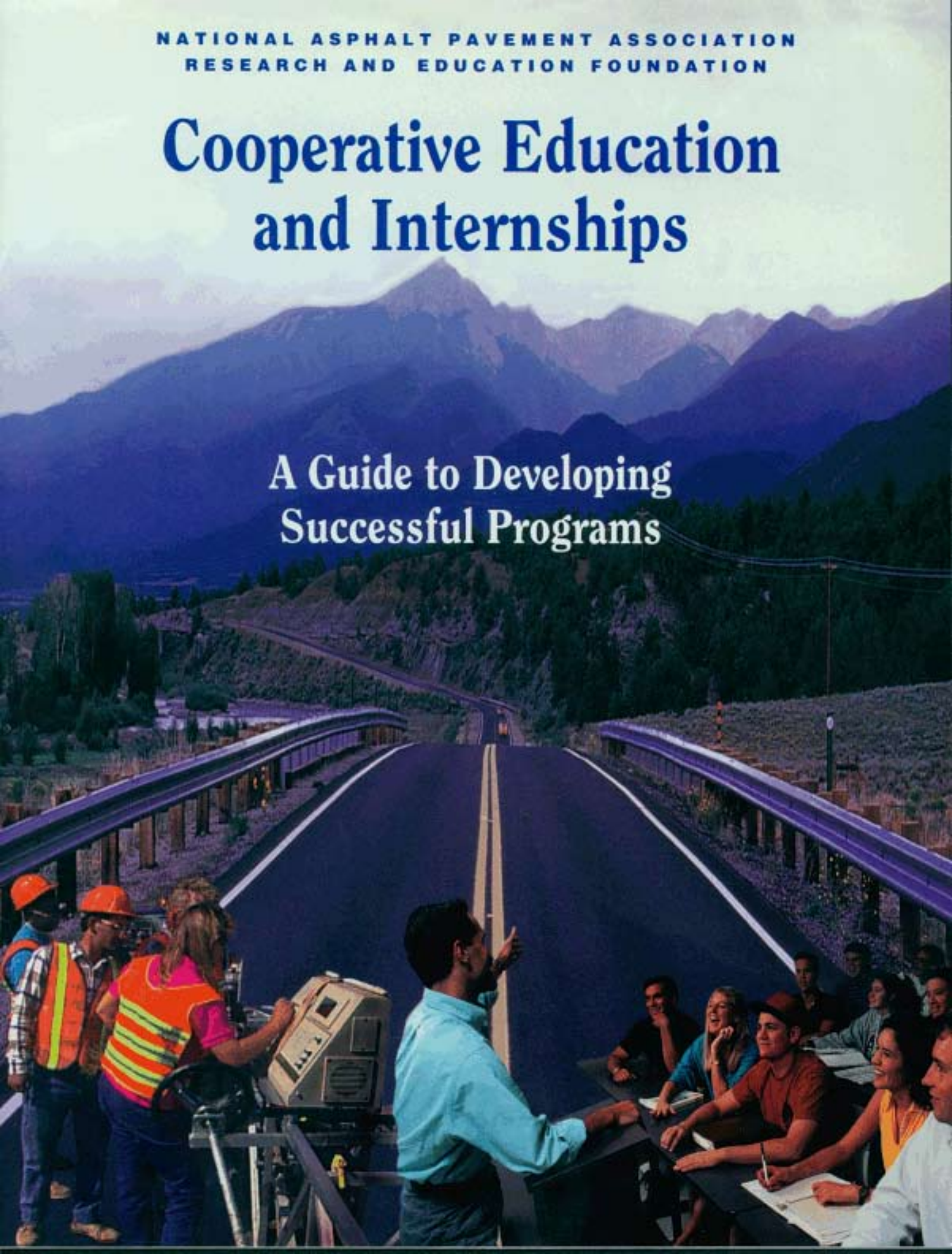


NATIONAL ASPHALT PAVEMENT ASSOCIATION  
RESEARCH AND EDUCATION FOUNDATION

# Cooperative Education and Internships

A Guide to Developing  
Successful Programs



# Cooperative Education and Internships

## A Guide to Developing Successful Programs

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## Purpose

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This is a guide for the Hot Mix Asphalt (HMA) industry to develop Cooperative Education/Internship Programs within their companies. With increasing demand for qualified workers in all industries, it is important that HMA industry attract and train qualified personnel from universities.

The National Asphalt Pavement Association Research and Education Foundation (NAPAREF) Scholarship Program has been very successful in encouraging universities to include HMA technology in their curriculums. While students at these universities receive classroom and possibly laboratory training in HMA technology, there is a great deal of knowledge and experience that cannot be taught in the classroom. Cooperative education/intern programs within the HMA industry are an effective way to educate future employees of the HMA industry.

## Definitions

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**Co-Op:** Cooperative Education, or co-op as it is often referred to, is a planned, supervised program allowing students to gain valuable work experience and academic credit outside the classroom. Students typically alternate periods of school and work during the second, third, and fourth years of college.

**Intern:** Work assignments are similar to those in co-ops except the duration of the assignment typically is only one semester or during the student's summer break.

For the purposes of this guide, co-op and intern programs will be referred to as intern programs.

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# Benefits for Employers

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University literature typically states the following benefits for employers:

## ■ **Train future employees**

An aging workforce and loss of knowledgeable professionals means that there is a dire need to encourage college graduates to enter the HMA industry. For example, two National Asphalt Pavement Association (NAPA) Members, Milestone Contractors L.P. and Heartland Asphalt Inc., which currently have intern programs, consider this goal to be the primary focus of their programs. (See Appendix A and B for additional information pertinent to their programs.)

## ■ **Cut labor costs**

Research shows that “new hires that have co-op experience are 73 percent more cost effective in the first 21 months of their employment, saving more than \$24,000 per graduate.”

## ■ **Increase presence on campus**

On-campus recruiting of interns and returning interns will make your company name known to other students. It is very important that your intern program provides a positive experience for the students. If so, when these students return to class, they will speak well of your company and the industry to other students.

## ■ **Bring new enthusiasm and energy to your organization**

To most students, working in the construction industry will be new and exciting. They get a chance to apply skills and theories learned in school and to learn new perspectives not taught in the classroom. Their enthusiasm and energy can help energize other team members. As one contractor said, “Bringing people into the organization through a formal program brings in new thoughts and can rejuvenate other workers. It gives workers more pride in their jobs and makes students want to continue their education.”

## ■ **Instill interest for the future**

Internships help to validate student career choices. A positive experience will encourage students to continue their education and hopefully enter the HMA industry. Whether they go on to be employed by contractors, agencies, or consultants, an increased level of HMA knowledge is ultimately beneficial to the whole industry.

## Benefits for Students

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Students who have interned are more likely to get jobs than those with no work experience. While academic credit is typically a part of an intern program, not all schools offer credit for these programs, and not all students are interested in obtaining credit for this work experience. The main goal of any intern program is to provide students with valuable work experience.

University literature typically states the following benefits for students:

- **Invaluable job experience**

Students gain knowledge not taught in the classroom. One student said, "I learned project management skills not taught at my school."

- **Professional contacts**

Students get a chance to work with and meet professionals.

- **Financial support**

Internships are paid work experiences. In some cases, interns may continue to work part time during the school year.

- **Confirmation of career choices**

Students get the opportunity to see what it is like to work in the HMA industry. It is up to the employer to make this a positive experience so the student will have a good impression of the industry.

- **Integration of theory and practice**

An internship program gives students the opportunity to apply what they have learned in a classroom to practical situations in a real life setting.



## Checklist for Success

A successful intern program requires effort, and upper management must support the program. The following provides an overview for establishing a successful internship program.

### Conduct an internal audit

- Can you provide meaningful assignments?**  
While it is expected that interns will have to do some routine tasks, they should not be thought of as mere messengers or office assistants. All universities recommend that interns be given increasing responsibilities. One method is to give them specific projects or assignments so they can accomplish something tangible by the end of their internship.
- Are you prepared to invest time?**  
Interns require training and mentoring. Remember that the goal is to develop future employees, and this development takes time and effort.
- Is there a person to supervise interns?**  
There must be a staff person to supervise the intern. This person should clearly explain what is expected and provide feedback to the intern on his or her performance. This is especially true at the beginning of the internship.
- Can you afford interns (wages, stipends, travel, and parking reimbursement)?**  
Universities may provide recommended pay ranges for interns. One university states that pay ranges from 50 percent to 90 percent of the average starting salary of a graduating engineer. If you are hiring interns from outside your general area, you may need to consider providing some financial support for housing in order to attract them.
- Do you have adequate office resources for interns (computer, telephone, and desk)?**  
You want to make the intern feel like a part of your team. Giving a person a place to hang his or her hat makes them feel wanted.

### Select the intern supervisor

- Is this person committed to developing student interns?**  
The commitment of the supervisor and/or mentor to providing the intern with quality guidance and feedback on performance is the key to a positive experience.
- Does this person have adequate time to devote to the program?**  
Remember this person will have the greatest impact on the intern. If this person does not take the necessary time to supervise and guide the intern, the program will not be effective.

### Develop a position description

- Provide an overview of the responsibilities, assignments, and time frame for the intern.**  
Let the intern know what jobs he or she will be doing and what is expected. The duties will vary according to company needs. Some programs move the interns to different departments during the course of one summer to give them an experience in the industry overall. Other intern programs assign the intern to one department for the summer, possibly moving the intern to other departments in subsequent years. Both programs can work. The key is that the intern is given increasing responsibilities.
- Clearly state your expectations.**  
Make it clear to the intern exactly what tasks he or she will be doing and what is expected to be learned from each task.

## Working with Universities

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Working closely with the university ensures a successful intern program.

### **Determine the university or universities in which you are interested.**

In many cases, these will be universities in close proximity to your operations or universities you have had success in hiring employees from in the past. One contractor recommends visiting universities and departments to see how well the school's culture matches your company's culture.

### **Contact the career centers at your chosen university.**

These centers should be contacted early in the development of your program since they can provide excellent guidance on developing an intern program. Many universities have web sites with information about developing intern programs as well as the university's requirements for partnering in such programs. Intern openings can often be posted to these web sites with minimal effort. Universities often have résumé referral services where résumés of interested students are forwarded to your company for consideration

### **Review applications/résumés and interview prospective interns.**

Interview and select interns, just as you would other employees.

Many universities have career fairs where potential interns can be interviewed. There can be fierce competition for quality interns. Therefore, you need to sell your company. In your recruitment efforts, you may want to consider using employees that are alumni from the university or past interns of your company.

Once you have selected potential interns, either through interviews at career fairs or phone interviews, you should consider inviting these students to your office for a final interview just as you would a permanent hire. This gives you another opportunity to evaluate the student, and it gives the student an opportunity to see your operation. It also allows the student to sharpen his or her interviewing skills.

### **Discuss time frames for the internship.**

Start and end dates will vary for each university. Therefore, it is important that you, the student, and the university agree on these.

### **Notify other employees about the interns' responsibilities.**

Interns should be treated as a part of the team. Develop projects or assignments before they join your company so they can make a valuable contribution.

### **Arrange for appropriate workspace.**

Providing an assigned workspace will make the intern feel like he or she is a part of the team.

## Once You Hire an Intern

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Once you choose an intern, it is important to communicate your expectations to him or her. Be sure to discuss company procedures, including safety issues and requirements.

### **Orient and supervise the interns**

#### **Orientation session**

Share the organization's mission statement and goals with the interns. Provide them with a tour of the facilities as well as information on policies and procedures, formal and informal. Introduce interns to all staff with whom they will be working.

#### **Training**

As with any new employee, provide training on computer programs, telephone systems, copy and facsimile machines, or other equipment the interns will be using.

#### **Appropriate attire and behavior**

Appropriate attire and behavior should be discussed with the intern prior to hiring.

#### **Direction on assignments**

Discuss job assignments so that the intern knows what is expected of him or her. Let the interns know they can come to you if they have any questions.

#### **Staff meetings and company events**

Again, interns should be made to feel like a part of the team.

#### **Questions and feedback**

This is essential to a successful internship. Ask the intern how things are going and provide him or her with feedback on his or her performance. This is especially critical during their first couple of weeks in the program.

### **Seek and provide feedback**

#### **Assess performance**

While interns should receive feedback on their performance during their internship, a final assessment of their performance is recommended. A formal assessment would be similar to an employee performance evaluation where the supervisor and intern discuss and sign a written performance evaluation.

#### **Discuss the intern's experience with your organization**

It is very important to get feedback from the interns on their experience in order to evaluate and adjust future intern programs. This may be an informal interview. You also may ask the student to provide written comments.

#### **Assess your internship program**

Most companies that have implemented intern programs indicate that they are constantly making adjustments to improve their programs. Getting feedback from interns, supervisors, and employees is key to making these adjustments and ensuring that your intern program is rewarding to both your company and to the students participating.



## Recommendations from Contractors with Intern Programs

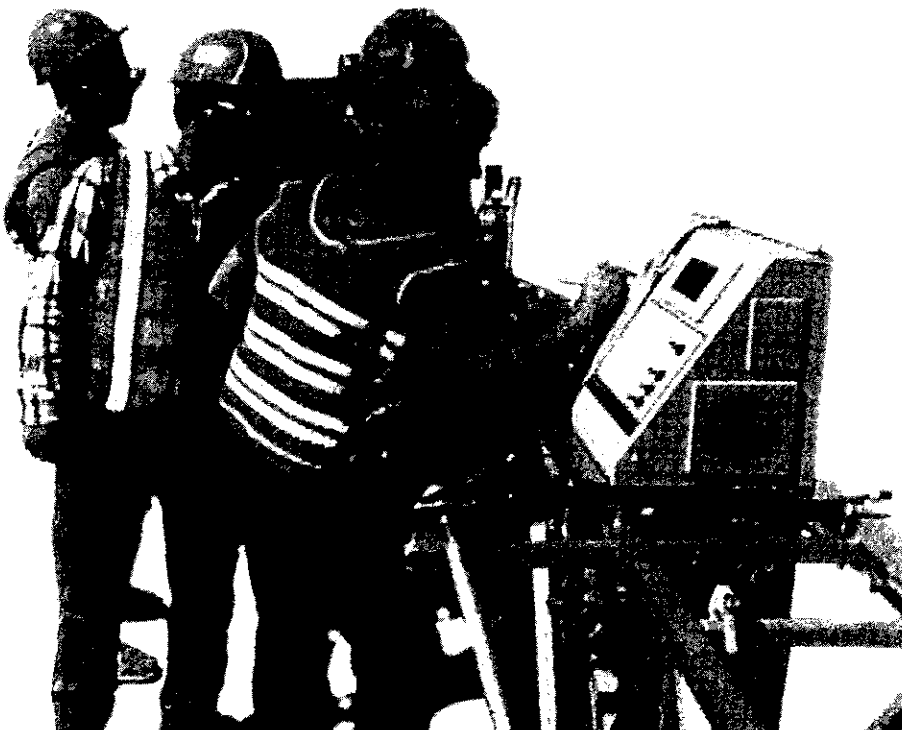
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The main recommendation from contractors with intern programs is to start slow. Many contractors state that they didn't really know what to do with interns when they started. However, these companies have learned how to implement successful intern programs using feedback from both interns and staff.

One HMA contractor started four years ago with seven interns and now has a successful program. In 1999, the program consisted of 21 interns. Another HMA contractor started their program about the same time and now has 15 interns in their Professional Development Program at any given time. The main purpose of this intern program is to develop future employees.

Another critical recommendation is to do it right. This experience should be as positive for the interns as possible. Remember that these students return to school at summer's end, and they will talk to other students about their intern experience. When they talk about your company, you want it to be positive.

Appendix A and B are sample program forms currently used by two HMA contractors who are NAPA Members. They are provided as examples to view while developing your own program.



## Summary

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Internships can be a win/win situation for students and companies. Students gain real world experience and employers get the opportunity to develop and assess future employees. To make the program successful you will need to spend time and effort. It is key that the program gives students valuable experience with increasing responsibilities. Providing a supervisor who will share their knowledge, skills, and time to mentor the intern may be the most important aspect of a successful program.

## Appendix A: Example Intern Program

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### Milestone Contractors L.P.

The following is an outline suggested by Milestone Contractors L.P., Columbus, Indiana. It is intended to be an example of a successful intern program. However, each program is unique and should be adapted to the needs of the individual facilities. Brackets represent information applicable to individual intern programs.

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#### Scope

Multifunctional training of selected university summer interns and/or graduates is a vital element in our overall training/education process. The overall objective of this program is to develop a core of well-trained individuals whose performance will enhance the organization's abilities to perform at a level that is consistent with growth and profitability goals. Further, this process will prepare individuals involved for further advancement and fulfillment of the organization's succession needs.

Each participant will receive a balanced prospective for each appropriate functional area including [*list functional areas*]. In this way, the trainee's interests, abilities, and skills can be reviewed, developed, and aligned with [*company*] needs, allowing for optimal participant placement at process end.

Development training participants will spend approximately three months to one year in each functional area. Initial functional area assignment will vary based upon training opportunity and [*company*] staffing needs. The summer intern-training period is controlled by university summer vacation parameters.

The appropriate functional area manager will assign a "training resource" person for each participant. The functional area manager and training resource may be the same individual. The training resource will provide the participant guidance, coaching, and progress review in both technical and non-technical areas.

The specific functional area manager will evaluate the participant's progress at the end of each session.

#### RESPONSIBILITY

[*Human Resource Department, Functional Area Manager, and Training Resource*]

#### PROCEDURE

- 1 Developmental training process participant selected through standard [*company*] recruitment and selection methods. Dimensions considered are: interest and experience in construction, learning ability, work related flexibility, grade point average, initiative, future promotion capability, etc.
- 2 The first training assignment is initiated. Optimal area of assignment is determined by Human Resources in conjunction with functional area managers, based on training opportunity, department work activity, participant home location, and other relevant factors at decision time.
- 3 The functional area manager will assign the training resource individual to the participant. A Human Resource representative is also assigned to the participant by the Director of Human Resources, to manage the initial hire, [*company*] orientation, trainee scheduling through the functional area process, and progress review scheduling and assistance, as necessary.
- 4 At the end of each training session, the functional area manager will complete a progress review. Satisfactory completion of the three-month progress review is a prerequisite for participant assignment to the next functional area. Each functional area review indicates specific participant development areas.
- 5 Upon successful completion of all three functional area training sessions, the developmental participant is assigned to a specific position based upon participant's skills and abilities, interests, and position availability.



**[company]**

## **DEVELOPMENTAL TRAINING PROCESS AGREEMENT**

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The undersigned agree to fully and actively participate in the training process and progress review, ensuring a meaningful, effective, and complete training experience for the benefit of both the training participant and [company].

Nothing contained in this policy is intended to create, or shall be construed as creating, an express or implied contract or guarantee of employment or training for any term.

---

DEVELOPMENTAL TRAINEE

---

DATE

---

HUMAN RESOURCE REPRESENTATIVE

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DATE

---

(DEPARTMENT) TRAINING RESOURCE

---

DATE

---

(DEPARTMENT) TRAINING RESOURCE

---

DATE

| <b>TRAINING SCHEDULE</b> |             |           |
|--------------------------|-------------|-----------|
| <b>Functional Area</b>   | <b>From</b> | <b>To</b> |
| <hr/>                    | <hr/>       | <hr/>     |
| <hr/>                    | <hr/>       | <hr/>     |
| <hr/>                    | <hr/>       | <hr/>     |
| <hr/>                    | <hr/>       | <hr/>     |
| <hr/>                    | <hr/>       | <hr/>     |

[company]

**DEVELOPMENTAL TRAINEE/INTERN PROGRESS REVIEW**

---

Name: \_\_\_\_\_

Date: \_\_\_\_\_

School: \_\_\_\_\_

Major: \_\_\_\_\_

Graduation Year: \_\_\_\_\_

Graduated:  YES  NO

---

**DEVELOPMENTAL TRAINEE/INTERN PROGRESS REVIEW**

**HMA Production/Quality Control**

Trainee/Intern Name: \_\_\_\_\_

Review Period: \_\_\_\_\_

|  | Excellent                | Good                     | Fair                     | Poor                     | N/A                      |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Attendance and punctuality _____                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Quality of work _____                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Productivity and time management _____                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Teamwork and cooperation _____                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Initiative, self-motivation and willingness to learn _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Adaptability, versatility, adjusting to change _____       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Communication skills, oral and written _____               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| General computer skills _____                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Hot Mix Asphalt Plants**

|  |                          |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| General knowledge of batch plant _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| General knowledge of drum plant _____  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Loading of trucks _____                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Binder calibrations _____              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Cold feed bin calibrations _____       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

---

|                                     | Excellent                | Good                     | Fair                     | Poor                     | N/A                      |
|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <b>Quality Control</b>              |                          |                          |                          |                          |                          |
| Material gradations _____           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| HMA extractions _____               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ignition oven _____                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Mix designs _____                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Profilographing _____               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Pavement coring _____               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aggregate quality tests _____       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Density testing _____               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Knowledge of test methods _____     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>Safety</b>                       |                          |                          |                          |                          |                          |
| Personal protective equipment _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Company safety policy _____         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

---

Trainee Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Department Manager: \_\_\_\_\_ Date: \_\_\_\_\_

Trainee/Intern: \_\_\_\_\_ Location: \_\_\_\_\_ Date: \_\_\_\_\_

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Please write a brief review of your most recent training/internship experience in the space provided.  
This will help us to assess the training quality.

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**Comments**

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Trainee/Intern Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Functional Area Manager: \_\_\_\_\_ Date: \_\_\_\_\_

Director of Human Resources or  
Assigned Representative: \_\_\_\_\_ Date: \_\_\_\_\_



## Appendix B: Example Intern Program

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### Heartland Asphalt Inc.

The following is an outline suggested by Heartland Asphalt Inc., Mason City, Iowa. It is intended to be an example of a successful intern program. However, each program is unique and should be adapted to the needs of the individual facility. Brackets represent information applicable to individual intern programs.

---

### Interested in Summer and Co-op Employment?

[*Company name and location*] is a [*description*] company. Their customers consist of [*description of customer base*]. The training program offered is outlined below:

#### First Year Summer Engineer Training Program:

| <i>Job Description</i>          | <i>Duration</i> |
|---------------------------------|-----------------|
| Base crew hands-on training     | 2 weeks         |
| Base crew equipment training    | 2 weeks         |
| Asphalt crew hands-on training  | 3 weeks         |
| Asphalt crew equipment training | 3 weeks         |
| Aggregate lab                   | 1 week          |
| Bituminous lab                  | 1 week          |
| Surveying and staking           | 2 weeks         |
| Estimating and design           | 2 weeks         |

#### Second Year Summer Engineer Training Program:

| <i>Job Description</i>      | <i>Duration</i> |
|-----------------------------|-----------------|
| Field analysis of pavements | 6 weeks         |
| Life cycle cost analysis    | 2 weeks         |
| Update as-built files       | 1 week          |
| Aggregate lab               | as needed       |
| Bituminous lab              | as needed       |
| Surveying and staking       | as needed       |

Co-op student program would combine the two programs listed above.