Installation of Wayside Lubrication on Existing Embedded Track – The METRO Experience

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Overview

- Introduction
  - Reasons for lubrication
  - Options Investigated
- Installation Process
  - Assembling the Team
  - Survey of Site
  - Planning
  - Excavation
  - Installation
  - Testing
- Conclusion

Issues Resulting in the Need for Rail Lubrication

- Noise abatement
- Extended Rail Life
- Extended Wheel Life
- Reduced risk of flange climb derailments
- Improved rail gauge retention

Options Investigated

- Do Nothing
  - Complaints from passengers and businesses
  - Track life is reduced
  - Wheel life is reduced
  - No upfront cost
  - High long term maintenance, litigation, and reputation cost

Options Investigated

- Use Water
  - Noise level is reduced
  - Track life is somewhat extended
  - Wheel life is somewhat extended
  - High upfront cost
  - High long term maintenance cost

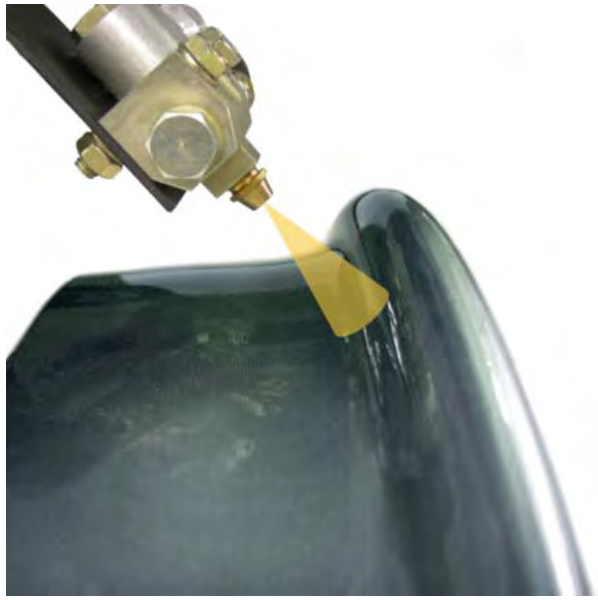
Options Investigated

- Lubricate by Hand
  - Track life is extended
  - Wheel life is extended
  - Rely on humans to apply product
  - Frequency of application is not consistent
  - Waste of lubricant due to no control of application
  - Low upfront cost
  - High long term cost, mostly in labor

Options Investigated

- **Automate LRV and Hi Rail vehicle with onboard lubrication system**
  - **Track life is extended**
  - **Wheel life is extended**
  - **All LRV's need to be equipped**
  - **System should only lubricate when maneuvering curves**

    Rely on mechanical department to adjust applicators and refill reservoir
  - **High upfront system cost**
  - **Lower long term cost**



Options Investigated

- Automate with Wayside Lubrication System
  - Track life is greatly extended
  - Wheel life is greatly extended
  - Estimated reduction in labor costs of 75% over manual lubrication
  - High upfront cost
  - Low long term cost
  - This project is in highly urbanized area --- units must be inconspicuous and blend into surroundings
  - Track is embedded ----can this be done?

The Decision

- **Automate with Wayside Lubrication System**

Installation Process

- **How do we install a Wayside Lubrication System on Existing Embedded Track?**

The Team

METRO

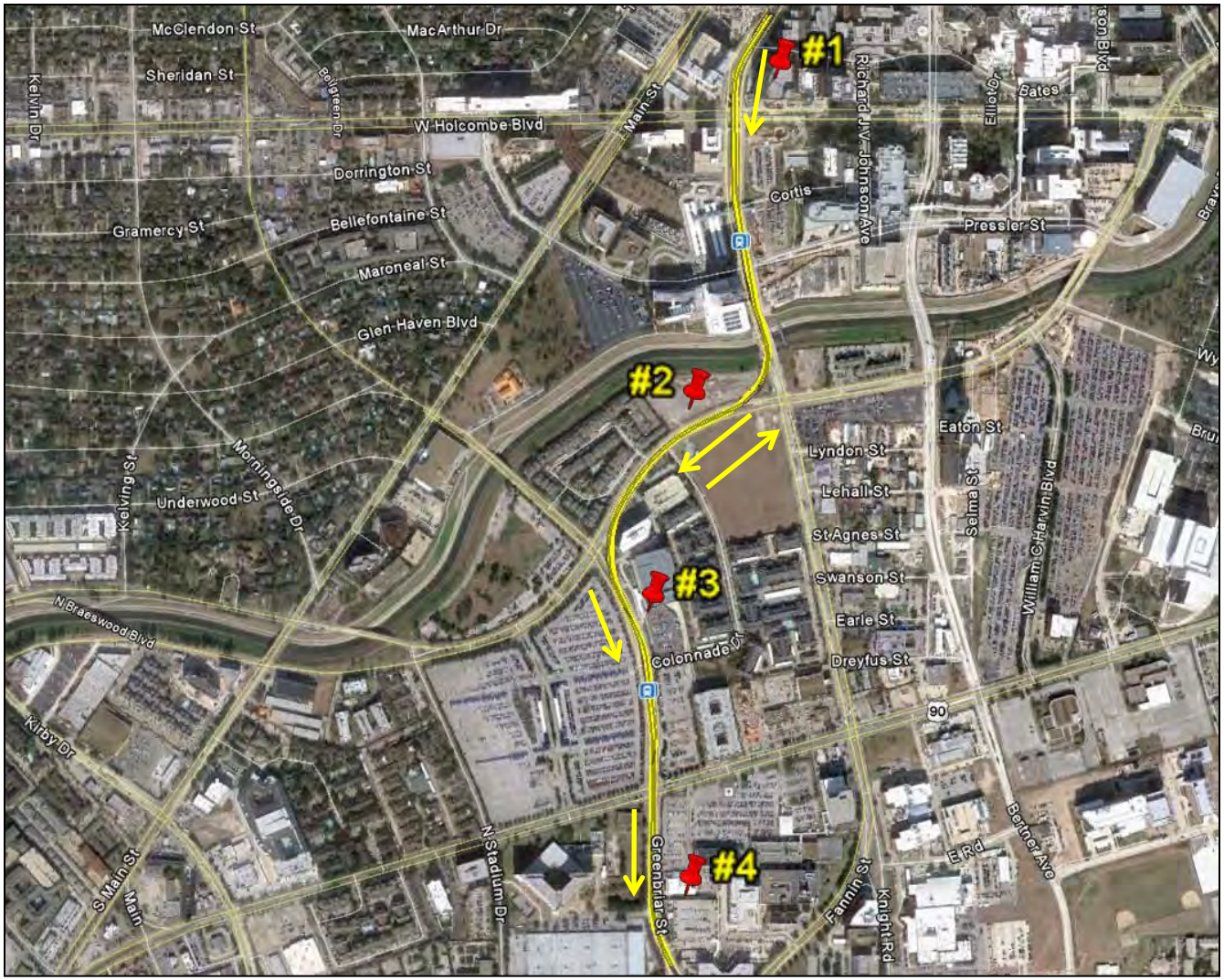
Lincoln Industrial / Bill Spitzer and Associates

Arup

Track Survey to Locate Lubricators

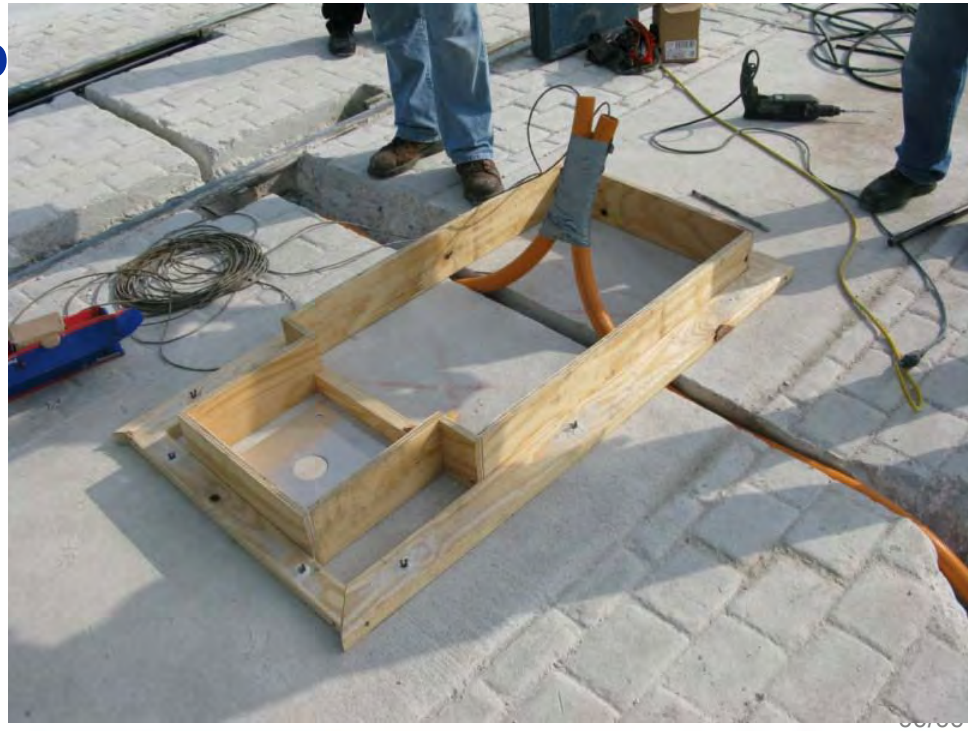
- Choosing the spots
  - Room for reservoir and easily accessible
  - Uninterrupted access to sunlight
  - Stay away from walkways and crossings
  - Bars to be installed on tangent track between curves
  - Located to supply lubricant to closely spaced consecutive curves

Track Survey to Locate Lubricators

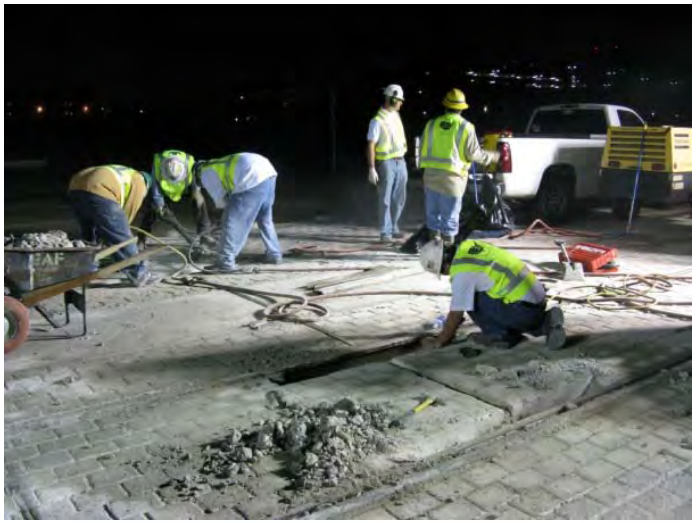


Planning the Excavation

- Contractor coordination
- Mounting of components on insulated rail
  - Use of Iso-Flex
- Component dimensio
- Hose routing
- Electrical routing



Performing the Excavation



Performing the Excavation

Installing the Gauge Face Wiper Bars

Installing the Gauge Face Wiper Bars

Installing the Wheel Sensor

Installing the Reservoirs

Installing the Solar Panels

Testing the System

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Project Review

- Current status
- What we learned
  - Additional consideration for maintenance in future by using ground boxes


Questions?
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Ahí Vamos
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