A Bridge Proposal to Clark County, Washington

For the

East County Bridge

Between Clark County, Washington & Multnomah County, Oregon Crossing the Columbia River July 25, 2014





Creating Bridges As $Art^{\textcircled{R}}$

Connecting Communities





The Beauty of Vancouver, Washington



Marshall House Officers Row





Ft. Vancouver



Downtown Farmers Market

Columbia River Waterfront



Waterfront Renaissance Trail



Esther Short Park



Clark County Historical Museum



Elks Building Downtown Vancouver

The Beauty of Vancouver, Washington



Columbia River



Mount St. Helens



Salmon Creek Greenway



Marine Park Beach



Wintler Community Park



Burnt Bridge Creek Trail

The Beauty of Portland, Oregon





Portland Oregon Landmark Sign



Rose Garden Arena



Union Station



Governor's Hotel



Jeld Wen Field



The Beauty of Portland, Oregon



Forest Park



Mount Hood and Mirror Lake



Wildwood Trail



Architect Robert Harvey Oshatz



Willamette River



International Rose Test Garden



Tom McCall Waterfront Park

Transportation Corridor Visioning Study

April 2008

Southwest Regional Transportation Council



Transportation Corridor Visioning Study



Southwest Washington Regional Transportation Council

Steering Committee Meetings Oct. 6, 2006 - Jan. 11, 2008

Agency	Steering Committee	Technical Staff Support
Ridgefield North County	Commissioner Roy Randel (Port of Ridgefield)	Justin Clary (City of Ridgefield)
Battle Ground/Yacolt	Mayor John Idsinga (City of Battle Ground)	Rob Charles (City of Battle Ground)
Clark County	Commissioner Steve Stuart (Board of County Commissioners)	Pete Capell, David Cusack
C-TRAN	Mayor Jim Irish (La Center, representing C-TRAN board)	Jeff Hamm, Ed Pickering
WSDOT	Don Wagner	Jack Burkman, Bart Gernhart
City of Vancouver	Councilperson Tim Leavitt	Matt Ransom
Port of Vancouver	Commissioner Arch Miller	Katy Brooks
East County	Councilperson Helen Gerde (City of Camas)	Jim Carothers (City of Camas) Trevor Evers (City of Washougal)

Transportation Corridor Visioning Study

April 2008

Exhibit 8. Vision Plan Candidate New Regional Corridors Map

A third bridge crossing: East Corridors showed twice the amount of traffic over West Corridors

Southwest Washington Regional Transportation Council



November 2013 Clark County Citizens Voted 58% in favor of East County toll-free Bridge



PROPOSED EAST COUNTY TOLL-FREE BRIDGE RESOLUTION 2013-07-21

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A resolution to create a policy of the Board of Commissioners to support a proposed East County Toll-Free Columbia River Bridge as defined in this resolution.

Because the Clark County Board of Commissioners, as representatives of the Citizens of Clark County, serve as members of various governing boards that consider transportation projects; and

Because any major transportation project serving Clark County would affect the public health, safety and welfare of the Citizens; and

Because such projects should start by asking the people if they would support the proposed direction and that the wishes of the electorate in this instance are best represented by a County-wide vote, which is referred to as an advisory vote; and

Because a third toll-free bridge across the Columbia River may be in the best interests of the citizens of Clark County; and

Because this matter was considered at a duly advertised public hearing, where the Board of County Commissioners concluded that adoption of this policy would be in the best interests of the public health, safety and welfare of the Citizens, now therefore:

BE IT ORDERED AND RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF CLARK COUNTY, STATE OF WASHINGTON AS FOLLOWS:

The Board should adopt a policy to propose and support an East County Toll-Free Columbia River Bridge WHICH WOULD:

- Provide a third free-flowing highway between Oregon and Washington that enhances interstate commerce, relieve traffic congestion across the Glenn Jackson I-205 Bridge and in turn, relieve traffic congestion across the I-5 Columbia River Bridge; and
- Better connect Clark County at SR-14 at NE 192nd Ave to I-84 at exit 13 via Airport Way and 181st Avenue in Gresham, Oregon; and
- Ensure that the total cost for the whole project is less than \$900 million including all studies and planning, and that the bridge remains toll-free in order for the Board of Commissioners to support the project; and
- 4. Be about 4 miles east of the I-205 Glenn Jackson Bridge; and
- Have two to three through lanes in each direction plus shoulders for cars, trucks and buses plus paths for bicycles and pedestrians; and

A Turnkey Design Build Bridge Proposal For the East County Bridge

from





(Bridge Designers) (Bridge Builders)

Exclusively Specializing in Bridges for 36 Years in the United States of America and International

FIGG Bridges in 42 states and 6 countries

Family of Bridge Companies:

FIGG Bridge Engineers FIGG Bridge Inspection FIGG Bridge Developers FIGG Bridge Managers





FLORIDA



WASHINGTON



COLORADO



VIRGINIA



BOSTON ©FIGG 2014

355 Bridge Design Awards for Our Customers All Bridges Built Because They Were Best Value













Sunshine Skyway Bridge, FL

Blue Ridge Parkway Viaduct, NC National Park Service Natchez Trace Parkway Arches, TN National Park Service

FIGG Has Delivered the Most Long Span Concrete Bridges in America

54 built long-span concrete bridges from 300' to 1200' spans as Engineer of Record

An unsurpassed record of success in closing long spans







6 of the Top 25 Bridges of all time













Concrete Construction Engineering Handbook

Editor-in-Chief EDWARD G. NAWY

SECOND EDITION

I-280 Veteran's Glass City Skyway on cover **Design by FIGG**

Edward G. Nawy, Editor-in-Chief

Concrete Construction

Chapter 29 - Aesthetics in the construction and design of long-span prestressed concrete bridges. Authored by Linda Figg



Handbook

EDWARD G. NAWY

New I-35W Bridge, Minnesota on cover design by FIGG

FIGG Bridges showcased on 7 television shows in the last 14 years



History of Concrete 2000 - Modern Marvels (All major bridges designed by FIGG)

Overseas Highway 2003 - Modern Marvels (Seven Mile Bridge, FL Keys)

Sunshine Skyway Bridge 2004 - Modern Marvels (Skyway Bridge,Tampa FL)

> History of Arches 2004 - Modern Marvels (Natchez Trace Parkway Arches, TN)

Mountain Roads 2007 - Modern Marvels (Blue Ridge Parkway, NC)

Super Bridge 2003 - 2 hour PBS/NOVA Special Clark Bridge, IL

Twin City Bridge: After the Collapse 2009 - National Geographic (New I-35W Bridge, Minnesota)





RAIL BRIDGES





ENVIRONMENTAL BRIDGES



CABLE STAYED BRIDGES





LONG BRIDGES OVER WATER



LONG SPAN BRIDGES ©FIGG 2014



Environmentally Sensitive Bridge in Harmony with Nature



Built using local labor and local materials



Built from above protecting the beautiful environment



Black Iron Oxide Matches Boulders



I-76 Allegheny River Bridge Pittsburgh, Pennsylvania 532' Main span Twin wall piers



I-76 Allegheny River Bridge Pittsburgh, Pennsylvania

Built over water, rail and highway



US 191 Colorado River Bridge Moab, Utah at Arches National Park

438' spans



US 191 Colorado River Bridge Moab, Utah at Arches National Park

Sustainable Context Sensitive Solutions



Wabasha Freedom Bridge St. Paul, Minnesota

397' Main span over Mississippi River



Wabasha Freedom Bridge St. Paul, Minnesota

7 Design Awards for our Customer



Monongahela River Bridge Section 51H, Brownsville, Pennsylvania

Span lengths of 490', 518' and similar



I-90 Third Lake Washington Bridge Approaches Seattle, Washington

4,810' Total (4 Bridges) 1985

August 1, 2007 40 year old bridge in Minneapolis collapsed and killed 13 people

The bridge had been rated as structurally deficient and raised concerns throughout the US for the condition of bridges

New I-35W Bridge

Emergency Replacement Bridge for Mn/DOT by FIGG

Designed and Built in 11 Months 10 Lane Interstate \$234 Million





New I-35W Bridge Minneapolis, Minnesota Segmental box girder casting yard next to bridge site Used local labor and local materials



New I-35W Bridge Minneapolis, Minnesota

120 segments installed for10-lane Interstate acrossMississippi River in just 47 days



New I-35W Bridge Minneapolis, Minnesota

504' Main Span

New I-35W Bridge - Minneapolis, Minnesota



NATIONAL GEOGRAPHIC

1 Hour Special

TWIN CITY BRIDGE: AFTER THE COLLAPSE

Overview Video Photos



In little over a year, an astonishing new bridge is designed and built to replace the I-35W bridge over the Mississippi River that tragically collapsed in Minneapolis, Minnesota.
Eco-friendly Concrete

New I-35W Bridge 30' Precast Gateway Sculptures. Inspired by the ancient

symbol for water,

the gateway design consists of three rippling forms that recall the river and the flow of life.

Nanotechnology self-cleaning and pollution-eating cement When UV light hits surface of concrete it creates photocatalytic reaction that cleans pollution out of the air

2nd Street Abutment Walls

Recycled Glass - Blue, Yellow & Green



Casting the Future

Students filled molds with concrete and recycled glass aggregate.





Casting the Future

Students proudly display their works of art made of concrete and recycled glass.



2nd Street Mosaic Tiles



New I-35W Bridge Minneapolis, Minnesota Opened Sept. 18, 2008 at 5 a.m., 3 months ahead of schedule



New I-35W Bridge Minneapolis, Minnesota

Winner of 25 design Awards



Natchez Trace Parkway Arches, TN for FHWA/National Park Service

582' Spans Designed by FIGG Built by PCL





Smart Road Bridge Virginia

472' Main span Designed by FIGG Built by PCL





Selmon Expressway, Tampa, Florida 5 miles of bridge over water and land Designed by FIGG Built by PCL





I-91 Brattleboro Bridge Brattleboro, Vermont 515' Span Designed by FIGG Built by PCL





An Overview of PCL's Transportation Infrastructure Group



CONSTRUCTION LEADERS

PCL Family of Companies Geographic Reach

PCL

30 Major offices located in:

US - 17 major offices Canada - 12 major offices Australia – 1 major office



Financial Profile

Unsurpassed financial strength and stability in the construction industry

2010 Revenue\$4.9 billion USD2011 Revenue\$5.6 billion USD2012 Revenue\$6.8 billion USD2013 Revenue\$7.5 billion USD

No bonding restrictions to the full extent of each company's three-year business plan

"We value our association with this fine organization, and have no reservation about giving any company in the PCL family our highest recommendation."

Fidelity and Deposit Company of Maryland PCL's Leading Co-Surety

About PCL

Industry Ranking Employer Awards Community Giving

PC

- PCL has a proven 107-year reputation as a construction leader: a strong, reliable, and successful contracting entity that prides itself on delivering a quality product and exceptional services to our clients.
- PCL is the 5th largest contractor in the United States, and was ranked a Top Green Contractor by Engineering News-Record magazine.
- PCL is currently ranked #73 on the FORTUNE 100 Best Companies to Work For® list for eight consecutive years.
- In 2012, the PCL family of companies and its employees contributed over \$7.1 million to United Way organizations across North America, along with many other charities.

United





Core Values

- Honesty
- Integrity
- Respect
- Dynamic Culture
- Passion

Guiding Principles

- Ownership
- Teamwork
- Mutual Obligation
- Safety
- Effective Communication
- Diversity
- Mobility
- Social Responsibility

Safety Performance

- Corporate goal of <u>ZERO INCIDENTS</u>
- Excellent safety record
- Benefits passed on to clients

	Manhours	TRIR	LTFR	EMR
2009	20,377,707	1.18	0.04	0.55
2010	20,882,155	0.79	0.05	0.58
2011	19,922,959	0.71	0.03	0.62
2012	23,863,084	0.59	0.01	0.56
2013	21,465,333	0.42	0.01	0.54



"Corporate Leadership with Proven Track Records in Transportation Project Delivery"

A Civil History of Excellence

"We have over 3,800 employee stockholders invested in project success."

1906 PCL Founded by Ernie Poole





1994 Natchez Trace Arch Franklin, TN

1986 Alex Fraser Bridge Vancouver, BC





1997 Blue Water Bridge Port Huron, MI

1988 Glade Creek Bridge Beckley, WV





2015 Pearl Harbor Memorial Bridge New Haven, CT



Open Water Marine Crossings

PCL

Complex Interchanges Urban Environment



Structures over Protected Waterways

PCL

Structures Constructed in Tight Confines



PCL

Steel Truss Arch Bridges

Harp Design Cable Stayed Structures



Precast Segmental Span by Span Construction

PCL

Precast Segmental Balanced Cantilever Construction



Precast Segmental Span by Span and Balanced Cantilever

PCL

Central Link Light Rail C755 Tukwila, WA



Precast Segmental Under Slung Truss Erected

PCL

Precast Segmental Concrete Arch Structure



PCL

Concrete Segmental

Concrete Segmental



Alternative Project Delivery

PCL

Design-Build-Finance & P3's



I-4 Connector / Selmon Crosstown Tampa, Florida

Alternative Project Delivery

PCL

Design-Build



Alternative Project Delivery

PCL

Construction Management at Risk









East County Bridge Location

Phase 1

192nd/SR 14, Clark County to NE Airport Way, Multnomah County

Phase 2

NE Airport Way to I-84 Enhancements

Overall Bridge Elevation



Overall Bridge Layout



Starting at 192nd/SR-14 Washington side bluff allows easy crossing of navigation channel with gentle bridge grade.

Phase 1

NE Marine D

Improved Interchar Connectic

Proposed

East County Bridge

NE Airpo

Imbia River

port Way

Jewit Lake

overnment Island

NE Marine Dr

2% grades are good for trucks and multi-use pathways for pedestrians and bicycles

Bridge meets all airport clearances

East End Bridge Rendering

480' span over navigational channel provides 300' horizontal and 144' vertical clearance for vessels. The same as I-205



East End Bridge Rendering

Spans of 410' create openness and maximize navigation and preserves the environment


East End Bridge Rendering

Bridge is elevated over Government Island to preserve the environment with the least footprint







Bridge Configuration

Each direction - NB and SB provides: 2 - 12' lanes with 10' outside & 8' inside shoulders

Provides for cars, trucks, buses, pedestrians and bicycles



Bridge Configuration

Two 12' multi-use protected pathways for pedestrians and bicycles

Scenic views of the Columbia River

Single Point Urban Interchange (SPUI)











Creating Sustainable Bridges as Art for Your Communities

East County Bridge









Create the History of a landscape.

©FIGG 2014

Natchez Trace Parkway Arches

Tennessee



Every bridge shares that story. It begins with

a Vision

©FIGG 2014

I - 275 Sunshine Skyway Bridge Tampa

Tampa Bay, Florida



Community Vision

Signature Design

Functional Sculpture

Constructibility





Harmony with Environment



Technical Innovation





Timeless



Sustainability Is The Capacity To Endure

Context Sensitive Solutions (CSS)



Concrete Segmental Bridges are a Sustainable Solution Precast factory-like quality and quick to assemble





New I-35W Bridge - Minneapolis, Minnesota



Sustainable Design

High quality materials built to last

Sand

Water





Cement





Environmentally Friendly Concrete

Created better concrete durability through lower permeability

Fly ash (waste product from coal) replaces some cement for lower permeability

Saved 3.5 tons of CO2 per truckload

I-35W Bridge -Minneapolis, MN Concrete Design and Construction



Local Materials + Local Labor = Energy Efficiency



Low Energy Low Maintenance LED Lighting

First used on New I-35W Bridge ►

Highway lighting with beautiful white light

Multi use path lighting for pedestrians and bicyclists

Multiple color options for aesthetic lighting

15-20 year life (vs. 4 year life for yellow high pressure sodium bulbs)



Innovative LED Barrier Lights Is An Option

First used on FIGG bridge in Colorado

FHWA approved

Option to eliminate light poles



SOCIAL

Context Sensitive Solutions Involve Community Better Quality of Life Safer Better Land Use

Applying FIGG Archetypal Design Principles to Achieve Holistic Design

Establish a Theme

Blend Shapes

Create Shadows

Select Appropriate Textures

Choose Pleasing Colors

Open New Vistas

Use Native Materials

Create Feature Lighting

Incorporate Landscaping





Community Involvement to Select World Class Bridge Aesthetics

Design Charettes will be held with community to select bridge features

FIGG Bridge Design Charettes will be held with community to select bridge aesthetic features

Items such as:

Bridge Theme

Pier shapes

Bridge Treatments

Railings

Lighting

Landscaping



Creating Functional Bridge Sculpture Means Examining Pier Shapes that are Context Sensitive to a Communities Sense of Place



US280 Birmingham, AL



Wekiva River for NPS



Dresbach Bridge, MN



4th Street Pueblo, CO



SR 204 Savannah, GA



I-91 Brattleboro, VT
Example Theme of Nature inspired by Washington and Oregon Trees



Example Theme of Nature inspired by Washington and Oregon Trees



East County Bridge Aesthetic Lighting To Be Chosen By The Community



LED Lighting Provides Opportunity for Thematic Color Features



Involving the Community Builds Excitement, Trust and Ownership

Website and Live Construction Cam



Sidewalk Community Talks



Image: Answer and answer answer and answer and answer and answer and answer and answer and

Newsletters

Sign the Bridge

Education for Kids







Bridge Box for Teachers



Educational Outreach

Teachers Bridge Box Basics Kit for the classroom customized for East County Bridge FIGG developed with National Building Museum in Washington D.C.

I-35W St. Anthony Falls Bridge



Example: I-35W Bridge, Minnesota

©FIGG 2014

Approach to Community Involvement

Design Charettes To select bridge aesthetics with community

Open Houses To share designs with community

Educational Outreach To involve local schools and universities in building the bridge







©FIGG 2014

ECONOMICAL

Cost and Time Savings Local Economic Benefits Resource Efficiency Life Cycle Cost Benefits



Low Maintenance / Long Term Durability Concrete Bridge Features

Owners Manual for Care of East County Bridge Ease of Inspection & Maintenance

Inspection Workshop and Joint First Inspection with the Bridge Owner

We Know "Low Maintenance" FIGG Bridge Managers is Maintenance Operator





East County Bridge Project Schedule Open in 5 years from Notice to Proceed

	2 Years		3 Years		
	Environmental, permitting, right-of-way, pre-construction engineering		Design and Construction		
	YEAR1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
ENVIRONMENTAL ANALYSIS AND DOCUMENT *	24 mo.				
FINAL PERMITTING		12 mo.			
BRIDGE/ROADWAY ENGINEERING (FOR ROW and PERMITTING)	9 m	0.			
RIGHT OF WAY ACQUISITION		12 mo.			
PRE-CONSTRUCTION BRIDGE AND ROADWAY ENGINEERING		12 mo.			
DESIGN/BUILD				36 mo.	

* Involves full cooperation with all local, state and federal agencies

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Further defined in first year of project development: Right-of-way, mitigation, geotechnical conditions

\$30 Million

Less than

\$860 Million

Multi-year financing can be provided by this team so that public funds can achieve this bridge over time



Design and build 4-Lane East County Bridge with shoulders and 2 - 12' multi-use pathways: cars, trucks, buses, pedestrians, & bicyclists

Connects 192nd/SR-14 in Washington and NE Airport Way in Oregon with plans for future direct connection and interchange enhancements with I-84

Meet navigational channel clearances like I-205 - 300' horizontal, 144' vertical over shipping channel - alignment perpendicular to channel for added safety

Bridge over Government Island to preserve environment





Built using local labor, local materials and providing local economic stimulus

Alignment is away from homes. Convenient connection to commercial areas

Sustainable, eco-friendly, high strength, redundant and safe bridge

Low maintenance concrete bridge with LED roadway and aesthetic lighting

Community involvement in selecting bridge aesthetic features for a functional bridge sculpture that captures a sense of place





Environmental analysis and document following NEPA - 2 Years

Design and build bridge in 3 years following permits and right-of-way

Complete new bridge in 5 years from Notice to Proceed

Total project costs under \$860 Million



Achieve Washington and Oregon DOT standards

Meet Local, State and Federal Requirements

Owners manual for care of your new bridge

Over 100 year life



COUNTY



CLAP



Kevin Peterson

Transportation Architect and Urban Planner

Overarching Issues



Existing Condition



With the East County Bridge



One New Lane on I-205



Two New Lanes on I-5



Cost per Lane to Increased Capacity Across the Columbia River



Urban Connector Value



Bypass Value



What about a Bridge to the West



What about a Regional Bypass to the West



What About the I-5 Corridor ?



What Are The Concerns?



Mitigating Concerns -Good Neighbors North and South



East County Bridge Benefits

Link urban areas reducing each average urban trip distance for cross river traffic by eight miles!

Bypass congested I-205 reducing pressure on I-205 and I-84 by up to 20%

Link NE Vancouver with the Banfield LRT link via express bus service — this helps shape north of the river to optimize transit and adds users to the underfunded Tri-Met system Provides Portland with more opportunity to minimize car and truck impacts downtown especially when downtown sections of I-5 and I-405 are fixed

★ Is a project we can finish this decade for less than \$860 million — providing jobs and pride that the future is bright

Achieves 28% more cross river capacity without the need to impose tolls

©FIGG 2014



Creating a Sustainable East County Bridge



CREATING BRIDGES AS $ART^{\textcircled{R}}$