

ne has to see Venice to believe it. "Everything I had read," explained the 19th-century architectural correspondent Claude Bragdon, "was clean forgotten, swallowed up in wonder. And during my first moments on the Grand Canal, I suffered from a sort of indignation that no one had in any way prepared me for what I found there. The charm of the place is indescribable, that men through all the centuries have tried to utter it, and I was witness to their failure. How should one convey the idea of light to a blind man or of such color as is there to dwellers in the gray-brown cities of the North? Venice is a shattered rainbow built into a city."

DESPITE A CHARACTER
SEEMINGLY CREATED FOR
THE EXPRESS PURPOSE OF
DELIGHTING TRAVELERS FROM
THE WORLD OVER, VENICE'S
ECCENTRICITY HAS GENERATED
A GREATER RANGE OF PROBLEMS
THAN THOSE FOUND IN MOST
OTHER WESTERN CITIES—
WHICH IS WHAT MAKES

VENICE SUCH A NOTABLE

PLANNING LABORATORY.

In Venice, *palazzi* (palaces) rise out of the water like the thousands of lightposts that guide navigation around the Laguna di Venezia (the lagoon). Walls are painted like canvases. There are no cars. Narrow paths—designed only for pedestrians—are carved in and around the dense setting of buildings forming labyrinths of circuitous paths weaving through what seems less like a city than a museum of constantly evolving views, each one a painting in itself.

Despite a character seemingly created for the express purpose of delighting travelers from the world over, Venice's eccentricity has generated a greater range of problems than those found in most other Western cities—which is what makes Venice such a notable planning laboratory.

The municipality of Venice stretches across a lagoon encompassing a myriad of islands and a slice of the Italian mainland. Development dates all the way back to the 5th century. The physical character of the city ranges from historic urban communities that host some of the world's most striking architecture, to farmland, shipyards, and contemporary commercial sprawl.

velop

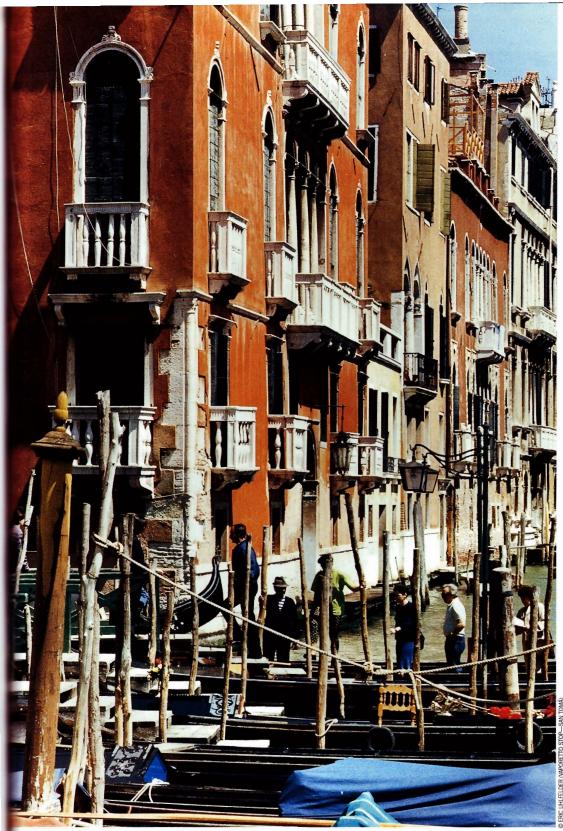
Bene

geogr

city d

portu

Accordingly, planning Venice calls for an acrobatic act of balancing disparate issues: the distressed industrial district of Porto Marghera, expanding tourism that strains an inadequate mass transit network and the city's narrow streets, troublesome economic and population shifts, seasonal flooding that inundates treasured landmarks, building and infrastructure erosion, and water and soil pollution.



ULTIMATELY, PLANNING VENICE **INVOLVES TRANS-**FORMING A TOWN THAT IS PHYSICALLY ROOTED IN THE MIDDLE AGES TO FUNCTION **EFFECTIVELY IN** THE 21ST CENTURY. AND WHERE THE REST OF NORTHERN **ITALY IS BECOMING INCREASINGLY** DIGITIZED, WHICH IS DRIVING ECO-NOMIC EXPANSION, VENICE STILL RUNS **VERY MUCH ON** ANALOGUE TIME.

Inadequate comprehensive planning has impeded regional development. According to Italian architectural historian Leonardo Benevolo, "There has been a decay in the political and economic structure that previously defined relations between Venice and its geographic surroundings, and this mismanagement continues to hinder the functioning of the modern city." This has resulted in a city dominated by tourism, with increasingly limited economic opportunities despite Venice's inherent wealth and business traditions.

Demographic and Economic Change. Centuries ago, Venice was a powerful European city-state and a key regional trading center. Today, the city's core industries are limited to tourism, academic study, and other public sector activities.

Residents have been leaving Venice. Its population, which exceeded 170,000 in 1951, has fallen to less than 70,000 in 1999. The city is suffering from urban flight, comparable in scale to that experienced by so many U.S. cities during the 1960s and 1970s. But

# ALTHOUGH VENICE

as is the case with everything in Venice, the city is struggling with a different strain of the problem.

Instead of an exodus of wealth, young working middle-class residents are being both pushed and pulled out of the city, depriving Venice of a demographic core necessary to support a healthy and diverse environment. A key force causing the push was the adoption of legislation in 1978 that gradually decontrolled rents, effectively reducing the number of affordable residences once rent-controlled units were vacated. The city has attempted to counter this loss with increased rent subsidies and the construction of below-market rentals. The pull on residents has been from the greater job opportunities outside of the Laguna that are attracting younger workers to the mainland.

The cost of living and working in Venice added to the problem. A booming tourism industry that now brings over 12 million visitors a year into Venice has created a tight real estate market—especially in prime locations—which has sent land and housing prices skyrocketing. Typical residential buildings sell for \$325 per square foot (\$3,500 per square meter), twice what they were just a decade ago. The high cost of living and the flight of the middle class have created an increasingly segregated city with the rich inhabiting the historic core and lower-income residents living along the outskirts of the city.

Strained Transit System. Venice's transient day population of 100,000—tourists, students, and commuters—often inundates the city. Access to the city's historic core, largely limited to buses and trains from Mestre on the mainland passing over the Ponte della Libertà into the Santa Lucia rail station and the Piazzale Roma bus and car terminal, compresses visitors into just two points, straining the city's narrow streets and water transit system (vaporetti) during peak hours, especially during the warmer months.

Deteriorating Housing. Nearly 75 percent of the housing stock in Venice's historic core was built before 1918. More than 60 percent of the city's 14,000 buildings are estimated to be in need of moderate to substantial rehabilitation, with the problem by no means limited to low-income residences.

Besides age, the causes of such extensive decay include the dampness of the Laguna and waves from the ever-increasing motor boat traffic that eat away at foundations. Building neglect has been perpetuated by the logistical difficulties of maintaining structures built on pilings and landfill several miles off the mainland and by the

DOES NOT SUFFER
FROM THE SERIOUS
CRIME, POVERTY,
AND HOMELESSNESS
FAMILIAR TO MANY
LARGE EUROPEAN AND
AMERICAN CITIES,
THE SEVERITY OF THE
TOWN'S ECONOMIC
AND ENVIRONMENTAL
PROBLEMS PRESENTS
A MAJOR CHALLENGE

TO URBAN PLANNERS.

added expense of meeting historic preservation requirements. It is estimated that local renovation costs are 50 percent higher than they are in other cities in Italy.

Politics. Highly charged partisan politics and bureaucratic inefficiency are a way of life in Italy. "Local authorities can't do a thing without going through the filter of 10,000 supervisors, regulations, and checks," explains Massimo Cacciari, former mayor of Venice. "And when you can't legitimately bring off a project," Cacciari observes, "you're tempted to take shortcuts, such as misappropriating public funds, which has helped spread charges of corruption."

In the past, state funding for major improvements, such as the dredging of canals, construction of a new highway overpass in Mestre, and flood damage repair, often were lost because opposition parties typically were more intent on preventing ruling coalitions from succeeding than in seeing the city improve. And delays in executing essential infrastructure projects have discouraged private sector initiatives, sending investors elsewhere for a more stable and reliable environment.

Graffiti. Perhaps the single greatest threat to the city's physical integrity has gone unaddressed by local authorities. Graffiti has metastasized across Venice, disfiguring much of the city. In many parts of the historic city, the pati-

na of centuries-old stone and brick has been permanently lost. The city resorts to sandblasting only its most important buildings. The common response to graffiti is to apply a new coat of paint, which unfortunately creates an inappropriate wainscot on historic and vernacular fenestrations throughout the city. With graffiti causing tens of millions of dollars in damages and with no signs of it letting up, the lack of a comprehensive plan to counter this blight is a major municipal oversight that needs to be addressed.

Pollution. Pollution is a ubiquitous problem. The canals are the city's sewers. Every building is responsible for ensuring the sanitary discharge of all wastewater. Yet, most of the city's buildings still violate municipal standards.

During the past several decades, industrial development around the mainland edges of the Laguna, especially in Porto Marghera (just south of Mestre along the mainland), and chemical runoff from the region's 695 square miles (1,800 square kilometers) of small farms constitute significant sources of land and water pollution. Stricter environmental standards that substantially reduce new

is



industrial pollution are being enforced. However, cleaning up polluted soil and dredging contaminants from the bottom of the lagoon remain a difficult task.

High Water. One of the city's most pressing problems is periodic flooding. High tides—especially during spring and autumn regularly submerge large portions of the city. The root causes appear to be ground sinkage (caused by depletion of the regional water table) and inopportune confluences of weather patterns and full moons, with a strong dose of global warming thrown in, further causing tides to rise.

Ultimately, planning Venice involves transforming a town that is physically rooted in the Middle Ages to function effectively in the 21st century. And where the rest of northern Italy is becoming increasingly digitized, which is driving economic expansion, Venice still runs very much on analogue time.

Venice is an anachronism—today's businesses require speed and mobility, families want more spacious homes and land surrounding them, and most people seek the spontaneous accessibility that cars provide. Certain improvements are making Venice more efficient. High-speed trains, bank ATMs, mobile phones, and the Internet have all found their way into the Laguna. A host of specific project improvements will further help matters. However, little can be done, or should be done, to alter the fundamental character of Venice.

#### Venice and the 1995 New Master Plan

Although Venice does not suffer from the serious crime, poverty, and homelessness familiar to many large European and American cities, the severity of the town's economic and environmental problems presents a major challenge to urban planners.

Two key developments spurred planning changes in Venice. First was the election in 1993 of Cacciari, a philosopher and Venice University professor, as mayor. His campaign platform rested on a commitment to the city's physical and economic restoration, which brought fresh enthusiasm into local government. Mayor Cacciari served two terms, through last spring, and was succeeded by an-

other university professor (of regional economics) and noncareer politician, Paolo Costa. Formerly the rector of Venice University and the Minister of Public Works, Costa's urban policies are following those established by the Cacciari administration.

The second event to spur change, also occurring in 1993, was the adoption of the new Local Authority Act, which substantially reformed Italian local government by increasing the mayor's power. This introduced a new, creative atmosphere to the city that remains in place today.

While towns hardly change in a day—especially those that are a thousand years old—the past seven years have left their mark on

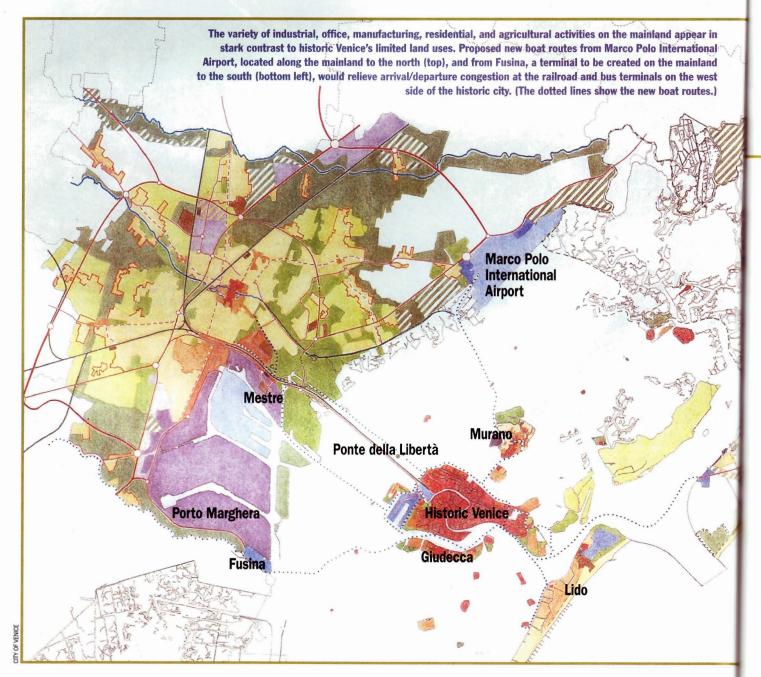
ri

ed

als

an

Int Th wh itie





Venice. Both mayoral administrations have been promoting the creation of a modern town driven, rather than impeded, by the city's historic heritage. Essential to this strategy was the passage of a new master plan that codified the government's goals and encouraged fresh private investment to support this new vision of the city.

Before the adoption of the city's 1995 master plan, planning and development in Venice were guided by a strategy dating back to the 1950s. Although there was no shortage of projects, planning lacked a uniform vision. A basic understanding of the physical city helps explain why this process was fractious, and how the new plan intends to succeed.

Venice is an archipelago of islands spread across the Laguna di Venezia—a substantial body of water set off by the northwest corner of the Adriatric and sheltered from the sea by several long barrier islands (see page 77). The city's western boundary includes edges of the mainland. The entire region—land and water—occupies 176 square miles (457 square kilometers).

The Venice so familiar to travelers is referred to as the historic core, a dense cluster of 77 islands located several miles east of the mainland in the northern half of the Laguna. The municipality also includes the mainland town of Mestre, an urban center of 200,000 residents that is linked with the historic core via the rail and road bridge Ponte della Libertà.

### Integrating the Historic Core with the Laguna

The 1995 master plan is seeking to preserve the old core's heritage while stimulating reuse of underused districts to attract new activities and to integrate the entire region more effectively. A major goal

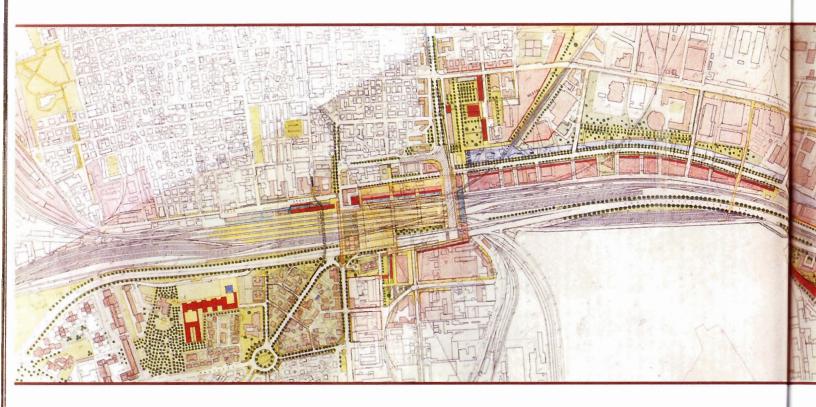
Redevelopment plans for Venice's historic core only target the periphery of the old city where significant tracts of land are underused. The two largest reuse efforts focus on the transportation hub to the west (red area to the left) and Arsenale to the east (red area at top right). The heart of the city will experience only structural renovation and canal dredging.

is to emphasize the link between the historic core and Mestre, promoting the vision of a bipolar city.

Historic Venice and Mestre have existed fairly independent of one another, each often finding itself at odds with the other's interests. The master plan envisions these two centers "forming an extraordinary architectural and urban complex, while achieving a consensus of political views, economic interests, and public opinions essential for promoting effective regional development." And creating a diverse viable economy is the key to addressing many of the difficulties confronting Venice.

How could this be achieved? One answer would be to treat these two centers as a single entity, comparable to a big corporation that needs to be reorganized. A key restructuring principle would be to reallocate basic economic activities according to practical logistics, rather than allowing the hubs to compete inefficiently against one another. Consolidating major nonpassenger shipping activity onto the mainland, for example, could create greater economies of scale while freeing up land in Venice for more appropriate uses.

Further, creation of business and educational development zones on both sides of the bridge linking Mestre and Venice, where highway and rail connections converge, would allow these zones to in-



teract more effectively with each other as well as with the rest of the metropolitan region. Toward this end, improvements in the historic hub include opening up a portion of the harbor to the public, replacing dilapidated commercial structures with university buildings, constructing a new bus terminal, and creating a new pedestrian bridge across the Grand Canal that links Piazzale Roma with the train station.

In addition to improving the link between Venice and Mestre, the master plan is seeking improved integration of the historic core with the rest of the Laguna through new access routes coupled with development of the city's outer islands. Expansion of public water routes and the promotion of private boat service would enhance movement throughout the Laguna. Specific improvements would include the introduction of frequent boat service from Fusina (a terminal to be created on the mainland south of Mestre) and from the Marco Polo International Airport (located along the mainland to the north) to relieve congestion in Piazzale Roma and the train station. Broad access improvements also would reduce boat traffic along the Grand Canal.

The island of Giudecca, virtually a part of the historic city located less than a half a mile south of Santa Maria della Salute, is underused. Redevelopment of abandoned industrial areas presently is underway. By introducing new parks and housing for its blue-collar residents, the city is seeking to revitalize this moribund island.

North of historic Venice, the island of Murano, famous for its glass factories, is the site of a major public/private venture that will combine public and student housing, a hotel, artisan space, and an enlarged glass museum.

Formerly abandoned islands are being reused. San Servolo, located between Sant' Élena (the easternmost end of historic Venice) and Lido and once the site of a mental hospital, is now home to Venice International University—a joint venture of two local universities along with German, British, and U.S. (Duke University) education-

al institutions. The adjacent island of San Clemente is the site of a five-star hotel, currently under construction, and the neighboring island of Certosa is being redesigned as a 57-acre (23-hectare) park.

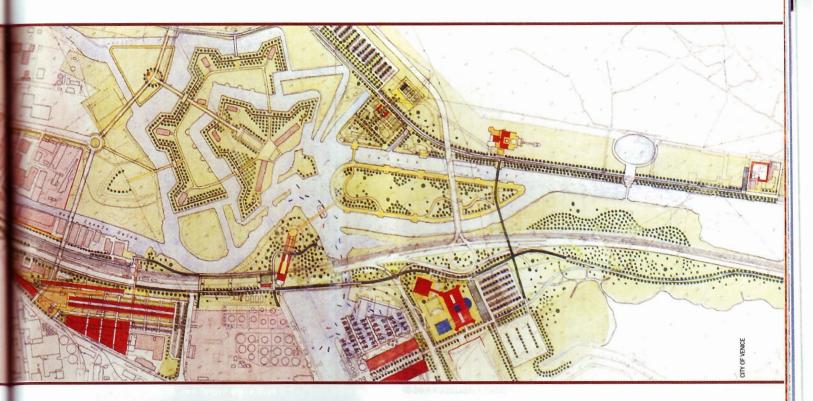
While projects like these will not displace Rialto and San Marco as the heart of Venice and the core of the master plan, they will expand the function and focus of the city, enhancing its economic base and improving opportunities for the city's residents. The goal is to reverse the trend that has been transforming Venice from a viable city into a museum. As Mayor Costa puts it, "While Venice has been the most heavily subsidized city in Italy, it has no future without a sound, self-supporting economic base."

#### **Major Projects Planned**

Over the last six years alone, the state has spent more than \$351 million (773 billion lire) on the city, with another \$863 million (1.9 trillion lire) earmarked for future projects. The following initiatives highlight the city's effort to revitalize and protect the historic city while promoting a regional economy.

Property Rehabilitation. While most public funds are designated for infrastructure, housing, and public building improvements, subsidies in the form of downpayments and the abatement of mortgage interest are granted to private landlords who rehabilitate residential property within the historic core. To qualify for benefits, an owner must live in the property that is to be improved, and be a permanent resident of the city. Between 1984 and April 1998, the city provided \$72.9 million (160.3 billion lire) in financial relief to 1,483 building owners and to 664 apartment owners.

Canal Dredging. Canals need to be dredged periodically to remove silt. Such occlusion impedes tidal action necessary to cleanse the city's waterways. Dredging had not been done for over 30 years and was resumed in 1994. While the canals are empty, the shores (including the walls of adjacent buildings) are refortified, sewage



and water pipes running along the bottom of the canals are repaired, and bridges are rebuilt whenever necessary. So far, 16.2 miles (26 kilometers) of canal shores have been renovated, 95 bridges rebuilt, and 48 million cubic feet (137,000 cubic meters) of sludge excavated at a cost of \$48.6 million (107 billion lire). An additional \$77.3 million (170 billion lire) worth of further improvements currently are underway.

Flooding. A potential solution for the recurrent flooding of the historic core, known as *aqua alta*, may be found in the project Mose—a network of submergible dikes planned for the three entry points into the Laguna from the Adriatic (see page 77). Under normal conditions, the dikes would lie flat on the sea bottom, permitting crucial tidal movement to cleanse the Laguna. When excessively high tides are forecast, air would be pumped into the dikes, forcing them above sea level to prevent flooding.

While proven effective in the flood-prone Netherlands, implementation of Mose has been blocked by strong environmental opposition based on fears of even a temporary cessation of tidal movements. This has delayed the Ministry of the Environment from delivering the government's final decision on one of the city's most urgent problems. But as Franco Miracco, a member of Venezia Nuova, the consortium created to solve the problem, sees it, "Venice has three choices: Build floating dams, construct fixed dams that would kill off the Laguna, or do nothing and hope for the best."

Porto Marghera. Porto Marghera, the region's primary industrial district, is in serious decline. Since 1970, the number of jobs has dwindled from 30,000 to 14,000. To help diversify its economic and employment base, Venice is committed to reviving the area by instituting a major cleanup of highly polluted sites followed by promotion of new industrial activities. So far, 272 acres (110 hectares) out of an estimated 2,471 acres (1,000 hectares) of polluted areas have been cleansed. An additional 371 acres (150 hectares) will be

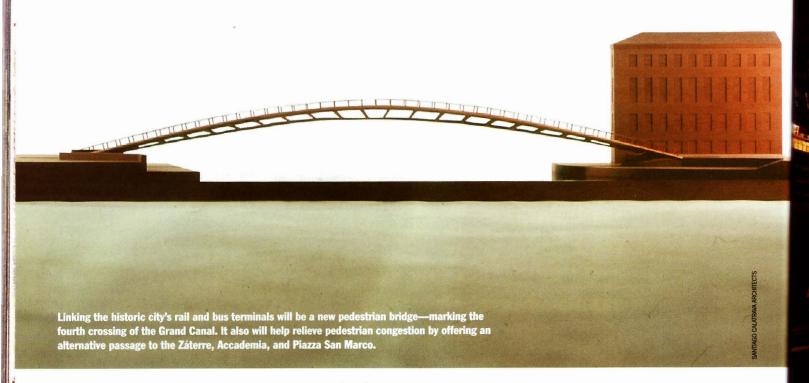
Redesign of the main axis from the railroad station in Mestre to the edge of the Laguna will incorporate a variety of land uses, including significant new open space. The axis will emphasize the link between historic Venice and the mainland.

processed soon, with funds derived from the state and the chemical industry. Two central infrastructure improvements in the works are the construction of a new cable-stayed bridge designed by Alberto and Marco Novarin over a harbor canal, due to be completed by the end of 2003, and the creation of a 600-hectare park, San Giuliano, which currently is under construction.

Transit Improvements. The city is planning more efficient and less congested access between the mainland and the historic core through two key points (see plan on page 78). To the south, the new Fusina interchange hub will facilitate the flow of tourists into the historic city with half-hour boat rides leaving for San Marco every ten minutes. Fusina will accommodate 2,900 automobile parking spaces and 180 buses, and will include shops, restaurants, banks, and a tourist information center. The \$53.4 million (117 billion lire) project is expected to be operational by 2004.

Marco Polo International Airport, on the mainland northwest of the historic city, is Italy's third-largest airport and is experiencing tremendous passenger growth, from 2.45 million in 1995 to 3.5 million in 1999. A \$137 million (300 billion lire) improvement plan is already underway, which will expand the number of gates, hangers, and parking spaces. A new boat terminal, designed by Frank Gehry, will enhance access into historic Venice.

Junghans Redevelopment (Giudecca). Less than a half a mile south of the Záterre and Venice's historic core, the long narrow island of Giudecca is a forgotten place. In a city that is frequently overrun by tourists, many Venetians would consider that status a blessing. However, gentrification has begun to transform this underused



island and its working class character. To maintain Giudecca's economic and social mix, the government has committed \$10.2 million (22.5 billion lire) to a public/private partnership that is developing 1,000 new subsidized apartments on the west end of Giudecca.

Known as the Junghans Redevelopment Area, total investment in this mixed-use plan is expected to exceed \$73.1 million (160 billion lire), with the private sector contributing approximately \$56.8 million (124.4 billion lire). Plans call for the introduction of commercial space and public facilities, including rehabilitation of an elementary school and a theater. Additional program components will include:

- A 300-room student dormitory,
- 150 new dwellings to be sold at discounted prices (preferably) to residents of Venice,
- 45 new subsidized rental units to be rented to Venetians, and
- 180 new market-priced dwellings.

The Fourth Bridge. The historic core's two most active transit hubs, Piazzale Roma and the train station, will now be linked by a new pedestrian bridge, marking the fourth crossing of the Grand Canal. The most modern addition to the city's landscape, designed by Santiago Calatrava, the sleek \$4.6 million (10 billion lire) bridge is budgeted for completion by 2003.

Arsenale. Redevelopment of the Arsenale, once one of Europe's largest ship building and naval facilities, dating back to the Middle Ages, is one of the most ambitious reuse schemes planned for a historic site anywhere in the world (see page 79). Once the source of the Venetian Republic's power, the 27-acre (110,000-square-meter) naval facility, fronting the north side of the Laguna in the eastern portion of the historic city, the Arsenale now stands virtually vacant, save for scant military activities and an adjacent naval museum. The site, which still houses some of the most interesting examples of 16th-century industrial architecture to be found anywhere, offers the city an enormous redevelopment opportunity.

A proposed boat terminal (model shot), designed by architect Frank Gehry, at Marco Polo International Airport, is in response to the rise in air travel to Venice and the need to facilitate new access into the historic city.



Until recently, the area was off limits to the public, making it virtually unknown to most Venetians. But a recent agreement permits the Biennale International Art Exhibition to offer limited visitor access to the Arsenale, heightening public awareness of its potential. This awareness has prompted the city and the navy to consid-





er the Arsenale's redevelopment, which is anticipated to host the following activities:

- 269,000 square feet (25,000 square meters) of exhibition space,
- 538,000 square feet (50,000 square meters) of commercial services,
- 398,00 square feet (37,000 square meters) of office space, and



A new bridge in Porto Marghera will offer improved access over the harbor canal in Venice's core industrial area.

- 323,000 square feet (30,000 square meters) of manufacturing space. Redevelopment of the Arsenale will be a major financial undertaking:
- Estimated total expenditure for infrastructure and public spaces will be \$12.6 million (27.6 billion lire).
- Rehabilitation of existing buildings will run \$200.9 million (440 billion lire).
- New construction will cost nearly \$21.0 million (46 billion lire).

## **Unique Potential**

As Venice enters the 21st century, the city is more actively shaping its future than it has done in recent memory. Construction cranes rise from the western end of Giudecca across the historic city to the eastern end of Sant' Élena. But perhaps the greatest hope Venice has for regaining its once rich, diversified character comes from a thoroughly unexpected source—the new economy.

In transforming the way business gets done, information technology is introducing more benign forms of economic activity compatible with Venice's delicate environment. Relying on digital transmissions running across existing telecom infrastructure rather than on the deleterious movement of heavy goods and manufacturing, the new economy offers Venice—and companies seeking a unique location for their headquarters—major opportunities.

Whether or not Venice exploits this development potential depends on the local authorities and their willingness to provide adequate financial incentives to attract corporate relocations. Arsenale will prove an initial test. But with so little downside to the idea, there is little reason why this could not become a significant strategy to help Venice reclaim an economy comparable to the city's historic and visual splendor.

MARIOLINA TONIOLO, A SENIOR TOWN PLANNER FOR THE CITY OF VENICE, SPECIAL-IZING IN COMPREHENSIVE PLANNING AND HOUSING, COORDINATED THE DEVELOP-MENT OF THE NEW MASTER PLAN FOR VENICE. ERIC UHLFELDER, A NEW YORK-BASED JOURNALIST, WRITES ON PLANNING, DESIGN, AND FINANCE, AND HAS RECENTLY COMPLETED A BOOK ENTITLED INVESTING IN THE NEW EUROPE. (THE VIEWS EXPRESSED IN THIS ARTICLE DO NOT NECESSARILY REFLECT THE OPINIONS OF ANY ADMINIS-TRATIONS IN VENICE, PAST OR PRESENT.)