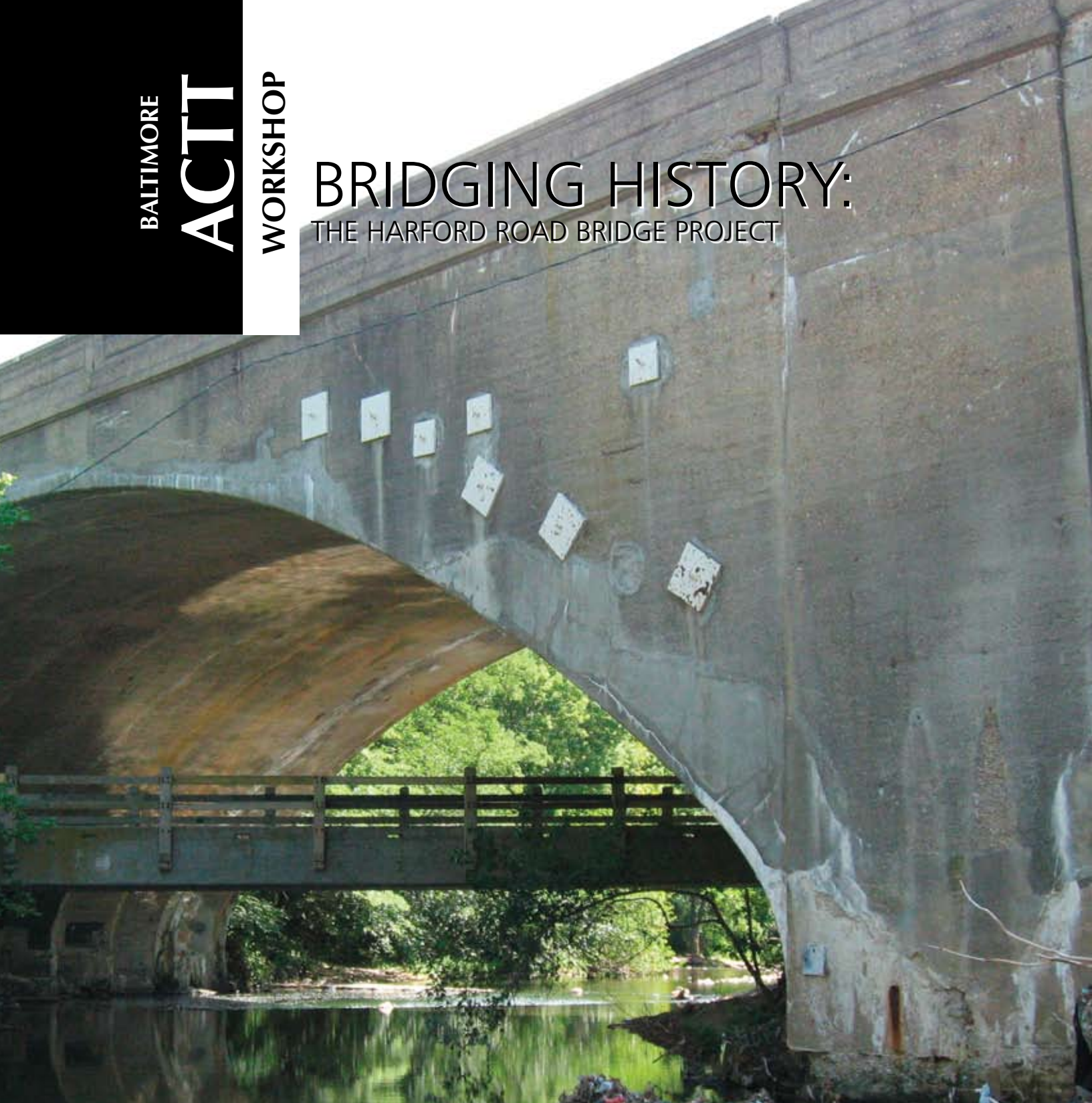


BALTIMORE

ACTT

WORKSHOP

# BRIDGING HISTORY: THE HARFORD ROAD BRIDGE PROJECT



U.S. Department of Transportation  
Federal Highway Administration



# ACTT

ACCELERATED CONSTRUCTION TECHNOLOGY TRANSFER  
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- ACTT provides a fresh outlook by bringing national experts to your planning table.
- ACTT introduces innovations that have been tested elsewhere.
- ACTT saves time: according to FHWA's *ACTT II* report, published in March 2005, "most agencies have found ways to slice construction time by 30 percent or more."
- ACTT saves money: ACTT suggestions enabled New Jersey to reduce its budget for the Route 46 bridge project from \$10 million to \$7.2 million.
- ACTT works for you and your customer!

## How do I ACTT?

- Select a corridor: ACTT is most helpful when applied during the project development phase.
- Make a workshop proposal to ACTT team members, and submit a copy of your proposal to the FHWA Division Office. Include details on the project corridor, timeline and goals.
- Hold a pre-workshop meeting with the ACTT management team.
- Select a meeting site, and coordinate workshop details with the FHWA Division Office.
- Host the workshop.
- Draft a report for submittal to FHWA.
- Incorporate ACTT into project operations.



# BRIDGING HISTORY:

*THE HARFORD ROAD BRIDGE PROJECT*

**COVER PHOTO:**

Harford Road Bridge over Herring Run Park



U.S. Department of Transportation  
**Federal Highway Administration**



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One of the major challenges many Departments of Transportation (DOTs) now face is keeping these parts – the States’ roadways and communications systems – dynamic in light of aging infrastructure, increased congestion and limited transportation dollars.

These are the very issues the Baltimore City Department of Transportation (BCDOT) is dealing with on the Replacement of Harford Road Bridge over Herring Run project, in Baltimore, Maryland.

The \$16 million project features the replacement of the existing Harford Road Bridge over Herring Run Park, which is in need of full replacement due to deteriorating superstructure. The original Bridge is a very unique three span concrete filled arch bridge. The design was patented at the time of construction, and it is important to all involved in the project to build a new structure that maintains the legacy and tradition of the original bridge. Because the Bridge is located on Harford Road, a major North – South gateway into and out of Baltimore City, and crosses a major Park and waterway used by thousands of pedestrians, cyclists, and athletes, disruptions must be kept to a minimum. With an active community park directly below the bridge, stakeholder buy-in and communication are essential to the project’s success.

With this in mind, BCDOT approached the Federal Highway Administration (FHWA) about hosting an Accelerated Construction Technology Transfer (ACTT) workshop for the Replacement of Harford Road Bridge over Herring Run project, Baltimore, Maryland. BCDOT is the first local public agency to conduct an ACTT workshop and has adopted the ACTT mindset and process for future projects.

Together, FHWA and BCDOT identified the following skill sets for the Harford Road Bridge workshop:

- Construction.
- Environmental.
- Public Relations.
- Structures.
- Traffic Engineering/Maintenance of Traffic.

Each team focused on how the ACTT process applied to its area of expertise. The group as a whole searched for innovative ways to help BCDOT accelerate construction of the Harford Road Bridge project.

As the workshop progressed, each team summarized its thoughts and developed a list of priority recommendations. On the final day, each skill set team presented its suggestions to conference attendees. Now that the workshop is complete, BCDOT will evaluate the various recommendations and decide which ideas should be implemented as part of the project.

## 1.1. Opening Session

The BCDOT ACTT replacement of Harford Road Bridge over Herring Run project workshop took place January 8-10, 2008. The workshop was held at the Conference Center at the Maritime Institute (CCMIT) in Linthicum, Maryland.

Baltimore City DOT Director Al Foxx and Dan Sanayi welcomed the group. MD SHA Deputy Administrator Doug Rose was invited but was unable to attend. FHWA Innovative Contracting Engineer, Project Engineer and workshop moderator Jerry Blanding gave a presentation entitled *ACTT - Building on Success*. Participants introduced themselves and



*Al Foxx and Jerry Blanding at the BCDOT ACTT Workshop.*

Whitman, Requardt & Associates (WR&A) Vice President Bill Geschrei provided a project overview. The group then departed on a tour of the project site.

## 1.2. Workshop Process



*Skill Set team members brainstorm during the BCDOT ACTT workshop.*

The BCDOT workshop followed the traditional ACTT process outlined in the "How to" Guide for State Highway Agencies. On Wednesday morning, the ACTT management team discussed the brainstorming

process with workshop attendees. The skill set teams then broke apart to discuss the project and brainstorm preliminary ideas, reconvening before lunch to share initial thoughts. After lunch, the skill set teams continued their work, intermingling with other teams to ask questions and share ideas. The teams spent the remainder of the afternoon preparing final recommendations for presentation to the group on Thursday morning.



*Workshop participants examine project plans.*

### **1.3. Skill Set Goals**

Participants in each skill set had an established group of goals that was unique to its subject area:

#### **Construction**

- Project Phasing.
  - Consider full closure.
  - Eliminate staged construction.
  - Explore cost and schedule savings.
  - Expand staging area.
  - Incorporate enhancements to detour route.
- Structure.
  - Complete re-construction.
  - Eliminate the southern span of The Harford Road Bridge and rebuild the bridge with the new center span on prestressed concrete girders and the northern span on a precast concrete arch structure to be used as a pedestrian access.
  - Reconstruct approaches with new MSW retaining wall.
  - Incorporate pre-cast elements.
  - Consider aesthetics.
  - Accommodate bike path with modified typical section.

#### **Environmental**

- Facilitate Agency Meeting to address all projects occurring at this location.
- Maintain the Environmental Documentation at the Categorical Exclusion level.
- Maintain 4(f) Evaluations as Programmatic.
- Permits.
  - Use Agency Meeting to initiate permit modification request.

#### **Public Relations**

- Public Involvement.
  - Last public meeting July 2005.
  - Need community advocates.
- Inter-Agency Coordination.
  - Project construction.
    - DOT.
    - DPW.
  - Community Outreach.
- Communication Venue.
  - Interactive web site.
  - Radio updates.
  - Business meetings.

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## Structures

- Method of Construction.
  - Consider impacts to traditional stage construction versus closing existing roadway bridge.
  - Close pedestrian path and pedestrian bridge through construction work zone.
  - Eliminate maintaining pedestrian traffic on bridge during staged construction.
  - Modify shoring system.
- Design Considerations.
  - Use bulb tees.
  - Consider use of stay-in-place, precast concrete deck panels, either in lower half with CIP composite topping or full-depth.
  - Consider precast spread footings, abutments, wingwalls, piers, and pilasters.
  - Simplify precast facade details.
  - Reduce 3-span bridge to longer main span with precast concrete arch pedestrian portals on both sides.

## Traffic Engineering/MOT

- Full Closure.
  - Change in bus service (both mass transit and school) along closure and detour routes.
  - Additional staging area for equipment on existing closed road.
  - Safety.
  - Pedestrian access.
  - Pedestrian access under Bridge.
  - School Access.
  - Truck routing.
  - ADA compliance for detour routes and intersection improvements.
- Phased Construction.
  - Better local access (pedestrian, bus, vehicles).
  - Mixed safety concerns (more accidents at construction site, less at detour).
  - Pedestrian access under bridge.
  - Traffic capacity will be cut in half.



## 2.1. Project Overview

The Harford Road Bridge Project includes the replacement of the filled arch bridge over Herring Run with a conventional 3-span, pre-stressed, concrete girder bridge on the same alignment. The proposed bridge will provide similar lane widths as the existing bridge and will include 5 foot sidewalks on both sides of the bridge. Highway approach work includes smoothing out the vertical profile to provide a smoother riding surface.

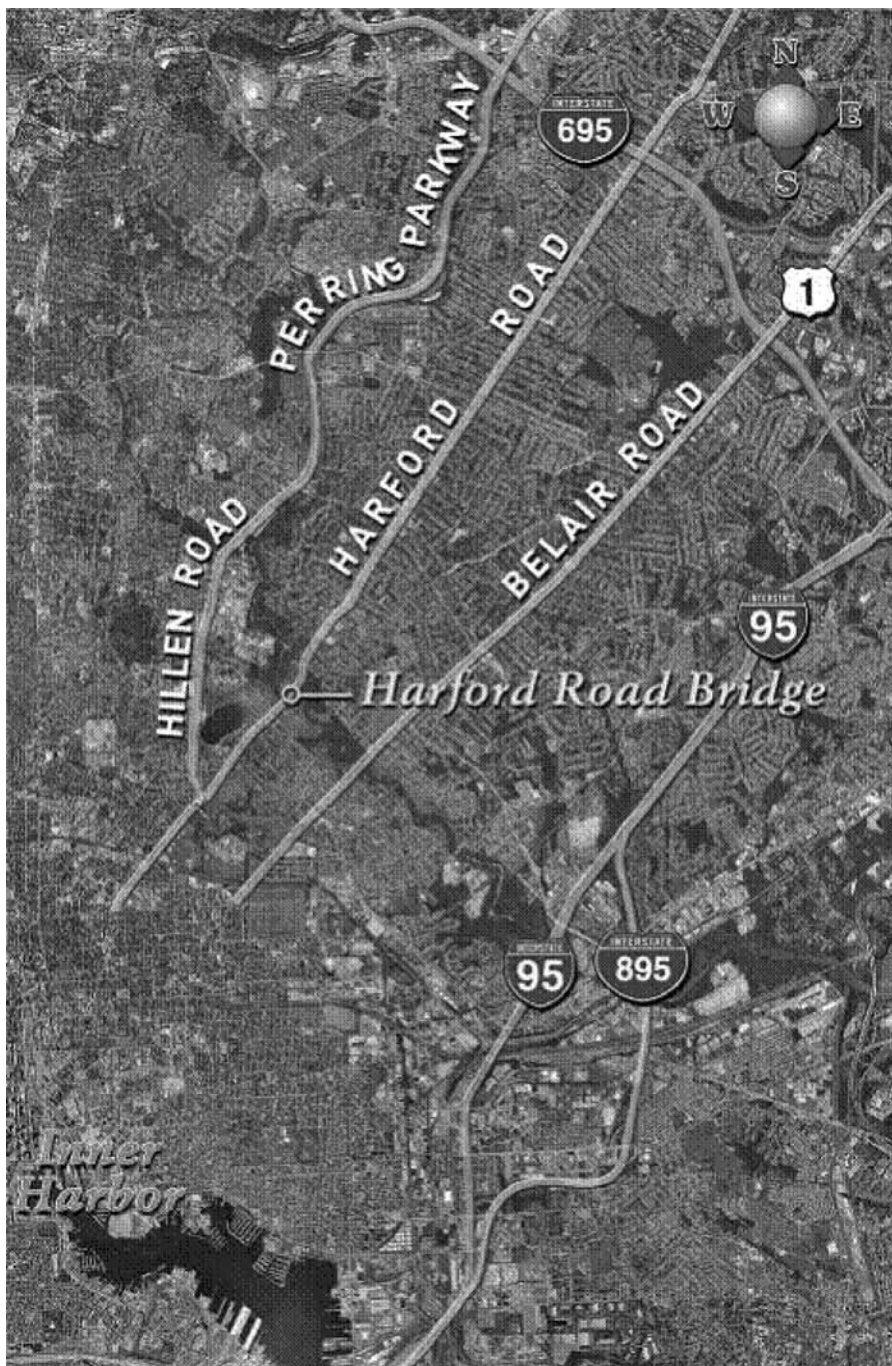


Figure 1. Harford Road Bridge project area.

## 2.2. Project History and Development

Constructed in 1911 and designed by noted arch bridge engineer Daniel Luten, the existing Harford Road Bridge is eligible to be listed on the National Register of Historic Places. The current bridge is a three span concrete filled arch



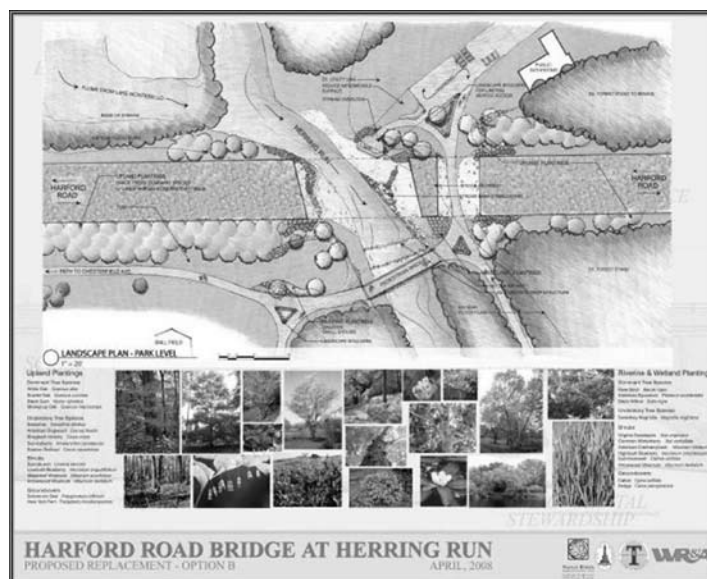
*Harford Road Bridge, 1938.*

bridge which runs over Herring Run and Herring Run Park, an active community park with many involved community stakeholders.

Harford Road, also known as Maryland Route 147, is a major North-South gateway into and out of Baltimore City. Nearly a century after it was built, the historic Harford Road Bridge is showing its age with a fair to poor Bridge Sufficiency Rating (BSR) of 39.6, which makes it eligible for federal funding. Problems with the bridge include arch barrel deterioration, failing spandrel walls, inadequate fill drainage, and an uneven roadway surface. With an Average Daily Traffic (ADT) volume of over 21,000 vehicles, the Harford Road Bridge needs to be replaced in order to continue to handle increasing traffic volumes for the next 100 years.

## 2.3. Project Purpose

The purpose of the Replacement of Harford Road Bridge over Herring Run project is to demolish and replace the existing Harford Road filled arch Bridge over Herring Run which is in need of full replacement due to deteriorating superstructure, while minimizing traffic disruption and impacts to Herring Run Park users and local residents.



*Harford Road Bridge at Herring Run plan concept.*

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## **2.4. Project Challenges**

Due to the location of the project area and its role as a key gateway into and out of Baltimore, it is vital that construction is completed as quickly as possible to minimize impacts to the traveling public. Located above an active and much loved community park, it is crucial that the project team explore effective ways to replace the bridge with minimal environmental and community impact. With many interested, involved and vocal stakeholders, developing a unified public relations campaign and creating a central project repository for all pertinent project information is also key to the project's success. Finally, with the rising cost and availability of materials, cost savings is an issue to be explored.

## **2.5. Project Status**

The anticipated time to construct the bridge using the current 90% complete contract documents is three years. The advertisement for construction for a revised design is scheduled for July 2010. The construction duration for the revised design is estimated to be two years.

### 3.1. Construction

The construction skill set offered the following recommendations:

#### Project Phasing

- Require full closure.
- Eliminate staged construction.
- Incorporate enhancements to detour route.
- Close pedestrian bridge during construction.
- Conduct constructability review.

#### Structure

- Recommend complete re-construction.
- Reduce/eliminate (2) spans.
- Develop modified typical section w/ new MSE Retaining Wall.

#### Park Impacts

- Incorporate enhancements.
  - Aesthetics.
  - New/re-aligned pedestrian access.
- Add temporary pedestrian- bike path access (downstream).

#### Contract Administration

- Explore opportunities for:
  - Partnering.
  - Incentive/ Disincentive.
  - Design/Build.

#### Financing

- Explore innovative financing opportunities through FHWA IFT.

### 3.2. Environmental

The environmental team offered the following recommendations:

**Maintain as many of the existing agreements as possible.**

**Use the existing MOA with the SHPO.**

- Basic premise of mitigation through documentation, design review, and salvage will not change if the construction occurs through full closure of the bridge.
- What is the nature of the “design review” authority provided to the SHPO?
  - Bridge must be designed in concert with the Department of Interior Secretary’s standards.

**Issue a continuance request or modify the non-tidal permit from the Corps.**

- Permit based on worst-case scenario.
- Impacts are not expected to increase if the bridge is closed.

**Consider that 4(f) temporary use of the park will not change with bridge closure.**

- Assumption of less time than with staged construction.
- If pedestrian bridge closure or trail closure occurs, this may affect the 4(f) approval.
- With bridge closure, how much staging can be done off the approaches in order to lessen the staging area in the park?
- Can the time be lessened for staging in the park?

**Prepare Forest Conservation Plan**

- Will be re-evaluated based on any construction plan changes.
- Unlikely to increase the impacts.

### **3.3. Public Relations**

The public relations team offered the following recommendations:

**Arrange for Public Information Management**

- Full time not necessary.
  - Baltimore City Public Affairs staff and liaisons.
  - Project spokesperson – technical: Margaret Martin.
  - Media updates coordinated through BCPA.
  - Public inquiries handled by BCPA.

**Identify Basic Parameters and Negotiable Issues**

- Determine basic non-negotiable items:
  - A new bridge is needed – reconstruct vs. rehab.
  - Four lanes – no widening.
  - Pedestrian access – sidewalk.
  - Sidewalk with barrier.
- Determine negotiable items:
  - Aesthetics/façade (graffiti exists now – resistant paint may be used/consider a mural?)
  - Bike lane separated from travel lanes.
  - Lighting underneath bridge/along pathway.
  - Beautification at bridge approaches – public involvement.

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**Identify all Stakeholders.**

- Business Owners.
- Residents.
  - Nursing Homes.
- Community Associations.
- Commuters.
- Pedestrians.
- Park users.
- Churches/Schools/Institutions.
  - Morgan State University.
  - Montebello Elementary.
  - St. Francis.
  - Mervo High School.
  - Johns Hopkins.
  - Pratt Library – Hamilton Branch.
- Emergency Response/Hospitals (911 List).
- Media.
- Other Government Agencies.
  - MD Transit Admin. (buses).
  - Recreation & Parks.
  - DPW.
  - BCPSS Transportation (School and bus routes).
  - Baltimore County – various.
  - MD SHA.
  - USPS.
- Elected Officials.
- Special Events Coordination.
  - Festivals.
  - Concerts.
  - Marathon.
  - Recreation (Youth Sports).
  - Parking.

**Manage Communication with Stakeholders**

- Interagency coordination meeting.
- Elected officials briefing.
- PIO coordination meeting.
- Emergency personnel meeting.
- Community forum.
  - Informative – convey need to improve bridge.
  - Seek input – context sensitive.
- Media outlets.

### **Secure Acceptance and Participation of Stakeholders**

- Form stakeholder advisory task force.
  - Ongoing:
    - Interagency coordination.
    - Elected officials briefings.
    - PIO coordination.
    - Emergency personnel updates.
  - Community involvement – listen, receive input.
- Establish project/streetscape/aesthetics forum.
  - To gain buy-in and get input from community.
  - Keep accurate updated information going through advisory task force to communities.

### **Determine Most Effective Method of Informing Stakeholders of Progress and Impacts**

- Hold briefing (provide project info once a month/by request).
- Send legislative briefings to State officials (information in hand to respond to citizen inquiries).
- Use communication tools to keep public informed.

### **Collaborate and Manage Information Release to/by Media**

- Provide media updates coordinated through BCDOT Public Affairs.
- Coordinate press events and updated information.
- Distribute information.
- Coordinate constituent response with Mayor's Office and City Council members and staff (i.e. email, phone calls, constituent website).

### **Develop Plan to Engage Stakeholders in Acceleration of Construction Process and Communicate Overall Benefit/Solicit Assistance**

- To be developed, pending final project details.

## **3.4. Structures**

The structures skill set offered its recommendations:

### **Assess Staging Areas**

- Close pedestrian path and pedestrian bridge (safer and faster).
  - Improve contractor accessibility.
  - Reduce risk to pedestrians.
  - Reduce cost.
  - Reduce roadway bridge closure time.
  - Improve site security.

- Close during demolition and construction.
  - Pedestrian access.
  - Trail dead ends at bridge.
  - Comfort facilities required.
  - Public relations coordination.
- Close roadway bridge (safer and faster).
  - Improve contractor accessibility.
  - Reduce risk to motorists.
  - Reduce cost.
  - Reduce roadway bridge closure time.
  - Close during demolition and construction.
    - Pedestrian access.
    - Students walking to and from school
    - Busing of students.
    - Public relations coordination.
- Plan for staging.
  - Modify shoring system (faster and better).
    - Longitudinal post-tensioned system.
      - High risk and needs further evaluation.
      - Construction coordination.
  - Eliminate pedestrian traffic on bridge during staged construction (faster).
    - Eliminate two stages of construction to reduce construction schedule.
      - Needs further evaluation.
      - Public relations coordination.
  - Close roadway bridge (safer and faster).
    - Eliminate risk.
    - Remove all traffic loads.
      - Impact to commuters, community access.
      - Traffic, public relations coordination.

### **Material Availability**

- Use bulb tee beams (faster and better).
  - AASHTO beams not readily available.
  - Bulb tees are more efficient.
  - Bulb tees should speed construction.
    - Requires re-design.
- Eliminate 50 feet of interpretive aesthetic railing on middle span (faster).
  - Reduce cost.
    - Public relations coordination.



### **Use of Pre-Cast Components**

- Consider use of stay-in-place precast concrete deck panels, either in lower half with CIP composite topping or full-depth (faster and better).
  - Reduce cost.
  - Speed construction.
    - Not commonly used in Maryland.
    - Construction coordination.
- Consider pre-cast spread footings, abutments, wingwalls, piers, and pilasters (faster).
  - Reduce cost.
  - Speed construction.
  - Investigate flooding issues.
    - Not commonly used in Maryland.
    - Construction coordination.

### **Alternative Staged Bridge Demolition**

- Build staged temporary bridge on existing/proposed alignment (faster and better).
  - Construct 2-lane temporary bridge after demolition of existing bridge to allow two-way traffic.
  - Benefits include minimizing length of roadway closure.
    - Additional cost.
    - Environmental impacts with temporary piers in water.
    - Environmental coordination.

### **Alternate Structure Types**

- Simplify precast façade details (faster and better).
  - Reduction in number of construction operations will reduce cost and speed construction.
    - Construction coordination.
- Reduce 3-span bridge to longer main span with precast concrete arch pedestrian portal on North end only (faster, safer, and better).
  - Reduce initial and future maintenance costs.
  - Reduce construction time.
  - Improve pedestrian and bike access.
  - Consider that future roadway bridge and portal widening would be easier and less costly.
    - Significant re-design.
    - Likely need for total roadway bridge closure.
    - Maryland Historic Trust and community acceptance.
    - Public relations coordination.

- Build permanent new bridge parallel to existing alignment and leave existing roadway bridge open during bridge construction (faster).
  - Allow free flowing traffic.
  - Allow single phase demolition and construction.
    - Additional cost.
    - Major environmental impacts.
    - Temporary loss of park land.
    - Tie in with existing approaches required.
    - Coordination with all skill sets.
- Provide minimum 6-foot wide from curb edge to parapet wall (better).
  - Designate bike trail for short distances.
  - Eliminate need to widen existing roadway and roadway bridge.
    - Ornamental railing will need to be replaced with a crash-test approved parapet wall.
    - Interpretive railing at mid-section must be omitted.
- Add parkway treatments such as median or end pilasters (park gateway) if bridge is widened (better).
  - Offset loss of ornamental outside railing.
  - Increase motorist safety.
  - Allow traffic calming with median.
  - Improve parkway aesthetics – greener and safer.
    - Increase cost.
    - Traffic and public relations coordination.
- Reconstruct approach roadway the entire length on both ends within the retained fill sections, possibly with a wider cross section (better).
  - Create consistent life-cycle of retained fill sections and bridge.
  - Reduce maintenance.
  - Improve consistency of aesthetic design throughout the park.
  - Allow widening of bridge width for sidewalks/bike path.
  - Provide additional width to separate two-directional traffic.
    - Previous cost savings associated with closing the bridge may be offset by cost of approach roadway reconstruction.
    - Increases LOD and environmental impacts.
    - Environmental coordination required if new retained fill sections are widened.

- Construct new permanent pedestrian bridge east of roadway prior to demolition of existing roadway bridge (better and safer).
  - Eliminate existing pedestrian bridge prior to roadway bridge demolition.
  - Use prefabricated bridge.
  - Improve safety for pedestrians.
  - Reduce construction time and cost.
  - Eliminate “industrial” view of main span from below.
  - Eliminate future conflicts of pedestrian bridge under roadway bridge.
    - Funding source for removal of existing pedestrian bridge and construction of new pedestrian bridge needs to be determined.

### **Single-Stage Demolition Process**

- Confirm that 20” and 6” water mains can be taken out of service during construction (faster).
  - Reduce number of construction operations to reduce cost and speed construction.
    - If water mains remain in service, they will need to be temporarily supported or relocated through the park permanently.

### **Temporary Bridge Alternatives**

- Build temporary detour bridge parallel to existing/proposed alignment (safer & faster).
  - Evaluate the number of lanes required.
  - Evaluate pedestrian needs and alignment for service throughout roadway bridge construction.
    - Cost prohibitive.
    - Major environmental impacts.

### **Construction Management Techniques**

- Consider contracting strategies such as (faster):
  - P-P-P.
  - D-B.
  - Incentive/Disincentive.
  - A+B bidding.
  - Performance specifications.
    - Speed construction.
    - Increase contractor innovation.
    - Increase likelihood of early completion.
    - Improve long-term performance of structure.
    - Better use of contractor resources.
      - Not typical City policy.
      - Construction, traffic, and environmental coordination.

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## **New Materials and Techniques**

- Use high performance concrete (better).
  - Improve long-term performance of components.
  - Reduce cost of materials.
    - Construction coordination.

## **3.5. Traffic Engineering/MOT**

The traffic engineering/MOT team offered the following recommendations:

### **Full Closure**

#### *Issues*

- Change in bus service (both mass transit and school) along closure and detour routes.
- Allow additional staging area for equipment on existing closed road.
- Safety.
- Pedestrian Access.
- School Access.
- Truck Routing.
- ADA compliance for detour routes and intersection improvements.

#### *Recommendations*

- Model traffic flows to determine best detour routes.
- Develop incident management plan to mitigate congestion due to accidents and breakdowns.
- Develop pedestrian/bike access plan (ped routes, count down heads).
- Improve detour routes and intersections to handle additional traffic.
- Use variable message signs to detour commuter traffic in advance of project detour routes.
- Develop a comprehensive public information plan.
- Establish project website for real time traffic information and detour routes.
- Investigate innovative contracting methods.
- Signage for multiple detours, possibly color coding routes.
- Conduct Associated General Contractors Constructability Review.

## **Traffic Rerouting**

- Coordinate with other projects (construction, utility, etc.).
  - Develop incident management plan to mitigate congestion due to accidents and breakdowns. Coordination with local law enforcement, emergency response/services, and DOT. Courtesy patrols.
- Model traffic flows to determine best detour routes.
  - Simulation will help the public better visualize the different options and results.
- Make improvements to detour routes and intersections to handle additional traffic.
  - Parking restrictions.
  - Possible turn restrictions.
  - Additional turn lanes.
  - Optimize signal timing.
  - Preventive maintenance on signal equipment.
  - Change parking restrictions.
  - Additional parking enforcement assets.
  - Possible ADA improvement requirements for intersection improvements.
- Identify branding detours, color coding.
- Coordinate truck route detour/signing.
- Change in bus service (both mass transit and school) along closure and detour routes.
- Provide public information.
  - Web page with traffic conditions, detour information, public comment info, e-mail list.
- Use variable message signs to detour commuter traffic in advance of project detour routes.
- Monitor/evaluate/adjust.

## **Pedestrian/Bike Plan**

- Consider creating alternate pedestrian and bike path through park before construction begins.
- Develop pedestrian/bike access/safety plan (pedestrian/bike routes, count down heads).
  - Harford Road Detour.
  - Park Access.
  - Shuttle bus for school kids.

## **Stakeholder Impacts**

- Create public information plan.
- Create project website – detour information, project status, comment/complaint procedures.

- 
- Prepare for potential increased traffic on some residential streets.
  - Prepare closure of connection through park and north and south neighborhoods.
  - Change in bus service (both mass transit and school) along closure and detour routes.
  - Allow for added congestion and delay.
  - Increased parking restrictions.
  - Coordinate emergency service response.

### **Phased Construction**

#### *Issues*

- Better local access (pedestrian, bus, vehicles).
- Mixed safety concerns (more accidents at construction sites, less at detour).
- Pedestrian access under bridge.
- Traffic capacity will be cut in half.

#### *Recommendations*

- Investigate innovative contracting methods to accelerate construction.
- Develop pedestrian/bike access plan (ped routes, count down heads).
- Develop Incident Management Plan.
- Designate truck routes.
- Allow for school access.
- Provide staging area for contractor.
- Prepare AGC Constructability Review.
- Allow for alternate route development and signage.

### **Public-Private Partnerships (PPP)**

- Seek private capital investment in exchange for future revenue.
- Contract between public and private entities to lessen the public entity's involvement.
  - Shifts the risk for future profit from the public entity to the private entity.
- Secure a long-term lease agreement.
- Make selection based on best value.
- Use the private vendors' capital.

## **Innovative Construction Contracting and Financing**

- Consider the following options:
  - Existing revenues, i.e., State user fees, Federal revenue (advanced construction), bonds/notes, local matches, economic development funds.
  - Grant Anticipation Revenue Vehicle (GARVEE) Bonds.
    - Utilize to leverage Federal aid.
    - Pay bond debt with future Federal dollars.
  - Revenue bonds.
    - Pay bond debt with future State dollars.
  - Private Activity Bonds (PABs) – private entities utilizing tax exempt bonds.
    - Must be Title 23 eligible.
    - Note: The current Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) authorization is for \$15 billion.
  - Transportation Infrastructure Finance Innovation Act (TIFIA) financing, a USDOT financing program.
    - Can use for both public and private entities.
    - Finance one-third of the project cost with a subordinate lien position. This results in a lower interest rate for the primary loan.
    - Provides a new source of revenue.
    - Pay back over 35 years, with first payment due in 5 years.
  - Tolling.
    - User pays for the concept.
    - Creates a revenue stream.
    - Is applicable with added capacity or congestion pricing.
    - Consider pilot program with FHWA to toll for rehabilitation of existing Interstates.
    - Consider a pilot program with FHWA for an express lane demonstration program.
  - State Infrastructure Bank (SIB), Rail Infrastructure Bank (RIB) or Section 129 loans.

### **Non-user Revenues**

- Utilize economic development funds.
- Consider local option taxes.
- Work with regional authorities.

### **Financial Plan**

- Develop a financial plan that is a working document, updated as the project changes.
- Subject to FHWA approval.

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## **Final Recommendations**

- Change State law.
- Conduct a toll feasibility study.
- Consider private participation.
- Increase user fees.
- Tap non-user revenues.
- Consider a single D-B contract.
  - Provides access to innovation.
  - Offers single-point coordination.
  - Advances the project schedule.



#### 4.1. Next Steps

Now that the workshop is complete, BC DOT is evaluating the recommendations to determine which items will be implemented as part of the Harford Road Bridge, Baltimore, Maryland, project.

As this report shows, local and national transportation experts came together to brainstorm innovative techniques for financing and delivering a much-needed project on a major urban corridor. Once again, ACTT has proven to be a valuable tool in project planning and success.

## GLOSSARY OF FREQUENTLY USED TRANSPORTATION ACRONYMS

ACRONYM	FULL NAME
AASHTO	American Association of State Highway and Transportation Officials
AB	Aggregate Base
ACC	Acid Copper Chromate
ACTT	Accelerated Construction Technology Transfer
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
AEP	American Electric Power
AGC	Associated General Contractors of America
ASCE	American Society of Civil Engineers
ASR	Alkali-Silica Reaction
ATB	Asphalt-Treated Base
ATCs	Alternative Technical Concepts
ATMS	Advanced Traffic Management System
BANs	Bond Anticipation Notes
BC DOT	Baltimore City Department of Transportation
BIMRS	Bridge Incident Management and Response System
BMPs	Best Management Practices
CAD	Computer-Aided Design
CB	Citizen Band
CCTV	Closed Circuit Television
C-D	Collector-Distributor
CDC	Community Development Center
CE	Categorical Exclusion
CIP	Cast-in-Place
CM at Risk	Construction Manager at Risk
CMAQ	Congestion Mitigation and Air Quality
CMP	Congestion Mitigation Plan
CPI	Consumer Price Index
CPM	Critical Path Method
CRC/CRCP	Continuously Reinforced Concrete Pavement
CSO	Combined Sewer Overflow
CSS	Context Sensitive Solutions
CTB	Cement-Treated Base
D-B	Design-Build
D-B-B	Design-Bid-Build
DBE	Disadvantaged Business Enterprise
DEIS	Draft Environmental Impact Statement
DMS	Dynamic Message Sign
DOT	Department of Transportation
DRB	Dispute Review Board
EA	Environmental Assessment

EJ	Environmental Justice
EMS	Emergency Management System
EPS	Expanded Polystyrene
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEIS	Final Environmental Impact Statement
FFY	Federal Fiscal Year
FHWA	Federal Highway Administration
FMS	Freeway Management System
FONSI	Finding of No Significant Impacts
FRP	Fiber Reinforced Polymer
GARVEE	Grant Anticipation Revenue Vehicle
GIS	Geographic Information System
GISIGOSO	Get In, Stay In, Get Out, Stay Out
GPS	Global Positioning System
GRS	Geosynthetic Reinforced Soil
HAR	Highway Advisory Radio
HfL	Highways for LIFE
HMA	Hot Mix Asphalt
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
HPC	High-Performance Concrete
HPS	High-Performance Steel
ICC	Interagency Coordination Committee
IM	Incident Management
IMTF	Incident Management Task Force
IT/ITS Systems	Intelligent Transportation/Intelligent Transportation
JPCP	Jointed Plain Concrete Pavement
LOS	Level of Service
MDE	Maryland Department of the Environment
MIS	Major Investment Study
MOA	Memorandum of Agreement
MOT	Maintenance of Traffic
MOU	Memorandum of Understanding
MPH	Miles per Hour
MPO	Metropolitan Planning Organization
MSE	Mechanically Stabilized Earth
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
NHI	National Highway Institute
NPDES	National Pollutant Discharge Elimination System
NS	Norfolk Southern

PAB	Private Activity Bond
PCC	Portland Cement Concrete
PCMS	Portable Changeable Message Signs
PIO	Public Information Officer
PMT	Project Management Team
PPP	Public-Private Partnerships
PR	Public Relations
PS&E	Plan Specification & Estimate
PSI	Pounds per Square Inch
QA/QC	Quality Assurance/Quality Control
RAP	Reclaimed Asphalt Pavements
RFP	Request for Proposal
RFQ	Request for Qualifications
RIB	Rail Infrastructure Bank
ROD	Record of Decision
ROW	Right-of-Way
RPMs	Raised Pavement Markers/Markings
RSCH	Repeated Shear at Constant Height
RSS	Reinforced Soil Slopes
RTA	Regional Transit Authority
RWIS	Roadway Weather Information System
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SCC	Self-Consolidated Concrete
SHPO	State Historic Preservation Office
SEP	Special Experimental Project
SH	State Highway
SIB	State Infrastructure Bank
SIP	State Implementation Plan
SIP Forms	Stay-in-place Forms
SMA	Stone Matrix Asphalt
SMART	Suburban Mobility Authority for Regional Transportation
SPMTs	Self-Propelled Modular Transporters
SUE	Subsurface Utility Engineering
TDM	Traffic Demand Management
TIF	Tax Incremental Financing
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIG	Technology Implementation Group
TMC	Traffic Management Center
TMP	Traffic Management Plan
TRAC	Transportation Review Advisory Committee
TRB	Transportation Research Board
TS&L	Type, Size & Location
TSA	Transportation Security Administration

TSM	Transportation System Management
TSP	Thrift Savings Plan
USACE	United States Army Corps of Engineers
VE	Value Engineering
VMS	Variable Message Sign
VPD	Vehicles per Day
VPPP	Value Pricing Pilot Program
WiFi	Wireless Fidelity
WR&A	Whitman, Requardt & Associates, LLP

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## SKILLS SET RECORDING FORMS

- **Construction**
- **Environmental**
- **Structures**
- **Public Relations**
- **Traffic Engineering/MOT**

## Construction Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
Project phasing	<ul style="list-style-type: none"> <li>• Require full closure.</li> <li>• Eliminate staged construction.</li>   <li>• Incorporate enhancements to detour route.</li> <li>• Close pedestrian bridge during construction.</li>   <li>• Constructability review.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce construction time (from three years to less than one year). <ul style="list-style-type: none"> <li>○ Selling point to community.</li> </ul> </li> <li>• Simplify demolition process.</li> <li>• Cost and schedule savings.</li> <li>• Eliminate all associated staging costs for structure.</li> <li>• Expand staging area and contractor work area.</li>   <li>• Enhance safety (worker and public).</li> <li>• Minimize MOT costs.</li>   <li>• May inconvenience park users and local community.</li> <li>• Construct temporary or permanent pedestrian bridge downstream.</li>   <li>• Seek qualified, experienced review team.</li> </ul>
Structure	<ul style="list-style-type: none"> <li>• Complete reconstruction.</li> <li>• Reduce/eliminate (2) spans.</li>   <li>• Modify typical section with new MSE Retaining wall.</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal maintenance for new structure.</li> <li>• Reduce construction time (utilize pre-cast).</li> <li>• Smaller structure size (single span).</li>   <li>• Continuity in aesthetics (retain three span appearance with portals).</li> <li>• Allow sufficient width for proposed bike path.</li> <li>• Require additional permitting (resubmission).</li> <li>• Eliminate all staging costs for structure.</li> </ul>

# Construction Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
Park impacts	<ul style="list-style-type: none"> <li>• Enhancements.                             <ul style="list-style-type: none"> <li>○ Aesthetics.</li> <li>○ New/realigned pedestrian access.</li> </ul> </li> <li>• Temporary pedestrian/bike path access (downstream).</li> </ul>	<ul style="list-style-type: none"> <li>• Combine park improvements (bike path and parking) with bridge contract.</li> <li>• Enhance landscaping to compliment selected bridge aesthetics.</li> <li>• Access may be reduced (temporarily during construction).</li> </ul>
Contract administration	<ul style="list-style-type: none"> <li>• Partnering.</li> <li>• Incentive/Disincentive.</li> <li>• Explore Design/Build.</li> </ul>	<ul style="list-style-type: none"> <li>• Improve communication.</li> <li>• Enhance resolution process.</li> <li>• Enhance utility coordination.                             <ul style="list-style-type: none"> <li>○ Utility elimination and relocation.</li> </ul> </li> <li>• Cost benefits must be adequate and justified.</li> <li>• Well defined milestone and activities.</li> <li>• Specific scheduling requirements (CPM).</li> <li>• Requirements for D/B must be clear.</li> <li>• Gives contractor improved flexibility and control of work.</li> <li>• Establishes NTE cost (check BC Charter).</li> </ul>
Financing	Innovative Financing – FHWA IFT.	Identify Champion (Joe \$\$\$\$ Taylor).

## Environmental Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
Project(s) coordination	Facilitate meeting between BC DOT, BC DPW, Recreation and Parks, Bicycle Master Plan, MSA, MDE, FHWA, USACE, SHPO to coordinate work and combine or coordinate permitting.	New pedestrian bridge on new location over Herring Run replacing existing bridge (temporary or permanent). Goal to wrap new pedestrian bridge into roadway bridge construction project.
Maintain document at the categorical exclusion level	Be aware of Environmental Assessment triggers. The schedule to process an EA may take longer than desired to meet the proposed advertisement date.	<p>Traffic simulations:</p> <ul style="list-style-type: none"> <li>• Determine the difference in traffic delay between phased construction and closed bridge/detour scenario.</li> <li>• Ensure that no additional right of way would be needed to facilitate detours such that the cumulative impacts would necessitate an EA.</li> </ul> <p>BC DOT/MSHA to obtain written confirmation from FHWA to ensure that the approach to the 4(f) document would not elevate document to an EA.</p> <p>Cater portion of Public Involvement Program to Maintenance of Traffic During Construction. Report results to FHWA early and often.</p>

# Environmental Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
4(f) documentation	Rewrite 4(f) evaluations to reflect all aspects of roadway related changes to the park.	<p>Project team should discuss the removal of “design and approval” authority for SHPO from the MOA; could be framed as “comment on” or “consultation” instead (would be preferable to leave out any such language). The MOA has not been fully executed, so it is still negotiable. Also, need to clarify the “salvage” clause of the MOA – what, if anything will be salvaged and who will pay for this? Caveat: the SHPO has concurred that the park is eligible as a historic park – this may allow the SHPO to comment on the project.</p> <p>Determine how to provide pedestrian access that is currently provided by existing bridge. If new structure in park over Herring Run, obtain buy-in from USACE and MDE.</p> <p>If woods will be eliminated as part of rebuilding the approaches, incorporate access (trail? stairway? ramp?) to the park and the new in-the-park pedestrian bridge for nearby residents.</p>
Permitting	Apply for permit modification to reflect all new impacts.	<p>Use facilitated agency meeting to discuss all proposed changes to typical section and resulting impacts.</p> <p>Address storm water management early.</p> <p>Time of year March 1<sup>st</sup> to May 31<sup>st</sup>.</p> <p>Incorporate containment strategies in the construction contract, to protect the run during demolition and construction.</p>

## Structures Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
<p><b>Goal #1</b> - Assess staging areas: close pedestrian path and pedestrian bridge</p>	<p>For improved contractor accessibility, reduced risk to pedestrians, reduced cost, reduced roadway bridge closure time, and improved site security, close during demolition and construction.</p>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• Public desire for pedestrian access during demolition and construction.</li> <li>• Pedestrian trail will dead end at bridge.</li> <li>• Need to provide comfort facilities for play fields.</li> </ul> <p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>• Public Relations.</li> </ul>
<p><b>Goal #1</b> - Assess staging areas: close roadway bridge</p>	<p>For improved contractor accessibility, reduced risk to motorists, reduced cost, and reduced roadway bridge closure time, close during demolition and construction.</p>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• Pedestrian access and uncertain isolated pedestrian routes, including students walking to and from school.</li> <li>• May require busing of students.</li> </ul> <p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>• Public Relations.</li> </ul>
<p><b>Goal #2</b> - Assess construction staging: close roadway bridge</p>	<p>Eliminates the risk and uncertainty of the stability of the existing structure during demolition and staged construction. Also removes all traffic loads.</p>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• Impact to commuters, community access.</li> </ul> <p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>• Traffic/MOT.</li> <li>• Public Relations.</li> </ul>

# Structures Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
<p><b>Goal #2</b> - Assess construction staging: modify shoring system</p>	<p>To speed staged construction, longitudinally post tension retaining wall along full length of structure, instead of tieback system shown to eliminate demolishing portions of the existing structure.</p>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• Still risky and needs further evaluation.</li> </ul> <p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>• Construction.</li> </ul>
<p><b>Goal #2</b> - Assess construction staging: eliminate maintaining pedestrian traffic on bridge during staged construction</p>	<p>Eliminates two stages of construction to speed construction schedule.</p>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• Needs further evaluation.</li> </ul> <p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>• Public Relations.</li> </ul>
<p><b>Goal #3</b> - Material availability: use bulb tee beams</p>	<p>Precast concrete beam fabricators no longer readily have forms for AASHTO beams. Bulb tees are more efficient and should cost less. Availability of bulb tees should speed construction relative to AASHTO beams.</p>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• Requires some redesign.</li> </ul>
<p><b>Goal #3</b> - Material availability: eliminate 50 feet of interpretive aesthetic railing on middle span</p>	<p>Reduces cost.</p>	<p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>• Public Relations.</li> </ul>

## Structures Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
<p><b>Goal #4</b> - Use of precast components: consider use of stay-in-place precast concrete deck panels, either in lower half with CIP composite topping or full-depth</p>	<p>Reduced cost, speeds construction.</p>	<p><b>Barrier:</b></p> <ul style="list-style-type: none"> <li>Not commonly used in Maryland.</li> </ul> <p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>Construction.</li> </ul>
<p><b>Goal #4</b> - Use of precast components: consider precast spread footings, abutments, wingwalls, piers, and pilasters</p>	<p>Reduced cost, speeds construction. Investigate flooding issues.</p>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>Not commonly used in Maryland.</li> </ul> <p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>Construction.</li> </ul>
<p><b>Goal #5</b> - Alternative staged bridge demolition: build staged temporary bridge on existing/proposed alignment</p>	<p>Construct 2-lane temporary bridge after demolition of existing bridge to allow two-way traffic while the first half of proposed bridge is constructed. Benefits include minimizing length of roadway bridge closure.</p>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>Additional cost.</li> <li>Environmental impacts with temporary piers in water.</li> </ul>
<p><b>Goal #6</b> - Alternate structure type: reduce 3-span bridge to longer main span with precast concrete arch pedestrian portal on North end only</p>	<p>Significant reduction in initial cost and future maintenance cost, reduced construction time, improved pedestrian and bike access. Future roadway bridge and portal widening would be easier and less costly.</p>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>Significant redesign.</li> <li>Likely need for total roadway bridge closure.</li> <li>Maryland Historic Trust issues.</li> <li>Community acceptance would require computer renderings.</li> </ul> <p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>Public Relations.</li> </ul>



# Structures Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
<b>Goal #6</b> - Alternate structure type: simplify precast facade details	Reduction in number of construction operations will reduce cost and speed construction.	<p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>• Construction.</li> </ul>
<b>Goal #6</b> - Alternate structure type: build permanent new bridge parallel to existing alignment and leave existing roadway bridge open during bridge construction	Benefits include allowing traffic to flow throughout bridge construction in its existing configuration, allowing new structure to be constructed in one phase, and allowing existing structure to be demolished in one phase.	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• Additional cost.</li> <li>• Major environmental impacts.</li> <li>• Temporary loss of park land.</li> <li>• Tie in with existing approaches required.</li> </ul> <p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>• All skill sets.</li> </ul>
<b>Goal #6</b> - Alternate structure type: provide minimum 6-ft wide from curb edge to parapet wall	To allow designation as a bike trail for short distances, a minimum 6-ft clear width is required. Benefits would include no need to widen existing roadway and roadway bridge.	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• Outside ornamental railing will need to be replaced with a crash-test approved parapet wall.</li> <li>• Interpretative railing at mid-section must be omitted.</li> </ul>
<b>Goal #6</b> - Alternate structure type: if bridge is widened, add park treatments such as median and end pilasters as gateway to park	Benefits include offsetting loss of ornamental outside railing, motorist safety increased with median separating traffic settings, traffic calming with median, and improved parkway aesthetics – greener and safer.	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• Increased cost.</li> </ul> <p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>• Traffic.</li> <li>• Public Relations.</li> </ul>

## Structures Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
<p><b>Goal #7</b> - Single-staged demolition process (utilities accommodation): confirm that 20" and 6" water mains can be taken out of service during construction</p>	<p>Reduction in number of construction operations will reduce cost and speed construction.</p>	<p><b>Barrier:</b></p> <ul style="list-style-type: none"> <li>If water mains remain in service during construction, they will need to be temporarily supported or relocated through the park permanently.</li> </ul>
<p><b>Goal #7</b> - Single-staged demolition process: cut demolition time</p>	<p>Closing the roadway bridge and the pedestrian bridge will cut demolition time more than half and decrease mobilization by half. Give contractor the option to use pedestrian bridge to assist in debris containment.</p>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>Closed bridges will impact public use.</li> </ul> <p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>Traffic.</li> <li>Public Relations.</li> </ul>
<p><b>Goal #8</b> - Temporary bridge alternates: construct new permanent pedestrian bridge east of roadway bridge prior to demolition of existing roadway bridge</p>	<p>The existing pedestrian bridge will be eliminated prior to roadway bridge demolition. New pedestrian bridge recommended is a prefabricated bridge, for example, a single span steel truss. Benefits include improved safety for pedestrians, reduced construction time and cost, elimination of the view of main span from below, and elimination of future conflicts of pedestrian bridge under roadway bridge.</p>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>Funding source for removal of existing pedestrian bridge and construction of new pedestrian bridge needs to be determined.</li> </ul>

# Structures Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
<p><b>Goal #8</b> - Temporary bridge alternates: reconstruct approach roadway the entire length on both ends within the retained fill sections, possibly with a wider cross section</p>	<p>Makes life-cycle of retained fill sections consistent with new roadway bridge, reduces maintenance, improves consistency of aesthetic design throughout the entire park, and allows widening of bridge width for sidewalks, bike path, and additional width to separate two-directional traffic.</p>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• Savings in project cost from other recommendations will be offset by cost of approach roadway reconstruction.</li> <li>• Increases the limits of disturbance of the project and, therefore, the environmental impacts.</li> </ul> <p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>• Environmental coordination required if new retained fill sections are widened.</li> </ul>
<p><b>Goal #8</b> - Temporary bridge alternates: build temporary detour bridge parallel to existing/proposed alignment</p>	<p>The use of a temporary detour bridge needs to be evaluated for number of lanes, pedestrian needs, and alignment for service throughout roadway bridge construction.</p>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• Cost prohibitive.</li> <li>• Major environmental impacts.</li> </ul>
<p><b>Goal #9</b>, Construction management techniques: contracting strategies to consider include P-P-P, D-B, incentive/disincentive, A+B bidding, performance specifications</p>	<p>Benefits include speed construction, increase contractor innovation, increase likelihood of early completion, improve long-term performance of structure, better utilization of contractor resources.</p>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• City may not allow.</li> </ul> <p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>• Construction.</li> <li>• Traffic.</li> <li>• Environmental.</li> </ul>
<p><b>Goal #10</b> - New materials &amp; techniques: use high performance concrete</p>	<p>Benefits include improved long-term performance of components, possible reduced cost of materials.</p>	<p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>• Construction.</li> </ul>

## Public Relations Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
Public Information Management	<p>FULL TIME NOT NECESSARY:</p> <ul style="list-style-type: none"> <li>• Baltimore City Public Affairs staff &amp; liaisons.</li> <li>• Project spokespeople: Adrienne Barnes and Margaret Martin.</li> <li>• Media updates coordinated thru BCPA.</li> <li>• Public inquiries, BCPA.</li> </ul>	<p><b><u>Barriers:</u></b></p> <ul style="list-style-type: none"> <li>• Time management.</li> <li>• Competing priorities.</li> <li>• Obtaining information in a timely manner and after hours.</li> <li>• Only 2 “truly informed” spokespeople.</li> </ul> <p><b><u>Coordination:</u></b></p> <ul style="list-style-type: none"> <li>• Collaborate with all entities that are involved with the project (i.e. work with transit to rearrange bus routes, work with schools to figure out pedestrian routes).</li> <li>• Have one office where you can get all of the information (BCDOT).</li> <li>• Have an FAQ sheet and project fact sheet.</li> </ul>

# Public Relations Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
Identify basic parameters and negotiable issues	<p><b><u>Given Issues:</u></b></p> <ul style="list-style-type: none"> <li>• A new Bridge is needed – Reconstruct vs. rehab.</li> <li>• Four lanes – no widening.</li> <li>• Pedestrian access – sidewalk.</li> <li>• Sidewalk with barrier.</li> </ul> <p><b><u>Negotiable Issues?:</u></b></p> <ul style="list-style-type: none"> <li>• Aesthetics/Façade? (graffiti exists now – resistant paint may be used/consider a mural?)</li> <li>• Bike lane separated from travel lanes.</li> <li>• Lighting underneath Bridge/along the pathway.</li> <li>• Beautification at Bridge approaches – public involvement.</li> </ul>	<p><b><u>Barriers:</u></b> (Negotiable options contingent on these barriers)</p> <ul style="list-style-type: none"> <li>• Budget / costs.</li> <li>• Federal requirements (enviro, COE, design, etc).</li> </ul> <p><b><u>Coordination:</u></b></p> <ul style="list-style-type: none"> <li>• Work with Bridge design staff to determine what’s decided and what can we ask the public to help with.</li> <li>• Work with bike community to determine how to make route more bike-friendly.</li> <li>• Coordinate with park and rec in project scheduling, parking during construction, staging areas, etc.</li> </ul>

## Public Relations Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
Identify stakeholders	<ul style="list-style-type: none"> <li>• Business owners.</li> <li>• Residents.               <ul style="list-style-type: none"> <li>▪ Nursing Homes.</li> </ul> </li> <li>• Community Associations.</li> <li>• Commuters.</li> <li>• Pedestrians.</li> <li>• Park users.</li> <li>• Churches/Schools/Institutions.               <ul style="list-style-type: none"> <li>▪ Morgan State University.</li> <li>▪ Montebello Elementary.</li> <li>▪ St Francis.</li> <li>▪ Mervo High School.</li> <li>▪ Johns Hopkins.</li> <li>▪ Pratt Library – Hamilton Branch.</li> </ul> </li> <li>• Media.</li> <li>• Other government agencies.               <ul style="list-style-type: none"> <li>▪ MD Transit Adm. (Buses)</li> <li>▪ Rec &amp; Parks.</li> <li>▪ DPW.</li> <li>▪ BCPSS Transportation (School Bus Routes).</li> <li>▪ Baltimore County – various.</li> <li>▪ MD SHA.</li> <li>▪ USPS.</li> <li>▪ SHPO.</li> </ul> </li> <li>• Elected officials.</li> <li>• Special event coordination.               <ul style="list-style-type: none"> <li>▪ Festivals?</li> <li>▪ Concerts?</li> <li>▪ Marathon.</li> <li>▪ Recreation (Kid Sports).</li> <li>▪ Parking.</li> </ul> </li> </ul>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• Identify language needs. (Do you need to have signs/ advertising, etc. in different languages?)</li> <li>• Special requests or provisions (people wanting us to accommodate for parking, business operations/access, special events, etc.)</li> <li>• Identify route issues - bus route schedules, emergency response routes, safe route to school, evacuation route.</li> <li>• Political turf wars.</li> <li>• SHPO requirements</li> </ul> <p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>• Establish contact list.</li> <li>• Mailing list/e-group:</li> <li>• Residential (WWWWWH, fact sheet).</li> <li>• Business.</li> <li>• Media (News release/updates sent).</li> <li>• Governmental.</li> <li>• Community (churches/school/ institutions/hospital/etc.)</li> <li>• Schedule regular meetings/briefings.</li> </ul>

# Public Relations Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
Communication with stakeholders	<ul style="list-style-type: none"> <li>• Interagency coordination meeting.</li> <li>• Elected officials briefing.</li> <li>• PIO coordination meeting.</li> <li>• Emergency personnel meeting.</li> <li>• Community forum.                             <ul style="list-style-type: none"> <li>▪ Informative – convey need to improve bridge.</li> <li>▪ Seek Input – context sensitive.</li> </ul> </li> <li>• Media Outlets.</li> </ul>	<p><b><u>Barriers:</u></b></p> <ul style="list-style-type: none"> <li>• Scheduling meetings/availability.</li> <li>• Turnover/changing contact info.</li> <li>• Prioritizing needs/conflict resolution.</li> <li>• Mixed messages/competing message.</li> </ul> <p><b><u>Coordination:</u></b></p> <ul style="list-style-type: none"> <li>• Utilize fact sheets, talking points and updated info developed by BCDOT public affairs.</li> <li>• Partnering agreement on one message (One Voice!).</li> </ul>
Securing acceptance and participation of stakeholders	<p>Form Stakeholder Advisory Task Force.</p> <ul style="list-style-type: none"> <li>• Ongoing-Interagency coordination.</li> <li>• Ongoing-Elected Officials briefings.</li> <li>• Ongoing PIO coordination.</li> <li>• Ongoing Emergency Personnel updates.</li> <li>• Community Involvement - Listen, get input.</li> </ul> <p>Project/Streetscape/Aesthetics forum.</p> <ul style="list-style-type: none"> <li>• To gain consensus get input from community.</li> <li>• Keep updated info going out.</li> </ul>	<p><b><u>Barriers:</u></b></p> <ul style="list-style-type: none"> <li>• Identify appropriate willing participants for advisory task force.</li> <li>• Participation in task force supported by hierarchy of individual organizations.</li> <li>• Reaching consensus.</li> </ul> <p><b><u>Coordination:</u></b></p> <ul style="list-style-type: none"> <li>• Developing ground rules for task force.                             <ul style="list-style-type: none"> <li>○ Relay expectations.</li> <li>○ Offer solutions to problems.</li> </ul> </li> <li>• Representatives take info back to sub-groups and use info throughout the communities (ex: newsletters, brochures, etc.).</li> <li>• Task force keep project moving forward.</li> </ul>

## Public Relations Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
<p>Most effective method of informing elected officials and constituents of progress and impacts</p>	<ul style="list-style-type: none"> <li>• Hold updated official briefings (i.e. once a month, by request) to provide project info.</li> <li>• Send legislative briefings to state officials (info in hand to respond to citizen inquiries).</li> <li>• Use communications tools to keep public informed.</li> <li>• City/State Legislative Liaison and Community Liaison to manage.</li> </ul>	<p><b><u>Barriers:</u></b></p> <ul style="list-style-type: none"> <li>• Schedule coordination.</li> <li>• Be aware of constituents concerns.</li> </ul> <p><b><u>Coordination:</u></b></p> <ul style="list-style-type: none"> <li>• Be on their luncheon agendas or schedules, etc.</li> <li>• Maintain project updates via newsletters, Web sites and media outlets.</li> </ul>



# Public Relations Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
<p>Tools for communication with motorists, park users, pedestrian, and others during construction</p>	<p>Brand Campaign:</p> <ul style="list-style-type: none"> <li>• Website.</li> <li>• Hotline – 311.</li> <li>• Radio Updates (Drive time = Paid spots).</li> <li>• TV - Traffic reports.</li> <li>• Overview brochures.</li> <li>• Newsletter for local community.</li> <li>• Media Kits.</li> </ul> <p>Outreach Activities:</p> <ul style="list-style-type: none"> <li>• Media Buy-Radio, Standing column in The Sun/The Examiner/ The City Paper and community newsletters - BBJ, Daily Record for updates/schedule.</li> <li>• Standing display in stores (Safeway, Hillen Road Shopping center, at the Park rest area).</li> <li>• Curious students/schools – “Bridge 101”.</li> <li>• “Project 101” at local schools - teach the kids, inform the parents.</li> </ul>	<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• MONEY.</li> <li>• Message control, quality of pieces, accuracy of information.</li> <li>• Staff hours needed to complete writing, design, media buys, etc. (competing with similar needs for other projects).</li> </ul> <p><b>Coordination:</b></p> <ul style="list-style-type: none"> <li>• Be sure project contract is offered with 1% funding for marketing/ community outreach efforts.</li> <li>• Part-time consultants can be hired on an “as needed basis” to develop various media.</li> <li>• Centralized communication coordination through BCDOT PIO.</li> <li>• Organize project branding campaign: “BYOB” <i>Brand Your Own Bridge</i> contest to name project...and educational programs, etc.</li> <li>• Historic marker plaque/sign – note history of old structure on new structure.</li> <li>• Rough Branding Concepts? <ul style="list-style-type: none"> <li>▪ <i>A Bridge to Somewhere.</i></li> <li>▪ <i>The Pride of the Park.</i></li> <li>▪ <i>H2O – Home to Office.</i></li> <li>▪ <i>Harford to Office.</i></li> <li>▪ <i>Historical to...</i></li> <li>▪ <i>Beautify Your Bridge.</i></li> <li>▪ <i>The Link to the Lake.</i></li> <li>▪ <i>A Park With Pride.</i></li> <li>▪ <i>Not Your Grandfather’s Bridge.</i></li> </ul> </li> </ul>

## Public Relations Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
Collaborate and manage information released by media	<ul style="list-style-type: none"> <li>• Provide media updates coordinated thru BCDOT Public Affairs.</li> <li>• Coordinate press events and update info.</li> <li>• Distribution of information.</li> <li>• Constituent response coordinated with Mayor's Office and City Council members and staff (i.e. email, phone calls, constituent website).</li> </ul>	<p><b><u>Barriers:</u></b></p> <ul style="list-style-type: none"> <li>• Negative publicity.</li> <li>• Perception and comments from uninformed stakeholders.</li> </ul> <p><b><u>Coordination:</u></b></p> <ul style="list-style-type: none"> <li>• Filter info out through having one message, developed by BCDOT PIO.</li> </ul>
Develop a plan to engage stakeholders in acceleration of the construction process and communicate overall benefit/solicit assistance	TBD.	<p><b><u>Barriers:</u></b></p> <ul style="list-style-type: none"> <li>• Keep all interested parties involved and informed before, during and after the project.</li> </ul> <p><b><u>Coordination:</u></b></p> <ul style="list-style-type: none"> <li>• Maintain an updated listing of current or new residents, businesses and other stakeholders throughout the bridge construction.</li> <li>• Plan "activities" or "events" that involve the community to keep them involved and interested.</li> </ul>

## Traffic Engineering/MOT Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
Full closure	Change in bus service (both mass transit and school) along closure and detour routes.	Pre-project meetings and coordination.
	Model traffic flows to determine best detour routes.	Simulation will help the public better visualize the different options and results.
	Incident management plan to mitigate congestion due accidents and breakdowns.	Coordination with local law enforcement, emergency services, and DOT. Courtesy patrols.
	Improvement to detour routes and intersections to handle additional traffic.	Additional turn lanes, optimize signal timing, preventive maintenance on signal equipment, change parking restrictions, additional parking enforcement assets. <b>Possible ADA improvement requirements for intersection improvements.</b>
	Use variable message signs to detour commuter traffic in advance of project detour routes.	
	Project website for real time traffic information and detour routes.	
	Pedestrian access.	Additional lighted pedestrian walkway and foot bridge. Shuttle bus for school students
	Allows additional staging area for equipment on existing closed road.	
	Safety.	Better safety at construction site.  Increase in accidents due to additional traffic along detour routes.
	Truck route.	
	AGC Constructability Review.	

## Traffic Engineering/MOT Skill Set

Idea Name	Detailed Description	Implementation Details (barriers, skills set coordination, etc.)
Phased Construction	Better local access (pedestrian, bus, vehicles).	Less disruption. Mixed safety concerns (more accidents at construction sites, less at detour).
	Traffic capacity will be cut in half.	Alternate route development and signing.
	Incentives for contractor to accelerate construction.	Lane rental, A+B contracting, incentive/disincentive contracting.
	Incident Management Plan.	
	Truck Routes.	
	Pedestrian access.	Pedestrian access under bridge. Build new pedestrian route.
	School access.	
	Staging area for contractor.	Additional environmental considerations.
	AGC Constructability Review.	

**Innovative Financing.** The team’s primary goals are to align potential financing options with project goals; match anticipated cash flow with project management; and provide options for managing competing priorities for existing resources.

**ROW/Utilities/Railroad Coordination.** The ROW group’s primary role is to ensure that ROW, utilities and railroad work comply with state laws and procedures. They must also consider the numbers and types of businesses and residences impacted by a project and evaluate the ready availability of additional right-of-way.

**Geotechnical/Materials/Accelerated Testing.** The geotechnical team explores subsurface conditions to determine their impact on the project; pursues options for expediting materials acceptance and contractor payment; and evaluates the use of innovative materials in accordance with project performance goals and objectives.

**Traffic Engineering/Safety/ITS.** The traffic engineering team strives to enhance safety; improve traffic management; and explore technologies, including ITS systems, that will communicate real-time construction information to the public.

**Structures (Bridges, Retaining Walls, Culverts, Miscellaneous).** The structures skill set focuses on accelerating the construction of structures. Their task is to identify the most accommodating types of structures and materials that will meet design requirements and minimize adverse project impacts.

**Innovative Contracting.** The innovative contracting group explores state-of-the-art contracting practices and strives to match them with the specific needs of the project.

**Roadway/Geometric Design.** The roadway team evaluates proposed geometrics and identifies the most accommodating product with the minimum number of adverse impacts.

**Long Life Pavements/Maintenance.** The maintenance skill set identifies pavement performance goals and objectives and explores future maintenance issues for the project corridor, including winter service, traffic operations and preventative maintenance.

**Construction (Techniques, Automation and Constructability).** The construction crew explores techniques that will encourage the contractor to deliver a quality product within a specific timeframe while maintaining traffic.

**Environment.** The environment team ensures that the scope of work and construction activities reflect local environmental concerns. Their goal is to provide the most accommodating and cost effective product while minimizing natural and socio-economic impacts.

**Public Relations.** The public relations skill set discusses ways to partner with local entities and effectively inform both local communities and the traveling public about the project before, during and after construction. Their role is to put a positive spin on the project.

# Background of ACTT

ACTT is a process that brings together public- and private-sector experts from across the country in a setting that encourages flexibility and innovation. The goal is to recommend technologies that will accelerate construction time while reducing user delay and community disruption. This necessitates a thorough examination of all facets of a highway corridor with the objective of improving safety and cost effectiveness while minimizing adverse impacts to the traveling public.

The ACTT concept was originated by the Transportation Research Board (TRB) in conjunction with FHWA and the Technology Implementation Group (TIG) of the American Association of State Highway and Transportation Officials (AASHTO). Following the completion of two pilot workshops, one in Indiana and one in Pennsylvania, the originating task force, A5T60, passed the concept off to FHWA and TIG to continue the effort. They have done so by coordinating a series of ACTT workshops around the country.

More information on the ACTT program is available online at <http://www.fhwa.dot.gov/construction/accelerated/index.htm>.