

A stylized world map in shades of green, serving as the background for the title. The map is composed of various shades of green, with darker green for landmasses and lighter green for oceans.

# **WORLD CITIES BEST PRACTICES**

**INNOVATIONS IN TRANSPORTATION**

A decorative underline consisting of four overlapping, rounded rectangular shapes in dark brown, purple, red, and blue.

## SPECIAL THANKS for INFORMATION & INTERVIEWS:

Thierry Anselot, Domaine Information Voyageurs, Régie Autonome des Transports Parisiens (RATP);  
Megan Aukema, Aukema & Associates for Foss Maritime;  
Denise Andrews, Seattle Public Utilities (SPU);  
Ms. Bekki, Kansai International Airport (KIAC);  
David Bragdon, President, Oregon Metro Council;  
Michael Brown, Bay Area Rapid Transit (BART);  
Robert Dane, CEO, Solar Sailor;  
Vicky Diede, Portland Streetcar Project Manager, Portland Office of Transportation;  
Paul DeMaio, Metrobike LLC;  
Samara Epstein, Director of Constituent Affairs, NYC Taxi and Limousine Commission;  
Rose Gandee, Information Specialist, American Public Transit Association (APTA);  
Jeffrey Garcia, Project Manager, Bay Area Rapid Transit (BART);  
Richard Grasso, Senior Vice President Business Development, Clear Channel Adshel;  
Mark Grove, TriMet;  
Michael Harris, Executive Director, Disabled Riders Coalition;  
Anthony Haworth, Operating Manager, Captain Cook Cruises;  
Chris Heald, Head of Rail Vehicles Projects, Toronto Transit Commission;

Robyn Hollander, MetroNorth;  
Assemblymember Micah Kellner, New York State Assembly, 65th District;  
Marc Klein, President, The Vehicle Production Group LLC;  
Sophie Klein, Délégation Générale Recherche & Innovation, Régie Autonome des Transports Parisiens (RATP);  
Dick Lilly, Strategic Policy Advisor, Seattle Public Utilities (SPU);  
Thierry Marechal, International Association of Public Transport (UITP);  
Terry McRae, CEO Hornblower Cruises;  
JB Meyer, CEO, Circle Line Downtown;  
Steve Newsome, Head of International & European Affairs, Transport for London (TfL);  
George Okvat, MetroNorth;  
Jori Pearsall, Transit at Google, Google Inc.;  
Carlos Pujol, Corporate Development Director, CEMUSA;  
B. Rajaram, SkyBus Inventor, SkyBus-AtriLab;  
Anthony Rizos, MIT;  
Henry Rosen, Port Authority Trans Hudson (PATH);  
Tom Sly, Google New Business Development, Google Inc.;  
Josh Squire, Bicycle System Manager, JCDecaux;  
Dennis Stallings, President, Aerobus;  
Tracy Tackett, Low Impact Development Program Manager, Seattle Public Utilities (SPU);  
Andrea White, Executive Director, Bikestation Coalition;  
James Wiley, MetroNorth;  
Ken Yoshioka, Kansai International Airport (KIAC)

The preparation of this report (PTCP07P00.02) was financed in part through funds from the U.S. Department of Transportation, Federal Highway Administration. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The contents of this report reflect the views of the author, who is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the views or policies of the Federal Highway Administration, nor of the New York Metropolitan Transportation Council. This report does not constitute a standard, specification or regulation.

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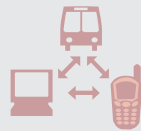
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# EXECUTIVE SUMMARY:

New York City is growing. Our population has swelled to over 8.3 million people. Construction and development in all five boroughs is booming. Far from the problems of neglect and abandonment of the 1970's and 1980's, New York City now faces the challenges of growth and rapid change: to continue to provide the basic services and maintain the infrastructure that allowed us to thrive; to ensure that the city we have inherited and the city we are building will provide future generations with the variety and abundance of opportunities we have today.

Nowhere are these challenges more acute than on the subject of transportation. A shipping hub graced with powerful rivers and a protected harbor, a transportation center banded by some of the nation's most extensive rail networks, home of one of the world's most comprehensive and well used public transportation systems, a locus of regional roads and highways, New York City was, and is, shaped by its transportation resources. Today, with a population projected to reach 9.1 million by 2030 and with world oil and fuel prices at an all-time high, our transportation systems must adapt or risk strangling our city's, and our region's, economic growth. We must continue to foster New York City's economic growth by controlling the city's existing traffic and transit congestion while simultaneously developing our transportation networks to meet the ever growing demands of our rapidly increasing population.

Given these realities, this World Cities Best Practices in Transportation report surveys transportation modes and technologies in use in cities around the globe that could be implemented in New York to reduce congestion and encourage economic and community development. This report is an "idea-sparker," designed to help New York City meet these challenges and to highlight real, technical solutions to the vision set forth in the Mayor's PlaNYC 2030. As a complementary resource to PlaNYC 2030, World Cities Best Practices in Transportation analyzes transportation practices that could allow the city to meet its sustainability goals in transportation and improve the city's air and water quality. Where applicable, this report suggests opportunities, suggesting how the best practices outlined within could be introduced to New York City.

The best practices surveyed in World Cities Best Practices in Transportation are divided into four categories -- Sustainable Modes, Roadway Drainage and Maintenance, Information Technologies, and Infrastructure Enhancements -- each corresponding to a major transportation challenge that the city currently faces.

**1. Sustainable Modes** showcases environmentally sustainable modes of transportation which could be implemented in New York City to relieve pressure on existing transit systems. Recognizing that New York City's ability to build for the future is limited by scarce financial resources and fixed physical space, the models selected represent options that can increase the capacity of our existing transportation networks, often at a lower cost than the construction of new roads, subway tunnels, bridges or highways. In light of rapidly rising and fluctuating world oil prices, this section focuses on options that reduce fuel consumption; which can lower or stabilize operations costs in addition to reducing air pollution.



**2. Roadway Drainage and Maintenance** focuses on modern water management solutions, primarily from the Pacific Northwest, that can reduce flooding and related traffic delays on our city's roads, rails and highways. These solutions can address the chronic severe flooding and ponding reported by Community Boards from all five boroughs. Modern water management solutions, based on comprehensive hydrology and environmental science research, work to limit flooding by combining water management systems in ways that slow down and reduce the amount of water entering existing storm drains. In addition to reducing roadway flooding, such technologies have also been proven to dramatically increase the quality of water that enters our groundwater and waterways. They provide natural filtration mechanisms and reduce combined sewer overflow events (CSOs), thereby meeting PlaNYC 2030 Water Quality goals.



**3. Information Technologies** highlights a variety of high- and low-tech solutions to improve communications within the city's public transit system. While frequently seen as secondary in importance to other transportation issues, increasing the quality and quantity of information will allow public transit users to make better choices about their route options and commutes, reducing the impact of delays throughout the system. Data from around the world shows that providing car-users with clear and accurate information about public transit encourages drivers to drive less, reducing traffic congestion.



**4. Infrastructure Enhancements** explores ways to increase transportation options within New York's current transit network, by increasing the capacity on our roads, subways, buses and encouraging the use of underused existing modes like bicycles, buses and taxis. Providing public transit users with a breadth of transit options can relieve pressure on overcrowded public transit lines, and congested roads and highways. Such efforts are crucial both for the 8.3 million New Yorkers and for the 47 million tourists who visit the city each year.





## **PROJECT GOALS:**

This report is the culmination of the World Cities Best Practices study conducted by the New York City Department of City Planning's Transportation Division. The purpose of this report is to identify and discuss innovations in transportation, currently employed in other cities worldwide, that could positively impact New York City's transportation systems. This study is also meant to serve as a complementary resource to 2030 PlaNYC, the city's sustainability guide recently released by the Mayor's Office. In addition to documenting best practices, a cursory indication of where and how new technologies and innovations could be applied in New York City is included.

## **METHODOLOGY:**

This report divides the topic of transportation innovations into four broad categories: Sustainable Modes, Roadway Drainage and Maintenance, Improved Information Technologies, and Infrastructure Enhancements. Within each category, multiple best practices, illustrated by case study examples are considered. Because transportation is a broad topic and because urban conditions vary greatly from city to city, this report should not be considered a traditional "best practices" study where all possible options are evaluated and ranked. Instead, this report highlights innovative practices in transportation, and provides information and case study analyses of their current uses and providers. As is common with new technologies, in some instances, competing companies have developed virtually identical technologies that would serve to enhance New York City's transportation networks equally well. The "best" provider for New York City would be decided through procurement processes and contract agreements that are beyond the scope of this report.

Research on each "Best Practice" was conducted using both internet and print sources as well as extensive in-person, phone and email interviews with transportation planners and service providers. A preliminary list of "Best Practices" surveyed in

this report was developed after extensive research into current trends and innovations in transportation technologies worldwide. This research was conducted between March and May 2007 and included a survey of New York City's transportation needs as outlined in the 2030 PlaNYC and the 2007 Community District Needs Report. On May 10th, 2007, a roundtable forum for the Department of City Planning's transportation planners was convened to discuss these new technologies and innovations. After this session, the preliminary list was narrowed down to the final "Best Practices" list. Subsequent research began in May 2007 and continued through December 2007.

Whenever possible, phone, email or in-person interviews were conducted with technology/innovation developers and operators. In particular, the authors spoke or corresponded with: Thierry Anselot, Domaine Information Voyageurs, Régie Autonome des Transports Parisiens (RATP); Megan Aukema, Aukema & Associates for Foss Maritime; Denise Andrews, Seattle Public Utilities (SPU); Ms. Bekki, Kansai International Airport (KIAC); David Bragdon, President, Oregon Metro Council; Michael Brown, Bay Area Rapid Transit (BART); Robert Dane, CEO, Solar Sailor; Vicky Diede, Portland Streetcar Project Manager, Portland Office of Transportation; Paul DeMaio, Metrobike LLC; Samara Epstein, Director of Constituent Affairs, NYC Taxi and Limousine Commission; Rose Gandee, Information Specialist, American Public Transit Association (APTA); Jeffrey Garcia, Project Manager, Bay Area Rapid Transit (BART); Richard Grasso, Senior Vice President Business Development, Clear Channel Adshel; Mark Grove, TriMet; Michael Harris, Executive Director, Disabled Riders Coalition; Anthony Haworth, Operating Manager, Captain Cook Cruises; Chris Heald, Head of Rail Vehicles Projects, Toronto Transit Commission; Robyn Hollander, MetroNorth; Assemblymember Micah Kellner, New York State Assembly, 65th District; Marc Klein, President, The Vehicle Production Group LLC; Sophie Klein, Délégation Générale Recherche & Innovation, Régie Autonome des Transports Parisiens (RATP); Dick Lilly, Strategic Policy Advisor, Seattle Public Utilities (SPU); Thierry Marechal, International Association of Public Transport

(UITP); Terry McRae, CEO, Hornblower Cruises; JB Meyer, CEO, Circle Line Downtown; Steve Newsome, Head of International & European Affairs, Transport for London (TfL); George Okvat, MetroNorth; Jori Pearsall, Transit at Google, Google Inc.; Carlos Pujol, Corporate Development Director, CEMUSA; B. Rajaram, SkyBus Inventor, SkyBus-AtriLab; Henry Rosen, Port Authority Trans Hudson (PATH); Tom Sly, Google New Business Development, Google Inc.; Josh Squire, Bicycle System Manager, JCDecaux; Dennis Stallings, President, Aerobus; Tracy Tackett, Low Impact Development Program Manager, Seattle Public Utilities (SPU); Andrea White, Executive Director, Bikestation Coalition; James Wiley, MetroNorth; Ken Yoshioka, Kansai International Airport (KIAC).

During the preparation of this report, the authors attended the following transportation conferences and symposia in the New York metropolitan area: The March 30th, 2007 “New Mobility: The Next Generation of Sustainable Urban Transportation” conference held at the NYU Wagner Rudin Center; the May 6th, 2007 NYU Wagner Rudin Center freight symposium, “Delivering the Goods: The Freight Needs of a Growing Population,” and the October 19th, 2007 University Transportation Research Center and the NYU Wagner Rudin Center Visiting Scholar Seminar “Robin Chase: The Window of Opportunity is Now: How Wireless Can Move Us to More Sustainable Transportation” at Baruch College. The authors also attended the “New York Bike Share Project” charrette, held July 7th-11th at the Center for Art and Architecture, and tested various types of Bike-Share technology developed by competing firms. Where available or relevant, technical diagrams and charts are included in the appendices of this report.