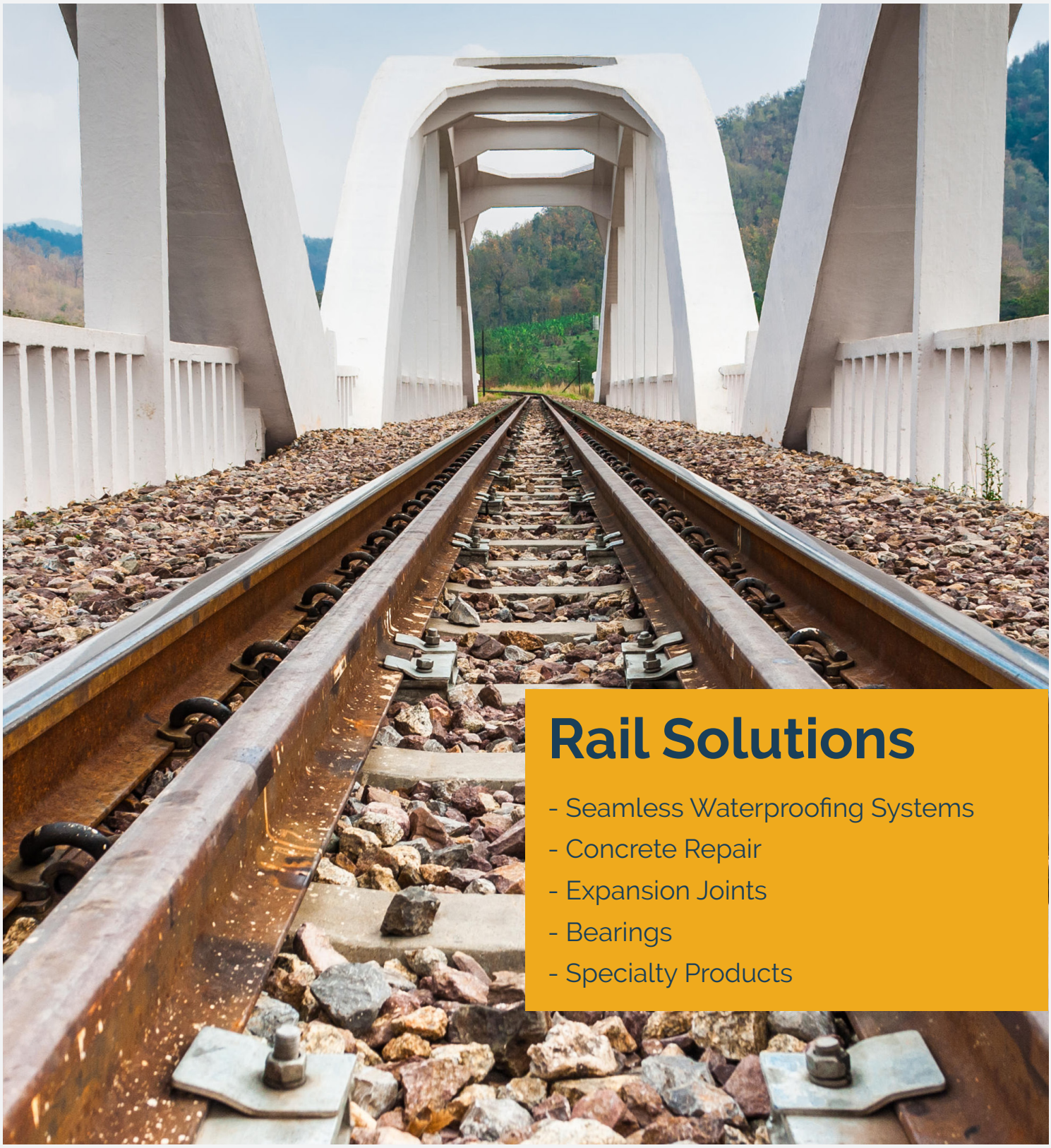
FPT INFRASTRUCTURE™



Rail Solutions

- Seamless Waterproofing Systems
- Concrete Repair
- Expansion Joints
- Bearings
- Specialty Products

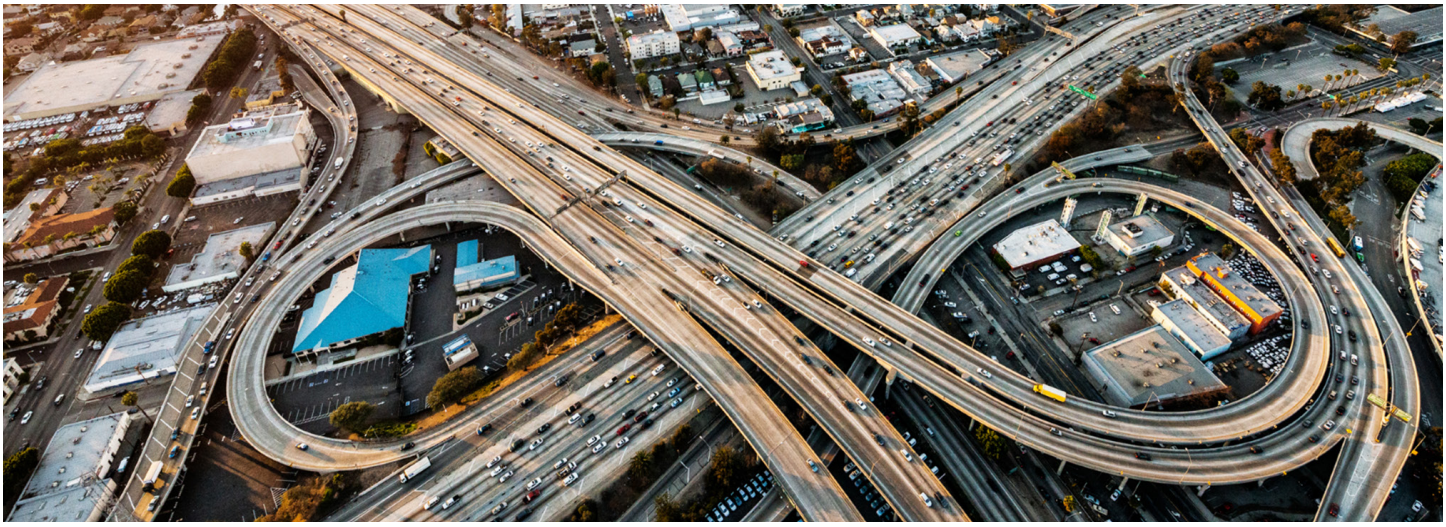
WWW.FPTINFRASTRUCTURE.COM

ABOUT US
FPT INFRASTRUCTURE

FPT Infrastructure manufactures and markets a portfolio of integrated solutions engineered to expertly restore existing structures and maximize the life of new construction. Serving bridge and highway, rail, aviation, transit, water and power segments, FPT Infrastructure supports, fills, coats, reinforces, seals, and protects the vital infrastructure that moves and connects us.

Integration is key. Our solutions are designed to work together for efficient application and seamless system performance. Our products are used in every climate and temperature zone in North America and perform under the most extreme conditions — from blistering heat in Laredo, Texas, to winter in Thunder Bay, Ontario, and everything in between.

FPT Infrastructure partners with infrastructure owners and civil engineering experts across North America to design new materials and systems to meet their unique needs. With hundreds of global installations, our professionals possess material expertise and application experience that delivers value and performance on every project.



Continuity of operations is vital for rail systems, whether moving passengers or freight. With this mission in mind, FPT Infrastructure offers solutions that promote safety, durability and speed of installation for a host of rail applications including:

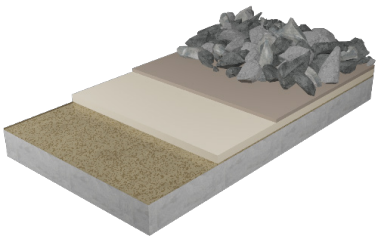
- Track bed, platform, structure, and wear surface waterproofing
- Structural concrete repair and patching mortars
- Mechanical and foam expansion joint fillers and joint header materials
- Load transferring bridge bearings
- Specialty products including ballast mats, ballast stabilization and sealant materials

APPLICATION WATERPROOFING

Waterproofing systems protect rail superstructures and substructures from water ingress and destructive chemicals, contain and protect rail ballast, and provide a durable wear surface on pedestrian and traffickable ramps, walkways and platforms.

Featured system: Matacryl RB provides seamless waterproofing and extreme impact resistance under rail ballast. Based on polyurethane methyl methacrylate (PUMA), the membrane in the Matacryl RB System exceeds the performance of traditional MMA membranes as well as epoxy and polyurea systems and is AREMA tested and certified.

AREMA
AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION



Key advantages:

- Available in spray-applied and manual application grades to meet job site and environmental requirements
- Exceptional crack-bridging ability of the system protects the substrate from extreme weather, damage from freeze-thaw cycles, and corrosive contaminants
- May be applied at temperatures that are well below freezing (-4˚ F/-20˚ C), extending construction season
- Rapid set time promotes fast installation, lower labor costs and efficient handover to next construction phase

Additional systems:

- Matacryl PS: PUMA-based waterproofing system under backfill or exposed substructure surfaces
- Matacryl WS: PUMA-based waterproofing system with pedestrian or vehicular grade aggregate surface for

Black Creek Bridge

Owner: Metrolinx

Location: Toronto, Ontario Canada

Area: 6,458 ft² (600 m²)

Solution: UP Express provides service between Union Station and Pearson Airport (Toronto), utilizing bridges over several streets including Black Creek Drive. Matacryl RB protects the track bed and concrete bridge structure, as well as the four lane highway running below the bridge. Matarcyl RB's extreme impact resistance allows ballast to be placed directly on the waterproofing system without requiring protection board or mats.

APPLICATION
CONCRETE REPAIR

FPT Infrastructure offers a variety of concrete repair solutions with Matacrete™ patch and repair products. Type of repair, application conditions and structure use determine which product is best for your project.

Featured system: Matacrete Ready Rep is a methyl methacrylate polymer concrete patch, repair and re-profiling mortar. Fast setting and non-sensitive to extreme hot or cold ambient temperatures, Ready Rep can be used for surface restoration, spall repair, and anchoring or setting of steel components.

Key advantages:

- Cures in one hour or less for fast return to service; requires no curing compounds or complicated methods of other fast set, cementitious products
- Installs in extreme temperatures, even below freezing
- Bonds to Matacryl waterproofing systems for seamless integration of repairs & full deck structure restoration
- Compressive strength >14,000 psi

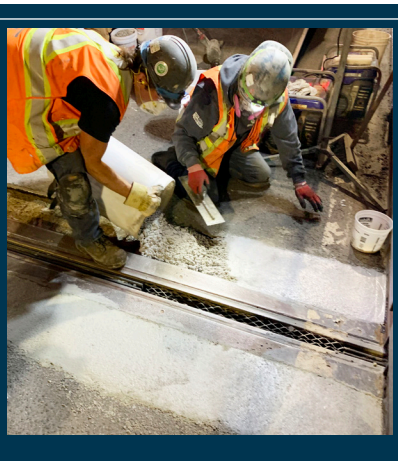
Matacrete Product	Chemistry	Repair Type	Placement	Thickness	Application Temperature	Cure Time	Compressive Strength (28 day)
Ready Rep / Ready Rep LT	Methyl methacrylate	Horizontal	Hand-applied	Up to 1" or full depth extended	> 32°F / 0°C LT =>-4°F / 20°C	30-40 min	14,000 psi
Rapid Set	Fiber-reinforced, cementitious	Horizontal	Hand-applied	Up to 6" extended	> 35°F / 2°C	20-40 min	10,500 psi
HB Mortar	Fiber-reinforced, cementitious	Vertical / Overhead	Trowel-applied	Up to 4" or 6" extended	> 45°F / 7°C	35 min	6,000 psi
PM Mortar	Polymer-modified, cementitious	Horizontal	Hand-applied	Featheredge to 1" depth	> 40°F / 4°C	1-2 hours	3,500 psi
HP Concrete	Microsilica-modified, cementitious	Horizontal & Vertical / Overhead	Pour or pump	Up to 6" or full-depth extended	> 45°F / 7°C	4 hours	8,800 psi
Sprayable Concrete	Fiber-reinforced, NSF approved	Vertical / Overhead	Spray or trowel-applied	Up to 2" depth	> 40°F / 4°C	2 hours	8,500 psi

Quebec Bridge

Owner: Province of Quebec

Location: Quebec City, Quebec Canada

Solution: The Department of Roads chose Matacrete Ready Rep for the repair of expansion joint headers on the Quebec Bridge. With daily traffic volume over 90,000 vehicles, Ready Rep's rapid cure time and ultra-high compressive strength met the strict requirements of the repair.



APPLICATION
EXPANSION JOINTS

FPT Infrastructure provides safe, efficient and economical expansion joint systems for rail bridges and platforms that are subject to movement. Our expansion joint systems meet joint movement requirement capabilities up to 78.7 inches with mechanical, armored and armorless material options.

Featured system:

The Mataspan T-Mat expansion joint is a solid, armored expansion mat made of chloroprene with metal reinforcements (T-bars). It is designed to accept direct placement of ballast without the need for protection mats or boards.

Key advantages:

- Design allows for horizontal movement on either side of the joint and transverse and vertical relative movements of adjacent bridge deck
- High vertical movement capability — +/- 2.8 inches — without losing functional properties
- Extremely durable and water tight

Additional Systems

- Mataspan LJ Open Type Joint – designed for railway bridges with movement greater than 10 ¼ inches (260 mm)
- Mataspan OC 2000 Pre-Compressed Foam Expansion Joint – serves as a primary, watertight, armorless expansion joint seal in structures with shear and rapid movement (+/-50%)
- Mataspan CC 4000 Closed Cell Foam Expansion Joint – provides a watertight, dust-proof, noise reducing and UV stable primary seal that does not require invasive anchoring (+/-25%)
- Texacrete – elastomeric concrete header fill material on either side of expansion joints

Crum Creek Viaduct

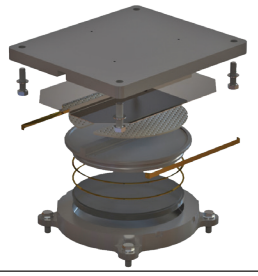
Owner: Southeast Pennsylvania Transit Authority-SEPTA

Location: Philadelphia, Pennsylvania US

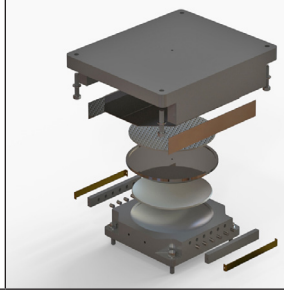
Solution: Crum Creek Viaduct carries the Media-Elwin commuter rail line. When the viaduct was reconstructed in 2015, Figg Engineering specified Mataspan T-Mat 260 expansion joints for the five-span, four pier, two abutment bridge. The expansion joints were installed on west and east abutments after the sustructure foundation work was completed. The viaduct spans 915 feet and stands 90 feet tall.

FPT Infrastructure offers a range of bridge bearing types that meet the demanding environments of rail bridges. All bearings are designed to transfer load movement in a range of horizontal, vertical and rotational capacities to meet bridge size and purpose. FPT Infrastructure can work with your engineering team to select the appropriate bearings by project.

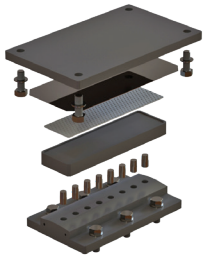
KE Fixed & Sliding Bearings



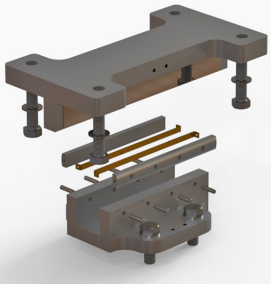
GE Spherical Bearings



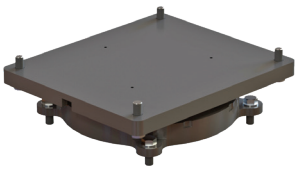
D Series Rocker Bearings



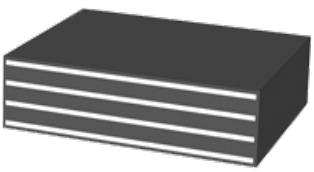
F Series Fixed & Guided Bearings



KA Series Fixed, Guided and Free Design Bearings



Elastomeric Bearings



APPLICATION SPECIALTY PRODUCTS

Rail projects inherently involve specialized applications and unique conditions. FPT Infrastructure can augment major construction, maintenance and repair projects with an extensive portfolio of general use adhesives, sealants, and stabilizers.

- **Matacryl™ Adhesive** — PUMA-based adhesive for gluing ballast mats to Matacryl RB systems
- **Mataspan™ 800/900 SL** — single component, moisture-cure silicone sealant for joint-sealing rail applications
- **Mataguard™ Ballast Mat** — a proprietary isolation technology consisting of a reinforced, rebonded rubber that provides vibration reduction and prevents early ballast degradation
- **Mataguard™ Stabilization** — injectable polyurethane foam system used to stabilize and prevent the degradation of rail ballast
- **Mataguard™ Spike Fill** — injectable polyurethane foam system injected in rail spike holes to preserve timber rail ties

For more information about these specialty products, or any other system presented in this catalog, please contact your FPT Infrastructure regional business manager.

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