



***ELEMENTS AND INNOVATIONS FOR A
QUALITY BRIDGE CLEANING PROGRAM***

Frederick M. Grant
MWBPP Conference
November 12, 2013

DBI SERVICES – BACKGROUND

- Founded 1978 – 35 years in business
- Fortune 500 Transportation Infrastructure Services company
- Multiple Business Units
- Over 60 office locations world-wide
- Over 1,500 employees
- Over 2,000 trucks & pieces of equipment



DBI SERVICES

BRIDGE & TUNNEL SERVICES

- 25 years of bridge cleaning/maintenance experience
- Successfully completed bridge cleaning contracts in 15 States and Canada
- Experienced in all types of contracting methods, utilizing wide variety of specifications
- Performing bridge washing alone and in combination with many other bridge maintenance and preservation services



OBSERVATIONS

- Cleaning programs that address only specific parts of bridge don't provide optimal long-term benefits
- Deck cleaning/flushing only- although effective for salts, chlorides, etc., does not really address proper function of bridge components
- Shoulder cleaning only does not address expansion joints packed with debris
- Cleaning only substructure provides short term benefits, but subsequent weather/rain events hasten the transfer of deck debris to substructure

ESSENTIAL ELEMENTS

- Total approach- cleaning of complete bridge structure and associated bridge ROW
- Utilize “dry” cleaning methods
- Ability to greatly vary water pressure & volume
- Clearing of bridge ROW by mechanical and/or chemical methods
- Properly service drainage/storm water systems
- Address flow blockage/scour issues

RECOMMENDATION: THE TOTAL APPROACH

- **Deck/Superstructure Washing**
 - Crucial part of cleaning sequence due to winter sand/salt road treatments
- **Deck Sweeping**
 - “Dry” clean the deck before pressure washing
 - Most efficient method of for removing heavy amounts of debris
- **Expansion Joint Cleaning**
 - Ensures proper functions of expansion and finger joints
 - Ease of expansion joint system inspection



RECOMMENDATION: THE TOTAL APPROACH

Drain Cleaning

- All drains and catch basins cleaned while working on deck and superstructure
 - Clean out drain pans to open blocked drains
 - Inspect conditions of total drainage system
 - Use Vactor-type truck for complex drainage systems

RECOMMENDATION: THE TOTAL APPROACH

Vegetation and Brush Clearing

- Clear, cut and remove all vegetation in contact with bridge structure through mechanical and/or chemical methods
 - Mechanical methods initially eliminate heavy vegetation
 - Chemical (herbicide) methods ensure long-term brush control and minimal re-growth
 - Diminishes the damaging effect on wing walls, slope walls, piers, etc.
 - Provides for safe work environment for maintenance, repairs and inspection

RECOMMENDATION: THE TOTAL APPROACH

Substructure Cleaning

- Complete all deck cleaning prior to cleaning substructure
- Wet down larger deposits of debris, and manually clean before washing under pressure
- Must use bucket-truck or snooper inspection crane for efficient and thorough substructure cleaning

RECOMMENDATION: THE TOTAL APPROACH

Flow Blockage/Scour Issues

- Clear any/all items stuck or wedged against piers or abutment walls
- Additional rip-rap rocks should be added if scour issues are noted
- “Clam” truck can be used to remove debris or add material as needed in hard to access areas

ESSENTIAL EQUIPMENT

- Street sweeper/mechanized debris removal
- Specialized access equipment- “Snooper” under bridge access crane, purpose-built bucket trucks
- Vector trucks, video inspection equipment
- Variable rate/flow pressure washers
- “Clam” type crane/dump trucks

INNOVATIVE ADD - ONS

- Herbicide use for longer term control of vegetation
- GPS real-time tracking systems
- GPS real-time video recording systems
- Video inspection for drainage systems
- GPR or other technologies for deck condition inspection/evaluation
- Bundling of additional services to take full advantage of maintenance/preservation items that can be performed in conjunction with washing



ADDITIONAL SERVICES

- Expansion joint repair or replacement
- Spall repair/concrete patching
- Bearing lubrication
- Graffiti removal and anti-graffiti coatings
- Protective/rehabilitative treatments or coatings
- Scour maintenance & rip-rap repair
- Pest deterrent measures
- Inspection work





porta



























1244

Bi
DeAngelo Brothers
888-300-3988
HAZZLETON, PA
US800 473708

H.P. FAIRFIELD
INC.
CONCRETE





D
Bi
DeAngelo Brothers
INCORPORATED
888-300-3988
HAZLETON, PA
USDOT 473708

STEWART-JACO

STARFIRE



ELGIN Whirlwind

2000 Technology

D
Bi
DeAngelo Brothers
INCORPORATED
888-300-3988
HAZLETON, PA

USDOT 473708

ELGIN

2013



IN CLOSING.....

- These are *suggested* additions or changes to existing bridge preservation programs
- We will be around until the end of conference and open for further discussion
- Questions??

- THANK YOU VERY MUCH FOR YOUR TIME!!