SR520 Sustainable Practices Plan

Presentation by

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# SR 520 Sustainability Practice Evolution

The SR 520 Bridge Replacement and HOV Program is the first program in the U.S. working to implement measurable sustainability criteria across an entire corridor. These criteria seek to improve the environmental, social, and economic welfare of communities affected by construction and operation of public infrastructure.

## Corridor Level Golden Thread for Sustainability

- Address transportation equity by increasing access to public transit.
- Increase public access to open space and waterfront.
- Reduce greenhouse gases (GHG) through construction and life of the corridor.
- Provide a continuous bicycle-pedestrian path that increases commuting options.
- Leverage and improve previously used facilities (brownfield sites).
- Reduce the amount of material used through use of recycled materials and product innovation.
- Reduce waste through recycling and local partnerships.
- Reconnect communities with improved pedestrian-bicycle connections and safety.

## Eastside Transit and HOV Project

- Enhance public open space system.
- Improve transit access and quality of service.
- Recycle construction refuse.
- Improve aquatic ecosystem functions.
- Reduce traffic-generated noise.
- Provide continuous high-occupancy vehicle (HOV) lanes.

*Indicates that this activity is in progress.*

## Floating Bridge and Landings

- Reduce stormwater pollution discharges to lake.
- Minimize in-water impacts.
- Reduce construction duration.
- Increase structural durability and life cycle costs.
- Utilize low impact construction methods, such as electric tower cranes.
- Provide construction employee commuting program.

## Westside Design and Construction

- Assure integration of urban and sustainability design principles.
- Increase transit and HOV access.
- Increase access to public open space.
- Reduce infrastructure impacts on the natural environment.
- Reduce construction-related noise and pollution.

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**Community and transit connections**

**Material recycling**

**Pollution and energy reduction**

**Healthy natural systems**

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Washington State Department of Transportation
SR 520 Sustainability+Urban Design Strategies and Outcomes for Westside Design and Construction

The SR 520 Bridge Replacement and HOV Program is the first program in the U.S. working to implement measurable sustainability criteria across the design, construction, and operational phases of the project as well as across an entire corridor. These criteria seek to improve the environmental, social, and economic welfare of communities affected by construction and operation of the corridor.

The Westside project is the final segment of the SR 520 Program and represents nearly 50% of the cost of the entire program. The project is a unique opportunity to fully integrate urban design and sustainability principles into design and construction. Strategies to accomplish this are identified for the following areas and lead to three primary outcomes.

<table>
<thead>
<tr>
<th>CONNECTIVITY</th>
<th>ECOLOGY</th>
<th>MATERIALS</th>
<th>OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>◦ Increase transit and HOV access.</td>
<td>◦ Restore natural habitat.</td>
<td>◦ Reduce use of new materials through</td>
<td>◦ Improved transit, cycling, and walking</td>
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<tr>
<td>◦ Complete regional bicycle and walking</td>
<td>◦ Collect, treat, and return water run-off to</td>
<td>use of recycled materials and product</td>
<td>options can lead to more economically</td>
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<tr>
<td>facilities</td>
<td>the natural environment.</td>
<td>innovation.</td>
<td>robust and &quot;livable&quot; communities.</td>
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<tr>
<td>◦ Connect communities situated north</td>
<td>◦ Reduce noise and pollution during</td>
<td>◦ Obtain &quot;locally sourced&quot; materials to help</td>
<td>◦ Increased modal options, decreased</td>
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<td>and south of the corridor.</td>
<td>construction and for the life of the</td>
<td>the regional economy and reduce</td>
<td>congestion due to construction,</td>
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<tr>
<td>◦ Help complete the Olmstedian vision</td>
<td>corridor.</td>
<td>transportation-generated GHG.</td>
<td>improved long-term operations of the</td>
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<tr>
<td>of connected parks and greenways.</td>
<td>◦ Reduce the accumulation of</td>
<td>◦ Reduce the use of carbon-intensive</td>
<td>highway, and use of lower carbon</td>
</tr>
<tr>
<td>◦ Improve public access to Lake Washington</td>
<td>greenhouse gases (GHG) from</td>
<td>materials.</td>
<td>intensive materials can lead to</td>
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<tr>
<td>and Portage Bay shorelines.</td>
<td>construction materials, traffic delays</td>
<td>◦ Select materials and systems on a life-cycle</td>
<td>improved short-term and long-term air</td>
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<td></td>
<td>during construction, and on-going</td>
<td>cost basis.</td>
<td>quality.</td>
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<td></td>
<td>operation of the corridor.</td>
<td></td>
<td>◦ Life cycle material and systems selection</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>leads to better long-term value.</td>
</tr>
</tbody>
</table>

Community connections  Collect and treat run-off  Locally sourced materials  Multi-modal options
Hierarchy & Process
Status

Sustainable Practices Plans (SPP) for CTC and Kenmore Complete
SPP for Floating Bridge and Landings in development
KGM training commencing
Data collection tool being tested and first data gathered

Process

Monthly Dashboard
Sustainability Task Force Monthly/Quarterly Review
Revised SPP 90 days after start with preliminary results
Annual reports
Final Report at Bridge completion
SR520 Floating Bridge and Landings Design

Presentation by

Alan Hart
SR 520 Urban Design Lead

Bruce McKean
KGM Lead Bridge Architect

Lowell Cate
KGM Bridge Architect
Vision and Thematic Zones

Vision Diagram

Thematic Zones & Aesthetics Opportunities
View Looking East
View Looking West from Eastside Lid
View Looking West from Eastside Pedestrian Overlook
Mid-Channel View of Navigation Channels
Overall Bridge View from Madison Park
West Transition

FLOATING BRIDGE & LANDINGS PROJECT

WEST APPROACH PROJECT
Mid-span
East Approach
Sentinel Element
Sentinel Element
Sentinel Water View
Sentinel Water View

CURRENT DESIGN
Sentinel Pedestrian View
Sentinel Pedestrian View

CURRENT DESIGN
Sentinel Night View
Low-rise Belvedere
Low-rise Belvedere

CURRENT DESIGN
Railing

WAVE RAIL

LINEAR RAIL
Railing
Railing

MID WAVE
Railing
Railing
Traffic Barriers

34” BARRIER W/ 8” RAIL

42” BARRIER
Interpretive Signage Themes

REGIONAL FEATURES
ENVIRONMENTAL PROTECTION, FISH RUNS, ETC.
& “WHAT AM I LOOKING AT?” IMAGE ILLUSTRATION

BRIDGE ENGINEERING
& CONSTRUCTION

BRIDGE & LAKE HISTORY

WATER BORN ELEMENTS