

Ports & Terminals

Optimizing ports and terminals
for tomorrow's challenges

HATCH

Ports power the global economy, moving over 90% of the world's trade.

The world's ports are at the heart of a dynamic and interdependent logistics network that enables global trade. Many of these ports contend with aging infrastructure, budgetary constraints, market competition, rapidly changing technology, competing urban developments, and the ongoing effects of climate change. Managing these challenges requires a comprehensive, innovative, and cost-effective approach to problem-solving that will result in sustainable outcomes for ports, users and the affected communities.

Hatch's Ports and Terminals team of professionals have a world of experience that can help you fulfil the functional requirements of your port and terminal development or brownfield upgrade, from site selection and master planning through to design, execution, and operational support of wharves, piers, coastal structures, intermodal, and terminal infrastructure, both landside and waterside.

Our team is well-equipped to address future challenges through collaboration with clients on terminal modernization and automation, and the transition to alternative fuels. We are committed to mitigating the impacts of climate change by focusing on decarbonization, adaptation, and resiliency.

Specialist solutions

Smart container terminals

Container terminals must use solutions that address the physical, digital, safety, and functional challenges of automated operations. Hatch's comprehensive understanding of automation systems and our experience in implementing and operating terminal solutions around the globe can help you design a highly functional system that delivers your business objectives. Our approach is to work closely with our clients and their equipment and system vendors to ensure that the delivered solution is integrated and supports the client's operational processes. We have tools for quality assurance, emulation testing and data analytics, that are unique in the container terminal industry and help clients achieve their goals faster and continue optimizing and improving after handover.

Alternative fuels

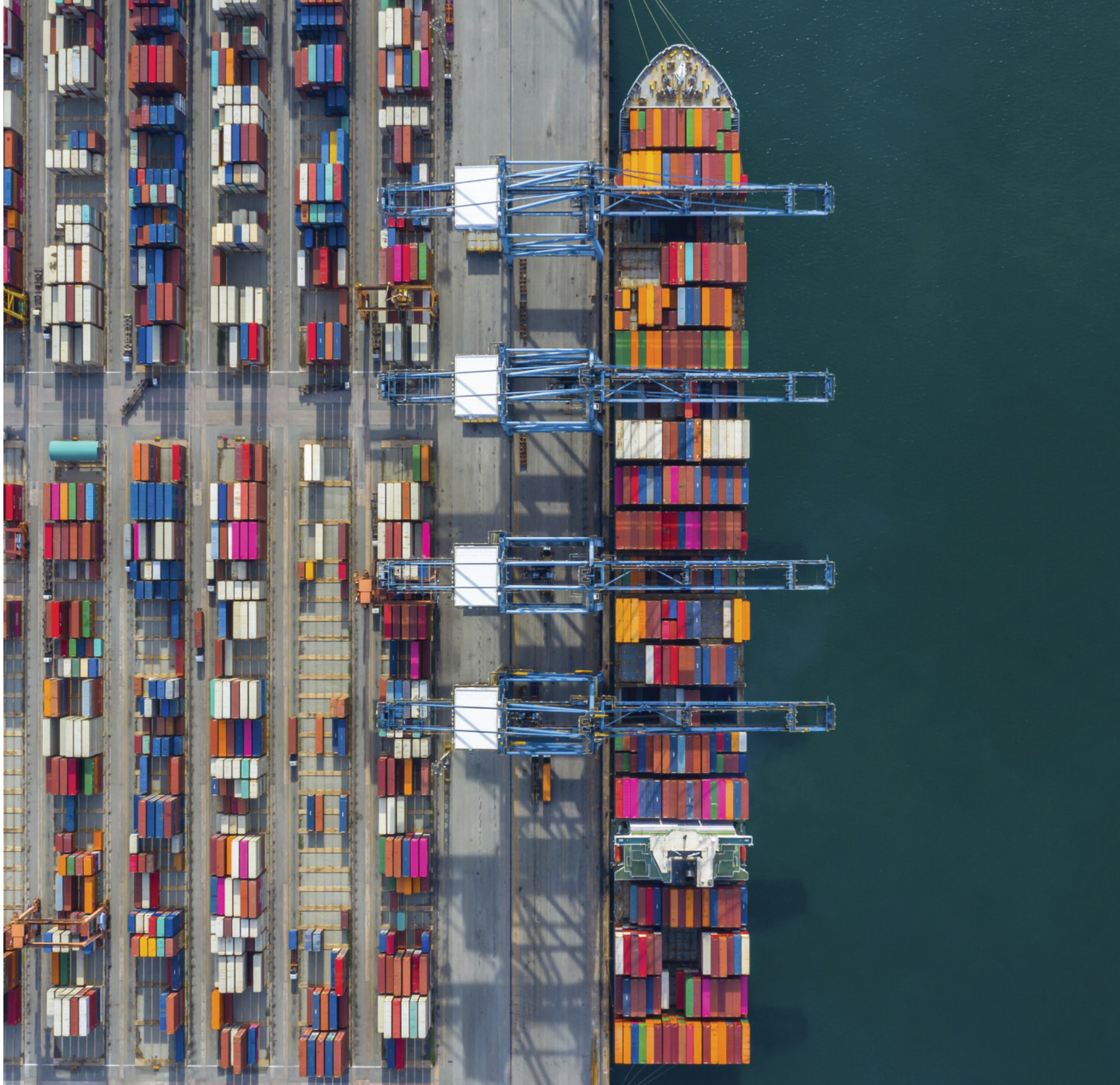
The use of alternative fuels, including green ammonia and hydrogen, is growing in response to the global demand for a reduction in carbon emissions. To meet this demand, it's essential to upgrade existing port and terminal facilities to accommodate conventional products as well as alternate fuels using shared infrastructure. We are actively involved in numerous developments for alternate fuel handling, both brownfield and greenfield, and understand the challenges of handling multiple products in close quarters.

Climate change, adaptation, and resilience

In a world of shifting climates, ensuring the longevity of ports and terminals infrastructure demands resilient solutions. Our adaptation planning experts prioritize location-specific climate challenges and assess risks beyond engineering. We collaborate with asset owners to develop road maps for medium and long–term decarbonization of terminals as well as ports as carbon producers. Hatch contextualizes the required actions through clarification of present and future risks, proposing mitigation strategies, and integrated holistic adaptations that consider social, environmental, and economic factors. Our approach embeds these actions into ongoing operations and governance, ensuring the long-term resilience of ports and terminals infrastructure against the effects of climate change.

Strategic planning

We are world leaders in supporting our clients with long-range master planning and strategic development. Our approach is multifaceted and focuses on understanding the key economic, environmental, industry, and social drivers to deliver a robust plan. Our team challenges the standard static structure and land use plan. We develop and deliver dynamic master plans that allow our clients to swiftly evaluate future proposals, invest in infrastructure with confidence, and increase the plan's relevance.



Capabilities



Container terminal optimization

Responding effectively to client requirements to increase capacity and throughput while optimizing capital and operating costs requires an understanding of all aspects of the container terminal – rail/road interface, storage and stacking capabilities, and ship loading and unloading parameters. Our container terminal specialists provide expertise, know-how, operational experience, and lessons learned from projects around the world to help you achieve your goals.



Dry bulk terminals

We have a long history of successful execution of dry bulk terminals around the world and are industry leaders in developing suitable and cost-effective facilities to load and receive a multitude of bulk products, commodities, and ores on oceangoing vessels.

Our expertise covers all aspects of bulk materials handling including conveying, stacking and reclaiming, storing, truck/rail/ship loading and unloading, surge bins and sampling systems. To support these core services, we have a center of excellence in granular flow performance providing advanced discrete element modelling services.



Liquid terminals

Maximizing efficiency and productivity in liquid bulk terminals requires the right combination of handling, processing, storage systems, and transport design. We offer a full range of world-class solutions in planning, design, and construction management, including advanced visualization capabilities to help you realize your terminal-capacity potential.



Intermodal facilities

Ports form a critical part of an extended supply chain stretching from the original manufacturer or producer to the final consumer. Intermodals have an increasing importance in the logistics supply chain, functioning to link the major transport modes with greater efficiency, integration, and capacity. They require specialized process and infrastructure design, and Hatch's multidisciplinary teams bring together the rail, civil, transport, and system knowledge needed.



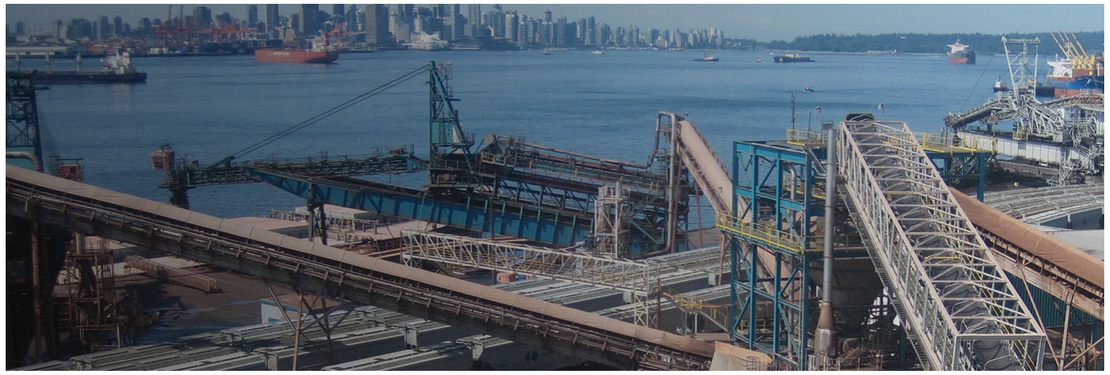
Master planning

Master planning should go beyond traditional engineering and incorporate the best of marine, land use and transportation planning, market research, and economics. It should also include sustainable design and technological innovation with sound engineering principles. We provide a comprehensive plan that is tailored, impactful, and actionable to ensure the appropriate programing of critical capital investments, operational improvements, asset management, and commercial arrangements.



Land use planning

Ports are often one of the largest landholders in a city and are strategically placed on waterfront land that is increasingly valuable to numerous government bodies. Whether expanding, redistributing, or pivoting uses, effective planning can ensure best use for port operations. Our team works closely with Hatch's urban solutions experts, including recognized urban planners, economists, transport planning, stakeholder engagement, and social and environmental specialists.



Marine structures

Successful ports require cost–effective and maintenance–efficient marine structures, including wharves, quays, piers, bulkheads, caissons, cellular docks, revetments, jetties, and approach structures. Our globally situated experts work with you to develop solutions with minimized initial cost and reduced maintenance requirements over the life of the facility. We have experience with new, existing, and extending structures, for example analysis of existing wharves for larger ship loaders and can incorporate our knowledge of steel and concrete corrosion.

Coastal engineering

We can help you enhance port stability and sustainability by leveraging our coastal expertise. This includes analyzing coastal climate, collecting metocean data, assessing ship motion, and designing protective structures. We also focus on adaptation planning and changing sedimentation patterns, which promotes environmentally friendly solutions like living shorelines. Our approach minimizes environmental impact and maximizes operational efficiency, benefiting both ports and infrastructure assets.

Dredging and reclamation

Dredging plays a vital role in marine construction, from maintaining shipping channels to reclaiming land and nourishing beaches. We understand the unique challenges of dredging and reclamation projects. Our comprehensive services encompass the entire project life cycle, offering strategic asset management, beneficial reuse assessments, reclamation design, onsite project management, and advisory expertise in dredging, planning, and procurement.

Navigation and shipping

From initial site selection through to increasing throughput of existing facilities, navigability can make or break the viability of any port project. Our experience in designing maritime facilities across the globe includes working with difficult metocean challenges, conditions, and unique vessel requirements. We consider factors such as requirements for tugs and support vessels and, where required, draw on the expertise of seafarers and numerical modeling to incorporate real–world experience.

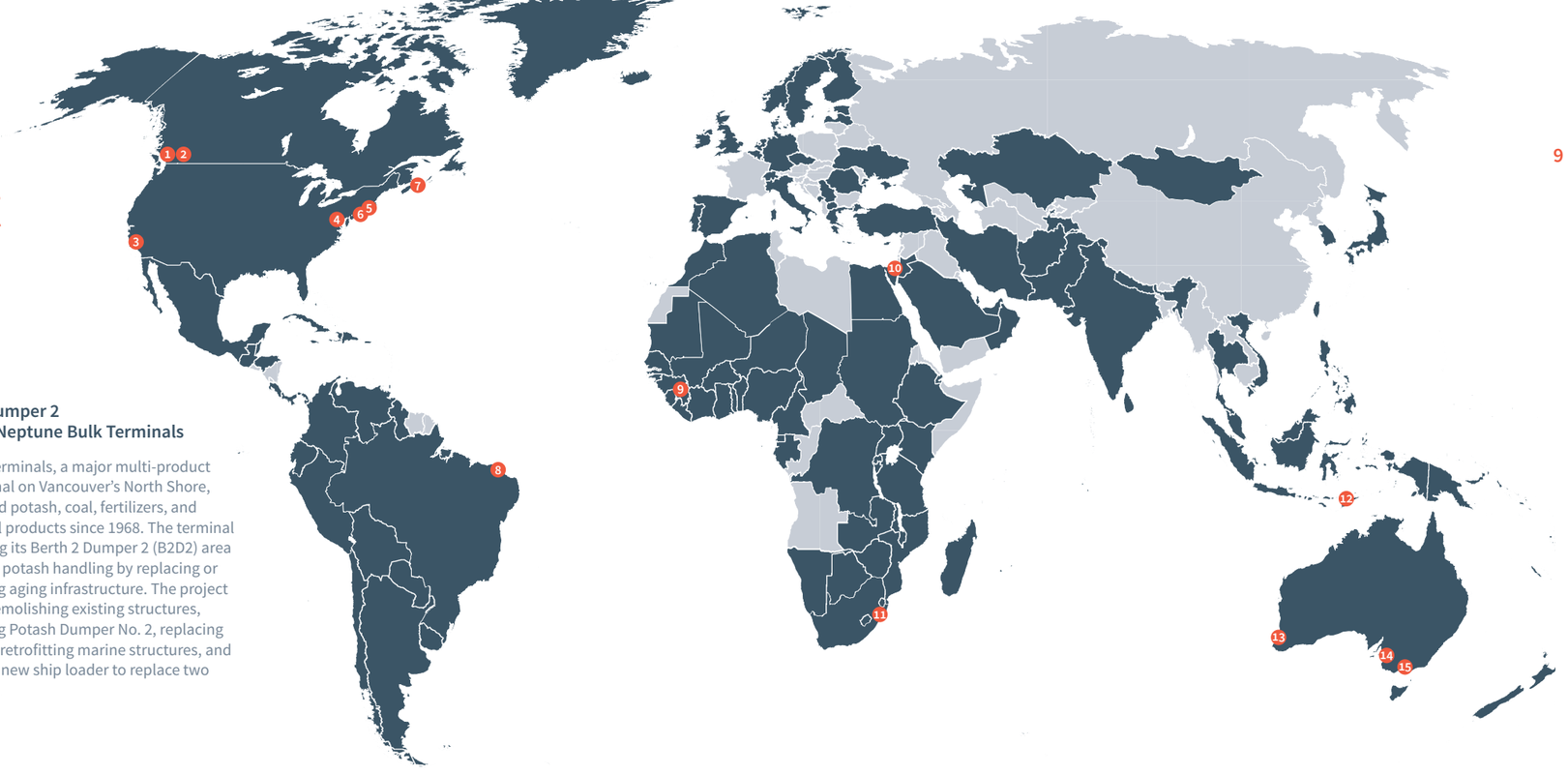
Project and construction management

Hatch has successfully completed projects under a number of different commercial models, including Owner's Engineer, Independent Verifier, and Design and Construct. We are also experienced at providing full lifecycle support as an Engineering, Procurement, and Construction Management service. Our experienced construction managers also review and challenge our design only engagements, to ensure they are efficient, constructable and cost effective.

Supply chain logistics and dynamic simulation

Using specialized modeling and analysis systems, our dynamic-simulations experts help develop holistic production point-to-port solutions that integrate transport logistics, materials handling, material transport, operational modeling, scheduling, and berth planning. We identify bottlenecks and problem areas and evaluate opportunities to help clients better understand the implications of planning decisions on return on investment.

Hatch Track Record & Relevant Experience



Signifies countries where Hatch has executed projects

Exemplar Projects

1 Centerm Expansion & South Shore Access Projects – Vancouver Fraser Port Authority

Hatch served as the prime design consultant for the Centerm Expansion Project and South Shore Access Project in Vancouver. Hatch in JV delivered tender design for both on-terminal and off-terminal scopes. The project increased container capacity from 900,000 to 1.5 million TEUs with only a 15% footprint expansion, supported by extensive reclamation works to optimize land use. Hatch also designed over 2.8 km of complex roadworks, turbo roundabouts, and utility relocations, combining local knowledge, stakeholder engagement, and engineering excellence to meet near-term demand in a highly urbanized environment.

2 Berth 2 Dumper 2 Project – Neptune Bulk Terminals

Neptune Terminals, a major multi-product bulk terminal on Vancouver's North Shore, has handled potash, coal, fertilizers, and agricultural products since 1968. The terminal is upgrading its Berth 2 Dumper 2 (B2D2) area to enhance potash handling by replacing or refurbishing aging infrastructure. The project includes demolishing existing structures, refurbishing Potash Dumper No. 2, replacing conveyors, retrofitting marine structures, and installing a new ship loader to replace two older units.

3 TraPac Terminal Automation Support – TraPac LLC

Since 2016, Hatch has provided advisory and consulting services to TraPac, one of the first fully automated container terminals in North America. Hatch's scope included supporting the integration of complex automation systems—automated straddle carriers, stacking cranes, and on-dock rail—across multiple vendors. By introducing best practices from other industries, Hatch improved operational visibility, reduced cycle times by 10%, ensured 100% maintenance compliance, and expedited issue resolution. This work helped TraPac achieve safer, cleaner, and more efficient operations at the Port of Los Angeles.

4 Sparrows Point Container Terminal – Tradepoint TiL Terminal, LLC

The Sparrows Point Container Terminal is a proposed 330-acre redevelopment in Maryland, featuring a 168-acre container terminal and intermodal yard, plus 162 acres for support facilities. Plans include a 3,000-foot wharf, eight ship-to-shore cranes, a 120-acre container yard, a 2,900-foot rail zone, road access infrastructure, ancillary buildings, and provisions for shore power and electrification. Hatch, as the prime consultant on this $1B+ project, is leading detailed design and supporting TTT with permitting and contractor procurement.

5 Long-Range Master Plan – Port Authority of New York & New Jersey

PANYNJ selected Hatch to provide port planning services to develop a Long-Range Master Plan for their 3,000 acre port complex in the NY-NJ metropolitan area. Current land uses and facility operations throughout the port include conventional cargo handling (containers, bulk, break-bulk, and auto), cruise and ferry terminals, intermodal yards, warehousing and distribution centers, and open land. The project resulted in the development of a 30-Year master plan to maximize and diversify land use, increase operational efficiency, and identify innovative revenue opportunities at the various facilities.

6 Manhattan Cruise Terminal Master Plan - New York City Economic Development Corporation

Located on the Hudson River in Midtown Manhattan, the Manhattan Cruise Terminal (MCT) has driven economic growth for decades, serving millions of passengers. However, ageing infrastructure, rising costs, traffic congestion, and competition from other East Coast cruise ports threaten its future. To address this, the NYC Economic Development Corporation engaged Hatch to develop a master plan that completely reimagined MCT as a bold and innovative new cruise terminal.

7 Halifax Shipyard Modernization Program – Irving Shipbuilding Inc

Hatch has maintained a long-standing and multifaceted partnership with Irving Shipbuilding Inc. at the Halifax Shipyard and surrounding facilities, beginning with the shipyard modernization efforts in 2012 and continuing through to major infrastructure upgrades forecasted into 2028. We deliver a wide range of services including marine infrastructure design, industrial facility expansions, building envelope upgrades, equipment integration, and construction management. The work spans critical shipyard assets such as the Assembly Hall, Pier 8 and 9, Marine Fabricators, and Woodside Industries, supporting both the Arctic Offshore Patrol Ships and Canadian Surface Combatant programs.

8 Ponta da Madeira Port Expansion – Vale

Vale engaged Hatch to provide dynamic simulations, engineering design, FEL2 and FEL3 studies for conceptual and basic engineering to expand production at its Ponta da Madeira Terminal to 240 Mtpa of iron ore. Hatch undertook several relevant projects such as a 3rd belt conveyor line and stockyard, car dumpers and yard machines, a homogenization silo and belt conveyors to Pier IV. Hatch also provided advisory services including the development of standards to prevent catastrophic risks, asset integrity, operation optimization, and due diligence support.

9 Simandou Mine & Export Corridor – Rio Tinto & Government of Guinea

The Simandou project aims to export 120 Mtpa of iron ore, requiring a 650 km rail corridor and new river ports for transshipment. Hatch has supported Rio Tinto for years, evolving from technical reviews to a large-scale advisory and infrastructure program. We developed a dynamic simulation model to guide corridor configuration and capacity decisions, processing extensive data into interactive PowerBI dashboards for client analysis. Our role has expanded from technical support to operational, project management, and negotiation assistance, helping to establish the infrastructure operating company and adapt solutions to evolving client needs.

10 Suez Canal Container Terminal (SCCT) – APM Terminals

At the SCCT in East Port Said, Egypt, APMT engaged Hatch as engineers to support plans to expand operations with a third container terrace. The expansion, adjacent to live operations, required careful design and tender documentation to ensure minimal disruption to ongoing activities and safety. It included 3D utility services design and clash detection as well as provision for future automation of the next generation of terminal equipment, as well as a hybrid design for the layerworks and pavement structures to accommodate the very poor deep seated clay conditions on the site.

11 Transnet New Berths – Transnet National Ports Authority

TNPA appointed Hatch to provide full EPCM services for the development of proposed berths 709 and 710, covering all project phases—from concept and feasibility studies to commissioning and early terminal support. The scope also included a high-level concept and layout for a multi-purpose terminal behind the new berths. This project is part of a broader Port of Richards Bay expansion, including upgrades to the 600 and 800 series berths and reconfiguration of the Bayview Rail Yard.

12 Wetar Barge Jetty Pyrite Export Facility – Merdeka Cooper Gold

PT Batutua Tembaga Raya required a new port for pyrite export but faced challenges due to the site's remote location and complex geotechnical conditions. Hatch mitigated logistical risks through dynamic supply chain simulation and applied value engineering to support the upstream mine and processing facility. Chosen for its global expertise, Hatch was sole sourced to deliver all project phases from site selection and concept to execution support.

13 Future of Fremantle – Department of Planning, Lands and Heritage

Hatch partnered with the Government of Western Australia to deliver the Future of Fremantle economic development strategy and land use plan. The project reimagines Fremantle's inner harbour following the relocation of container trade to Kwinana, creating a bold vision for redevelopment. Hatch's scope included strategic planning, transport analysis, and community-led engagement to reposition Fremantle as a world-class waterfront city. The work focused on sustainable growth, diverse industry investment, and cultural identity, ensuring the transformation supports economic resilience, livability, and long-term prosperity.

14 Climate Ready Coasts: Statewide Erosion Hazard Assessment – Local Government Association

Hatch delivered South Australia's first consistent statewide erosion hazard assessment, supporting climate adaptation planning across over 5,000 km of coastline. The project applied a probabilistic framework to evaluate erosion hazards for ~2,000 coastal segments under present and future climate scenarios. It integrated topographic, hydrodynamic, geological, and planning datasets with advanced modelling tools to assess storm erosion, long-term shoreline change, and sea level rise impacts. The outputs provide a robust technical foundation for scalable, evidence-based coastal planning and investment prioritisation.

15 Vopak Victoria Energy Terminal FEED – Vopak

Vopak is developing a floating LNG import facility in Port Phillip Bay to secure Victoria's energy supply and support its transition to net-zero. Hatch is leading the Front-End Engineering Design for a low-impact marine terminal solution that integrates with renewable infrastructure. The project includes technical assurance and review of coastal and metocean deliverables, coordination of numerical modelling for waves, hydrodynamics, and sediment transport, operational downtime assessment for LNG transfer and berthing, and integration of modelling outputs into berth design and mooring analysis for FSRU and LNG carriers.

About Hatch

Hatch is an employee-owned, multidisciplinary professional services firm with over seven decades of experience delivering innovative solutions across the metals & mining, energy, and infrastructure sectors. With corporate roots extending over 100 years and project experience in more than 150 countries, we offer a comprehensive suite of services, including consulting, IT, engineering, process development, and project and construction management.

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