

# Reconnecting Communities through Urban Revitalization and Improved Mobility

## Highway Cap Parks





## Reimagining urban connectivity for more than 40 years

From conceptual planning through design, construction and rehabilitation, we will partner with you and your community to bring connections to life.

Services include:

- Landscape Architecture & Urban Design
- Environmental Documentation
- Civil Engineering
- Bridge & Structural Engineering
- Mechanical & Electrical Engineering
- Fire & Life Safety
- Building Structural
- Community Engagement
- Stakeholder Facilitation
- Constructibility & Cost Estimating
- Funding Support
- Program Management

## Reconnecting and Rehabilitating

### Collaboration and communication are key to resolving past transportation decisions.

Cities across North America are looking for ways to correct issues that were created from transportation projects that met needs at the time but must be reevaluated today. Highway cap parks, also called lids, decks and covers, are an innovative solution to reconnect neighborhoods and the 475,000 households — often in economically disadvantaged urban communities — that were displaced to make way for federal interstate construction from 1957 to 1977.

HDR has been planning and designing infrastructure solutions to reconnect North American communities since the 1980s. Today, we continue to collaborate with our clients and communities, assisting with funding strategies, visioning and planning, design, construction, and even rehabilitation, to make these connections a reality.

### Complicated Solutions Require Coordination and Cooperation

Capping an urban highway with a bridge-turned-park complete with a turf-covered deck, pedestrian pathways, art, park equipment and, in some cases, buildings, creates new uses and connections over the roadway.

The process begins with planning and consulting to create a vision for improved mobility and a better future for the associated neighborhoods and community.

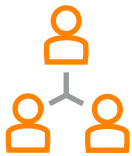
The cooperation of infrastructure owners, partners and stakeholders is critical and challenging, as the relevant parties often cross federal, state and local jurisdictions and include private and nonprofit organizations. With collaborative input, consensus can be built and the project can move forward. Our strategic communications team and experienced project managers know how to make that happen.

When it comes to design and construction, the structure may be a bridge, but the technical considerations are often complex. For that reason, we go beyond bridge and structural engineers to bring together the right mix of HDR specialists. From structural, mechanical, electrical and water hydraulics engineers to landscape architects, urban designers, environmental planners, geologists, economists, and fire and life safety specialists, we have the skills and experience to deliver an exceptional urban structure to uniquely meet your community's needs.

# Four Key Elements Driving Community Enhancing Cap Parks, Lids, Decks and Covers

Reconnecting a community requires more than designing and building a bridge. You have to create an inviting environment where people feel safe and see themselves reflected in their surroundings. A place where people want to spend time. A space that is functional, beautiful and meaningful to the community. Using a collaborative process we will plan, design and construct a purposeful public space unique to your community's needs to improve the lives of the people who use it.

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## Community Engagement Leads to Better Outcomes

Successful projects start with informed stakeholders and community members that participate in the community focused process. Our education and awareness campaigns inspire positive results. Using best-in-class, purposeful strategies and defensible, transparent stakeholder coordination we create easy-to-understand, public facing materials for digital and in-person distribution. Throughout the process, you will be able to see the results of neighborhood input and ideas in the design.

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## Landscape Architecture & Urban Development Establish Context and Place

To create unique spaces that are integral to the community, our landscape and site designs are holistically linked to the site and context. We begin with stakeholder visioning sessions to establish high-level principles that drive designs across all disciplines and consider the project's broader development influence. The resulting spaces respond to user and program needs and elevate a community for generations. We focus on the human dimensions of design and strive to hone the expression of the natural and civic environment as it relates to the place.

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## Structural Engineering Provides the Base for Reimagining Your Solution

By engaging our experienced structural team early in the planning process, our design concepts successfully build upon aspirational form, function and constructability. Ranked number one by ENR, our bridges and structures team brings diverse perspective and experience to meet the challenges of community context for topside development. Whether a park, boulevard, civic focused space or building, we maximize topside potential to reconnect and move your community forward.

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## Fire & Life Safety Planning Help Protect from Injury and Loss

Life-saving elements are an integral part of our cap park and tunnel designs. Collaborating with owners, we convey risk and develop solutions that comply with local and national fire protection requirements. Our sophisticated fire and evacuation modeling can help predict fire behavior, smoke movement and evacuation scenarios. This helps us design effective safety measures. Here to, we engage key stakeholders, owners, local fire and building departments, emergency responders, and regulatory authorities, to verify structural integrity, life safety, property protection, business continuity and environmental measures.



SR520 Montlake Lid



SR 520 Roanoke Lid Bridges — rendering courtesy WSDOT



SR520 84th Avenue NE Lid



SR 520 92nd Avenue NE Lid

## Planning & Consulting: Creating a Vision for a Better Future

The planning and designing of highway park caps, lids, covers and decks is tied to the project's place: culturally, socially and physically.

As strong advocates for smart growth, transit-oriented development, vibrant, safe and walkable streets, our planners consider demographics, ethnography, cultural drivers, the natural environment and the aspirations of the community's shared vision. Our multidisciplinary team of planners, landscape architects, engineers and other design professionals collaborate to promote and advance the concepts of placemaking and community. We explore economic, human, political, legal, environmental and aesthetic opportunities to improve quality of life and build a sustainable future.

We plan for and create attractive and productive highway cap parks to foster innovation alongside mixed-use development, environmental sustainability and diverse communities.

### State Route 520 Transit & HOV Projects

Seattle, Washington

The Puget Sound Region has an extraordinary landscape with amazing water and mountain views as well as a series of neighborhoods nestled into the beautiful wooded hills. In that region, the SR 520 is a critical highway that links densely populated cities and some of the state's largest employers.

As the general engineering consultant, HDR worked closely with Washington Department of Transportation, regional leaders, and the community to redevelop four miles of the corridor and increase the accessibility, safety, reliability and mobility of the corridor while also preserving historic Olmsted Brothers boulevards.

HDR provided program management, bridge and cap design, civil engineering, landscape architecture and urban design, transportation planning, public outreach, NEPA and environmental permitting, and right of way services.



SR 520 Evergreen Point Road Lid



Urban Core Strategic Plan: I-480 Lid rendering

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Jim Ellis Free Park Lid rendering



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### SR 520 Montlake Lid & Pedestrian Land Bridge

HDR led the development of the Montlake Lid & Pedestrian Land Bridge, including alternatives analysis, defining lid programming, engineering validation and stakeholder coordination. Together with WSDOT, we navigated the redesign of a 1,400-foot lid into an approximately 700-foot lid with a partner pedestrian land bridge to minimize mechanical ventilation costs.

### SR 520 Roanoke Lid Bridges

Correcting an issue created by SR 520 construction in the 1960s, the Roanoke Lid will serve as a new community gathering space. Working with WSDOT, we led the development of the project. The lid transitions from state-owned, non-motorized facilities to city-owned and maintained facilities, requiring a strong partnership between the state and city to begin the development.

### SR 520 Eastside Transit & HOV Project

Through community-focused charettes and collaboratives, HDR developed the Evergreen Point Road and 84th and 92nd Avenue NE lid concepts detailing functional and area programming, core transit and non-motorized mobility improvements, and aesthetic design standards for the corridor. This included initial visioning, and conceptual and accelerated design-build oversight.

### Jim Ellis Freeway Park Restoration

Seattle, Washington

Seattle Parks and Recreation is restoring the 40-year-old freeway cap park over I-5 to increase accessibility. HDR is helping to improve wayfinding, address deferred maintenance and add a new concierge and restroom building. We also designed an interface to help evaluate and assess options based on structural limitations.

### Urban Core Strategic Plan: I-480 Lid

Omaha, Nebraska

The I-480 Lid would be one of the first two projects of the Omaha Urban Core Strategic Plan developed by HDR. The lid would reconnect Downtown Omaha with Midtown Crossing and the Blackstone District to create a vibrant new public open space and spur redevelopment, property values and tax revenue.

# Design and Construction: The Transition From Idea to Reality

Cap design and construction requires technical skills and coordination beyond what's needed for typical bridges.

A dense urban location requires foundations that won't damage existing complex structures or underground utilities. Air ventilation, fire safety, egress and lighting, commonly considered in tunnel design, become critical for caps as well.

Having park soil on top of the bridge structure calls for a design that does not allow water to penetrate the structure deck, where it could freeze and cause damage.

Our ability to plan and implement within these contexts, allows us to develop cap parks and transform infrastructure with community- and development-centered solutions.

## I-579 Urban Open Space Cap (Frankie Place Park)

Pittsburgh, Pennsylvania

This three-acre green space opened on November 22, 2021, to reconnect Pittsburgh's historic Hill District with downtown. In the 50s and 60s, development led to the demolition of blocks of homes and businesses, while the new Crosstown Boulevard created an additional barrier. Today's cap brings the community back together with pedestrian and bicycle pathways, performance areas, rain gardens for storm water management and artistic elements.

HDR served as the lead designer for the cap and provided:

- Early project planning
- Environmental permitting
- Bridge design
- Grant support
- Public engagement services
- Preliminary/final design
- Traffic control signal design
- Roadway design
- Construction support
- Stormwater management

## I-5 Rose Quarter - Wielder Interchange

Portland, Oregon

The Rose Quarter project will add auxiliary lanes and shoulders and redesign the local street network to be more multimodal, with features specifically for pedestrians and cyclists. But the most dramatic change will be the highway cover, which will replace five existing bridges with a continuous structure to better reconnect the two sides of I-5. The 1,500-foot highway cover concept will reconnect local streets and create new community spaces for future development and economic opportunities. Depending on the final design, the cover may be able to support buildings from three to six stories tall.

HDR has provided a wide variety of services as ODOT moves the project forward, including:

- NEPA and environmental permitting
- Concept development
- Complete streets implementation
- Interchange design
- Complex traffic modeling
- Transit design
- Right of way services
- Preliminary engineering
- Fire and life safety
- Highway cover structure design

## I-35 Capital Express Central Austin

Austin, Texas

I-35 has been the north-south backbone of personal, business and freight transportation in Texas since 1962. Its congestion has ranked in Texas's top five most congested freeways for nearly a decade. It has also been a socioeconomic, visual and psychological barrier between east and west Austin. Mobility improvements include reconstructing cross-street bridges and adding pedestrian and bicycle paths.

HDR assisted TxDOT with:

- Schematic level design
- Environmental permitting and environmental evaluation of highway mobility improvements
- Right of way services
- Preparation of the draft and expedited final environmental impact statements for the central section

*I-5 Rose Quarter - Wielder Interchange rendering courtesy ODOT. Final design subject to change based on community input.*

*I-35 Capital Express Central Austin rendering courtesy TxDOT. Deck plaza design is a concept. Foundational elements to support deck plazas and all surface amenities to be funded by others.*



I-579 Urban Open Space Cap



I-5 Rose Quarter — Wielder Interchange



I-35 Capital Express Central Austin

## Specialty Services

Communities, cities and states across the nation are seeing new potential near transportation corridors, and HDR is helping to reimagine development opportunities, address mobility needs and highlight community identity. We design community-building and mobility solutions to meet a broad range of local and regional objectives like connecting communities, attracting investment and reducing congestion.

Our teams of planners, structural engineers, urban designers, architects, economists, stakeholder engagement specialists and scientists bring the experience, knowledge and creativity needed to envision and create developments unique to each community and urban context. Understanding the dynamic relationship between urban infrastructure and land development is a hallmark of our practice.

Combining holistic planning and design with strategic stakeholder outreach, we listen to the needs of all parties, including owners, developers and the community that will benefit from this new connection. The result is integration that fits naturally with a community's landscape and enhances quality of life.



## Our Story

We are a 100% employee-owned professional services firm. Founded over a century ago to bring electricity to a changing world, we are now a global company specializing in architecture, engineering, environmental and construction services. Our success in built and natural environments continues as we collaborate to solve our clients' and communities' most complex challenges.

Our employees, working in more than 200 locations around the world, push open the doors to what's possible each and every day.

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