A Look at the Future of Infrastructure



Partner
Windels Marx Lane & Mittendorf, LLP smody@windelsmarx.com
(212) 237-1158





ALAN PELLEGRINI
CEO
Thales North America
corporate.communications@us.thalesgroup.com
(703) 838-9685

THALES

▶ lowly but surely, New York City's infrastructure is improving. Two subway lines have state-of-theart signal systems, with the rest to follow. The system is experiencing much better on-time rates and fewer service outages than last year. There are 1,900 new cars in the pipeline and elevators are scheduled to be installed in 70 more stations, up from about 115 currently. Congestion pricing, slated to begin in 2021, will help finance some of the improvements. LaGuardia Airport remains a construction nightmare for travelers but the \$8 billion improvement package promises to take it out of "Third World country" territory, to paraphrase one of the presidential candidates. On the green side, within just a few years the city will have 9,000 rain gardens along its streets to help mitigate runoff, resultant flooding and sewer overflows.

But with need so great and resources so scarce, how does the city prioritize? *Crain's* Content Studio asked two experts for their thoughts.

Sanjay Mody is a partner with Windels Marx Lane & Mittendorf. He specializes in infrastructure, real estate, government and finance. He previously served as senior adviser to the Port Authority of New York and New Jersey. He is also the treasurer and a board member of the Brooklyn Bridge Park Conservancy and sits on the New York committee of Regional Plan Association.

Alan Pellegrini is the CEO of the North American division of Thales, the \$22.4 billion multinational that designs and builds electrical systems for aerospace, defense, security and transportation markets.

What are the most significant infrastructure projects in the pipeline in New York City?

Mody: I would highlight two initiatives that will change the way we fund infrastructure. First, the Port Authority is wisely leveraging private sector interest to fund more than \$25 billion in new, modern airline terminals and other facilities at our three major airports—with minimal spending by the Port Authority itself. These projects show how government can attract private capital to upgrade facilities that generate cash flows, enabling scarce resources to be spent on projects that can't pay for themselves. Second, New York City will become the first American city to begin congestion pricing in 2021. Details are still being worked out but the fee is expected to reduce congestion as well as generate \$15 billion for the MTA's cashstrapped capital program. Hopefully the success of these initiatives will lead to more public-private partnerships.

Pellegrini: The city is on its way to a reimagined transportation infrastructure that will rival any world-class metropoli-

tan area. Historically high demand has pushed the systems to full capacity, making it difficult for people to get around safely and efficiently. Leadership in Albany, at the Port Authority and the MTA has been working to transform the infrastructure so the Big Apple remains a pioneer. Under their authority, the city is experiencing the most significant capital improvements, projects that seek to dramatically modernize the subway and airport systems.

Why does New York City encounter such difficulty in building new infrastructure compared to its peer cities (London, Paris, etc.) around the world?

Pellegrini: The city that never sleeps creates unique challenges unknown to other municipalities. The subway operates 24/7, for example, and airports have more demand than there are flights. To keep it all running requires constant upgrading in the face of competing needs like safety, security and recovery. Fleet and signal systems require constant progressive replacement throughout. A chronic lack of proper funding leads to a state of disrepair that is hard to recover from. The city needs a long-term vision to plan, build and maintain modern operating environments in such a massive transportation infrastructure. New York City also has a unique political landscape, where conSanjay Mody, Partner, Windels Marx Lane & Mittendorf, LLP



Given the scarcity of public funds available for investment, we need to be thoughtful about allocating those funds to projects that maximize the public good and promote equity—starting with greater levels of investment in a mass transit system that has been the backbone of the NYC economy for the last century.

sensus building is paramount to support the timelines of any major infrastructure projects.

Mody: The sheer number of state, city and local bodies responsible for New York City's infrastructure leads to extraordinary coordination problems (and higher costs) and means that no single person or agency is held accountable. Also, unlike many other parts of the U.S. and around the world, New York State hasn't adopted a issues of governance.

ships (PPP) enabling statute that clarifies how the private sector can participate in the financing and construction of new infrastructure. Unlike New York City, other global cities have more centralized responsibility for infrastructure and a history of working hand in hand with the private sector. If New York City is to catch up to our peer cities, we need to prioritize solutions to these

general public-private partner-

Given that the number of infrastructure projects outweighs the amount of available capital, how should we prioritize infrastructure?

Mody: We need to be thoughtful about allocating scarce public funds to projects that maximize the public good and promote equity—starting with greater levels of investment in a mass transit system that has been the backbone of the NYC economy for the last century.

Pellegrini: Projects to ensure safety, security and efficiency should be prioritized. Airports and subways are at the intersection of all three and are crucial to the city's economy. New York would come to a standstill if the 8 million daily subway riders and more than 140 mil-

> What financing mechanisms are most likely to spur infrastructure investment by governments and the private

lion passengers a year that use

the three airports could not

travel efficiently.

doesn't reflect our current re

ality of constrained budgets

and limited federal funds. It

isn't suited to building the in-

frastructure we need to sup-

port our region's economic

growth for the 21st century.

Pellegrini: Financing is never simple but it is critical to infrastructure modernizations. One effective mechanism for modernization and long-term maintenance are public-private partnerships. Governments are good at managing and operating assets, but they are not equipped to implement technologies or maintain complex systems that infrastructure assets rely on. And contracting mechanisms are clunky tools for control because once a contract is fulfilled, the contractor is not obligated to upgrade or maintain what was

Public-private partnerships in-At the same time, it ject innovation and financing identify infrastructure into infrastructure systems by projects suitable for creating financial incentives. private sector partici-An example could be the propation, while preservposed LaGuardia AirTrain. Deing scarce capital for pending on the outcome of the other essential projenvironmental assessment, if ects. Our historical a public private partnership approach to infrastrucwere created to support the ture development— AirTran it would establish a relying mainly on govlong-term financial incentive ernment funding and for the private partner to perinviting private capiform optimally and create a tal in only limited cirhigher quality of service for the cumstances—served managing organization-the us well for many years but it Port Authority

> Mody: A number of public-private approaches, structured properly, can take advantage of the private capital available for infrastructure investment transfer risks from the public to the private sector, and capi talize on private sector innovations. These include value capture, tolls and ground leases, in addition to PPPs and more. The approach for each project should be based on an assessment of whether a particular tool is suitable to achieve the desired outcome. It makes little sense to consider private investment when an infrastructure project won't generate cash flow to repay investors (e.g. the subway). But we should explore private options where the private sector can invest and expect a return on its capital. We also need to reduce the cost of our infrastructure, not just expand the tool kit of available financing sources. Our infrastructure challenges require a focus on both sides of the ledger.

Which technologies should be fast-tracked in the New York region, which is notoriously behind the times?

Pellegrini: Modern signaling for the subways would have a have major impact on system efficiency, and has already on the two lines the city has upgraded. The 7 and 1 lines both have on-time rates above 90%, approaching the goal of a rate in the upper 90s envisioned by

MTA president Andy Byford. On the 7 train alone, for which Thales designed the signals, on-time performance is up 65% in the weeks since it became operational. While riders welcome those improvements, even more enhanced technology is on its way. Next generation signaling systems will integrate ultra-wide band technologies with modern signaling systems to significantly reduce the modernization

Realistically, what developments over the next decade will most radically change the public's experience with airports and ground transportation?

whole.

Pellegrini: Artificial intelligence, and the changes could be sooner rather than later. There is a pilot program in the works for subways that leverages edge processing AI to enhance operations by creating new train positioning technologies. Today's positioning systems now can only locate trains; applying AI will allow trains to react faster wherever they are, cutting travel time for riders.

On the roadways, Al will enhance efficiency by reading, analyzing and optimizing traffic flow based on live traffic data. The city of Strasbourg, France, for example, whose metropolitan area has 770,000 people, now tracks cars via some 800 control points around the city to deliver real-time data, thus allowing controllers to improve traffic flow and cut congestion. I could also include getting taxis to the right staging area at neak times.

Al also improves flow management at airports. Right now. the most advanced management solutions leverage cloudbased products, or platforms. to enable operators to view historical and real-time data. visualize the effects of security

waits, and model contingencies for things such as flight delays, thus allowing managers to improve airport flow.

Mody: A decade from now, hopefully, our region's airports will be unrecognizable from today. The \$25 billionplus overhaul of the terminals at LaGuardia. JFK and Newark, and timeline of the system as a other improvements, are long overdue. It is

about time that we prioritized

airport redevelopment and it's especially encouraging that most of the work is funded with private capital. It's also prom ising that the Port Authority seems focused on service and operational upgrades make flying through New York City's airports more pleasurable, in addition to new construction. As for ground transportation, I expect that we'll see a mix of conventional modes of transportation with emerging mobility options like rideshare vehicles, electric scooters and other technologies. The challenge will be how to allocate our city streets in a way that is fair while reducing congestion.

How should New York City think about new mobility technologies like rideshares, scooters, etc.?

Pellegrini: The Jetsons are now a reality! Urbanites have more new mobility options than ever before, from low-cost scooter rentals to high-tech air taxis and everything in between. The variety is exciting for individual users but it can be a nightmare for urban planners. Cities like New York must approach mobility with a lens trained on capacity, sustainability and harmony. Technology paired with multimodality planning has the potential to make the Big Apple a more livable city but only if roadways and subways work as complimentary networks and not independent systems. On-de-

Alan Pellegrini, CEO, Thales North America



Projects to ensure safety, security and efficiency should be prioritized. Airports and subways are at the intersection of all three and are crucial to the city's economy. New York would come to a standstill if the 8 million daily subway riders and more than 140 million passengers a year that use the three airports could not travel efficiently.

mand air travel is also on the horizon and it may also be time to start thinking about rooftop hubs for air taxis!

Mody: Our city should welcome new technologies that provide mobility options for those in mass transit deserts who don't have access to the subway, or a convenient way to complete the "last mile" between the subway and a commuter's ultimate destination. They might be more cost-ef-

structure options and may ease overburdened roads. The last few years, however, have demonstrated that inviting new technologies without considering their social and human impacts may actually compound problems. For example, autonomous vehicles might not reduce congestion; they may just result in more cars on our already overtaxed roads. Likewise, electric scooters are great for traveling short dis-

fective than conventional infra-

tances but we need to consider how to safely integrate them into the broader mobility picture, including pedestrians. We also have a moral obligation to consider how new technological gies will displace those who work in the mobility sector. The Transportation Commissioner should designate a "mobility technology czar" to assess the opportunities and challenges associated with new mobility technologies and address



