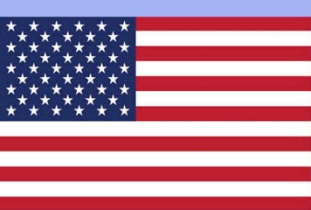


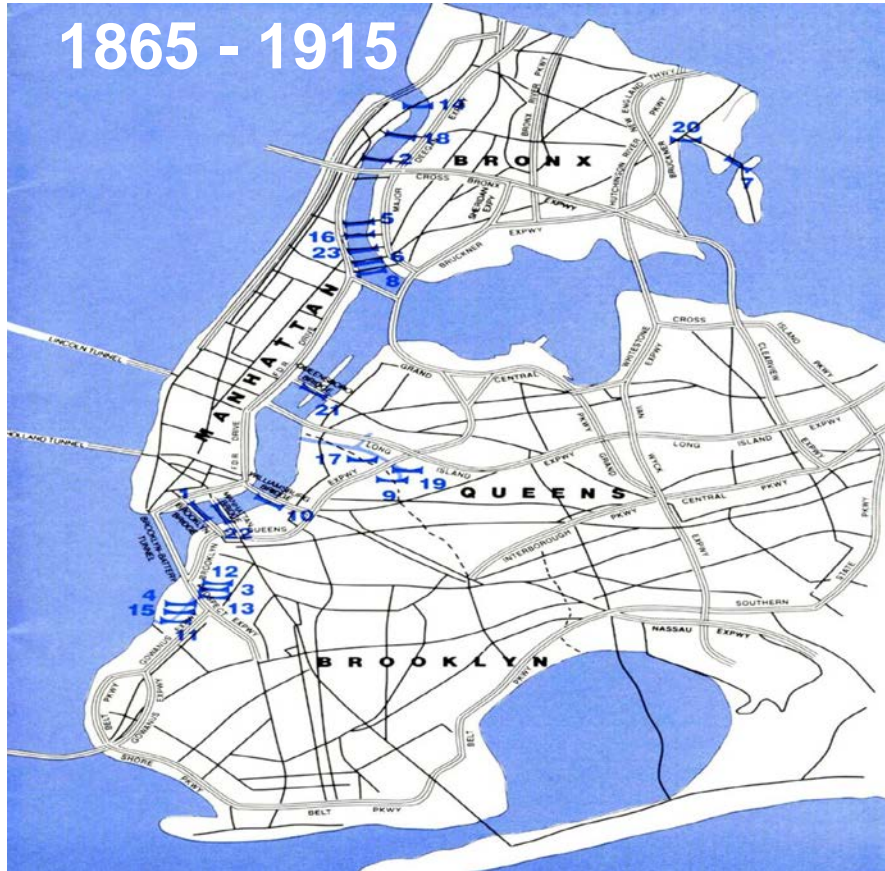


NEW YORK CITY DEPARTMENT of TRANSPORTATION

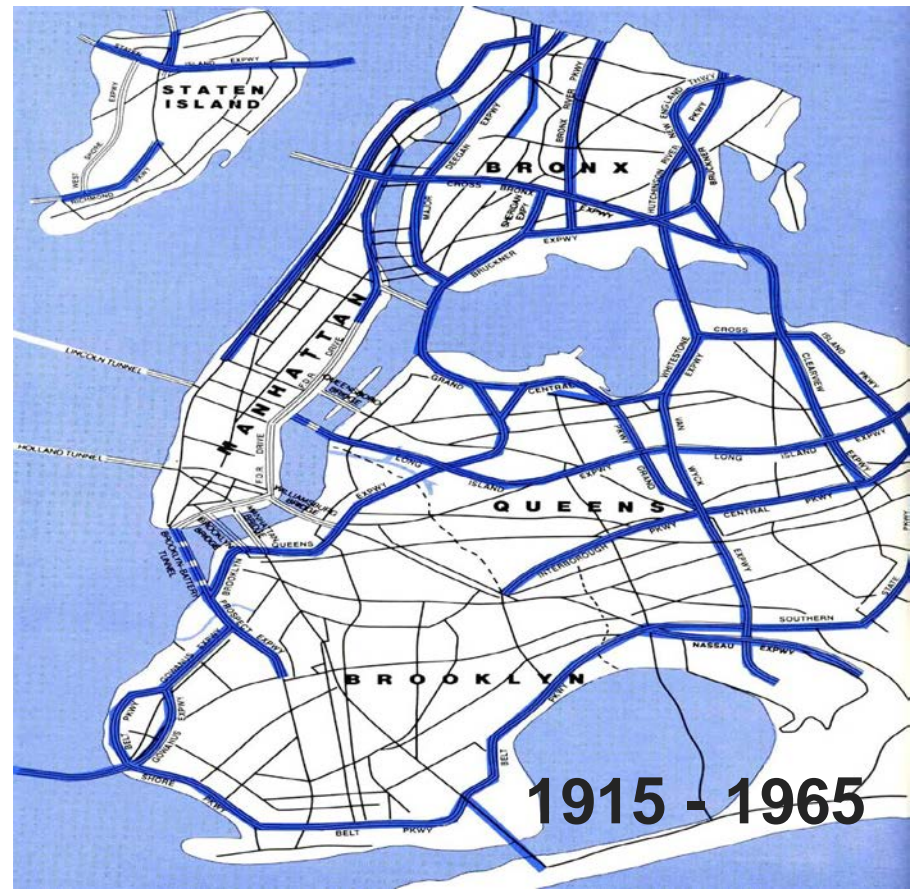
- MISSION STATEMENT
 - To provide for the Safe and Efficient movement of goods and people throughout New York City's Roadways and Bridges.
- The Bureau is responsible for the maintenance and repair of 790 City owned vehicular and pedestrian bridges throughout the 5 boroughs.



1865 - 1915



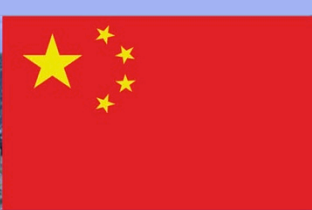
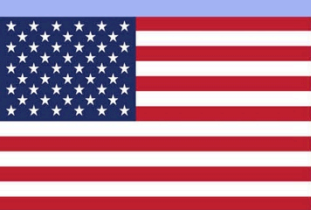
1915 - 1965

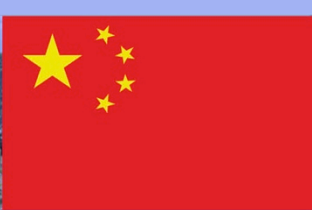
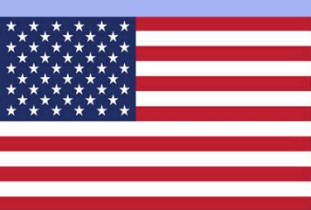


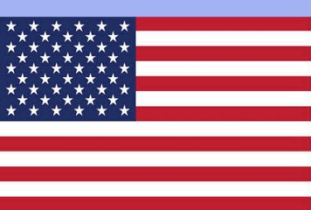


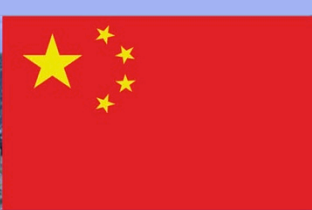
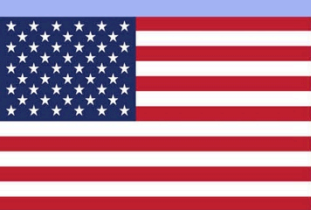
BRIDGE INVENTORY

BRIDGE TYPE	QUANTITY
Arterial	208
Off-System (Local)	389
Pedestrian	107
Waterway	51
Movable	25
Tunnels	6
East River	4









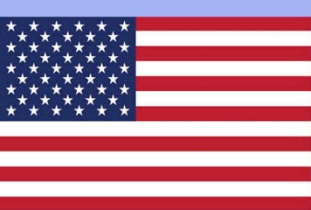




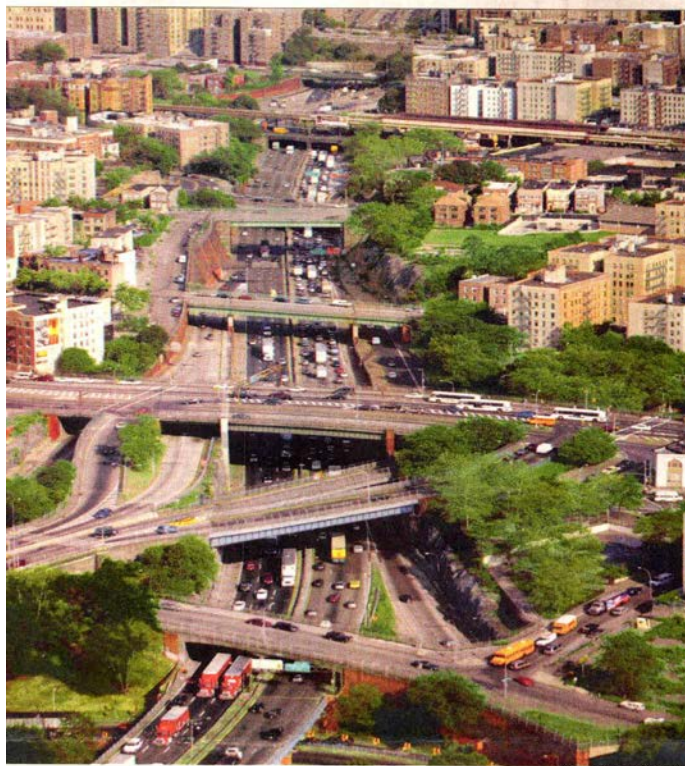
BRIDGE & TUNNEL OPERATIONS

Collage of bridge types

- 25 Movable Bridges
 - Bascule (12), Swing (7), Vertical Lift (4), Retractable (2)
 - 6,500 openings / year
 - On demand openings 24 / 7
 - Mobile Crew Operations
- Electrical Tunnel Maintenance & Repair
 - Pump and Ventilation Maintenance

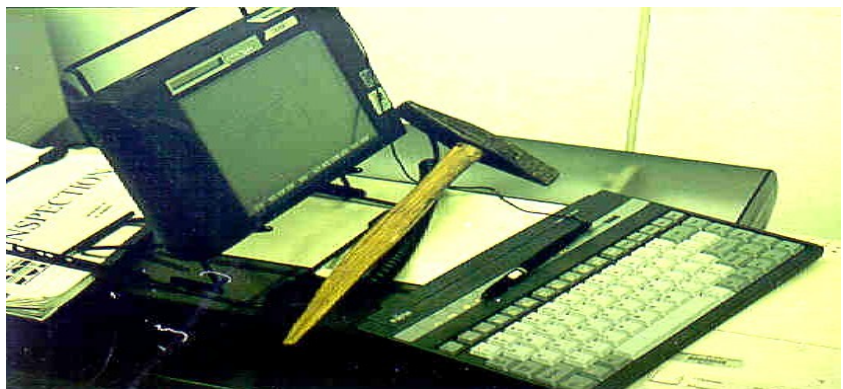
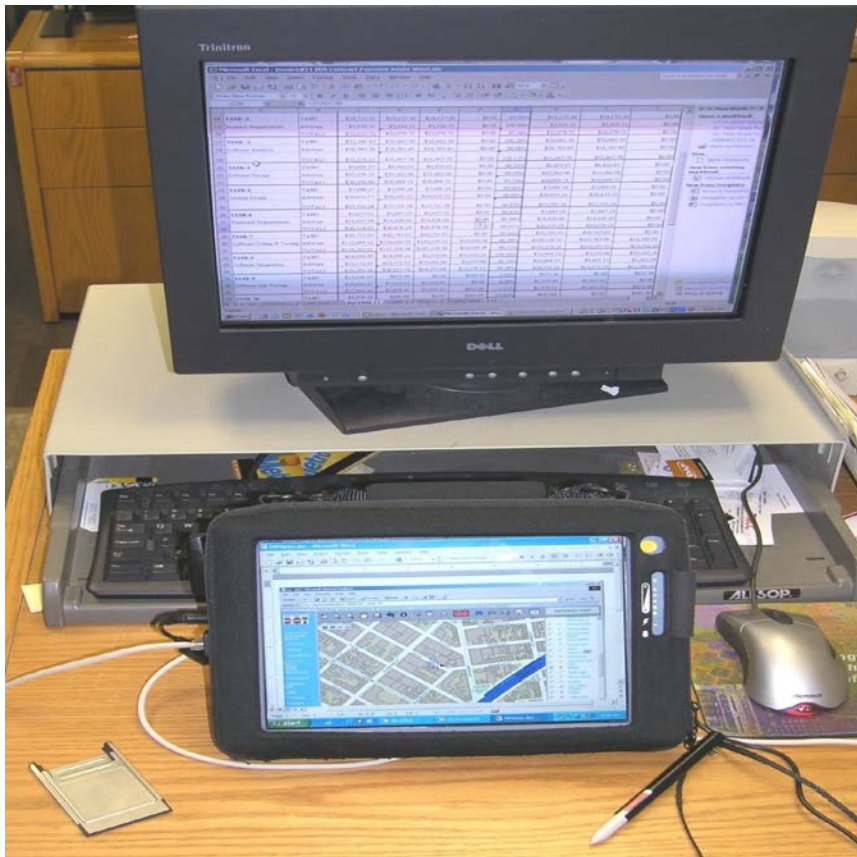
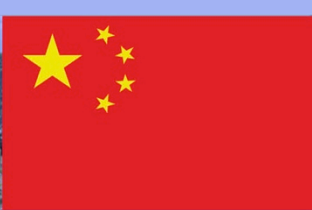


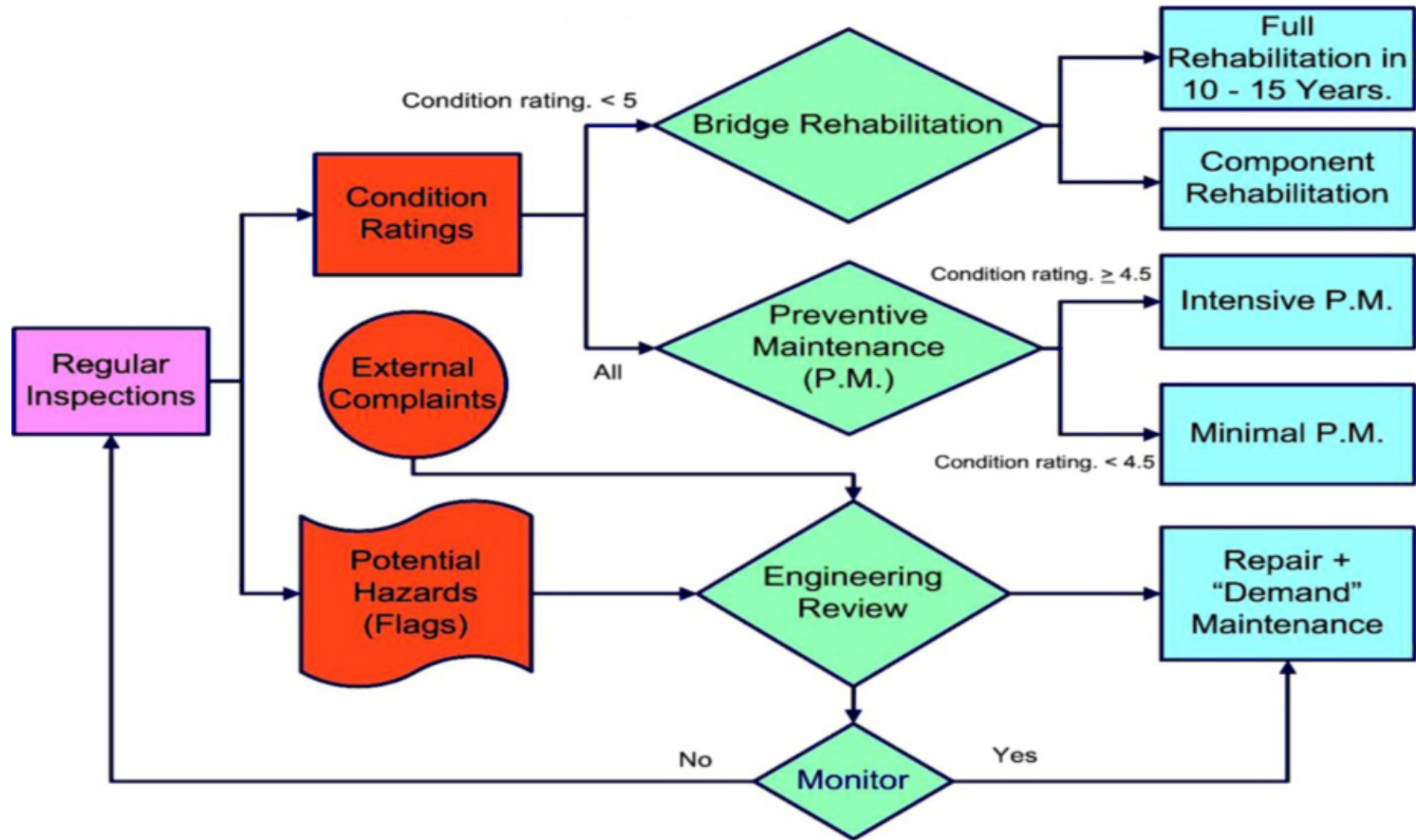
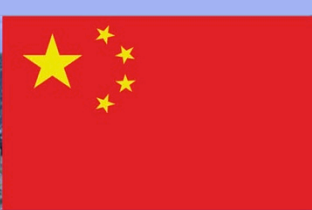
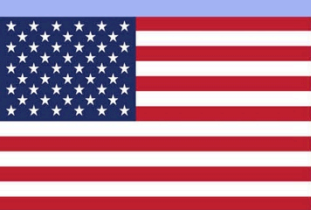
The New York Times



1 day, the Cross Bronx Expressway carries nearly 180,000 vehicles and causes roughly that many headaches.

Hell on Wheels. and Nerves

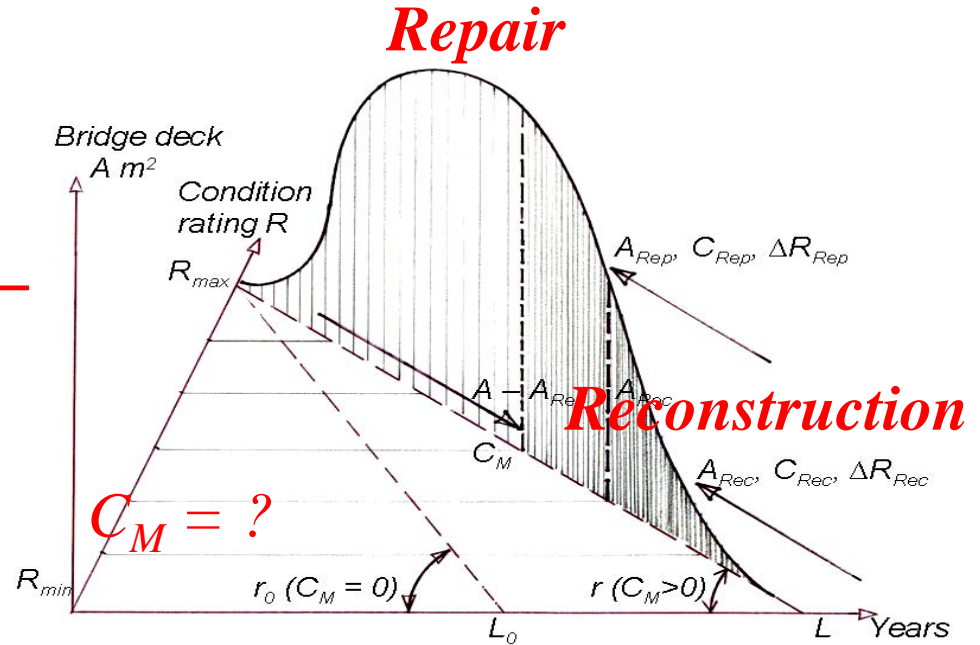






$R_{av} = \text{Constant}$

Maintenance cost
Deterioration rate



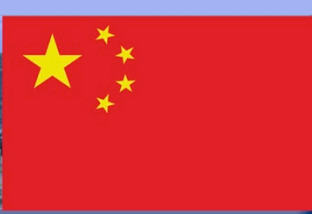
$5/3(\$450\text{ml.}/450) + 2/1 (\$20\text{ml.}/150) = 15 \text{ ml. ft}^2 \text{ ro}$

$\rightarrow \text{ro} = 0.13$



MIO STAFFING

- **Operations** – 100 (Bridge Operators + Electricians)
- **Inspections** – 29 (inspectors and staff)
- **Flags** – 15 (engineers + staff)
- **Maintenance:**
 - Repair – 135 (engineers + skilled trades)
 - Preventive Maintenance – 135 (laborers + operating engineers)
 - ERB-PM – 18 (engineers + skilled trades)
- **TOTAL STAFF: 432**
- **Bridge Painting**
 - In-House – 47 (painters + staff)
 - Contract - 9 (engineers + staff)



BRIDGE MAINTENANCE & REPAIR

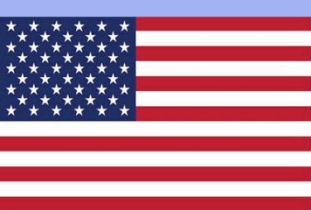
TASK	IMPACT*
Debris Removal	6.1%
Sweeping	5.3%
Clean Abutments & Piers	8.1%
Clean Open Grating	7.0%
Clean Expansion Joints	9.1%
Wash Deck & Splash Zones	5.1%
Paint	4.2%
Spot Paint	3.7%

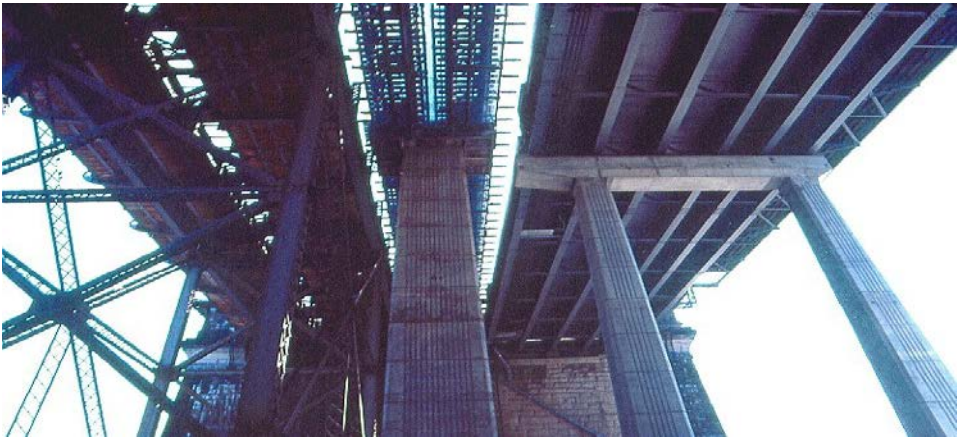
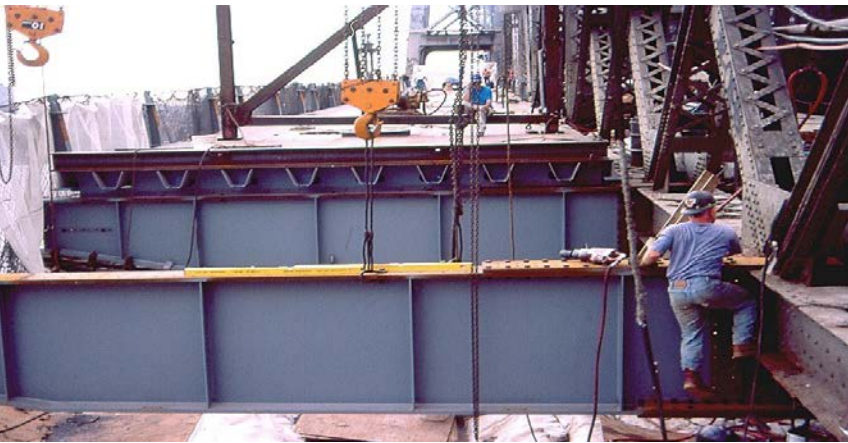
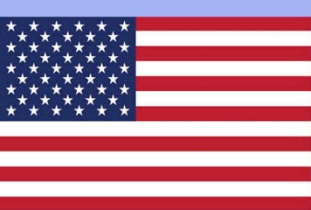
TASK	IMPACT*
Drain Cleaning	10.6%
Sidewalk & Curb Repair	2.5%
Pavement & Crack Sealing	12.2%
Wash Underside	15.9%
Mechanical Device Maintenance	6.7%
Replace Wearing Surface	3.5%

*IMPACT ON BRIDGE RATING

Preventive Maintenance Management System for New York City Bridges - Consortium of Civil Engineering Departments of New York City Colleges and Universities (1999 Update)









**Brooklyn Bridge Maintenance Plan
List of PM Items**

PM Plan				
No.	Description	Frequency	In-House	Contract
1	Debris Removal	Weekly	X	
2	Mechanical Sweeping	Weekly	X	
3	Cleaning of Drainage System	Every 4 months		X
4	Cleaning of Abutment & Pier Tops	Annually		X
5	Cleaning of Modular Expansion Joints	Every 2 weeks		X
6	Cleaning & Washing of Bridge	Annually		X
7	Patching of Sidewalks	Annually	X	
8	Crack Sealing in Pavement & Curblines	Annually	X	
9	Masonry Pointing & Crack Sealing	Annually	X	
10	Repair of Wearing / Microsurfacing Overlays	As needed		X
11	Maintenance of Roadway Bridge Lighting	Every 2 weeks	X	
12	Lubrication of Air & Fire Line Valves	Every 4 months		X
13	Lubrication of Truss Chord Expansion Slides	Monthly		X
14	Cleaning of Wind Tongues	Every 3 months		X
15	Cleaning & Lubrication of eyebars @ Anchorages	Monthly	X	X
16	Painting of Steel (Full Bridge)	Every 12 years		X
17	Spot Painting 1	3 yrs. after 13		X
18	Spot Painting 2 (Painting of Salt Splash Zone)	6 yrs. after 13		X
19	Spot Painting 3	9 yrs. after 13		X
20	Cleaning & Lubrication of Cables @ Anchorages	Annually	X	
21	Lubrication of Solid Rod Suspenders Bearings	Annually	X	
22	Traveler Maintenance	See Maint. Plan	X	
23	Maintenance of Electrical Systems	Monthly	X	
24	Graffiti Protection	Monthly	X	
25	Graffiti Removal	Monthly	X	
26	Winter Plan	As needed	X	



- **Best Management Practices**

- **Notifications: US Coast Guard; NYS DEC; NYPD**

