EARTHQUAKE READY
BURNSIDE BRIDGE

Community Task Force Meeting #20

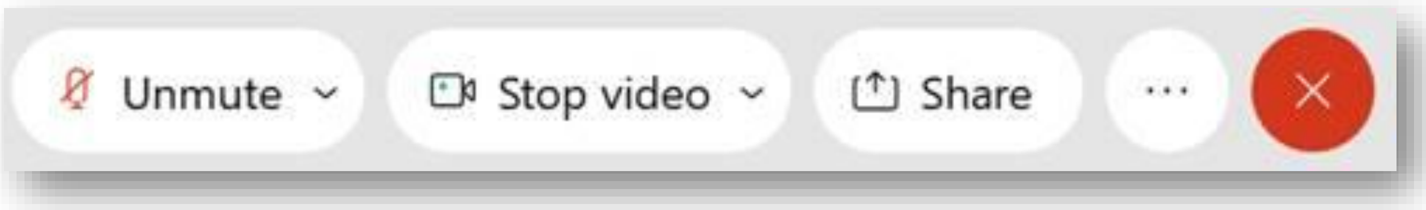
Members join meeting via WebEx link in calendar invite

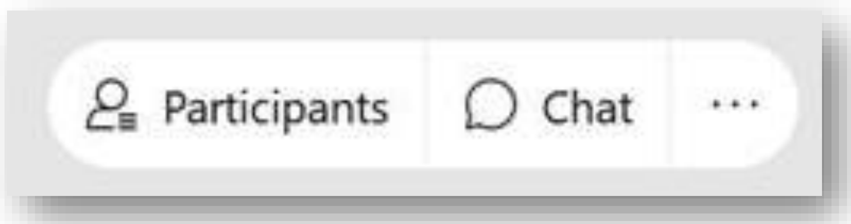
NOTE: Meeting is live to the public and recorded

Department of Community Services
Transportation Division
November 23, 2020

Meeting Protocols

Using WebEx participation features





For WebEx tech support call or email Liz Stoppelmann:
(916) 200-5123
Liz.Stoppelmann@hdrinc.com

Agenda

1. Welcome, Introductions & Housekeeping
2. Public Comment
3. Project Update
4. Menu of Bridge Types Review
5. Criteria Development
6. Open Discussion
7. Next Steps

Introductions and Roll Call

Community Task Force

- **Amy Rathfelder**, Portland Business Alliance
- **Art Graves**, Multnomah County Bike and Pedestrian Citizen Advisory Committee
- **Dennis Corwin**, Portland Spirit
- **Ed Wortman**, Community Member
- **Frederick Cooper**, Laurelhurst Neighborhood Emergency Team and Laurelhurst Neighborhood Association
- **Gabe Rahe**, Burnside Skate Park
- **Howie Bierbaum**, Portland Saturday Market
- **Jackie Tate**, Community Member
- **Jane Gordon**, University of Oregon
- **Jennifer Stein**, Central City Concern
- **Marie Dodds**, AAA of Oregon
- **Neil Jensen**, Gresham Area Chamber of Commerce
- **Paul Leitman**, Oregon Walks
- **Peter Englander**, Old Town Community Association
- **Peter Finley Fry**, Central Eastside Industrial Council
- **Sharon Wood Wortman**, Community Member
- **Stella Funk Butler**, Coalition of Gresham Neighborhood Associations
- **Susan Lindsay**, Buckman Community Association
- **Tesia Eisenberg**, Mercy Corps
- **Timothy Desper**, Portland Rescue Mission
- **William Burgel**, Portland Freight Advisory Committee

Public Comment

Bridge Type Selection Phase

EARTHQUAKE READY BURNSIDE BRIDGE

Working Groups to support the CTF

Working Group	Focus	Date
Urban Design & Aesthetics	• Aesthetic / Urban Design insights per bridge type • Recommendation on type selection evaluation criteria	Dec 2
Bridge & Seismic	• Technical bridge design differentiators • Seismic performance findings	Dec 2020
Constructability	• Construction methods and durations • Range of potential impacts	Jan 2021
Natural Resources	• Impacts to natural resources	Mar 2021
Diversity Equity & Inclusion	• Bridge option impacts to DEI principles	Jan 2021
Multi-Modal	• Technical input on the bridge uses, typical sections, and connections to the existing multi- modal networks	Jan 2021
Historic/Cultural Resources	• Impacts to historic and cultural resources	Nov 30

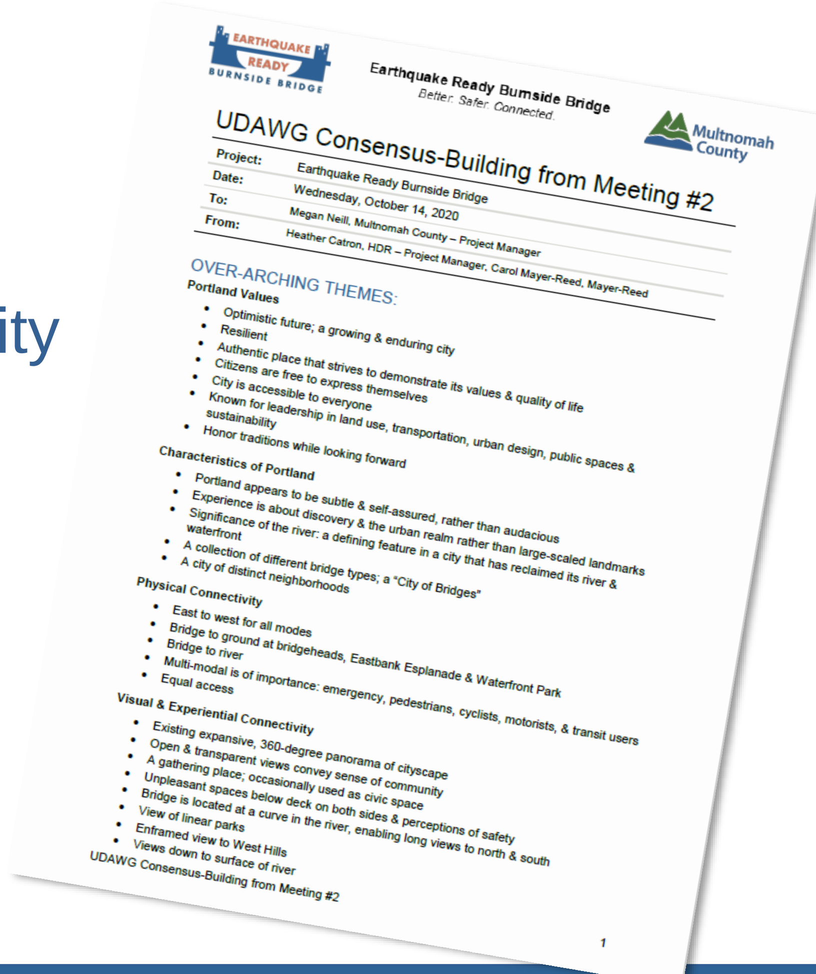
**CTF members invited to attend working group meetings as desired*

Project Update

Urban Design and Aesthetics Working Group

Architectural and Urban Design Themes

- Portland Values
- Characteristics of Portland
- Physical Connectivity
- Visual and Experiential Connectivity
- Relationship to River
- Bridge Site and Location



Earthquake Ready Burnside Bridge
Better. Safer. Connected.

UDAWG Consensus-Building from Meeting #2

Project:	Earthquake Ready Burnside Bridge
Date:	Wednesday, October 14, 2020
To:	Megan Neill, Multnomah County – Project Manager
From:	Heather Catron, HDR – Project Manager, Carol Mayer-Reed, Mayer-Reed

OVER-ARCHING THEMES:

Portland Values
- Optimistic future; a growing & enduring city
- Resilient
- Authentic place that strives to demonstrate its values & quality of life
- Citizens are free to express themselves
- City is accessible to everyone
- Known for leadership in land use, transportation, urban design, public spaces & sustainability
- Honor traditions while looking forward

Characteristics of Portland
- Portland appears to be subtle & self-assured, rather than audacious
- Experience is about discovery & the urban realm rather than large-scaled landmarks
- Significance of the river: a defining feature in a city that has reclaimed its river & waterfront
- A collection of different bridge types; a "City of Bridges"
- A city of distinct neighborhoods

Physical Connectivity
- East to west for all modes
- Bridge to ground at bridgeheads, Eastbank Esplanade & Waterfront Park
- Bridge to river
- Multi-modal is of importance: emergency, pedestrians, cyclists, motorists, & transit users
- Equal access

Visual & Experiential Connectivity
- Existing expansive, 360-degree panorama of cityscape
- Open & transparent views convey sense of community
- A gathering place; occasionally used as civic space
- Unpleasant spaces below deck on both sides & perceptions of safety
- Bridge is located at a curve in the river, enabling long views to north & south
- View of linear parks
- Enframed view to West Hills
- Views down to surface of river

UDAWG Consensus-Building from Meeting #2

1

Project Update

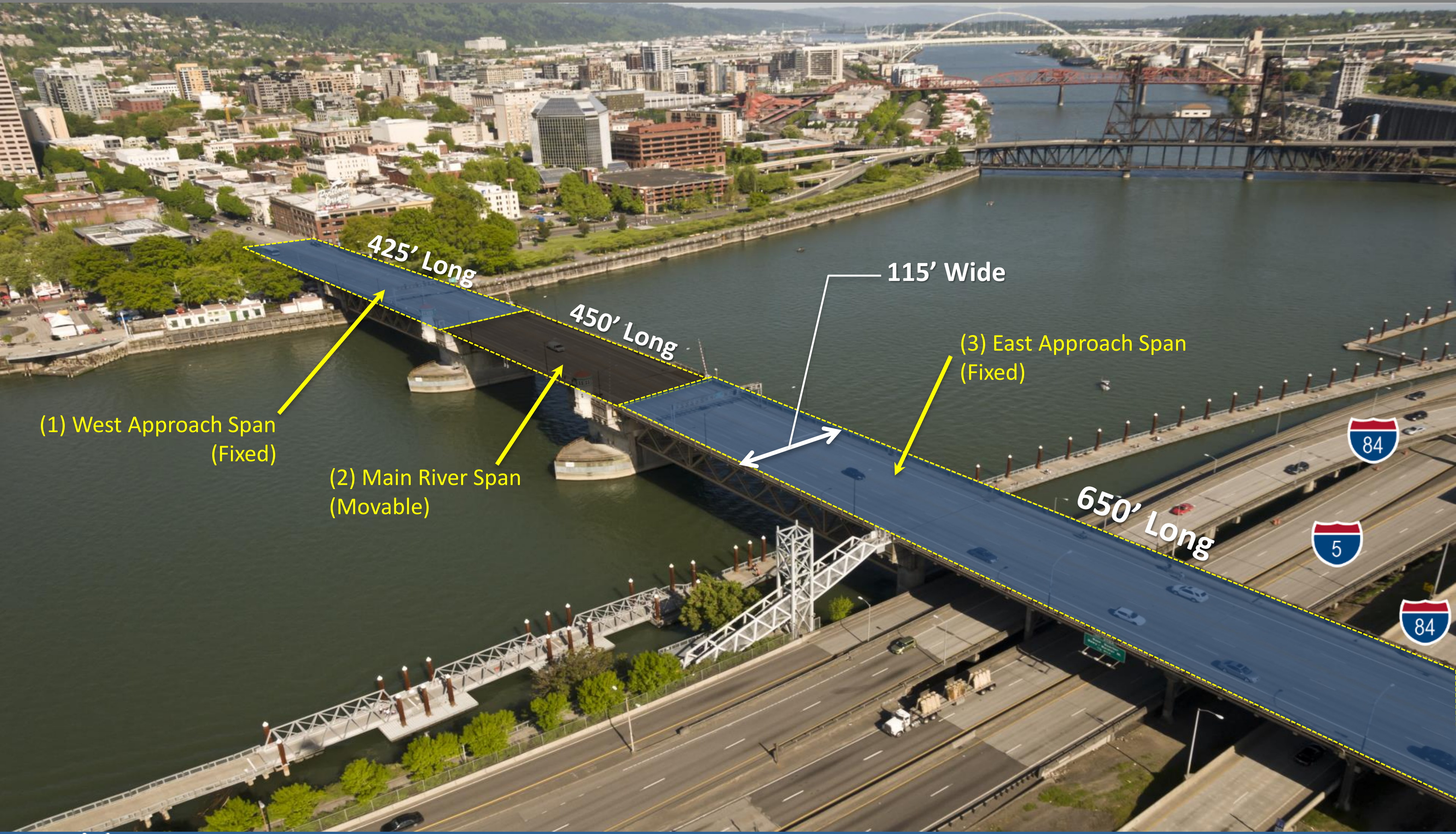
EARTHQUAKE READY BURNSIDE BRIDGE

Urban Design & Aesthetics Working Group

- Menu of Bridge Types
- Bridge Aspirations and Opportunities

Menu of Bridge Types

Long-span Alternative: "Three bridges in one"



Menu of Bridge Types

EARTHQUAKE READY
BURNSIDE BRIDGE

Long-span Alternative: Representative Bridge Types

BRIDGE TYPE OPTION: Tied Arch examples


Hastings Bridge, Minnesota


Torikai Ohas Bridge, Japan


Siuslaw River Bridge, Oregon


Tacony-Palmyra Bridge, Pennsylvania


Gateway Bridge, Michigan

BRIDGE TYPE OPTION: Cable Stayed examples


Indian River Inlet Bridge, Delaware


Chongqing Expressway Bridge, China


Cooper River Bridge, South Carolina


Tilikum Crossing Bridge, Oregon

BRIDGE TYPE OPTION: Through Truss examples


Main Street Bridge, Florida


Triborough (Harlem River) Bridge, New York


Tower Bridge, CA


Broadway Bridge, Oregon


Hawthorne Bridge, Oregon

MOVABLE SPAN: Bascule examples


South Park Bridge, Washington


Harbor Bridge, Spain


New Johnson St. Bridge, Canada


Woodrow Wilson Bridge, Maryland

MOVABLE SPAN: Vertical Lift examples

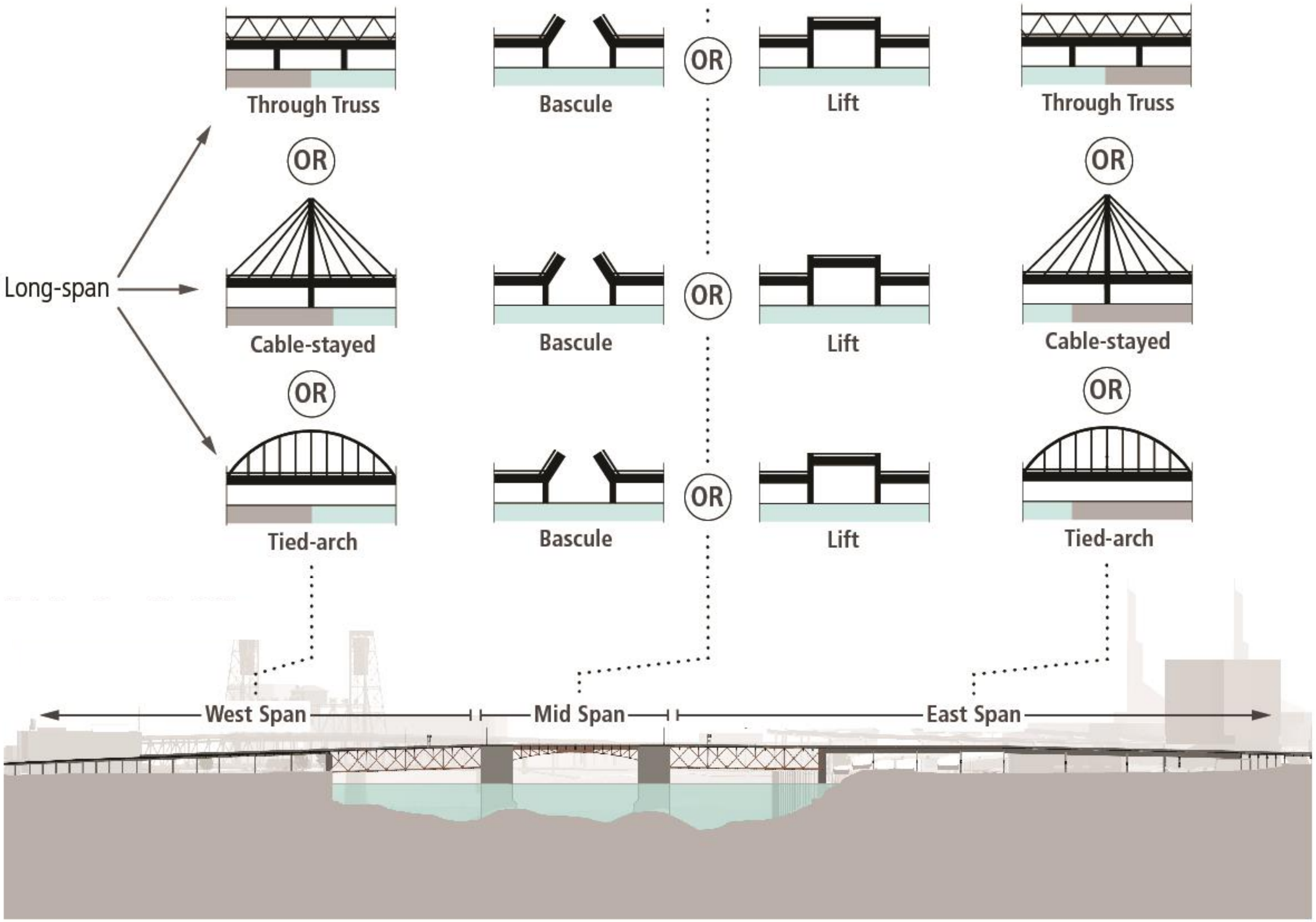

Tereggganu Bridge, Malaysia


Fore River Bridge, Massachusetts


Pont Jacques Chaban, Delmas


Manchester Millenium Bridge, England

Menu of Bridge Types



Menu of Bridge Types

EARTHQUAKE READY
BURNSIDE BRIDGE

Type Selection Process

Goals and Objectives
Stakeholder Input
Agency Collaboration

Criteria & Measures Development

Physical Constraints
Design Criteria
Context Sensitivity
Budget Compliance
Environmental Stewardship
Agency / Stakeholder Input

Range of Feasible Options

Evaluation and Screening

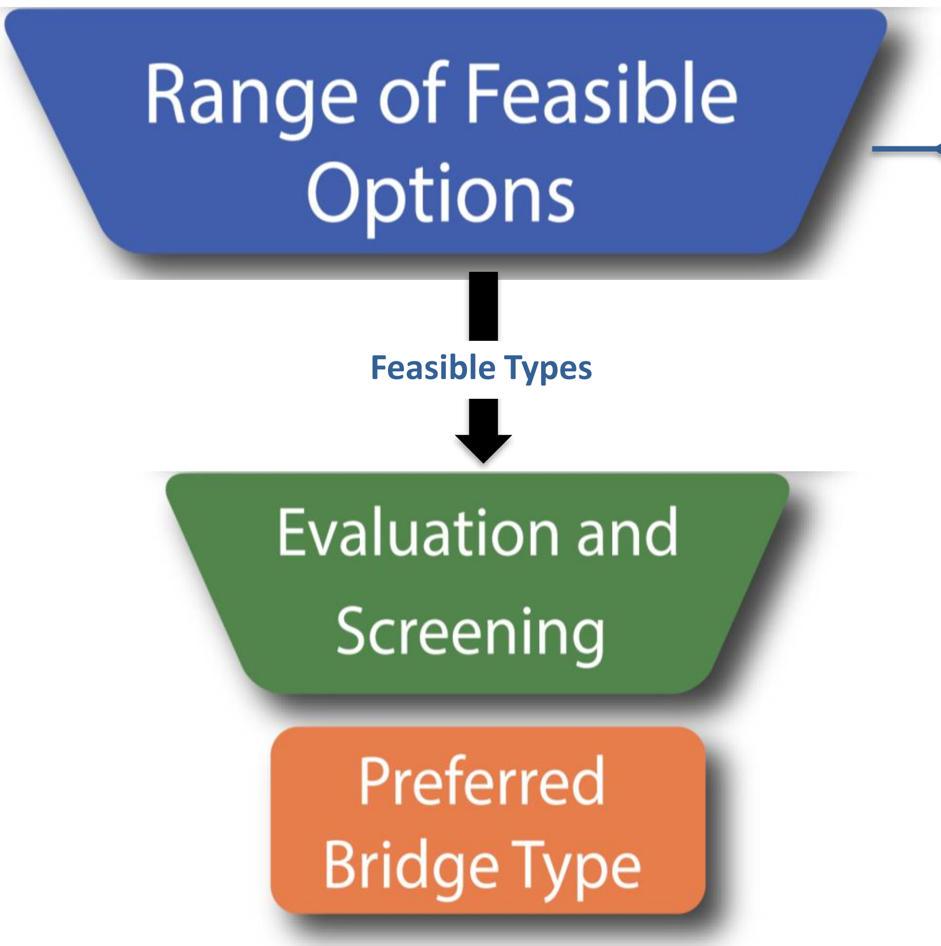
Preliminary Design
Quantities
Cost Estimate
Construction Risk

Preferred Bridge Type

Menu of Bridge Types

EARTHQUAKE READY BURNSIDE BRIDGE

Type Selection Process: Establishing the Range of Feasible Options



Technically Feasible Types

✓ **Feasible Options / Features**

X **Challenged Options / Features**

Technically Challenged Types (i.e., Dismissed)

Movable Bridge Span

Bascule Bridge Types


South Park Bridge, Washington


Harbor Bridge, Spain


New Johnson St. Bridge, Canada


Woodrow Wilson Bridge, Maryland

Bascule Movable Bridge Type:

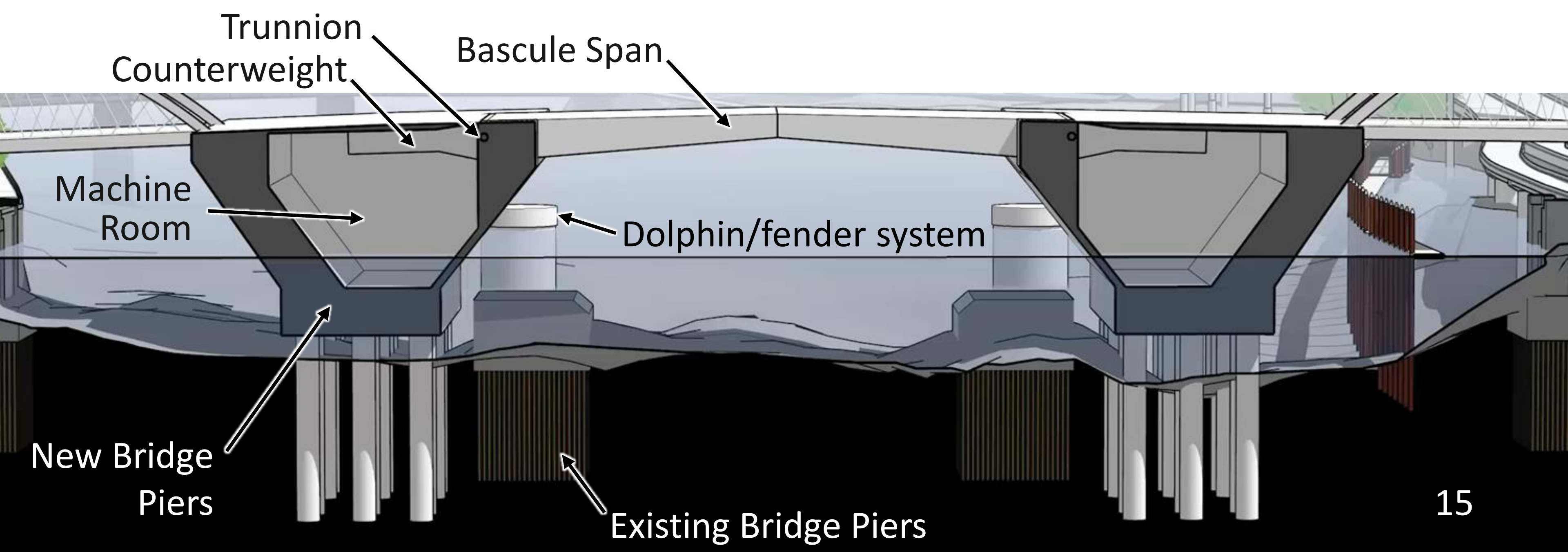
- Bascule Bridge Fundamentals
- Technically Feasible Options
- Technically "Challenged" Options

Movable Bridge Span

Bascule Type for the Burnside Bridge: "Delta Pier"

Key Attributes:

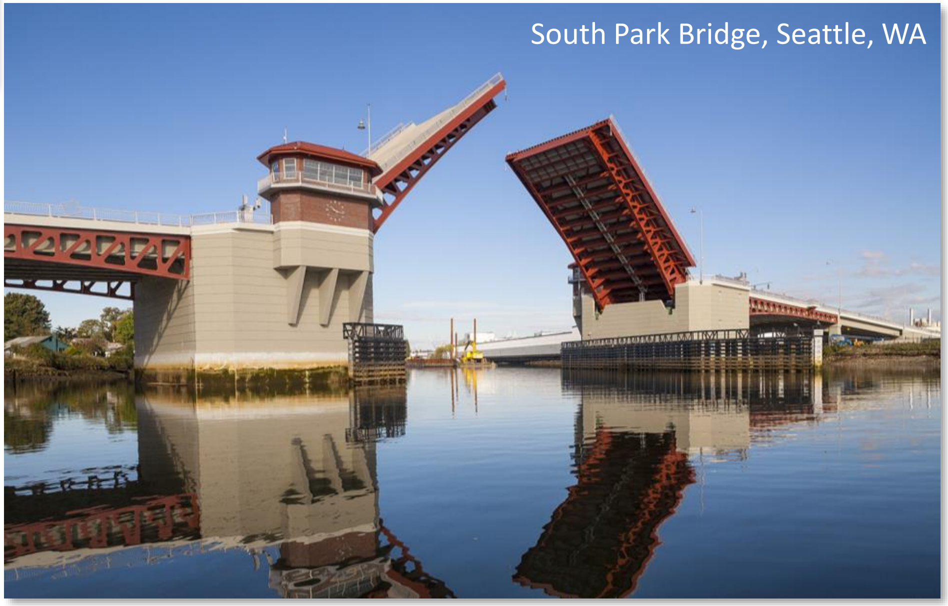
- **Bascule Span:**
  - "Split-leaf" (2 halves) type due to opening length
  - Support structure can be above or below deck
- **Pier Locations:** West and east of the existing piers to avoid foundation conflicts
- **Pier Sizing:** Needs to accommodate counterweight movements and machine room
- **Trunnion Placement:** Towards main channel span to reduce bascule leaf length
- **Vessel Collision Protection:** Likely requires a fender or dolphin system for large ships



Menu of Bridge Types

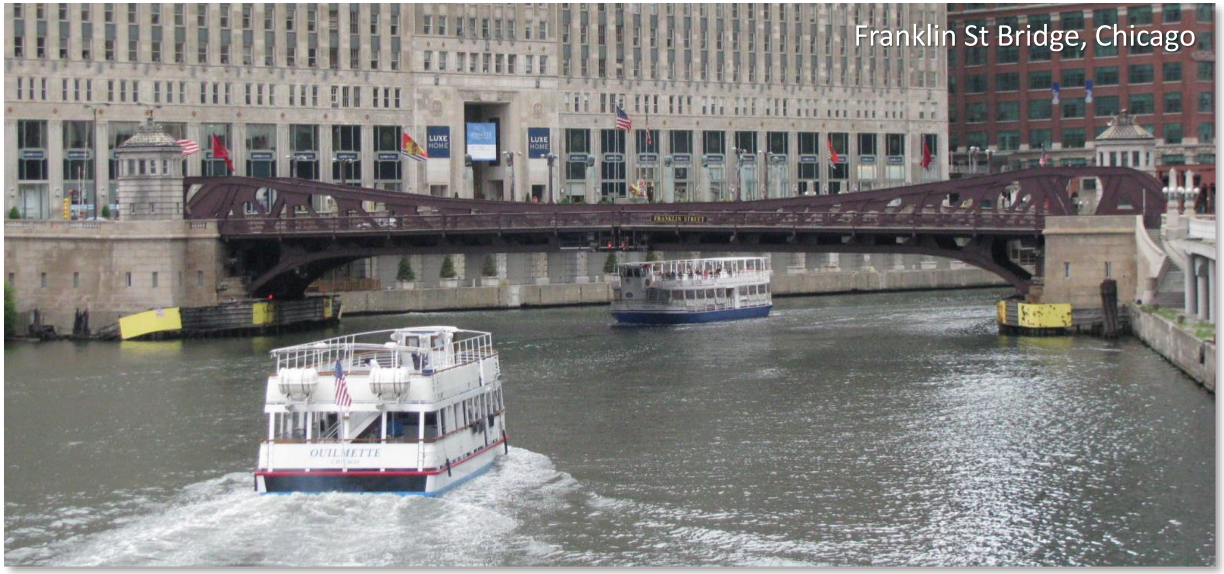
Technically Feasible Bascule Option: Traditional Twin-Leaf Style


Existing Burnside Bridge


South Park Bridge, Seattle, WA

Menu of Bridge Types

Technically Feasible Bascule Option: Rustic Style



Menu of Bridge Types

EARTHQUAKE READY BURNSIDE BRIDGE

Technically Feasible Bascule Option: Tower-framed Style


Terengganu Bridge, Malaysia


London Tower Bridge, England

Movable Bridge Span

Technically Feasible Bascule Option: Modern Style

Technically Feasible Feature:

- Support struts / cables must be:
  - Sized for large loads
  - Placed near exteriors of roadway deck

Technically Challenged Feature:

- May need twin bridges due to the larger Burnside Bridge width


Pont Y Ddraig Harbor Bridge, Wales


Harbor Bridge, Barcelona

Movable Bridge Span

Technically Feasible Bascule Option – Modern Style

New Johnson St Bridge, Victoria, Canada

Technically Feasible Feature:

- Above-deck members
- Bascule shape (partially open pit)
- Limited ability to suspend bike/ped walkway below deck

Technically Challenged Feature:

- ~300’ single leaf needed for Burnside

New Johnson St Bridge, Victoria, Canada

Movable Bridge Span

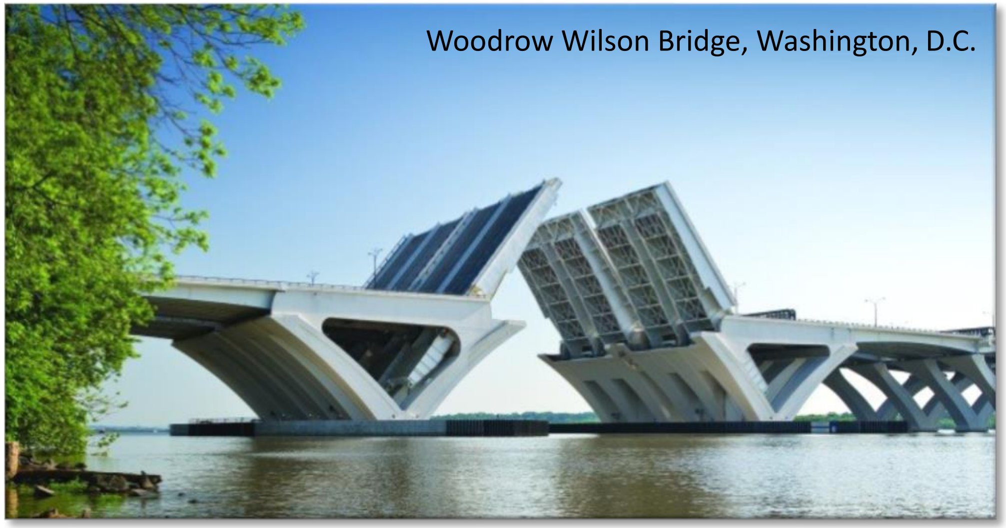
Technically Feasible Types: Delta Pier Style

Technically Feasible Feature:

- Bascule shape (Delta pier shape)

Technical Challenged Feature:

- Split-leaf (each bascule side split in half):
  - Bifurcates the roadway into narrower twin pieces, limiting flexibility for future lane alterations
  - Increases permit risk via a larger bridge footprint
  - Results in twice the mechanical and electrical equipment to construct, operate, and maintain



Woodrow Wilson Bridge, Washington, D.C.

17th Street Causeway, Ft. Lauderdale, Florida

Movable Bridge Span

Lift Bridge Types


Fore River Bridge, Massachusetts


Pont Jacques Chaban, Delmas


Manchester Millenium Bridge, England

Lift Movable Bridge Type:

- Lift Bridge Fundamentals
- Technically Feasible Options
- Technically “Challenged” Options

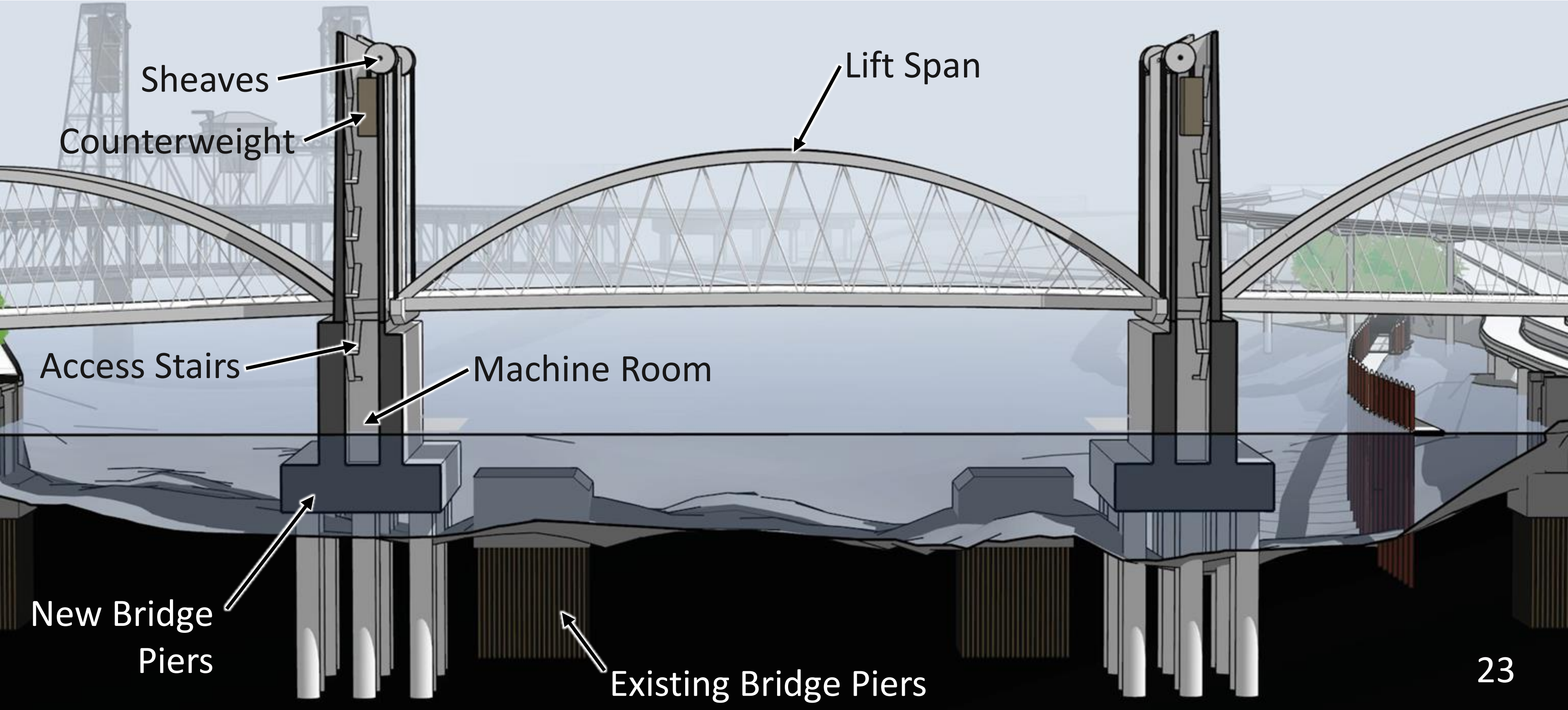
Movable Bridge Span

EARTHQUAKE READY BURNSIDE BRIDGE

Lift Type for the Burnside Bridge

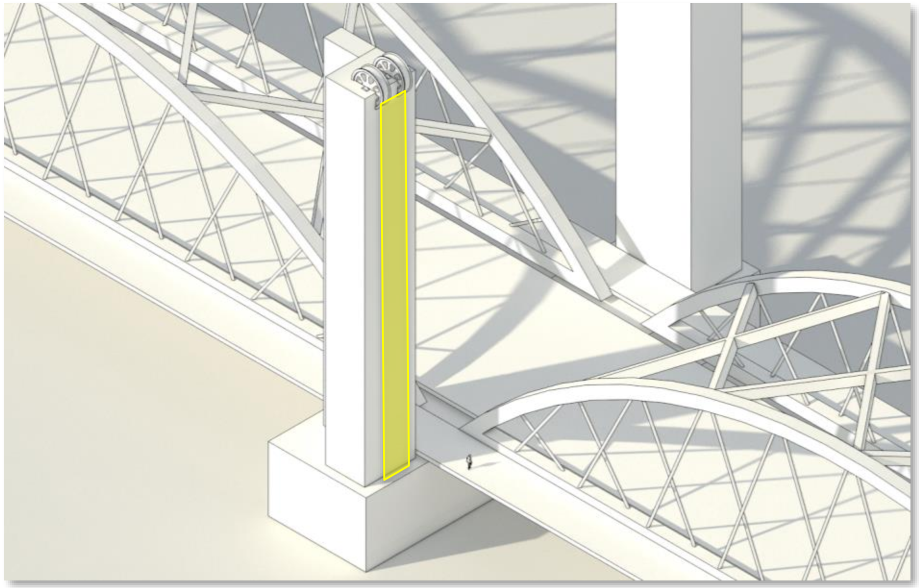
Key Attributes:

- **Lift Span:** Support structure can be above or below deck
- **Pier Locations:** West and east of the existing piers to avoid foundation conflicts
- **Pier Sizing:** Needs to accommodate counterweight movements, machine room, and stairs
- **Sheaves Placement:** Towards main channel span to raise span

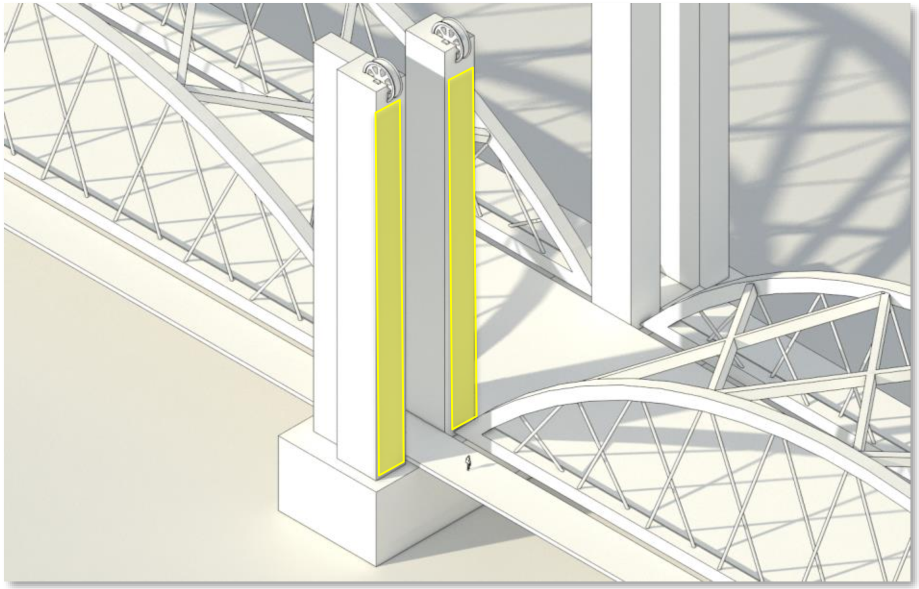


Movable Bridge Span

Lift Type: Single Tower versus Split Towers



Single Tower

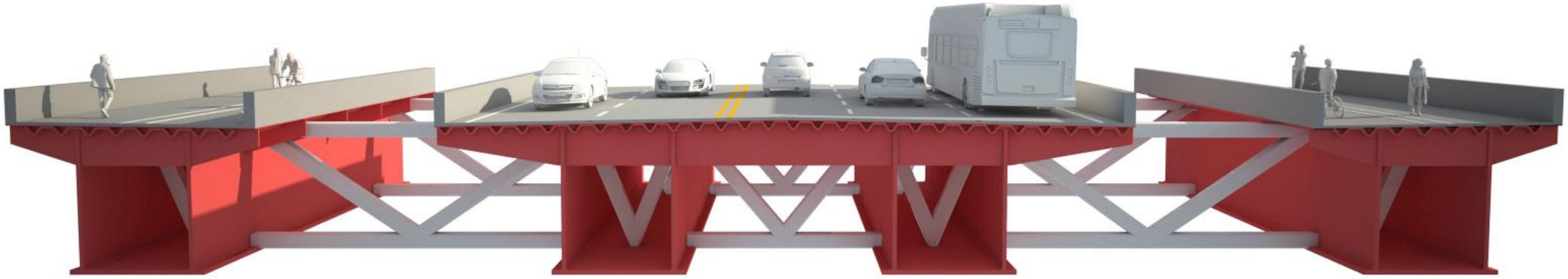


Split Tower

Movable Bridge Span

EARTHQUAKE READY BURNSIDE BRIDGE

Lift Span Type – "Girder" type is Technically Feasible



Burnside Bridge Cross Section of Lift Span (Below deck option)

Movable Bridge Span

Technically Feasible Lift Option: Modern Truss Tower Style


Tower Bridge, Sacramento


Fore River Bridge, Quincy, Massachusetts


Chelsea St Bridge, Massachusetts

Movable Bridge Span

EARTHQUAKE READY BURNSIDE BRIDGE

Technically Feasible Lift Option: Individual Tower Style

Pont Jacques Chaban Bridge, Bordeaux France

Sarah Mildred Long Bridge, Maine – New Hampshire

Movable Bridge Span

Technically Feasible Lift Option: Individual Tower Style

Movable Bridge Span

Technically Challenged Lift Option: Slender Steel Truss Towers


Hawthorne Bridge


Manchester Millenium Bridge, England

Why?

- Seismic resiliency requires a much more robust structural system


Steel Bridge

Movable Bridge Span

Technically Challenged Lift Option: Unrestrained cable lifting mechanisms

Why?

- Seismic resiliency requires a much more restrained structural system
- Bifurcates the into roadway into narrower twin pieces, limiting flexibility for future lane alterations
- Increases permit risk via a larger bridge footprint

Movable Bridge Span (Summary)

Technically Feasible Types

Lift

- Individual or strong truss tower
- Single or split towers

Bascule

- Delta pier
- Twin leaf
- Rustic or modern style

Movable Bridge Span

EARTHQUAKE READY
BURNSIDE BRIDGE

Technically Challenged Types: “Swing” & other bridges with Unique Movements


Scale Lane Bridge, England


Twin Sails Bridge, England

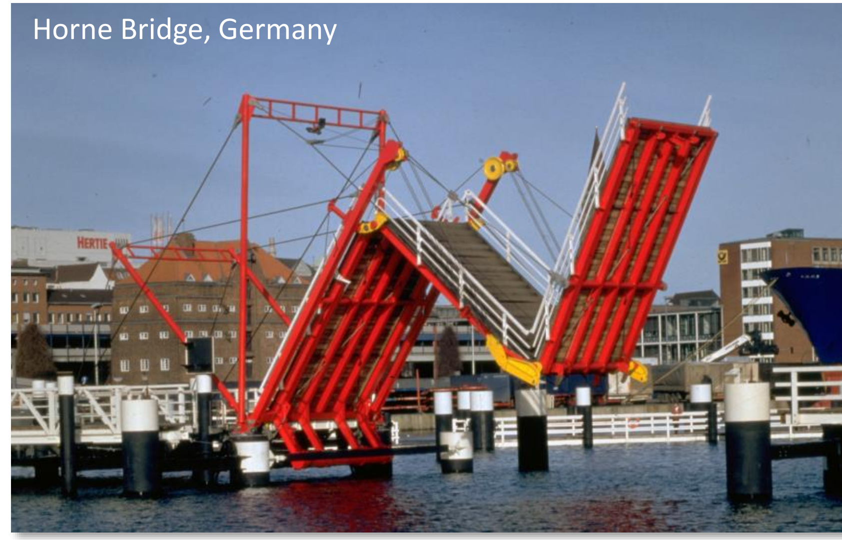
Why?

- Requires more in-river piers or a larger turret on each side of the main navigation channel
- Expensive to construct, operate, and maintain
- Less safe than lift or bascule due to large motions over the river
- Longer opening times:
  - To clear on-bridge and in-river users
  - To rotate open and to close

Movable Bridge Span

Technically Challenged Types: Unique Movements


Slauwerhoffbrug Bridge, The Netherlands


Horne Bridge, Germany

Gateshead Millennium Bridge, England


Falkirk Wheel, Scotland

Movable Bridge Span (Summary)

EARTHQUAKE READY BURNSIDE BRIDGE

Technically Feasible Types

✓

Lift

- Individual or strong truss tower
- Single or split towers

✓

Bascule

- Delta pier
- Twin leaf
- Rustic or modern style

EARTHQUAKE READY BURNSIDE BRIDGE

Fixed Approach Bridge Types

- Tied Arch
- Truss
- Cable Stayed
- Extradosed
- Suspension
- “Other”

Fixed Approach Bridge Types

Tied Arch Type

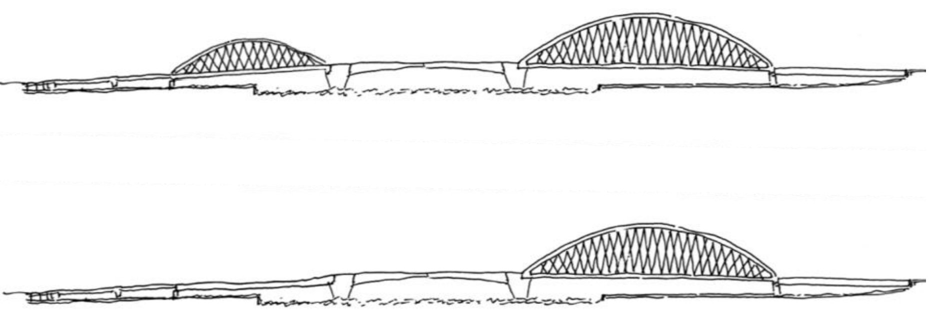

Hastings Bridge, Minnesota

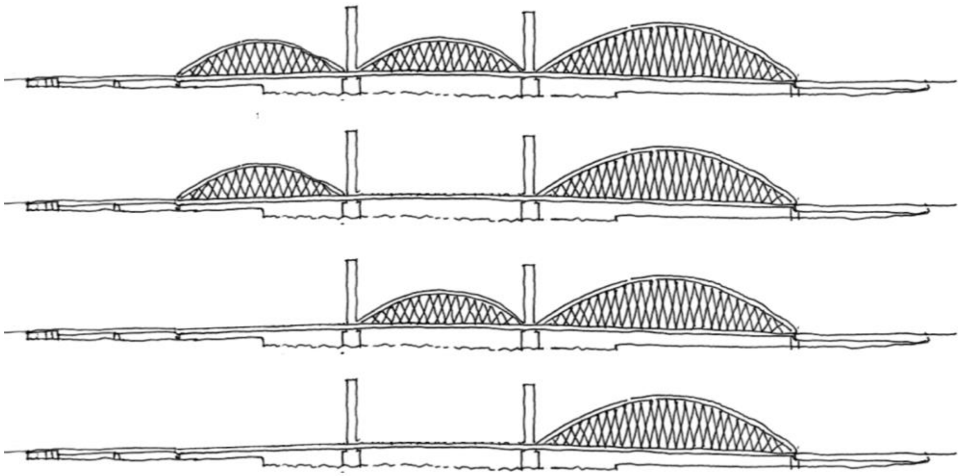

Torikai Ohas Bridge, Japan


Siuslaw River Bridge, Oregon


Tacony-Palmyra Bridge, Pennsylvania


Gateway Bridge, Michigan


Bascule Span Configurations


Lift Options

Fixed Approach Bridge Types

Technically Feasible Tied Arch Option: Conventional Style

Key Technical Attributes:

- Proven reliability in a seismic event
- Height variability (up to 15’ on west side and 45’ on eastside)
- Offers a variety of shapes and styles
- Arch Height from deck: ~85’ (west side) and ~120’ tall (east side)

Key Technical Trade-offs:

- Impacts on views / openness
- May require cross-bracing


Lowry Bridge, Minnesota

Fixed Approach Bridge Types

Technically Feasible Tied Arch Option: Conventional Style (Network cable)


Blennerhassett Island Bridge, West Virginia


Sauvie Island Bridge

Fixed Approach Bridge Types

EARTHQUAKE READY BURNSIDE BRIDGE

Technically Feasible Tied Arch Option: Conventional Style (Open Rib)

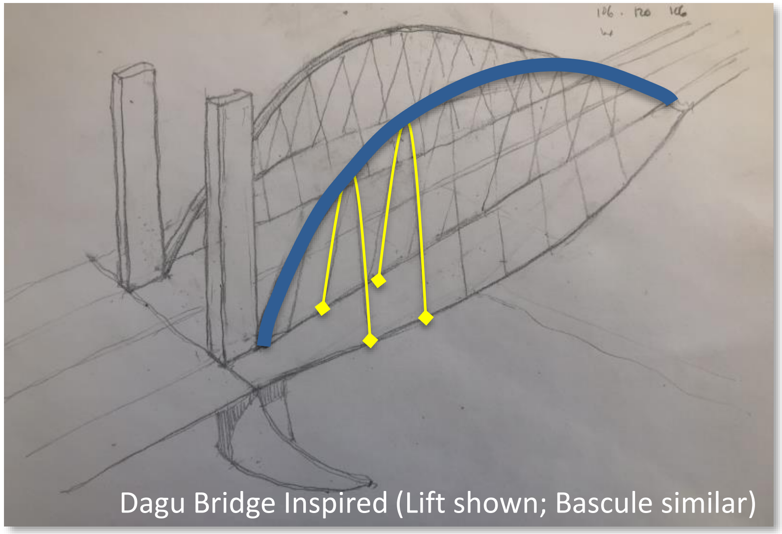
Hastings Bridge, Minnesota

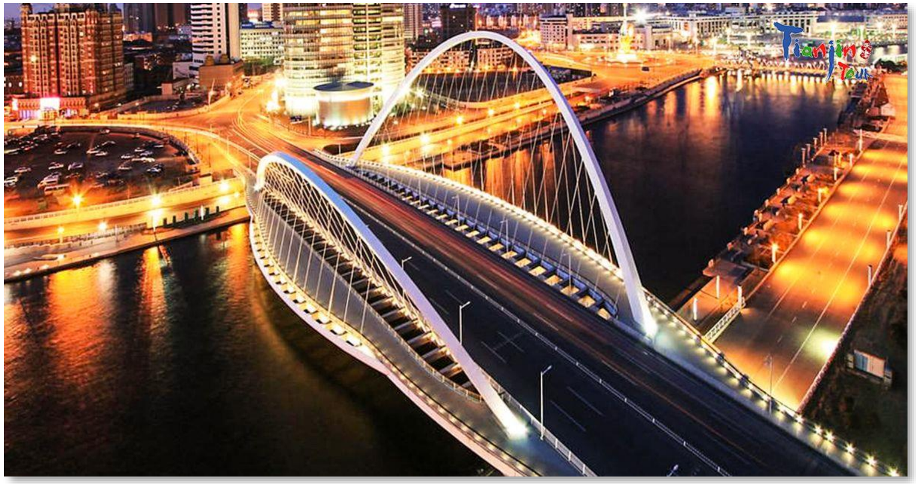
Fixed Approach Bridge Types

EARTHQUAKE READY
BURNSIDE BRIDGE

Technically Feasible Tied Arch Option: Inclined and Cable Stiffened Style


Dagu Bridge, China


Dagu Bridge Inspired (Lift shown; Bascule similar)

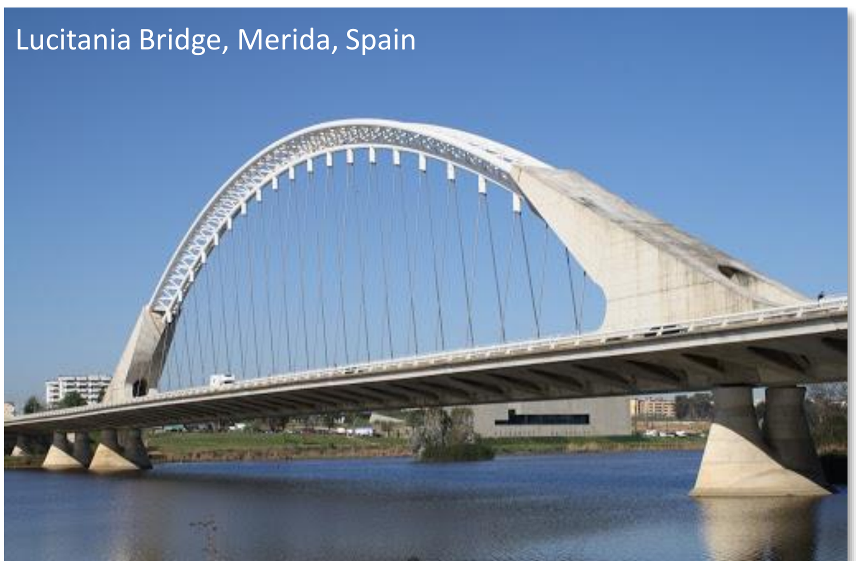


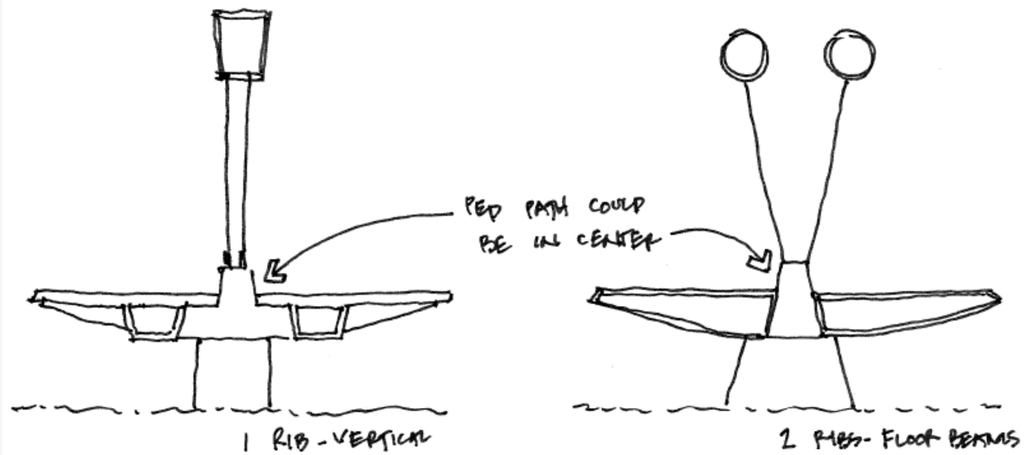
Fixed Approach Bridge Types

Technically Challenged Tied Arch Option: Single Arch Rib Alignment

Why?

- Bifurcates the roadway into narrower pieces, limiting flexibility for future lane alterations
- For west approach at Naito Parkway, this requires more superstructure depth, causing insufficient vertical clearances below deck
- Subject to material type, increases seismic demands requiring larger in-water foundations
- Constructability challenges over I-5/I-84/UPRR


Lucitania Bridge, Merida, Spain



Fixed Approach Bridge Types

Truss Type

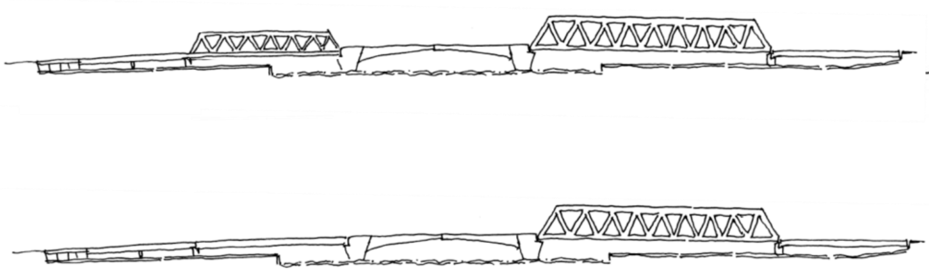
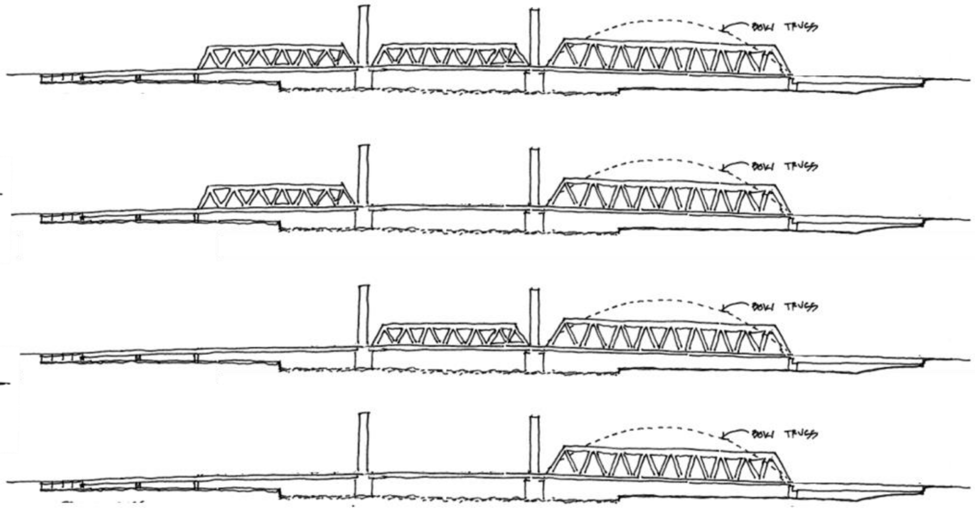

Main Street Bridge, Florida


Triborough (Harlem River) Bridge, New York


Tower Bridge, CA


Broadway Bridge, Oregon


Hawthorne Bridge, Oregon

Bascule Span Configurations

Lift Options

Fixed Approach Bridge Types

EARTHQUAKE READY BURNSIDE BRIDGE

Technically Feasible Truss Option: Conventional Style

Key Technical Attributes:

- Proven reliability in a seismic event
- Cost effective
- Offers a variety of truss shapes
- Truss Height: ~60’ (west approach) and ~95’ tall (east approach)

Key Technical Trade-offs:

- Impacts on views / openness
- Requires cross-framing (i.e., truss roof)

Fixed Approach Bridge Types

Technically Feasible Truss Option: Conventional Style

Fixed Approach Bridge Types

Technically Challenged Truss Options: Circular and Deck Truss Styles

Why for Circular?
- Unproven for seismic resiliency
- Expensive to construct and maintain
- Generally used for smaller-scaled bridges

Why for Deck Truss?
- Insufficient vertical clearances below deck (Waterfront Park and I-5/I-84/UPRR)

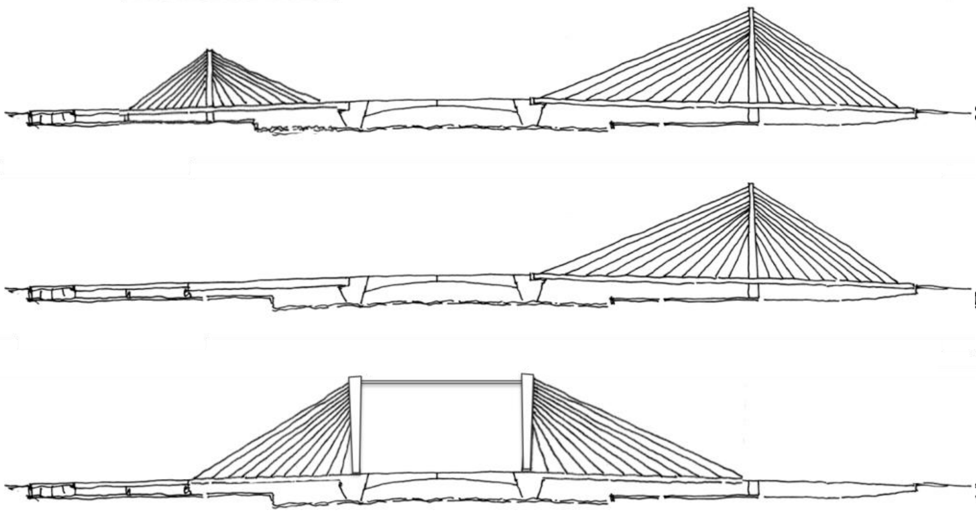
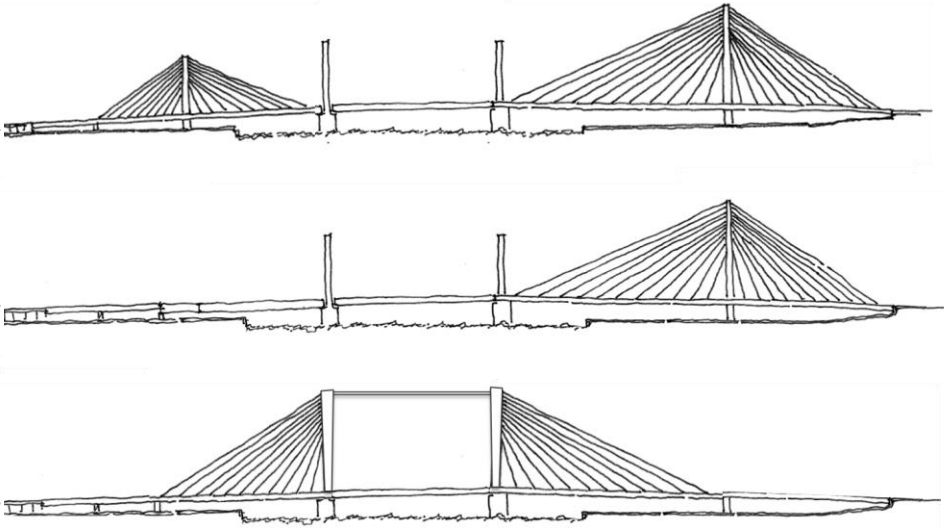
Fixed Approach Bridge Types

Cable Stayed Type


Indian River Inlet Bridge, Delaware


Cooper River Bridge, South Carolina

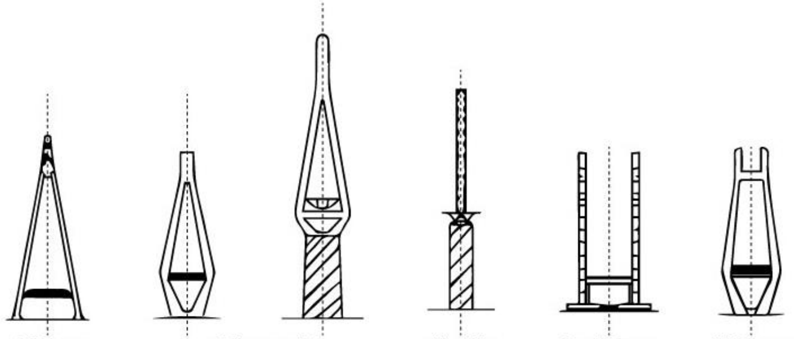

Tilikum Crossing Bridge, Oregon

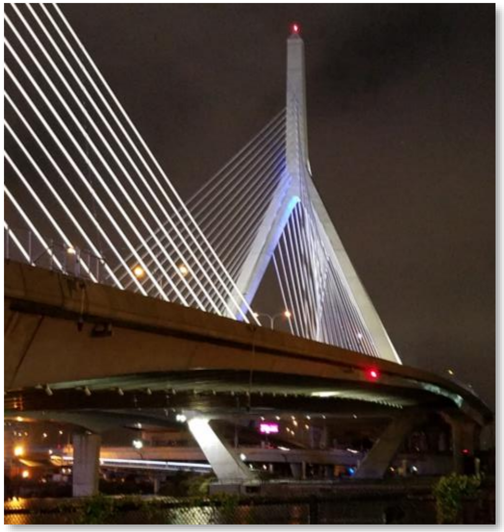



Bascule Span Configurations **Lift Options**

Fixed Approach Bridge Types

Cable Stayed Options: Multiple Tower and Cable Arrangement Styles



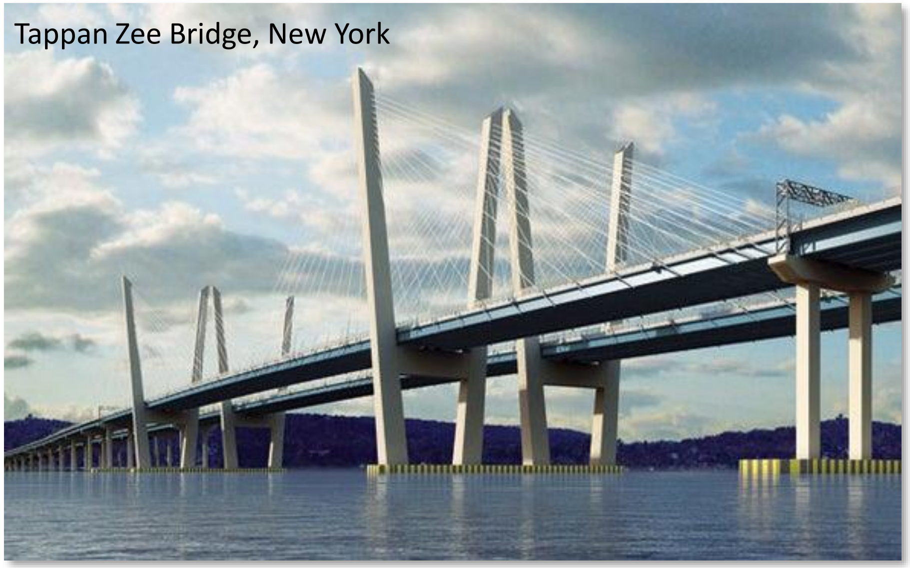


Fixed Approach Bridge Types

Technically Feasible Cable Stayed Option: Conventional “Goalpost” Style

Key Technical Attributes:
- Proven reliability in a seismic event
- Cost effective
- Offers a variety of cable stay shapes
- Tower Height: ~100’ (west approach) and ~200’ tall (east approach)

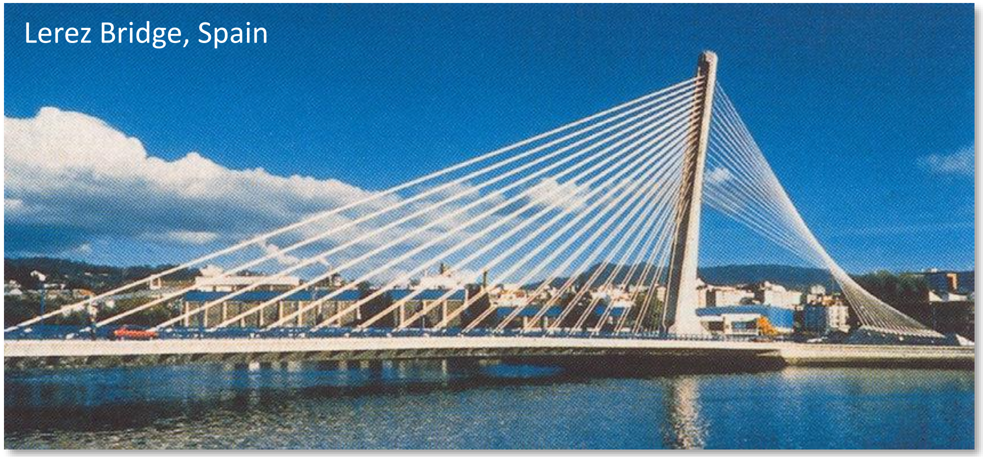
Key Technical Trade-offs:
- Impacts on views / openness, especially on east side adjacent to The Yard building
- West Approach towers need to be located within Waterfront Park


Tappan Zee Bridge, New York


Indian River Bridge, Florida

Fixed Approach Bridge Types

Technically Challenged Cable Stayed Option: Single Tower


Lerez Bridge, Spain


Sunshine Skyway, Florida

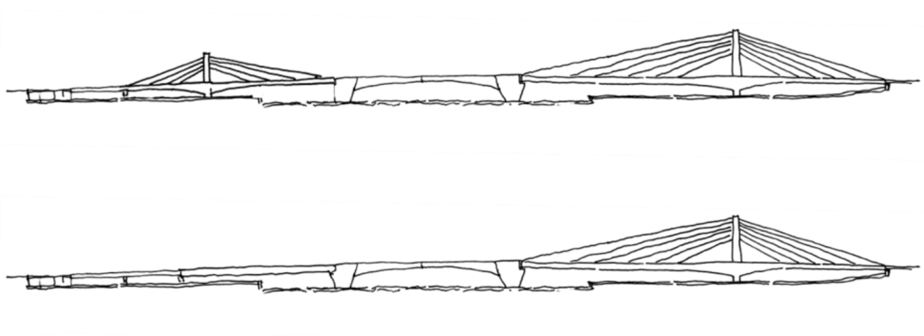
Why?

- Bifurcates the roadway into narrower pieces, limiting flexibility for future lane alterations
- Requires a deeper superstructure, resulting in insufficient vertical clearances at Naito Parkway
- Subject to material type, increases seismic demands requiring larger in-water foundations
- Constructability challenges over I-5/I-84/UPRR

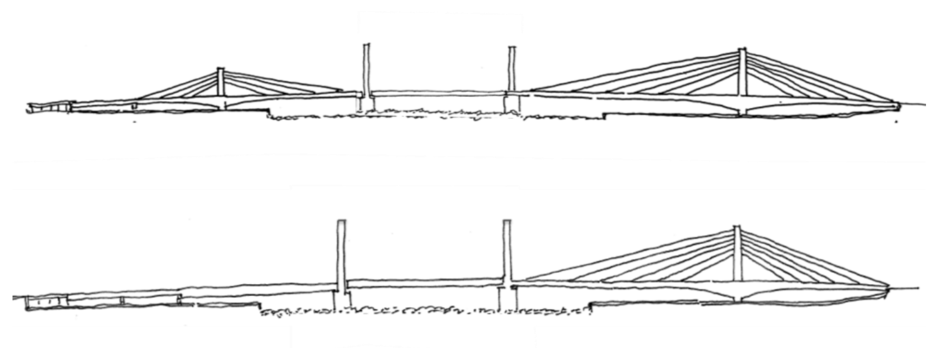

Puente del Alamillo Bridge, Spain

Fixed Approach Bridge Types

Extradosed Type



Bascule Span Configurations



Lift Options

Fixed Approach Bridge Types

EARTHQUAKE READY BURNSIDE BRIDGE

Technically Feasible Extradosed Option: Conventional "Goalpost" Style

Key Technical Attributes:

- Proven reliability in a seismic event
- Offers a variety of tower shapes and cable patterns (similar to Cable Stayed option)
- Tower Height: ~50' (west approach) and ~100' tall (east approach)

Key Technical Trade-offs:

- Heavier bridge requires larger foundations
- West Approach tower needs to be located within Waterfront Park
- Requires a deeper superstructure, causing insufficient vertical clearances below deck at Naito Parkway


St Criox Bridge, Minnesota


Jiayue Bridge, China

Fixed Approach Bridge Types (Summary)

Technically Feasible Types

✓

Tied Arch

- Arch height variability: ~85' tall (west side) and ~120' tall (east side)
- Conventional arch style can be with or without rib bracing
- Various arch inclinations but would require arch rib bracing or cable stiffening

✓

Truss

- Truss height variability with ~60' tall (west side) and ~90' tall (east side)
- Conventional thickened towers
- Rustic, modern, or other styles applicable
- Requires truss bracing above

Fixed Approach Bridge Types (Summary)

Technically Feasible Types

✓

Cable Stayed

- Two taller towers (~100’ tall west side and ~200’ tall east side)
- Variable tower inclinations and cable patterns

✓

Extradosed

- Two moderately tall towers (50’ west side and 100’ east side)
- Thicker bridge deck
- Limited tower inclinations and cable patterns

Fixed Approach Bridge Types

Technically Challenged Type: Suspension (Anchored Type)

Key Technical Attributes:

- Suspension cables are anchored into the ground via "anchorage houses" or supports

Key Technical Trade-offs:

- East anchorage placed in geotechnical hazard zone, requiring more mitigation
- Larger right of way impacts
- Uneconomical span lengths

Verrazano-Narrows Bridge, New York

Fixed Approach Bridge Types

Technically Challenged Type: Suspension (Self-anchored)

Key Technical Attributes:

- Utilizes lift towers to support approach spans

Key Technical Trade-offs:

- Requires entire bridge to be supported by falsework during construction
- Expensive to construct


Roberto Clemente Bridge, Pittsburgh


San Francisco – Oakland Bay Bridge, CA

Fixed Approach Bridge Types

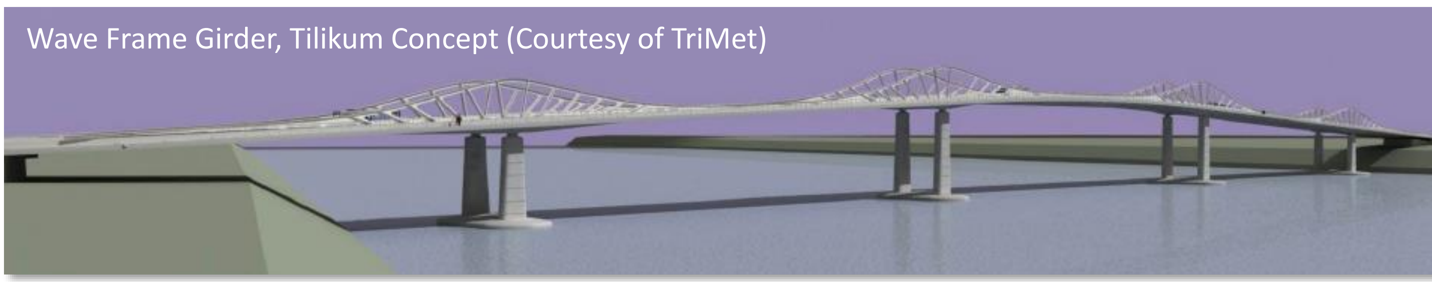
Technically Challenged "Other" Types: Wave Frame and Sail Blade Girder Types

Key Technical Attributes:

- Hybrid of truss, girder, and cable-supported structural elements
- Designed for slenderness and transparency
- Generally used for smaller-scaled bridges

Key Technical Trade-offs:

- Unproven seismic resiliency
- Will likely need more girder lines due to the bridge width
- Expensive to fabricate, construct, and maintain


Wave Frame Girder, Tilikum Concept (Courtesy of TriMet)


Sail Blade Girder, Tilikum Concept (Courtesy of TriMet)

Fixed Approach Bridge Types (Summary)

EARTHQUAKE READY
BURNSIDE BRIDGE

Technically Feasible Types

✓

Tied Arch

- Arch height variability: ~85' tall (west side) and ~120' tall (east side)
- Conventional arch style can be with or without rib bracing
- Various arch inclinations but would require arch rib bracing or cable stiffening

✓

Truss

- Truss height variability with ~60' tall (west side) and ~90' tall (east side)
- Conventional thickened towers
- Rustic, modern, or other styles applicable
- Requires truss bracing above

Fixed Approach Bridge Types (Summary)

Technically Feasible Types

✓

Cable Stayed

- Two taller towers (~100’ tall west side and ~200’ tall east side)
- Variable tower inclinations and cable patterns

✓

Extradosed

- Two moderately tall towers (50’ west side and 100’ east side)
- Thicker bridge deck
- Limited tower inclinations and cable patterns

Questions / Break

Criteria Development

EARTHQUAKE READY BURNSIDE BRIDGE

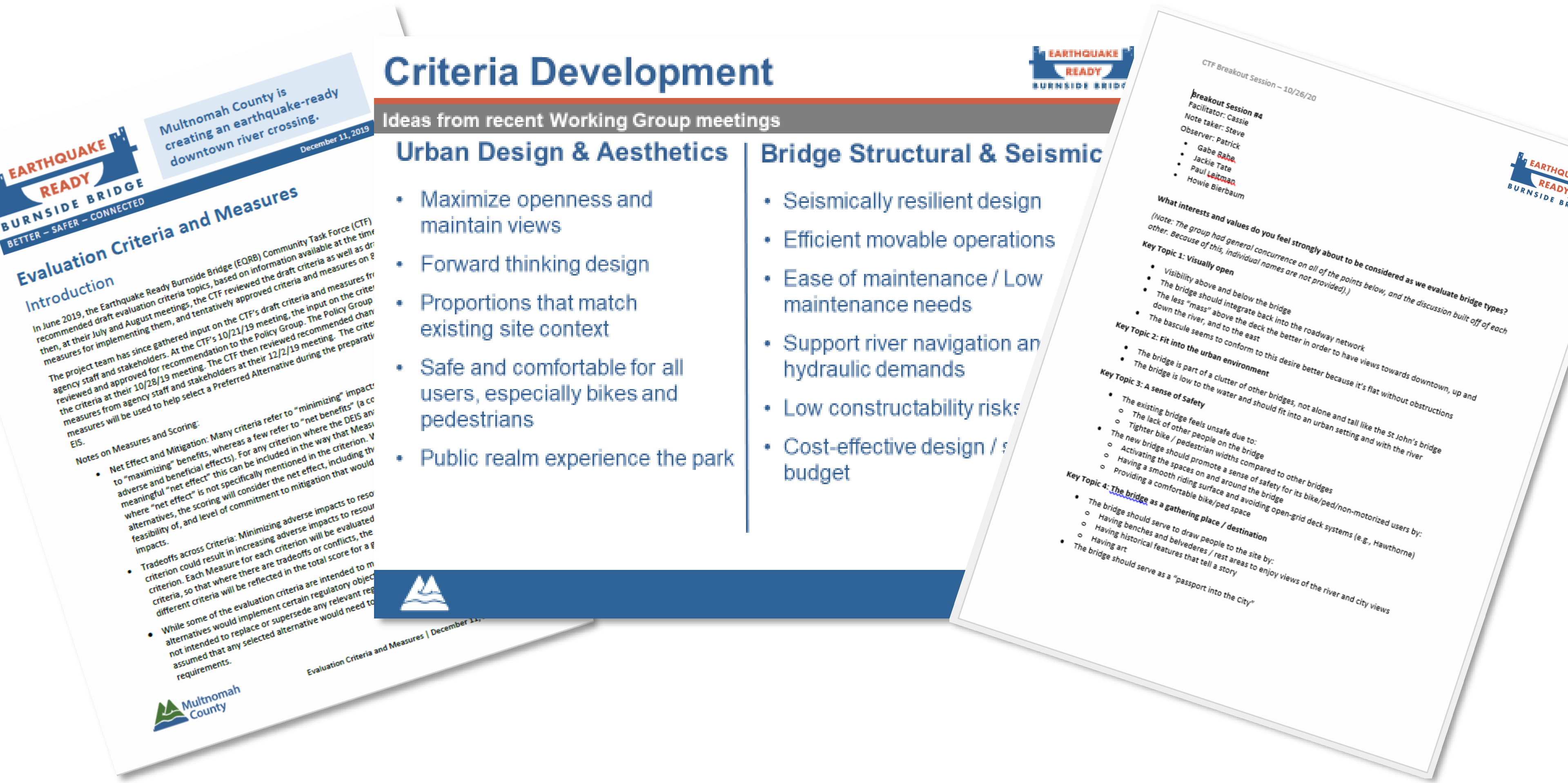
Evaluation Process - *Steps in Getting to a Recommended Bridge Type*

- Interests Assessment
- Criteria Topics
- **Evaluation Criteria per Topic** ← We are here
- Measures per Evaluation Criteria
- Weight Criteria
- Rate and Score Options

Criteria Development

EARTHQUAKE READY BURNSIDE BRIDGE

Considerations: Prior Criteria + Working Group Input + CTF Interests and Values



Criteria Development

EARTHQUAKE READY
BURNSIDE BRIDGE

Preview for Next Meeting and Homework

- Considering NEPA phase criteria
- Input from CTF conversations and breakout groups, and working groups
- Refining topics and criteria to reflect key differentiators
- Homework before Dec. 7 CTF meeting: Review table with draft evaluation criteria

Preview for Next Meeting

EARTHQUAKE READY BURNSIDE BRIDGE

Type Selection Evaluation Criteria Assessment Sheet

Status Date: November 15, 2020

Group	Criteria	Anticipated Level of Differentiation between Bridge Options: Unknown	None or Very Small	Small	Moderate	Large	Very Large	Notes
Group 1: Seismic Resiliency	1a.1: Maximize confidence in post-earthquake crossing operability and reparability.		X					Same performance mechanisms
	1a.2: Maximize ability for all modes to use the crossing post-earthquake.		X					Same roadway cross section
	1a.3 Minimize risk that adjacent buildings could damage or block the bridge after a major earthquake, and minimize risk that crossing construction could lessen the seismic resilience of adjacent buildings.		X					Same proximity to vulnerable buildings
	1b.1: Minimize delay in achieving a seismically resilient crossing.	X						Const duration differences TBD
Group 2: Community Quality of Life (includes Indirect Land Use Impacts and Community Resources)	2a.1: Minimize long-term noise and light/shadow impacts.			X				Slight bridge width change for structural members
	2a.2: Minimize long-term impacts to community facilities and events under and near the bridge (e.g., Skatepark, Saturday Market, park festivals, parades, organized runs, etc.).						X	Westside solution provides variability
	2b.1: Minimize temporary impacts to community facilities and events under and near the bridge.	X						Const duration differences TBD
Group 3: Equity and Environmental Justice (includes Social Services)	3a.1: Minimize displacements of emergency beds.			X				Same permanent impacts
	3a.2: Maintain social service providers' long-term ability to provide current level of service and potential for enhancement.			X				Same permanent impacts
	3a.3: Avoid disproportionate adverse impacts to vulnerable and Environmental Justice communities.			X				Same permanent impacts
	3b.1: Minimize temporary impacts to social service providers.			X				Same temporary impacts
	3b.2: Avoid temporary disproportionate adverse impacts to vulnerable and Environmental Justice communities.			X				Same temporary impacts
	3b.3: Ensure that design and construction approach allow ample opportunities for DBE firms to be involved in the construction/contracting process.	X						Final Design Issue
Group 4: Crime Reduction & Personal Safety	4a.1: Maximize personal safety and crime reduction by f[…] Prevention Through Environmental Design (CPTED).							

I. Urban Context and Experience

A. On-bridge Experience: How well does the bridge option provide public benefits from its deck surface, including:

- Views from the bridge deck toward the cityscape, including downtown and the Eastside, distant landscapes and natural environment, adjacent up- and down-river bridges, and other key viewpoints.
- Bridge type that provides opportunities for programming and public events (such as the Rose Festival Parade) and civic gatherings
- Others?

Next Steps

Upcoming CTF Meetings

- **December 7:**
  - Review and discuss evaluation criteria and measures
  - Range of feasible bridge types
- **December 21:**
  - Finalize criteria and measures
  - Confirm range of feasible bridge types

Open Discussion

Closing Remarks

Thank you!