

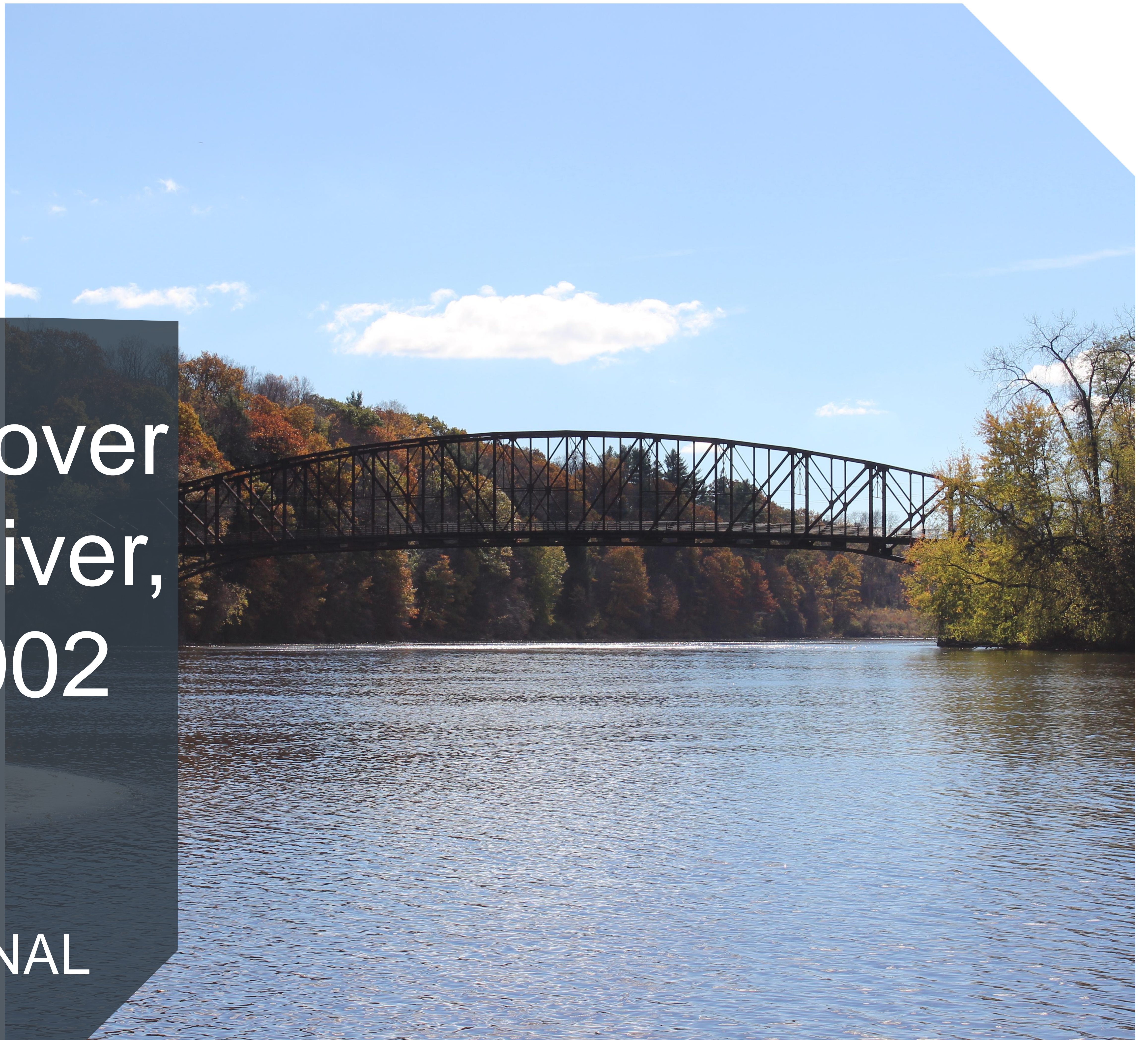
June 1, 2017

# Schell Bridge over Connecticut River, Br. No. N-22-002

TOWN OF NORTHFIELD

PUBLIC INFORMATIONAL  
MEETING:

Bridge Type Concepts





# EXISTING:

## STEEL TRUSS





# LONG SPAN PEDESTRIAN BRIDGE TYPES



**PREFABRICATED STEEL TRUSS**



**STEEL TIED ARCH**



**PREFABRICATED STEEL ARCH/ TUNABLE SYSTEM**



# LONG SPAN PEDESTRIAN BRIDGE TYPES



**CABLE STAYED**



**MODIFIED STEEL TIED ARCH**



**SUSPENSION**

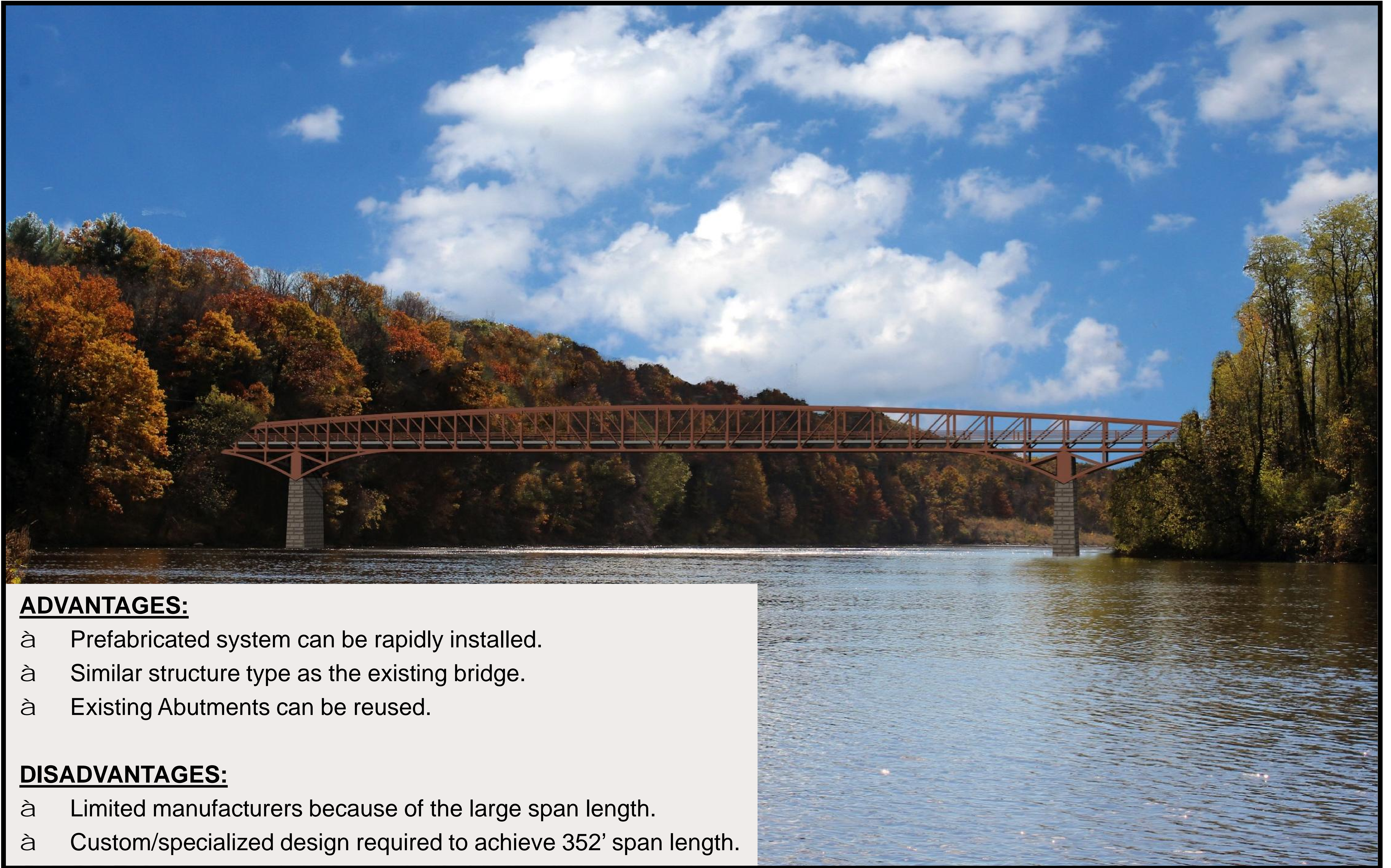


**STRESS RIBBON**



# CONCEPT 1:

## PREFABRICATED STEEL TRUSS WITH TIMBER DECK



### **ADVANTAGES:**

- à Prefabricated system can be rapidly installed.
- à Similar structure type as the existing bridge.
- à Existing Abutments can be reused.

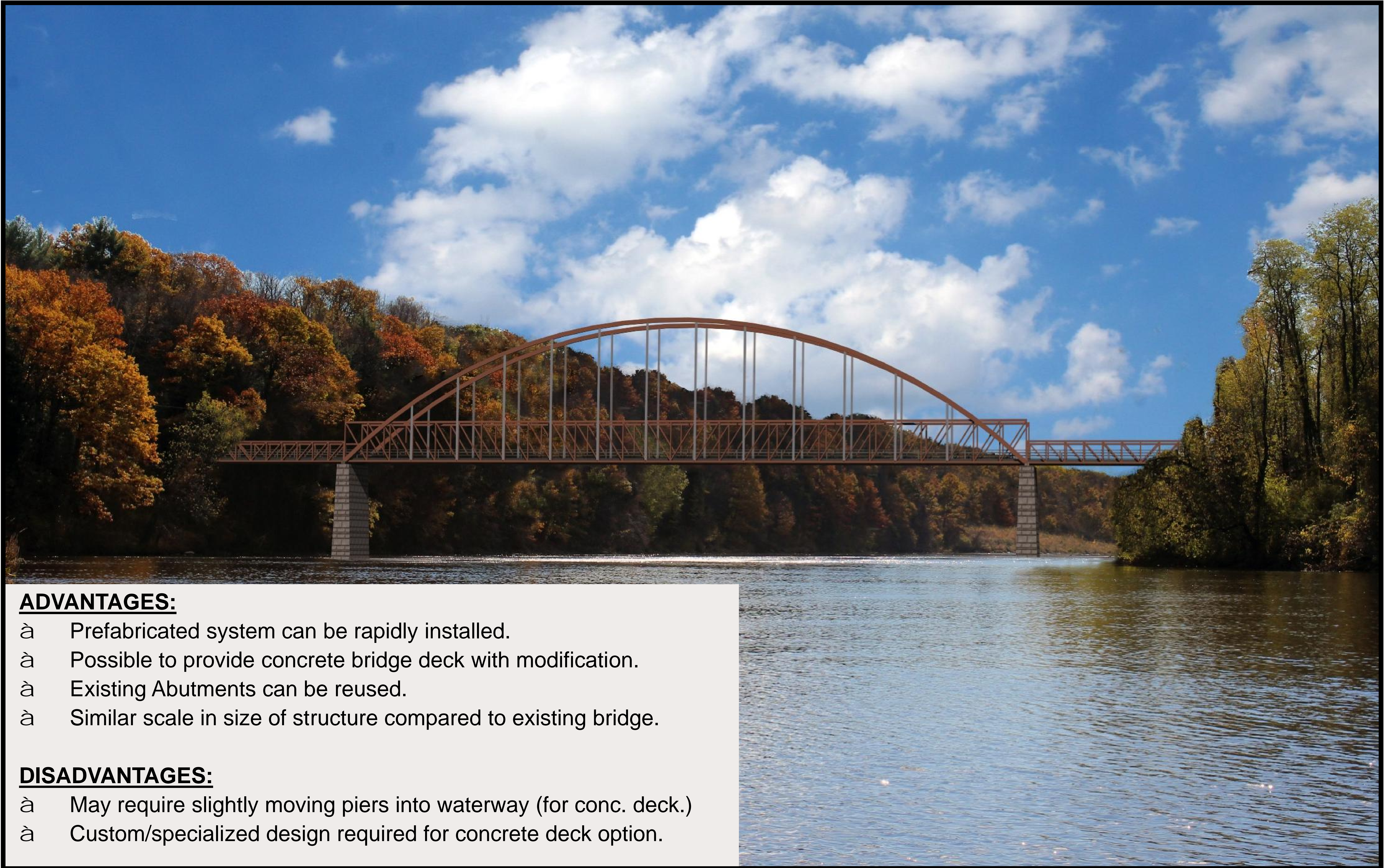
### **DISADVANTAGES:**

- à Limited manufacturers because of the large span length.
- à Custom/specialized design required to achieve 352' span length.



# CONCEPT 2:

## PREFABRICATED STEEL ARCH/ TUNABLE SYSTEM



### **ADVANTAGES:**

- à Prefabricated system can be rapidly installed.
- à Possible to provide concrete bridge deck with modification.
- à Existing Abutments can be reused.
- à Similar scale in size of structure compared to existing bridge.

### **DISADVANTAGES:**

- à May require slightly moving piers into waterway (for conc. deck.)
- à Custom/specialized design required for concrete deck option.



# CONCEPT 3:

## STEEL TIED ARCH with CONCRETE DECK



### **ADVANTAGES:**

- à Existing Abutments can be reused.
- à Similar scale in size of structure compared to existing bridge.
- à Tied arch reduces forces on piers (allows for smaller piers.)
- à Existing span arrangement can be maintained.

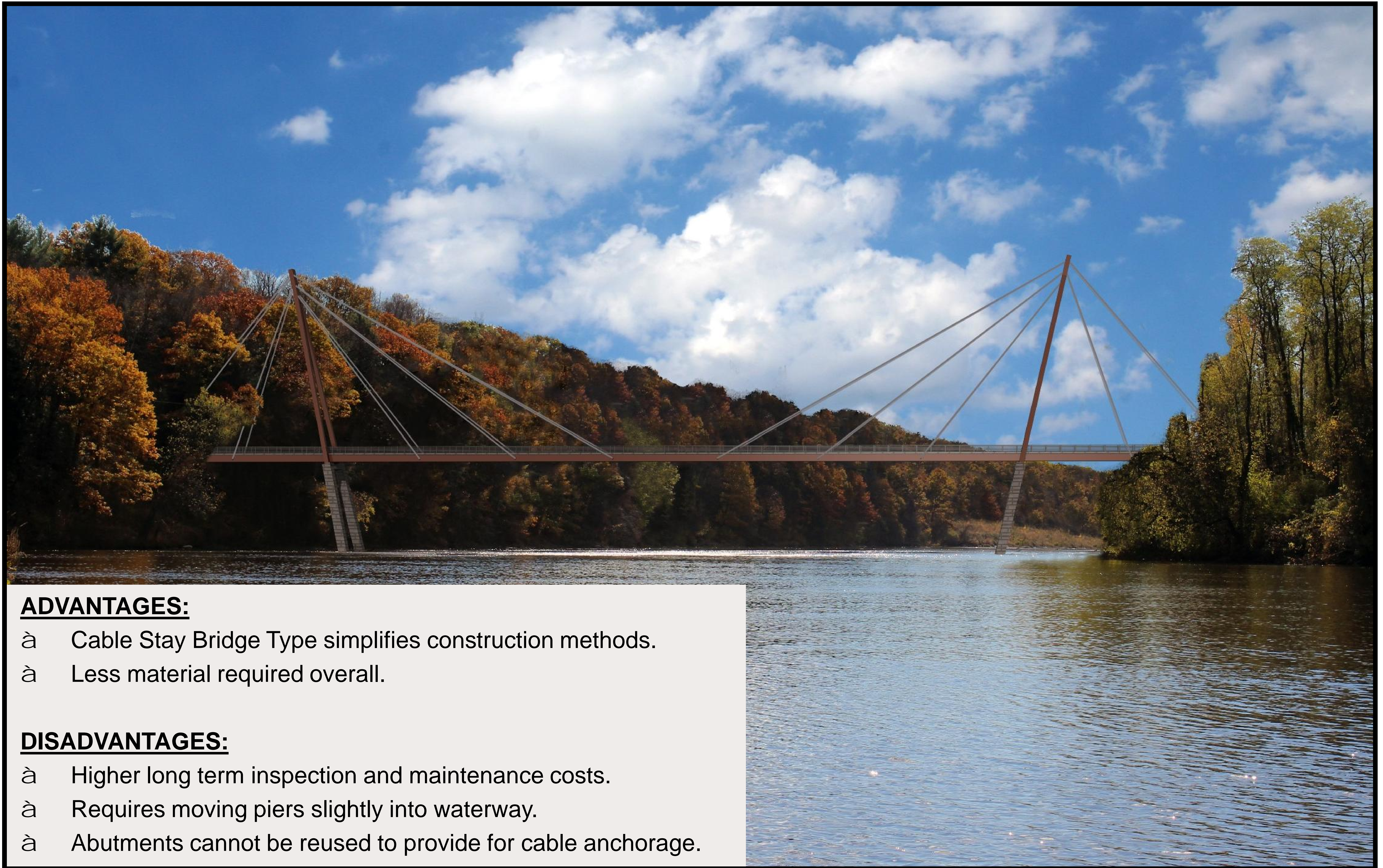
### **DISADVANTAGES:**

- à More complicated construction methods required.



# CONCEPT 4:

## CABLE STAYED BRIDGE with CONCRETE DECK



### **ADVANTAGES:**

- à Cable Stay Bridge Type simplifies construction methods.
- à Less material required overall.

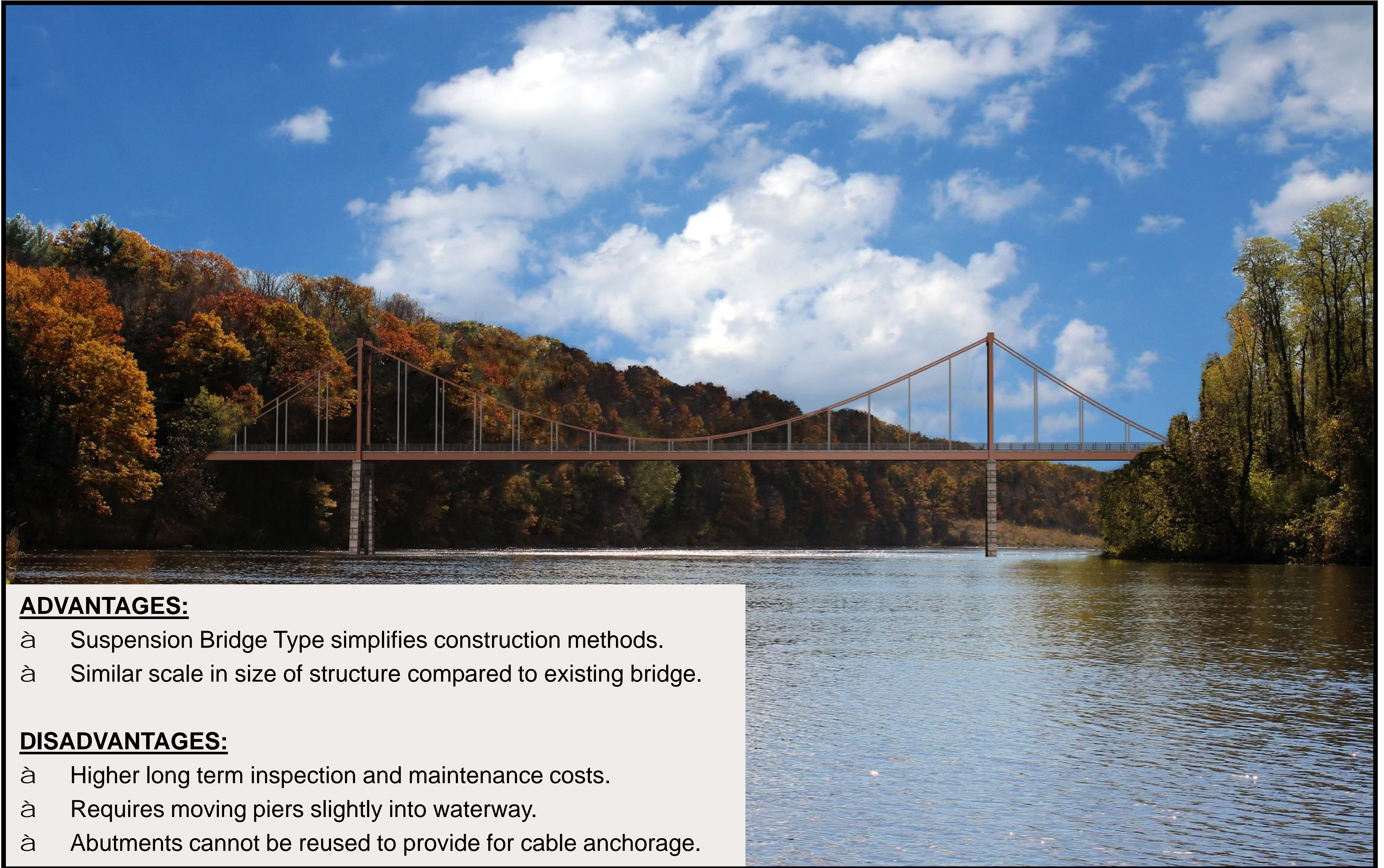
### **DISADVANTAGES:**

- à Higher long term inspection and maintenance costs.
- à Requires moving piers slightly into waterway.
- à Abutments cannot be reused to provide for cable anchorage.



# CONCEPT 5:

## SUSPENSION BRIDGE with CONCRETE DECK



### **ADVANTAGES:**

- à Suspension Bridge Type simplifies construction methods.
- à Similar scale in size of structure compared to existing bridge.

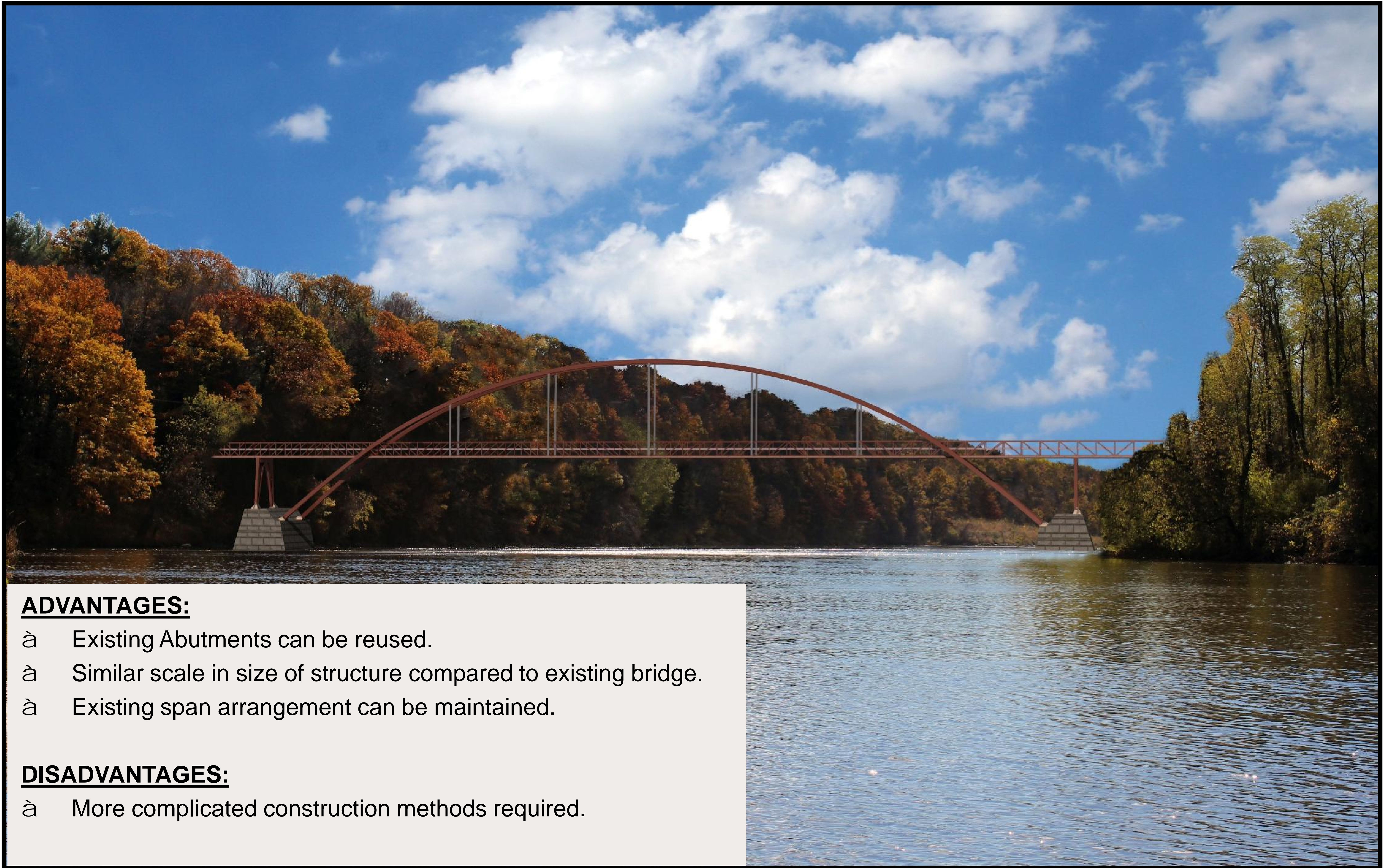
### **DISADVANTAGES:**

- à Higher long term inspection and maintenance costs.
- à Requires moving piers slightly into waterway.
- à Abutments cannot be reused to provide for cable anchorage.



# CONCEPT 6:

## MODIFIED STEEL TIED ARCH with CONCRETE DECK



### **ADVANTAGES:**

- à Existing Abutments can be reused.
- à Similar scale in size of structure compared to existing bridge.
- à Existing span arrangement can be maintained.

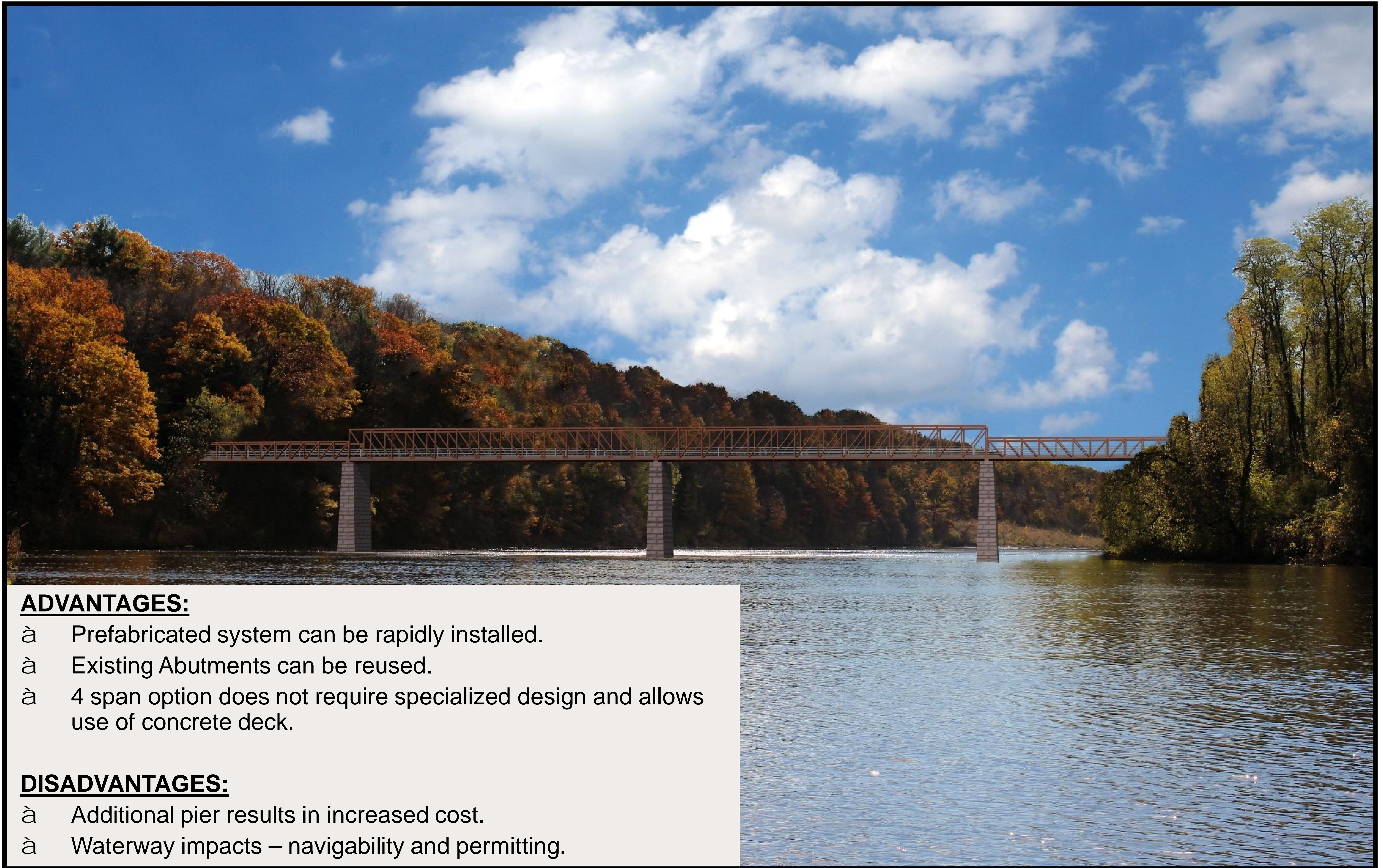
### **DISADVANTAGES:**

- à More complicated construction methods required.



# CONCEPT 7:

## PREFABRICATED STEEL TRUSS (4 SPAN) with CONCRETE DECK



### **ADVANTAGES:**

- à Prefabricated system can be rapidly installed.
- à Existing Abutments can be reused.
- à 4 span option does not require specialized design and allows use of concrete deck.

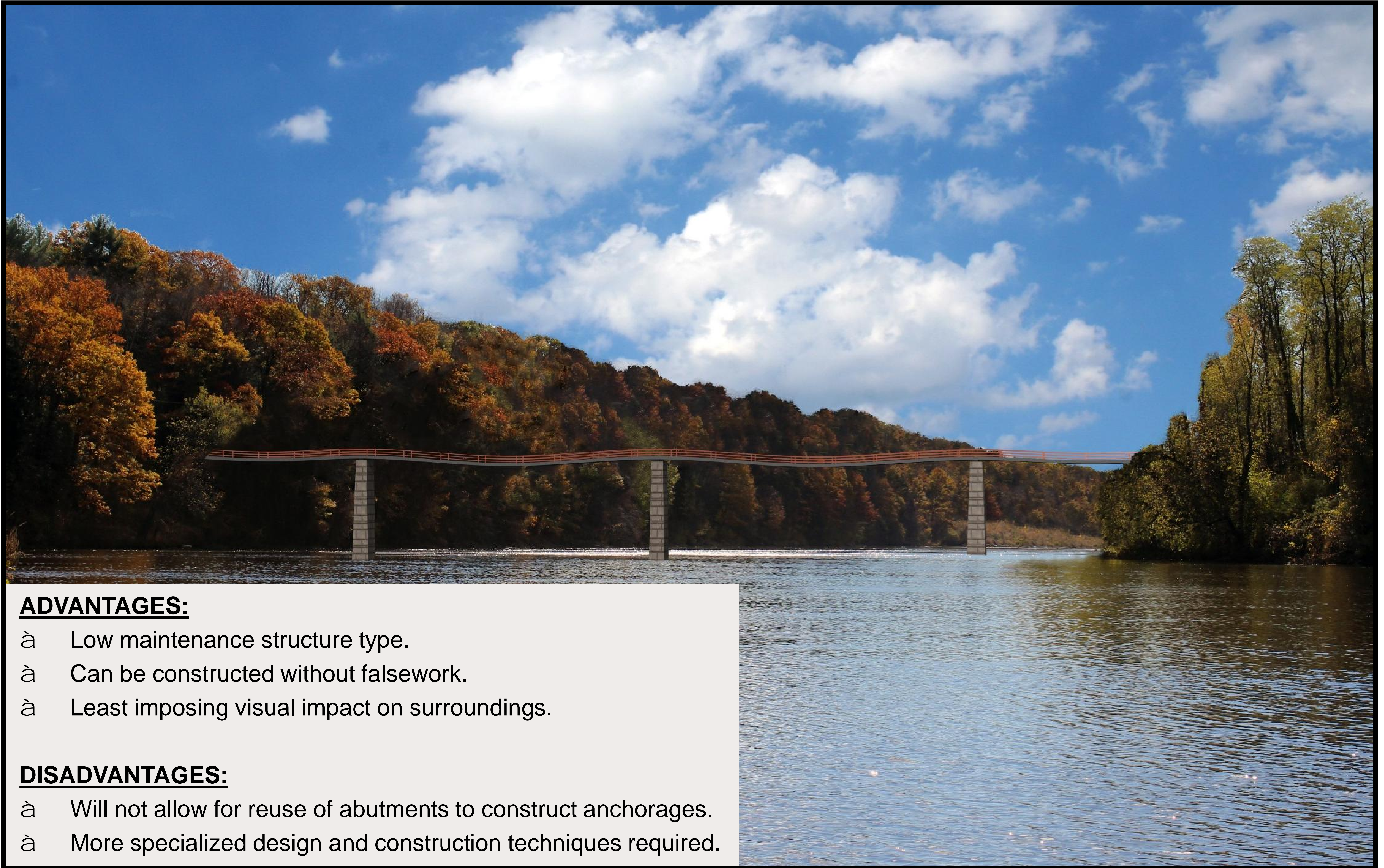
### **DISADVANTAGES:**

- à Additional pier results in increased cost.
- à Waterway impacts – navigability and permitting.



# CONCEPT 8:

## STRESS RIBBON BRIDGE



### **ADVANTAGES:**

- à Low maintenance structure type.
- à Can be constructed without falsework.
- à Least imposing visual impact on surroundings.

### **DISADVANTAGES:**

- à Will not allow for reuse of abutments to construct anchorages.
- à More specialized design and construction techniques required.



# We Want Your Feedback!

- We have prints of each Concept at the tables around the Room
- Please take a few minutes at each table and provide us with your ideas and comments
- A member of the Design Team is at each table to document comments and answer questions



# Next Steps

- Review Comments and Suggestions from today's meeting.
- Narrow Selection of Superstructure to Three Alternatives
- Proceed to Type Selection Phase
- After approval of Type Selection by MassDOT hold a Design Public Hearing