

Using Data to Make Better Investment Decisions

A review of the NY MTA's 35 year history of \$118 billion worth of investment to restore and improve its system

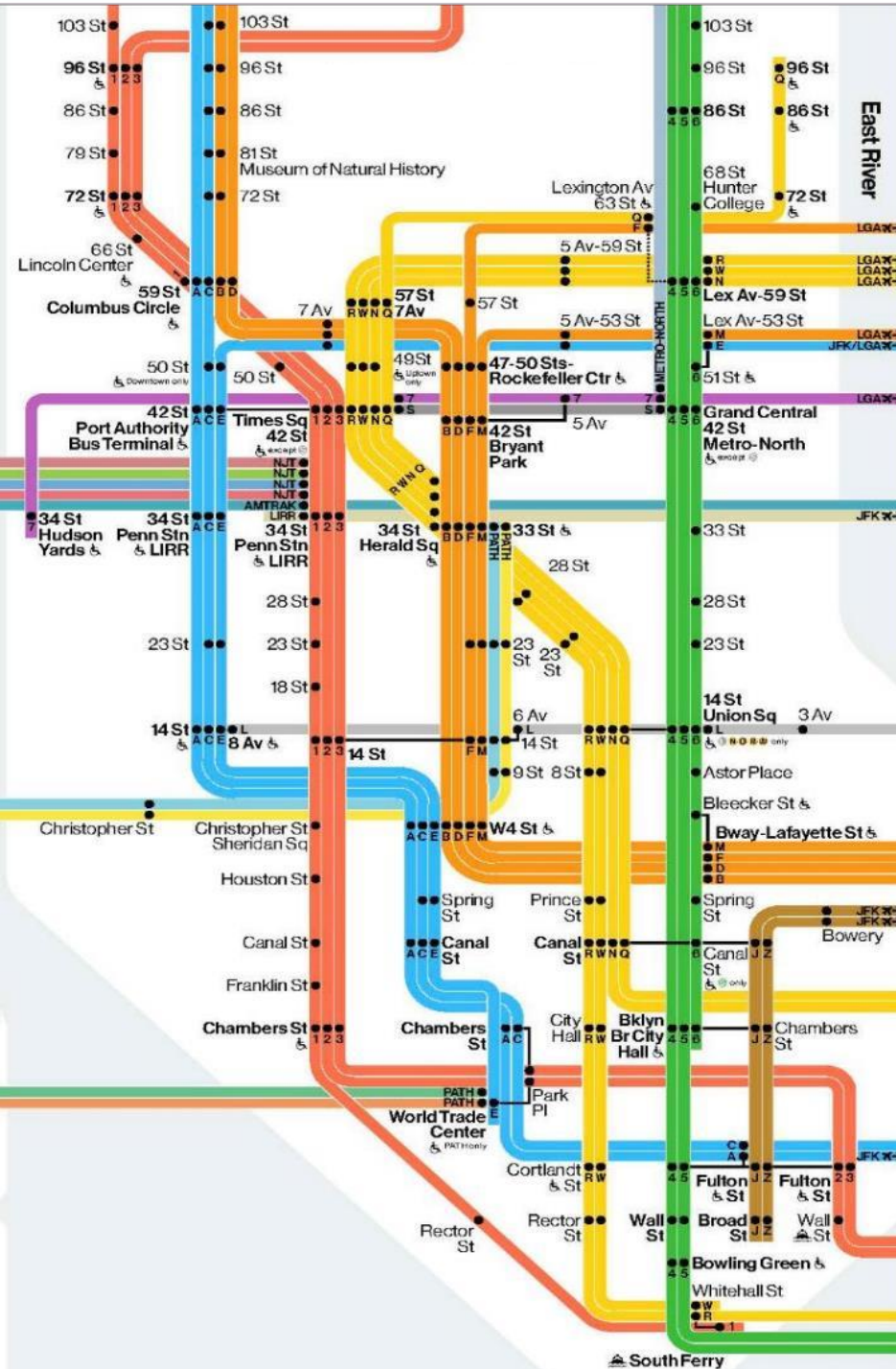


Transportation Research Board National Conference on Transportation Asset Management

Stephen A. Berrang, Director, Capital Program Management

Mildred M. Chua, Vice President & Chief Financial Officer, MTA Bridges & Tunnels

Metropolitan Transportation Authority of the State of New York



Six Agencies

- ❖ NYCT Transit
- ❖ Metro North
- ❖ LIRR
- ❖ Bridges & Tunnels
- ❖ MTA Bus
- ❖ Capital Construction

\$1 Trillion Asset Base

- ❖ Thousands of track miles, hundreds of stations, seven bridges, two tunnels

2.6 Billion users annually

- ❖ 9 million transit riders and 1 million drivers daily

Drives regional economy

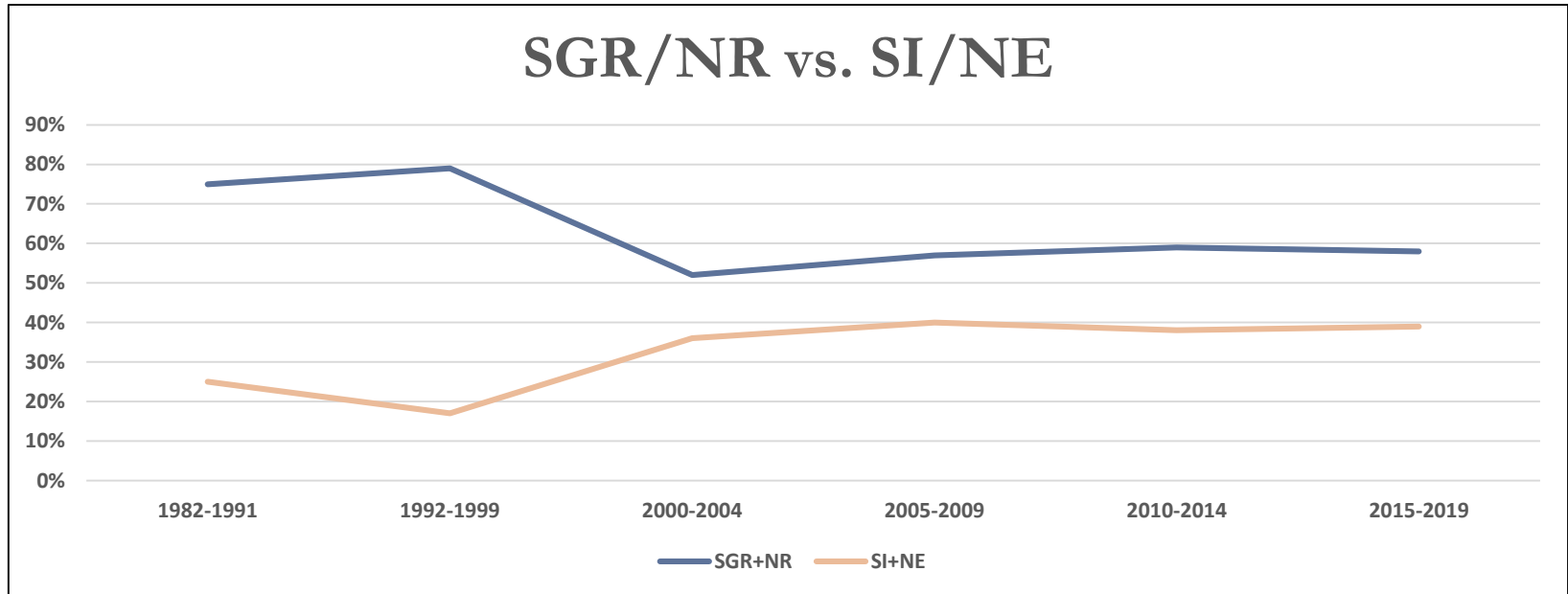
- ❖ 16 million people in 14 counties, 2 states, and across 5,000 square miles

EVOLUTION OF THE MTA CAPITAL PLAN



IMPACT OF DATA-DRIVEN PROCESS

Increasing Investments in System Improvement & Network Expansion



System Improvement Highlights

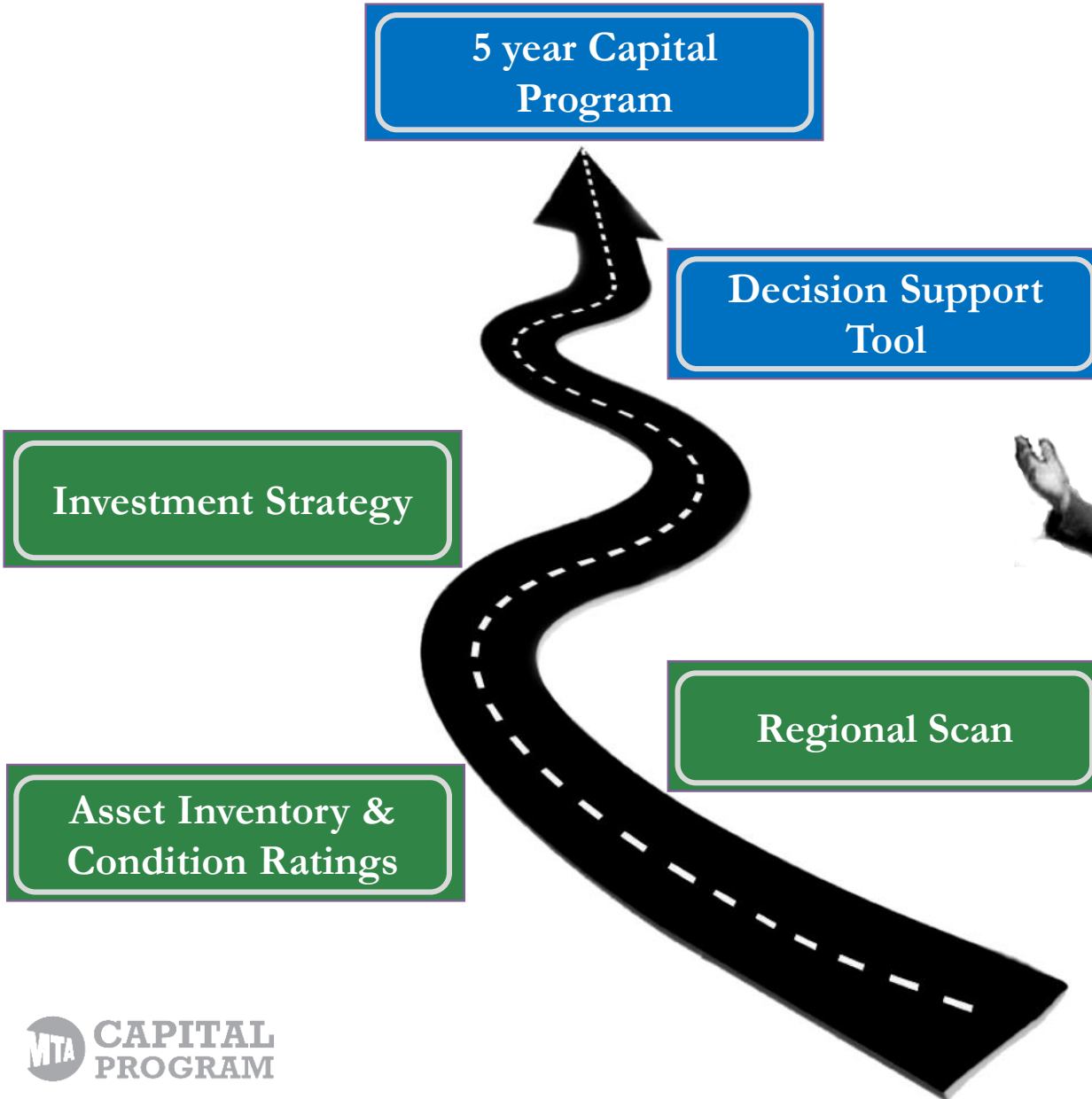
- New Fare Payment System
- Open Road Tolling
- Train Arrival Information Systems
- Accessibility Initiatives (ADA)

Network Expansion Highlights

- Second Avenue Subway
- East Side Access
- LIRR Mainline Expansion
- #7 Line Extension

STRATEGIC INVESTMENT PROCESS OVERVIEW

Data-driven Roadmap for Strategic Investment



“If you don’t know where you’re going, chances are you’ll end up somewhere else”

– Yogi Berra



STRATEGIC INVESTMENT PROCESS OVERVIEW

5 Year Capital Program

Framework for strategic capital investment over 5 years

Analytical review of investments to maximize asset life

Factors taken into consideration

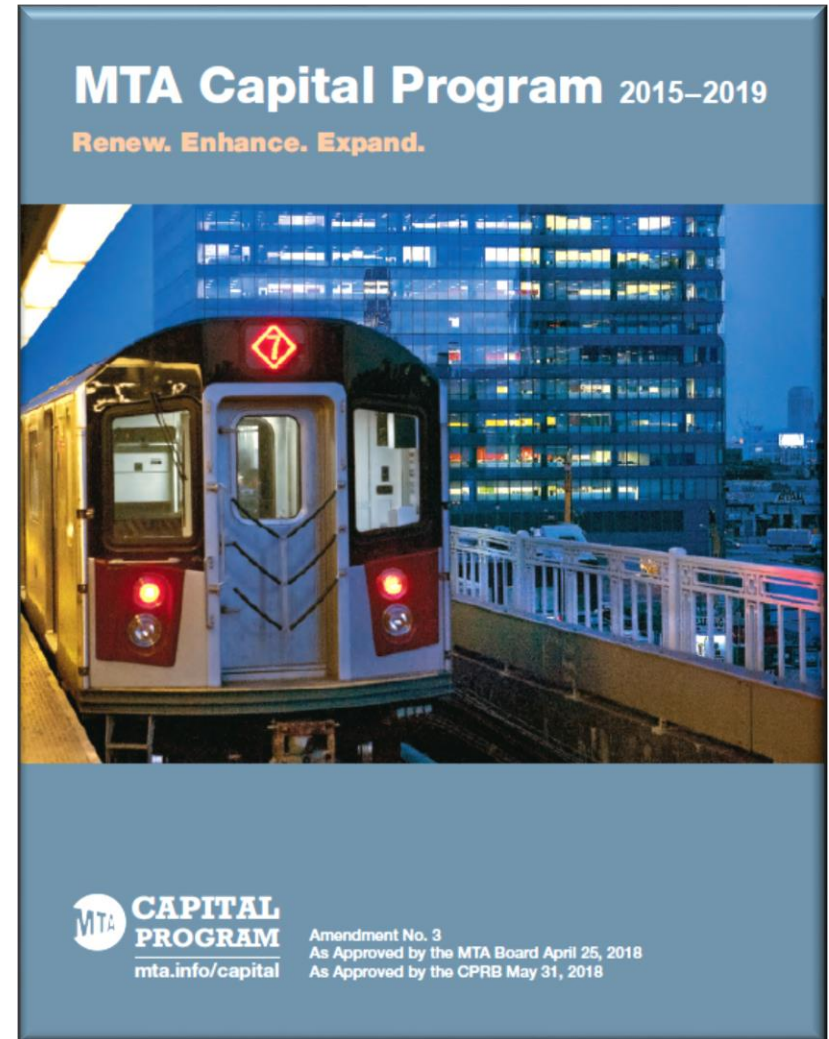
- Targeted component replacement
- Enhanced technology
- Track access optimization

Challenges and constraints

- Operational capacity to schedule work and maintain service
- Timing and coordination of projects
- Availability of MTA resources

Identification of investment options also focused on prioritizing:

- Economic growth
- Accessibility & social equity
- Customer Service



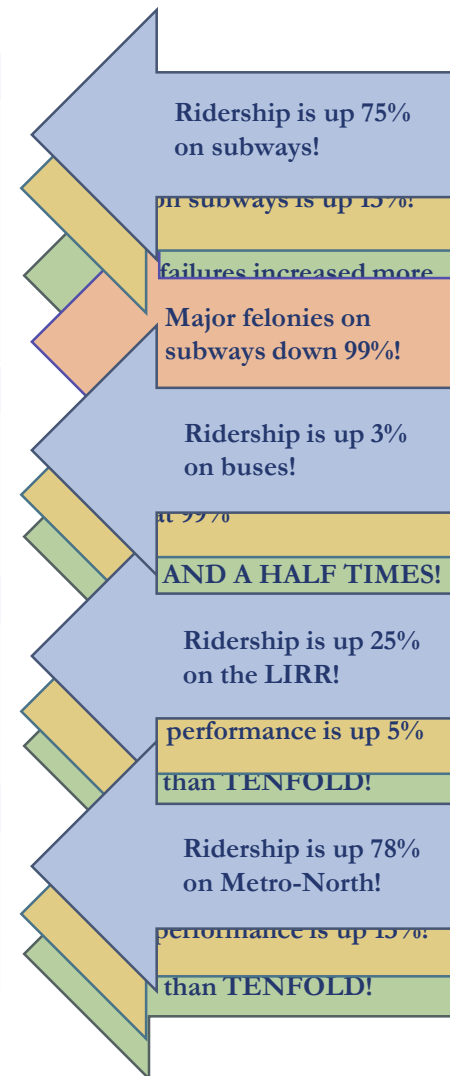
Integration of TAM Model



BENEFITS TO DATE

| Subways | 1982 | TODAY* |
|--------------------------|---------|---------|
| •Ridership (in millions) | 989 | 1,727 |
| •On Time Performance | 50% | 63% |
| •Train Delays | 319,500 | 83,167 |
| •MDBF (miles) | 10,800 | 121,220 |
| •Major Felonies | 17,497 | 211 |
| Buses | | |
| •Ridership (in millions) | 585 | 603 |
| •Pull-out Performance | n/a | 99% |
| •MDBF (miles) | 2,466 | 6,484 |
| Long Island Rail Road | | |
| •Ridership (in millions) | 71 | 89 |
| •On Time Performance | 87% | 92% |
| •MDBF (miles) | 16,168 | 205,270 |
| Metro-North Railroad | | |
| •Ridership (in millions) | 49 | 87 |
| •On Time Performance | 81% | 94% |
| •MDBF (miles) | 18,520 | 193,883 |

*Data as of December 2017



RESILIENCY IN PUBLIC TRANSPORTATION

Recovery and Resiliency Efforts After Superstorm Sandy



<http://web.mta.info/sustainability/>



KEEPING NEW YORK MOVING

Safety

Efficiency

MTA Objectives & Decision-Criteria

Operations

Decision
Making



NYCT Bus



LIRR



Bridges & Tunnels



MNR



NYCT Subway

Improved Process, Organization, Technology and Information

Our People

- Safety & Security
- Valued & Engaged
- Diverse & Sustainability

Our Customers

- Safe & Reliable Service
- Improved Customer Experience
- Value for Money

Our Infrastructure

- Renew, Enhance & Expand
- Resilient
- Innovative & Efficient

Draft 5.16/3sep/2016

Investment Planning at MTA Bridges & Tunnels: A Data-Centric Approach

Mildred M. Chua, *Vice President & CFO, NY MTA Bridges & Tunnels*



Bridges & Tunnels

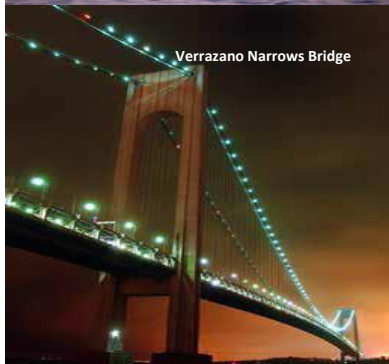


"Every Crossing Counts"

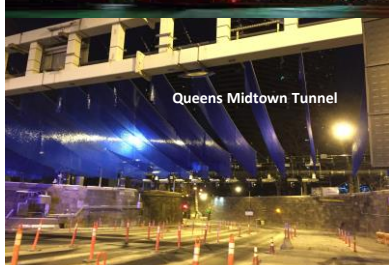
MTA B&T NETWORK OVERVIEW



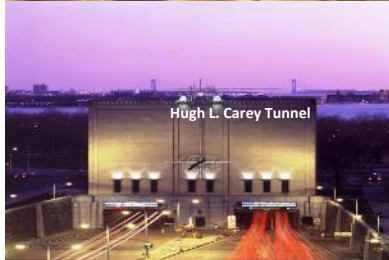
Marine Parkway Bridge



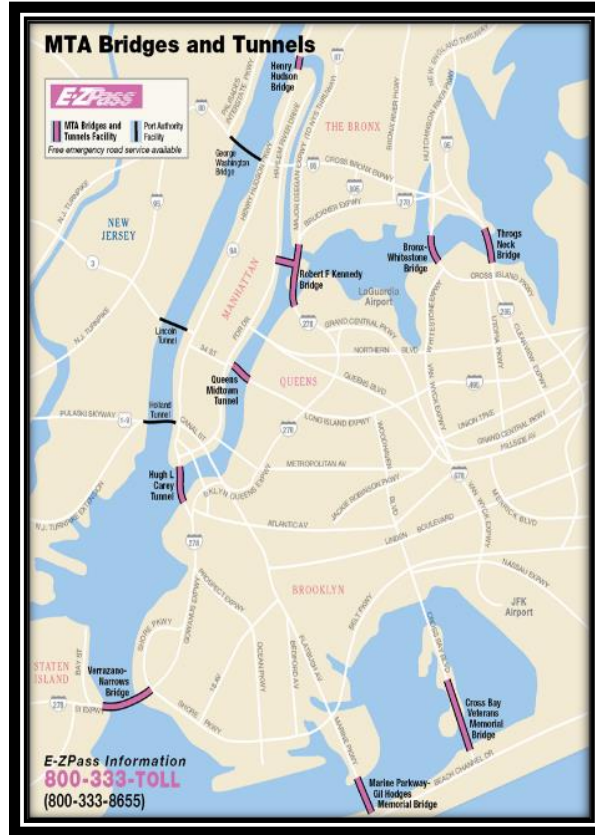
Verrazano Narrows Bridge



Queens Midtown Tunnel



Hugh L. Carey Tunnel



► Dual mission:

- **Provide critical regional transportation links**
- **Subsidize transit operations**

► Operates seven bridges and two tunnels in New York City

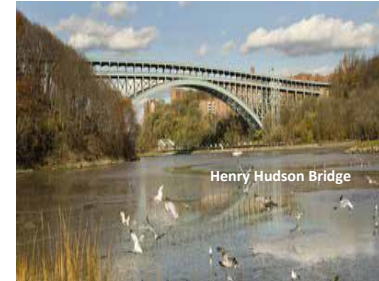
► Largest toll collector in the US - \$1.9 Billion in 2017

► 310 Million paid vehicles in 2017

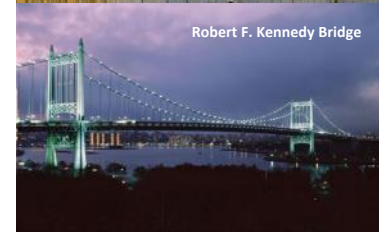
► In 2017, provided over \$1.2 Billion to support MTA mass transit

► \$620 Million 2018 Operating Budget

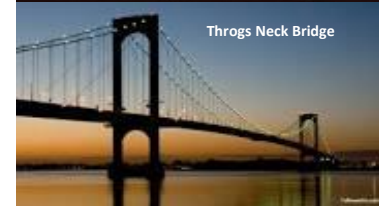
► \$2.9 Billion Capital Program for 2015-2019



Henry Hudson Bridge



Robert F. Kennedy Bridge



Throgs Neck Bridge



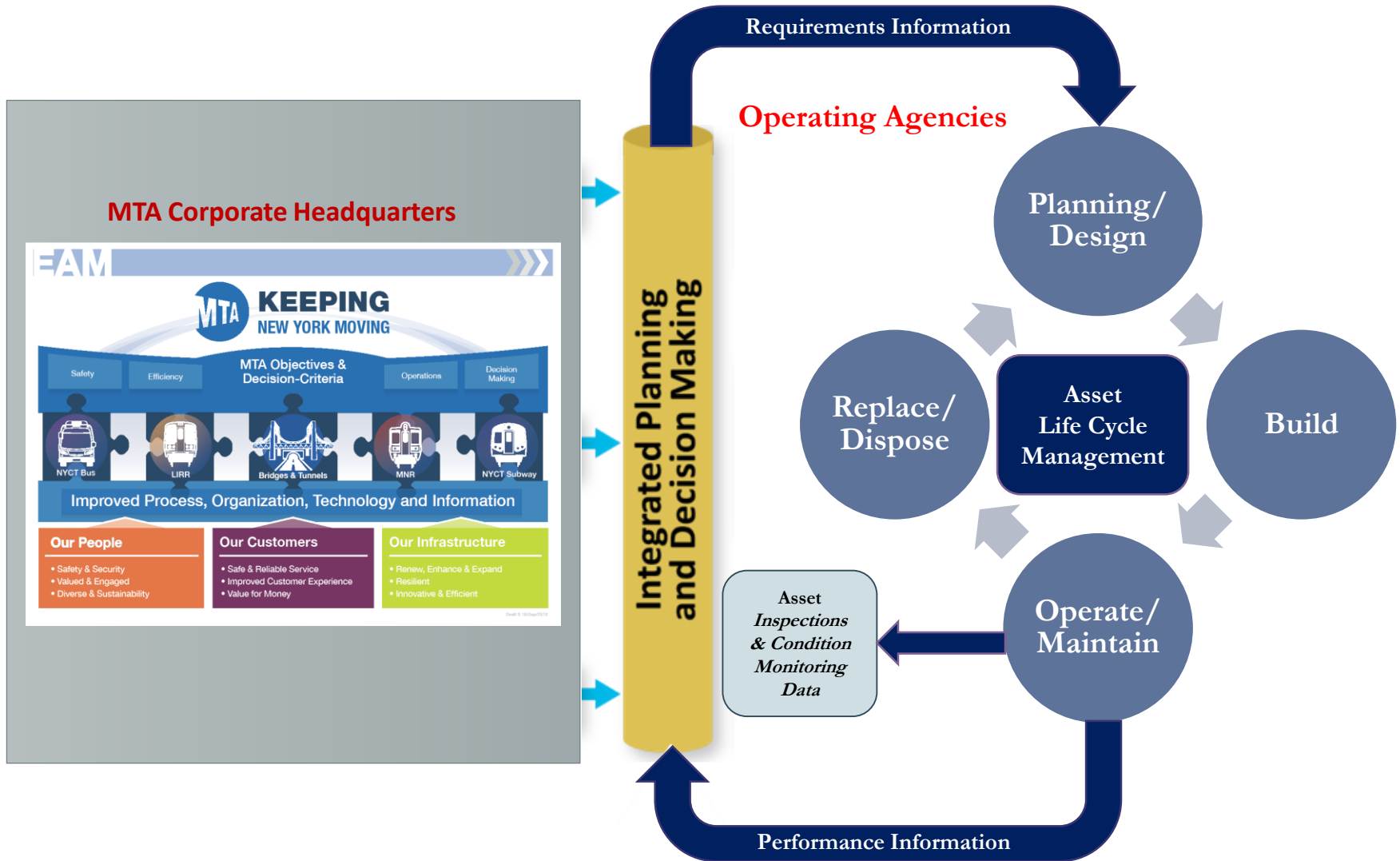
Bronx Whitestone Bridge



Cross Bay Bridge

THE MTA MANAGEMENT SYSTEM

An Integrated Asset Lifecycle Management Approach



MTA B&T INVESTMENT PROCESS OVERVIEW

Data-driven Roadmap for Strategic Investment

Twenty Year Needs Assessment

Asset Inventory

- Asset inventory & condition assessment is a baseline for determining critical needs and optimal replacement strategy.

Regional Scan

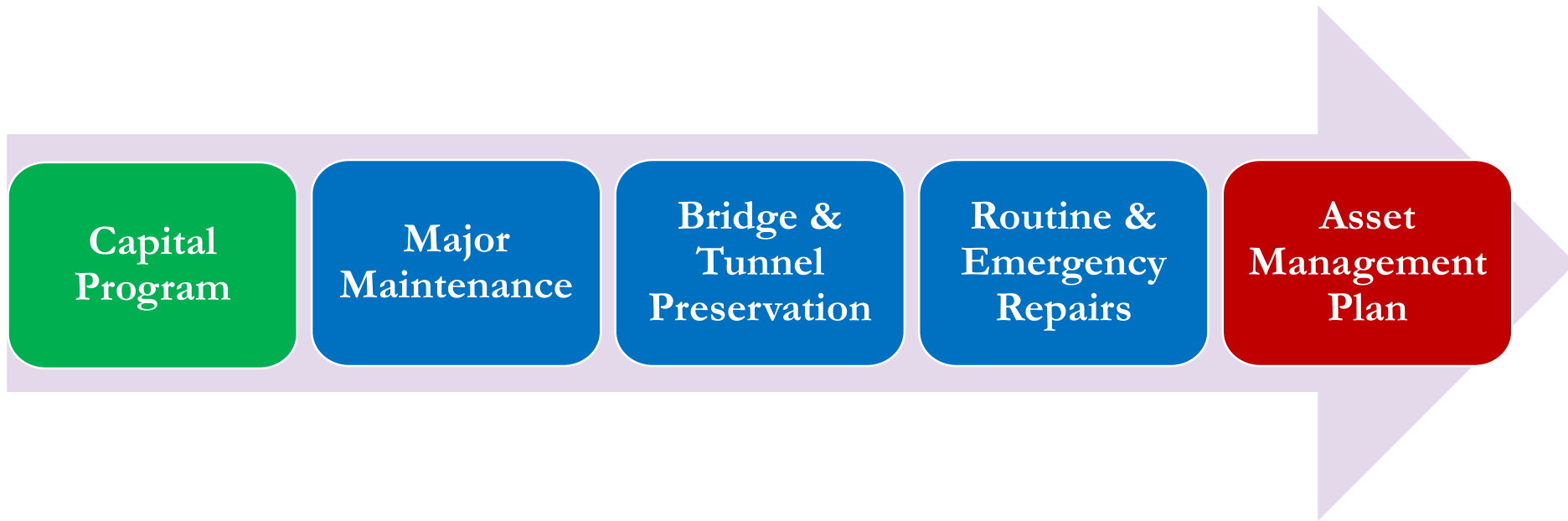
- Review of current and projected regional needs that may impact MTA Bridges and Tunnels services.

Investment Strategy

- A twenty-year outlook of investment needs and strategies by bridge and tunnel across asset classes that considers a blended approach to address SGR, resiliency and system improvement needs.

MTA B&T INVESTMENT PLANNING PROCESS

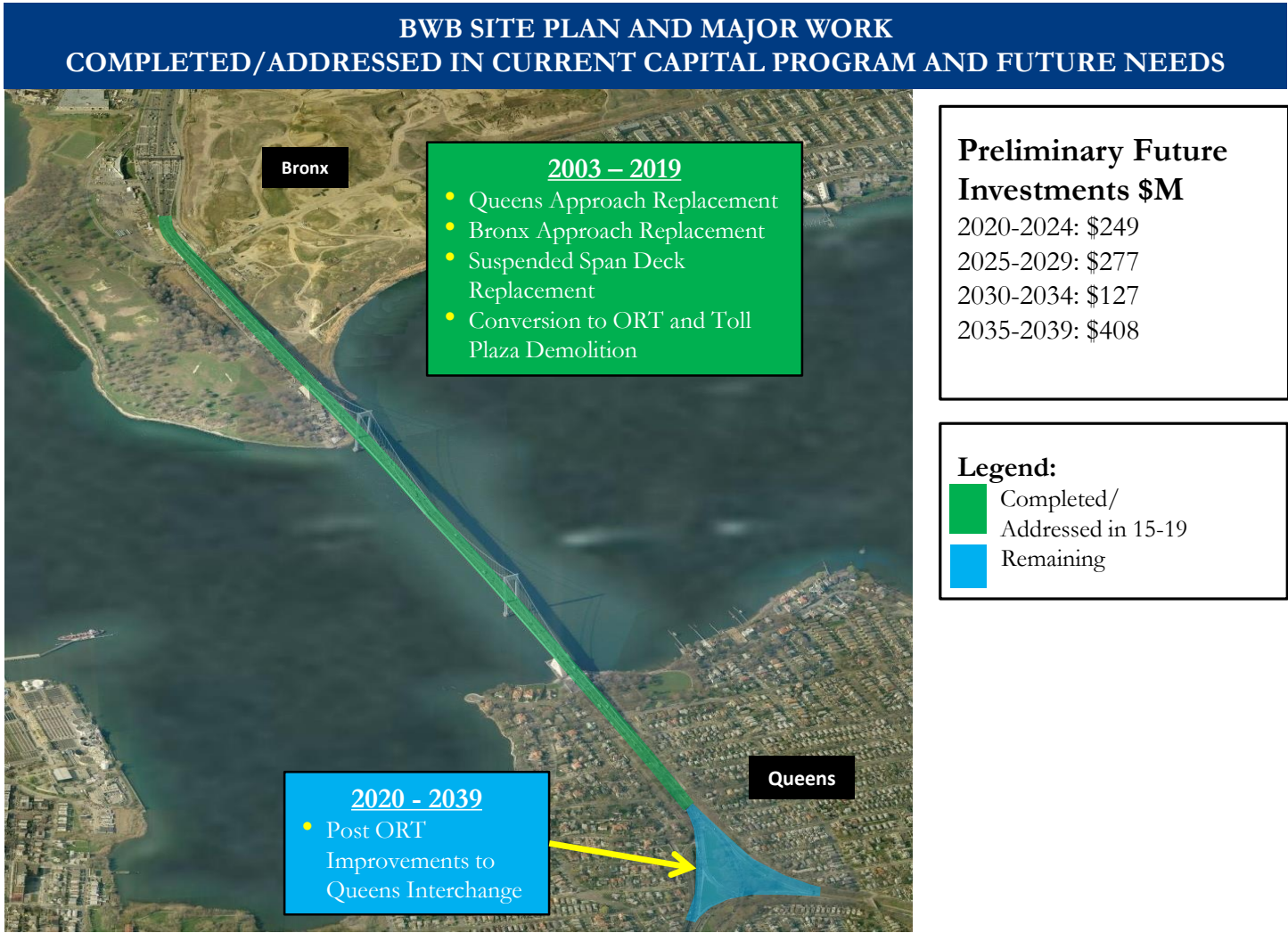
Investment and Optimization between Capital and Operating/Maintenance Programs



❖ Grounded in the principles of Enterprise Asset Management (ISO 55000)

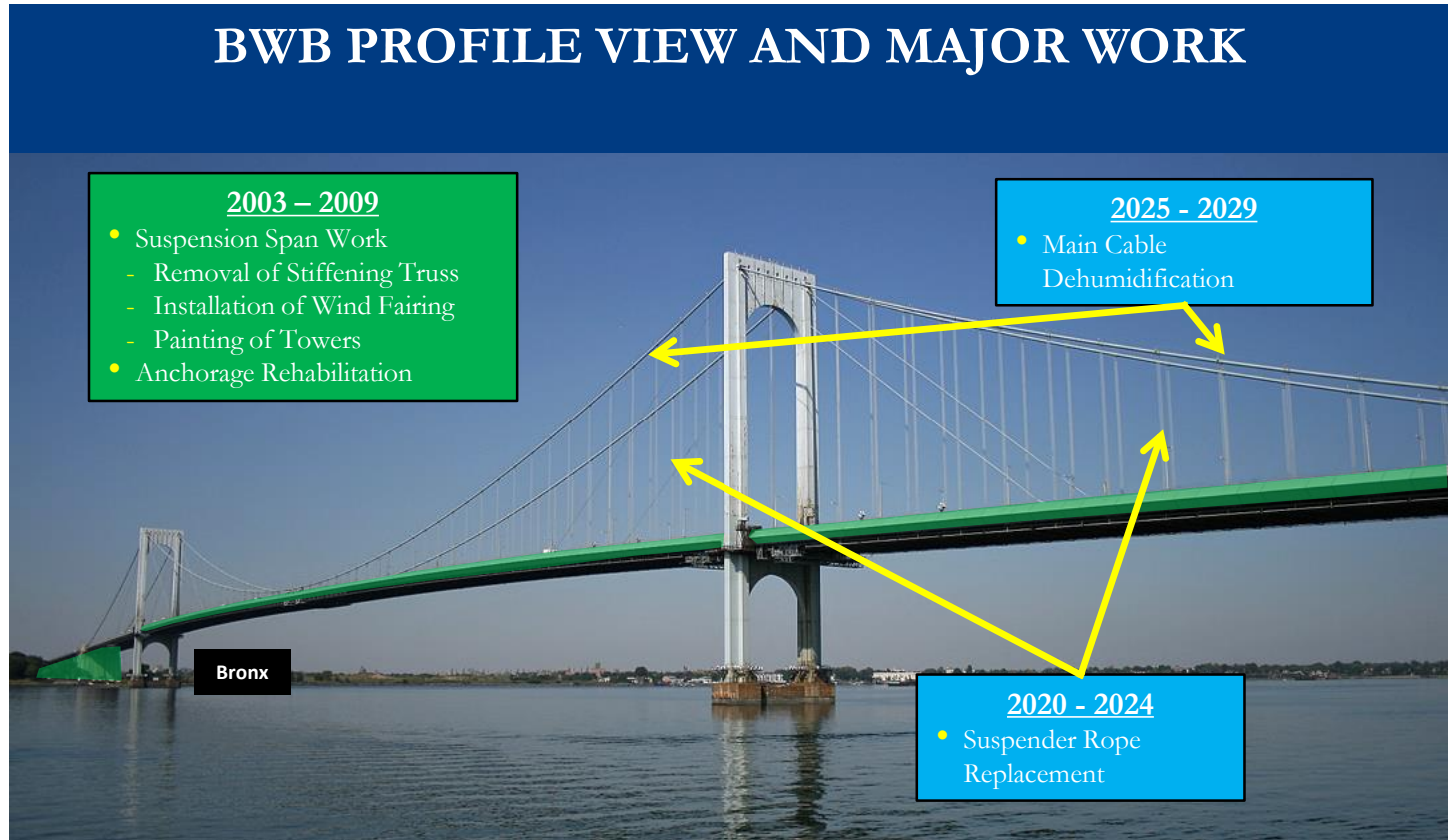
BRONX-WHITESTONE BRIDGE (BWB)

Facility Master Plan



BRONX-WHITESTONE BRIDGE (BWB)

Facility Master Plan



Legend:

- Completed/
Addressed in 15-19
- Remaining

Thank You!

For more information:
mta.info/capital