I-5 Lid
Feasibility Study

January 28, 2019

Submitted by: In association with:

WSP OJB BergerABAM EnvirolIssues Framework HR&A Advisors Rule Seven Shiels Obletz Johnsen
After years of advocacy and grassroots planning, the City of Seattle is taking the next steps to reconnect neighborhoods along the Interstate 5 corridor between Madison and Denny Streets. This bold move will redefine the center of the city.

This phase has two overarching goals. The first is to explore and define the range of feasibility—technically and economically. The second is to create a framework to maximize the benefits of lidding I-5. Supporting these two goals is a wide range of issues, including race and social equity, physical connectivity, environmental stewardship and resilience, community needs, a sense of unique identity and economic development potential.

Our job as consultant team is to consider simultaneously the breadth of issues toward the overarching goals. We have carefully selected team members with both the local expertise and national/international experience to explore the feasibility with rigor and imagination, and to create with you a tool that will best move the idea of a reconnected city forward.

WSP brings both local expertise and global experience to its role as prime. WSP’s Seattle projects, such as Waterfront Seattle and the SR 520 lids, have been city-defining. The WSP team has worked nationwide on award-winning lid projects (Klyde Warren Park in Dallas and Back Bay in Boston), and worldwide on place-defining infrastructure and transportation projects.

Project Manager Dave Warner and Deputy Project Manager Dhyana Quintanar will be your points of contact and will lead and coordinate the team efforts. Dave and Dhyana will harness the strength, depth and capabilities of WSP and our partner firms to deliver grounded solutions that are forward-compatible. Brad Tong will serve as City Liaison, drawing on Shiels Obletz Johnsen’s (SOJ) vast implementation experience with civic projects.

Our full team is organized to achieve the overarching goals. Technical Feasibility will be led by Bob Fernandes, PE, SE (BergerABAM) who brings an in-depth understanding of I-5’s structural durability. The technical team includes the strongest expertise in the full range of disciplines necessary for a thorough understanding of engineering and environmental feasibility, constructability and costing. Matt Jones, PE (MKA) will leverage his local and national experience and will oversee the integration of the technical and urban design elements.

Our Economic/Finance Feasibility team will be led by Auden Kaehler (WSP). He brings a financial forecasting background and a successful history of obtaining funding for municipal projects. HR&A’s Olivia Moss brings a powerful real estate development and funding resume to the exploration of economic feasibility.

To create the framework to maximize benefits of the lid, we have tasked Monisha Harrell to lead a Social Equity team. We are committed to inclusiveness in hearing the needs and priorities of the broader community and how this project can achieve those priorities.

Urban Design will allow us to understand the opportunities of reconnecting the physical context, and the range of options for structuring mobility, built space and open space. Nathan Elliott (OJB) will lead the urban design group, bringing his experience with large-scale city shaping projects such as Klyde Warren Park. His team will include the local expertise of Lesley Bain, FAIA, (Framework) and the public space curation expertise of Tara Green.

The success of this effort will be created by a collaborative group of experts, working together and across disciplines to set the course for a reconnected, inclusive central city. We would be honored to work with the City and the steering committee on this exciting project.

Dave Warner
Project Manager, Vice President
I-5 Lid Feasibility Study

The Opportunity

The City of Seattle has an incredible opportunity to reconnect Seattle over I-5. To build on the momentum needed for success, the WSP team understands the need to focus through technical, financial and social lenses together with consideration of the requirements of key stakeholders, including WSDOT, SDOT, Seattle Public Utilities, Seattle City Light, Sound Transit and King County Metro.

Sample of Constructed Lids Planned and Designed by this Team
Klyde Warren Park, Dallas, TX
Back Bay Station, Boston, MA
Presidio Parkway, San Francisco, CA
SR 520 Freeway Park, Seattle, WA
Hudson Yards, New York, NY

Our Understanding and WSP's Value

The WSP team recognizes the dedication and energy of the Campaign's steering and advisory committee's work to date and will continue to build on the momentum created by the 2018 Collaborative. We will provide a well-thought-out approach that will collaboratively develop technical and financial analyses, and—most importantly—an inspirational strategy moving forward that is rooted in vision and feasibility.

Our team will coordinate with WSDOT's technical representative for the Lid Feasibility Study to fully understand WSDOT considerations and constraints. Additionally, we recognize the ongoing work of the I-5 System Partnership to assess program concepts, phasing scenarios and financial strategies for a statewide I-5 master plan.

The Team to Reconnect Seattle

WSP
Project Manager Dave Warner managed the design phase delivery of the City of Seattle's Elliott Bay Seawall and developed an integrated design with future waterfront phases. Deputy Project Manager Dhyana Quintanar, now locally based in Seattle, brings fresh perspective from her leadership in developing and implementing major civic and transportation infrastructure projects internationally. Dave and Dhyana are supported by the deep resources of WSP, including expertise in transportation and environmental planning, stormwater management, and other disciplines.

Shiels Obletz Johnsen
For more than three decades, SOJ has successfully completed projects precisely like the I-5 Lid: taking monumental civic ideas and initiatives, building momentum to create funded projects, creating the tracks for implementation and managing the work to completion. Brad Tong is adept at managing high-profile projects that face a dynamic landscape including oversight by public agencies and elected bodies, community partners and private enterprise. Complex multifaceted projects are realized by his ability to apply simple principles and methods that encourage diverse stakeholders to work together.

QUB Landscape Architecture
Leveraging the experience of Klyde Warren Park and other urban overbuild successes, Nathan Elliott and Tara Green will oversee the integration of urban design, landscape architecture and other programming, and operations and maintenance (O&M) elements.

BergerABAM
Bob Fernandes will lead the technical team, using his hands-on experience from other Seattle overbuild projects. Bob will provide technical oversight of seismic analysis and resilience.

Rule Seven
Monisha Harrell will leverage her experience and relationships within the City and adjacent communities to ensure a social equity lens throughout.

Magnusson Klemencic Associates
Matt Jones will focus on blending the civil, structural and urban design disciplines to deliver technically feasible infrastructure solutions.

HR&A Advisors
Complementing WSP’s finance and economics resources, Olivia Moss will provide invaluable expertise to our team. HR&A brings extensive experience harnessing the value of real estate and open space to support major infrastructure investments and the benefits such investments can create for the community.

EnviroIssues
EnviroIssues will support the City’s outreach, communications and project website. Erin Tam will lead this work.
Our Approach

Our approach will ensure the technical team is focused on the right analysis, recognizing the limited funding available, and will provide a **durable outcome** that will support the next phase of the project, whether that is immediately following the feasibility study or years after. As we execute our approach, a logical story will unfold so that stakeholders, the public and decision-makers will understand how this feasibility study fits within achieving the vision, goals and objectives for lidding I-5.

Drawing upon our team experience delivering projects along Seattle's Waterfront, this first step is crucial for aligning the project team goals and key stakeholder expectations. The WSP team's strategy is to engage the right audiences at the right time, as shown in Exhibit ➀. Early in the study, we plan for significant engagement with the Study Committee, while connecting more with key stakeholders and City departments as the study advances.

Prior to any technical analyses, our team will engage immediately with the Study Committee and WSDOT to collaborate on this critical first step. Our core team of Dave Warner, Dhyana Quintanar, Brad Tong, Matt Jones, Tara Green, Bob Fernandes, Monisha Harrell, Nathan Elliott and Auden Kaehler have structured a series of meetings to cover a range of topics around development potential, social equity goals and objectives, and policy. These conversations will allow the team to conduct workshops and identify a range of feasible scenarios that have representative footprints and layouts that imagine what can be done.

The scenarios will be inclusive of urban design principles; equity considerations; resiliency and sustainability; and system requirements for mobility, transportation and utilities. Exhibit ➁ shows a flowchart describing our key platforms.

**Three Key Steps** Summarize our Approach:

1. Our core team of specialists will use the first three months of the study to **define the focus of the technical analysis**. This analysis aligns the platforms of asset owner constraints, social equity and policy goals, and economics and development.

2. Our **scenario planning approach** to technically analyze three most likely lid programming outcomes will provide a range of technical, economic, financial and social equity analysis.

3. Our **final product** will include an implementation strategy, digital materials, and presentation materials for decision maker briefings, and will position the project for additional funding and critical public support and momentum.

**KEY STEP 1**

**Duration: 3 months**

**Definition**

**Real Estate and Development Market Scan**

- For capacity creation and market demand for various programming opportunities.

**Social Equity Goals and Objectives**

- That describe the range of opportunities that satisfy policy goals.

**Constraints Analysis**

- Of existing infrastructure and owner requirements to identify what is possible and what is not.

**WORKSHOPS conducted iteratively to identify the range of scenarios for technical analysis.**

**KEY STEP 2**

**Prepare for Policy and Funding Decisions**

- Mayor’s Office, City Council, WSDOT, Advocacy Groups, Community Groups

**KEY STEP 3**

**Engagement Process, Integration of Key Stakeholders and Programs**

- I-5 Feasibility Study Committee, Freeway Park Improvements, Department of Neighborhoods, Developer Input
Scenario Technical, Financial, Economic and Equity Analysis to Inform Final Study

These analyses will answer the question about how the scenarios are likely to perform. The technical team will perform the engineering analysis of each scenario to demonstrate and document feasibility. This will include evaluating cross sections and profiles, developing conceptual layouts of structural elements, and conducting fatal-flaw-level analysis to size and quantify design elements and confirm feasibility. Matt Jones will oversee the integration of the urban design and the engineering work so that technical approaches can be tailored to unique situations and the intent of lid programming is achieved.

Our team is accustomed to developing renderings and visuals to show the technical information and trade-offs for public or stakeholder clarity (See Exhibits 3, 4 and also 5 on the following page). Visualizations will be developed in coordination with the Advisory Group. Following the technical analysis, the team will develop conceptual cost estimates reflecting engineering analysis, quantities, risks and contingencies. This will be done for all three scenarios and will feed directly into the economic and financing analysis.

We will assess equity and community benefits potential, including environmental impacts or benefits. This level of analysis will be qualitative and based on best practices, industry standards, and case studies of similar projects. This will include key equity and quality of life benefits such as the delivery of new housing stock, delivery of affordable housing, delivery of new open space, increased or enhanced access and connectivity, and city-building value.

Olivia Moss will support the evaluation of potential funding structures, including public, private and value capture opportunities. We will evaluate the value capture potential by identifying and analyzing potential strategies to generate value from real estate development, which will include analyzing the implications of incorporating public policy goals, such as the delivery of affordable housing, into the development program.

Using a benefits analysis, we will develop a benefits case for each scenario that includes an economic and fiscal impact analysis. This case will estimate the economic and fiscal impacts associated with construction, and potentially, the ongoing operations of the lid. This could include open space, development and tourism benefits analysis.

Matt Jones will oversee the integration of the urban design and the engineering work so that technical approaches can be tailored to unique situations and the intent of lid programming is achieved.

Leveraging experience delivering lids nationwide allows the WSP team to advance the technical work in a faster and more informed manner.
We will evaluate feasibility and constraints block-by-block: underground, above ground, and in the community.

**EXISTING**

WSP’s visualization capabilities can help communicate project complexities to technical and non-technical audiences.

1-5 has been the divide that has separated communities and neighborhoods.

- Noise
- Air quality
- Water quality
- Health
- Adjacent property uses
- Freeway Park

Mobility, access, and safety has been degraded.

- Limited crossings
- 1-5 traffic
- Maintenance of traffic
- Bicycle/pedestrian access
- Transit
- Emergency vehicle access
- Ramps
- ADA

Existing assets must be considered in all concept planning.

- WSDOT facilities
- Structures
- Roadways
- Public utilities
- Power
- Systems
- Tunnel
- Foundations
- Stacked express lanes

**FUTURE**

This representative lid peel-back shows the complexities and conflicts that must be considered.

Economic and financial considerations will guide next steps and implementation.

- Cost
- Governance models
- Benefit
- O&M
- Funding opportunities
- Market demand

Equity goals and policy will help frame scenarios.

- Lid uses
- Urban design principles
- Access
- Mobility
- Affordable housing
- Air
- Noise
- Health
- Sustainability
- Homeless displacement
- Resiliency

Technical analyses will inform what is feasible.

- Fire/life/safety
- Soils
- Seismic resilience
- Replace or retain existing crossings
- I-5 structures
- Clear span
- Column placement
- Means and methods
- Constructability
- Freeway rebuild
Our Final Product Will Position the Project for Additional Funding

Recommended Next Steps, an Implementation Strategy and Presentation Materials

The culmination of the work described in our approach will result in both digital and editorial deliverables that are visually dense and interactive to effectively communicate and describe the feasibility, tailored to various target audiences and channels of dissemination. Technical appendices and reports will accompany these products that capture the constraints, requirements, assumptions and conceptual analysis behind the study. These presentation materials will be designed to tell the story of how this study unfolded and the findings of the work for the public, while creating hands-on tools for decision-makers to support policy and funding decisions. It will be a durable study that can move seamlessly into the next phases of work if additional funding and support is generated, while enabling the process to connect the various audiences who will be primary or secondary users of the study, including the Seattle Mayor’s Office, City Council, WSDOT and community groups.

We will also outline an implementation strategy and communications approach for future phases. Brad Tong, Tara Green and Olivia Moss will be key contributors in developing preliminary recommendations for distinct strategies on funding, operations, governance and O&M costs. The implementation strategy will also evaluate the relative cost, schedule, funding, and constructability differences between building a lid over the existing freeway or building the lid as part of an I-5 rehabilitation. This will provide the vision of a great civic space and catalyze next actionable steps.

Communications and Engagement

This project will transform Seattle. That message needs to be clear and inspirational. Our team will present information that is tailored to both the general public, as well as professionals, to invite discussion and develop consensus.

We will work closely with the City team to support the work of the I-5 Lid Feasibility Study Committee by developing presentations, co-designing an engagement process, and facilitating meetings. Our team will develop and manage a project website to clearly communicate the project schedule and milestones. Perhaps most importantly, our team’s Monisha Harrell will support the work of the Department of Neighborhoods in conducting targeted outreach to communities that will be affected by the lid’s development. Our public-facing communications plan will inform and engage all stakeholders and support the City’s race and social justice goals.
Our team is organized to implement the approach outlined in the previous section. Dave and Dhyana handpicked this team and will lead them over the course of this project. Dave will be the single point of contact for all contractual matters and will manage scope, schedule, budget and overall accountability. Dhyana will lead the engagement process and technical work. Brad Tong, serving as City Liaison, will provide direct support to Lyle and OPCD to navigate City and stakeholder strategy; effectively acting as an extension of the OPCD management team.

Defining the Focus

Our core team, will work closely with the City of Seattle, the Study Committee and WSDOT to workshop development potential, race and social equity goals and objectives, and policy and asset owner constraints.

**Benefit:** Technical analysis can proceed with focus and confidence that all "under-the-tent" perspectives are considered, and the technical team has clear direction to ensure an informed and grounded study.

Feasibility Analysis and Scenarios

The WSP team will then perform a technical evaluation of feasibility. The technical elements of the work include traditional engineering components and will be supplemented with urban design. **Matt Jones** will provide the translation between the pure technical and the urban design elements. Blending the engineering expertise of WSP, BergerABAM and MKA with the urban design strengths of Framework and OJB, this team will develop grounded, visually appealing lid scenarios. This will feed directly into the economic and financial analysis led by Auden Kaehler and Olivia Moss.

**Benefit:** Urban design that is technically achievable while supporting economic and social goals.

Delivering a Forward-Thinking, Forward-Compatible Study

We chose each member of our team for their ability to deliver a feasibility study that harnesses the work done to date. Our study will include:

- Financing and funding strategies for implementation
- Socially inclusive and supported final product
- Paths forward related to governance and sustainability of the lid
- Technically feasible scenarios that allow the City and its partners to move forward

As a direct extension to OPCD, Brad Tong will use SOJ’s vast experience delivering similar civic projects with their City and stakeholder relationships to guide this process in a focused, intentional and effective manner. The team is bolstered by our key advisors, including former Washington State Transportation Secretary Paula Hammond, who will play a key role in advising on WSDOT-related strategies and perspectives.

![Diagram of team organization](I-5 Lid Feasibility Study)
Relevant Experience

Klyde Warren Park  Dallas, TX
OJB Landscape Architecture led the design of award-winning Klyde Warren Park, a 5.2-acre urban park built over the active eight-lane TX 366 Spur in Dallas. HR&A performed and economic analysis for the expansion of the park.

Projects Along Seattle’s Waterfront  Seattle, WA
Over the last two decades, this team has had significant involvement in the 26-block project area and over 2 miles of SR 99, including a diverse range of waterside and upland parcels under public, private and non-profit ownership. The entire project area features significant private development and multiple public/private partnerships as well as transportation and infrastructure projects.

Back Bay Station  Boston, MA
WSP, MKA and OJB collaborated on this mixed use overbuild development project that lids the Massachusetts Turnpike.

Presidio Parkway  San Francisco, CA
WSP played a lead role in planning and designing the transformation of Doyle Drive into the Greenroads-certified Presidio Parkway. The award-winning project includes two highway lids with 13 acres of green space, enhances multimodal safety and reconnects downtown San Francisco with its natural and recreational areas on the waterfront. MKA is designing program elements of the overbuild.

SR 520 Freeway Park  Seattle, WA
WSP was responsible for the planning, preliminary design and design-build procurement of this project, which included three lids spanning the SR 520 corridor. The project ultimately reconnected communities divided by the original construction of SR 520 and focused on modal integration, transit access and the creation of open spaces for community access.

Hudson Yards  New York, NY
WSP led the planning, environmental and technical and financial strategy used to fund a pedestrian-friendly, mixed-use overbuild above the active rail yard. WSP’s work included coordination with stakeholders, utilities and the public, as well as structural engineering for high-rise buildings on the deck.