More specific recommendations will be provided in Chapter IV.

EXHIBIT II-4		
THE IMPACT OF PERSONAL CHARACTERISTICS ON JOB CHOICE		
Factor	k	General Findings
Level of Similarity/ Fit	16	<ul style="list-style-type: none"> ■ Definition: Extent, to which the potential applicant would share similar background, likes/dislikes and interests with prospective coworkers if he/she took the job. ■ Individuals are attracted to jobs in which they see a fit between their values, abilities, and interests, and the job/organization (e.g. Borchert, 2002; Chapman et al., 2005; Judge & Bretz, 1992; Malgwi et al., 2005; Paa & McWhirter, 2000). ■ Individuals are motivated by careers in which their own individual or personal factors match the intrinsic value of the work (Minor, Vermeulen & Coy, 1998). ■ Individuals are also more like to leave if there is not a fit (Schneider, 1987). ■ Individual characteristics including interests, work values, self-efficacy, and GPA, are one of the most influential factors in career decision making ■ Careers that seem altruistic and involve working with people are favored by students, especially when financial compensation is not a big plus (Kniveton, 2004).
Interest in Additional Training/Education	4	<ul style="list-style-type: none"> ■ Defined: Perceptions held by an individual regarding accessibility of the job, dependent in part upon the individual's own level of achievement and the extent to which a job seems desirable when it does or does not require advanced education or training. ■ Requiring education beyond high school and providing good technical training are seen as positive aspects of a job/ career. ■ The majority of students (over 80 percent) showed a preference for higher education over getting a job right after high school. ■ Additional Preparation beyond high school is perceived to be strongly tied to financial compensation, social prestige, and advancement potential.

Note: k = number of studies with positive findings (this indicates the stability of the effect, but not necessarily the size of the effect).

Contextual Influences

Career development is a life-long process that begins at childhood and in many cases continues past retirement. In making career choices, an individual is motivated by personal interests, goals, and desires which are often influenced by the environment around him/her. The available choices of satisfactory careers are further narrowed by personal circumstances and the degree of support provided by culture, family, and friends. These factors of a person's environment, upbringing, and experiences that shape initial job choice are referred to as contextual factors. Thus, contextual factors are external factors that surround and are beyond a person's direct control, but through which a person learns about life and develops perceptions of jobs.

Much of the literature on career choice factors focuses on some aspect of contextual factors, be it parental influence or gender or cultural stereotypes related to how jobs are perceived (e.g., Leung, Ivey, & Suzuki, 1994). The reason for this is the strong influence that aspects of a person's environment and upbringing have on his/her decisions. People carry the unique history of their past, and this determines how they view the world. Ferry (2006) states that "the cultural and social context of family and community were found to be instrumental in how youth learn about careers and influential in the choice process. Young adults, through interaction with the context of family, school and community, learn about and explore careers that ultimately lead to career choice and experience barriers due to financial resources, or moving away from family. In his study, Ferry (2006) also argues that individuals who are college-bound as opposed to work-bound are influenced by different social and economic contextual factors. Kenny et al. (2003) found that that "perceived barriers, general perceptions of support, and kinship support were associated with behavioral and attitudinal indexes of school engagement, as well as with aspirations for career success, expectations for attaining career goals, and the importance of work in one's future" (p. 142).

There are many studies that focus on family influences from general influences like parental support (e.g., Bregman & Killen, 1999) to specific aspects such as birth-order effects, effects of family socio-economic status (e.g., Brown, 2002), effects of immigration, and career-related trends and job stereotypes of specific ethnicities like Asian, Native American, and Hispanic (e.g., Leung, Ivey, & Suzuki, 1994). Thus, the literature exploring contextual factors on career choice is vast and diverse.

There were 18 articles finding an impact of contextual influences on job choice. Exhibit II-5 summarizes the findings.

EXHIBIT II-5**THE IMPACT OF CONTEXTUAL INFLUENCES ON JOB CHOICE**

- Influence of significant people in person's life, especially parents, was found to positively predict job choice.
- Parental influence and the effect of one's race/culture was frequently one of the most influential factors affecting career choice. Exceptions were Borchert (2002) and Malgwi et al. (2005) who found that Background Influence was not a significant factor in career choice.
- Some examples of the effect of race/culture are seen in findings such as Hispanics are much less likely than Whites or Blacks to be headed toward a four-year post-secondary school, and much more likely to favor a two-year school (Ferris State University, 2002); Asian students were more likely to have considered Investigative occupations with high social prestige and less likely to have considered Enterprising and Conventional occupations than were the White students (Leung et al., 1994).

With the knowledge that job characteristics are an important determinant of job choice, organizations seeking to hire transportation construction workers can take multiple actions, including the following:

- Focus recruiting efforts on individuals that are likely to appreciate the job characteristics of transportation construction worker (e.g., obtaining work immediately out of school).
- Improve the image of transportation construction among potential applicants, their parents, and their friends.
- Encourage a work environment that welcomes persons of different genders, races, and cultures.

More specific recommendations will be provided in Chapter IV.

3.2 Relative Importance of Categories

While the influence of each category of factors has not been studied exclusively, most studies suggest that contextual influences play an important role in career decision making. Specifically, 18 of the 24 articles from the literature review identified the contextual influences as critical in job choice. Within that, parental influence has the strongest effect on initial job choice (e.g., Belcher & Frisbee, 1999). Individual characteristics such as GPA, skill, and talent were the second most commonly mentioned category of factors in the articles reviewed (e.g., Paa & McWhirter, 2000; Malgwi, et al., 2005; Borchert, 2002).

Much of the literature reviewed indicated that the 3 categories of factors (i.e., contextual influences, personal characteristics, and job characteristics) interact to inform career choice. For example, in a study of individuals from the United Kingdom and Asian countries, those of Asian background placed greater importance on working with others of a similar background, whereas those from the UK indicated that opportunity for growth and autonomy were more important.

This example demonstrates an interaction effect between all three categories (Lightbody & Nicholson, 1997).

3.3 Information is Important

Job choice is driven by the *perceptions* of the job seeker, and not necessarily by reality. Perceptions are controlled by information, and, therefore, the type of information or lack of information is an important consideration.

The perceived characteristics of a job are largely dependent on prevailing images of the career and perceptions of fit are hampered by information that advocates gender and racial stereotypes. Perceived barriers to entry further limit a person's exploration of alternate careers. In their study of over 19,000 high school students, Kotrlik and Harrison (1987) found that most of the youth had misconceptions about the training and education requirements for their career choices. They also found that less than 10 percent were encouraged to choose a vocational career but increasing their experience with vocational education resulted in greater percentage of students considering it as a viable option. This finding supports Scharfenberg's (2000) assertion that the lack of knowledge of vocational fields limits students' selection of opportunities, which, in turn, inhibits their ability to choose an appropriate occupation.

The positive effects of information on career choice decisions can be greatly felt in mitigating the effects of prevailing negative images of certain industries. Information can impact the image of a profession and lead individuals to believe that the job embodies specific characteristics that are either perceived as positive or negative depending on the individual's personal characteristics and the contextual cues around him/her. For example, the impetus behind this study is that the transportation construction industry, despite the higher wage rates and steep career-progression ladder, is suffering from a workforce shortage. Industry experts assert that the industry's image is the main culprit, and this image may be directly impacted by the type and quality of information shared with prospective applicants. Thus, we propose information as a moderating variable to the factor-job choice relationships.

Fourteen studies found that having more information about a career/job, such as by prior experience with the career, word-of-mouth endorsements, advertising, and career exploration tasks, predicts job choice. Most studies found that the image of a career, perceived attributes of a job, and employer brand image are strongly related to career decisions. Students tend not to spend much time researching career choices (Borchert, 2002) and rely heavily on the current social standing of the profession, word-of-mouth endorsements, and perceived desirability of profession. The social emphasis on higher education and the academic versus vocational

paradigm has influenced the decision-making process in schools and is the primary reason for students' general lack of awareness of apprenticeship careers (Scharfenberg, 2000).

With the knowledge that information is an important determinant of job choice, organizations seeking to hire transportation construction workers can take multiple actions, including:

- Lead or participate in a campaign to improve the image of transportation construction.
- Emphasize the rewarding characteristics of the transportation construction jobs.
- Ensure that job announcements are informative and easy to read.
- Ensure that information is communicated in forms that will reach the audience (e.g., by using the appropriate languages and media).

More specific recommendations will be provided in Chapter VI.

II. BASELINE ASSESSMENT

This chapter reviews our work to assess the baseline recruitment and marketing practices being conducted by Florida transportation construction contractors.

1. METHOD

We worked closely with the Florida Department of Transportation to identify a representative sample of contractors for two data collections. The first data collection was a structured interview and the second data collection was a Web-based survey. The purpose of this assessment was to determine the current practices of FDOT contractors, identify where the greatest workforce needs exist, and assess the feasibility of some of our recommendations.

1.1 Interviews

Identify Participants

To identify participants for this data collection, we engaged in the following steps:

- We requested FDOT to identify transportation construction contractors that have worked for the Department. We received a list of 503 contacts. Contact information was not ideal as it was often for contracts personnel.
- We stratified this list by geographic area and type of work and then randomly selected names from within strata and matched them to the current contact data provided by *MyFloridaMarketplace* until we were able to obtain current contact information for 25 companies.
- We requested FDOT to provide us the names of the top 25 transportation construction contractors that have worked for the Department. We were able to obtain current contact information for 15 of these companies.
- We contacted the 40 firms identified.

Ten of these firms consented to participate in the interviews. To determine whether 10 interviews were sufficient, we monitored the responses obtained during the interviews. We found that after five or six interviews, we were obtaining highly similar responses, and that additional interviews would not provide much more data.

Develop Instrument

We developed a structured interview protocol consisting of thirteen questions plus optional follow up questions. This protocol is provided in Appendix A. We generated these items based on themes from our literature review. The main items addressed:

- the workforce challenges facing the company
- effective and ineffective solutions being used or contemplated
- recruiting techniques
- perceptions of the target population
- sources of recruiting
- challenges in recruiting a diverse workforce
- ideas for how to promote the benefits of this industry to those with no previous knowledge or experience

Background interview items addressed the type of transportation construction work performed, company size, where the majority of work is performed, demographic composition, and wage and benefit information.

Administer Instrument

We conducted the interviews over a period of two weeks. Each participant was asked the same interview questions, although follow-up questions and probes may have differed between interviewers.

Analyze Data

Once each interview was complete the interviewer logged the item responses into a database. After all of the interviews were completed and recorded, we created reports that allowed the team to identify themes based on the accumulated responses to each item. The team first reviewed and identified the themes individually and then met as a group to come to a consensus on the list of themes for each item.

1.2 Survey

Identify Participants

The sample to which surveys were sent included all 503 FDOT transportation construction contractors. Of these, 427 received the surveys and 76 could not be reached due to outdated or incorrect contact information.

Develop Instrument

We developed an online survey based on themes developed through the literature review and refined as a result of the Structured Interviews. Participants were asked to respond to twenty-two multiple-choice items and one open-ended item. Similar to the structured interview, the web-based survey contained items that addressed major workforce challenges and effective and ineffective solutions. The major difference between the interview and the survey items was the development of factor items. These items were designed to obtain participant ratings on the extent to which certain factors (e.g., workplace flexibility) contributed to their workforce challenges. One factor, the “similar to me effect” occurs when a candidate believes individuals who are similar to them would or would not accept a job in this industry. Other survey items addressed the marketing of job opportunities, including identifying tactics used to entice candidates and the media that contractors use to advertise job opportunities. Items also addressed specific recruiting issues including sources of recruiting, workforce competitors, the recruiting process, factors effecting ineligibility of job candidates, and recruiting of skilled versus unskilled workers. Although the survey was multiple-choice, each question contained an “Other” response option that allowed responders to enter a free-text response. We provided a copy of the web-based survey in Appendix B.

Administer Instrument

We developed a listserv of the 427 identified contractors and administered the survey via email notification and website access over a 21 day period from Friday, March 2, 2007 to Thursday, March 22, 2007. In the email notification, each contractor was provided with a web link to the survey, a username, and a password. After linking to the survey and entering the username and password, the participant would answer all of the items on the survey and click on a “Submit” button to return the responses to ICF, where they were logged into a database.

Analyze Data

We calculated descriptive statistics and response frequencies for each question. To interpret open-ended responses, a team of research analysts reviewed the data and identified several themes. The team first reviewed and identified the themes individually and then met as a group to come to a consensus on the list of themes for each item.

2. RESULTS

2.1 Interviews

Demographics of FDOT Contractors

The Baseline Assessment interviews revealed several themes in the area of workforce challenges and effective solutions. We will first describe the demographic composition of the Baseline Assessment interview respondents and then discuss these themes.

The respondents represented many different areas of transportation construction, including road construction, bridge construction, toll plaza construction, marine construction, and sewer construction. The employees of these organizations are involved with such tasks as paving, grading, sheet piling, asphalt manufacturing, signalization, and excavating.

The population of transportation construction workers in these organizations ranged anywhere from 45 to 800 employees with the average around 150 employees. Partners indicated that the number of employees a contractor has at one time is heavily determined by the amount and intensity of the projects they are working on. These organizations have completed projects in a diverse set of cities and counties across Florida. They are involved in rural, urban, and suburban road construction projects in Florida. One of the respondents also has performed work in North Carolina and Texas.

Interview participants employed transportation construction employees ranging in age from 20 to 65 years; the average age was 30 years. Around 60% of their workforce fell into the category of ethnic minority, including 40% Hispanic and 20% Black. Participants reported that five to 11 percent of their transportation construction employees were female.

Regarding compensation, interview participants reported the following:

- Wages for unskilled labor ranged from \$8 an hour to around \$13 an hour.
- Employees do not stay in the unskilled labor category for an extensive period of time, as workers who stay with the organization quickly develop skills and receive increases in wages over the first six months of employment.
- Skilled employees, such as crane operators, bull dozer operators, excavators, and front-end loader operators earn between \$12 an hour and \$25 an hour.
- Most hourly employees do not receive a benefits package.

- Some companies offer limited benefits, such as 50% medical coverage, after a probationary period.
- Salaried employees do receive benefits including 90% medical coverage. Benefit package offerings do not differ based on position level or skill but based upon labor category.

Perceptions of Workforce Challenges

Participants indicated that the greatest workforce challenge for transportation construction companies in Florida is recruiting and retaining workers who have a desire to do this type of work and who have the ability to develop skills. Multiple respondents pointed out that this problem is even more pronounced in the skilled labor categories. Participants characterized the challenge with unskilled labor to be one of finding legal, drug free workers who remain with the organization long enough to learn new skills and advance.

Participants reported that they believe that females tend to avoid applying for jobs in the industry because of social and cultural barriers, lack of interest, perceived risk of bodily harm, and perceived physical demands. Contractors report success in using current female employees to recruit their female friends. Although contractors reported that recruiting workers from ethnically diverse backgrounds is not a challenge, they did indicate that literacy and language barriers do cause minor problems.

Causes of Recruiting Problems

Participants suggested that multiple issues have contributed to the workforce challenges:

- There is a stigma attached to the industry that regards these jobs as undesirable and not equivalent to jobs that require a college education. Transportation jobs are seen by high-school aged youth as temporary only and not a potential career.
- Entry-level opportunities involve working under harsh conditions.
- Florida's youth are not pursuing technical education or certification that relates to transportation construction.
- Hurricane Katrina has taken away potential workers. Many workers left Florida to find secure employment in Louisiana and Texas, and this created a general shortage of skilled and unskilled workers.
- The aging workforce is retiring. These aging workers gained their skills over years of experience and are now retiring. The only viable replacements for these skilled workers are educated youth.

- Younger workers do not adequately replace older workers. Today's youth have different interests and opportunities. The industry has failed to attract youth into this field and to develop alternative methods of motivating and retaining this new workforce.
- Candidates no longer come out of high-school into transportation construction. The candidates that do respond and begin working are usually an average of 30 years old and have been working for another transportation construction contractor. It appears that few candidates come directly from high-school even though recent career fairs have targeted high school students.
- Young people do not know that the transportation construction industry offers them education and training opportunities that they can turn into advancement and financial rewards.
- Participants suggested that other construction industries are not experiencing these issues to the same degree as transportation construction. Although the deterrents, such as stigma, safety risk, and physical conditions are similar in industries like vertical or commercial construction, they are more pronounced and extreme in transportation construction.

Solutions

Interview participants reported using a limited set of methods to reach potential workers, including word-of-mouth, newspaper ads, Internet ads, referrals, and walk-ons. Most of the skilled and unskilled workers who fill job opportunities come from referrals or walk-ons (i.e., an individual who approaches a job site inquiring about job opportunities). For upper management positions, contractors find candidates through professional recruiting organizations. Many participants reported that they believe newspaper and Internet advertisements to be too expensive to warrant what they see as limited effectiveness.

In general, participants suggested that pay is the most important factor in recruiting new workers. Participants reported using wage increases, bonuses, and other monetary incentives to address their workforce challenges. A limited number of participants reported using referral bonuses to attract candidates.

An even smaller number of respondents attempt to attract workers by emphasizing other factors like benefits, work stability, and the opportunity for advancement. Contractors using these methods also reported stressing the pride they have in their organization or the good reputation that they have developed over the lifespan of their company.

One or two interviewees reported taking one or more of the following approaches to recruit workers:

- Offer a safe work environment and stable work schedules
- Emphasize the opportunity to do hands-on work and see the finished product
- Invest in skilled labor as the focus of outreach and recruitment.
- Participate in career fairs.
- Develop career paths and mentoring programs (thought to address retention but not recruiting).
- Work with traditional high schools and vocational schools to find more opportunities to present information about the long-term benefits of a career in this industry.
- Work with Associations and high schools to promote alternative technical classes that will serve as credit toward a skilled certification once the high-school student has graduated.

Although many participants reported that they are not engaged in activities with schools, the majority of them stated that working with schools to market career opportunities would be beneficial. On the other hand, participants suggested that state regulations and programs will not be an effective solution to their workforce issues.

2.2 Survey

Demographics of Contractors

Fifty of the 427 survey recipients responded. The results can be found in Appendix C. These participants represented all areas of the industry, including roads, highways, bridges, tunnels, airports, docks, sound walls, traffic signing, and engineering. Of the participants surveyed, 77.1% reported employing fewer than 100 unskilled employees, and the remaining 22.9% reported employing between 100-500 unskilled employees. Participants, considered collectively, performed work in all geographic locations in Florida, with the greatest amount of work being conducted in central Florida and the least amount in northeast Florida. Of the participants surveyed, 55.1% of them indicated that the starting salary for an unskilled entry-level worker was between \$10/hr-\$15/hr with 40.8% paying less than \$10/hr. For skilled labor, 56.3% reported paying between \$10/hr-\$15/hr with 35.4% paying between \$16/hr-\$20/hr.

Perceptions of Workforce Challenges

Participants reported that their biggest workforce challenges were attracting unskilled workers (21.5 percent), retaining current workers (21.2 percent), and competing with other companies for workers (21.1 percent).

Causes of Workforce Challenges

Exhibit III-1 presents statistics on the extent to which participants believe that various factors cause workforce challenges.

EXHIBIT III-1					
QUESTIONNAIRE RESULTS: EXTENT TO WHICH FACTORS CAUSE WORKFORCE CHALLENGES					
Factors that May Cause Workforce Challenges	To no extent	To a little extent	To some extent	To a good extent	To a great extent
Cultural and background influences (e.g., family and friends) of prospective applicants do not support this job choice	38.8	20.4	32.7	8.2	0.0
Lack of flexibility or autonomy (i.e. when and how work is done)	18.4	24.5	24.5	24.5	8.2
Majority of the work is conducted outdoors	12.5	39.6	20.8	22.9	4.2
Poor financial benefits at the start of employment	14.3	34.7	36.7	10.2	4.1
Lack of awareness amongst potential applicants about advancement potential in this field/job	20.4	24.5	40.8	12.2	2.0
Potential applicants' beliefs that people similar to them are not employed in this job/field	32.7	28.6	30.6	6.1	2.0
Potential applicants' beliefs that all good jobs require advanced education/preparation beyond high-school	26.5	38.8	22.4	10.2	2.0

Note: numbers indicate percent of respondents.

Contractor's Effective Solutions

Survey participants were presented with potential solutions listed by Baseline Assessment Interview participants and asked to rank order the solutions from most effective to least effective. Exhibit III-2 displays the results of this survey item.

EXHIBIT III-2	
RANK OF POTENTIAL SOLUTIONS TO RECRUITING PROBLEMS	
Rank Item	Rank
Change the negative image of the field	1
Raise pay	2
Improve supervisor skills	3
Provide more developmental opportunities to workers	4
Offer better training	5
Work more closely with trade schools	6
Start apprenticeship programs	7
Offer better family benefits	8
Replace people with technology	9
Target a new population in recruitment (e.g., retirees)	10

EXHIBIT III-2 (CONTINUED)	
RANK OF POTENTIAL SOLUTIONS TO RECRUITING PROBLEMS	
Rank Item	Rank
Change work hours (e.g., less night shifts)	11
Restructure jobs (e.g., allow for job sharing; flexible scheduling)	12
Advertise jobs better	13
Establish a Human Resources department	14
Provide more promotional opportunities	15
Hire from competitors	16
Conduct more Career Fairs (e.g., Career Days)	17
Hire more recruiters	18

When participants were asked where they advertise their job opportunities, 76.5% reported using newspaper advertisements, followed by 39.2% reporting the use of internet job postings. The “other” category was indicated by 29.4% of the respondents, which may point to the large number of organizations that rely on word-of-mouth to recruit candidates. Word-of-mouth was not a response option on this survey item. Only 2% of the participants indicated that they take a strategic approach to recruiting; most reported that they either recruit as needed or don’t engage in any formal recruiting practices. Fifty-one percent of the participants indicated that they recruit workers from other construction fields. Trade schools, high schools, and the military were also mentioned as recruiting sources. Participants also indicated that other transportation construction companies were their greatest competition for labor.

When it came to attracting candidates, 66.7% reported using benefits, 64.7% reported using wages, and 62.7% reported using job security as marketing tools to attract candidates. While salary was most frequently mentioned as a benefit of working in transportation construction, participants pointed to several other factors as well. Some of these factors are skill development, opportunity to advance to management positions, and being part of a “greater cause”; although they are not uniformly used to attract new workers.

When asked what should be done to address workforce challenges in the unskilled labor force, web-based survey participants made several suggestions not already mentioned above, which are listed below:

- Eliminate use of illegal labor and focus on changing the image of the industry.
- Promote a more positive industry image to the public, and then reach out to middle school and high school youth and educate them about the opportunities offered by the industry.
- Develop and market benefits packages (e.g., transportation benefits because the work requires a vehicle).

III. BEST PRACTICES ANALYSIS

We interviewed other state transportation agencies and organizations in related fields (e.g., building construction) to identify the best recruitment and marketing practices that can be used to recruit transportation construction workers. This chapter reviews the results of the interviews.

1. METHOD

1.1 Identify Participants

Our first step in the Best Practices initiative was to draft a letter to assist in recruiting Best Practices partners to participate in the interviews. We worked closely with the President of Florida Transportation Builders Association (FTBA), Bob Burleson, to draft and send this recruitment email. The Best Practices partners included associations representing other areas of construction within the state of Florida, including residential and commercial construction. Partners also included transportation agencies in many other states. Our team successfully obtained information from 23 partners of 33 organizations contacted. The breakdown of these partners is listed in Exhibit IV-1.

EXHIBIT IV-1 BENCHMARKING PARTNERS	
Number	Category
5	Commercial builders in Florida (One with Public Works)
1	Residential homebuilder in Florida
17	Transportation Construction Associations representing contractors in other states

1.2 Develop Instrument

We developed a structured interview protocol consisting of fifteen questions plus follow-up questions. This protocol is provided in Appendix D. We generated items for the protocol based on themes we developed during our literature review and refined during the Baseline Assessment interviews. The main items addressed:

- workforce challenges facing member companies
- effective and ineffective solutions being used or contemplated
- recruiting techniques
- perceptions of the target population
- sources of recruiting

- challenges in recruiting a diverse workforce
- ideas for promoting the benefits of this industry to those with no previous knowledge or experience

Background interview items addressed the type of work performed, company size, where the majority of work is performed, demographic composition, and wage and benefit information. The final item requests that the benchmarking partners provide contact information for an association member that they felt is effective in the area of addressing workforce challenges. This contact information was used to clarify and add detail to the existing interview data.

1.3 Administer Instrument

Our team contacted potential partners from the FDOT provided list, and upon identifying an appropriate point of contact within the organization, we scheduled a phone-interview and at times emailed the protocol in advance. Interviews lasted an average of one hour. Each Best Practices partner was asked the same protocol questions in the same order. Follow-up questions may have varied between interviewers.

1.4 Analyze Data

During the interview, interviewers logged item responses into a database designed to organize and summarize the results. After the interview, the interviewer reviewed the logs to ensure that the notes were clear and complete. Once the data refinement process was complete for all interviews, the team prepared database reports to analyze the data and identify themes. The team first reviewed and identified the themes individually and then met as a group to come to a consensus on the list of themes for each item.

1.5 Cumulative Analysis

After data collection was completed for the two Baseline Assessment initiatives (discussed in Chapter III) and the Best Practices initiative, we analyzed the three sets of themes to determine overarching workforce challenges and effective solutions. Our goals for this analysis were the following:

- To identify the specific factors affecting recruiting and retention of transportation construction workers in Florida and the current solutions being used to address these challenges.

- To compare the Baseline Assessment data to the Best Practices data gathered from other construction industries and from transportation construction contractors outside of Florida.
- To determine the feasibility of the Best Practices solutions based on the unique challenges faced by Florida's transportation construction industry.

We also compared data from the FDOT contractors with that from the Best Practices partners, including demographic, economic, wage, and benefit data. Results are discussed in the following section.

2. RESULTS

2.1 Demographics of Associations

The interviewees for these Best Practices partners were representatives of construction associations in Florida and other states. These individuals were all in upper management in these organizations, where they had titles such as CEO, Executive Director, Public Affairs Director, and Vice President. These associations represented all disciplines of construction including home, commercial, industrial, and institutional construction; both small and large contractors; subcontractors; and service providers. The transportation construction contractors represented by these associations conduct work outside primarily during the day. A portion of the companies conduct work indoors but these are typically the vertical construction contractors. The transportation construction workers who work indoors are employees of contractors who specialize in tunneling and excavation. All of these workers are exposed to the elements and extreme temperatures. Best Practices partners described a medium to high safety risk work environment. They ensure that a myriad of safety policies and regulations are put in place to protect the workers.

Some associations have over twenty-one thousand members. Associations mentioned that the number of employees a contractor employs at one time is closely tied to the amount of work currently being performed and the season. Associations represented in this study operated in several states including Florida, New York, and California. Exhibit IV-2 describes the workforce demographic composition and wage data across contractors as reported by associations.

EXHIBIT IV-2					
WORKFORCE DEMOGRAPHICS OF BEST PRACTICES PARTNERS					
	Avg. Age	% Female	% Ethnic Minority	Avg. Entry Wage	Avg. Secondary Wage
All Interviewees	39 years	10	38	\$21/hr	\$31/hr
Only Non-Union	36 years	10	41	\$16/hr	\$24/hr
Only Union	46 years	10	28	\$26/hr	\$35/hr
Florida Baseline Data	30 years	10	60	\$11/hr	\$19/hr

Perceptions of Workforce Challenges

Interviewees reported that the greatest workforce challenge is marketing to young people and recruiting them into skilled and unskilled positions. They see contractors as challenged with finding ways to demonstrate that transportation construction jobs are rewarding, long-term careers. Another reported workforce challenge is finding ways to retain skilled employees. Similar to the findings in the Baseline Assessment study, the interviewees point out that construction companies can support as permanent staff, a limited number of unskilled workers.

2.2 Causes of Workforce Challenges

Associations report the following issues as causes of the workforce challenges mentioned above:

- The workforce is aging and retiring at a faster rate than young people are entering the industry.
- Disasters have affected supply and demand in different areas of the country. There has been an increase in construction job opportunities in Louisiana and Texas, and this has caused an exodus of unskilled workers from states like Florida. Disaster relief jobs do not require training and yet provide high wages and steady work. Unskilled laborers in these jobs have no incentive to go to construction jobs that eventually require training and certifications.
- The image of the construction industry is poor among youth, parents, and educators. The perception is that even if young people consider construction jobs they do not consider transportation construction as an option, either based on ignorance or the negative stigma. The transportation construction jobs are considered dirty jobs, where the workers are exposed the elements and have low wages and little chance for advancement.
- Construction companies in general and transportation construction companies in particular have generally failed to strategically recruit and retain workers from alternative populations. Although much of the industry is supported by ethnic minorities, little effort has been given to research what attracts these workers into these jobs, what will retain

these workers, and what will motivate them to develop skills. Also, little effort has been given to determining what will attract female candidates into transportation construction positions.

- Contractors have been unable to unify efforts around educating young people regarding the opportunities.
- Construction contractors have yet to explore and implement alternate methods of motivating their workforce. Contractors have succumbed to wage competition instead of developing alternative forms of motivating and retaining workers. Contractors emphasize filling unskilled positions, and this leaves them “bottom-heavy” and forced them to layoff employees when productivity was low. This issue is also tied to the lengthy processes and training that is required to advance from an unskilled to a skilled position. Retention issues also contribute to these workforce challenges.

2.3 Associations’ Effective Solutions

Interviewees offered several methods that their members have used to address workforce challenges:

- Sharpen the recruiting message to combat the negative image and address individuals who have chosen not to go to college. Although working conditions are initially harsh, career advancements actually occur quickly, wages are high compared to other industries, and workers are exposed to training and cutting edge technology.
- Provide the leadership of construction companies and associations with publicity training. The notion is that as the leadership gains better marketing skills, they will be better able to highlight available career opportunities and market the industry as fast paced, exciting, and technology driven.
- Emphasize benefits, especially retirement benefits, full-year work contracts, extended vacation time, training, scholarships, and reimbursement programs for continuing education to recruit the adult population into unskilled or front-line labor positions.
- Use external recruiting techniques to meet the short-term goals of filling unskilled labor positions and long-term goals of recruiting young skilled workers into transportation construction careers.
- Conduct strategic recruiting from alternative populations. Transportation construction associations have found that eliciting the support of construction worker associations like The National Association of Women in Construction is beneficial in the area of recruiting females. For minority populations, one association mentioned that contractors send bilingual recruiters door-to-door in historically minority populated neighborhoods and talk to families about the benefits of starting a career in construction. Other contractors place advertisements in bilingual newspapers or post bilingual signs for job opportunities.

To motivate their efforts, some contractors have set demographic recruiting goals that exceed those mandated by the government.

- Conduct outreach programs in high schools which involve presentations about the industry and the career opportunities it offers. Specifically, these initiatives are meant to educate students regarding the diversity of jobs within transportation construction. Students are engaged with activities that show them how their skill sets, in math for example, are integral to transportation construction jobs.
- Talk to educators about lucrative opportunities available for students who will most likely not excel in a college environment.
- Build rapport with high-school career counselors and provide these counselors with material that addresses the benefit of construction careers over other entry level jobs. These relationships can lay the groundwork for transportation construction career-days where youth can come and handle actual construction machinery.
- Conduct summer apprenticeship programs where students can be paid for their services while developing skills have been widely successful in other industries. Organizations such as the Transportation Construction Foundation and the Academy of Construction Technologies are helpful in supporting these initiatives.
- Work with foster care programs to provide careers for youth exiting a foster care environment.
- Recruit workers at the college level. In addition to recruiting, contractors have been working with the engineering departments of colleges and universities to develop or tailor courses that address the specific and technical needs of the industry. Contractors provide scholarships with an emphasis on the construction side of engineering. They also enlist the help of state universities to aid in the recruitment of minorities through career days at historically minority colleges.
- Develop career paths so that entry-level workers can clearly see their advancement opportunities and the requirements they must fulfill to be considered for advancement.
- Develop a sense of teamwork and community that not only attracts but retains workers. For example, some companies provide uniforms to workers and others develop policies around voluntary road cleanings and helping stranded motorists. Other companies support “Adopt-A-Highway” programs by networking with a church or community associations to conduct the cleanup in exchange for a donation from the company.
- Expedite the training needed to be certified and to move into skilled positions. We have previously mentioned the issue of having an overabundance of unskilled workers and a lack of skilled workers. One cause of this issue is the fact that the training required to obtain a skilled position takes a significant amount of time to complete. In addition, the

rapid pace of technological development supports the idea of expedient and adaptable training curriculums.

- Incorporate realistic descriptions of the working conditions into their recruitment materials. Although this solution involves recruiting materials, it actually addresses the retention challenges faced by the industry. The wasted expense of recruiting, onboarding, and training candidates who do not fully understand the nature of the work and resign shortly after their hire date can be minimized by documented and honest communication about the work environment.
- Ensure a more diverse workplace. Promote bilingual and multilingual speakers into management positions to facilitate optimal communication with persons who speak languages other than English. This solution also communicates an inclusive image and an attractive career opportunity for potential Non-English speaking candidates. Other steps involve creating bilingual manuals, instructions, and safety signs to allow Non-English speakers to train and advance.

IV. SURVEY OF FACTORS AFFECTING JOB CHOICE

In this chapter, we discuss the survey we conducted with the target applicant pool of younger persons poised for post-high school-graduation work/careers. The survey was to supplement the literature review that we conducted in order to identify the factors affecting job choice. In particular, the survey was meant to tell us which of the potential factors are most important among people who are potential applicants for Transportation Construction Worker jobs.

1. METHOD

To conduct this portion of the study, we engaged in the following tasks:

- Obtain Sample
- Develop and Administer Policy Capturing Survey
- Develop Direct Rating Survey
- Administer Survey
- Analyze Data

We describe these tasks in Exhibit V-1 by providing, for each task, the list of inputs, processes, and outputs.

Note that the tasks include developing and administering six short surveys, whereas our initial work plan had called for administration of only one lengthy policy-capturing survey. We took this course of action to adjust to unexpected difficulties we encountered in trying to obtain subjects and encourage response: in particular, schools refused to agree to allow us to administer our surveys in classrooms in exchange for our teaching a class; the surveys to the high school students required multiple layers of approval (school boards, schools, parents) even when they were administered through the mail (and not in the classroom); and FDOT policy did not allow the use of incentives to encourage survey recipients to complete this survey.

To maximize response rate in the absence of incentives or access to a captive audience (i.e., students in a classroom), we reduced the response burden for individual participants. In particular, we broke the original survey into five different surveys (each with a length of five pages) to be administered to subsets of participants. Upon administering these surveys, we obtained an unacceptably low response rate (i.e., less than one percent). Therefore, we created an even shorter survey (just one page) that still addressed the key issues, but would likely enable us to obtain a better response rate. We called this survey the Direct Rating Survey (DRS) because it involved asking respondents to rate the importance of each factor directly, rather than

having them to respond to scenarios. Our results section reports the results obtained on the DRS only.

EXHIBIT V-1		
TASKS WE ENGAGED IN TO CONDUCT A SURVEY OF FACTORS AFFECTING JOB CHOICE		
Task	Process	Output
Obtain Sample	<ul style="list-style-type: none"> ■ Evaluated a series of potential ways of defining the population of potential applicants for transportation construction work jobs. ■ Selected high school juniors and seniors in Florida as the population of interest. ■ Identified four regions of the state that would represent different geographical and cultural areas of Florida. ■ Selected four county school districts where we would sample from at least one urban and one rural school ■ Developed and submitted Institutional Review Board (IRB) proposals describing research effort tailored for each district. ■ Contacted 98 public and private senior high - school in three districts with proposals to collect data within the school. ■ Negotiated with schools on alternative procedures to reach students. ■ Sent surveys to the three schools agreed to participate. 	<ul style="list-style-type: none"> ■ Selection of graduating high school students in Florida as the population of interest. ■ County School District IRB approval on survey and four separate proposals ■ Polite rejections from all schools to our offer to personally administer the survey in the school in exchange for instructing a class or conducting a similar activity for the school ■ Polite rejections from most high schools contacted to our offer to have them distribute the survey. ■ Three schools agreed to distribute the survey packets in class. ■ Leon County schools agreed to provide us with mailing addresses of all Juniors and Seniors.

EXHIBIT V-1 (CONTINUED)		
TASKS WE ENGAGED IN TO CONDUCT A SURVEY OF FACTORS AFFECTING JOB CHOICE		
Task	Process	Output
<p>Develop and Administer Policy Capturing Survey</p>	<ul style="list-style-type: none"> ■ Based on the literature review (see chapter II), identified seven factors relevant to Transportation Construction that may be considered by potential applicants ■ Developed scenarios for 128 potential job contexts and prepared them for placement in the policy capturing survey ■ Developed a factorial design that would allow assignment of 128 scenarios to four different policy capturing surveys in a manner that would reduce the burden for users, but still provide clear policies on what respondents actually consider most, least etc. ■ Conducted an Internal Review Board (IRB) process internal to ICF. ■ Developed five surveys to capture respondent job choice policies and to gather information on other issues (e.g., knowledge of transportation construction). ■ Sent surveys to one school to administer (one survey each) to all Seniors; Sent surveys (one survey each) to a subset of Juniors and Seniors in Leon County. ■ Sent surveys to three schools that agreed to distribute the surveys. ■ Explored a variety of incentive procedures meant to increase response rate. ■ To evaluate reasons for low response rate, conducted follow-up calls with a subset of non-respondents for whom we could obtain phone numbers. 	<ul style="list-style-type: none"> ■ Operationalization of two levels for each of the seven factors likely to impact job choice. ■ Four policy capturing surveys developed using a factorial design (provided in Appendix E). Each survey approved by ICF IRB, FDOT, and all school districts. ■ A Career Preferences Survey (provided in Appendix E) to tap other career choice issues (e.g., knowledge of transportation construction). ■ Consent forms and procedures for administering the surveys to minors (provided in Appendix E). ■ Recommended incentive procedures rejected by FDOT. ■ Responses received from six individuals. ■ Conclusions on reasons for low response rate: ■ Recipients have no incentive to respond ■ The five page surveys are too long ■ The consent process (required for minors) is confusing and requires respondents to reveal identity
<p>Develop Direct Ratings Survey (DRS)</p>	<ul style="list-style-type: none"> ■ Evaluated variety of methods to obtain data from students. ■ Developed one-page survey including essential issues only. This survey was for administration to adults only. The title of this survey was the Direct Ratings Survey (DRS) 	<ul style="list-style-type: none"> ■ DRS: a one-page survey for administration to adults within the sample. This survey included questions on all seven career choice factors from two perspectives: 1) the importance of the factor to the individual when choosing a job, and 2) how the individual perceives transportation construction on that factor (survey provided in Appendix F)

EXHIBIT V-1 (CONTINUED)		
TASKS WE ENGAGED IN TO CONDUCT A SURVEY OF FACTORS AFFECTING JOB CHOICE		
Task	Process	Output
Administer DRS	<ul style="list-style-type: none"> ■ Sent survey to all recently graduated Seniors in Leon County ■ Included letter explaining the importance of the project and the potential impact on transportation in Florida ■ Included self-addressed, stamped return envelopes 	<ul style="list-style-type: none"> ■ Survey sent to 867 individuals ■ 30 returned due to insufficient/incorrect address ■ Obtained 37 completed responses (14 male and 23 female respondents)
Analyze Data	<ul style="list-style-type: none"> ■ Using SPSS calculated the frequency distribution for each response option, including the overall mean and means by Male and Female respondents. ■ Coded the open-ended responses and calculated the frequency of each factor mentioned in the responses. 	<ul style="list-style-type: none"> ■ Results presented in section below.

2. RESULTS

We present the results for the Direct Rating Survey (DRS) in this section. Thirty-seven surveys were returned. Respondents included 14 males and 23 females. Survey results by question are provided in Exhibits V-2 through V-6. Complete open ended responses are provided in Appendix G.

EXHIBIT V-2								
IMPORTANCE OF ISSUES WHEN CHOOSING A CAREER								
	Percentage with each Response					Mean of Responses*		
	Not Important	Somewhat Important	Important	Very Important	Extremely Important	Overall	Male	Female
My family and friends would support me in choosing the career	0	29.7	35.1	29.7	5.4	3.1	3.0	3.2
I could decide when and how I do my work.	0	18.9	37.8	35.1	8.1	3.3	3.1	3.4
I would be working indoors.	13.9	27.8	36.1	16.7	5.6	2.7	2.9	2.7
I would get good pay and good benefits (e.g., health insurance, a retirement plan, child-care facilities, payment for the commute to work).	0	2.7	21.6	35.1	40.5	4.1	4.2	4.1
The career has advancement potential (i.e., someday I may receive greater weekly pay, promotion to new levels, greater responsibilities).	0	8.1	21.6	35.1	35.1	4.0	4.0	4.0
I would “fit in” at work (i.e., some of my coworkers would be like me: same gender, culture, education, and interests).	5.4	16.2	40.5	35.1	2.7	3.1	3.3	3.0
I could start earning money right away, without any training or education beyond high school.	52.9	17.6	14.7	14.7	0	1.9	1.7	2.1

Note: Ratings were provided on a 5 point scale (Not Important = 1, and Extremely Important = 5).

EXHIBIT V-3						
LEVEL OF AGREEMENT WITH STATEMENTS ABOUT A JOB AS A TRANSPORTATION CONSTRUCTION WORKER						
	Percentage with each Response			Mean*		
	Disagree	Not Sure	Agree	Overall	Male	Female
My family and friends would support me in continuing to pursue this career.	32.4	37.8	29.7	1.0	1.4	0.8
I could decide when and how I do my work.	51.4	40.5	8.1	0.6	0.4	0.7
I would get good pay and good benefits (e.g., health insurance, a retirement plan, child-care facilities, payment for the commute to work).	22.2	52.8	25.0	1.0	1.3	0.9
My career would have advancement potential (i.e., someday I may receive greater weekly pay, promotion to new levels, greater responsibilities).	13.5	43.2	43.2	1.3	1.5	1.2
I would “fit in” at work (i.e., some of my coworkers would be like me: same gender, culture, education, and interests).	29.7	51.4	18.9	0.9	0.9	0.9
I would begin earning money right away, without any training or education beyond high school.	10.8	35.1	54.1	1.4	1.5	1.4

Note: Ratings were made on a 3 point scale (Disagree = 0, and Agree = 2).

EXHIBIT V-4						
PERCENT WHO WOULD CONSIDER PURSUING A CAREER AS A TRANSPORTATION CONSTRUCTION WORKER						
	Percentage with each Response			Mean*		
	Yes	Maybe	No	Overall	Male	Female
Would you consider pursuing a career as a transportation construction worker?	0	13.5	86.5	0.1	0.3	0.0

Note: Ratings were made on a 3 point scale (No = 0, and Yes = 2).

EXHIBIT V-5			
REASONS WHY RESPONDENTS WOULDN'T CONSIDER PURSUING A CAREER AS A TRANSPORTATION CONSTRUCTION WORKER			
Question	Responses	Responses	
		Count	Percent
Tell us why you would or wouldn't consider pursuing a career as a transportation construction worker.	Not interested in construction	14	30.4%
	Interested in another career	9	19.6%
	Because it requires heavy physical labor	6	13.0%
	Because it requires outdoor work	4	8.7%
	Because it has poor financial compensation	4	8.7%
	Going to college	4	8.7%
	Poor image of career	3	6.5%
	Lack training to be a construction worker	1	2.2%
	Lack information about this career	1	2.2%

Note: Like responses were placed into the categories reported here. Actual responses are in Appendix G. Some respondents mentioned more than one issue, therefore the total count of responses to this question is greater than the number of respondents. All open-ended responses provided were reasons why respondents would not consider pursuing transportation construction.

EXHIBIT V-6			
RESPONDENTS' PLANS AFTER HIGH SCHOOL			
Question	Responses	Responses	
		Count	Percent
What are your plans immediately after high school?	College	24	64.9
	Community College or Technical School	9	24.3
	Work in the construction field	0	0
	Work in some field other than construction	1	2.7
	Don't Know	1	2.7
	Other	2	5.4

3. DISCUSSION

Our survey of job choice factors provided several interesting results. We present the most significant and interesting findings in Exhibit V-7 along with a comment on each finding.

EXHIBIT V-7	
SUMMARY OF MOST IMPORTANT FINDINGS	
Finding	Comments
Tangible benefits like good pay and advancement potential were the most important factors to survey respondents.	This finding corroborates the literature review evidence that suggests when the full spectrum of jobs is under consideration, these two factors will serve as the first cut.
Transportation construction jobs were rated lower than expected on all factors, even on some issues where these types of jobs have an obvious advantage (e.g., only half of the respondents agreed that with a career in transportation construction, they would begin earning money right away)	Respondents have a particularly negative image of transportation construction workers, and this affects their perceptions of all factors relevant to job choice.
Less than half of the respondents agreed that they could advance and earn more money over time in a transportation construction job.	Respondents lack knowledge of opportunities in transportation construction.
None of the respondents said they would consider pursuing a career as a transportation construction worker.	This confirms the seriousness of the problem.
Results were similar for males and females, with females rating transportation construction lower than males in terms of the support expected from parents when considering a job in that field.	Males and females had equally low ratings of transportation construction work.
Response rate was low.	Results may have limited generalizability, but the size of some of the effects suggests that these effects are indeed important (e.g., the notion that good pay and advancement are the most important factors affecting job choice).

Given these results, we recommend that FDOT, FTBA, and other stakeholders in transportation construction take steps to:

- Improve the image and understanding of transportation construction worker jobs.
- Market to students who are choosing to begin working right away.
- Offer and advertise training and educational opportunities associated with transportation construction.
- Emphasize positive aspects of transportation construction (e.g., advancement potential, ability to begin earning immediately).

More specific recommendations are provided in chapter VI.

V. SYNTHESIS AND RECOMMENDATIONS

1. FACTORS THAT INFLUENCE JOB CHOICE

To address demographic changes in the transportation workforce and the impending ‘Baby-Boomer’ retirement, steps must be taken to develop and attract the next generation of workers into transportation construction positions. In order to do this, recruitment, marketing, and even management decisions must consider the factors that influence job choice among young people.

Based on our literature review, interviews with contractors and benchmarking partners, and our surveys of contractors and potential applicants, we have identified eight factors that most affect the job choices of young people. Most of the literature implies that these factors interact to predict job choice. For example, the extent to which advancement potential is attractive to a potential candidate may depend, in part, upon that candidate’s cultural heritage (Leung et al., 1994). Transportation construction organizations must consider the implications of these factors as well as the interaction among the factors in designing jobs and targeting potential applicants.

Exhibit VI-1 defines these factors, and Exhibit VI-2 provides the evidence from our study that supports these factors.

EXHIBIT VI-1	
EIGHT FACTORS THAT MOST AFFECT THE JOB CHOICES OF YOUNG PEOPLE	
Factor	Definition
Type of Work and Work Setting	The degree to which the work fits with the interests of the individual. The work context where the work is performed (e.g., indoors vs. outdoors, interacting with others vs. working alone).
Flexibility/Autonomy	The degree to which flexibility in scheduling, working independently, and commuting impact perceptions of a job.
Financial Compensation/Benefits	Level of current or immediate financial benefits provided upon entry into the job. All financial compensation offered to the employee, including, hourly wage, salary, and all benefits such as healthcare cost and quality; retirement plans; and bonus structures.
Perceptions of Recruitment Process	Perceptions of the recruitment process include appropriate interpersonal treatment, timely and consistent information, job related perceptions, and whether the selection instruments appear to be valid and procedurally fair (Chapman et al., 2005).
Advancement Potential	The degree to which the job provides opportunities to advance within the same line of work, to greater responsibilities, and, thus, to higher compensation.
Level of Similarity/Fit	Extent to which the potential applicant would share similar background, likes/dislikes, and interests with prospective coworkers if he/she took the job.
Interest in Additional Training/Education	Perceptions held by an individual regarding accessibility of the job, dependent in part upon the individual’s own level of achievement and the extent to which a job seems desirable when it does or does not require advanced education or training.
Contextual Influences	Includes influence of parents, peers, teachers, and culture on the job decision. Cultural influence is the persuasive power that ethnicity, race, and culture (individualistic versus collectivistic) has on initial job choice. It includes the influence that societal norms, stereotypes regarding the “maleness” or “femaleness” of jobs, and cultural stereotypes have on job perceptions.

EXHIBIT VI-2	
EVIDENCE SUPPORTING EACH FACTOR	
Factor	Evidence
Type of Work and Work Setting	<ul style="list-style-type: none"> ■ Many of the comments provided by FDOT contractors regarding their speculation about the cause of workforce challenges speak to the specific factor of work setting. ■ The literature review revealed that type of work or work setting was a critical factor in job choice decisions among America’s youth, with 9 of the 24 articles researched suggesting this (e.g., Chapman et al., 2005). ■ When asked why they thought someone might be deterred from taking a job in transportation construction, eighty percent of the Florida DOT contractors interviewed suggested that it was due to the nature of the work and job description. Specific responses from the contractors as to why the transportation construction job might appear unattractive to some include “long hot working hours,” “working outdoors,” “working outside in elements, hard work,” and “[b]eing outdoors, sun, insects, dirt, getting dirty, nasty job.” ■ FDOT contractors and Best Practices Analysis partners indicated that the nature of the work was a deterrent to recruiting educated youth into the industry. Although many skilled positions, both technical and managerial, are available after a short tenure our survey and interview respondents in the industry believe that young people are not willing to endure the manual labor and exposure to the elements necessary to advance to the skilled positions. ■ When we asked potential applicants why they would not consider a career in transportation construction, over 70 percent of them mentioned there lack of interest in the type of work or the work setting.
Flexibility/ Autonomy	<ul style="list-style-type: none"> ■ The perceived flexibility and autonomy that a job allows directly impacts the extent to which youth will find that job attractive. Eighty percent of the potential applicants that we surveyed listed this factor as important to extremely important. ■ Almost 60% of the FDOT contractors surveyed in our study reported that they felt the lack of flexibility and autonomy in the transportation construction job accounted for some to a great extent of the workforce challenges they faced. ■ “Gen Xers” and “Gen Yers” are particularly concerned with having flexible work arrangements (Zemke, Raines, & Filipczak, 2000). ■ Younger generations of workers care much more about having discretion in how they arrange their schedules and balance their work-lives, than prior generations (Marston, 2005). ■ Our Baseline Assessment and Best Practices Analyses confirm that applicants value flexibility and autonomy, but suggest that the nature of the work makes it difficult to offer such arrangements.

EXHIBIT VI-2 (CONTINUED)	
EVIDENCE SUPPORTING EACH FACTOR	
Factor	Evidence
Financial Compensation/ Benefits	<ul style="list-style-type: none"> ■ Our survey of potential applicants for transportation construction worker jobs in Florida suggested that financial compensation is the most important factor affecting job choice. ■ Published research suggests that pay level and benefits are non-fungible factors that often serve as ‘deal breakers’ for individuals investigating jobs (Osborn, 1990) ■ Contractors participating in our interviews and surveys often cited wages and benefits as the best tool for affecting recruitment and retention.
Perceptions of Recruitment Process	<ul style="list-style-type: none"> ■ The Baseline Assessment, Best Practices Analysis, and the Survey of Factors affecting Job Choice all indicated that the Transportation Construction Industry’s reputation is contributing to the current workforce challenge. Jobs in this industry are considered undesirable. Young people who pursue higher education are not pursuing courses that are useful to this industry. Young people who are entering the workforce straight out of high-school are avoiding these jobs. ■ Applicants place a lot of weight on what they imagine their future job will be like when forming acceptance intentions. Perceived work environment, perceptions of the recruitment process and recruiter are thus strong predictors of acceptance intentions. (Chapman, et al., 2005). ■ Due to insufficient information about job attributes, applicants may be highly influenced by the recruitment process as well as recruiter characteristics (gender, function) and behavior (personable, competence, informative and trustworthy) (Chapman et al., 2005). ■ Individuals are more likely to accept a position if the recruiter and the recruitment process are seen as fair and job related (Chapman et al., 2005).
Advancement Potential	<ul style="list-style-type: none"> ■ Our survey of potential applicants for transportation construction worker jobs in Florida suggested that advancement potential is the second most important factor affecting job choice. ■ Our survey of FDOT construction contractors indicated that over 55% of them believe that lack of awareness regarding advancement potential has some to a great extent of impact over why youth are not pursuing jobs in this field. ■ According to one FDOT contractor interviewed, the biggest challenge for transportation construction companies may be that these jobs are not seen as viable long-term careers. ■ One study found that 89% of participants were highly concerned with advancement potential and believed that training in technology is important to ensure advancement success (Ferris State University, 2002)
Level of Similarity/Fit	<ul style="list-style-type: none"> ■ An individual’s attraction for a job and an organization are driven by the extent to which that person believes he or she “fits” with that job/organization (Schneider, 1987). ■ Recruitment and placement efforts are also closely correlated with retention in that if an employee does not have a good fit with the job or the organization then the employee will likely self select out of that position quickly. ■ Females may not be choosing transportation construction jobs because they perceive the jobs as having gender barriers that would prevent them from having successful careers or because they feel they might be discriminated against on the job. The National Association of Women in Construction reports that only 10 percent of the construction workforce is female. The benchmarking partners we interviewed also stated that 10 percent of the workforces in the companies they represent were comprised of female workers. ■ The characteristics of a job that are most attractive to an individual are often dictated in part by that person’s own characteristics. Specifically, GPA, talent, skill, interests, personality, and abilities are characteristics of an individual that may lead him/her to find a job attractive or unattractive (e.g. Paa & McWhirter, 2000; Malgwi et al., 2005; Borchert, 2002). While many of these characteristics are relatively static and cannot be influenced, the degree to which a young person views a match between his/her characteristics and the job is mutable.

EXHIBIT VI-2 (CONTINUED)	
EVIDENCE SUPPORTING EACH FACTOR	
Factor	Evidence
Interest in Additional Training/ Education	<ul style="list-style-type: none"> ■ The extent to which students are interested in advanced education or training opportunities may predict their interest in a job. Specifically, students may view jobs as less challenging or prestigious if they do not require a college degree (Ferris State University, 2002). ■ Our survey of potential applicants suggests that most of these individuals have a more positive view of careers that require more education or training. ■ Young people believe that better job opportunities are highly correlated with advanced education (Kniveton, 2004). Parents and guidance counselors may help perpetuate this belief, which could account for the challenges transportation construction companies are faced in recruiting entry-level workers. ■ In the web survey we conducted, Florida DOT contractors acknowledged that offering better training and developmental opportunities to workers would help address the workforce shortages faced; this solution ranked fourth among 18 possible solutions.
Contextual Influences	<ul style="list-style-type: none"> ■ The people, events and experiences surrounding an individual have been found to directly influence the decisions that person makes regarding career path (e.g., Arnold et al., 1998; Cherry & Year, 1987; and Hoffman et al., 1992). ■ More than half of our potential applicant survey respondents indicated that support from family and friends is at least important when choosing a career. ■ In the case of transportation construction jobs, parents may be pushing their children toward advanced education to the detriment of entry-level jobs like transportation construction laborer. Parents, despite their own education level, tend to view college as a more distinguished path than jobs which do not require a college education (Ferris State University, 2002). ■ Immigrant parents may not want their children to work in transportation construction jobs for fear that such jobs would be similar to their own experience of physically exhausting, ‘dead end’ jobs (e.g., Singh, 1990). In a number of studies, students credited their parents opinion as the most important factor affecting their job decisions (e.g., Bregman & Killen, 1999; Kniveton, 2004). ■ In the web survey of FDOT contractors, over 40% of the respondents indicated that cultural and/or background influences such as family and friends had some extent to a great extent of responsibility for why individuals are not seeking out transportation construction jobs. ■ Our literature review pointed to culture as a factor influencing youth job choice, suggesting that ethnicities from some collectivist cultures are concerned about how their youth’s job choice will reflect upon their ethnic group (e.g., Leung et al., 1994). Thus, some demographic groups may be discouraging their youth from pursuing entry-level jobs such as transportation construction laborer in the belief that it would preclude the youth from getting a college degree.

2. IMPACT OF WAGES AND BENEFITS

Multiple sources of evidence suggest that the wages and benefits offered by transportation contractors have a significant impact on their success in recruiting and retaining workers. Florida DOT contractors who were interviewed and surveyed reported wages lower than those reported by benchmarking partners in Florida and other states. In particular, wages ranged between \$8 and \$13 an hour for entry-level transportation construction jobs, whereas the average among benchmarking partners was \$21 an hour (average of \$16/hr for non-union; \$21/hr for union). This is particularly concerning considering the fact that our survey of potential applicants for transportation construction worker jobs in Florida suggested that financial compensation is the most important factor affecting job choice. Finally, published research

suggests that pay level and benefits are unsubstitutable factors that often serve as ‘deal breakers’ for individuals at the early stage of investigating jobs (Osborn, 1990).

While Florida’s wages for entry-level unskilled construction workers are higher than the Federal minimum wage of \$5.85 per hour (as of July 24, 2007) and comparable to other entry level jobs (e.g., restaurant server) there are important differences between these jobs that typically affect pay rates. These factors include the unpleasant and dangerous working conditions (e.g., transportation construction workers are more than three times as likely to be killed on the job than are other types of construction workers (ARBTA, 2004)) and the challenging physical nature of the work (OPM, 1991).

Florida DOT contractors seem to recognize the importance of this issue; they ranked “increase pay” second among 18 possible solutions to the workforce problem.

3. IMPACT OF DEMOGRAPHICS

The percentage of ethnic minorities that comprise the construction workforce in Florida is much higher than nationwide. According to the 2006 Latino Labor Report, the South (mainly Florida and Texas) and West regions account for more than 90 percent of all construction jobs filled by Hispanics since 2003 (Kochhar, 2006). The National Association of Homebuilders says the number of foreign-born workers in the construction industry has more than doubled in the past 20 years (Walker, 2006). This agrees with our findings from the interviews of Florida contractors which revealed that around 60% of their workforce falls into the category of ethnic minority.

Organizations must adjust as demographics of their workforce change. This becomes even more critical in the construction industry because of the heavy reliance on complex technology and heavy equipment, the inherent dangers of the work, and the team effort required in all aspects of the job. This calls for the need of all information and training to be disseminated in the language of the workforce, in order to assist individuals who have limited English proficiency. Creating bilingual manuals, instructions, and safety signs will allow non-English speakers to seek necessary training and advance. Moreover, individuals hired into supervisory roles must be aware of the impact of cultural differences and have experience working with non-traditional labor pools. Training for management in cultural diversity would be beneficial for improving some of the recruitment challenges currently faced by transportation construction. The aforementioned considerations of diversity will not only allow for optimal communication with the workforce as a whole, but also help establish a more inclusive image and an attractive career opportunity in transportation construction for non-traditional labor candidates. Additionally, the traditionally low educational attainment of the immigrant population must be taken into account while drafting policies and training materials.

FDOT contractors employ a relatively low percentage of females. Contractors responding to our survey indicated that only five percent of their employees are women. According to our contractor survey, the number one reason for such low representation was “Women's beliefs that people similar to them are not employed in this job/field.” The second most common reason was shared between, views that the cultural and background influences (e.g., family and friends) of prospective female applicants are not supportive of this field, and the physical demands of the job are too difficult for most women. These reasons again attest to the critical need to improve the negative image of the construction industry as a more female-friendly and safe working environment. One way to improve this image would be to have female recruiters reach out to predominantly female populations or to reach out to associations like the National Association of Women in Construction to provide support in the area of recruiting females.

Another factor that affects recruitment is the attitude of contractors on race or gender, and their treatment of the issues concerning recruitment. For example, some contractors we interviewed suggested that little can be done to improve female recruitment, or even that women are not suited for heavy construction work. This belief affects their willingness to take active measures. Our contractor survey indicated that only 2% of the participants take a strategic approach to recruiting with most reporting that they either recruit as needed or do not engage in any formal recruiting practices. Hence, senior management of contractor companies need to be educated on how their beliefs impact the image of the industry, and on how adopting a strategic focus on recruitment will help address the challenges presented by changes in workforce demographics. Furthermore, if contractors are able to shift their perspective on the changes in workforce demographics, they may be able to develop better ways to leverage these changes to create a stronger, more productive workforce.

4. RECOMMENDATIONS TO IMPROVE RECRUITING SUCCESS

The purpose of this section is to identify effective employment marketing and recruiting approaches that will entice target audiences to apply for transportation construction jobs. For the purposes of this project, we have assumed that the target audience consists mainly of males and females, ages 17 to 25. This audience includes both *active* job seekers (people proactively looking for a job in a particular field) and *passive* job seekers (people who are open to getting a job but are not actively pursuing options in any particular field).

Messages for marketing efforts should focus on the following audience motivators:

- Transportation construction workers receive good pay and benefits.
- You can “fit in” as a transportation construction worker.

- You can start earning money right away, without any training or education beyond high school.
- The industry has many attractive career opportunities.
- By working in transportation construction, you are giving back to the community; the success of the community depends on effective transportation construction work.
- Transportation construction is a viable career for female workers.
- The industry promotes and supports on-the-job training and education.
- Transportation construction jobs have excellent advancement potential.
- Transportation construction is a great place for your son or daughter to start a career.

We recommend three broad strategies for addressing the marketing and recruiting challenges:

- Improve Branding
- Develop a Recruiting Toolkit
- Improve outreach

These approaches could be implemented by a variety of entities interested in improving the transportation construction workforce, including FDOT, FTBA, and individual contractors. We review these approaches in more detail below.

4.1 Improve Branding

In attempting to successfully target this next generation of workers, affectionately termed “Gen Yers” (born after 1978), transportation construction companies, such as those contracted by FDOT, have found the negative and inaccurate perceptions of the construction worker job have created additional recruitment obstacles. In fact, in a Wall Street Journal Almanac Poll of job preference by high school-aged vocational technology students, the job of construction worker ranked 248 out of 250 occupations compared (U.S. Department of Labor, 2004).

One effective way to address this problem is to improve the image through branding of transportation construction jobs. Branding should be designed to raise the profile of transportation construction as a career and shape positive attitudes of potential applicants and their parents (and other influencers) towards transportation construction jobs. This strategy is used particularly well by the fast food industry to not only brand their products, but to promote the industry as a fun place to work.

Exhibit VI-3 provides a list of potential actions that could be taken to improve branding of transportation construction worker jobs.

EXHIBIT VI-3					
IMPROVE BRANDING					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
1.	Develop a logo and tagline associated with a statewide campaign	“Brand” transportation construction as a desirable career for target audience.	<ul style="list-style-type: none"> ■ Marketing research suggests that branding can highlight the successful characteristics of a job and improve recruiting success. ■ Transportation construction companies need to recognize the impact that contextual influences such as parents, teachers, guidance counselors, and friends have on high school youth job choice. As part of this recognition, these companies need to target their marketing and recruitment efforts towards these influencers. Ads need to focus on convincing parents of the benefit of transportation construction jobs. 	<ul style="list-style-type: none"> ■ U.S. Army, “An Army of One”; ■ The Army markets to parents in their television ads where they show parents and youth discussing the values that young people gain by joining the Army. 	<ul style="list-style-type: none"> ■ Required as basis for any branding strategy projects

EXHIBIT VI-3 IMPROVE BRANDING					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
2.	Develop a unique Web site for the campaign that will provide a destination site for audience members looking for career options.	<ul style="list-style-type: none"> ■ Provide an interactive site for audience to learn more. ■ Provide a fulfillment point for advertising campaign. 	<ul style="list-style-type: none"> ■ Marketing works best when audience members are motivated to take particular action. ■ Young people are more likely to use a Web site than many other types of media. 	<ul style="list-style-type: none"> ■ http://www.constructmyfuture.com/Choose.asp ■ (this was created by a partnership between three construction industry associations to attract young people to the trades) ■ Other Industries: <ul style="list-style-type: none"> ○ www.1800goguard.com ○ www.discovernursing.com ○ www.firefighter-jobs.com ○ www.lawenforcementjobs.com ○ www.hcareers.com 	<ul style="list-style-type: none"> ■ Can provide links to local contractor job listings ■ Could include viral marketing technique, such as a construction game where visitors operate equipment and then forward link to friends
3.	Develop movie theater advertising.	<ul style="list-style-type: none"> ■ Reach passive job seekers by showing ads on screen prior to movies. 	<ul style="list-style-type: none"> ■ The recall percentage of cinema ads is more than seven times that of television advertisements. ■ Movie theaters are a popular destination for the young demographic FDOT is trying to reach. 	<ul style="list-style-type: none"> ■ U.S. Army ■ 	<ul style="list-style-type: none"> ■ Can be targeted at specific audiences ■ Reaches a captive audience ■ Can also be customized and placed by contractors
4.	Develop out-of-home advertising and posters at the construction-site.	<ul style="list-style-type: none"> ■ Reach passive job seekers. ■ Build brand image. 	<ul style="list-style-type: none"> ■ People who enjoy being outdoors or on the road are likely to see out-of-home advertising such as billboards and transit ads and are more likely to be attracted to road construction careers when they see it in action. ■ 	<ul style="list-style-type: none"> ■ Some Florida construction contractors put up signs for vacancies at the construction site. 	<ul style="list-style-type: none"> ■ Could be in many forms, such as billboards and transit ads ■ Can also be customized and placed by contractors ■ It is almost free when placed at the job site.

EXHIBIT VI-3 IMPROVE BRANDING					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
5.	Develop online advertisements to be placed on other Web sites, such as Google, Facebook.com, and ESPN.com	<ul style="list-style-type: none"> ■ Strengthen brand among active and passive job seekers. 	<ul style="list-style-type: none"> ■ Young people spend hours a day on the internet, particularly on sites targeted to their demographic, such as facebook.com. The advertisements can directly link to the campaign Web site. 	<ul style="list-style-type: none"> ■ Used by many retailers to recruit salespeople 	<ul style="list-style-type: none"> ■ Can be in the form of banner ads (embedded on popular websites) or <i>Google AdWords</i> (sponsored links on the popular search engine; sponsor only pays when the link is actually clicked)
6.	Develop information kiosks for events such as fairs and concerts to promote transportation construction careers	<ul style="list-style-type: none"> ■ Strengthen branding of transportation construction. ■ Raise perception of construction jobs among influencers (e.g., parents). ■ Reach passive job seekers 	<ul style="list-style-type: none"> ■ Information kiosks can capitalize on the fun, relaxed nature of popular events to change the negative perception young people and their families may have of transportation construction. 	<ul style="list-style-type: none"> ■ Armed Services 	<ul style="list-style-type: none"> ■ Can be as simple as a booth with brochures, or more complex (special promotions) ■ Requires staff time to travel with and staff booth
7.	Establish FDOT opportunity centers in major metro areas to focus on recruitment	<ul style="list-style-type: none"> ■ Increase presence of transportation construction in the community. ■ Provide a central location where job seekers can learn more about job opportunities 	<ul style="list-style-type: none"> ■ Having a full-time recruitment effort will allow more tactics to be implemented and followed through. 	<ul style="list-style-type: none"> ■ Army recruitment offices 	<ul style="list-style-type: none"> ■ Could be staffed in conjunction with contractors

EXHIBIT VI-3 IMPROVE BRANDING					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
8.	Develop a 3-minute video promoting transportation construction careers	<ul style="list-style-type: none"> ■ Highlight positive aspects of a career in transportation construction 	<ul style="list-style-type: none"> ■ Young people like visuals, and this video can be used in a variety of ways. Local contractors may show it at career fairs and at local high schools, or FDOT may show it at State Fair and other public events. ■ 	<ul style="list-style-type: none"> ■ Army National Guard 	<ul style="list-style-type: none"> ■ Could also be placed by contractors as pre-show spots in movie theaters ■ Would be viewable on branding campaign website and for download to iPods/MP3 players ■ Could show “before and after” lifestyles
9.	Use real workers (not actors) in the ad campaigns, especially women and minorities (also, see “recruit female employees”).	<ul style="list-style-type: none"> ■ Present a realistic picture to target audience and present employees. ■ Create a sense of pride in employees, improving job satisfaction 	<ul style="list-style-type: none"> ■ They are more readily prepared to describe their daily experiences; it will reinforce the positive to the employees, enable them to be local celebrities, and inculcate pride for their work. ■ According to a number of the contractors we interviewed, transportation construction typically values a seniority-based system. For students who recognize this value system, they may see the job as poor fit due to lack of young workers currently employed. Thus, recruiters and ads need to show individuals who are similar to the potential candidates being targeted. 	<ul style="list-style-type: none"> ■ The Center for Energy Workforce Development presents bios and interviews with real workers on their website. They particularly pay attention to ensuring their ads have represented the diversity of their workforce and the diversity they are hoping to attract. 	<ul style="list-style-type: none"> ■ Workers may need coaching in public speaking skills and presentation development ■ Include representatives of ethnic, gender and cultural diversity, specific to audience. ■ Could be used to accentuate the advancement potential of the transportation construction jobs and the long-term success possible, the image of transportation as a dead end job may be replaced with one of professionalism.

EXHIBIT VI-3					
IMPROVE BRANDING					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
10.	Market the industry's extensive on the job training and technological training.	<ul style="list-style-type: none"> ■ Youth are attracted to jobs which provide good training and transferable skills. ■ Marketing construction industry's training opportunities will improve brand image. 	<ul style="list-style-type: none"> ■ Youth recognize the importance of training, especially technology based training. They are attracted to jobs which provide good training and transferable skills. 	<ul style="list-style-type: none"> ■ 	<ul style="list-style-type: none"> ■ Individual contractors can market the superior training provided by them. ■ Mention opportunity to train in job advertisements. ■ Develop training standards ■
11.	Sponsor popular activities such as sports teams, NASCAR, dog racing, tractor pulls, county agricultural fairs	<ul style="list-style-type: none"> ■ Strengthen positive branding of transportation construction. ■ Raise profile of industry among job seekers and influencers. ■ Build goodwill 	<ul style="list-style-type: none"> ■ Sponsorship allows for wide reach of the brand. ■ Young people are more likely to have a favorable impression of transportation construction if it is associated with popular activities. 	<ul style="list-style-type: none"> ■ United Parcel Service 	<ul style="list-style-type: none"> ■ Provides a lot of exposure ■ Difficult to measure return on investment

4.2 Develop a Recruiting Toolkit

Another strategy is to develop a recruiting toolkit for companies to use in their recruiting efforts. The toolkit can facilitate company-specific outreach to potential applicants in the event that the company's own human resources organization does not have the resources to develop its own recruiting tactics.

We present ideas for this toolkit in Exhibit VI-4.

4.3 Improve outreach

An additional marketing and recruiting strategy that we recommend is to improve outreach. This approach involves influencing, educating, and interacting with the audience in a variety of ways to increase the likelihood that individuals will apply for a positions with organization.

We present ideas for improving outreach in Exhibit VI-5.

EXHIBIT VI-4					
DEVELOP A RECRUITING TOOLKIT					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
12.	Distribute flyers at an unemployment office	<ul style="list-style-type: none"> ■ Disseminate information in locations where job seekers congregate 	<ul style="list-style-type: none"> ■ Many job seekers who enter unemployment offices do not know the type of job that they are looking for. Providing candidates with information in the same environment where they are going to be deciding on their job interests may influence them to pursue transportation construction. 	<ul style="list-style-type: none"> ■ Several industries and companies advertise in unemployment offices. 	<ul style="list-style-type: none"> ■ Advertisement should list the former job experiences that utilize skills transferable to transportation construction jobs.
13.	Place job opening advertisements on “Youtube,” “Myspace” and “Facebook”	<ul style="list-style-type: none"> ■ Utilize networking mediums frequented by young people 	<ul style="list-style-type: none"> ■ Younger generations are more likely to be utilizing online networking Web sites. These mediums will not only allow transportation construction companies to advertise without cost but also allow them to upload video and audio footage of construction projects and career information to attract youth to jobs. 	<ul style="list-style-type: none"> ■ http://jobs.myspace.com/index.cfm?fuseaction=careers ■ Many political candidates are currently utilizing these sites to gain support from young voters. 	<ul style="list-style-type: none"> ■ The majority of the visitors for these sites are young people of high school age. ■ Young workers should be featured in the videos so potential candidates can better identify with the ads.

EXHIBIT VI-4					
DEVELOP A RECRUITING TOOLKIT					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
14.	Create collateral materials highlighting the benefits of a career in transportation construction	Give contractors materials that improve the image of construction careers and that can be customized for the specific jobs for which a contractor company is recruiting-without the cost of developing the materials themselves.	Collateral materials make the sales effort easier and more effective. An informational brochure, for example, can be taken home and browsed at leisure. Also, our data suggests that it is important to potential applicants that they “fit in” at work. A brochure can illustrate that employee diversity is valued by featuring individuals of different backgrounds on the brochure.	<ul style="list-style-type: none"> ■ Widely used by government agencies seeking to empower employers to spread a message without incurring large costs: ■ www.discovernursing.com 	<ul style="list-style-type: none"> ■ Materials may include brochures, fact sheets, CD-ROMs, customizable direct mail pieces, and giveaways. ■ Materials should be multi-lingual to attract multiple audiences.
15.	Create career track demos that feature typical timeline for promotions and positions available at each consecutive level in the company.	Improve the image of transportation construction as a career and improve the recruitment of youth by demonstrating the quick promotion track and opportunities of advancement.	This will change the perspective of job candidates regarding the career opportunities in the transportation construction industry. Candidates who are not initially attracted to the unskilled position may take the position knowing the plan is to excel quickly and get promoted to the next position.	<ul style="list-style-type: none"> ■ LOGIC Project (Louisiana Oil & Gas Industry Collaborative) – An initiative in Southwest Louisiana to recruit young skilled workers into the Oil & Gas Industry. 	<ul style="list-style-type: none"> ■ Training and development opportunities can also be mapped onto career track maps to indicate what is needed for promotion.
16.	Offer workshops where companies can develop skills in strategic recruitment	Better equip those doing the recruiting to be successful in hiring efforts.	Individual contractors do the actual recruiting. If these companies are better equipped with materials and knowledge, they will be more successful in their recruitment efforts and therefore have a more effective workforce.	Conferences for utility companies host interactive dinner workshops where skills and tips on recruitment of unskilled workers (e.g. those digging ditches for power lines). Example annual conference: EUCI	<ul style="list-style-type: none"> ■ Recruiters receive training in these workshops on how to target the appropriate candidates that provide a good “fit” for transportation construction jobs. ■ Recruiters can share lessons learned with each other.

EXHIBIT VI-4					
DEVELOP A RECRUITING TOOLKIT					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
17.	Conduct training of supervisors on how to effectively interview and screen “walk-on” candidates	Be prepared to recruit and hire quality employees from the population of candidates who apply on work sites.	According to benchmarking partners, one of the most common ways individuals learn about and apply for the transportation construction job is as a “walk-on” job candidate. In these scenarios, it is likely that individuals with technical skills are called upon to use recruiting, interviewing and hiring skills that they may not possess. Providing these individuals with training may help them to select better qualified and committed individuals.	An example is not provided as supervisors in other industries are typically not called upon to do the recruiting. Instead, individuals hired solely as recruiters serve this role. However, our interviews with benchmarking partners indicated that “word of mouth” and “walk ons” were two of the most common ways individuals found out about the jobs and thus, supervisors at work sites need to be prepared to serve in this role as to not miss a valuable opportunity to attract new candidates.	<ul style="list-style-type: none"> ■ Supervisors will need initial training and some follow-up training to refresh their skills. ■ Supervisors should also be versed in how to direct “walk-on” candidates to company headquarters for further on-boarding.
18.	Develop a Web site that serves as a central repository of recruitment tips and tools to contractor companies	<ul style="list-style-type: none"> ■ Create a location where companies can easily obtain information. ■ Share lessons learned on how to effectively recruit new workers. 	Making materials for contractors available online allows easy access and increases the likelihood that these materials will be used. Allowing contractors to see examples of how these materials can be used will help them be more focused in their own recruitment.	NCHRP is supporting the development of a guide for transportation organizations that can be used to guide management decisions that relate to workforce development (e.g., recruitment). Information from this type of guide could be hosted on the web.	<ul style="list-style-type: none"> ■ Could be tied to website geared at improving the ‘brand’ (image) of transportation construction.

EXHIBIT VI-4					
DEVELOP A RECRUITING TOOLKIT					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
19.	Host a job net site where candidates can apply to all open transportation construction jobs in Florida	<ul style="list-style-type: none"> ■ Allow candidates with internet access to submit their resume to all transportation jobs in Florida that they qualify for. ■ Allow contractors to review larger pools of qualified candidates. 	<ul style="list-style-type: none"> ■ There are several transportation construction contractors in Florida. Applying to each contractor separately may deter candidates. ■ Contractors may not be aware of valuable skilled workers in other areas of Florida because there is no medium for transportation construction job seekers. 	<ul style="list-style-type: none"> ■ NCCER operates a website that lists job openings for construction workers: http://jobsearch.nccer.monster.com/ ■ Industrial-Organizational Psychology is a small unique field where employees need specific skills that are not typically addressed by Psychology Job Websites, so the Society for Industrial Organizational Psychologist created its own Job Net. http://www.siop.org/jobnet/front.asp 	<ul style="list-style-type: none"> ■ Contractors must be able to notify FTBA if candidates submit fraudulent or misleading resumes so those candidates can be banned from future resume submission. ■ Search features can be developed so contractors can search for individuals with specific skills, from certain regions of the country, etc.

EXHIBIT VI-4 DEVELOP A RECRUITING TOOLKIT					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
20.	Contract with a phone/internet recruiting service	<ul style="list-style-type: none"> ■ Allow candidates who may not have web access to call a phone number and describe their resume profile in their native language verbally. Candidate profiles are recorded in a computer database that can be accessed by employers online. ■ Employers can search an organized list of candidate profiles and contact the most qualified candidate directly. 	<ul style="list-style-type: none"> ■ Internet advertisements on company websites can be cumbersome to use and may be difficult for a potential candidate access. This type of service can help search jobs across the entire state and find the best fit for candidates. Traditional means of recruiting construction workers by word of mouth can be ineffective in that information may be confused and potential candidates may be missed. Boutique recruiting companies can be expensive. 	<ul style="list-style-type: none"> ■ An example of such a service can be found at: www.HireWorkers.com ■ Oregon’s DOT runs a toll-free number that connects workers with construction opportunities: http://www.oregon.gov/ODOT/COMM/nr06120401.shtml 	<ul style="list-style-type: none"> ■ This may be more economical to companies than posting multiple ads and may reach a larger audience. ■ The service can offer assistance in multiple languages to help in the recruitment of minority, non English speaking groups. ■ This method allows a person to listen to recorded job descriptions and then follow recorded prompts to provide a candidate profile. ■ Candidate profiles are automatically matched with job openings and sent to employers.
21.	Develop and disseminate sample “help wanted” advertisements to contractor companies	<ul style="list-style-type: none"> ■ Attract active job seekers to specific opportunities. ■ Incorporate research and successful job advertising techniques in more transportation construction job opening advertisements 	<ul style="list-style-type: none"> ■ Some contractors may not know how to write a compelling ‘help wanted’ ad that will attract job seekers, especially youth. These ‘help wanted’ ads may be placed on sites such as Monster.com and CareerBuilder.com. In addition, similar ads could be displayed in local newspapers. 	<ul style="list-style-type: none"> ■ Benchmarking partners suggested that current fliers and ads posted may not be enticing to youth. To our knowledge, providing this support to contractor companies would be a novel concept that has not be utilized by transportation construction associations or DOTs. 	<ul style="list-style-type: none"> ■ These advertisements are to be placed on career Web sites and in newspapers ■ Newspaper ads should be provided in both display format and classified format.

EXHIBIT VI-4					
DEVELOP A RECRUITING TOOLKIT					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
22.	Develop radio advertising scripts	Reach active and passive job seekers and target specific audiences	Radio is an effective vehicle in broadcasting recruiting messages to a large number of people (reaching 93% of the population every week), thus helping to build immediate awareness for the employment communications campaign. There are many specific stations aimed at young people.	Often used by telemarketing firms and high-tech companies looking for new employees.	Works best when promoting an event, such as a career fair Would be provided to contractors as a 'DJ-read' script that they could modify and place on radio stations as needed.
23.	Develop promotional items for contractors to use and handout at events such as fairs and career days	Attract passive and active job seekers to company-specific displays at public events.	Contractors need ideas for how to attract job seekers to their displays at public events and career days. Providing contractors with promotional items, signage, and handouts can help them attract people to their displays.	Conference and career fairs often feature trinkets from vendors that have the vendor's logo. Items that are frequently used by individuals have been found to be most effective (e.g., key chain).	Promotional items may include giveaways (e.g., pens, small trucks), display backdrops and tablecloths, signage, and handouts.
24.	Develop public relations toolkit to leverage press or media attention	Improve contractors ability to attract free media coverage for their companies and job opportunities	Many small contractors are unaware of opportunities for getting positive media coverage from news outlets. Getting a story placed in a local newspaper or on a local television show can raise the profile of both the contractor and road construction careers in a community	Widely used by government agencies to help corporate partners attract media coverage for successes in voluntary programs	Kit might include a press release, background on how to work with the media, and public relations event ideas

EXHIBIT VI-4 DEVELOP A RECRUITING TOOLKIT					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
25.	Identify and place job opportunity promotions in key locations such as businesses and organizations that serve/sell to the target audience	<ul style="list-style-type: none"> ■ Utilize a cost effective means for advertising jobs and ensuring information is disseminated to potential candidates. ■ Capitalize on mass marketing and advertising opportunities (e.g., grocery stores). 	<ul style="list-style-type: none"> ■ Potential job applicants typically frequent the same types of businesses, Web sites, and hangouts. By helping contractors think about what those places are in the areas they serve, FDOT can help them target their recruiting efforts. 	<ul style="list-style-type: none"> ■ High-tech sales companies that often recruit young people through ads at coffee shops and other popular locations of youth. 	<ul style="list-style-type: none"> ■ Prepare handbook for contractors on ‘guerilla marketing’ opportunities ■ Low-tech, low-cost methods; emphasis is on placement ■ Prepare handbook for contractors on opportunities
26.	Include realistic job previews/ descriptions (RJPs) of the work environment in job opportunity advertisements	<ul style="list-style-type: none"> ■ Deter job candidates who will eventually contribute to turnover 	<ul style="list-style-type: none"> ■ Turnover causes financial losses due to wasted training and recruiting efforts. Recruiting efforts should be strategic as well as intensive. Hiring the right people should be the goal 	<ul style="list-style-type: none"> ■ LOGIC Project (Louisiana Oil & Gas Industry Collaborative) – An initiative in Southwest Louisiana to recruit young skilled workers into the Oil & Gas Industry 	<ul style="list-style-type: none"> ■ Balance position and negative information, as long as it is realistic. ■ RJP information may include: ■ harsh working conditions ■ long hours ■ duration of travel ■ potential risk of danger

EXHIBIT VI-4					
DEVELOP A RECRUITING TOOLKIT					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
27.	Include in job advertisements anecdotes, statistics and quotes from high ranking or successful contractors who got their start in laborer positions	<ul style="list-style-type: none"> ■ Indicate to candidates the opportunity for advancement. ■ Indicate that management has led by example and is not above unskilled tasks. ■ Indicate that management can communicate with and relate to front-line workers. 	<ul style="list-style-type: none"> ■ Candidates may be less likely to be deterred by the harsh working environments of front-line positions if they know they will likely be quickly promoted and that senior or successful managers have not only worked in these environments but have parlayed them into successful careers. 	<ul style="list-style-type: none"> ■ FDOT contractors suggested that candidates need to be informed of the excellent advancement potential of transportation construction jobs. 	<ul style="list-style-type: none"> ■ Profiles (examples) of actual employees who started in laborer positions and have advanced to senior level positions (e.g., supervisors) should feature minority persons to help attract a diversity of individuals to the job. ■ While emphasizing positive job characteristics over some of the less attractive characteristics (e.g., working in hot climate) may be beneficial to recruitment, it is still important that the information presented about the job is realistic and that the less attractive aspects are mentioned. In fact, studies on realistic job previews (RJPs) have found that the extent to which information about a job is realistic directly impacts later turnover intentions (Rynes, 1991). In other words, the transportation construction industry needs to be careful not to trade one workforce challenge (i.e., recruitment) for another (i.e., retention).

EXHIBIT VI-4					
DEVELOP A RECRUITING TOOLKIT					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
28.	Provide directions on flyers regarding locations where candidates can use computers to apply online.	Facilitate online application for candidates without internet access and increase the number of on-line applications, thereby, decreasing the amount of paperwork for employers.	Some transportation construction candidates may not have access to the internet. Locations such as libraries and cafes provide the hardware and software to access the internet. This will decrease the administrative time required to enter information from paper applications into the contractor's personnel management software	State police agencies (e.g., Pennsylvania State Police) are starting to use an online system for recruiting and screen youth. Youth are typically very technologically savvy and will likely be attracted to a process that allows for easy submission of information.	Some libraries also provide assistance in navigating the internet. Libraries encourage their workers to help internet users in order to discourage inappropriate internet use.
29.	Offer incentives for referral marketing (having current employees refer applicants to jobs)	<ul style="list-style-type: none"> ■ Involve current employees in recruitment initiatives. ■ Increase the applicant pool. 	<ul style="list-style-type: none"> ■ Current employees will be more likely to refer people to jobs if they have a financial incentive. This reduces some costs for recruiters who are often seeking new employees from cold calling or large events. ■ Our interviews with benchmarking partners indicated that many successful employees have come from referrals. 	<ul style="list-style-type: none"> ■ Most corporate entities provide referral bonuses to employees. 	<ul style="list-style-type: none"> ■ Contractor companies could also provide employees with recruiting materials such as job descriptions to help their efforts ■ Policies regarding the referral bonus should be specified up front (e.g., number of bonuses per year; how long referral must be employed with company)
30.	Reward high performers with the opportunity to speak at career days	Have experienced front-line workers speak to youth in place of Human Resources Personnel	Front-line workers are more readily prepared to describe their daily experiences and provide a realistic job previews to students. Students may be able to better identify with young workers actually the positions as compared to just non-tangible ads.	Louisiana Oil Industry	<ul style="list-style-type: none"> ■ Using this voluntary opportunity as a reward for performance precludes poor performers from volunteering. In past experiences, if this is not based on performance, poor performers will volunteer to avoid work ■ Volunteers may need coaching in public speaking skills and presentation development

EXHIBIT VI-4					
DEVELOP A RECRUITING TOOLKIT					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
31.	Use images of female workers to recruit female applicants.	<ul style="list-style-type: none"> ■ Help diversify the workforce and position the job as more attractive to females. 	<ul style="list-style-type: none"> ■ The shortage of laborers in the industry has opened up opportunities for females to fill high-paying jobs. ■ Many females already have physically demanding jobs including hospital work, restaurant work and child-care which qualifies them for other labor intensive careers. 	<ul style="list-style-type: none"> ■ Tradeswomen, Inc. www.tradeswomen.org , Oakland, CA ■ Women in Non-Traditional Employment Roles (WINTER), Long Beach, CA ■ Building California Construction Careers (BC3) Sacramento CA 	<ul style="list-style-type: none"> ■ FDOT may call these California- based organizations to locate similar contractors in Florida. ■ Recruit female employees to attend or speak at career fairs ■ Include images of women conducting construction work on advertisements ■ Utilize community partners to find female candidates

EXHIBIT VI-5					
CONDUCT OUTREACH TO HIGH SCHOOLS, COMMUNITY, AND OTHER ORGANIZATIONS					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
32.	Create a “Teacher’s Guide” or brochure for career exploration tasks in high school	<ul style="list-style-type: none"> ■ Generate awareness about the industry to students and counselors/ ■ Provide real job information. ■ Help students and counselors know which courses to take or skills to develop for this career 	<ul style="list-style-type: none"> ■ Most students lack proper information about construction and this will ensure they get the correct, comprehensive information, and from a source they trust (their teacher/ counselor). ■ Since education is so important to parents and various cultures, transportation construction companies need to consider ways to support education (e.g., grants for night school; scholarships for degrees in construction; and partner with vocational programs to offer classes during off-peak times). 	<ul style="list-style-type: none"> ■ “Trade Up! Careers in Construction: What’s in the construction industry for me? Teacher Guide” developed by the Construction Industry of Alberta, Canada. 	<ul style="list-style-type: none"> ■ Can be customized to Florida’s needs. ■ Can contain links to other marketing sources and contact information of people ■ Can be easily reproduced ■ Can be in varying levels of information ■ Can also list information about all contractors
33.	Participate in and develop “Construction Career Days”	<ul style="list-style-type: none"> ■ To provide hands-on experience to target population and develop an interest in them for the career. ■ Increase visibility of contractors. ■ Provide real information, ■ Effectively target non-traditional groups. 	<ul style="list-style-type: none"> ■ At least 22 states are now implementing Construction career days (Funderburg, 2002). It helps students with career exploration tasks, builds self-efficacy for the field, and they get “hands on” experience without needing to commit themselves to the career. 	<ul style="list-style-type: none"> ■ Florida, Texas, Maryland, New York, Washington D.C. are some of the 22 states which implement Construction Career days (Funderburg, 2002). ■ Carpenters’ District Council of Greater St. Louis and Vicinity (Smith, 2005) 	<ul style="list-style-type: none"> ■ Target non-traditional schools. ■ Carpenter’s District Council of Greater St. Louis and Vicinity does over 150 career days a year

EXHIBIT VI-5					
CONDUCT OUTREACH TO HIGH SCHOOLS, COMMUNITY, AND OTHER ORGANIZATIONS					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
34.	Develop and advertise internship programs and part-time job opportunities	<ul style="list-style-type: none"> ■ Provide hands-on experience to target population; Attract youth to jobs while they are still in school and are interested in financial incentive; increase visibility of contractors; provide real information; effectively target non-traditional groups. ■ Research has found that prior experience, like part-time jobs and internships increase interest in a career and also boosts self-efficacy (Borchert, 2002; Read, 1991). It also provides monetary incentive to the target audience to ‘try’ the field out before long-term commitment. 	<ul style="list-style-type: none"> ■ Furthermore, the benchmarking partners found that leveraging the skills and talent of youth while they are in school proves promising for when these individuals enter the job market. ■ Our benchmarking partners also spoke of post-high school apprenticeship programs. Many of the unionized construction companies are forced to use the apprenticeship programs but they have also been positive in that they encourage long-term career commitment. Apprenticeship programs also create a setting in which individuals can learn more about the job and create that “fit” that is so important while simultaneously satisfying the need for more education. In other words, they provide laborers with the training and development opportunities often associated with prestigious career tracks and may help the job appear more attractive to “education-bound” students. ■ Many of the benchmarking partners we interviewed, who report success in recruiting younger workers, claimed they have found scholarship and apprenticeship programs to be advantageous. 	<ul style="list-style-type: none"> ■ Arkansas’s “Intern Program” ■ Specifically, one benchmarking partner said they were working on providing internships to students in which they provide a stipend plus hourly wage. This partner found that students were eager to make extra money while still in school and in turn, became more interested in the field. ■ To make utility jobs more attractive to youth, Colorado Springs Utilities partnered with INROADS internship program, a national program that works to develop and place minority youth in businesses and industries. ■ Germany has a strong apprenticeship program that is developed cooperatively between the private sector and the school systems. ■ In Great Britain, there also appears to be a closer working relationship between the public and private sectors in training and recruiting workers and technicians. 	<ul style="list-style-type: none"> ■ Can collaborate with USDOT’s 2007 Summer Transportation Internship Program for Diverse Groups (http://www.fhwa.dot.gov/education/stipdg.htm) and other such organizations. ■ Target non-traditional schools and community colleges. ■ One benchmarking partner said that many of the companies in their association could benefit from hiring high school employees in that they were getting great work that was not costly to them and it served as a future investment. ■ A FHWA scan of the international workforce suggests that European countries are also facing similar issues and have created solutions that may be beneficial to the U.S. (FHWA, AASHTO, 2001). These countries have been focused on transportation education at the high school and undergraduate level to assure a continuous "pipeline" of transportation workers.

EXHIBIT VI-5					
CONDUCT OUTREACH TO HIGH SCHOOLS, COMMUNITY, AND OTHER ORGANIZATIONS					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
35.	Provide tours of warehouses and worksites as part of building community partnerships and educational programs in schools.	<ul style="list-style-type: none"> ■ Increase visibility of contractors. ■ Provide real information about career. ■ Advertise job opportunities. ■ Effectively target non-traditional groups. ■ Develop interest in construction among younger groups. 	<ul style="list-style-type: none"> ■ Providing tours of worksites and heavy equipment can be a less intrusive, less time-consuming and more accessible alternative to career-days and internships. While it is less effective than actual work-experience, it can still bring the industry closer to the kids than otherwise. 	<ul style="list-style-type: none"> ■ Benchmarking partners agreed this would be an innovative idea. RJP research supports that by providing realistic information about a job, individuals who select into that job will be less likely to turnover. 	<ul style="list-style-type: none"> ■ Provide a tour guide who can tailor the information to the audience ■ Provide a tour guide who can speak knowledgeably about all projects and advertise future career opportunities at the same time.
36.	Work with community and school organizations (attend meetings; develop partnerships).	<ul style="list-style-type: none"> ■ Improve industry image. ■ Build a network of employee candidates. ■ Gain community support. ■ Improve visibility in community. ■ Make community aware of industry needs and career options. 	<ul style="list-style-type: none"> ■ Our data indicate that it is important to potential applicants that their family and friends support their chosen career. By targeting guidance counselors, faith-based organizations, and neighborhood after-school clubs, transportation construction can build relationships and receive this support. ■ Benchmarking partners also suggest that involvement in community service programs may also help transportation construction companies improve their image among communities. 	<ul style="list-style-type: none"> ■ California’s “Adopt-a-School” program, where the state establishes a relationship with a school and creates an environment to help students understand state service and the opportunities available to them in a variety of professional classifications. ■ Several best practice construction companies have aggressive adopt-a-highway programs. As part of these programs, the companies pay scout or church groups to pick up the trash and the highway sign displays the company’s name. 	<ul style="list-style-type: none"> ■ FDOT would provide a handbook for contractors on how to engage local organizations and customizable materials for reaching out to these groups ■ A wide variety of groups to consider, from after-school programs to church groups ■ Allows tailoring of materials and outreach to local/ethnic needs

EXHIBIT VI-5					
CONDUCT OUTREACH TO HIGH SCHOOLS, COMMUNITY, AND OTHER ORGANIZATIONS					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
37.	Work with the military to recruit recent discharges	<ul style="list-style-type: none"> ■ Target an excellent source of non-traditional labor pool for both skilled and unskilled workers. ■ Improve image. 	<ul style="list-style-type: none"> ■ The military is an untapped labor pool which is already skilled, looking for employment, and with an interest in outdoor and physical labor. 	<ul style="list-style-type: none"> ■ Some FDOT contractors and associations have “open days” for personnel who are getting out of the military to check out the company. 	<ul style="list-style-type: none"> ■ Recruiters from DOT contractor companies should partner with military recruiters to identify ways to target this audience. ■ Companies should consider that in some cases, special accommodations may be required for those who have been injured in duty.
38.	Partner with agencies providing job-reentry programs for former offenders	<ul style="list-style-type: none"> ■ Reach out to non-traditional labor pools. ■ Potential recruits may be experienced in physical and outdoor labor. ■ Form local community partners; gain community assistance 	<p>Job-reentry programs are offered by Florida Department of corrections, education and other agencies to train and help former offenders find jobs. By forming partnerships with these agencies and other non-profits, the industry not only recruits disadvantaged, unskilled workers but also helps support the community and may get financial incentives from the government.</p>	<ul style="list-style-type: none"> ■ Texas’s Fundamentals of Construction & Understanding Self (FOCUS) as an extension of ‘construction gateway’ program. 	<ul style="list-style-type: none"> ■ Contractor companies need to consider the nature of the crimes committed by offenders and how that might impact the type of work being conducted. For example, sex offenders cannot work within the vicinity of schools.

EXHIBIT VI-5					
CONDUCT OUTREACH TO HIGH SCHOOLS, COMMUNITY, AND OTHER ORGANIZATIONS					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
39.	Partner with and recruit workers from local youth development and agricultural groups like 4-H	<ul style="list-style-type: none"> ■ Increase visibility. ■ Diversify into this non-traditional yet target labor pool ■ Build community partnerships. ■ Increase interest in construction among teenagers 	<ul style="list-style-type: none"> ■ Partnerships with Youth Development groups will enable the industry to reach local youth looking to explore careers options, thereby increasing visibility in the community, and reaching potential recruits. ■ FDOT contractors need to consider not only how they represent the jobs to the target audience but also whether they are being strategic in their recruitment efforts in “who” they identify as the candidate population. These transportation construction companies need to ensure they are getting a good return on their recruitment investments by focusing on an appropriate audience for their efforts. As Borchert (2002) found, some youth have personalities that will lead them away from certain jobs. The type of work conducted in transportation construction jobs, despite how the job is presented and what types of perks are offered with the job, may appeal more to youth already involved in related industries like agriculture. 	<ul style="list-style-type: none"> ■ Local fairs often feature youth projects from 4-H or other similar groups. These events would be good places to advertise job opportunities. 	<ul style="list-style-type: none"> ■ Can have “career days” designed for these groups. ■ Can join existing programs by such groups like the Department of Health’s “Yeah! Campaign” as a way of increasing physical health. ■ Be a guest speaker at a meeting

EXHIBIT VI-5					
CONDUCT OUTREACH TO HIGH SCHOOLS, COMMUNITY, AND OTHER ORGANIZATIONS					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
40.	Develop partnerships with government programs meant to help disadvantaged youth in finding work	<ul style="list-style-type: none"> ■ Reach out to non-traditional labor pools. ■ Create link between schools and employers. ■ Tap a new source of eager candidates. 	<ul style="list-style-type: none"> ■ These groups are a good resource for companies looking for unskilled or low skilled youth, minorities and female employees, who are in need of training and sustained employment. Government organizations may provide recognition and incentives to companies for training and employing these youth. 	<ul style="list-style-type: none"> ■ Juvenile mentoring Program (JUMP) 	<ul style="list-style-type: none"> ■ Employers must consider what reasonable accommodations will need to be made to help these employees successfully perform their job.
41.	Participate in on-campus recruitment and career fairs in high-school	<ul style="list-style-type: none"> ■ Recruit from target population. ■ Market industry as a mainstream career option. ■ Increase visibility. 	<p>Career and job fairs are an important source of information for high-school and college students. While colleges are heavily represented in high school career fairs, construction companies are only associated with specialized trade-fairs or college career fairs. Thus, increasing representation in high school career fairs would greatly assist recruitment efforts.</p>	<ul style="list-style-type: none"> ■ Connecticut DOT uses on-campus recruitment. 	<ul style="list-style-type: none"> ■ Employers should focus on building strong relationships with principals and guidance counselors to maintain a constant presence at school job events.
42.	Provide information for articles in high school newspapers	<ul style="list-style-type: none"> ■ Highlight the benefits of a career in transportation construction 	<ul style="list-style-type: none"> ■ Articles would directly reach students about to enter the workforce. 	<ul style="list-style-type: none"> ■ Benchmarking partner listed this as an innovative approach, yet there is no known example of it being implemented. 	<ul style="list-style-type: none"> ■ Employers need to work with the editorial staff at the high schools to find out what type of information is acceptable to feature and the length of information. ■ Schools may shy away from including ads in their newspaper unless it is related to the sponsorship of a school event (e.g., school play).

EXHIBIT VI-5					
CONDUCT OUTREACH TO HIGH SCHOOLS, COMMUNITY, AND OTHER ORGANIZATIONS					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
43.	Develop partnerships and programs with elementary and middle schools	<ul style="list-style-type: none"> ■ Inculcate interest in construction. ■ Improve image of field. ■ Foster interest in developing construction related skills and knowledge 	Research shows that image formation, career exploration and interests start at a very early age, and exposure to careers in childhood inculcates interest to pursue that field later in life. Many industries including construction are now working with elementary and middle school kids to inculcate an interest in career related subjects.	<ul style="list-style-type: none"> ■ Delaware’s middle and high school “vacation day attendance” ■ California’s “Adopt-a-School” program 	<ul style="list-style-type: none"> ■ Career days tailored for middle school students ■ “Elementary kits” containing career related games and toys. ■ Campus visits and worksite tours ■ Implement job shadow program where students can go onto job site and follow a worker for part of the day.

5. ADDITIONAL RECOMMENDATIONS

To fully address the workforce shortage, transportation construction companies must become more effective at managing their organizations.

FDOT contractors need to consider ways in which the job can be modified or designed to accommodate the needs and values of a younger workforce. Specifically, flexibility and autonomy are priorities to this new workforce, and FDOT contractors need to address them in order to remain competitive in their recruitment. One suggestion is to consider creating job sharing arrangements. Jobs that tend to require more intense work and physically demanding work and ones in which tasks can be more easily distinguished may be the ideal candidates for job sharing. Job sharing is essentially where two individuals operate as one to conduct a job. Youth who wish to work part-time while pursuing a college education may be particularly attracted to a job sharing scenario. Furthermore, transportation construction companies can create the perception of flexibility and autonomy in the job by providing choice with regards to awkward shifts and scheduling. For example, if the employee is required to work two night shifts a week, the job may be designed so the employee is permitted to choose the two nights of the week he/she would prefer to work the odd shift.

Companies may find it effective to train supervisors in how to structure the job and work environment in such a way that employees feel empowered to make decisions regarding their work. For example, even simple changes such as permitting employees to make choices regarding the order in which they complete two tasks will help employees feel as if they have autonomy in their job. All of these changes to the job should be emphasized in recruiting new talent. FDOT contractors should acknowledge in their ads the changes they have made to ensure the jobs are more desirable for youth and why those changes have been made (e.g., “Transportation construction is taking on a new face. Our jobs now promote more flexibility than ever. We have redesigned the jobs to have the flexibility that is so important to the innovative and inquisitive minds of tomorrow’s workforce”).

Contractors need to take steps to show candidates that they can provide a fit for a young and diverse workforce, even though these contractors traditionally have an older, less diverse workforce. Thus, the trick for companies to be successful is to find a balance between preserving the traditions and social capital of the organization that have brought it success while fostering an environment that will lead younger, more diverse workers to feel they fit in.

Transportation construction companies must develop strategic, long-term, and on-going staffing initiatives. By strategic, we mean that company representatives and associations determine their ideal candidate (i.e., the knowledge, skills, and abilities required) for each critical position, determine the human resources factors that will recruit, train and retain this type of individual and then pursue these individuals. By ongoing, we mean that staffing plans should be cyclical as opposed to hiring for a specific project. Ongoing hiring cycles are successfully being used in the oil industry

for oil rig workers who are also required to perform physical labor while exposed to the elements. For example, recruiting for summer projects should occur in the winter, on-boarding and training of new employees should happen in the spring, and evaluation and revamping of recruiting initiatives should occur in the fall. These ongoing recruiting initiatives help companies to avoid incurring the cost of repeating their recruiting efforts for positions that were successfully filled the year before. A recruiting review process will help contractors avoid repeating ineffective recruiting techniques. By long-term, we mean that company representatives and associations should educate high school, middle school and elementary school students about the “adventure and opportunity” in the transportation construction industry that they can be part of after their education. The oil industry, which is experiencing similar workforce challenges, has recently pulled together volunteers from many different oil-related career fields and levels to create a traveling information task force. This task force educates youth and hosts career days in schools. Although these initiatives take 10 to 15 years to see the full results, the oil-industry has already documented some evidence of their success.

Exhibit VI-6 provides a list of actions that contractors could take to improve the management of their organizations, and thus further address workforce shortages.

While the transportation construction industry faces some difficult challenges, there is much the industry can learn from other industries targeting the same applicant pool. The industry can use potential solutions and practical examples like those we present in this chapter as a starting point.

The utility industry has shown that changes can have substantial results. Utility companies face some of the same challenges when recruiting young people into front-line jobs such as laying utility lines. The jobs are dangerous and physically demanding. Also, 40 percent of the workforce is expected to retire within the next few years. To address these challenges, utilities companies have found that partnering with high school job internship programs, trade schools, and community colleges has dramatically helped improve their efforts at attracting youth to their front line positions.

These ideas and examples provided from other transportation construction associations and other industries will hopefully serve as a tool for Florida in attracting tomorrow’s workforce, sustaining their current workforce, and improving the overall image of the industry.

EXHIBIT VI-6					
IMPROVE MANAGEMENT OF EXISTING WORKFORCE					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
1.	Adopt means of supporting higher education and training (e.g. College credits in exchange for work, scholarship opportunities, etc.).	<ul style="list-style-type: none"> ■ Signifies interest in employee’s career development. ■ Helps mitigate negative image of industry as catering to a less-educated workforce. ■ Provides financial incentive to recruitment and retention. 	<ul style="list-style-type: none"> ■ Recognizing that education is a priority among youth today and lower educational requirements actually contribute to a negative industry image, many states and countries are providing educational incentives for hiring and retention. While most efforts are currently for Engineers and other skilled labor, extending it to unskilled labor will help recruitment. 	<ul style="list-style-type: none"> ■ Engineer-in-training programs provided by state transportation agencies in Florida, Virginia, Arizona, Oklahoma, Utah (“Rotational Program”). ■ Sweden provides college students in a variety of majors with small scholarships to write their "senior projects" around transportation topics. ■ California DOT offers tuition reimbursement at a rate of 100% for job-required classes and 50% for related courses. 	<ul style="list-style-type: none"> ■ The Army’s ‘school-option’ provided as a benefit/incentive to soldiers has had a very positive effect on soldiers’ reenlistment decisions.
2.	Create a “Corporate College” for on-the-job training and certification	<ul style="list-style-type: none"> ■ Provides a standardized training curriculum for certain career paths ■ Highlights the parallel between corporate training and traditional university experience 	<ul style="list-style-type: none"> ■ Employees more likely to take advantage of training when they can see a structure and the relevance to their career advancement ■ Employees more likely to continue employment to complete a curriculum rather than one training course ■ Employees less likely to feel that they “missed” the benefits of a college experience 	<ul style="list-style-type: none"> ■ The Information Technology Industry – (IBM, Level 3 Communications). Many technical jobs do not require advanced degrees but do require hands on experience and certification much like the transportation construction industry. The companies are comprised of these technical jobs have build training curriculums and branded them as “Corporate Colleges.” 	<ul style="list-style-type: none"> ■ FDOT must develop a list of experiences and certifications that an employee is required to “graduate” from in order to be promoted to a skilled position ■ FDOT provides workers with a method of documenting their progress within the curriculum ■ FDOT contractors recognize this standard curriculum so that employees can present their collegiate status upon hire

EXHIBIT VI-6					
IMPROVE MANAGEMENT OF EXISTING WORKFORCE					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
3.	Develop or use a career path and certification program for transportation construction workers.	<ul style="list-style-type: none"> ■ Provide a series of goals for career progression. ■ Demonstrate that it is not a “dead end job.” ■ Develop the skills of the best and interested workers. ■ Ensure that workers are properly trained. 	<ul style="list-style-type: none"> ■ This action addresses the needs of transportation construction workers to see advancement potential in their work. Our survey showed that advancement potential is second only to compensation in its impact on job choice. 	<ul style="list-style-type: none"> ■ The state of Virginia has a career path system for Transportation Construction Managers ■ The state of Missouri has developed a career path and a certification for entry-level corrections officers that crosses agencies and organizations. ■ FDOT operates a Construction Qualification Training Program that focuses on testing and sampling of materials. This program includes some instruction on equipment use. ■ The National Center for Construction Education and Research (NCCER) (affiliated with the University of Florida) and management consultant FMI have partnered to develop a career development map with joint credentials for the construction industry. 	<ul style="list-style-type: none"> ■ While equipment manufacturers offer certification on their equipment, we could find no system for organizing these certifications into a career path.

EXHIBIT VI-6					
IMPROVE MANAGEMENT OF EXISTING WORKFORCE					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
5.	Job rotation of employees	<ul style="list-style-type: none"> ■ To ensure that workers obtain training that will make them valuable for a variety of jobs. ■ Prepares workers to become more effective supervisors. ■ Provides employees with meaningful experiences that will keep them interested and on the job. 	<ul style="list-style-type: none"> ■ Addresses the cyclical nature of the work. Allows companies to use the same workers regardless of the type of work. 	<ul style="list-style-type: none"> ■ U.S. Customs and Border Protection has a job rotation program. The individuals that participate in this program and typically identified as high potentials and often become eligible for supervisory positions. 	<ul style="list-style-type: none"> ■ Effective job rotation assignments provide challenging experiences but ones that are comparable to employee’s current job given salary and skill constraints.
6.	Recruiters rotate from job-site to headquarters conducting recruiting activities.	<ul style="list-style-type: none"> ■ Improve screening of “walk-on,” “word-of-mouth” and “referral” candidates. ■ Improves efficiency and standardization of on-boarding new employees 	<ul style="list-style-type: none"> ■ Our Best Practices Analysis revealed that a large number of candidates are “walk-on,” “word-of-mouth” and “referral” candidates. The analysis also revealed that internet and newspaper ads are less effective. 	<ul style="list-style-type: none"> ■ Recruiters in the Florida Department of Corrections make rotations to provide regional recruiting support and institutional on-boarding & benefits support 	<ul style="list-style-type: none"> ■ These recruiters could either be association representatives or employees of the contractor. ■ Recruiters can ensure that ineffective employees are not hired twice or at two job-sites ■ Smaller contractors may designate on-site employees and administrative employees to share this function

EXHIBIT VI-6					
IMPROVE MANAGEMENT OF EXISTING WORKFORCE					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
7.	Language exchange training	<ul style="list-style-type: none"> ■ Learn and review relevant multi-lingual terminology on a regular basis 	<ul style="list-style-type: none"> ■ Learning multi-lingual terminology can increase communication and decrease the risk of on-the-job injury 	<ul style="list-style-type: none"> ■ Benchmarking partner found that reciting a construction word each day on job sites in multiple languages helps make minority, non-native English speakers feel more accepted and part of the team. 	<ul style="list-style-type: none"> ■ During brief meetings before or after shifts a relevant word is discussed and pronounced in languages that are representative of the population
8.	During downsizing provide downsized employees with career counseling, career/skill and career transition training, outplacement assistance, resume writing assistance, access to office equipment, financial counseling, and access to job fairs and to Internet job placement sites.	<ul style="list-style-type: none"> ■ Successfully downsize during times of low productivity without losing productive employees to other industries or other states. 	<ul style="list-style-type: none"> ■ The work load of transportation construction varies over time and many contractors downsize during slow periods. Career transition assistance will show employees that the company is invested in them. This assistance will also keep employees located locally which will help to quickly locate and on-board them in the future. 	<ul style="list-style-type: none"> ■ NASA used outplacement services successfully in its past downsizing initiatives. 	<ul style="list-style-type: none"> ■ Other services that were provided are personal counseling, relocation assistance, paid time off, child-care and financial counseling.

EXHIBIT VI-6					
IMPROVE MANAGEMENT OF EXISTING WORKFORCE					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
9.	Develop and facilitate consortia among contractors to allow downsized employees to be employed by other contractors for set increments of time.	<ul style="list-style-type: none"> ■ Successfully downsize during times of low productivity without losing productive employees to other industries or other states. This helps the company retain a positive reputation for taking care of its employees. 	<ul style="list-style-type: none"> ■ The annual work load of transportation construction companies is cyclical forcing many companies to downsize in the winter months. Workforce consortia will allow workers to remain employed with a peer company, conducting relevant or related tasks and then return to their host company when productivity is estimated to increase. 	<ul style="list-style-type: none"> ■ Part of the job duties for recruiters of many corporate companies is to identify job opportunities and help individuals find jobs when their job is phased out or the company is downsized. 	<ul style="list-style-type: none"> ■ Contractors would submit estimated project schedules, time-lines and workforce needs annually. ■ Association representatives would indicate to contractors their peer organizations that have high productivity when they have low productivity. ■ Employees will be offered a job for a set period of time corresponding to the period of low productivity for their host company. ■ Associations and contractors must agree on an acceptable period of rotation and the type of positions offered to ensure that the transition is beneficial for both parties.

EXHIBIT VI-6					
IMPROVE MANAGEMENT OF EXISTING WORKFORCE					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
10.	Use people with experience in transportation construction as recruiters.	<ul style="list-style-type: none"> ■ More accurately assess qualifications and personality characteristics of candidates ■ Decrease turnover by providing candidates with previews of actual job experiences ■ Allow front-line workers an alternate career path 	<ul style="list-style-type: none"> ■ Transportation construction workers work in unique and high stress environments. Having some experience in that environment better suits a person to assess qualifications. Front-line workers who do not want to be Foreman, managers or entrepreneurs can be promoted into a recruiting role. 	<ul style="list-style-type: none"> ■ The Florida Department of Corrections uses Corrections officers as recruiters. ■ The Offshore Oil Drilling Industry uses former front-line employees as recruiters. 	<ul style="list-style-type: none"> ■ Employees should be given training in how to use recruiting tools, how to review resumes, how to interview and how to objectively manage candidates and how to avoid discrimination ■ Avoid assigning recruiting duties to employees already utilizing full time work hours
11.	Redesign benefits programs to be attractive to youth (e.g. school options, technology training, flexibility)	<ul style="list-style-type: none"> ■ Project a 'young' industry image, improve retention and job satisfaction; aid recruitment. 	<ul style="list-style-type: none"> ■ Today, employers may have as many as four distinct generations in the workforce, each with a different outlook on work and career. Benefits are an important incentive that jobs offer and recognizing the needs of today's youth by revamping the benefits programs will help project a young and diverse (e.g. women friendly) industry image. 	<ul style="list-style-type: none"> ■ Florida Department of Corrections offers low-cost housing to entry-level Corrections officers. ■ Examples of training programs, career paths, etc. are provided in other cells. 	<ul style="list-style-type: none"> ■ Support for higher education can be shown not only by financial incentives like scholarships, certified training etc. but even by giving time off for taking tests, allowing part-time labor, mentoring programs, etc. ■ Work-life balance and family-friendly programs need to be in place like programs for new parents, etc. ■ Having hotline for employee grievances is another example.

EXHIBIT VI-6					
IMPROVE MANAGEMENT OF EXISTING WORKFORCE					
ID #	Action	Objective(s)	Rationale & Relevance	Examples	Notes
12.	Conduct “exit interviews” as a way of continuous improvement	<ul style="list-style-type: none"> ■ Gather data for improving working conditions, recruiting and retaining employees. 	<ul style="list-style-type: none"> ■ Exit interviews (finding out via a discussion with an employee about his/her experience at the company and reasons for leaving) are used not only for finding out the motivations of the employee, but mainly as a way to identify consistent trends, patterns and themes, and, ultimately, to reduce future turnover. 	<ul style="list-style-type: none"> ■ Many industries use exit interviews including banking, healthcare, government organizations, and even construction. Stein & Co., a women-owned construction company in Chicago hires a consultant to do exit-interviews with each leaving employee. (Nelton, 1991). 	<ul style="list-style-type: none"> ■ The effectiveness of an exit interview is dependent upon the structure of the protocol questions. Thus, protocol questions need to be open ended, encourage candor and cover the range of possible reasons for turnover. ■ Template exit interview questions may be housed on repository website for all contractor companies to utilize.
13.	Promote “job sharing” and part-time arrangements.	<ul style="list-style-type: none"> ■ Better attract youth interested in simultaneously pursuing an education as well as caregivers who want to divide their time between work and personal commitments. ■ Help achieve work-life balance/ job flexibility, enable flexibility of recruiting part-time employees for a full-time job; job satisfaction and retention 	<ul style="list-style-type: none"> ■ Job sharing is an agreement between two (or more) employees and the employer, wherein workers share the duties of one full-time job, each working part time and without compromising product quality or time. It is a popular method to help with work-life balance. 	<ul style="list-style-type: none"> ■ The U.S. DOT has implemented this arrangement in office jobs to better accommodate individuals such as those with special needs, mothers who wish to move to a part-time schedule and those wishing to pursue an education (e.g., young persons). 	<ul style="list-style-type: none"> ■ Job sharing helps with recruiting and retaining female employees who are unable to take on full-time workloads.

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APPENDIX A: BASELINE ASSESSMENT INTERVIEW PROTOCOL

Baseline Assessment Interview Protocol FDOT Contractors

Purpose (for interviewer purposes-not for participant): Gather information on current practices of FDOT contractors. This data will later be compared with best practices so we can conduct a gap assessment and provide suggestions for enhancing practices.

Introduction to participant: Hello, my name is _____. I work for Caliber/ICF International. Hopefully you received the email that was sent to you from Brian Blanchard (Director of Construction) regarding our study of workforce challenges for transportation construction jobs. We are conducting this study for FDOT. Your name was provided to us as someone that could speak to recruitment and marketing techniques used for transportation construction jobs based on your experience as an FDOT contractor. We have some specific questions we would like to ask you. The interview should only take approximately 30 minutes. Before we begin, do you have any questions for me?

Introductory Question:

1. Could you please describe the type of transportation construction work your company does?
 - o *Probes*: debris removal; asphalt repair; grading; flexible paving

Demographic Questions:

2. Please describe the size of your company in terms of number of personnel.
3. Where do most of your personnel perform their work?
 - o *Probes*: specific region in Florida? Urban, suburban or rural setting?
4. How would you describe the demographic composition of your unskilled laborer workforce?
 - o *Probes*: average age; % women and ethnic minorities
5. What is the range of wage rates for your transportation construction workers?
 - o *Probes*: For unskilled workers (entry-level)? For skilled workers?
6. *What types of benefits does your company offer its transportation workers?*
 - o Do benefits differ based on the worker's position or level?
 - i. Unskilled/laborers?
 - ii. Skilled?

Overview Questions:

7. What do you see as the greatest workforce challenge(s) transportation construction companies like yours will face in meeting future demands of the transportation construction industry?
 - i. *Probes*: finding younger workers; skilled workers
 - o Are these challenges greater for transportation construction than other industries? If so, could you please explain why you think this is the case?

- What do you feel would be the most effective way(s) to address these workforce challenges?
 - i. *Probes:* Ideas for recruitment; retention; marketing to public
- Please describe any common solutions to the workforce challenges that you think will be ineffective for transportation construction companies even though they might work well for other industries. Explain why these practices would be ineffective for your industry.

Recruitment and Marketing Approaches

8. What external factors, outside of the company's control, have had the greatest impact on recruitment of transportation construction workers? Which factors have pulled away potentially well qualified contractors?
 - *Probes:* local natural disasters; natural disasters in other regions of the country like Katrina; cost of living in Florida; marketing in other industries is more aggressive
9. Please describe the techniques your company uses to attract candidates to entry-level transportation construction jobs.
 - *Probe:* brochures; radio announcements; special events (career days); partnering with schools
 - What aspects of the job are emphasized by your company when trying to attract candidates (e.g., benefits; career progression; salary)?
 - What information about the job seems to be most important to the typical applicant for transportation construction jobs?
 - Where does your company find most of its job candidates?
 - i. *Probes:* high schools; trade schools; in other companies; outside of school
10. Who are the biggest competitors of your company for job candidates for entry level jobs?
 - *Probes:* transportation construction companies; other construction companies; non-construction
 - What aspects of those competitor companies do you think candidates find most attractive?
11. What challenges do some companies in your industry face in encouraging ethnic and gender diversity in the workforce?
 - *Probe:* hiring more women
 - Describe cultural barriers to recruiting a diverse workforce.
 - Describe any differences or challenges between recruiting individuals from urban versus rural areas.
12. What are some reasons you think that candidates may not choose to take a job in transportation construction?
13. What are some areas you would promote regarding transportation construction jobs to attract candidates with no previous experience to join this industry?

Closing: Thank you for your participation in this interview. Your time is greatly appreciated. You may be sent a brief follow-up questionnaire for completion. As a benefit of your participation in this study, Caliber ICF will provide you with a summary of the study findings and a listing of best practices identified across construction companies and industries. This summary will allow your company to benchmark its own practices against other best practices. If any questions arise, feel free to contact me {name} at {phone} or our Deputy Project Director, Dr. Candace Cronin at 703.934.3571.

APPENDIX B: CONTRACTOR SURVEY

Entry Level Transportation Construction Workforce Shortages - Florida Department of Transportation

Welcome to the Florida Department of Transportation (FDOT) Workforce Shortage Survey conducted by Caliber, an ICF International Company. Your time in completing this survey is much appreciated. Should you experience any technical difficulties or have questions as you proceed through the survey, please call us at 1-877-279-8239, or email at sswetharanyan@icfi.com.

Your individual responses will remain confidential and only the Caliber team will view them. Caliber will remove all identifying information and put the responses into an aggregate summary form for submission to the client, FDOT.

The survey should take approximately 20 minutes. If you are ready to proceed, please click "next page" and begin.

1) Please provide the name of your company. (Note: This information will not be disclosed. It is for tracking purposes only.)

2) Check all of the types of projects that your company typically performs in Florida.

- Applying concrete, asphalt, etc. to a surface
- Tamping gravel dirt and other materials
- Installing or inspecting sewer or drain pipes
- Building or repairing minor bridges
- Building or repairing intermediate bridges
- Building or repairing major bridges
- Building or repairing tunnels
- Building or repairing highways
- Building or repairing railways
- Building or repairing airports
- Building or repairing docks, warfs or peirs
- Buidling or repairing sidewalks and related structures
- Grassing, seeding or sodding
- Painting
- Sound Wall Construction
- Fencing
- Traffing signing or engineering
- Erecting or repairing guardrails
- Electrical Work
- Other (please specify)

If you selected other please specify:

3) How many *unskilled* construction workers (entry-level laborers) do you employ within the state of Florida?

- Less than 100

- 100-500
- 500-1,000
- More than 1,000

4) How many *skilled* construction workers (e.g. machine operators, carpenters, pipe-layers) do you employ within the state of Florida?

- Less than 100
- 100-500
- 500-1,000
- More than 1,000

5) In which of the following regions does your company typically do project work? (Check all that apply)

- North East Florida (Jacksonville)
- North East Florida (Gainesville)
- North West Florida (Pensacola)
- North West Florida (Tallahassee)
- Central Florida (Orlando)
- Central Florida (Tampa)
- South Florida (West Palm Beach)
- South Florida (Sarasota/Cape Coral)
- South Florida (Miami)

6) What is the average, starting hourly wage for *unskilled* construction workers in your organization?

- Less than \$10/hr
- \$10-\$15/hr
- \$16-\$20/hr
- \$21-\$25/hr
- More than \$25/hr

7) What is the average, starting hourly wage for *skilled* construction workers in your organization?

- Less than \$10/hr
- \$10-\$15/hr
- \$16-\$20/hr
- \$21-\$25/hr
- More than \$25/hr

8) From the following list, choose the educational level of the typical *unskilled* construction worker.

- Did not finish High School
- GED
- High School graduate
- Some Community College
- Community College Graduate
- Some College
- College Graduate

9) Of the following list, which groups of people do you have the most difficulty recruiting?

- Single, no children
- Single, with children
- Married, no children
- Married, with children

10) Which of the following are the three greatest challenges to maintaining an effective workforce? Rank order the three greatest challenges from the greatest to the least.

- Attracting unskilled workers _____
- Insufficient salary _____
- Unpredictable workload _____
- Cost to train employees _____
- Poor supervisory skills _____
- Competition with other companies _____
- Employees resigning _____

11) Select the extent to which each of the following statements is currently a challenge to recruiting quality *unskilled* construction workers.

	To no extent	To a little extent	To some extent	To a good extent	To a great extent
Cultural and background influences (e.g., family and friends) of prospective applicants do not support this job choice	<input type="radio"/>				
Lack of flexibility or autonomy (i.e. when and how work is done)	<input type="radio"/>				
Majority of the work is conducted outdoors	<input type="radio"/>				
Poor financial benefits at the start of employment	<input type="radio"/>				
Lack of awareness amongst potential applicants about advancement potential in this field/job	<input type="radio"/>				
Potential applicants' beliefs that people similar to them are not employed in this job/field	<input type="radio"/>				
Potential applicants' beliefs that all good	<input type="radio"/>				

jobs require advanced education/preparation beyond high school					
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12) What are the three best solutions to the current workforce challenges in transportation construction? Rank order the top three best solutions from the greatest to the least.

- Raise pay _____
- Work more closely with trade schools _____
- Start apprenticeship programs _____
- Conduct more Career Fairs (e.g., Career Days) _____
- Establish a Human Resources department _____
- Hire more recruiters _____
- Provide more promotional opportunities _____
- Target a new population in recruitment (e.g., retirees) _____
- Hire from competitors _____
- Provide more developmental opportunities to workers _____
- Offer better training _____
- Restructure jobs (e.g., allow for job sharing; flexible scheduling) _____
- Offer better family benefits _____
- Change work hours (e.g., less night shifts) _____
- Advertise jobs better _____
- Change the negative image of the field _____
- Improve supervisor skills _____
- Replace people with technology _____

13) Which of the following statements represents the greatest challenge to recruiting *women* for unskilled transportation construction jobs?

- Cultural and background influences (e.g., family and friends) of prospective female applicants are not supportive of this job/field.
- Lack of flexibility or autonomy (i.e. when and how the work is performed) in this type of job.
- The majority of work for this job is conducted outdoors.
- The physical demands of the job are too difficult for most women.
- The job provides poor financial benefits at the start of employment.
- Lack of family benefits in this job.
- Lack of awareness amongst women about the advancement potential in this job.
- Women's beliefs that people similar to them are not employed in this job/field. (e.g., belief that it is a male-dominated profession).
- Women's beliefs that all good jobs require advanced education/preparation beyond high school.

14) Which of the following statements represents the greatest challenge to recruiting *racial and ethnic minorities* for unskilled transportation construction jobs?

- Cultural and background influences (e.g., family and friends) of prospective applicants are

- not supportive of this job/field.
- Lack of flexibility or autonomy (i.e. when and how the work is performed) in this type of job.
- The majority of work for this job is conducted outdoors.
- The job provides poor financial benefits at the start of employment.
- Lack of awareness amongst potential applicants about the advancement potential in this job.
- Potential applicants' beliefs that people similar to them are not employed in this job/field. (e.g., racial differences).
- Potential applicants' beliefs that all good jobs require advanced education/preparation beyond high school.

15) Where does your organization advertise job openings? (Check all that apply)

- Tours of job sites/projects for parents and candidates
- Talking to groups of teachers
- Talking to guidance counselors
- Current Employees speaking a job fairs
- Current Employees speaking in schools
- Internet Web Pages
- Paper Flyers
- Posters
- TV Ads
- Newspaper Ads
- Other (please specify)

If you selected other please specify:

16) Which of the following aspects of the job does your organization emphasize to entice job candidates to come and work for your organization? (check all that apply)

- Benefits
- Pay
- Teamwork
- Healthy Physical Activity
- Upward Mobility (e.g., fast track promotions)
- Training Programs
- Challenging Work
- Flexible Schedules
- Job Security
- Other (please specify)

If you selected other please specify:

17) Where do you look to recruit job applicants? (Check all that apply)

- Military
- Highschool
- Restaurants
- Freight companies
- Retail stores

- University Transportation Centers
- Other Construction fields
- Community Colleges
- Trade Schools
- Federal Highway Administration's National Highway Institute
- Federal Transit Administration's National Transit Institute
- Local Technical Assistance Program
- Other (please specify)

If you selected other please specify:

18) Which of the following industries is your greatest competitor for labor?

- Homebuilders
- Commercial Builders
- Other transportation construction companies
- Military
- Food Industry
- Freight Industry
- Retail Industry
- College
- Other (non-transportation) construction industries
- Other (please specify)

If you selected other please specify:

19) Which of the following best describes the recruitment process in your organization?

- We never engage in recruitment activities. All applicants come to us through word of mouth.
- We recruit only on an as needed basis.
- We engage in continuous recruitment throughout the year.
- We recruit on a cyclical basis (e.g., every fall we host recruitment events).
- We are just starting to develop a recruitment plan.

20) Which of the following is the most common reason why job applicants are considered ineligible for the job?

- Physical Disability
- Mental Disability
- Criminal Record - Misdemeanor
- Criminal Record - Felony
- Unwilling to work at Night
- Unwilling to commute more than 100 miles
- Illegal immigration status
- Lack of references
- Other (please specify)

If you selected other please specify:

21) Which of the following best describes your organization's approach to the recruitment of unskilled workers?

- We have one or more designated individuals assigned full-time to recruitment activities.
- We work with an external consulting firm or headhunter to identify potential applicants.
- We have one or more designated individuals assigned part-time to recruitment activities.
- We do NOT have anyone assigned to recruitment.

22) What is the greatest benefit to working in transportation construction?

- Retirement benefits
- Salary
- Skills learned
- Ability to achieve a management position
- Skills to start own company
- Financial support toward further education
- Health benefits
- Trade certification
- Being a part of a greater cause
- Other (please specify)

If you selected other please specify:

23) What is the one thing you believe could be done to improve the recruitment of unskilled construction workers?

Thank you again for your time and participation in this study. FDOT will be made aware of the helpfulness of each contractor company.

All data collected will be analyzed and put into a summary report. Once the report is complete, you will be provided with a copy as a token of our appreciation.

Should you have any additional questions, please feel free to contact us at **1-877-279-8239** or sswetharanyan@icfi.com.

APPENDIX C: CONTRACTOR SURVEY RESULTS

Survey Results & Analysis

This report contains a detailed statistical analysis of the results to the survey titled *Entry Level Transportation Construction Workforce Shortages - Florida Department of Transportation*. The results analysis includes answers from all respondents who took the survey in the 21 day period from Friday, March 2, 2007 to Thursday, March 22, 2007. 50 completed responses were received to the survey during this time.

Survey: Entry Level Transportation Construction Workforce Shortages - Florida Department of Transportation

Author: Caliber, an ICF International Company

Filter:

Responses Received: 50

2) Check all of the types of projects that your company typically performs in Florida.

Response	Count	Percent
Applying to surface	23	46.0%
Tamping	23	46.0%
Installing	21	42.0%
B/R minor bridges	22	44.0%
B/R intermediate bridges	21	42.0%
B/R major bridges	11	22.0%
B/R tunnels	2	4.0%
B/R highways	24	48.0%
B/R railways	2	4.0%
B/R airports	14	28.0%
B/R docks & such	15	30.0%
B/R sidewalks	15	30.0%
grassing, seeding or sodding	14	28.0%
painting	8	16.0%
sound wall	8	16.0%
Fencing	7	14.0%
traffic signing or engineering	11	22.0%
guardrails	6	12.0%
electrical	6	12.0%
Other	12	24.0%

Other Responses:

cathodic Protection Installation
traffic markings
Signals / ITS
Signing and Marking is done on the roads, also MOT devices such as barrier wall, and barricades, etc
all types of site work, include underground utilities, drainage, parking lots, roadways
Landscaping & Irrigation
ATTENUATORS; DELINEATORS; HANDRAIL
highway lighting, traffic signals
Landscape
Underground utilities, water and wastewater treatment plants, foundation piling, temporary sheet pil
Guardrail Installation & Repair
directional drilling- fiber optics
Striping Roads or Reflective Pavement markers
ITS, Intelligent Traffic Systems
Guardrail installation

3) How many unskilled construction workers (entry-level laborers) do you employ within the state of Florida?

Response	Count	Percent
Less than 100	37	77.1%
100-500	11	22.9%
500-1,000	0	0.0%
More than 1,000	0	0.0%

4) How many skilled construction workers (e.g. machine operators, carpenters, pipe-layers) do you employ within the state of Florida?

Response	Count	Percent
Less than 100	37	75.5%
100-500	12	24.5%
500-1,000	0	0.0%
More than 1,000	0	0.0%

5) In which of the following regions does your company typically do project work? (Check all that apply)

Response	Count	Percent
North East Florida (Jacksonville)	23	46.0%
North East Florida (Gainesville)	13	26.0%
North West Florida (Pensacola)	16	32.0%
North West Florida (Tallahassee)	19	38.0%
Central Florida (Orlando)	20	40.0%
Central Florida (Tampa)	24	48.0%
South Florida (West Palm Beach)	20	40.0%
South Florida (Sarasota/Cape Coral)	18	36.0%
South Florida (Miami)	16	32.0%

6) What is the average, starting hourly wage for unskilled construction workers in your organization?

Response	Count	Percent
Less than \$10/hr	20	40.8%
\$10-\$15/hr	27	55.1%
\$16-\$20/hr	2	4.1%
\$21-\$25/hr	0	0.0%
More than \$25/hr	0	0.0%

7) What is the average, starting hourly wage for skilled construction workers in your organization?

Response	Count	Percent
Less than \$10/hr	1	2.1%
\$10-\$15/hr	27	56.3%
\$16-\$20/hr	17	35.4%
\$21-\$25/hr	2	4.2%
More than \$25/hr	1	2.1%

8) From the following list, choose the educational level of the typical unskilled construction worker.

Response	Count	Percent
Did not finish High School	21	42.9%
GED	7	14.3%
High School graduate	21	42.9%
Some Community College	0	0.0%
Community College Graduate	0	0.0%
Some College	0	0.0%
College Graduate	0	0.0%

9) Of the following list, which groups of people do you have the most difficulty recruiting?

Response	Count	Percent
Single, no children	10	24.4%
Single, with children	9	22.0%
Married, no children	4	9.8%
Married, with children	18	43.9%

10) Which of the following are the three greatest challenges to maintaining an effective workforce? Rank order the three greatest challenges from the greatest to the least.

Rank Item	Rank	Points
Attracting unskilled workers	1	62
Employees resigning	2	61
Competition with other companies	3	58
Insufficient salary	4	30
Unpredictable workload	5	29
Cost to train employees	6	27
Poor supervisory skills	7	21

11) Select the extent to which each of the following statements is currently a challenge to recruiting quality unskilled construction workers.

(Percentages)	To no extent	To a little extent	To some extent	To a good extent	To a great extent
Cultural and background influences (e.g., family and friends) of prospective applicants do not support this job choice	38.8%	20.4%	32.7%	8.2%	0.0%
Lack of flexibility or autonomy (i.e. when and how work is done)	18.4%	24.5%	24.5%	24.5%	8.2%
Majority of the work is conducted outdoors	12.5%	39.6%	20.8%	22.9%	4.2%
Poor financial benefits at the start of employment	14.3%	34.7%	36.7%	10.2%	4.1%
Lack of awareness amongst potential applicants about advancement potential in this field/job	20.4%	24.5%	40.8%	12.2%	2.0%
Potential applicants' beliefs that people similar to them are not employed in this job/field	32.7%	28.6%	30.6%	6.1%	2.0%
Potential applicants' beliefs that all good jobs require advanced education/preparation beyond high school	26.5%	38.8%	22.4%	10.2%	2.0%

11.1) Cultural and background influences (e.g., family and friends) of prospective applicants do not support this job choice (Select the extent to which each of the following statements is currently a challenge to recruiting quality unskilled construction workers.)

Response	Count	Percent
To no extent	19	38.8%
To a little extent	10	20.4%
To some extent	16	32.7%
To a good extent	4	8.2%
To a great extent	0	0.0%

11.2) Lack of flexibility or autonomy (i.e. when and how work is done)(Select the extent to which each of the following statements is currently a challenge to recruiting quality unskilled construction workers.)

Response	Count	Percent
To no extent	9	18.4%
To a little extent	12	24.5%
To some extent	12	24.5%
To a good extent	12	24.5%
To a great extent	4	8.2%

11.3) Majority of the work is conducted outdoors(Select the extent to which each of the following statements is currently a challenge to recruiting quality unskilled construction workers.)

Response	Count	Percent
To no extent	6	12.5%
To a little extent	19	39.6%
To some extent	10	20.8%
To a good extent	11	22.9%
To a great extent	2	4.2%

11.4) Poor financial benefits at the start of employment(Select the extent to which each of the following statements is currently a challenge to recruiting quality unskilled construction workers.)

Response	Count	Percent
To no extent	7	14.3%
To a little extent	17	34.7%
To some extent	18	36.7%
To a good extent	5	10.2%
To a great extent	2	4.1%

11.5) Lack of awareness amongst potential applicants about advancement potential in this field/job (Select the extent to which each of the following statements is currently a challenge to recruiting quality unskilled construction workers.)

Response	Count	Percent
To no extent	10	20.4%
To a little extent	12	24.5%
To some extent	20	40.8%
To a good extent	6	12.2%
To a great extent	1	2.0%

11.6) Potential applicants' beliefs that people similar to them are not employed in this job/field(Select the extent to which each of the following statements is currently a challenge to recruiting quality unskilled construction workers.)

Response	Count	Percent
To no extent	16	32.7%
To a little extent	14	28.6%
To some extent	15	30.6%
To a good extent	3	6.1%
To a great extent	1	2.0%

11.7) Potential applicants' beliefs that all good jobs require advanced education/preparation beyond high school(Select the extent to which each of the following statements is currently a challenge to recruiting quality unskilled construction workers.)

Response	Count	Percent
To no extent	13	26.5%
To a little extent	19	38.8%
To some extent	11	22.4%
To a good extent	5	10.2%
To a great extent	1	2.0%

12) What are the three best solutions to the current workforce challenges in transportation construction? Rank order the top three best solutions from the greatest to the least.

Rank Item	Rank	Points
Change the negative image of the field	1	46
Raise pay	2	38
Improve supervisor skills	3	28
Provide more developmental opportunities to workers	4	22
Offer better training	5	21
Work more closely with trade schools	6	20

Rank Item	Rank	Points
Start apprenticeship programs	7	19
Offer better family benefits	8	18
Replace people with technology	9	17
Target a new population in recruitment (e.g., retirees)	10	9
Change work hours (e.g., less night shifts)	11	8
Restructure jobs (e.g., allow for job sharing; flexible scheduling)	12	7
Advertise jobs better	13	7
Establish a Human Resources department	14	6
Provide more promotional opportunities	15	6
Hire from competitors	16	6
Conduct more Career Fairs (e.g., Career Days)	17	3
Hire more recruiters	18	1

13) Which of the following statements represents the greatest challenge to recruiting women for unskilled transportation construction jobs?

Response	Count	Percent
Cultural and background influences (e.g., family and friends) of prospective female applicants are not supportive of this job/field.	8	17.0%
Lack of flexibility or autonomy (i.e. when and how the work is performed) in this type of job.	5	10.6%
The majority of work for this job is conducted outdoors.	3	6.4%
The physical demands of the job are too difficult for most women.	18	38.3%
The job provides poor financial benefits at the start of employment.	0	0.0%
Lack of family benefits in this job.	1	2.1%
Lack of awareness amongst women about the advancement potential in this job.	3	6.4%
Women's beliefs that people similar to them are not employed in this job/field. (e.g., belief that it is a male-dominated profession).	8	17.0%
Women's beliefs that all good jobs require advanced education/preparation beyond high school.	1	2.1%

14) Which of the following statements represents the greatest challenge to recruiting racial and ethnic minorities for unskilled transportation construction jobs?

Response	Count	Percent
Cultural and background influences (e.g., family and friends) of prospective applicants are not supportive of this job/field.	7	16.3%
Lack of flexibility or autonomy (i.e. when and how the work is performed) in this type of job.	5	11.6%
The majority of work for this job is conducted outdoors.	3	7.0%
The job provides poor financial benefits at the start of employment.	3	7.0%
Lack of awareness amongst potential applicants about the advancement potential in this job.	15	34.9%
Potential applicants' beliefs that people similar to them are not employed in this job/field. (e.g., racial differences).	6	14.0%
Potential applicants' beliefs that all good jobs require advanced education/preparation beyond high school.	4	9.3%

15) Where does your organization advertise job openings? (Check all that apply)

Response	Count	Percent
Tours of job sites/projects for parents and candidates	3	6.0%
Talking to groups of teachers	1	2.0%
Talking to guidance counselors	0	0.0%
Current Employees speaking a job fairs	9	18.0%
Current Employees speaking in schools	3	6.0%
Internet Web Pages	20	40.0%
Paper Flyers	13	26.0%
Posters	6	12.0%
TV Ads	1	2.0%
Newspaper Ads	39	78.0%
Other	15	30.0%

Other Responses:

Word of mouth
Word of mouth to current employees

Employee word of mouth recruiting
Agency for workforce innovation
Employment agency
Word-of-mouth
Word of mouth
Signs on vehicles, rodeo, word of mouth
Signs on trucks
Employee referrals; agencies as job serv
Referrals from current employees
Word of mouth
Help wanted signs on trucks
Radio/employment office
Word of mouth

16) Which of the following aspects of the job does your organization emphasize to entice job candidates to come and work for your organization? (check all that apply)

Response	Count	Percent
Benefits	34	68.0%
Pay	33	66.0%
Teamwork	18	36.0%
Healthy Physical Activity	4	8.0%
Upward Mobility (e.g., fast track promotions)	18	36.0%
Training Programs	17	34.0%
Challenging Work	14	28.0%
Flexible Schedules	3	6.0%
Job Security	32	64.0%
Other	4	8.0%

Other Responses:

Bonuses
INFORMAL ON-JOB TRAINING
none, this does not apply
SAFETY

17) Where do you look to recruit job applicants? (Check all that apply)

Response	Count	Percent
Military	10	20.0%
Highschool	11	22.0%
Restaurants	1	2.0%
Freight companies	2	4.0%
Retail stores	1	2.0%
University Transportation Centers	3	6.0%
Other Construction fields	26	52.0%
Community Colleges	10	20.0%
Trade Schools	16	32.0%
Federal Highway Administration's National Highway Institute	0	0.0%
Federal Transit Administration's National Transit Institute	0	0.0%
Local Technical Assistance Program	10	20.0%
Other	15	30.0%

Other Responses:

Everywhere...the employee population is limited
WORD OF MOUTH WITH CURRENT EMPLOYEES
employee referrals & call-ins
ads
NEWSPAPER
Word of mouth
Competitors
Agency for workforce Innovation
state unemployment office; newspapers
friends and newspaper
current employee referrals-word of mouth
INTERNET; AGENCIES AS JOB SERVICE
references from other employees
this does not apply- word of mouth
Word of mouth

18) Which of the following industries is your greatest competitor for labor?

Response	Count	Percent
Homebuilders	7	14.3%
Commercial Builders	4	8.2%
Other transportation construction companies	26	53.1%
Military	1	2.0%
Food Industry	2	4.1%
Freight Industry	1	2.0%
Retail Industry	0	0.0%
College	0	0.0%
Other (non-transportation) construction industries	2	4.1%
Other	6	12.2%

Other Responses:

warehousing & trucking industry
STRIPING COMPANIES
my guess is the ones out there do not want to work.
manufacturing
INDOOR COMMERCIAL INDUSTRIES
Union Contractors

19) Which of the following best describes the recruitment process in your organization?

Response	Count	Percent
We never engage in recruitment activities. All applicants come to us through word of mouth.	13	26.5%
We recruit only on an as needed basis.	20	40.8%
We engage in continuous recruitment throughout the year.	13	26.5%
We recruit on a cyclical basis (e.g., every fall we host recruitment events).	2	4.1%
We are just starting to develop a recruitment plan.	1	2.0%

20) Which of the following is the most common reason why job applicants are considered ineligible for the job?

Response	Count	Percent
Physical Disability	2	4.4%
Mental Disability	1	2.2%
Criminal Record - Misdemeanor	0	0.0%
Criminal Record - Felony	3	6.7%
Unwilling to work at Night	2	4.4%
Unwilling to commute more than 100 miles	3	6.7%
Illegal immigration status	9	20.0%
Lack of references	3	6.7%
Other	22	48.9%

Other Responses:

Unwilling to travel to out of town locations
PEOPLE APPLY WHEN WE ARE NOT HIRING
frequent out of town travel for extended time
lack of skills
We are a drug free work place and we require a FL drivers license with a minimum of points
lack of transportation
Failure to pass drug test
The applicant doesn't really want to work.
Drug Testing
Failure to pass drug screen
JOB KNOWLEDGE
INVALID DRIVER'S LICENSE; UNABLE TO TRAVEL
lack of work ethic
no drivers license, no cdl, no transportation to and from work
Most applicants, even those with high school diplomas, cannot understand and complete an application
no work ethic's

Cab't pass a pre-employment drug screening test.
No drivers lic- can't pass drug test
Lack of experience, unrealistic pay expectation
do not fit into organization
Drugs
fail the drug tests
SUBSTANCE ABUSE

21) Which of the following best describes your organization's approach to the recruitment of unskilled workers?

Response	Count	Percent
We have one or more designated individuals assigned full-time to recruitment activities.	3	6.5%
We work with an external consulting firm or headhunter to identify potential applicants.	2	4.3%
We have one or more designated individuals assigned part-time to recruitment activities.	17	37.0%
We do NOT have anyone assigned to recruitment.	24	52.2%

22) What is the greatest benefit to working in transportation construction?

Response	Count	Percent
Retirement benefits	0	0.0%
Salary	8	16.7%
Skills learned	12	25.0%
Ability to achieve a management position	5	10.4%
Skills to start own company	4	8.3%
Financial support toward further education	0	0.0%
Health benefits	4	8.3%
Trade certification	0	0.0%
Being a part of a greater cause	7	14.6%
Other	8	16.7%

Other Responses:

JOB SATISFACTION ; STEADY EMPLOYMENT
job security
stability
It can be fulfilling to be part of building a road or bridge that helps with transport o many people
Advancement is based on ability, desire.
work volume
A benefit has yet to be idenified

23) What is the one thing you believe could be done to improve the recruitment of unskilled construction workers?

As the costs of construction continue to rise and the industry becomes more competitive we need to look at other benefits to the employees in addition to salary in order to keep them as employees.
Marketing campaign to show benefits and importance of unskilled and semi skilled workers.
We have relatively low turn over because of benefits (profit sharing, etc.) But turnover in short time tenured employees is where the problem exists in that they are not willing to go thru training process necessary to gain the skills and abilities necessary to attain higher incomes.
We do not have a problem with recruiting unskilled workers - it is more difficult to recruit skilled workers
Allow Illegal immigrants to work on FED / State Projects.
Offer them more money
Industry wide co-operation with DFWP, standardized benefits, and training of unskilled labor.
Offer training that will turn an unskilled worker into a skilled worker. Kind of like, you can take a man fishing and feed him for a day, teach him to fish and feed him for a lifetime.
This form doesn't permit addressing the biggest problem we encounter: lack of transportation. A substantial number of applicants do not have a vehicle, or a driver's license, or some one to give them a ride to and from work. Our work is seldom in areas accessible by public transportation. This effectively eliminates many otherwise qualified individuals from working for us.
Clean-up use of illegal drugs and eliminate illegal immigrants from the work force.
Establish professional training programs.
Getting the message out about the advancement opportunities within the construction field. Let people know that most construction work does not involve digging ditches with a shovel.

Getting knowledge of the industry to high school individuals and training.
Unknown
I am open to suggestions for recruitment of responsible, dependable unskilled construction workers.
Get more exposure in the market for the types of work we are doing.
Promote the construction industry as a viable option to high school students
Increase pay and benefits.
The problem is that the starting pay is very low and fuel prices are very high. Many workers just cannot afford to drive long distances to work for low pay. Many of the people applying for these jobs do not even have a valid driver's license and have to catch a ride to work. Companies end up busing some of their employees to and from work just to have enough laborers to complete the job.
Get rid of the negative image of contractors portrayed in the media, that we destroy the environment and don't really care. Most contractors do the work as designed by the engineers and approved by permitting authorities.
Enhance the image of construction positions through the public school system beginning in elementary school and continuing through college.
Our greatest problem in recruiting all employees is that we need employees with Commercial Drivers Licenses to move equipment to the jobsite. It is very difficult to find CDL Drivers who will also work on a crew or supervise a crew. So, I would say better training of CDL Drivers.
Offer higher wages
Make the contractors who hire us. Pay fair wages and take accountability when things go wrong and not shift the blame to the low man on the pole.
Establish a formal training program.
Raise pay
Work less night shifts.
More marketing about working the Highway industry. Career days are working good but also need to attack the trade schools and universities.
More training provided by the state

APPENDIX D: BEST PRACTICES ANALYSIS INTERVIEW PROTOCOL

Best Practices Analysis Interview Protocol
FDOT Benchmarking
(for Commercial, Residential and other state DOT Associations)

Purpose (for interviewer purposes-not for participant): Gather information on current practices and best practices of benchmarking partners. This data will later be compared with those of FDOT contractors so we can conduct a gap assessment and provide suggestions for enhancing practices.

Introduction to participant: Hello, my name is _____. I work for Caliber, an ICF International Company. You may have received an email from Bob Burleson of the Florida Transportation Builders' Association regarding FDOT's study of workforce challenges for transportation construction jobs. We are conducting this study for FDOT. The primary concern for FDOT has been workforce shortages and recruitment of unskilled laborers. Your name was given to us as someone who represents (commercial/residential/transportation) construction contractors and could provide insight into ways of addressing some of the workforce challenges we face in the construction industry as a whole and the recruitment and marketing techniques being effectively utilized in your field.

Would you mind if I asked you a few questions about how companies in your association handle recruiting and marketing? The interview should take approximately 30 minutes. We will keep our conversation confidential and we will report only aggregate findings to FDOT. Before we begin, do you have any questions for me?

Introductory Questions:

1. Would you briefly describe your role in the association? Executive director
2. What role does the association play with respect to the contractors? How does the association provide support to the contractors?
3. Could you please generally describe the type of work the contractors in your association do?
 - *Probes:* home construction, commercial construction, road repair and construction, etc.
 - What are the typical work conditions for laborers in this field?

Demographic Questions:

4. On average, how many people do the companies that are part of your association employ?
5. What regions of the state are worked by your member contractors?
Probes: cover the state; local; tend to work in one region of the state/country; urban, suburban or rural setting
6. How would you describe the demographics of the unskilled laborer workforce among contractors affiliated with your association?

- *Probes:* average age; % women and ethnic minorities
 - Could you describe any approaches contractors use to recruit individuals from different demographic groups?
7. What is the range of wage rates for your construction workers?
Probes: For unskilled workers (entry-level)? For skilled workers?

Overview Questions:

8. To your knowledge, are there reports or current documents that have read or heard of addressing workforce shortages in the construction industry?
- What has been the result of that research?
 - How might we access that research?
9. What do you see as the greatest workforce challenge(s) (residential/commercial/transportation) construction contractors are facing?
- Do you think there will be additional or different challenges in the future?
 - *Probes:* finding younger workers; skilled workers; retention
 - **(for DOT associations only)** Are these challenges greater for transportation construction than other industries? If so, why?
 - What do you feel would be the most effective way(s) to address these workforce challenges?
 - *Probes:* Ideas for recruitment; retention; marketing to public
10. What do you think are the most common reasons that candidates choose to take a job in (residential/commercial/transportation) construction?

Recruitment and Marketing Approaches:

11. Could you please provide us with specific examples of techniques that (residential/commercial/ transportation) construction contractors have used to attract candidates to entry-level jobs?
- *Probe:* brochures; radio announcements; special events (career days); partnering with schools
12. What are some best practices that you have witnessed in this field?
- In recruitment? (i.e., approaches for attracting job applicants; creative places for finding new applicants),
 - In marketing? (i.e., presenting the field and jobs favorably; branding the field; type of message that is communicated)
13. What aspects of the job are most often emphasized by these contractors when trying to attract candidates (e.g., benefits; career progression; pay)?
14. Where do contractors affiliated with your association try to find job candidates?
- *Probes:* high schools; trade schools; in other companies; outside of school
15. Could you name 1-2 contractors that you feel are very successful in the areas of recruitment and marketing?
- What are these contractors doing that seems to be very effective?

- Could you please provide us with their contact information so we can follow-up with them to ask them a few questions about their successes?

Closing: Thank you for your participation in this interview. Your time is greatly appreciated. As a benefit of your participation in this study, Caliber ICF will provide you with a summary of the study findings and a listing of best practices identified across construction companies and industries. Your association may choose to disseminate this summary of findings to contractors as a means to help them benchmark their own practices against other best practices. If any questions arise, feel free to contact me {name} at {phone} or our Deputy Project Director, Dr. Candace Cronin at 703.934.3571.

APPENDIX E: POLICY CAPTURING AND CAREER PREFERENCE SURVEYS

Career Decision Factors Survey

Florida Department of Transportation

ICF International Consulting Company

Please write the name of your High School here _____

If you have any questions or concerns about the survey, please call:

Ms. Sukanya Swetharanyan
ICF International
9300 Lee Highway
Fairfax, VA 22031
1-877-279-8239 (this a toll-free call)

This survey should take about 20-25 minutes to complete. The purpose of this survey is to understand how high school students make decisions about career choices. On the following pages you will see a table with descriptions of things that you might think about when deciding to whether or not to choose a career. Each row is a different combination of possible factors, so read each row carefully. Using the information in each row, please rate “How likely would you be to choose this career?” by placing a check in the appropriate box. At the end of the survey there are a few additional questions we would like you to answer.

Each row describes a possible career by listing where that career stands on each of seven factors. The top row of the table defines these factors. It may seem that you have not been given enough information to decide whether you would choose the career, but please make your best attempt at answering the question with the information that you have been provided.

Characteristics of Each Career								How Likely Would You be to Choose this Career?				
Career ID #	Your family and friends would/would not support your choosing this career.	Jobs in this career would/would not allow you to choose when and how you perform your work.	The majority of the work for this career is conducted indoors/outdoors .	This career provides good/poor financial benefits starting with the first job.	There is a lot of/very little potential to advance in this career.	Your background, likes, and dislikes are similar to/different from those of others in this career.	To qualify for the first job in this career, you will/will not need additional training or education beyond high school.	1 Not at all Likely	2	3 Some-what Likely	4	5 Highly Likely
	Family/Friends	How Work Is Performed	Work Location	Financial Benefits	Potential to Advance	Others in Career	Additional Training/Education					
1	support	flexible	indoors	good	a lot	similar to me	needed			✓		
2	do not support	not flexible	outdoors	poor	very little	different from me	not needed	✓				

As you can see, for Career #1 (as identified in the left-most column), this person thought that it was “somewhat likely” that he/she would choose a career where family and friends would support you; you could choose when and how you perform your work; most work would be conducted indoors; the financial benefits are good; there is a lot of potential to advance; your background is similar to others; and you will need to take additional training. For Career #2, the student thought that he/she was “not at all likely” to choose that career. Please do your best to complete all the questions. You will know you are done when you have placed one check mark in every row of the table. Once you have completed the survey, place it in the envelope provided and return it via the U.S. mail.

Characteristics of Each Career								How Likely Would You be to Choose this Career?				
Career ID #	Your family and friends would/would not support your choosing this career.	Jobs in this career would/would not allow you to choose when and how you perform your work.	The majority of the work for this career is conducted indoors/outdoors .	This career provides good/poor financial benefits starting with the first job.	There is a lot of/very little potential to advance in this career.	Your background, likes, and dislikes are similar to/different from those of others in this career.	To qualify for the first job in this career, you will/will not need additional training or education beyond high school.	1 Not at all Likely	2	3 Some- what Likely	4	5 Highly Likely
	Family/ Friends	How work is performed	Work Location	Financial Benefits	Potential to Advance	Others in Career	Additional Training/ Education					
1	support	flexible	indoors	good	a lot	similar to me	needed					
2	support	flexible	indoors	good	a lot	similar to me	not needed					
3	support	flexible	indoors	good	a lot	different from me	needed					
4	support	flexible	indoors	good	a lot	different from me	not needed					
5	support	flexible	indoors	good	very little	similar to me	needed					
6	support	flexible	indoors	good	very little	similar to me	not needed					
7	support	flexible	indoors	good	very little	different from me	needed					
8	support	flexible	indoors	good	very little	different from me	not needed					
9	support	flexible	indoors	poor	a lot	similar to me	needed					
10	support	flexible	indoors	poor	a lot	similar to me	not needed					
11	support	flexible	indoors	poor	a lot	different from me	needed					

Characteristics of Each Career								How Likely Would You be to Choose this Career?				
Career ID #	Your family and friends would/would not support your choosing this career.	Jobs in this career would/would not allow you to choose when and how you perform your work.	The majority of the work for this career is conducted indoors/outdoors .	This career provides good/poor financial benefits starting with the first job.	There is a lot of/very little potential to advance in this career.	Your background, likes, and dislikes are similar to/different from those of others in this career.	To qualify for the first job in this career, you will/will not need additional training or education beyond high school.	1 Not at all Likely	2	3 Some- what Likely	4	5 Highly Likely
	Family/ Friends	How work is performed	Work Location	Financial Benefits	Potential to Advance	Others in Career	Additional Training/ Education					
12	support	flexible	indoors	poor	a lot	different from me	not needed					
13	support	flexible	indoors	poor	very little	similar to me	needed					
14	support	flexible	indoors	poor	very little	similar to me	not needed					
15	support	flexible	indoors	poor	very little	different from me	needed					
16	support	flexible	indoors	poor	very little	different from me	not needed					
17	support	flexible	outdoors	good	a lot	similar to me	needed					
18	support	flexible	outdoors	good	a lot	similar to me	not needed					
19	support	flexible	outdoors	good	a lot	different from me	needed					
20	support	flexible	outdoors	good	a lot	different from me	not needed					
21	support	flexible	outdoors	good	very little	similar to me	needed					
22	support	flexible	outdoors	good	very little	similar to me	not needed					
23	support	flexible	outdoors	good	very little	different from me	needed					

Characteristics of Each Career								How Likely Would You be to Choose this Career?				
Career ID #	Your family and friends would/would not support your choosing this career.	Jobs in this career would/would not allow you to choose when and how you perform your work.	The majority of the work for this career is conducted indoors/outdoors .	This career provides good/poor financial benefits starting with the first job.	There is a lot of/very little potential to advance in this career.	Your background, likes, and dislikes are similar to/different from those of others in this career.	To qualify for the first job in this career, you will/will not need additional training or education beyond high school.	1 Not at all Likely	2	3 Some- what Likely	4	5 Highly Likely
	Family/ Friends	How work is performed	Work Location	Financial Benefits	Potential to Advance	Others in Career	Additional Training/ Education					
24	support	flexible	outdoors	good	very little	different from me	not needed					
25	support	flexible	outdoors	poor	a lot	similar to me	needed					
26	support	flexible	outdoors	poor	a lot	similar to me	not needed					
27	support	flexible	outdoors	poor	a lot	different from me	needed					
28	support	flexible	outdoors	poor	a lot	different from me	not needed					
29	support	flexible	outdoors	poor	very little	similar to me	needed					
30	support	flexible	outdoors	poor	very little	similar to me	not needed					
31	support	flexible	outdoors	poor	very little	different from me	needed					
32	support	flexible	outdoors	poor	very little	different from me	not needed					

Section 2: Follow Up Questions

1. Did you understand the survey instructions? Yes No

Comments: _____

2. Please rate how important (1 = most important, and 7 = least important) each of the following factors is to you in making career decisions: (**Circle** the appropriate number)

a. Whether your family and friends **would or would not** support your choosing this type of career.

1	2	3	4	5	6	7
Most Important						Least Important

b. Whether this career **would or would not** allow you to choose when and how you perform your work.

1	2	3	4	5	6	7
Most Important						Least Important

c. Whether the majority of the work for this career is conducted **indoors or outdoors**.

1	2	3	4	5	6	7
Most Important						Least Important

d. Whether this job provides **good or poor** financial benefits when you start the career.

1	2	3	4	5	6	7
Most Important						Least Important

35. Please rank the following factors in terms of their importance when considering a career. (1 = most important on this list; 2 = second most important on this list, etc.)

- ___ Future salary increases
- ___ More responsibility
- ___ Better job title
- ___ Better professional skills

36. Please rank the following factors in terms of their importance when considering a career. (1 = most important on this list; 2 = second most important on this list, etc.)

- ___ What my parents think about a career
- ___ What my friends think about a career
- ___ What people in my community think about a career.

37. Please rank the following factors in terms of their importance when considering a career. (1 = most important on this list; 2 = second most important on this list, etc.)

- ___ Working with people about my age
- ___ Working with people of my gender
- ___ Working with people of my education level
- ___ Working with people of a similar cultural background to me
- ___ Working with people with similar personalities to me

Section 3: Open Ended Questions:

38. What is the most important thing to you when you consider choosing a career?

39. Where would be the best place to advertise open job opportunities to individuals your age?

Section 4: Demographic Questions:

40. What is your gender? _____ Male _____ Female

41. From the following list, mark the selection(s) that describe(s) your race/ethnicity? (Please mark all that apply)

- _____ American Indian/Alaska Native
- _____ Asian/Pacific Islander
- _____ Black/African-American
- _____ Hispanic
- _____ White/Caucasian
- _____ Other: _____

42. What are your plans after high school? (Please mark all that apply)

- _____ College
- _____ Community College
- _____ Technical School
- _____ Military Service
- _____ Retail Job
- _____ Construction Job
- _____ Food Service/Preparation Job
- _____ Other Job
- _____ Other: please describe _____
- _____ Don't Know

Career Decision Factors Survey

Introduction

The purpose of this survey is to understand how people make career decisions. It will take up to 20 minutes to complete. On the following pages you will see a table that describes each of 32 careers according to the extent to which:

- Your family and friends **would/would not** support your choosing this career.
- Jobs in this career **would/would not** allow you to choose when and how you perform your work.
- The majority of the work for this career is conducted **indoors/ outdoors**.
- This career provides **good/poor** financial benefits starting with the first job.
- There is **a lot of/very little** potential to advance in this career.
- Your background, likes, and dislikes are **similar to/different from** those of others in this career.
- To qualify for the first job in this career, you **will/will not** need additional training or education beyond high school.

You'll review the information provided on each career and rate the likelihood that you would choose a job in that career.

- After you've completed the survey, please return in the enclosed self addressed envelope. If you have any questions or concerns about the survey, please call:
- Ms. Sukanya Swetharanyan
- ICF International
- 1-877-279-8239 (this a toll-free call)

Instructions

For each career listed, please:

- Review each piece of information for listed in the row.
- Indicate the likelihood that you would choose the career by placing a check mark in the corresponding column.

Example:

Career ID #	Information on Each Career							How Likely Would You be to Choose this Career?				
	Family/Friends	How Work Is Performed	Work Location	Financial Benefits	Potential to Advance	Others in Career	Additional Training/Education	1 Not at all Likely	2	3 Some- what Likely	4	5 Highly Likely
	Your family and friends would/would not support your choosing this career.	Jobs in this career would/would not allow you to choose when and how you perform your work.	The majority of the work for this career is conducted indoors/ outdoors .	This career provides good/poor financial benefits starting with the first job.	There is a lot of/very little potential to advance in this career.	Your background, likes, and dislikes are similar to/different from those of others in this career.	To qualify for the first job in this career, you will/will not need additional training or education beyond high school.					
34	support	flexible	indoors	good	a lot	similar to me	needed					✓
35	do not support	not flexible	outdoors	poor	very little	different from me	not needed	✓				

Note that for Career #34, the example respondent marked “highly likely” because he is highly likely to choose a career that meets the approval of family and friends, is flexible on where and when the work is performed, involves work indoors, has good financial benefits, has coworkers similar to him, and requires additional training or education beyond high school. He marked career #35 “Not at all likely” because he is unlikely to choose a career given the information listed in the row for that career.

Career ID #	Information on Each Career							How Likely Would You be to Choose this Career?				
	Family/Friends Your family and friends would/would not support your choosing this career.	How Work Is Performed Jobs in this career would/would not allow you to choose when and how you perform your work.	Work Location The majority of the work for this career is conducted indoors/outdoors .	Financial Benefits This career provides good/poor financial benefits starting with the first job.	Potential to Advance There is a lot of/very little potential to advance in this career.	Others in Career Your background, likes, and dislikes are similar to/different from those of others in this career.	Additional Training/Education To qualify for the first job in this career, you will/will not need additional training or education beyond high school.	1 Not at all Likely	2	3 Some-what Likely	4	5 Highly Likely
1	support	flexible	indoors	good	a lot	similar to me	needed					
2	support	flexible	indoors	good	a lot	similar to me	not needed					
3	support	flexible	indoors	good	a lot	different from me	needed					
4	support	flexible	indoors	good	a lot	different from me	not needed					
	Family/Friends	How Work Is Performed	Work Location	Financial Benefits	Potential to Advance	Others in Career	Additional Training/Education					
5	support	flexible	indoors	good	very little	similar to me	needed					
6	support	flexible	indoors	good	very little	similar to me	not needed					
7	support	flexible	indoors	good	very little	different from me	needed					
8	support	flexible	indoors	good	very little	different from me	not needed					
	Family/Friends	How Work Is Performed	Work Location	Financial Benefits	Potential to Advance	Others in Career	Additional Training/Education					
9	support	flexible	indoors	poor	a lot	similar to me	needed					
10	support	flexible	indoors	poor	a lot	similar to me	not needed					
11	support	flexible	indoors	poor	a lot	different from me	needed					

Career ID #	Information on Each Career							How Likely Would You be to Choose this Career?				
	Family/Friends	How Work Is Performed	Work Location	Financial Benefits	Potential to Advance	Others in Career	Additional Training/Education	1 Not at all Likely	2	3 Some- what Likely	4	5 Highly Likely
12	support	flexible	indoors	poor	a lot	different from me	not needed					
	Family/Friends	How Work Is Performed	Work Location	Financial Benefits	Potential to Advance	Others in Career	Additional Training/Education					
13	support	flexible	indoors	poor	very little	similar to me	needed					
14	support	flexible	indoors	poor	very little	similar to me	not needed					
15	support	flexible	indoors	poor	very little	different from me	needed					
16	support	flexible	indoors	poor	very little	different from me	not needed					
	Family/Friends	How Work Is Performed	Work Location	Financial Benefits	Potential to Advance	Others in Career	Additional Training/Education					
17	support	flexible	outdoors	good	a lot	similar to me	needed					
18	support	flexible	outdoors	good	a lot	similar to me	not needed					
19	support	flexible	outdoors	good	a lot	different from me	needed					
20	support	flexible	outdoors	good	a lot	different from me	not needed					
	Family/Friends	How Work Is Performed	Work Location	Financial Benefits	Potential to Advance	Others in Career	Additional Training/Education					
21	support	flexible	outdoors	good	very little	similar to me	needed					
22	support	flexible	outdoors	good	very little	similar to me	not needed					
23	support	flexible	outdoors	good	very little	different from me	needed					

Career ID #	Information on Each Career							How Likely Would You be to Choose this Career?				
	Family/Friends	How Work Is Performed	Work Location	Financial Benefits	Potential to Advance	Others in Career	Additional Training/ Education	1 Not at all Likely	2	3 Some- what Likely	4	5 Highly Likely
24	support	flexible	outdoors	good	very little	different from me	not needed					
Family/Friends	How Work Is Performed	Work Location	Financial Benefits	Potential to Advance	Others in Career	Additional Training/ Education						
25	support	flexible	outdoors	poor	a lot	similar to me	needed					
26	support	flexible	outdoors	poor	a lot	similar to me	not needed					
27	support	flexible	outdoors	poor	a lot	different from me	needed					
28	support	flexible	outdoors	poor	a lot	different from me	not needed					
Family/Friends	How Work Is Performed	Work Location	Financial Benefits	Potential to Advance	Others in Career	Additional Training/ Education						
29	support	flexible	outdoors	poor	very little	similar to me	needed					
30	support	flexible	outdoors	poor	very little	similar to me	not needed					
31	support	flexible	outdoors	poor	very little	different from me	needed					
32	support	flexible	outdoors	poor	very little	different from me	not needed					

33. Please rank the following factors in terms of their importance when considering a career. (1 = most important on this list; 2 = second most important on this list, etc.)
- Working with people about my age
 - Working with people of my gender
 - Working with people of my education level
 - Working with people of a similar cultural background to me
 - Working with people with similar personalities to me
34. Please rank the following factors in terms of their importance when considering a career. (1 = most important on this list; 2 = second most important on this list, etc.)
- Flexible work hours
 - Ability to work from home
 - Ability to work on your own
 - Ability to work without close supervision
 - Able to take days off when needed
35. Please rank the following factors in terms of their importance to you in considering a career. (1 = most important on this list; 2 = second most important on this list, etc.)
- Salary
 - Health care
 - Retirement plan
 - Vacation time
36. Please rank the following factors in terms of their importance when considering a career. (1 = most important on this list; 2 = second most important on this list, etc.)
- Future salary increases
 - More responsibility
 - Better job title
 - Better professional skills

37. Please rank the following factors in terms of their importance when considering a career. (1 = most important on this list; 2 = second most important on this list, etc.)

- What my parents think about a career
- What my friends think about a career
- What people in my community think about a career.

38. What is the most important thing to you when you consider when choosing a career?

39. What is your gender? Male Female

40. From the following list, mark the selection(s) that describe(s) your race/ethnicity? (Please mark all that apply)

- American Indian/Alaska Native
- Asian/Pacific Islander
- Black/African-American
- Hispanic
- White/Caucasian
- Other: _____

41. What are your plans after high school? (Please mark all that apply)

- College
- Community College
- Technical School
- Military Service
- Retail Job
- Construction Job
- Food Service/Preparation Job
- Other Job
- Other: please describe _____
- Don't Know

Thanks for participating! Please return your survey in the envelope provided.

APPENDIX F: DIRECT RATINGS SURVEY



June 26, 2007

Dear Survey Recipient,

Please complete the survey on the reverse side of this letter. My firm, ICF International, is conducting this survey on behalf of the Florida Department of Transportation (FDOT). The purpose of the survey is to determine what people aged 18–25 consider most when they select a job or career. This information will assist employers in identifying and addressing issues that prevent people from being attracted to critical jobs.

To complete this survey,

- Use a pen or a pencil to fill in the circle that best matches your answer.
- Remember that there is no right or wrong answer. Just give us your opinion.
- Return the completed survey in the enclosed self addressed envelope. No additional postage is required.
- Call us if you have questions on our toll free number: 1-877-279-8239.

Note that participation is voluntary and your responses are confidential. As you will be providing no identifying information, your responses cannot be linked to you. Note that this survey is intended for persons 18 or older. IF YOU ARE YOUNGER THAN 18, PLEASE DO NOT COMPLETE THE SURVEY.

Thanks in advance for your help.

Sincerely yours,

A handwritten signature in black ink that reads "Lance Anderson". The signature is fluid and cursive.

Lance Anderson, Ph.D.
Vice President

Instructions: Rate the IMPORTANCE OF each of the following ISSUES WHEN YOU CHOOSE A CAREER.

The extent to which...	Not Important	Somewhat Important	Important	Very Important	Extremely Important
My family and friends would support me in choosing the career	<input type="radio"/>				
I could decide when and how I do my work.	<input type="radio"/>				
I would be working indoors.	<input type="radio"/>				
I would get good pay and good benefits (e.g., health insurance, a retirement plan, child-care facilities, payment for the commute to work).	<input type="radio"/>				
The career has advancement potential (i.e., someday I may receive greater weekly pay, promotion to new levels, greater responsibilities).	<input type="radio"/>				
I would "fit in" at work (i.e., some of my coworkers would be like me: same gender, culture, education, and interests).	<input type="radio"/>				
I could start earning money right away, without any training or education beyond high school.	<input type="radio"/>				

Instructions: Read the following description of an entry-level transportation construction worker position

Entry-Level Transportation Construction Workers assist in building roads and highways, by performing tasks such as:

- Clean and repair drainage systems, bridges, tunnels, and other structures.
- Control traffic passing near, in, and around work zones.
- Assist in laying sewer, water, and storm drain pipes.
- Dump asphalt to repair joints and patch broken pavement.
- Excavate land, compact and level the ground as appropriate.

Instructions: Rate the DEGREE TO WHICH YOU AGREE WITH each of the following STATEMENTS ABOUT A CAREER AS A TRANSPORTATION CONSTRUCTION WORKER.

If I became a Transportation Construction Worker...

	Disagree	Not Sure	Agree
1. My family and friends would support me in continuing to pursue this career.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I could decide when and how I do my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I would get good pay and good benefits (e.g., health insurance, a retirement plan, child-care facilities, payment for the commute to work).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. My career would have advancement potential (i.e., someday I may receive greater weekly pay, promotion to new levels, greater responsibilities).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I would "fit in" at work (i.e., some of my coworkers would be like me: same gender, culture, education, and interests).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I would begin earning money right away, without any training or education beyond high school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Would you consider pursuing a career as a transportation construction worker?	Yes	Maybe	No
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Tell us why you would or wouldn't consider pursuing a career as a transportation construction worker. →

What are your plans immediately after high school?	College	Community College or Technical School	Work in the construction field	Work in some field other than construction	Don't Know	Other: please describe: _____
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What is your gender?	Male	Female
	<input type="radio"/>	<input type="radio"/>

Thank you for your participation. Return your completed survey in the attached envelope.

APPENDIX G: OPEN-ENDED RESPONSES IN DIRECT RATINGS SURVEY

Open ended responses for the DRS survey question “Tell us why you would or wouldn’t consider pursuing a career as a transportation construction worker.”

1. I already have a career path in mind so I wouldn’t even consider changing.
2. Because I already have plans for my future and do not have time to work as a transportation construction worker.
3. Because it doesn’t interest me and it takes a lot of physical labour.
4. It doesn’t interest me and it is all outdoors, so I wouldn’t consider.
5. Pay low.
6. It is not the career I am interested in, in regards to environment and vocation.
7. Already have other career plans.
8. I am going to college to play Baseball and learn more about Sports Administration. I wouldn’t mind being a surveyor helper during the summer though.
9. 5’2”; 100 lbs.; going away to college; graduate school - There is a better target for your survey.
10. Seems too hot all the time, hard work. I think I could make more money elsewhere.
11. No interest in construction work.
12. Don’t like physical labour, would like a higher-paying job.
13. I would prefer a white-collar job that doesn’t involve as much heavy physical labour.
14. Because I’m more interested in medical professions than the study of transportation construction.
15. I really don’t like working outside or getting real dirty.
16. I am not interested in construction work or any purely manual labour. My interests are more academic and pertain to the arts & sciences.
17. Because I feel that it would be a waste of the years of schooling that I endured to become a construction worker, working with a bunch of no-English speaking illegal immigrants.
18. No, because I don’t feel that’s where my talents could be used best.
19. Doesn’t interest me.
20. Not my interest; not fitted for that kind of work.
21. I prefer to work in an indoor environment.
22. I have no interest in it.
23. I wouldn’t consider being a construction worker because I need training otherwise I will bag groceries.
24. I am not sure if I would or if I would not like to have a career in this field because I am not sure what this career requires and if it would be beneficial one.
25. I have never really been drawn to that field and plan on attending school and outing my degree towards use in a different career.
26. Because I’m not interested in that type of work. I do not think I would be good for that type of job.
27. I already have a college major and career that I plan to pursue that is in a different field.
28. Not good pay, not enough benefits; want to do something more with my life.
29. I would for a job right away. But I wouldn’t because I am enrolled to start college away from home and have a job.
30. It is not inside, nor is it a job I would enjoy doing.
31. Well me personally, I don’t like neither of those jobs and I don’t think they fit my personality. So therefore, I wouldn’t choose those jobs.
32. My interests are in other fields of study.
33. I plan to own my own dance studio – not interested in other. Also, too hot & physical work. Mostly, men.
34. Doesn’t interest me.