



**FNF  
CONSTRUCTION, INC.**



# **A**CCCELERATED **B**BRIDGE **C**CONSTRUCTION

Methods and phasing techniques used to implement ABC technologies across Arizona.

# WHY ABC?

ABC technologies use methods that reduce onsite construction time and reduce impacts to the traveling public. There are currently three Accelerated Bridge Construction (ABC) technologies being promoted under the FHWA's EDC-2 Accelerated Bridge.

- Prefabricated Bridge Elements and Systems (PBES)
- Slide-In Bridge Construction (SIBC)
- Geosynthetic Reinforced Soil – Integrated Bridge System (GRS-IBS)



Since 2015, FNF has utilized our skill and knowledge in bridge construction expertise to implement all three ABC technologies on six separate projects across the state of Arizona.

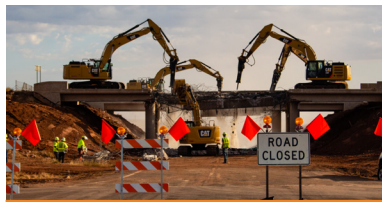


## OUR ABC PROJECTS:



SACATON ROAD BRIDGE

Year: 2015  
Location: Sacaton, AZ



I-40 METEOR CITY

Year: 2019  
Location: Meteor City, AZ



I-40 4TH STREET

Year: 2020  
Location: Flagstaff, AZ



B40 RIO DE FLAG

Year: 2021  
Location: Flagstaff, AZ



I-40 A-1 MOUNTAIN

Year: 2022  
Location: Flagstaff, AZ



SR 79 GILA RIVER

Year: 2022  
Location: Florence, AZ

# SACATON RD. OVER THE GILA RIVER



**1 BRIDGE**

constructed and slid  
into place



**9 DAYS**

of closures using ABC  
methods to construct  
roadway approaches



**200 DAYS**

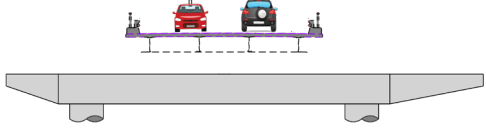
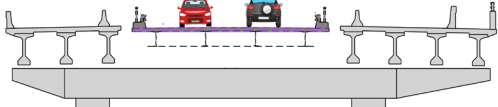
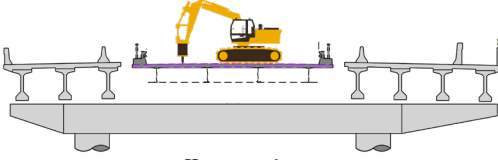
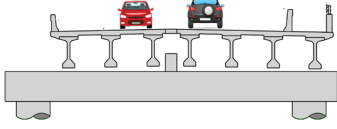
approximated for traffic  
control closures using  
traditional construction  
methods

## PROJECT SPECIFICS:

<b>DATES:</b>	Spring 2015
<b>CUSTOMER:</b>	Gila River Indian Community DOT
<b>DESIGNER:</b>	AZTEC
<b>PROJECT DELIVERY METHOD:</b>	Construction Manager/ General Contractor (CMGC)
<b>ABC METHODS USED:</b>	SIBC
<b>BRIDGE LENGTH:</b>	141'
<b>BRIDGE SPANS:</b>	2



# PROJECT PHASING:

<p>PHASE 1</p>	<ul style="list-style-type: none"> <li>• Site access</li> <li>• Drilled shafts, abutments and pier caps</li> </ul>	 <p>Traffic on existing bridge</p>
<p>PHASE 2</p>	<ul style="list-style-type: none"> <li>• Bank protection</li> <li>• Set girders</li> <li>• Place deck and barrier</li> </ul>	 <p>Traffic on existing bridge</p>
<p>PHASE 3</p>	<ul style="list-style-type: none"> <li>• Bridge closure</li> <li>• Demo existing bridge</li> <li>• Slide bridge</li> <li>• Reconstruct approaches</li> <li>• Closure pours</li> </ul>	 <p>Traffic on detour</p>
<p>PHASE 4</p>	<ul style="list-style-type: none"> <li>• Final site restoration</li> <li>• Seeding and establishment</li> </ul>	 <p>Traffic on new bridge</p>



# I-40 METEOR CITY TI



**2 BRIDGES**

constructed



**17 DAYS**

of closures using ABC  
methods



**300 DAYS**

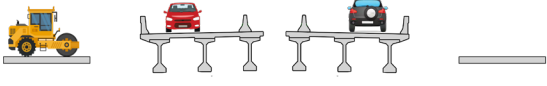
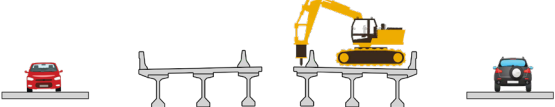
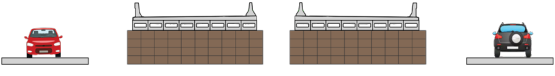
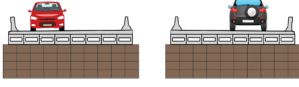
approximated for traffic  
control closures using  
traditional construction  
methods

## PROJECT SPECIFICS:

DATES:	Summer 2019
CUSTOMER:	ADOT
DESIGNER:	ADOT
PROJECT DELIVERY METHOD:	Design-Bid-Build
ABC METHODS USED:	GRS-IBS & PBES
BRIDGE LENGTH:	2 at 71'
BRIDGE SPANS:	2 each single spans



# PROJECT PHASING:

<p>PHASE 1</p>	<ul style="list-style-type: none"> <li>• Site access</li> <li>• Reconstruct on/off ramps to use as temporary detour</li> <li>• Pave temporary detour</li> </ul>	 <p>Traffic on existing bridge</p>
<p>PHASE 2A</p>	<ul style="list-style-type: none"> <li>• Bridge closures</li> <li>• Demo existing bridge</li> </ul>	 <p>Traffic on temp detour</p>
<p>PHASE 2B</p>	<ul style="list-style-type: none"> <li>• Build four GRS-IBS abutments</li> <li>• Set precast box beams with casted bridge barriers</li> <li>• Connect box beams</li> <li>• Set precast transition barrier with footings</li> </ul>	 <p>Traffic on temp detour</p>
<p>PHASE 2C</p>	<ul style="list-style-type: none"> <li>• Pave deck surface with polyester polymer concrete</li> <li>• Reconstruct roadway approaches</li> <li>• Remove traffic restrictions and open to traveling public</li> </ul>	 <p>Traffic on new bridge</p>



# I-40 4TH STREET



**2 BRIDGES**

constructed and slid  
into place



**15 DAYS**

of closures using ABC  
methods



**220 DAYS**

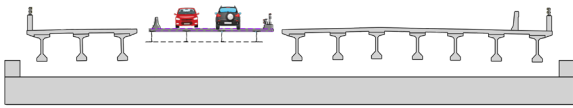
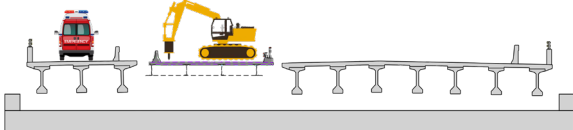
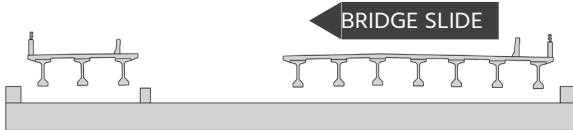
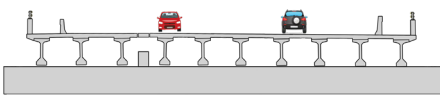
approximated for traffic  
control closures using  
traditional construction  
methods

## PROJECT SPECIFICS:

DATES:	Summer 2020
CUSTOMER:	ADOT
DESIGNER:	AECOM
PROJECT DELIVERY METHOD:	Design-Bid-Build
ABC METHODS USED:	SIBC
BRIDGE LENGTH:	2 at 134'
BRIDGE SPANS:	2 each single spans



# PROJECT PHASING:

<p>PHASE 1</p>	<ul style="list-style-type: none"> <li>• Site access</li> <li>• Widened I-40 to use as a temporary detour</li> <li>• Pave temporary detour</li> <li>• Bridges constructed off-line from traffic</li> </ul>	 <p>Traffic on existing bridge</p>
<p>PHASE 2A</p>	<ul style="list-style-type: none"> <li>• Bridge closed (emergency access only)</li> <li>• Demo existing bridges</li> </ul>	 <p>Emergency traffic on new un-slid portion of bridge</p>
<p>PHASE 2B</p>	<ul style="list-style-type: none"> <li>• Bridge slide</li> <li>• Place closure pour concrete</li> <li>• Reconstruct alignment and approaches</li> </ul>	 <p>Traffic on detour</p>
<p>PHASE 3</p>	<ul style="list-style-type: none"> <li>• Open bridge to traffic</li> <li>• Complete aesthetics requirements</li> <li>• Complete bridge fence</li> </ul>	 <p>Traffic on new bridge</p>





# BUSINESS ROUTE 40 OVER RIO DE FLAG



**1 BRIDGE**

constructed



**7 DAYS**

of closures using ABC  
methods



**200 DAYS**


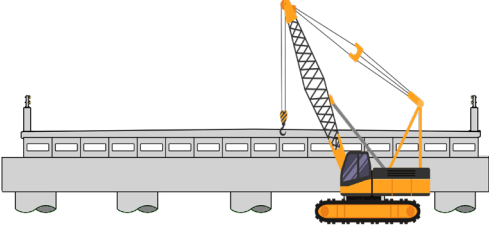
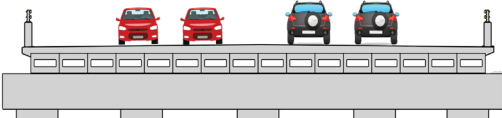
approximated for traffic  
control closures using  
traditional construction  
methods

## PROJECT SPECIFICS:

<b>DATES:</b>	Summer 2021
<b>CUSTOMER:</b>	ADOT
<b>DESIGNER:</b>	NFra, Inc.
<b>PROJECT DELIVERY METHOD:</b>	Design-Bid-Build
<b>ABC METHODS USED:</b>	PBES
<b>BRIDGE LENGTH:</b>	53' Long x 94' Wide
<b>BRIDGE SPANS:</b>	1



# PROJECT PHASING:

PHASE 1	<ul style="list-style-type: none"><li>• Constructed precast materials adjacent to site</li><li>• Installed abutment shafts during off peak traffic hours</li><li>• Road closure</li><li>• Demo existing bridge</li></ul>	 <p>Traffic on detour</p>
PHASE 2	<ul style="list-style-type: none"><li>• Set precast abutments</li><li>• Set beams</li><li>• Set precast approach slabs</li></ul>	 <p>Traffic on detour</p>
PHASE 3	<ul style="list-style-type: none"><li>• Pave surface deck with polyester polymer concrete</li></ul>	 <p>Traffic on new bridge</p>



# I-40 A-1 MOUNTAIN



**2 BRIDGES**

constructed



**35 DAYS**

of closures using ABC  
methods



**300 DAYS**

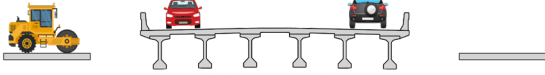
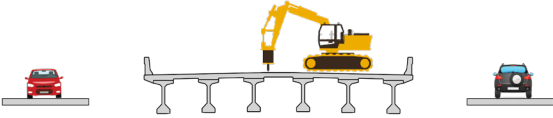
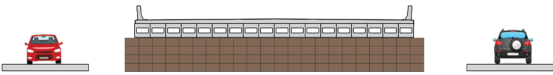
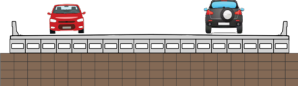
approximated for traffic  
control closures using  
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## PROJECT SPECIFICS:

DATES:	Spring 2022
CUSTOMER:	ADOT
DESIGNER:	ADOT
PROJECT DELIVERY METHOD:	Design-Bid-Build
ABC METHODS USED:	GRS-IBS & PBES
BRIDGE LENGTH:	2 at 113'
BRIDGE SPANS:	2 each single spans



# PROJECT PHASING:

<p>PHASE 1</p>	<ul style="list-style-type: none"> <li>• Site access</li> <li>• Pave temporary detour</li> </ul>	 <p>Traffic on existing bridge</p>
<p>PHASE 2</p>	<ul style="list-style-type: none"> <li>• Demo existing bridge</li> </ul>	 <p>Traffic on/off ramps</p>
<p>PHASE 3</p>	<ul style="list-style-type: none"> <li>• Build four GRS-IBS abutments</li> <li>• Set precast abutments</li> <li>• Set girders</li> <li>• Connect box beams</li> <li>• Set precast barrier with footings</li> </ul>	 <p>Traffic on temp detour</p>
<p>PHASE 4</p>	<ul style="list-style-type: none"> <li>• Pave deck surface with polyester concrete overlay</li> </ul>	 <p>Traffic on new bridge</p>



# SR 79 GILA RIVER



**1 BRIDGE**

constructed



**6 DAYS** (PROJECTED)

of closures using ABC methods  
(2 weekends w/ a single lane of  
traffic during bridge slides)



**340 DAYS**

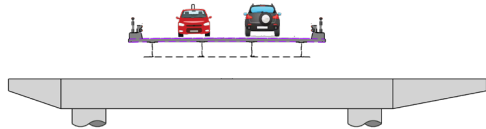
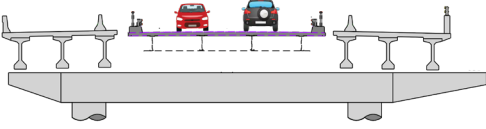
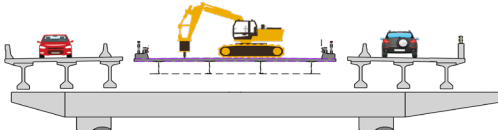
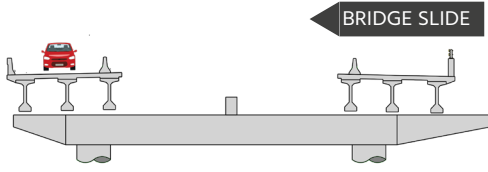
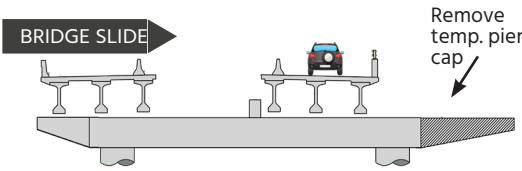
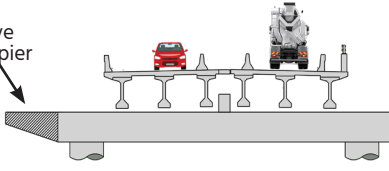
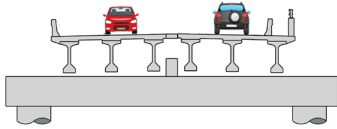
approximated for traffic  
control closures using  
traditional construction  
methods

## PROJECT SPECIFICS:

DATES:	June 2022 to March 2023 (Projected)
CUSTOMER:	ADOT
DESIGNER:	AECOM
PROJECT DELIVERY METHOD:	Construction Manager At Risk (CMAR)
ABC METHODS USED:	SIBC
BRIDGE LENGTH:	1416'
BRIDGE SPANS:	14



# PROJECT PHASING: ( NO FULL CLOSURES )

<p>PHASE 1</p>	<ul style="list-style-type: none"> <li>Remove sewer</li> <li>Move water line</li> <li>Construct drilled shafts, abutments, pier, columns and caps</li> </ul>	 <p>Traffic on existing bridge</p>
<p>PHASE 2</p>	<ul style="list-style-type: none"> <li>Install bank protection</li> <li>Set girders</li> <li>Place Deck &amp; diaphragms</li> <li>Construct NB &amp; SB approaches off-line from traffic</li> </ul>	 <p>Traffic on existing bridge</p>
<p>PHASE 3</p>	<ul style="list-style-type: none"> <li>Abate lead paint</li> <li>Demo existing bridge</li> </ul>	 <p>Traffic on pre-slid new bridge halves, both NB and SB</p>
<p>PHASE 4</p>	<ul style="list-style-type: none"> <li>Construct jacking blocks</li> <li>Install final bearing seats</li> <li>Slide NB half of the bridge on a weekend, using traffic signals</li> </ul>	 <p>Traffic on 1/2 new pre-slid bridge during slide</p>
<p>PHASE 5</p>	<ul style="list-style-type: none"> <li>Slide SB half on weekend using traffic signals</li> </ul>	 <p>Traffic on new NB bridge</p>
<p>PHASE 6</p>	<ul style="list-style-type: none"> <li>Place closure pour down middle of bridge at night, using traffic signal</li> <li>Place barrier</li> <li>Place drainage structures</li> </ul>	 <p>Traffic on new bridge</p>
<p>PHASE 7</p>	<ul style="list-style-type: none"> <li>Final site restoration</li> <li>Seeding and establishment</li> </ul>	 <p>Traffic on new bridge</p>

“*This is the way every  
project should operate*”

Roger Surdahl, P.E.  
Speaking to the ABC Sacaton Bridge Project  
Technology and Innovation Specialist  
Federal Highway Administration  
Office of Federal Lands Highway

# THANK YOU.

If you need any more information, please contact us.



## GET IN TOUCH



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