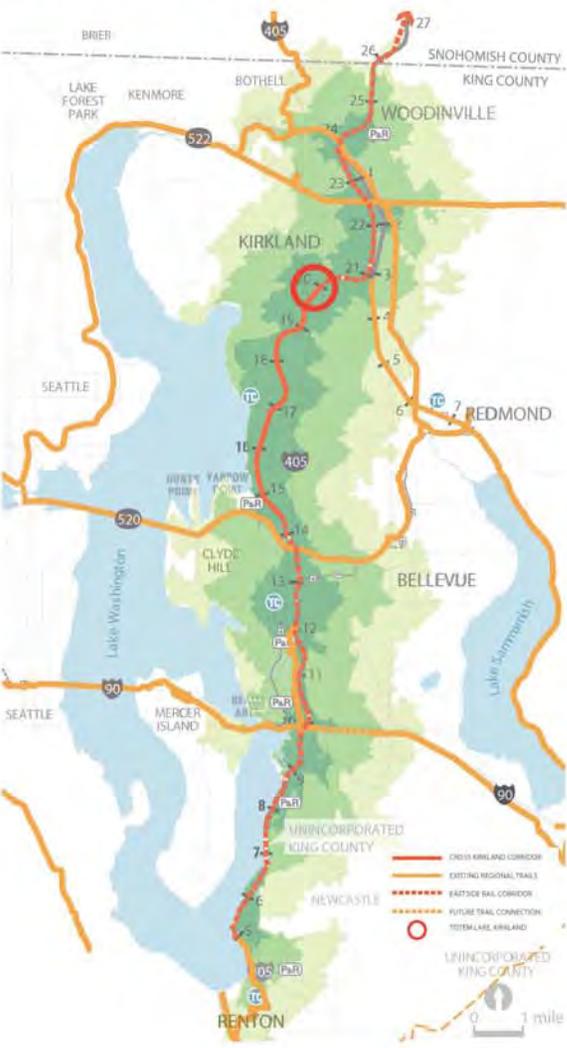


## Appendix I Public Outreach

# CKC TRAIL CHARACTERISTICS

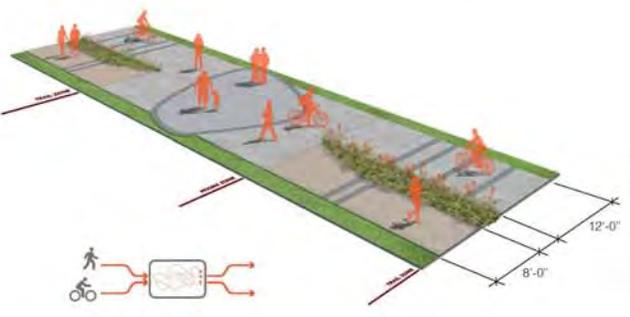
## REGIONAL TRAIL NETWORK



## TRAIL TYPES AND ELEMENTS FOR THE CROSS KIRKLAND CORRIDOR (CKC) PER THE MASTER PLAN



**PRIMARY TRAIL**  
 The primary trail is envisioned as a shared use path that cyclists and pedestrians use, as it will tend to be wide, flat and smooth and will appeal to a wide variety of users. This trail is consistent with the vast majority of the regional trail system.

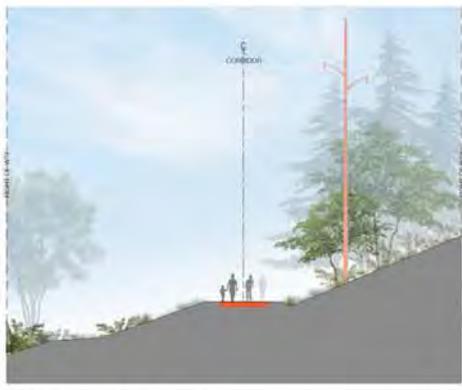


**MIXING ZONES**  
 Areas of high activity along the trail corridor, including trail access points, pedestrian crossing points, and when the primary and side trails join apply a lot of parts to intuitively slow and alert trail users to "heads up" moments.

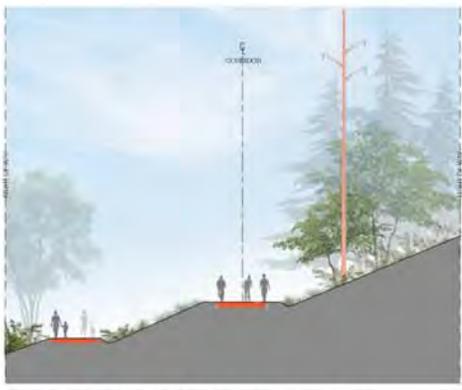


**GRADE TRANSITIONED SIDE TRAIL**  
 A side, parallel trail may provide an alternate, slower speed, less direct, more interesting and rich route for corridor users.

## REPRESENTATIVE CKC TRAIL CONFIGURATIONS



**NEAR TERM PRIMARY TRAIL**  
 The primary trail is generally assumed to be on the old trackway alignment, on the centerline of the corridor. To provide the 16-foot (or wider) trail envelope, the existing track bed must be widened through a combination of cut/fill grading.



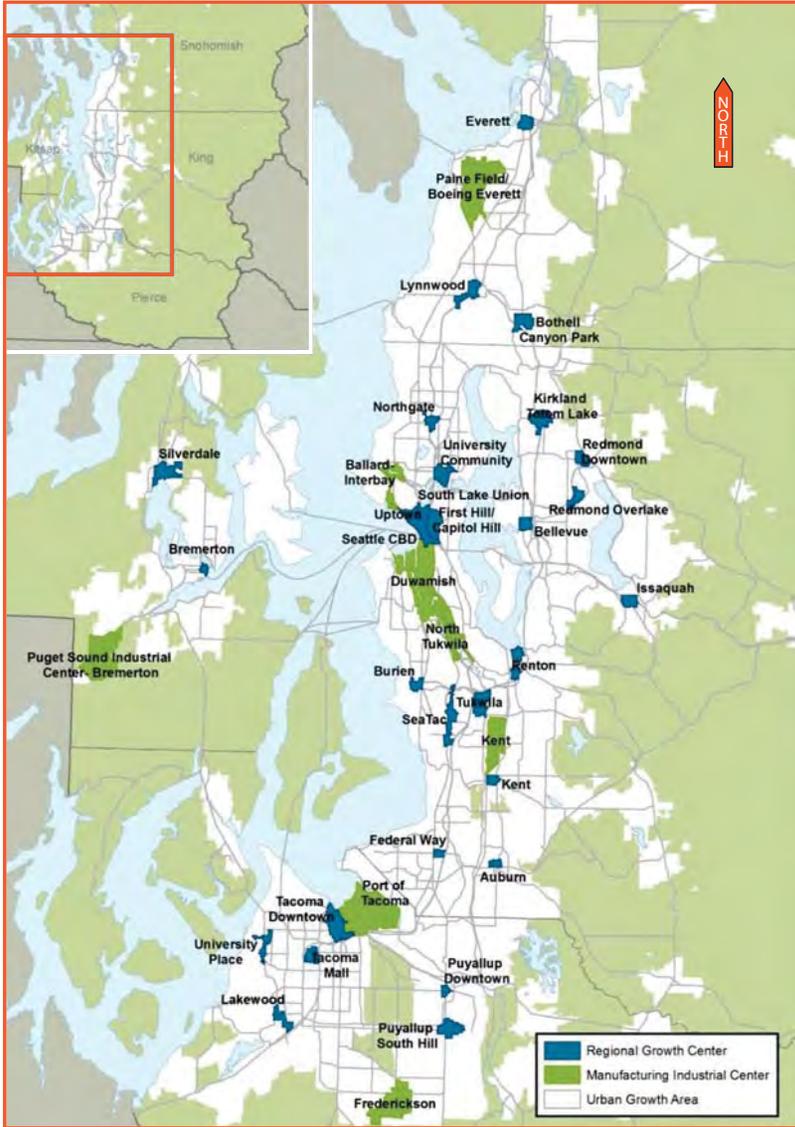
**NEAR TERM PRIMARY TRAIL AND SIDE TRAIL**  
 A parallel side trail may be added to the corridor where desired and where space and topography allow.



**LONG TERM TRAIL WITH TRANSIT**  
 The primary trail layout on the historic trackway allows for a future 40-foot transit envelope to be constructed east of the trail envelope. (See the Transit and Utility Study in the appendix of the CKC Master Plan document for more information.)

# PROVIDING CONNECTIONS FOR A GROWING REGION

## PUGET SOUND REGIONAL GROWTH PLAN



DESIGNATED REGIONAL GROWTH CENTERS AND MANUFACTURING/INDUSTRIAL CENTERS

## EMERGING PRIORITIES

- 01 FULFIL THE VISION**

Distinguish the CKC as a unique cultural and recreation-destination for the community and region. Provide an experience beyond that of a typical regional trail.
- 02 SUPPORT ECONOMIC DEVELOPMENT**

Utilize the corridor's development to catalyze economic growth, encouraging residential and commercial development that can charge the corridor and city with energy and vitality.

Totem Lake, 6th Street S, and the Parmac area are re-imagined as an "active zone" in this master plan.
- 03 CONNECT TO REGIONAL TRAILS/TRANSIT**

Connecting to new and existing trail/transit facilities will make the CKC available to more users and regional destinations.

Connections to the South Kirkland Park and Ride, Totem Lake Transit Center, the new 520 trail, and Redmond Central Connector.
- 04 NON-MOTORIZED TRANSPORTATION ARTERY**

The CKC will connect with significant growth and density high-use areas with unimpeded travel.

Ensuring connections are made with the CKC and key streets, schools, parks, commercial land, and transit will maximize the public benefit.
- 05 SAFETY**

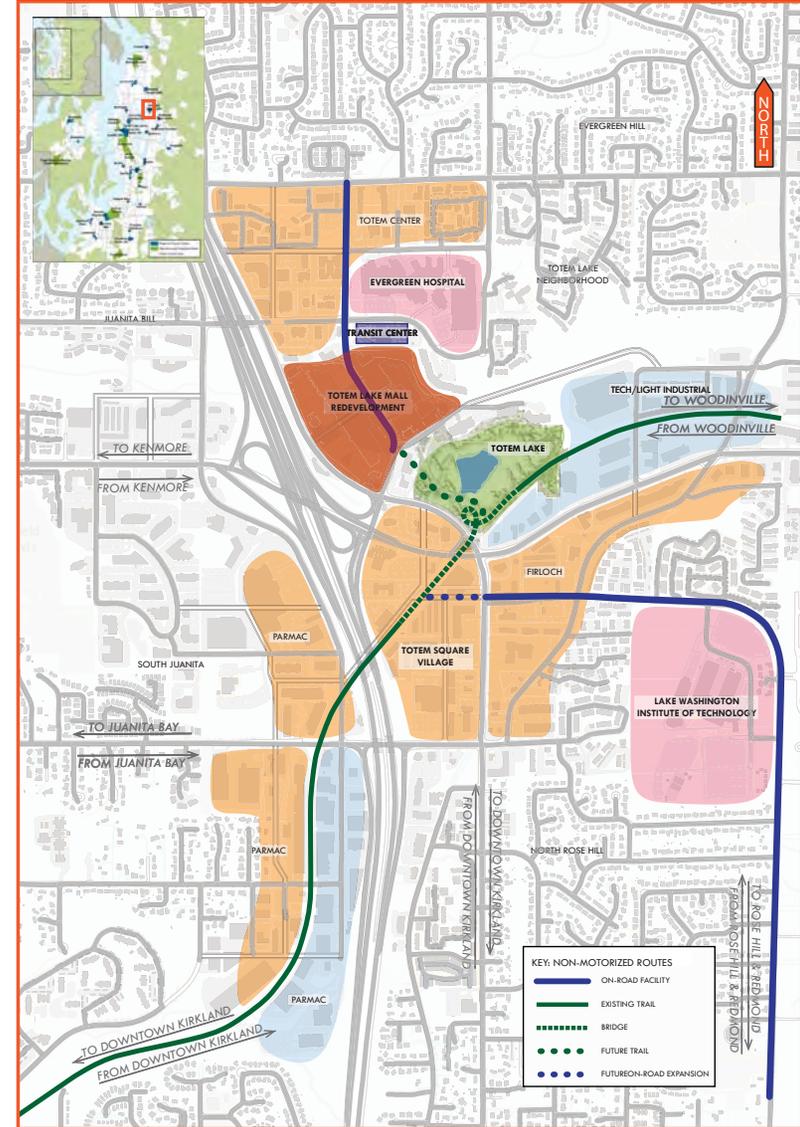
The Totem Lake Non-Motorized Bridge project will prioritize projects that significantly improve safety by providing CKC users with a grade separated crossing of 124th Avenue NE and NE 124th Street.

A convenient, direct link between the currently disconnected CKC Trail segments will greatly increase the functionality of the trail and will attract users.

The CKC Trail is a fully off-street facility that provides non-motorized commuters with a safe route to regional destinations.
- 06 CREATE A DESTINATION**

The CKC and Totem Lake Non-Motorized Bridge are envisioned to become destinations. This linear 'park,' with the future redevelopment of Totem Lake Park provides Kirkland residents and visitors with superb recreational opportunities and an enjoyable environment to travel within and between places.

## TOTEM LAKE GROWTH PLAN



COMPOSITE DEVELOPMENT AND INFRASTRUCTURE PLAN

# BRIDGE GOALS, ALIGNMENT, AND EXPERIENCE

## PROJECT DESCRIPTION

A grade-separated crossing of NE 124th Street and Totem Lake Boulevard provides safe passage across the highest traffic intersection on the CKC. This crossing is envisioned to be a structurally expressive bridge that will become a landmark for the City and Totem Lake as one of the more dramatic experiences on the corridor, its form is derived by the restrictions imposed by clearance requirements of traffic and overhead power lines. The passage of the trail over this busy intersection becomes a gateway to the neighborhood as well as a powerful symbol for the growth and change of Totem Lake into an increasingly important center of retail, residential, and commercial activity for Kirkland and the region.\*



## CKC TOTEM LAKE PARK AND BRIDGE VISION



CKC MASTER PLAN TOTEM LAKE GATEWAY AND PARK PLAN

## PROPOSED BRIDGE ALIGNMENT



**ALIGNMENT REVISION**  
A preliminary alignment based on CKC master plan shown here reflects the preferred configuration.

**SOUTH APPROACH RAMP**  
Ramp structure elevates trail to spans over NE 124th Street and Totem Lake Blvd.

**SPIRAL RAMP**  
A circular ramp brings the trail back to grade at Totem Lake Park.

**SITE CONSTRAINTS**  
Roadways, utilities, overhead power lines, and future transit constitute the major site constraints.

**FUTURE TRANSIT**  
The preliminary alignment shifts the new trail structure to the west allowing for future transit.

**DESIGN PHASE**  
Conceptual design is currently underway.

PROPOSED BRIDGE ALIGNMENT

\*Text excerpt from CKC Master Plan

# EXISTING SITE FEATURES

## HOW THE NEW BRIDGE WILL FIT INTO THE SITE



01 SOUTH APPROACH FROM 124TH AVE NE



02 NORTH APPROACH FROM THE 120TH AVE NE



03 NORTHEAST APPROACH FROM TOTEM LAKE BLVD



AERIAL VIEW OF THE FUTURE BRIDGE SITE LOOKING SOUTHWEST



04 EAST APPROACH FROM NE 124TH STREET



05 WEST APPROACH FROM NE 124TH STREET



06 NORTH APPROACH FROM THE EXISTING CKC



07 VIEW OF TOTEM LAKE FROM EXISTING BOARDWALK TRAIL



08 SOUTH APPROACH FROM THE EXISTING CKC

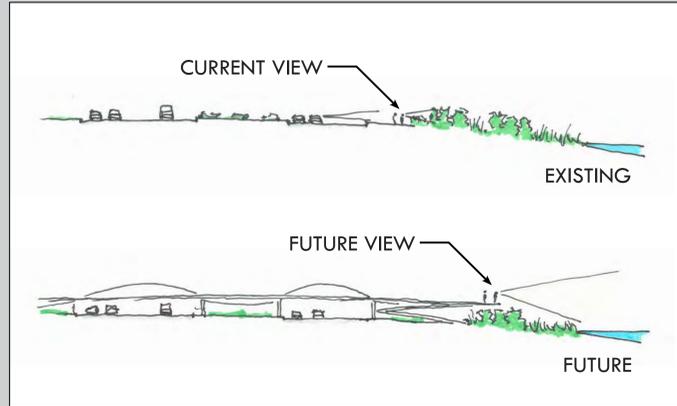
# BRIDGE ELEMENTS AND FEATURES

## BRIDGE EXPERIENCE



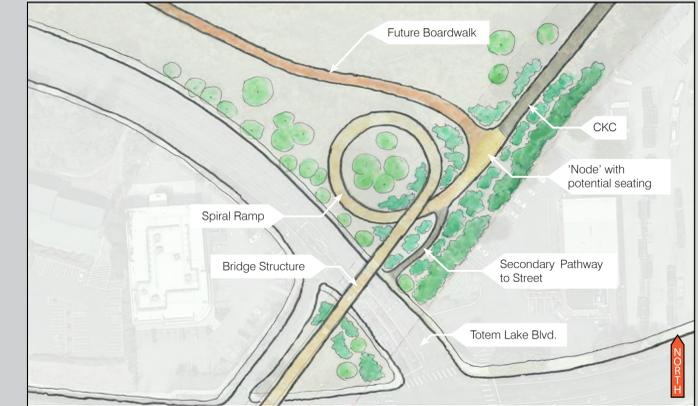
**SOUTH APPROACH**

Creates a sense of arrival at a major regional connection and a safe point of entry to the structure. The secondary gravel trail will continue along the existing rail bed to NE 124th St.



**NEW VANTAGE POINT OF TOTEM LAKE**

The spiral ramp creates a new viewing opportunity of Totem Lake. This vantage point will provide a good wildlife viewing area. Potential seating could compliment this feature.

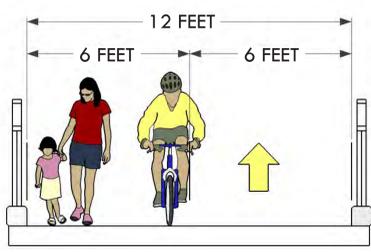


**NORTH "NODE"**

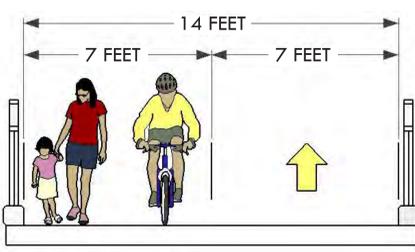
The bridge landing at the north end will utilize a "node" to meld the connection between the CKC trail and the future boardwalk system planned to encircle Totem Lake Park. This "mixing" zone could include seating, plantings, and / or way-finding elements, similar to the examples pictured to the right.



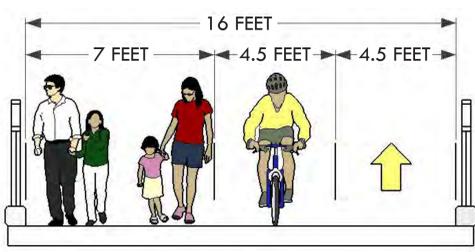
## BRIDGE WIDTH



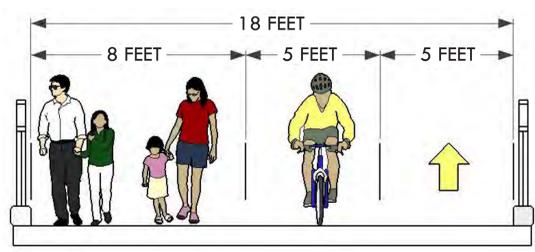
12 FOOT WIDTH\*: \$



14 FOOT WIDTH\*: \$\$



16 FOOT WIDTH\*: \$\$\$



18 FOOT WIDTH\*: \$\$\$\$



**LAKE HODGES PEDESTRIAN BRIDGE**  
STRESS RIBBON  
12 FOOT CLEAR WIDTH  
SAN DIEGO, CA



**DELTA PONDS BRIDGE**  
CABLE STAYED  
14 FOOT CLEAR WIDTH  
EUGENE, OR



**SWANSEA BRIDGE**  
CABLE STAYED  
16 FOOT CLEAR WIDTH  
SWANSEA, UK



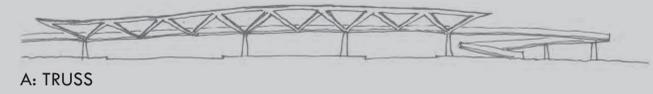
**IRON BRIDGE**  
SUSPENSION  
18 FOOT CLEAR WIDTH  
FRANKFURT, GERMANY

\*These are representative to illustrate cost versus width.

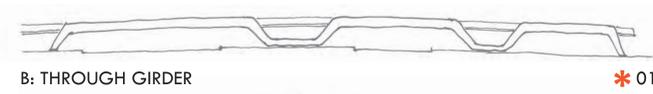
# BRIDGE CONCEPT STUDIES

## STARTING FROM A WIDE RANGE OF BRIDGE TYPES

As a start of the design exercise, a wide range of un-vetted structural systems and forms were conceived for the site as showcased below in the following sketches. A handful of them are vetted as the most appropriate for the site, meeting constructability needs, and providing an attractive crossing. See more information on these concepts as described to the right.

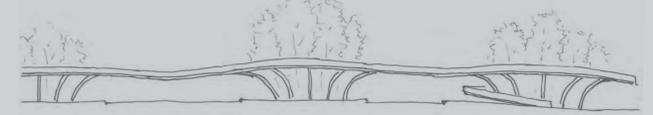


A: TRUSS



B: THROUGH GIRDER

\* 01



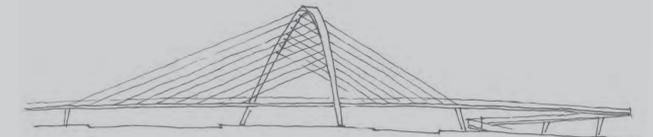
C: STRESS RIBBON



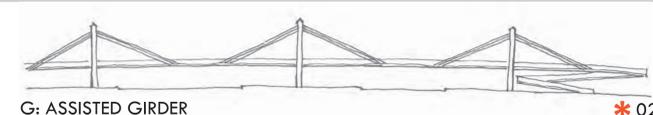
D: SUSPENSION



E: CABLE STAYED / GIRDER

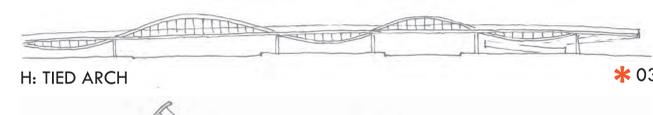


F: CABLE STAYED



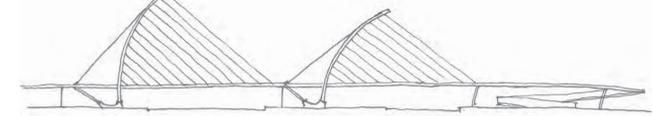
G: ASSISTED GIRDER

\* 02



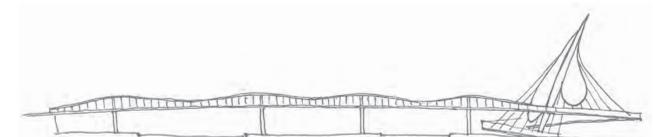
H: TIED ARCH

\* 03



I: ARCH CABLE STAYED

\* 04



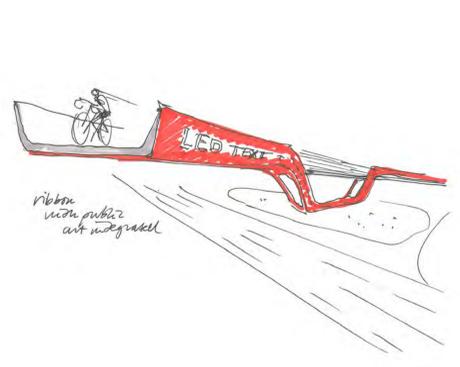
J: TRUSS / SUSPENDED RING GIRDER

\* 05

## VETTED BRIDGE TYPES

The following five bridge types and underlying themes are being evaluated for the crossing, which includes distinctly different forms.

Within each bridge type, there are variations and refinements to be further studied and their structural system analyzed to find the most appropriate general arrangement for each.

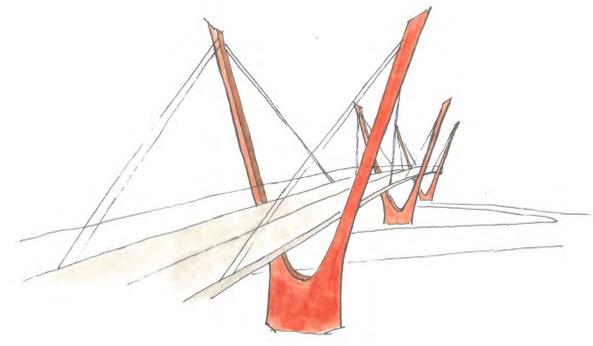


01 - A CONNECTIVE RIBBON

A ribbon with integrated art in the form of text (poetry) and/or a pattern, which can be illuminated at night.

The ribbon can turn down to the traffic island while the bridge deck continues with transparent railing, to create an unexpected opening at the bridge deck with a dynamic sculptural form at the island.

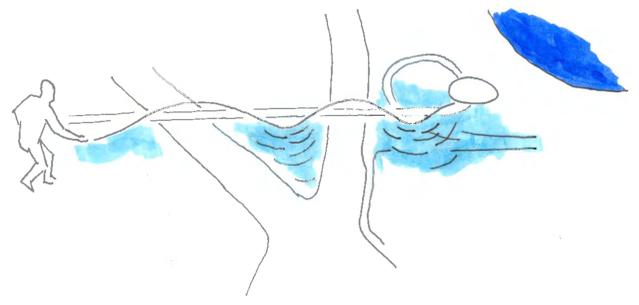
The strong horizontal form of this approach is not in conflict with existing site features.



02 - THE GATES

A memorable procession of structure celebrating the arrival of the CKC trail to Totem Lake.

The elegant repetitive structure offers the excellent economy of sculptural towers and an "assisted girder" span arrangement.

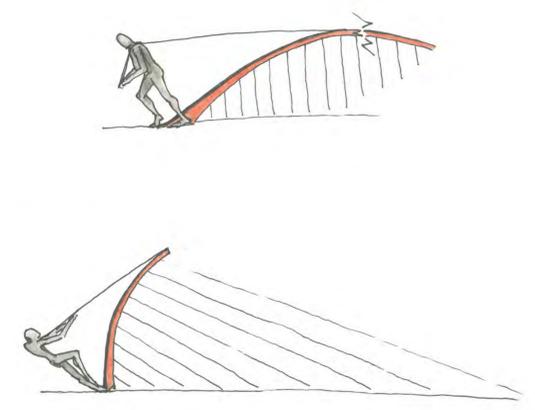


03 - SKIPPING STONE - LINKING THE WATERWAYS

A bridge type with fluid form, engaging the connection between Lake Washington and Totem Lake.

The implied sense of motion of a skipping stone towards Totem Lake expresses the reconnection between the community and nature.

The undulating form of this theme is not in conflict with existing site features.

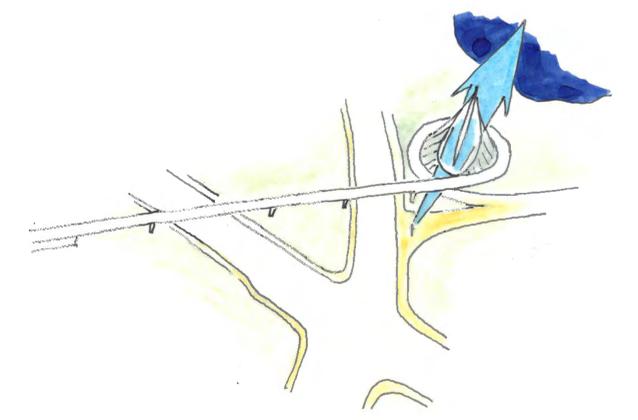


04 - HALF ARCHES

A distinct bridge type offering both a landmark form and expressive gesture of motion towards Totem Lake. Two "half-arch" spans with varied height, step down towards the lake.

Paired vertical elements create a series of portals, an exciting experience providing a sense of passage.

This dynamic form is not in conflict with existing site features.



05 - SUSPENDED RING

The structure becomes a visual way-finding linkage through the new corridor and park areas, connecting the community to nature.

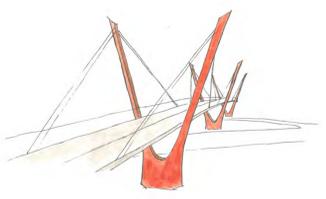
A special "droplet" portal within the cables supporting the "apparently hovering" loop ramp structure frames the view onto Totem Lake.

The undulating eccentric truss spans and canted pylon create a crescendo that is not in conflict with existing site conditions.

## DESIGN GOALS

- **A BRIDGE WORTHY OF AFFECTION:** A distinct and memorable form as experienced while using the bridge, from the streets, and as seen from future development.
- **TRAIL USER EXPERIENCE:** Attention to detail in all elements within reach and view, inclusive of the character of the underside of the structure.
- **Intuitive Way-finding:** Thoughtful placement of structure, convenient alignment, and "nodes" to allow ease of orientation.
- **CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED):** Clear sightlines throughout project.
- **SENSE OF MOVEMENT:** Exploring dynamic forms that create a sense of motion across the site.
- **INTEGRATION WITH THE SETTING:** Design of a structure that stands in harmony with its surroundings and responds to the various constraints and features of the site.
- **EASE OF CONSTRUCTION AND FABRICATION:** Minimizing traffic disruption at the busiest intersection in Kirkland.

# OPTION A - THE GATES

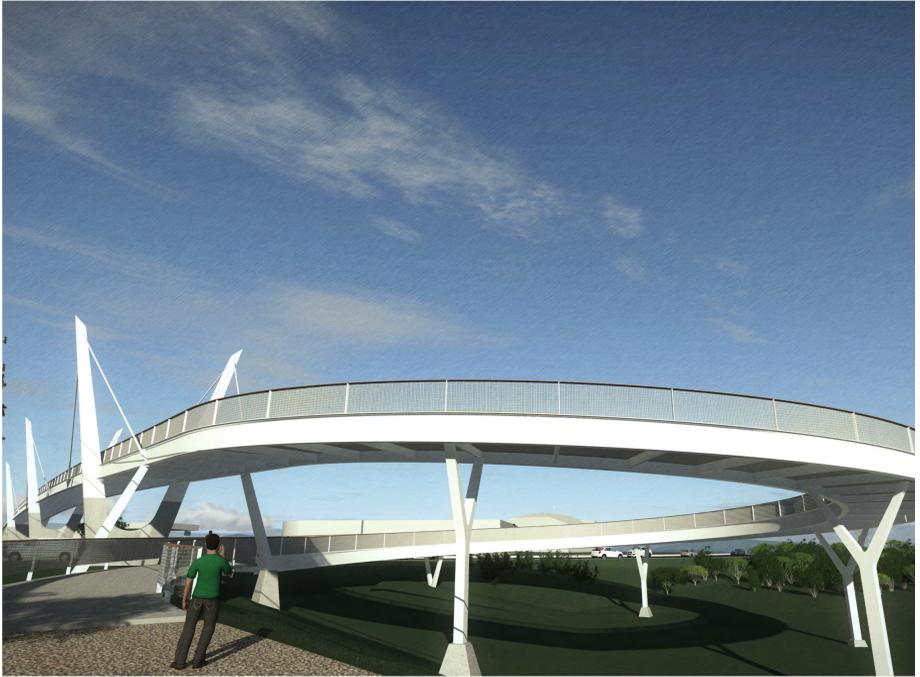


## A MEMORABLE PROCESSION OF STRUCTURE

Using slender edge-beams to span the roadways, stay-cables from the towers provide intermediate support to the 165-foot spans. The same structural system is continued in the loop ramp with Y-shaped piers spaced evenly through the curve.



01 BIRDSEYE VIEW LOOKING NORTH



02 VIEW SOUTH FROM CKC TRAIL



03 VIEW EAST FROM TOTEM LAKE BLVD



04 VIEW WEST FROM NE 124TH ST



05 VIEW NORTH FROM SPIRAL RAMP



06 VIEW NORTH FROM ABOVE THE TRAFFIC ISLAND



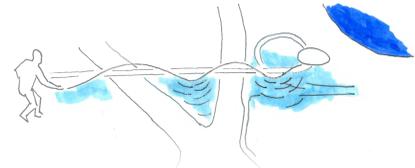
07 VIEW NORTH FROM THE SPAN ABOVE NE 124TH ST



08 VIEW NORTHEAST FROM NE 124TH ST

\*Material colors shown in renderings do not indicate final colors

# OPTION B - SKIPPING STONE

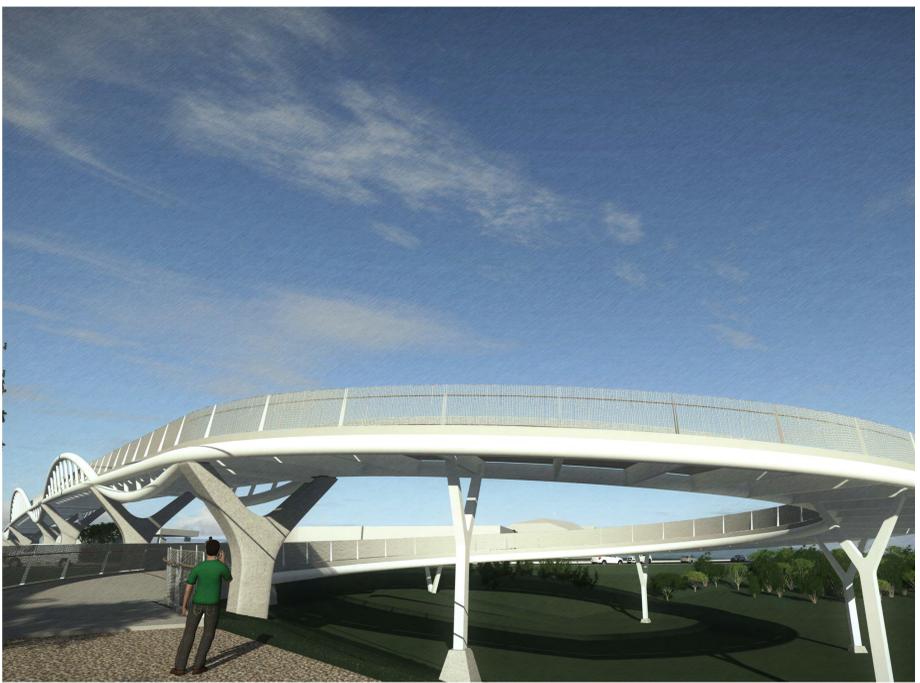


## LINKING THE WATERWAYS

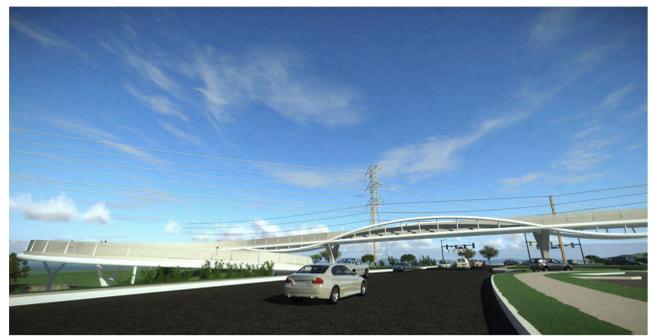
A series of inverted and conventional arch-spans carry users across the intersection. In the loop ramp, the tie-chords become edge-beams spanning between Y-shaped piers spaced evenly through the curve.



01 BIRDSEYE VIEW LOOKING NORTH



02 VIEW SOUTH FROM CKC TRAIL



03 VIEW EAST FROM TOTEM LAKE BLVD



04 VIEW WEST FROM NE 124TH ST



05 VIEW NORTH FROM SPIRAL RAMP



06 VIEW NORTH FROM ABOVE THE TRAFFIC ISLAND



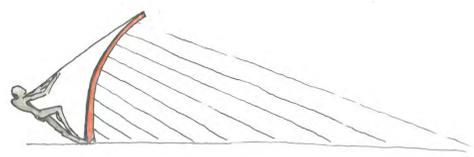
07 VIEW NORTH FROM THE SPAN ABOVE NE 124TH ST



08 VIEW NORTHEAST FROM NE 124TH ST

\*Material colors shown in renderings do not indicate final colors

# OPTION C - HALF ARCHES



## STEPPING DOWN TO THE LAKE

This asymmetric cable-stayed bridge uses curved towers to support the roadway spans with back stays tethering the towers to terra firma. In the loop-ramp, simple concrete piers are spaced evenly to provide support through the curve.



01 BIRDSEYE VIEW LOOKING NORTH



02 VIEW SOUTH FROM CKC TRAIL



03 VIEW EAST FROM TOTEM LAKE BLVD



04 VIEW WEST FROM NE 124TH ST



05 VIEW NORTH FROM SPIRAL RAMP



06 VIEW NORTH FROM ABOVE THE TRAFFIC ISLAND



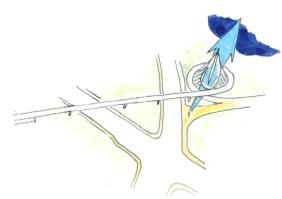
07 VIEW NORTH FROM THE SPAN ABOVE NE 124TH ST



08 VIEW NORTHEAST FROM NE 124TH ST

\*Material colors shown in renderings do not indicate final colors

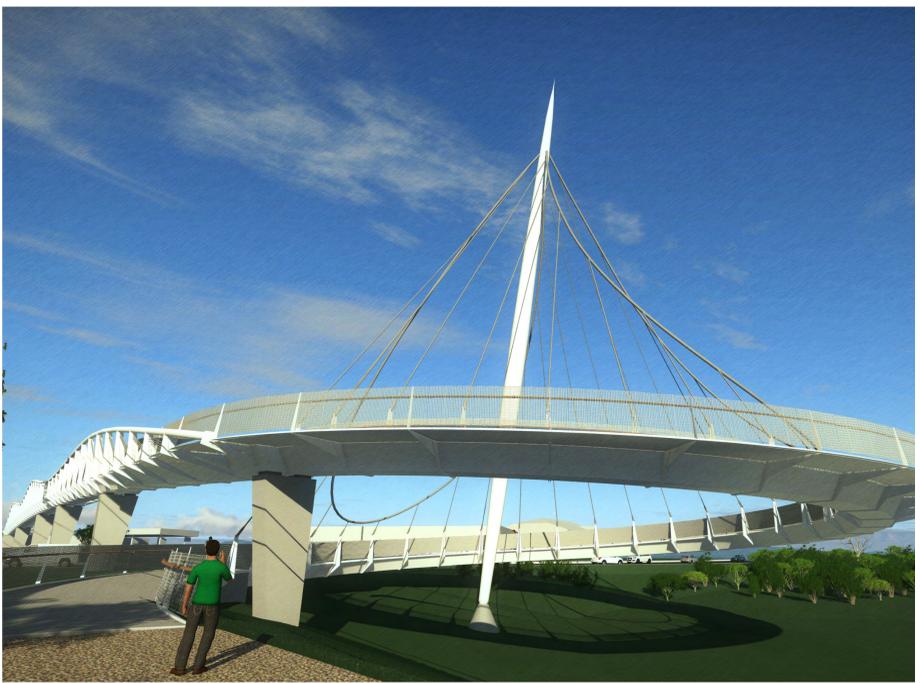
# OPTION D - SUSPENDED RING



**CONNECTING THE COMMUNITY TO NATURE**  
 This unique structure uses a fluid truss along only one edge of the deck to span across the roadways. This transitions into a highly unique loop-ramp that is suspended by cables from a single pylon.



01 BIRDSEYE VIEW LOOKING NORTH



02 VIEW SOUTH FROM CKC TRAIL



03 VIEW EAST FROM TOTEM LAKE BLVD



04 VIEW WEST FROM NE 124TH ST



05 VIEW NORTH FROM SPIRAL RAMP



06 VIEW NORTH FROM ABOVE THE TRAFFIC ISLAND



07 VIEW NORTH FROM THE SPAN ABOVE NE 124TH ST

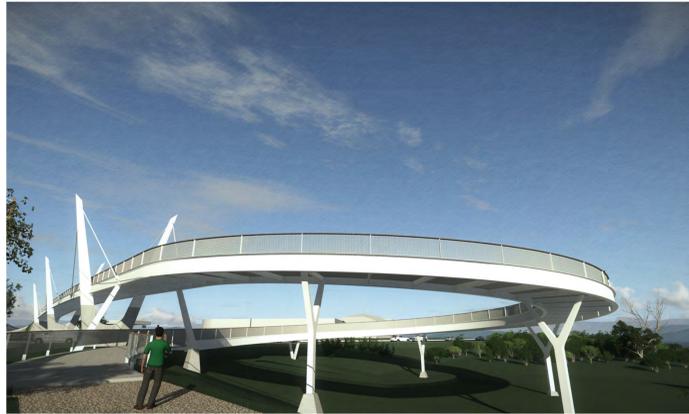


08 VIEW NORTHEAST FROM NE 124TH ST

\*Material colors shown in renderings do not indicate final colors

# BRIDGE OPTION COMPARISON

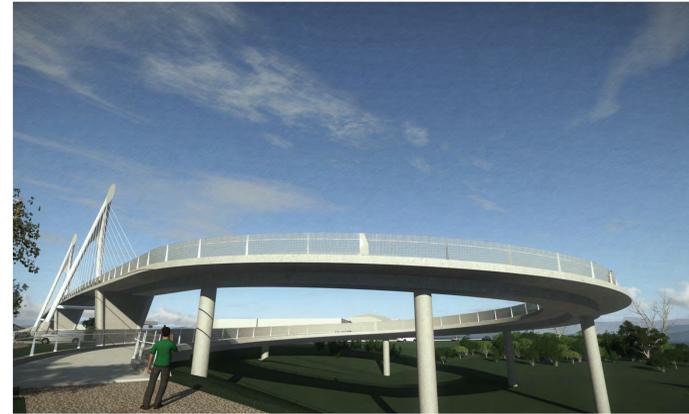
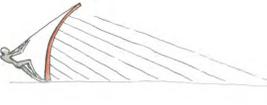
OPTION A - THE GATES



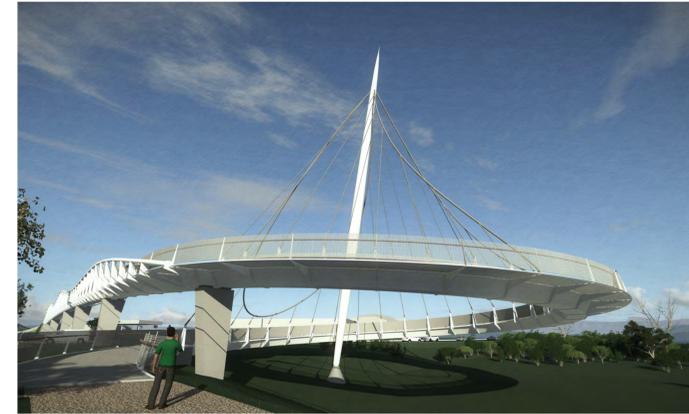
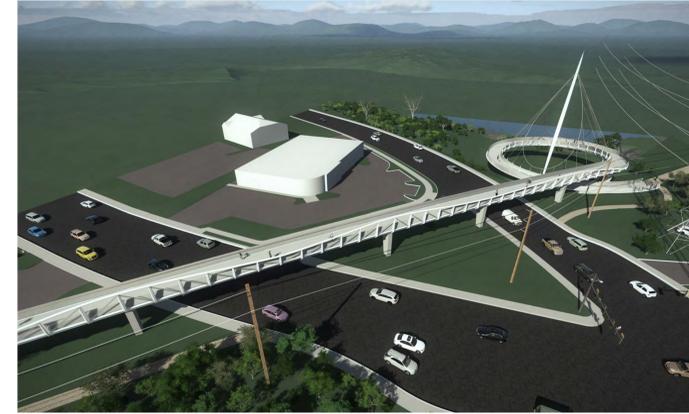
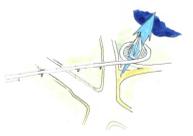
OPTION B - SKIPPING STONE



OPTION C - HALF ARCHES



OPTION D - SUSPENDED RING



\*Material colors shown in renderings do not indicate final colors