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Innovative Technology and the Future of Transportation in the Region

a speech by

Philip D. Kaltenbacher
Chairman

The Port Authority of New York and New Jersey



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at the
1988 Annual Dinner
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It's good to visit with old friends. Not just because I know so many of you, but because I remember well the period 1968 to 1973, when I served in the Legislature, and a speech like this would have been made credible and substantive and perhaps respected only because of the research of your organization. That was, of course, before the Legislature had much in the way of staff support.

It's two decades or so later, and you have a broadened mission and a prestigious new Board of Trustees. In those two and a half decades, New Jersey certainly has come of age. You helped bring us to where we are today, and the region needs you as never before, as we plan for future growth and an enhanced quality of life -- as we plan using decades and generations as a more relevant time frame than year to year.

After a long period of Port Authority research, analysis, and planning, we last year announced a \$5.8 billion five-year capital improvement plan, one that would in real dollars add 40 percent to our asset base. How did we get in such a bind that we had to spend so much money so quickly?

We talked about coming-of-age and how much things have changed in such a short time. Let's go back to the seventies, a period when government and society seemed to have lost its confidence, a time of pessimism, a period of inflation and recession. Remember the word "stagflation"? And it was a period when there was delay and defeat for needed improvement projects in the public sector. We all knew what the future was going to look like. Oil was going to be \$80 a barrel, certainly by 1989. Cities were in a steep,

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The Public Affairs Research Institute of New Jersey is a privately funded, nonprofit, nonpartisan organization with a dual purpose: to provide ideas and leadership for improving the quality of fiscal and administrative policy in New Jersey state and local government and to provide accurate, unbiased information and analysis on key issues in taxation and public expenditure in the Garden State.

irreversible decline. And economic power was flowing inexorably in one direction, toward the Sunbelt. Would the last person out of town please turn off the lights?

Throughout the public sector, the response was the same. Basically, we disinvested, meaning we didn't invest. We neglected our assets. We deferred maintenance. We shelved vital improvements.

So much for the oracles of doom. Things really didn't turn out as predicted. What happened was prosperity, and, for our region, an unprecedented 12-year expansion that continues to this day.

From 1970 to 1987, about a million workers have been added to the job force in the region. New Jersey accounts for about half of that.

New York City's done beautifully in the 1978 to 1987 period, with 62 million square feet of office construction. But what's incredible, truly astonishing, is that New Jersey in that period has added 90 million square feet. The cow pastures and truck farms became major corporate centers. And the so-called "urban wastelands" of Newark and Jersey City and Hoboken, places that nobody had even started to plan or consider for growth because they were down-and-out and finished -- these areas became back-office Meccas and among the hottest growth areas in the nation.

The shape and dynamics of the metropolitan economy have been transformed into what Rutgers professor George Sternlieb describes as the new "trans-Hudson economy." So the problems we've had to tackle turned out to be the problems of growth and prosperity, and that decade of disinvestment didn't help. We were ill-equipped to meet the historic high levels of service demand at all of our facilities.

Since 1980, it's been up 30 percent on the trans-Hudson facilities. That's PATH, bridges, tunnels and bus terminals. 46 percent on the Staten Island crossings, and air passenger traffic up 70 percent.

Of course, this same phenomenon has put excess demand pressures on the Parkway, the Turnpike, New Jersey's landfills, reservoirs, parks and beaches.

Tonight I'd like to share with you my thoughts about what this new dynamic means -- how we plan at the Port Authority for the next decade, given the prosperity we do forecast and the disinvestment we've experienced. The bulk of what we'll talk about has to do with the promise of new technologies and their immense implications on our planning of new facilities and operations.

Lastly, after we're all smug and happy about how technology is going to make life easy, we'll sober up by looking at what the competition is doing, other nations, most notably the Japanese, and see what lessons we should learn.

Increasingly, we are going to have to look at these planning questions more broadly and in new ways: in terms of technology, in terms of finance, in terms of creative approaches for public and private partnership, and, without question, in terms of the need for much greater cooperation and integration among the government agencies and political jurisdictions, certainly within this region.

In a speech in New York City a few years ago, Governor Kean put our bi-state interdependency into the right context: "The metropolitan economy thumbs its nose at the political jurisdictions we elected officials guard so jealously."

That was the idea back in 1921, when the Port Authority was created in an historic bi-state compact to break through those artificial barriers of jurisdiction that were constraining the movement of goods and of people and that was sapping the economic vitality of the region.

That is the thinking today behind our capital plan, the region's first big investment in the 21st Century's infrastructure.

Our airports are bursting at the seams, with demand expected to grow by 50 percent by 1995. Our \$3 billion program for the three airports involves new terminals, parking, people movers, new access roads, automated baggage handling, increased throughput and state-of-the-art facilities.

On PATH, we've upgraded our entire fleet of cars, our stations, our safety systems, to accommodate up to the 40 percent more peak-time ridership forecast for 1995.

We're rebuilding the tunnels and bridges, and rehabing the Bus Terminal and World Trade Center. We're reinstating ferry service from Hoboken to Lower Manhattan to begin next year. We're building Essex County's sorely needed resource recovery facility to help New Jersey solve its garbage crisis.

And our Newark Legal and Communications Center, designed to serve the Newark legal community with a world-class facility, will begin to be occupied next year.

The capital program is far-reaching and it's unprecedented, yet it's very much in the nature of catch-up. It's time to turn now to an examination of new additional capacity to meet the demands of tomorrow.

As we look ahead, one thing is certain. We can't do it all with bricks and mortar. The answers are going to be part planning and part innovation.

As the region has grown larger and denser, the development of new large-scale public facilities has grown much more complicated. The days of the master builders -- the Austin Tobins and the Robert Moseses -- people who didn't have to worry about sea bass and darter fish -- those days are over. And the cost of public construction today is impacted not just by inflation but by the nature of the permits, environmental concerns,

law suits, etc., that escalate cost and cause delay. So we have to look hard at new technologies that allow us with better management to expand capacity softly -- that is, without adding lots of new pavement or buildings or steel. More productivity for our investment dollar.

Communications technology found at the Teleport in Staten Island dramatizes the point. Any office hooked up by fiber optic cable to our Teleport satellite dishes will have access to state-of-the-art voice data and visual communications. For instance, the Newark Legal Center will be hooked up and will access the most complete and current body of legal information in the country, as quickly and efficiently as any spot in the nation.

Certainly, the technology is making jurisdictional boundaries obsolete, but will the decision-making apparatus keep pace?

Well, in ground transportation it's starting to happen. TRANSCOM is the most ambitious regional transportation management operation in the country. It's headquartered in Jersey City. 15 agencies are working together to coordinate 6,000 lane-miles of highway, 2,000 miles of rail, 19 bridges and tunnels. The nation's most heavily traveled public transportation network is now linked together by a shared computerized data base to keep police and operations managers throughout the region up-to-date on emergencies, special events, construction. It's already providing information needed to implement on-the-spot route diversions and allowing engineers and maintenance crews to minimize construction delays by coordinating and staging projects.

In the future, using Teleport's visual links, we envision satellite surveillance to give each agency's control center a snapshot of any emerging traffic situation in the metro area. An upgraded, closer-in, Accu-weather-type focus.

Eventually, private cars may be equipped to receive data from systems like TRANSCOM. It's going to involve having a SMART CAR technology that will allow a driver to make informed split-second decisions about his travel route. "Smart car" technology is already being tested by General Motors in California and also in Europe. And if the idea's really going to work, we're going to need "smart highways," and that's what the Port Authority is looking at. We call it AVI, automatic vehicle identification. Supermarket technology applied to transportation. Starting out with buses, we'll take a vehicle-mounted transducer, have it read by an infrared scanner at the toll booths, and let the drivers pass straight through, without having to slow down much below the speed limit. The toll will be automatically debited against an account for monthly billing. Also, it will give us accurate, comprehensive data, so our planners will know who's driving where and when.

To maximize this technology, it should be integrated to work on the Garden State Parkway, the Triborough, the New York thruway. That takes, again, the breaking down of jurisdictional barriers. All of the jurisdictions have to agree on compatible equipment and a uniform system of collection and accounting.

And a dream of mine, because I've seen it work, is the single magnetic tape card with a credit account letting you aboard on New Jersey Transit in Summit, switch to the PATH at Hoboken, or take the ferry, switch to the uptown bus at Herald Square or the LIRR to Montauk, all without regard for token, dollar bill machines, or exact change.

In Paris, this universal ticketing system has worked magnificently for over a decade. It's called "Carte Orange," and it's proved to be a strong incentive to get Parisians out of cars and into trains and buses and metros.

In aviation baggage handling, using scanners, your baggage will be routed through a series of switches to your airplane or your pick-up carousel. So before long, you'll be able to drop your bags at our new satellite airport park-and-ride in Ridgewood and not have to lift them again till you land in San Francisco or Los Angeles.

For the traveling public, this means less to carry, fewer handlers, reduced losses, reduced damage, reduced routing errors, and easier tracking. And, eventually, an integrated system combining an encoded chip on your suitcase and a mag-strip passenger ticket will prevent a sudden change in your itinerary from ending up with you and your luggage flying off to different cities half a world apart. And the chip and strip technology has implications for airport security, checking that all the bags on board belong to a passenger on board.

Again, what will it take? Well, it means that all the airport operators and all the carriers are going to have to coordinate their efforts for uniform implementation.

Air traffic management is a major area where innovation is going to enhance capacity. We now have a black-box technology ready to go on-line, microwave landing systems. We're awaiting carriers and towers to decide on uniform equipment. Instead of the traditional straight-line landing signal, which works fine except in tight control spaces, such as in the New York/New Jersey three-airport area, instead of this, we'll have microwave signals that can curve. Towers won't interfere with one another. We'll end up with shorter and much quieter approaches. Instead of one long straight line of approaching aircraft, planes can fan in from every direction and from differing altitudes, increasing the handling capacity, avoiding noise sensitive residential neighborhoods, and improving safety.

There's nothing that will increase airside capacity more than OSPREY. This is the bird of the future. It's also called the VTOL (Vertical Take-off and Landing) craft or tilt-rotor. It rises and descends vertically and hovers like a chopper. Then you tilt those long blade rotors forward, and they can do almost 300 knots. It carries 50 passengers, and it's ideal for short-haul service, like the shuttle routes that now absorb such a large share of airport capacity.

The Port Authority has promoted tilt-rotor development and has readied our Downtown Manhattan heliport on the East River for these craft. We foresee a string of suburban tilt-rotor ports, as well as inner city setups. Up to 8 million passengers a year, adding \$1 billion extra to the metropolitan economy, may soon be generated through this innovation.

Although it's farther off, in the next generation, we see the coming of hypersonic air travel, the super-supersonic or single-stage orbitor that will whisk you through space at altitudes of 100 miles and above, taking you to the Far East or Australia in just a few hours.

In the equation also for airport planning is the predominance from now on of wider body planes, which means that we can accommodate more passengers with lesser takeoffs and landings.

As things sort out with these technologies, and with the prosperity and increased air travel that we forecast, planners have to think about a next great regional air terminal, and, perhaps an additional Hudson River crossing.

The Port Authority recognizes that the region has grown far beyond the 25-mile radius of our jurisdiction, so we're committed to working with New York and New Jersey entities to see that the public interest is maximally served, regardless of technical jurisdictional boundaries.

Getting to a new crossing or a new airport again brings us to the question of technology and coordination. If we have bullet trains, using superconductivity or some other efficient high-speed ground transportation system linking all the airports, it will affect where we locate our facilities, it will affect communities along the right-of-way, opening up areas for development, and it will affect the economics of the total package.

Japan is committing \$12 billion to the development of the next generation of bullet trains, and their existing system is pretty terrific. The new ones are going to go at speeds of up to 180 mph.

Mentioning the Japanese is a sobering reminder of the intense competition we face and why we have to invest much more in our future. The question goes beyond our region's economic future, to our nation's future leadership in the world, our ability to spur on productivity, which has not kept pace since 1970, when America stopped reinvesting in its infrastructure.

This year, the Chicago Federal Reserve Bank had an eye-opening study that showed that between 1973 and 1985, Japan achieved a remarkable productivity growth of 3.3 percent annually, by investing on average over 5 percent of its annual GNP in public infrastructure. It was the same story, basically, in West Germany, France, Italy and the United Kingdom, all showing productivity gains in proportion to their public capital investment.

What did the United States do? Public investment was a paltry .3 percent and productivity growth barely 1 percent. We were dead last among the G-7 nations.

And Japan is only getting started. Those bullet trains I mentioned are only a small part of a new development plan called Yonzenso, that would expend an unbelievable \$8 trillion by 2000 -- the biggest public-facilities improvement effort in human history.

They're building an airport near Osaka on a manmade island, with an R&D complex nearby, a \$120 billion investment. They're tying the out islands to Honshu with incredible tunnels and bridges, a 22-mile double-deck auto rail bridge, a 32-mile rail tunnel, which will be the longest in the world, and a \$9 billion bridge-tunnel network across Tokyo Bay.

They're going to do it quickly; they're going to do it creatively; and they're going to entail a large private sector equity participation.

Interestingly, Hong Kong just increased its containerport and put it out for bids. In other words, private people are actually paying for the right to build a containerport. Here in New York, it's a question of how much we have to lose on additions.

But there's an important lesson for us in these Asian successes. We have to go beyond just cooperating across political jurisdictions; we have to work better across the lines of public and private sectors.

The Port Authority is developing new partnerships with Merrill Lynch and Western Union at Teleport; with ARCORP and Hartz on the ferry service; with GE and the steamship lines we've designed and implemented an electronic clearing house of instant status reports on ship movements, cargo, and motor freight in and around the seaport facilities.

In our fast-growing air cargo operations, where we're moving the most time-sensitive shipments, our new computerized Customs pre-clearance system enables a Japanese shipper, as an example, to have his cargo cleared and ready to move a full 10 hours before his plane touches down at JFK.

There is an acceleration of history. The world is becoming smaller, more complex, changes are happening faster. It's inevitable, given the scale and boldness that's required, that mistakes will be made along the way. But the converse, studying to death, moving at glacial speeds, is, it seems to me, unacceptable.

I hope that as a public infrastructure agency, the Port Authority will err on the upside, with a bit too much optimism, too much in place too soon. Economic cycles can be shut down prematurely by not providing an adequate platform for growth to occur. Today we see the biggest threat to our present expansion is not weak opportunities or demand but limited capacities on several fronts.

As we set our sights on the moving target of the future, we have to think expansively. The issues I've raised go beyond any one agency or any one region. Even if we had a finely balanced infrastructure, with all the jurisdictions and sectors of the metropolitan economy working together in perfect harmony, it would do us little good if we as citizens neglect key questions of national affairs: Questions of industrial policy, trade policy, tax policy, education policy, social policy, defense policy, and foreign policy.

Taking tax policy as an example, are we really going to have the entrepreneurship and the manufacturing that we want if we eliminate, on the federal level, industrial revenue bonds, investment credits, and the differential between capital gains and ordinary income?

Are we really going to have a viable Gold Coast in New Jersey, Hoboken and Jersey City, and Newark, which is making a back-office revival? Are we going to have these things if we don't have the type of employees who are educated in a way that these jobs demand?

And are we going to make much difference in a world economy if we don't do something about the practicalities of dealing with our trading partners, based on how they actually operate, not on how we want them to behave? 75 percent of world trade is conducted by nations that reject, in practice, if not in theory, the free trade ideal.

Here in the New Jersey/New York metropolis, in 15 years' time, we've gone from disinvestment to catch-up to renewal. We now face a future challenging us in terms of expansion, in terms of cooperation among jurisdictions and agencies, and public and private enterprises, challenging us in terms of innovation, and, ultimately, challenging us in terms of national purpose.

Our future does not have a Republican or Democratic solution. It won't be helped by a narrow New York or New Jersey vision. NIH -- not invented here -- has to give way to listening to each other and to cooperating and coordinating. Cheap shots, pettiness, things that look good on 30-second bites, aren't going to get us toward the productivity, quality of life, and competitive stance with other nations that should be ours.

The Public Affairs Research Institute has the good minds, the good will, the broad perspective -- and it truly has the long-range public interest at heart. I salute you on your vision and am appreciative that you will be there helping to analyze and formulate comprehensive, long-range, bold, and productive plans that will enhance our ability to work together to build a future of opportunity and growth.