Programmatic use of ABC

Module 1:
Recommended Approach to Implementing ABC in a Transportation Agency

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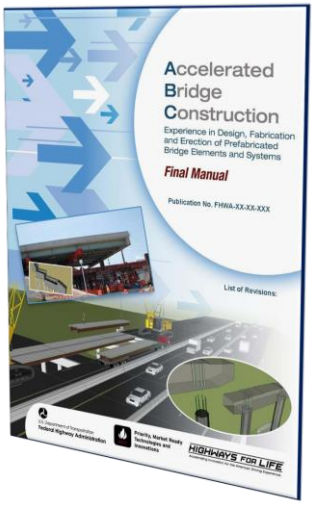


This module focuses on a recommended approach to implementing ABC in a transportation agency. Many Departments of Transportation have ABC programs. Some are quite successful, while others have had issues with implementation.

This module will focus on a recommended approach that an agency can follow to implement a successful ABC program.

The basis of this module is the FHWA manual entitled “Accelerated Bridge Construction - Experience in Design, Fabrication, and Erection of Prefabricated Bridge Elements and Systems”.

Beneficiaries & Outcomes

Intended beneficiaries of this training

- Primarily program managers and executive leadership
- Project delivery managers

Outcomes

- In this training, you will learn
  - Recommended approach to implementing ABC in an agency
    - Defining “Why" we do ABC
    - Golden circle approach to planning a program
    - Internal buy-in
    - Political engagement
    - Contractor engagement
    - Trial projects

The intended beneficiaries of this training include Program Managers and Project Delivery Managers for ABC bridge programs. These two groups represent the primary decision-makers in most agencies.

In this training module, you will learn:

- Recommended approach to implementing ABC in an agency
    - Defining “Why" we do ABC
    - Golden circle approach to planning a program
    - Internal buy-in
    - Political engagement
    - Contractor engagement
    - Trial projects

Terms for this presentation

- This training is applicable to transportation organizations. In this training, we will use the word “agency”. You can substitute any of the following:
    - Department
    - DOT
    - Administration
    - Ministry
    - Etc.

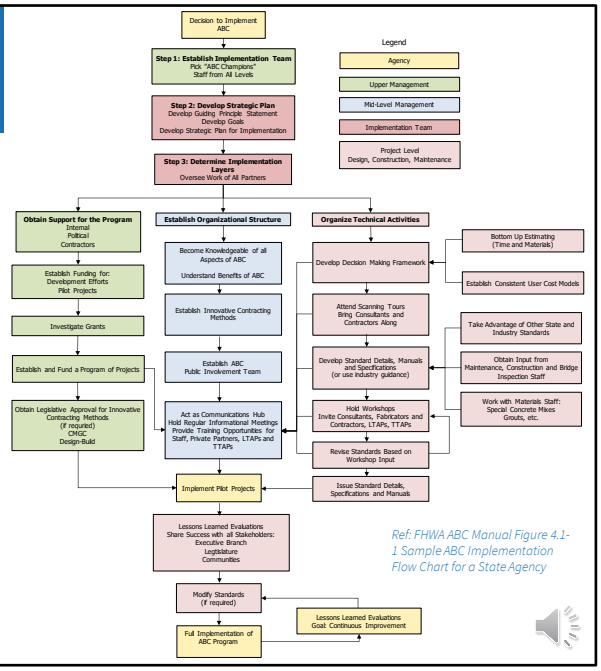
We will be using a common term for different types of transportation organizations, as several different terms are used by different states. In this training we'll use the word “agency” to refer to:

- Departments;
- Departments of Transportation;
- Administrations;
- Ministries;
- or any other term used to describe a transportation organization.

Suggested ABC Organization

Based on successful programs (Utah)

- 3 Levels of implementation
  - Upper management
  - Mid-level management
  - Project level
- 3 Layers of activities
  - High-level program
  - Organizational structure
  - Project-level implementation
- A single ABC unit cannot effectively re-direct an entire agency



Ref: FHWA ABC Manual Figure 4.1-1 Sample ABC Implementation Flow Chart for a State Agency

The FHWA manual includes a chapter devoted to the subject of a recommended organizational structure for an ABC program within an agency. The basis of this structure is the successful Utah DOT ABC program.

It is recommended to have three levels of implementation within an agency. This includes upper-level management, mid-level management, and project-level management. ABC projects are managed by multiple groups within any agency. It is important to have all agency personnel on the same page when it comes to the implementation of an ABC program. If all groups are not working together, there is potential for the program to hit roadblocks and potentially fail.

Key features of this structure include:

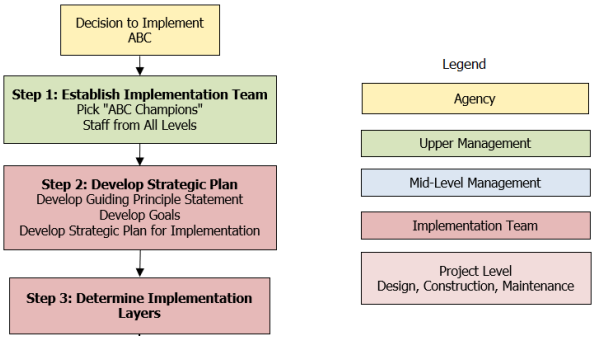
1. An ABC Implementation team
2. High-level upper management support
3. Mid-level management organizational efforts
4. Project level design, construction, and maintenance staff

In the next slides, we will dive a little deeper into each of these portions of the structure.

First Steps

Getting started: Establish a policy then…

- Step 1: Implementation Team
- Step 2: Strategic Plan
- Step 3: Determine Implementation Approach



Before implementing a program, the agency needs to make a decision to establish an ABC program and to make it policy within the agency. Once this decision is made, the following steps can be undertaken to implement the ABC program.

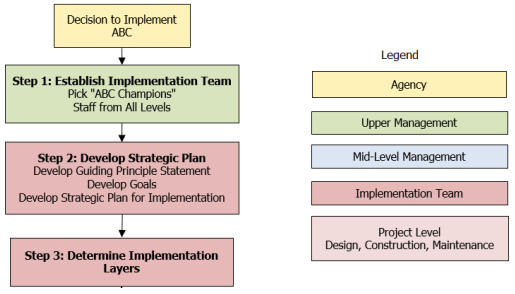
The recommended first step in the process is to establish an implementation team. This step is undertaken by upper management with the goal of selecting "ABC Champions" in each division of the organization. These champions will be the flag bearers for the agency in each of their respective offices for the implementation and execution of the ABC program.

Recommended second step in the process is to develop a strategic plan for the ABC program. This work can be undertaken by the implementation team considering all aspects of the ABC deployment.

The recommended third step is the development of the implementation approach within the organization. Each organization has a different structure and different goals; therefore, there is no one specific approach that can be applied to any agency. The goal is to tailor the program to match the agency's goals and structure.

Step 1: Establish Implementation Team

- Team make-up
  - Upper management:
    - Administration
  - Mid-level management
    - Unit heads
  - Project-level
    - Design team leaders
    - Construction managers
    - Materials staff
  - These folks will be the champions of ABC within the agency
  - They will get the ball rolling and oversee the implementation of ABC
  - Act as a resource to all units

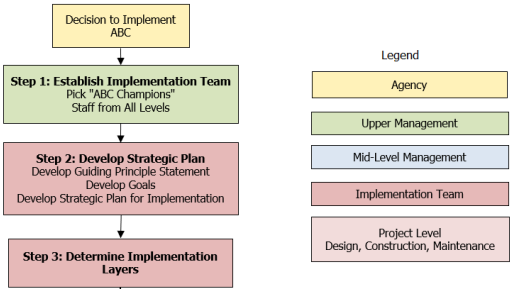


As previously stated, the implementation team should be made up of individuals from all levels within the agency. There should be representation from upper management that can report back to the administration on the progress of the implementation and offer suggestions for the organization of the entire program. Mid-level managers should also be included, which would typically include agency unit heads and group managers. The group can then be rounded out by project-level leaders who are familiar with department policies and programs for the implementation of actual construction projects.

By having members from all three levels of an organization, the team can effectively act as champions for the ABC program and be able to communicate the entire approach to staff. They can also be used as a resource for disseminating information regarding ABC and the proposed program. With this approach, the agency can be assured that there will be uniform buy-in by all staff involved in an ABC program.

Step 2: ABC Strategic Plan Development

- Development of a strategic plan is not an engineering function
- This is an organizational management function
- In order to develop a strategic plan for the implementation of an ABC program we need to:
  - Use a business management approach



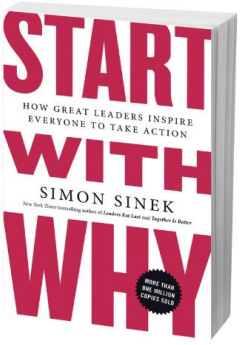
Step 2 in the implementation of an ABC program is the development of a strategic plan for the program. Without a strategic plan, an organization can easily lose sight of the reasons for the program and the goals of the program, leading to confusion among agency units and staff.

The development of a strategic plan is not an engineering or an organizational management problem. All successful organizations have specific strategic plans that are used to guide the organization to achieve whatever it is setting out to do.

To develop a successful strategic plan for the implementation of an ABC program, it is recommended that a business management approach be applied. In the following slides, we will explore ways to approach the development of a strategic plan for an ABC program.

Strategic Plan Development

- Start with "WHY"
  - Best selling book by Simon Sinek
  - Ted Talk Series (check it out on YouTube)
- We need to clearly define "WHY" we are using ABC and write it down
- Develop a "Guiding Principle Statement"
  - A simple short statement is preferred
- Everything that we do in an ABC program needs to be based on the "WHY"



Best Selling Book
"Start with Why"

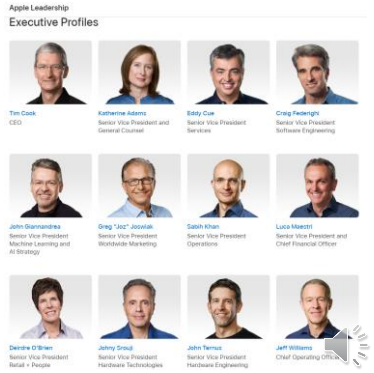
The basis for the recommended approach for the development of a strategic plan for an ABC program is the best-selling book by author Simon Sinek entitled "Start with Why". This book is based on a Ted Talk presentation of the same title that was wildly popular, leading to the writing of the book. This is the national bestselling book that has received wide acclaim in the business world. I encourage you to view a recording of the Ted Talk on YouTube. You can simply search "Start with Why" to find this recording. I also encourage you to purchase the book and read it as it goes into much more detail than the actual Ted Talk.

The simple approach to this method is to clearly define "WHY" we are using ABC and write it down in a clear and concise statement. I like to refer to the statement as a "Guiding Principle Statement". It can also be referred to as a "Strategic Statement" or "Mission Statement". It is important to keep this statement very short so that it can be recalled easily by all staff in an agency. It is easy to write paragraphs for this effort, however, long statements will be lost to most in a short time, while a simple statement can be remembered by all.

It is important to understand that this statement is the backbone of the ABC program. Everything that an agency does should be based on the Guiding Principle Statement or the "WHY".

The Apple Story

- Apple has an excellent “Why”
  - They don’t even put it in writing
  - They just demonstrate it in their advertising
    - We are not IBM or Microsoft
  - 1984 Introduction of the Macintosh
    - Orwellian depiction of IBM
    - Apple woman breaks the screen
  - 1990s Commercials
    - I’m a PC: Person in a suit
    - I’m a Mac: Person in jeans and a hoodie



There are many successful organizations in the world. Most of them have a clear “WHY” statement. We will now explore several companies where this approach has led to success. One might question why we are using a business as an example when trying to organize a transportation agency. The reality is that all organizations can be successful using this approach whether they are a multi-billion dollar company, a small business, a committee, or a transportation agency. To move forward, an organization needs to know why they exist and what its core values are.

We can all agree that Apple is one of the most successful companies on the planet. Apple has an excellent “WHY”, even if they don't put it in writing. Their successful advertising campaign includes images and examples of what sets them apart from their competition.

This all started back in the 1980s when Apple was still a small company. They established their “WHY” in some of their earliest commercials. The 1984 commercial that introduced the Macintosh showed an Orwellian society, where people appear to be zombies following the orders of the corporation, meaning IBM. A woman that represents Apple runs in a shatters the computer screen with a hammer. The ad only says “In 1984, Apple will introduce the Macintosh computer and you’ll see why 1984 will not be like 1984”. They do not even talk about the computer, its features, or its price. They are professing a movement, not a product. You can find this video on Youtube.

Later commercials from Apple in the 1990s depict two men on the screen. One says; “I’m a PC”. He is dressed in a suit. The other man says; “I’m a Macintosh”. He is dressed in jeans and a tee-shirt. This identifies their “WHY”, which is that they are not IBM or Microsoft.

The photo to the right is from their website, showing their corporate leadership. Note that all are shown

dressed casually. Another example of their “WHY”.

The Apple Story

- So…What is Apple's "Why"?

  We are not Microsoft or IBM

  We are for younger people, not your dad

  They don't even talk about their products in most of these commercials.

What can we take away from these two advertisements? The underlying theme is that Apple is not a big corporation as depicted in the George Orwell novel "1984".

They are a company that redefines what computers can be and who their clientele is. Their message is that they are not IBM or Microsoft. They are not your parents' company. They represent the younger generation and are looking to break the mold of corporate mega-companies. Ironically, at this time Apple is probably larger than its competitors, however, it still manages to maintain the image of a smaller nimble corporation.

Apple has successfully marketed this image in everything that they have done since the beginning.

The Harley Davidson Story

- Harley Davidson has an excellent “Why”

OUR MISSION

More than building machines, we stand for the timeless pursuit of adventure. Freedom for the soul.

- They are selling a lifestyle
- More important than “building machines”
- They don’t even mention “motorcycles” in the mission statement

Let's look at another example of a company with an excellent “WHY” statement. Harley-Davidson is arguably one of the most successful motorcycle companies in the world, especially in the United States. Their mission statement or strategic statement is: “More than building machines, we stand for the timeless pursuit of adventure. Freedom for the soul.”

They do not say anything like our motorcycles are fast, or better, or less expensive, etc. They do not even mention motorcycles. They are selling a lifestyle that is embraced by virtually any Harley Davidson rider on the street.

What does this show? Again, they do not showcase their products, their statistics, etc. They are selling a lifestyle. Does this work? Yes, quite well. They have a clear “WHY” statement.

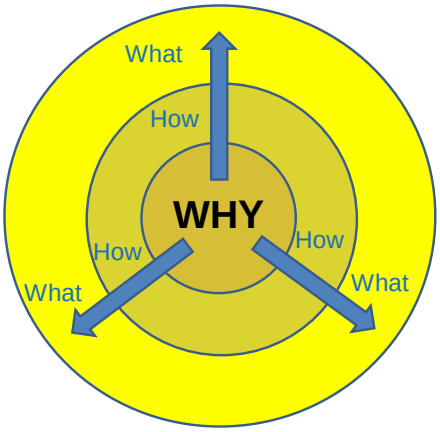
How does this apply to ABC?

- These companies have been very successful
- An agency needs to be successful
- As an agency, you need a clear vision as to “Why” we are pursuing ABC.
- From there, you can build a successful program
- Let’s explore this concept……

How do we apply these examples to ABC? We can all agree that these companies are extremely successful. A transportation agency embarking on an ABC program also should strive to be successful. As an agency, you need to have a clear vision as to “WHY” we are pursuing ABC. From there, you can build a successful program.

In the next slides, we'll explore this concept and how it can be applied to an ABC program.

How to create a successful program



- The concept of the "Golden Circle"
  - Every process needs to be based on the "WHY" (origin of the circle)
  - The "HOWs" are the processes to achieve the desired outcomes
  - The "WHATs" are the desired outcomes

In Simon Sinek's book, he details the concept of the "Golden Circle". This forms the basis of a successful organization. It is a simple concept, which is why it is so powerful.

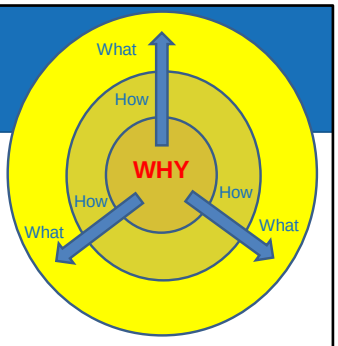
As previously stated, any successful program should be based on the "WHY".

The outer circle is the "Whats", or the goals of the program. You can have many goals, but typically you can focus this down to between 5 and 10. We will explore this in subsequent slides.

The middle circle includes the "Hows". The "Hows" are the processes that will be followed to achieve the "Whats", which is essentially the "Strategic Plan" for the program.

The key is that each goal and each plan should be based on the "WHY".

Start with "WHY"



The ABC Team should determine the messaging for WHY do we use ABC?

- Fortunately, as an industry, we have stated this already
- FHWA ABC website (and virtually every ABC publication)
  - Improved safety for travelers and workers
  - Improved quality and durability
  - Reduced user impacts (Time = $$)
  - Reduced environmental impacts
  - Reduced construction management costs
- Develop a "Guiding Principle Statement": My idea…..
  "Changing construction to better serve society"
  - The agency can develop something similar depending on the needs of the agency

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As the book says, let's "Start with Why". Why do we use ABC? Fortunately, 15 years of deployment has answered this important question for us. The FHWA ABC website has probably the best answer to this question.

ABC Provides:

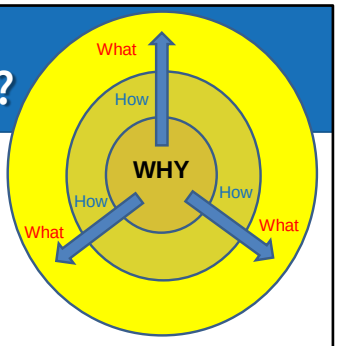
- Improved safety for travelers and workers
- Improved quality and durability
- Reduced user impacts (Time = $$)
- Reduced environmental impacts
- Reduced construction management costs

You can probably come up with a few more reasons that apply to your organization.

From this "WHY", your agency can develop a Guiding Principle Statement that will resonate with your area. It is recommended that the implementation team discuss this and formulate a statement. The Sinek book gives several recommendations, including a recommendation to start the statement with a verb.

I have come up with my thought for a statement as, "Changing construction to better serve society." This is just an example, numerous similar statements can be developed by your agency. I suggest that the implementation team read the Sinek book and work from there.

"WHAT" do we want to accomplish with an ABC Program?



Based on the Guiding Principle Statement, the ABC Team should identify WHAT should be accomplished in an ABC Program

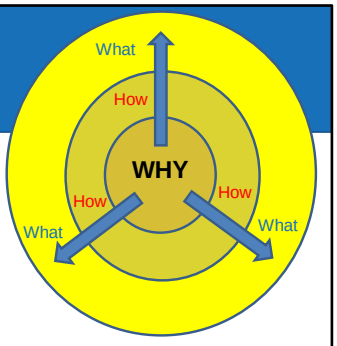
- Identify the goals of the program
- Develop a framework for an ABC Program
- Use the SMART principle
  - Specific
  - Measurable
  - Achievable
  - Relevant
  - Time based

Now that we have defined the "WHY", we can start looking at "WHAT" we want to accomplish in an ABC program. This is the recommended second step in the golden circle process. The "WHATs" of a program are the goals that an agency wants to achieve. The key measurement of an appropriate goal is that it is based on the Guiding Principle Statement that was previously developed.

Each goal should be developed using the SMART principle. The letters in the word SMART are an acronym for:

- **Specific:** The goal should not be a vague statement but be clear and specific concerning the program.
- **Measurable**: It is preferred that the goal has measurable aspects such that the team can quantify the results and achievement of the goal.
- **Achievable**: The goal needs to be realistic and achievable. Setting unrealistic goals typically results in the failure of that specific goal.
- **Relevant**: The goal needs to be relevant to the ABC program, specifically, it should be based on the Guiding Principle Statement.
- **Time-based**: Each goal should have a time limit that is consistent with the overall goals of the ABC program.

“HOW” do we get there?

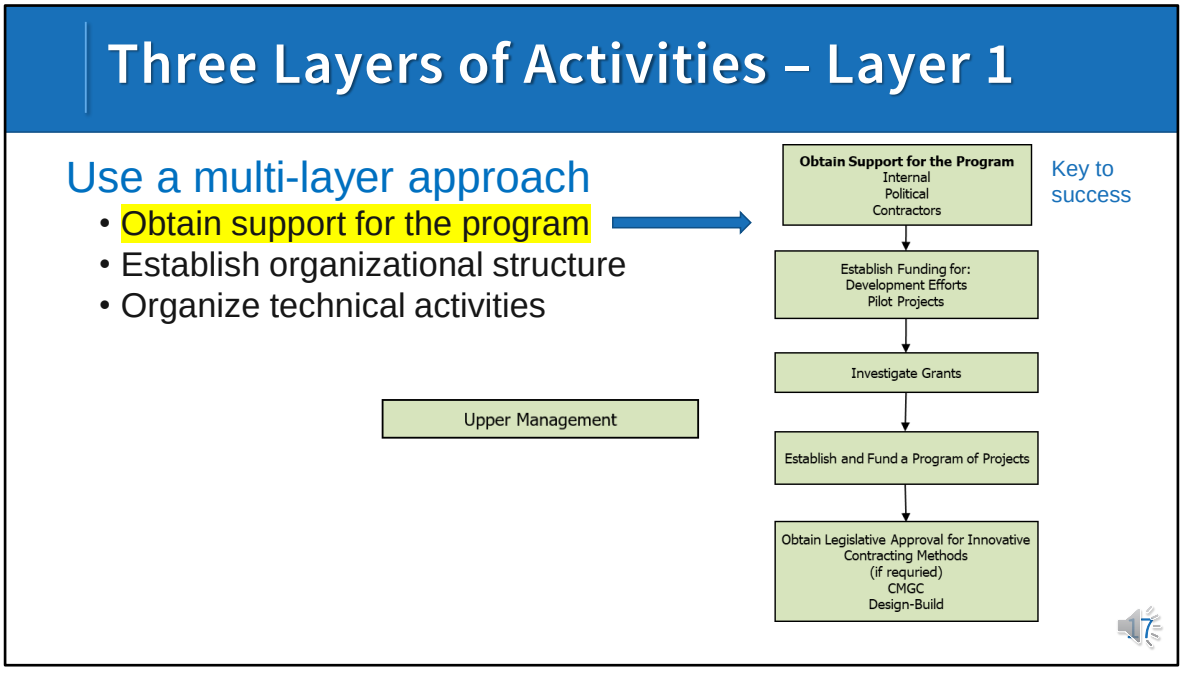


The ABC implementation team can then develop a strategic plan

- We know the “WHY” and the “WHAT”, what about the “HOWs”?
  - Determine the tools necessary to establish an ABC Program
  - Connect the WHY to the WHATs
  - This training will provide a suggested roadmap

Having developed the “WHY” and the “WHATs”, the implementation team can move on to developing the “HOWs”, which is also known as the strategic plan. This process will develop the tools necessary to execute the ABC program. The “HOWs” of the golden circle process connects the “WHY” to the “WHATs”.

In the following slides, we will provide a suggested road map for this process.



As previously discussed, a multi-layer approach is recommended for the implementation of an ABC program.

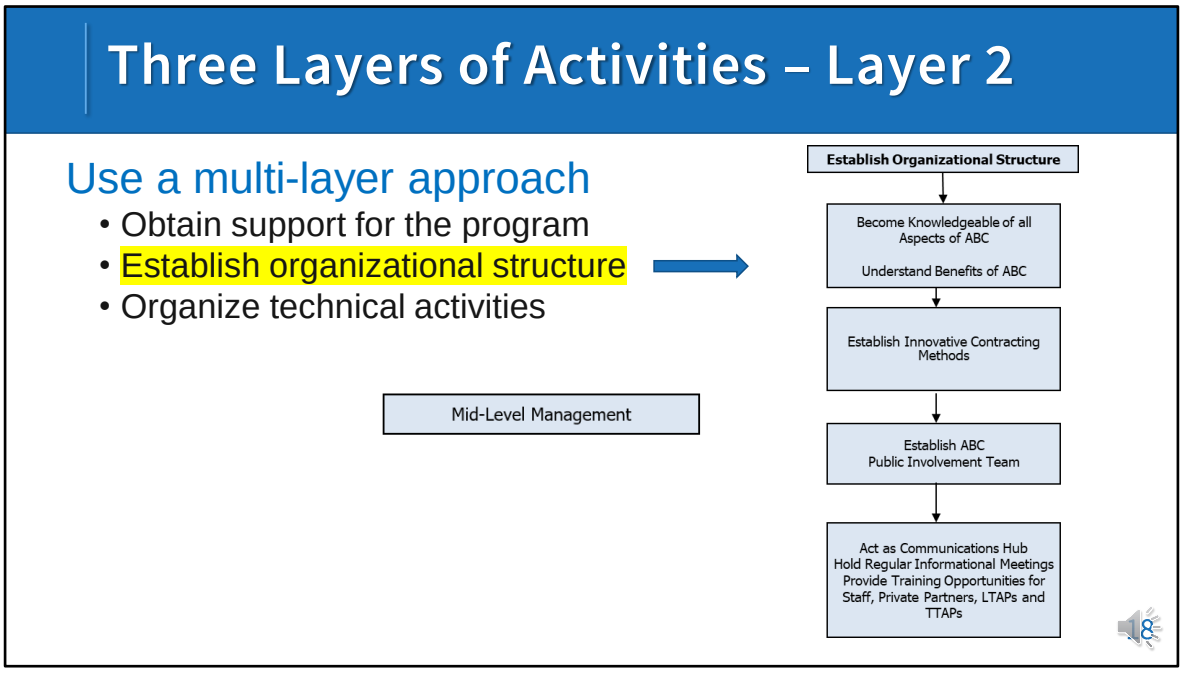
The first layer of activity of an ABC program is to **Obtain Support for the Program.** ABC is a paradigm shift from conventional construction. It affects all aspects of project delivery. This change in convention can lead to pushback at all levels. This needs to be addressed during the development of an ABC program and is best addressed and led by **Upper Management**.

Support comes in three forms:

- **Internal Support**: This involves bringing all levels of an agency together to achieve the common purpose of implementing ABC. This includes staff from design, project management, and construction. Other units within an agency may inevitably need to be involved as well.
- **Political Support**: This involves collaborating and educating political entities. It is important to include this outreach as ABC has a significant impact on the traveling public. There are short-term negative impacts during short duration closures, but also significant positive impacts in the overall construction process. Politicians need to know these impacts and be prepared to respond to inquiries when they occur.
- **Contractor Support:** It goes without saying but the impact of ABC on contractors is significant. The agency needs to reach out to contractor organizations to educate them regarding the impacts and changes that can be expected. The ultimate goal is to obtain buy-in to the program from the contracting community.

All of these are not easy tasks. In subsequent slides, we will explore recommended ways to obtain

support from these key stakeholders in the ABC program.



The second layer of activity of an ABC program is to **Establish an Organizational Structure** for the Program. This layer of activity is best managed by **Mid-Level Management**.

All groups within the organization need to become knowledgeable in all aspects of ABC and understand its benefits. This can be done through training and workshops.

Innovative contracting methods may be incorporated into an ABC program. If this is the case, mid-level management would need to establish these contracting methods and organize teams to administer them.

Every successful ABC program includes a significant public involvement team. Most agencies have these teams. The public outreach personnel also need to be educated on the benefits of ABC so they can accurately interact with the public on a project level and a program level.

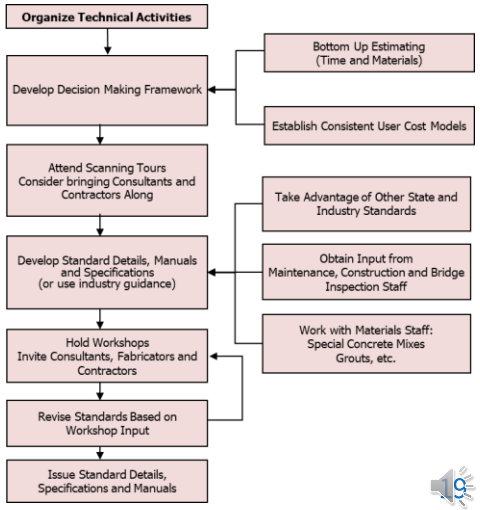
The mid-level management team should act as a communications hub for the entire program. These managers should hold regular meetings with staff and provide training opportunities for the staff and other key stakeholders, including consultants.

Three Layers of Activities – Layer 3

Use a multi-layer approach

- Obtain support for the program
- Establish organizational structure
- Organize technical activities

Project Level
Design, Construction, Maintenance



The third layer of activity of an ABC program is to **Organize Technical Activities** for the Program. This layer of activity is best managed by **Project Level Management**.

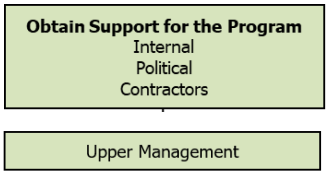
Key aspects of this layer include:

- **Development of an ABC decision-making framework**: Deciding where to use ABC can be a challenge. An agency needs a method for making this critical decision. This will be covered in a subsequent module of this workshop.
- **Develop standard details, manuals, and specifications:** There are many details and manuals available throughout the industry. For instance, PCI Northeast has a significant library of recommended guide details that can be found at www.pcine.org. Agencies can use these details to build a library of acceptable details.
- **Hold workshops**: It is important to train internal staff, consultants, fabricators, and contractors to reduce or eliminate potential problems with designs and construction. There are significant training opportunities available at little or no cost, including over 150 webinars on the Florida International University ABC website.

Obtaining Support for an ABC Program

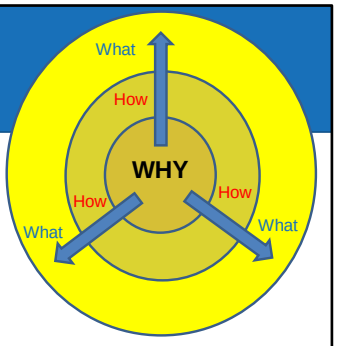
This is a key feature of a successful ABC program

- Step 1: Internal agency buy-in
- Step 2: Gain political support
- Step 3: Contractor engagement



As previously discussed, an important early task is to gain support for the ABC program from internal agency staff, politicians, and contractors. In the following slides, we will explore ways to gain support for these three key stakeholders.

Step 1: Internal Agency Buy-in



- Upper management
  - They need to be educated as to the benefits of ABC
  - This can be done with facilitated workshops/meetings
    - Open discussion about the aspirations of the program
    - Understanding of the benefits
    - Learning and understanding the meaning of the Guiding Principle Statement
  - Why is this important?
    - They need to be the flag bearers for external communications

The first step in gaining support for an ABC program is internal agency buy-in. This starts with educating upper management.

The recommended approach for this is to have a facilitated workshop or meeting with all key players of upper management in attendance. This get-together can be facilitated by the implementation team or an outside consultant. The discussion should focus on the aspirations of the program with an understanding of the benefits of ABC. The Guiding Principle Statement should be reviewed and understood by all.

The reason education of upper management is the first step in the process is that they are typically called upon to be the flag bearers for the ABC program development.

Step 1: Internal Agency Buy-in

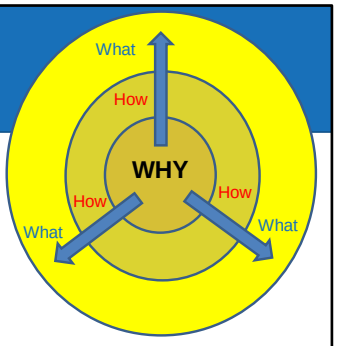
Suggested upper management meeting agenda

- Benefits of ABC
  - Review the Guiding Principle Statement, Goals, and how to achieve them
- Aspirations of an ABC program
  - Train staff (design and construction)
  - Establish an ABC decision process (apply to each bridge)
  - Collaborate with construction industry
  - Collaborate with the legislature
- Upper management role in an ABC program
  - Be the liaison between the agency and the legislature
  - Be the public flag bearer for ABC
  - Provide the resources to establish an ABC program

This slide contains a suggested agenda for the meeting with upper management. Again, the basis of this meeting is the Guiding Principle Statement, goals, and strategic plan for the implementation of ABC that would have been developed by the implementation team.

Each agency is different. This agenda should be modified based on the program chosen by the implementation team.

Step 1: Internal Agency Buy-in



- Design staff
  - They need to be educated as to the benefits of ABC
  - This can be done with facilitated workshops/meetings
    - Open discussion about the aspirations of the program
    - Understanding of the benefits
    - Learning and understanding the meaning of the Guiding Principle Statement
  - Training: How to design with ABC
  - Why is this important?
    - We need to develop buildable and efficient designs

The second level of internal agency buy-in is the design staff that is responsible for developing plans, specifications, and estimates for actual ABC projects. This group also needs to be educated as to the benefits of ABC, the Guiding Principle Statement, the goals of the program, and the strategic plan for implementation of the ABC program.

As with upper management, this can be done through a facilitative workshop or meeting with all key design staff in attendance. Some agencies have established ABC design teams that focus on this effort, which is acceptable. Depending on the size of the program, the agency may want to consider educating all design staff.

This get-together can be facilitated by the implementation team or an outside consultant. The discussion should focus on the aspirations of the program with an understanding of the benefits of ABC. The Guiding Principle Statement should be reviewed and understood by all.

Step 1: Internal Agency Buy-in

Suggested design staff meeting agenda

- Benefits of ABC
  - Review the Guiding Principle Statement, Goals, and how to achieve them
- ABC Design
  - Review of ABC methods to be adopted by the agency
  - Review ABC decision process
  - Discuss training program for staff on design with ABC methods
  - Review potential ABC construction specifications
- Design staff role in an ABC program
  - Design and deliver ABC projects
  - Establish standard details
  - Oversee consultants designing ABC projects
  - Be a resource to the construction staff for ABC projects

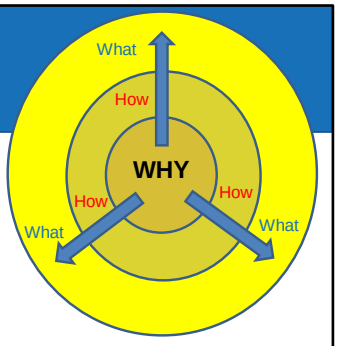
This slide contains a suggested agenda for the meeting with the design staff. Again, the basis of this meeting is the Guiding Principle Statement, goals, and strategic plan for the implementation of ABC that would have been developed by the implementation team.

The opportunities for training of design staff should also be discussed. As previously stated, there are significant training opportunities available.

The anticipated roles of the design staff in the overall ABC program should be covered in this meeting. These roles are normally established as part of the strategic plan that would have been developed by the implementation team.

Each agency is different. This agenda should be modified based on the program chosen by the implementation team.

Step 1: Internal Agency Buy-in



- Construction staff
  - They need to be educated as to the benefits of ABC
  - This can be done with facilitated workshops/meetings
    - Open discussion about the aspirations of the program
    - Understanding of the benefits
    - Learning and understanding the meaning of the Guiding Principle Statement
  - Construction Benefits
    - Safety, lower CEI costs, etc.
  - Why is this important?
    - They are at the front line with the contractors

The third level of internal agency buy-in is the construction staff that is responsible for executing the ABC projects. This group also needs to be educated as to the benefits of ABC, the Guiding Principle Statement, the goals of the program, and the strategic plan for implementation of the ABC program.

As with the other groups, this can be done through a facilitative workshop or meeting with all key construction staff, including materials testing staff.

This get-together can be facilitated by the implementation team or an outside consultant. The discussion should focus on the aspirations of the program with an understanding of the benefits of ABC. The Guiding Principle Statement should be clearly reviewed and understood by all.

Step 1: Internal Agency Buy-in

Suggested construction staff meeting agenda

- Benefits of ABC
  - Review the Guiding Principle Statement, goals, and how to achieve them
- ABC construction
  - Review of ABC methods to be adopted by the agency
  - Review ABC decision process
  - Discuss training program for staff on ABC methods (construction)
- Construction staff role in an ABC program
  - Oversee construction of ABC projects
  - Changes to current methods
    - Use of precast
    - Connections used with prefabricated elements and systems
    - Specialized materials used in ABC
  - Quality control of prefabricated elements

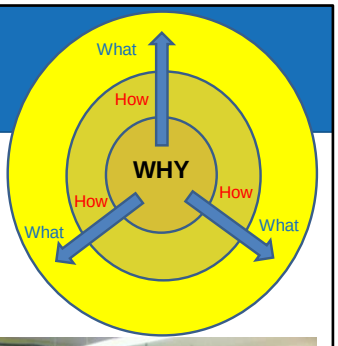
This slide contains a suggested agenda for the meeting with the construction staff. Again, the basis of this meeting is the Guiding Principle Statement, goals, and strategic plan for the implementation of ABC that would have been developed by the implementation team.

The opportunities for training of construction staff should also be discussed. As previously stated, there are significant training opportunities available.

The anticipated roles of the construction staff in the overall ABC program should be covered in this meeting. These roles are normally established as part of the strategic plan that would have been developed by the implementation team. ABC has a significant impact on the way that we build bridges, with more of a focus on precast concrete elements that are connected in the field. The changes in normal practices should be clearly emphasized. This includes connections and specialized materials. Quality control with prefabricated construction should be understood by all. The 2018 AASHTO LRFD Guide Specifications for ABC contain significant construction provisions. These should be reviewed in detail.

Each agency is different. This agenda should be modified based on the program chosen by the implementation team.

Step 2: Gain Political Support



- Political
  - Politicians need to be educated as to the benefits of ABC
  - Why is this important?
    - The public will contact them, and they listen
    - Happy travelers are happy voters
    - Politicians secure funding for projects

The second step in gaining support for an ABC program is political buy-in. One might think that this is not necessary; however, this can be one of the most important steps in the development of an ABC program.

Why is this important? If certain players have issues with an ABC program (contractors, the public, etc.), they will most likely not call upon the DOT. They may very well contact local and state politicians. If these people are not on the same page as the agency, then the program can come to a grinding halt. Agency upper management should hold regular meetings with transportation committees, local politicians, and even the governor. They should be educated about the benefits of ABC and why the agency is pursuing an ABC program.

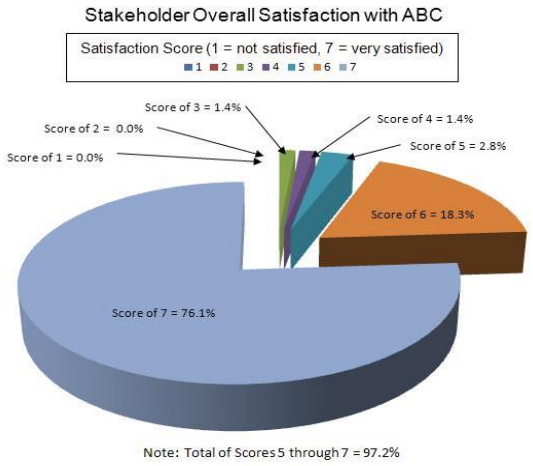
Politicians often get calls from citizens regarding short-term closures of roadways, that is often the case with ABC projects. The politicians need to know the big picture and be able to explain the reasons for using ABC. They should clearly understand that one of the overarching goals of ABC is to reduce impacts on the traveler. This has proven to be a positive impact on travelers. We often lose sight of the fact that travelers pay taxes and expect efficient construction in return.

The photo on the lower right was taken at the project field office for the Massachusetts DOT I-93 Fast14 ABC project. The gentleman at the end of the table in the suit is the governor of the state of Massachusetts. He was informed of the ABC program before the project started and wanted to come out to the field to see the progress with his own eyes. This demonstrates the power of political support that ABC can bring.

Step 2: Gain Political Support

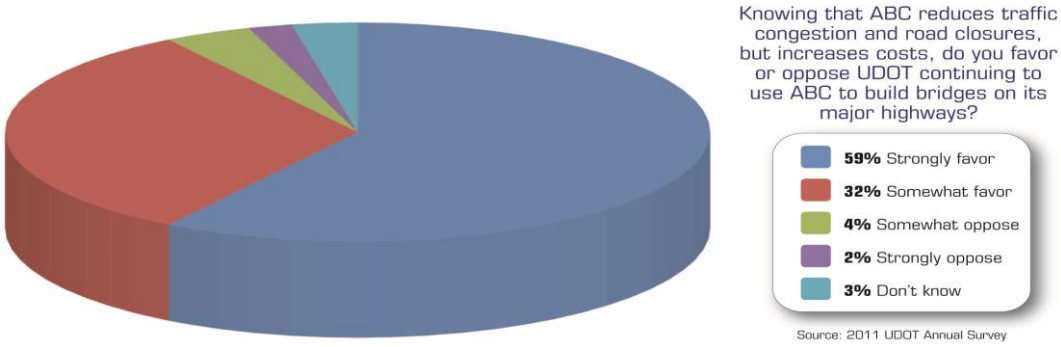
Use information from successful programs

- 2009 Utah DOT survey



This slide provides information that can be used to gain political support. The Utah DOT routinely performs stakeholder satisfaction surveys. The graphic shows the results of a 2009 survey that was held early in the Utah DOT ABC program. Stakeholders were asked about their overall satisfaction with ABC. Over 94% of the respondents were either very satisfied or satisfied with the results. As noted on the previous slide, happy travelers are happy taxpayers. Politicians take note of this sort of data.

Step 2: Gain Political Support

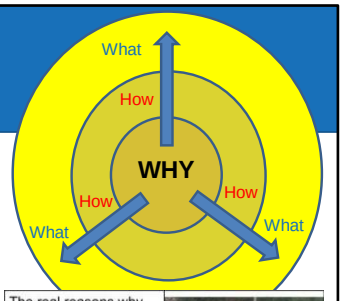


2011 Utah DOT survey

Critics of ABC in Utah, namely contractors, noted that if travelers knew the cost of ABC, they might not be as satisfied with the program. In 2011, the Utah DOT did another survey, but prefaced the question by stating that ABC was more expensive than conventional construction. The percentage of people that favored ABC dropped from 94% to 91%. This again is very compelling data to share with politicians, especially if the agency is looking for additional funds to support an ABC program. The consensus is that travelers are willing to pay more for less disruption.

Utah DOT and the Connecticut DOT have used this data to gain support for ABC programs.

Step 2: External Buy-in

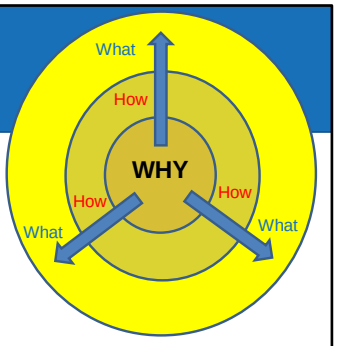


- Public involvement
  - We need to educate the public about what we are doing and WHY we are doing it.
  - Normally done as part of the public outreach process
  - Why is this important?
    - We often plan short-term increases in impacts for long-term reductions in impacts.
    - The public needs to know the big picture and why
    - Initially there will be a trust issue
    - They have driven for years through work zones
    - We are the butt of their jokes
    - A few successful ABC projects can turn that around fast

Included in the second step of gaining political support is engaging the public. ABC will have significant short-term impacts on travelers. They need to be educated about the big picture, which is to reduce overall impacts on travelers. This can be done through normal public outreach programs, such as websites, press releases, and public meetings.

Over the last 30 years, we as an industry have trained the public to expect long construction projects as we reconstruct our aging infrastructure. Transportation agencies have become the butt of jokes regarding infrastructure construction. The agency can communicate the benefits of ABC and why the agency is pursuing it. This is often met with skepticism due to years of long-duration projects. A few successful project examples should turn that around.

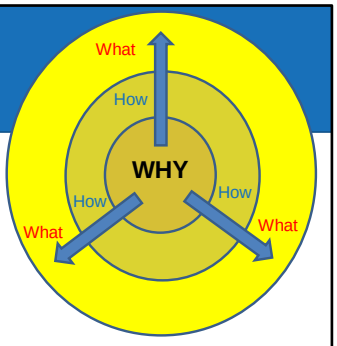
Step 3: Contractor Engagement



- Contractors
  - We need to educate contractors about what we are doing and WHY we are doing it.
  - If we don't do this….
    - Given a chance, contractors will switch out precast concrete to cast-in-place concrete

The third step in gaining support for an ABC program is Contractor buy-in. This can be the most difficult process in the implementation. As you can imagine, ABC has a significant impact on Contractors. Several agencies have indicated that contractors routinely switch ABC construction over to conventional construction. In the following slides, we will explore why this is so and how an agency can gain buy-in from this critical group of stakeholders.

Step 3: Contractor Engagement



- Why is contractor "buy-in" important?
- If contractors push back…
  - They won't call the design office
  - They will call
    - Agency construction office
    - Agency management
    - Political leaders
  - If everyone is not on board with the "WHY", the program can fall apart

Why is contractor buy-in so important? In most states contractors have a significant influence. They routinely interact with legislators and agency upper management. If an agency is to embark on an ABC program, the contracting community needs to be part of the process. If not, they may very well push back by contacting agency construction office personnel, agency management, and even political leaders.

With regard to contractors, the goal of the implementation process is to obtain buy-in from them at the start, to head off this potential roadblock in the future. As previously discussed in this training, everyone needs to understand the "WHY" of the program. The goal is to have everyone in the ABC boat rowing in the same direction.

Step 3: Contractor Engagement

Why may contractors dislike ABC?

- They like to pour concrete
  - They are staffed and equipped for cast-in-place concrete work
  - Precasting takes work away from their staff
- Staffing ABC projects can have its challenges
  - You need a lot of staff for a short time
  - What do you do with them after the work is done?
- Potential loss of control over project production and schedule
- Risk:
  - Working with new technologies
  - Risk = $$ = loss of bid advantages

It is important to understand why contractors push back on ABC projects in order to properly engage them in the development of an ABC program.

ABC typically involves a significant amount of precast concrete. Contractors like to pour concrete. They are staffed and have the equipment to pour concrete. By switching to precast, contractors perceive this as a loss of revenue, potential loss of control over the project production, and loss of control of the project schedule.

Construction staffing of ABC projects has challenges as well, especially for smaller contractors. ABC projects typically require significant labor for a very short period of time. Finding the labor is one issue. Keeping that labor busy after the ABC project is a second issue.

Another significant issue with contractors on ABC projects is the acceptance of the inherent risk of accomplishing the construction in a reduced time frame. Risk typically leads to increased costs. Contractors perceive this as a loss of bid advantage by having to increase their bid to cover the risks.

Step 3: Contractor Engagement

How to engage the contracting community on a programmatic level

- An agency can hold regular meetings with the contractor's associations
- Educate them about the "WHY" = Guiding Principle
- Ensure that they know that ABC is agency policy
- Benefits of ABC
  - Less overhead: Do more with less staff
    - Allow self-performance of precast
    - Staff can precast during downtimes with on-site construction
  - Safer work environment:
    - Shorter duration work zones
    - Building off-site
  - Benefits to the traveling public
    - Reduced user costs due to delays
    - Happy motorists = Happy voters = better political support for more highway construction

At first glance, it may seem impossible to bring the contracting community into an ABC program. Several agencies have had success with the engagement of contractors by communicating with them during the development of the program. Agencies should meet with contractors regularly to educate them about the purpose and goals of the program. This all goes back to the "WHY", or the Guiding Principle Statement.

Contractors should be educated about the benefits of ABC and how it could help them in several ways:

- It may be possible to build more projects with fewer staff through the use of prefabrication. One contractor in Utah has indicated that reduced concrete work has allowed them to bid on more projects with the same staff. The current situation, with a dwindling labor market, may have a positive impact on this concern. Contractors may like to pour concrete, but a lack of carpenters and masons may limit their ability to bid on projects. Prefabrication can help this situation.
- Labor peaks and valleys can be better accommodated through the use of prefabrication. Some states allow contractors to self-perform precast construction. This allows them to build precast elements during lags between peak construction periods, potentially solving this concern.
- One of the goals of ABC is to limit the amount of construction time, which results in reductions in work zone setups. Statistics show that injuries and even deaths for workers and travelers increase within work zones. By reducing work zone timeframes, contractors can see a reduction in injuries and deaths.
- The benefits of the traveling public may not seem like a construction issue, but there may be a financial benefit to contractors. As we have seen in previous slides, reducing construction delays for

travelers results in higher user satisfaction. Happy motorists equate to happy voters, which equates to better political support for more highway construction.

Step 3: Contractor Engagement

What can we do to reduce contractor push-back?

- Start with "trial projects"
  - Get everyone on the same page
  - Try several "Practice Projects"
  - Bid a few projects with more relaxed schedules
    - Make it clear that switching to cast-in-place construction will not be allowed even if there is time
      - Build contractor familiarity with ABC without so much risk
      - At some time in the future, there will be projects with much tighter schedules where ABC will be necessary
      - Goal: Reduce risk on future projects through practice
    - This should be clearly communicated with….
      - Agency management at all levels
      - Politicians
      - The contracting community

The inherent risk of ABC projects and the associated cost increases can be mitigated through the use of initial trial projects. The I-93 Fast 14 project in Medford MA, where 14 bridges were replaced in 10 weekends, demonstrates the power of trial projects. The contractor used almost 200 workers to build the first bridge. Later in the project, the same bridge was being constructed with less than half the number of workers as the contractor gained experience.

One way to manage this issue is to start the program with several "practice projects". These projects should have slightly longer schedules, which results in reduced risk to the contractor. It will allow the contractors to become familiar with ABC methods and processes.

The issue with relaxed schedules on these trial projects is that contractors will attempt to substitute conventional construction methods in place of prefabricated construction. This is where early communication with contractors is critical. The agency should indicate that these projects are practice projects, and that substitution of conventional construction will not be allowed. The contractors should be educated on the fact that future projects might have much faster time frames. The slower duration projects are intended to build experience and confidence with ABC methods.

This approach needs to be communicated to all stakeholders in the program, as contractors may still push back with agency management and politicians.

Step 3: Contractor Engagement

Project Level

- Pre-bid conferences
  - Explain why ABC is being used
    - Both programmatic and project level
  - Go through the proposed details
  - Invite comments:
    - Live
    - Post conference
  - Make it clear that switching to cast-in-place concrete will not be allowed

The agency should also engage in project-level communications with contractors. On a project-by-project basis, pre-bid conferences should be held to explain:

- The reasons for the ABC construction: Detail the decision process that was used to pick ABC
- Details: Discuss the type of ABC chosen and the proposed details.
- Listen: Invite comments, both live and in follow-up confidential correspondence.
- Reiterate that switching to conventional construction will not be allowed.

Step 3: Contractor Engagement

How can we make ABC more palatable to contractors?

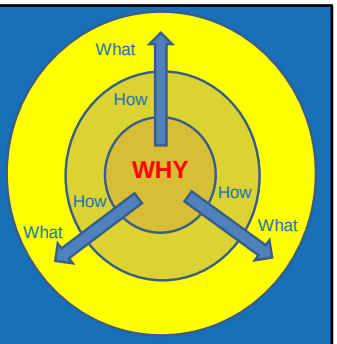
- Relax schedules on early projects
  - But not too much
  - Reduces risk = lower bids
- Limit value of disincentives
  - Reduces risk = lower bids
- Consider allowing self-performance of precasting
  - Require development of QA/QC processes
    - Expected quality should be the same as a precast plant
    - Utah DOT has contractors obtain PCI "Precast" certification
  - Allows the contractor to keep work in-house
  - This has worked well in Utah

There are other ways to make ABC more palatable to contractors:

- Relaxing project schedules: As previously stated, increased project schedules can reduce risk, which will reduce bid prices. The key is not to relax schedules too much, as the goal of an ABC program is to limit impacts on the traveling public.
- Limit the value of disincentives: Many ABC projects include the use of disincentive clauses. Agencies may think of disincentives as penalties to the contractor, however, the cost of these disincentives is often passed on to the agency in the form of a higher bid price. Disincentives have a place in an ABC program, but owners should be aware that excessive disincentives can have a negative impact on the overall project cost.
- Allow self-performance of precast: Several agencies allow contractors to self perform precast construction. As previously stated, this can have a beneficial impact on contractor buy-in. It also helps contractors to manage peaks and valleys in staffing. Agencies should require that contractors develop a QA/QC plan that is similar to what is used in a typical precast plant. The *2018 AASHTO LRFD Guide Specifications for ABC* contains recommended provisions for QA/QC of precast concrete, which can be used as a basis for this effort.

Conclusions

- Instituting an ABC program requires an organizational management approach
  - WHY → WHAT → HOW
  - WHY is the most important aspect
  - Everything we do should be based on the WHY
- Need to engage multiple players
  - All levels of the agency
  - Politicians
  - Public
  - Contractors
- Contractor engagement is important
  - Program level
  - Project Level



Instituting a successful ABC program requires an organizational management approach, not an engineering approach. The approach outlined in Simon Sinek's book "Start with Why " is recommended for this effort. Clearly defining "WHY" an ABC program is to be undertaken is an important first step. From there, the concept of the golden circle can be applied to the development of the program, including the goals of the program and the strategic plan to execute the program.

Once a well-developed plan is in place, it is recommended that a significant engagement process be undertaken at all levels of the agency, with politicians, the traveling public, and especially the contracting community. Contractors should be engaged during the development of the program and then as projects are bid for construction.

End of Module 1

Available ABC Program Management Modules

1. Recommended Approach to Implementing ABC in a Transportation Agency
2. ABC Time and Cost Estimating
3. ABC Decision Making Processes