Transportation
Skidmore, Owings and Merrill (SOM) is one of the leading architecture, urban design and planning, engineering, and interior architecture firms in the world. The firm’s sophistication in building technology applications and commitment to design quality has resulted in a portfolio that features some of the most important architectural accomplishments of modern times.

SOM draws on several decades of experience in more than 50 countries around the globe to inform its design solutions. The firm has an international reputation for excellence, and has received more than 1,400 awards, including the American Institute of Architects’ (AIA) highest honor for design excellence in a collaborative practice. It is the only firm to have received this award twice.

SOM is an industry leader in the architectural design and engineering for sites and buildings dedicated to commercial, education, public infrastructure and transportation, aviation, health and science, and government. The firm’s long-standing commitment toward greater innovation extends not only to the design and engineering of its built work, but also to the application of its expertise and resources.

Currently, the firm maintains offices in New York, Chicago, San Francisco, Washington, D.C., London, Brussels, Mumbai, Abu Dhabi, Riyadh, Dubai, Hong Kong, Shanghai and Mexico City.
Unprecedented mobility and connectivity are defining qualities of modern urban life. We ride transit of all types, fly around the world for business and pleasure, and walk, cycle, and drive in between. More than ever, transportation terminals—beyond providing an inspiring civic identity — are linking transit modes, blending uses, and catalyzing broader development.

With seven decades of experience in planning, designing, and implementing large-scale surface transportation and airport projects on a global level, Skidmore, Owings & Merrill (SOM) has helped to lead this evolution. Using our full capabilities, from architecture and urban design to environmental graphics and wayfinding, we create terminals and transit centers that connect on every level.

Travelers negotiate transfers with ease thanks to clear planning and signage; commuters take care of errands in the station; and increasingly, new development above and around downtown hubs creates new centers of social and economic activity. Whether we are designing a multi-modal rail station or a new international air terminal, our strong technical expertise and history of managing large complex projects allow us to translate our clients’ investments into regional benefits.
SOM is one of the leading design and engineering firms in the world, with a 75-year reputation for design excellence and a portfolio that includes some of the most important architectural accomplishments of the 20th and 21st centuries. SOM’s cutting-edge design talent, combined with our global experience, has enabled us to deliver state-of-the-art transportation hubs and transit-oriented developments renowned as iconic landmarks and for their ability to attract marketplace investment.

Since its inception, SOM has been a leader in the research and development of specialized technologies, new processes and innovative ideas, many of which have had a palpable and lasting impact on the design profession and the physical environment.

Responsible city building requires careful interconnection and balance of multiple modes of transportation to provide access to global and regional economies, reduce traffic congestion and air pollution, and enable healthy lifestyles that encourage walking. Strong transportation links to regional employment centers and other popular destinations reduce a community’s reliance on cars, which, in turn, reduces impacts on the environment.

Our work involves the planning, integration and development of air and rail infrastructure, streetcar, trolley and bus networks, bike lanes and comfort stations, and interconnected pedestrian networks. Great streets balance all of these systems and serve to establish signature addresses within the city.

SOM provides our clients with top-to-bottom design management services and tools to satisfy the uniquely challenging needs of major transportation planning and design projects.

Due to our strong and effective project management, we have a distinguished track record in securing environmental, urban renewal, and redevelopment permits for many of the most complex and recognizable projects around the world.

At SOM, all designs begin by understanding our clients’ mission, needs, and long and short term goals. We foster dialog, balance goals among stakeholders, and unite project teams around a strategic vision.

SOM’s proven management leadership, inspiring award-winning design, unparalleled technical expertise and strong track record of effective public review and regulatory approvals allow us to translate our clients’ investments into distinguished, responsible and integrated designs that promote sustainable growth and become new centers of social and economic value.

Our long-standing leadership in design and building technology has been honored with more than 1,300 awards for quality, innovation, and management.
Sustainable Design

Building a Sustainable Future

SDM is committed to advancing the ideas of sustainable living, environmental responsiveness, ecological balance, biodiversity, and high-performance design for every project that it engages in. To this end, the firm has developed an in-house Performative Design Studio™ comprised of engineers, architects, planners, researchers and technical experts to incorporate high-performance and sustainable strategies from the inception of the design process.

As an industry leader in advanced engineering design services, we are committed to providing efficient and cost-effective solutions to the particular challenges that India faces today. Through the development and incorporation of sustainable building ideas, such as next-generation technology, passive design, smart materials, intelligent building, and energy efficiency, SDM’s designs address the specific needs of Indian cities as they relate to water supply, sewage treatment, solid waste disposal, transportation solutions, affordable housing and slum rehabilitation.

In-house experts evaluate a host of strategies including natural daylighting, natural ventilation, water harvesting, thermal massing and solar protection systems that directly respond to the Indian climate. Beyond passive strategies, efficient building systems, integrated renewable energy production, advanced building control systems, efficient water strategies, and waste reduction principles are applied to achieve an overall efficient and sustainable design.

Denver Union Station
Denver, Colorado

Integrating bus transit, light rail, commuter rail and Amtrak, Denver Union Station is one of the most ambitious rail projects in the United States. This landmark transportation hub is positioned to achieve LEED-Silver certification at its anticipated completion in 2014. Comprehensive sustainable planning will allow Denver Union Station to obtain 35% of its energy from renewable sources, reduce overall energy consumption by 26%, and reduce water consumption by 36%.

Denver Union Station will obtain at least 35% of its required energy from renewable sources through a 2-year contract.

A comprehensive energy model was created and used to optimize building systems, resulting in a 26% improvement in building performance compared to the ASHRAE standard.

Implementing the use of low-flow fixtures will reduce water consumption by 36% over a baseline building and save over 150,000 gallons of potable water per year.

Strategies for material reuse were exhaustively explored—including crushing demolished concrete and reusing it as structural fill. Ultimately, these strategies could result in a 95% recycling threshold.
MODERN GATEWAYS FOR TODAY, CIVIC LANDMARKS FOR THE NEXT GENERATION
World-Class Gateways

SOM's distinguished intermodal hubs, high-speed rail stations, commuter rail terminals and regional bus terminals are unrivalled in their ability to express mobility and celebrate arrival. We design these key urban junctions as civic centers—public spaces that provide visitors with their first impression and that create links to the city beyond.

SkyPlaza Intermodal Hub

Terminal 2 SkyPlaza at Hong Kong International Airport is an innovative intermodal transportation and mixed-use complex, constructed at the heart of SkyCity (also planned by SOM). The hub integrates a 36-bay passenger bus terminal with taxi, shuttle, private vehicle, heavy-airport rail, and Automated People Mover connection between the ferry terminal and inside terminal gates. In addition, the terminal serves as departures and transfer point for air passengers and integrates two commercial office buildings and 300,000 square feet of retail, dining and entertainment. SkyPlaza serves ports in the Pearl River Delta (PRD) and Macao, connecting the region to more than 155 destinations worldwide via HKIA.

Kaohsiung High-Speed Rail Station

Kaohsiung is a vibrant city with an emerging transit infrastructure including the existing Taiwan Rail and new subway lines. In addition, the High Speed Rail is also proposed to extend south from its current terminus at Zuoying Station 6 kilometers to the north. All these modalities will intersect at one point in the city where they will interlink with others such as regional buses and local buses at the New Kaohsiung Main Station which is designed to be a world-class multimodal station serving the entire city and greater region. The station site is located at the geographic center of the city linking the northern and southern portions of the city together.

Transbay Transit Center

SOM's competition entry for the Transbay Transit Center consisted of two defining elements: the Terminal, which defined the urban transportation facility for the 21st Century, and the Tower, which served as the beacon for the new Center by creating an economic and cultural catalyst for the neighborhood, City, and Bay Area. The Transit Center was designed to achieve LEED® Platinum certification. The design was granted the American Architecture Award from the Chicago Athenaeum and a Merit Award for the Analysis, Research and Planning Category from the American Society of Landscape Architects.

Tanggu High-Speed Rail Station

China's premier high-speed rail line is capable of traveling upwards of 400 kph across the northeastern part of the country. The terminal station will be located in the new mixed-use Tanggu District of Tianjin City, east of Beijing, where SOM has designed an intermodal hub to serve over 6,000 passengers during peak hours. The station is configured to allow passengers to move quickly and easily between trains and into the city. A large waiting room provides views to the rail platforms, while walkway lead from the main waiting area into a mixed-use space that will generate retail revenue. A series of sustainable strategies—including a ground source heat pump, thermal chimneys and bioswales—have been integrated into the design of both the station and the park.

Mass Rapid Transit Station at Changi Airport

With Singapore's emergence as an important international transportation hub, the Singapore Department of Public Works and the Singapore Land Transport Authority, together with Changi Airport, have pursued a major infrastructure program for the airport's intermodal transit links. SOM's design for the new Changi Airport Rail Station allows Changi's passengers to connect to a newly extended subway line (also designed by SOM). It also provides an important underground pedestrian concourse that links two of the airport's three terminals. The centerpiece of the new station is an illuminated pedestrian bridge that spans the entire length of the concourse.

Denver Union Station Intermodal Hub

SOM-designed passenger facilities at the historic Denver Union Station serves over 200,000 daily trips and will serve as the crown jewel of the entire FasTracks region-wide transit system by 2030. The eight-track rail terminal houses commuter and long-distance rail passengers, a new light-rail transit station serves three urban transit lines, and a twenty-two bay underground bus terminal hosts regional, express and local buses. An integrated public realm will unify the transportation elements across the 42-acre redevelopment area and define the entire transit neighborhood as the twenty-first century gateway to Downtown.

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A Vision for the Redevelopment of Pennsylvania Station
Catalyzing the Urban Transformation of Manhattan's Midtown West

Since the 1990s, SOM has taken a leading role in the advocacy and design of the monumental civic project to convert the Beaux-Arts James A. Farley Post Office—situated across Eighth Avenue from Pennsylvania Station—into a twenty-first century train station befitting the grandeur of New York City. The new Moynihan Station is creating much-needed capacity in the regional rail system and is serving to catalyze development of Manhattan’s Far West Side while restoring and preserving an important historical resource.

Today, the Midtown West neighborhood is undergoing a vast transition: former industrial warehouses are cleared for buildings and proposed parks, low-lying buildings are replaced by high-rise apartment buildings, a subway line extension and new station are being finished, Moynihan Station is under construction, and the design of Hudson Yards Tower E is being completed. Both landmark projects feature tall towers built in the air rights above the world’s busiest railroad station and yard tracks at New York Penn Station.

The visionary plan, which encompasses the existing Penn Station, the Farley Building, and a number of reclaimed blocks that connect Midtown West to the Hudson River, offers an entirely new urban neighborhood on one of the largest undeveloped parcels in New York City.
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The first phase of the project, which is fully funded, includes five major transportation and infrastructure-related components: doubling the width and length of the West End Concourse located beneath the post office building and connecting to the A/C/E subway; improving platform ventilation; improving signal work; upgrading the connector between the post office and the existing Penn Station beneath West 33rd Street; and adding two new entry points on either side of the post office’s grand staircase on the west side of Eighth Avenue. Ultimately the project will improve and expand Pennsylvania Station’s circulation and capacity with grand new Train and Intermodal Halls for use by NJ TRANSIT and Long Island Railroad commuters, and will serve as the gateway to expected new development in the neighborhood. SOM’s work in Midtown related to the redevelopment of Penn Station stretches from Seventh Avenue all the way to the Hudson River, completing a dynamic vision to expand the Central Business District into the Far West Side.
ICONIC SPACES FOR EXCHANGE AND INTERACTION

Tianjin Tanggu High-Speed Rail Station, Tianjin, China
Memorable architecture for transportation infrastructure is the product of collaboration and innovation—two forces that, along with our drive for excellence, remain SOM's defining traditions. Through seven decades of global experience, we have led the evolution of aviation facilities. SOM is proud to have designed some of the world’s most memorable airports in Asia, Europe, the Middle East and North America; gateways which have since become civic landmarks.

### Iconic Terminals

**SOM developed a distinctive architectural solution and terminal image that draws on the unique qualities of the place. The main terminal structure—developed in collaboration with Arup—evokes the rolling hills, the peaked temples, and the undulating lines of a Chinese ribbon dancer, clearly celebrating the visitor’s arrival at Kunming and Yunnan. The arched forms of the roof structure move fluidly through the terminal, creating gateways that define the sequence of spaces and transitions that the visitor passes through on his journey. These arches facilitate passenger wayfinding and add to the ceremonial dimension of the experience.**

**Chhatrapati Shivaji New Integrated Terminal**

LOCATION: MUMBAI, INDIA

SOM designed the new integrated domestic and international terminal at Mumbai’s Chhatrapati Shivaji International Airport (CSIA), working directly for the privatization group tasked with redeveloping the airport. When complete, the terminal will serve 40 million people per year. The design combines both International and Domestic operations, employing an innovative set of swing facilities to optimize utilization of the terminal across the 24-hour operational day. The design incorporates numerous commissioned works of art by Indian artists, as well as collections of Indian handcraft.

**San Francisco International Airport, International Terminal**

LOCATION: SAN FRANCISCO, CALIFORNIA, USA

A signature building in Logan International Airport’s $1 billion expansion, the new International Terminal creates a dramatic new image for Boston’s 75-year old airport. One of SOM’s central priorities is to strengthen the airport’s relationship with the city. Inside, passengers enjoy panoramic views of Boston Harbor through a sweeping glass curtain wall on the terminal’s south side. Outside, the vestibules’ crystalline forms are visible at night from downtown Boston.

**Changi International Airport, Terminal 3**

LOCATION: SINGAPORE

The most recent element in a multi-phased Master Plan for Singapore’s Changi Airport, the new terminal is crowned with a 22-acre, steel-truss supported, cable-braced roof. An automatic light modulation system contains glass skylights and thousands of aluminum louvers. During the day, these louvers can be positioned to limit or increase the amount of light so that no artificial illumination is necessary. At night, artificial light is reflected off the louvers to provide a uniform pattern of illumination. SOM designed the building enclosure and major long-span structure.

**Kunming Xiaoshao International Airport**

LOCATION: KUNMING, CHINA

**Logan International Airport, International Gateway Project, Terminal E**

LOCATION: BOSTON, MASSACHUSETTS, USA

**John F. Kennedy International Airport, International Arrivals Building, Terminal 4**

LOCATION: QUEENS, NEW YORK, USA

The new Terminal 4 replaced the former International Arrivals Building and remains the centerpiece of the country’s principal international gateway airport. The new terminal was constructed around the previous terminal complex while maintaining existing operations. The 1.3-million sf terminal was one of the first major privatization projects at a US airport by a consortium that included LCOR, Inc. and Schiphol USA. The two concourses and the head house were designed with expansion in mind. SOM is currently designing an expansion to accommodate a significant portion of Delta’s operations at the airport. Terminal 4 is the only terminal at JFK that fully integrates its AirTrain station into the building—a notable convenience for its passengers.

**San Francisco International Airport, International Terminal**

LOCATION: SAN FRANCISCO, CALIFORNIA, USA

This iconic structure creates a powerful identity for both the airport and the City of San Francisco. Its form and aesthetic stem directly from functional necessity—the roof’s wing-like form directly expresses the structural diagram of its bending forces. The building is the largest base-isolated structure in the world.
The Denver Union Station project brings together commuter, inter-city, airport access, and light rail lines, along with a regional bus station and local circulating buses, into an intermodal transit district at the revived historic Union Station building on the edge of Denver’s central business district. The project is the centerpiece of the Regional Transportation District’s ambitious FasTracks program, which is being delivered as a public-private partnership, with federal, state, and local funding. SOM served as architects of all transportation elements and the lead urban designers of the transit-oriented neighborhood, as well as structural engineers for the two rail stations. The master planning process began in 2002 and construction will be complete in 2014.

The project provides transportation capacity for more than 200,000 daily trips in 2030, facilitates intermodal connections, and integrates the transportation with future mixed-use development within the project area. The project will also provide an enhanced network of pedestrian and public spaces within and around the site in order to knit the new district into the existing Lower Downtown historic district to the east and into the newer Central Platte Valley residential neighborhoods to the south, west, and north.

The transportation program calls for a heavy rail station with eight tracks to serve Amtrak, new commuter rail lines to destinations along Colorado’s Front Range, and rail access to Denver International Airport. The light rail station has three tracks and two platforms, while the regional bus station connects the two at-grade rail stations with a below-grade pedestrian concourse with 22 bus slips. Multiple stops of two free circulating bus loops are distributed across the site.

Architectural design principles included the desire to establish a common architectural language for the transportation elements in order to allow users to intuitively identify entrance points for both at-grade and below-grade stations. A major goal was also to elevate the contemporary transportation buildings to the status of civic buildings, while remaining deferential to the landmark historic station building.

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ELEGANT CONNECTIONS FOR URBAN TRANSIT
Foundations for Urban Connectivity

SOM’s contemporary designs for mass rapid transit, subway and people mover stations elevate passenger experience and comfort, enhance connectivity to major urban nodes and help to reduce carbon emissions at the neighborhood, corridor and district scales.

Bronzeville Metra Station
LOCATION: CHICAGO, ILLINOIS, USA

The new commuter rail station eases traffic congestion along the Dan Ryan Expressway and encourages public transit use between downtown Chicago and the south suburbs. The design incorporates multiple car platforms, warming shelters to provide heat for commuters during cold Chicago winters, access ramps to an elevated right of way, and direct campus connections for IIT students, faculty, and staff. The design incorporates ramps and stairs as one fluid whole, creating a continuous sense of movement.

Detroit People Mover, Renaissance Center Station
LOCATION: DETROIT, MICHIGAN, USA

As part of SOM’s renovation of General Motors’ Renaissance Center in downtown Detroit, the firm designed the center’s station for the Detroit People Mover. As the city’s elevated light rail system, the people mover’s 13-station, 3-mile loop connects downtown with General Motors’ Headquarters and the cultural and entertainment destinations at the Renaissance Center.

Millennium Station
LOCATION: CHICAGO, ILLINOIS, USA

Lying under Chicago’s wildly popular Millennium Park, this commuter rail station was an extraordnarily difficult space hemmed in by rail lines beneath and the street above. SOM utilized design, engineering, and lighting expertise to entirely transform what was one of Chicago’s darkest architectural black holes into a luminous, cloud-like space that has won awards and the daily thanks of METRA rail commuters. SOM also created the master plan for the entire Millennium Park which transformed under-utilized real estate near the Chicago Art Institute into an art-filled, 17-acre park and the world’s largest “green roof” connecting Michigan Avenue and Grant Park.

WTC Cortlandt Street 1 Subway Station
LOCATION: NEW YORK, NEW YORK, USA

Among SOM’s major Downtown New York City commissions, including the 52-story 7 World Trade Center (2006) and iconic 1 World Trade Center (2013), SOM provided master planning and design leadership to reconstruct the Cortlandt Street 1 Line subway station bisects the 16-acre World Trade Center. The NYCT subway station is a critical transit node in the city’s world-class downtown transportation network. The station was destroyed in the terrorist attacks in September 11, 2001. Part of a $3.2 Billion investment, the reconstructed subway station will be linked to the Port Authority’s new PATH terminal, thirteen subway lines via MTA’s new Fulton Street Transit Center, and the World Financial Center and Hudson River ferries.

SOM was the architectural design consultant for Phase IIA of Singapore’s national heavy rail transit system, which extends into suburban Singapore. This phase included six kilometers of tunnel with three underground civil defense stations and 12 kilometers of viaduct with ten elevated stations. SOM developed station location alternatives and coordinated with national agencies to arrive at a preferred alternative. The firm also provided architectural design services for stations up through design development, for transition structures from tunnel to viaduct, and for the viaduct itself.

People Mover Station at Pearson International Airport
LOCATION: TORONTO, CANADA

SOM was the initial planner of the 2 first stations comprising a new Automated People Mover (APM) system at Toronto’s Pearson International Airport, initially connecting the new Terminal 1—designed by SOM as a part of a joint venture with Adamson Associates and Moshe Safdie—with the existing Terminal 3. SOM also provided detailed planning and full design services for the APM station, attached to the west end of the new parking structure serving new Terminal 1 and connecting to the terminal through an enclosed pedestrian bridge and the station of Terminal 3 connecting the existing Terminal 3 and hotel to the APM station.
Aerotrain Station at Dulles International Airport
Chantilly, Virginia, USA

Built as part of the long-term expansion plan for the airport, the Automated People Mover Station is located between the south side of the Main Terminal and the original Air Traffic Control Tower, with platforms located two levels beneath the street. The system provides a rail and pedestrian link between the Main Terminal and the midfield concourses, serving as the primary means of internal transportation between these buildings, as well as the additional midfield concourses and a south terminal to be built in the future. Because the Main Terminal is a landmarked building, locating the station below grade permitted the designers to integrate it with the airport complex while leaving Eero Saarinen’s historic structure intact, and allowing the necessary program space for modern security requirements.

The clarity of the plan’s organization, with its openness and clear sightlines, is also emphasized by the simplicity of material palette: concrete, glass, terrazzo and stainless steel. This restrained use of materials, consistent with those used by Saarinen, is carried through the various design elements employed to give the station a consistent architectural vocabulary. Apertures in the primary concrete walls provide access to the antechambers, which contain many of the vertical circulation elements and act as a threshold between the expansive spaces of the Main Terminal building and the People Mover Station. The antechamber walls are precast concrete panels with a three-dimensional geometric pattern that gives a sense of scale and texture to the space, contrasting with the monolithic main station walls.

The faceted roof structure, formed by 105-foot long poured-in-place concrete beams, supports the mobile lounges that move on the level above. Between the beams are the luminous ceiling panels, forming a plane of artificial light that supplements the natural light entering the space during daytime. Skylights, with fritted glass to reduce glare and heat gain, sit in the lightweight roof system, allowing views of the control tower and letting daylight into the space below.
INNOVATIVE CITY DESIGN:
WALKABLE, COMPACT URBANISM
THROUGH TRANSIT-RICH DENSITY
Long Visions in City Design

The act of building great cities requires big visions and a long view. SOM is a global leader in the development of long-range master plans for new and reimagined places that are grounded by intelligent land use, transit-oriented development and smart infrastructure.

Canary Wharf Master Plan

LOCATION: LONDON, UNITED KINGDOM

The Canary Wharf Master Plan set extensive design guidelines, created an infrastructure design plan, and established development parcels—over 20 building sites and four district districts—along a public space modeled after traditional London squares. The comprehensive urban plan represents one of the largest undertakings of infrastructure development within an urban environment, and encourages a continuous waterfront promenade, the creation of new public spaces, and improved connectivity. The master plan also established essential connections to public transport, linking Canary Wharf to Central London via the Docklands Light Rail (DLR) and Jubilee Line (London Underground) as well as ensuring the vital integration of Crossrail in the near future. Over 80% of employees currently commute by public transit.

Beijing CBD East Expansion Master Plan

LOCATION: BEIJING, CHINA

SOM’s competition-winning design for the expansion of Beijing’s Central Business District calls for the establishment of three new districts anchored by signature parks and green boulevards. The plan proposes new modes of public transportation, including express commuter rail service between Beijing International Airport, the CBD, and high speed rail service at Beijing South Station. A potential new streetcar system would conveniently link all areas of the CBD, while a network of small, walkable blocks and streets with bicycle lanes would establish a pedestrian-friendly scale for development.

Hongqiao Transport Hub

LOCATION: SHANGHAI, CHINA

SOM’s vision for the Hongqiao Transport Hub Area District is based on the integration of the program and the framework for the site. Through a comprehensive analysis of the traffic needs at grade and below-grade, SOM developed a plan that identified underground development zones that are well connected to internal and external pedestrian circulation networks. Vehicular and pedestrian circulation is sensitively interwoven with the district’s open space network of parks and waterways.

Newark Broad Street Station Redevelopment Plan

LOCATION: NEWARK, NEW JERSEY, USA

SOM planners worked extensively with universities, institutions, community groups, private developers and resident stakeholders, and incorporated more than a dozen development plans, many of them site-specific, into one comprehensive plan for the entire redevelopment district. While the plan sets the stage for catalytic new development, it focuses just as much on preserving existing historic resources and neighborhood character and enhancing existing open spaces, including a listed historic district and two historic parks. SOM was awarded the 2009 Smart Growth Award from New Jersey Futures thanks to the plan’s embrace of smart growth principles and premise on sustainable economic development policies.

New Jersey Transit — Planning for Transit-Friendly Land Use: A Handbook for New Jersey Communities

LOCATION: NEW JERSEY, USA

New Jersey has assumed an active role in planning its future, recognizing the need to balance land use, transportation, and open space interests in an environmentally responsible manner. In an effort to move this policy forward, NJ TRANSIT began a program of encouraging transit-friendly planning throughout the state. To that end SOM prepared a handbook to help elected officials, community groups, design professionals and government agencies to define goals and select techniques and implementation tools. The handbook was the first of its kind and is used extensively today.

Bahrain National Planning Development Strategy

LOCATION: KINGDOM OF BAHRAIN

In 2007, following an 18-month process of research, analysis, consultation, and design, SOM submitted the Bahrain 2030 National Planning Development Strategies. The plan is the first project to inventory and propose virtually every aspect of a new national infrastructure, including recommendations for transportation and comprehensive public mass transit. The plan exemplifies a forward-looking process designed to address the role sustainable land use development can play in guaranteeing stable, predictable, and long-term economic growth.
Tianjin Binhai New Area CBD Master Plan
Tianjin, China

Located in Northwest China near Beijing, Tianjin encompasses one of the nation’s largest urban areas. Southeast of central Tianjin City—strategically located near the confluence of the Hai He River and the Bohai Gulf—the New Binhai CBD Master Plan redevelops an industrial zone that was once the old port of Beijing into a new center of finance. A comprehensive road and rail system will permeate the mixed-use district of high-rises, historic neighborhoods and open spaces.

The high-density plan was developed according to key principles of sustainable design: providing accessible public transit, weaving a new generation of green spaces into the city, promoting clean water and ensuring long-term viability through intelligent city planning.

New public parks and civic spaces will be threaded through the district, while historic sites such as the Chaoyin Temple and old Dagu Dockyards will be preserved.

A high-speed rail hub will link northeastern China’s major cities, creating an accessible network of transit from the capital to the Bohai Gulf shore. The river will be transformed from an industrial corridor to a wetland and continuous public open space for the people of Tanggu.

The station is sited within a large, 22-hectare city park, where the structure of the roof rises among a network of curving pedestrian paths. The roof was developed to be uniquely efficient, lightweight, and economical. Parabolic trusses evenly distribute loads across the surface of the building, while a lattice-like framework opens up views to the sky.

Since the station’s platform level is located 21 meters below grade, skylights play an important role in the design. Fitted with louvers, the glass skylights and steel framework are angled to limit direct sunlight during summer months and enhance daylight during the winter.

Beneath the distinctive roof, the station is configured to allow passengers to move quickly and easily between trains and into the city. A large waiting room provides views to the rail platforms, while a clear system of walkways leads from the main waiting area into a mixed-use space that can potentially generate retail revenue for the station.

In addition to the high-performance lighting system, a series of sustainable strategies—including a ground-source heat pump, thermal chimneys, and bioswales—have been integrated into the design of the station and the park.

Vertically Integrated Station

The Vision for Binhai New Area

High-Speed Rail Connection between Beijing and Tianjin Tanggu

Exterior presence of High-Speed Rail Station

LONG VISIONS IN CITY DESIGN
Baietan: Heart of Guang-Fo Urban Design Plan
Guangzhou, China

Situated to the southwest of historic Guangzhou, Baietan occupies 35-square kilometers of former industrial land that will be transformed into a twenty-first century urban environment that combines the core qualities of Lingnan culture with urban density, transit accessibility, livability, and ecological vitality. Baietan will become the new International Commercial Center of the Guang-Fo region.

The future prosperity, livability, and sustainability of Baietan is dependent on the implementation of major enhancements to the transportation system, including the upgrading of transit systems, streets, and pedestrian and bicycle infrastructure.

The Baietan Plan establishes compact nodes of high intensity, mixed-use development located within short walking distance of existing and planned transit facilities.

Over 20 million square meters of mixed use development is planned within a 5-minute walking distance to Baietan’s transit oriented development hubs. This transit oriented development pattern will maximize access to public transport, promote walking and bicycle use, and minimize daily vehicular trips and carbon emissions.
AIR RIGHTS DEVELOPMENT:
CREATING HIGH-VALUE REAL ESTATE ABOVE
ACTIVE TRANSPORTATION INFRASTRUCTURE
Development Over Rail

SOM is a leader in this niche specialty because we champion the idea that high-density development within cities should be planned in parallel with improved transportation provision. We have executed more than thirty major projects around the world involving air-rights development over rail infrastructure; by combining station improvements with new residential and commercial development, key transport nodes become the focal point for sustainable regeneration, renewed urban vitality and improved identity for growing city populations.
Leveraging Investments

SOM has led the renaissance of passenger rail since the mid 1970’s. The firm’s current success in the field of transportation planning in large part dates to our seminal work on the Northeast Corridor Improvement Project, a massive effort to upgrade intercity rail passenger service along the 456-mile corridor linking Boston, Massachusetts, New York City, and Washington, DC. Through a $2.5 billion program by the U.S. Department of Transportation, SOM established architectural design standards for the entire system and realized improvements to 15 major passenger stations along the Corridor.

The program included stations ranging from suburban facilities with commuter and intercity passenger services, to major city terminals of outstanding historic and architectural significance such as Boston South Station, Philadelphia 30th Street Station, Wilmington Station, Baltimore Penn Station, and Washington Union Station. Among SOM’s responsibilities were the preparation of detailed designs for restoration, renovation or new construction at each station, preparation of environmental impact assessment documents required by U.S. law, and participation in securing the local, state, and federal approvals required to implement the station plans. The project also included extensive improvements to tracks, tunnels, bridges, electrification, maintenance facilities, and communications.

“As they had done before, SOM demonstrated their ability to master a large-scale project across many sites, combining planning and architectural skills. The structures built as part of this project vary in scale and intention, some requiring new buildings with a modest degree of civic monumentality, others the careful hand of the preservationist, and others merely the establishment of planning guidelines for structures to be built later... Though funds from the grant terminated almost twenty years ago, SOM’s experience often makes it the logical choice to upgrade transportation facilities in the Northeast and this it has continued to do.”

—Nicholas Adams, Skidmore, Owings & Merrill: The Experiment Since 1936
Hudson Crossing - Hoboken Terminal and Yard Development
Hoboken, New Jersey

When Hoboken Terminal was designed and constructed one hundred years ago, most customers used it exclusively as a transfer point between trains and trans-Hudson ferries. The City of Hoboken existed primarily as a seaport and railroad town. Today, in addition to trains and ferries, Hoboken Terminal customers make connections between commuter rail, buses, PATH, light rail vehicles, ferries and other modes as well as using the terminal to access the City of Hoboken, which has become a destination in its own right.

SOM developed a master plan for New Jersey Transit’s Hoboken Terminal and Yard complex to create an urban infill development connecting the cities of Hoboken and Jersey City across NJ Transit’s 65 acre rail yard. The plan creates a gateway that will provide over 50,000 commuters and residents access to the Hudson waterfront, a previously inaccessible and underutilized area. The project evaluates the entire complex and its potential for adaptive re-use, transit-oriented development, and related intermodal and pedestrian connectivity.

The design process involved an intensive stakeholder outreach and visioning workshops with NJ Transit, the municipal jurisdictions of Hoboken and Jersey City, State planning leaders, community groups, and private real estate professionals. The project is currently ongoing and in negotiations at the government level for final approval.

The overarching goals of the master planning process include:

- Converting a historic railroad transfer station into an animated mixed-use destination and hub
- Creating strong neighborhoods that will benefit from proximity and access to multi-modal transit connections
- Developing a new commercial core with a new Class A office headquarters
- Creating a vibrant public realm and open space network focused on servicing the community
- Promoting economic development by capitalizing on public investment in the terminal building
- Developing a scheme that is implementable in phases and that stimulates private investment for sustainable long term growth
Creating Premier Destinations

In the past twenty years SOM has designed more than five billion dollars worth of signature transportation construction projects including rail stations, subways stations, ferry terminals, and complex intermodal and multi-modal facilities, as well as entire airports and more than a dozen airport terminals.

Our approach starts with a deep knowledge of efficient passenger facility planning and blends commercial viability with landmark design. All of our projects accommodate both immediate and long-range needs, while allowing for the flexibility that contemporary transportation facilities demand.
Memorable architecture is the product of collaboration and innovation—two forces that, along with our drive for excellence, remain SOM’s defining traditions. With a 75-year reputation for design excellence and a portfolio that includes some of the most important architectural accomplishments of the 20th and 21st centuries, SOM has been a leader in the research and development of specialized technologies, new processes and innovative ideas, many of which have had a palpable and lasting impact on the design profession and the physical environment.