

BOSTON I-93 HOV LANE

Moving People. Safer. Faster. Smarter . . . Better



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A 10-YEAR "TEMPORARY" SOLUTION FOR CONGESTION MANAGEMENT TURNS 20

The city of Boston is no stranger to heavy traffic on highways and arterials. On the I-93 Southeast Expressway, congestion mitigation started in the 1970's with two failed attempts to convert general purpose lanes into "carpool" lanes. Both systems were quickly rejected for reasons of safety and political pressure. During construction in the 1980's, barrier-separated cattle shoots were implemented to mitigate traffic, and after the project was completed these lanes were converted into continuous access HOV lanes for buses, vanpools and general purpose carpools. By the early 1990's, MassDOT had completed feasibility studies for implementing a "short term" HOV lane solution that was designed to be in place for 10 years or less until the completion of new construction to widen the freeway, which had an estimated cost of \$300 million to \$1.2 billion. By this time, the Southeast Expressway was carrying 190,000 vehicles per day.

The decision was made to create contraflow lanes using a moveable barrier system called the Road Zipper on both the northbound and southbound directions of I-93 from Quincy to Savin Hill, a distance of six miles. The safety of positive barrier separation between opposing traffic lanes eliminated the possibility of head-on collisions,

and this benefit was a major reason MassDOT selected the Road Zipper as the best alternative for implementation. Entrance and exit access to the HOV lanes was limited to the terminal ends of the system, and because the existing space was not wide enough to include a breakdown lane, incident management areas were created throughout the system where vehicles could pull over and where tow trucks were staged and ready for deployment at all times during operating hours.

Today, the I-93 managed lanes facility is still in operation, 20 years after implementation and 10 years after it was assumed that the system would no longer be of benefit to the community. The two original Barrier Transfer Machines will be replaced in July, 2015. Their 20 years of service has been made possible by the meticulous maintenance and care of the MassDOT HOV operations crew. The HOV lanes are open every weekday, and up to 8,200 vehicles per day use the AM and PM lanes. Rather than proceed with spending hundreds of millions or even billions of dollars on a freeway widening project, MassDOT has decided to reinvest in the Road Zipper system, which provides the safety and congestion mitigation required to keep traffic protected and free flowing.

INTERSTATE 93

BOSTON, MA

In operation since 1995

QUICK FACTS:

- Up to 8,200 vehicles per day
- 6 miles in length
- Incident management areas throughout the system
- Designed to last up to 10 years, now operational for 20 years

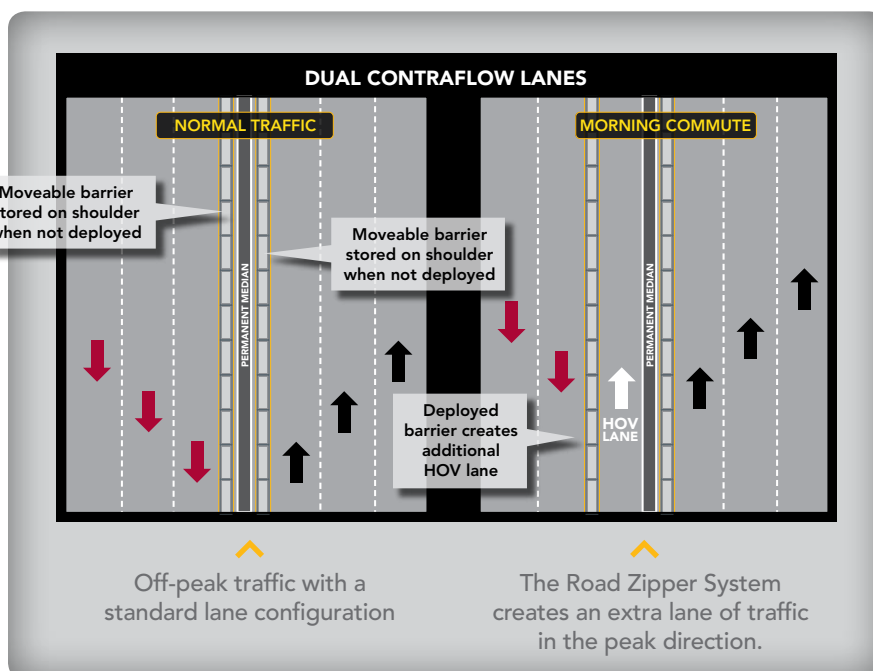
OPERATING SCHEDULE:

- AM Peak: 5:00 am to 10:00 am
- PM Peak: 3:00 pm to 8:00 pm

"OPERATIONAL SAFETY WAS ONE OF THE GREATEST CONCERNS EXPRESSED WHEN THE PROJECT WAS PROPOSED. TWO DECADES LATER, WE HAVE A PROVEN TRACK RECORD OF JUST HOW SAFE THIS TECHNOLOGY IS IN MOVING BUS AND RIDESHARE COMMUTERS EFFICIENTLY AND RELIABLY. "

**CHUCK FUHS
I-93 HOV CONSULTANT
PARSONS BRINCKERHOFF**

Sometimes vehicles aren't the only ones in the HOV lanes. Robbie Bowden, an 18-year veteran of MassDOT, has rescued dogs, cats, and ducks from between the barrier walls, but in 2012 he and the crew found a deer trapped in the HOV lane. They brought the frightened animal into the machine, finished the transfer, and released the deer unharmed to animal authorities.



* Traffic counts and historical data provided by MassDOT

IT'S ALL ABOUT THE MAINTENANCE

THE MASSDOT HOV OPERATIONS TEAM HAS PERFORMED 20 YEARS OF METICULOUS MAINTENANCE ON THE BARRIER TRANSFER MACHINES, KEEPING THEM RUNNING TWICE AS LONG AS THE ORIGINAL PLAN.



BUS RAPID TRANSIT IN BOSTON

HEAVY BUS USE OF THE I-93 HOV LANES KEEPS SCHEDULES TIGHT SO THAT PASSENGERS ARRIVE TO DESTINATIONS ON TIME. THE 2+ HOV LANE IS OPEN TO MOTORCYCLES, CARPOOLS, VANS AND BUSES. TRAVELERS CAN SAVE UP TO 15 MINUTES IN THE AM AND 10 MINUTES IN THE PM.



HOW IT WORKS



1. One-meter sections of highly reinforced concrete barriers are pinned together at each end to form a continuous barrier wall. The barriers have a "T" top, which acts as a lifting surface for The Road Zipper Machine.




2. The machine lifts (not drags) the barrier and passes it through a conveyor system. Unique, patented variable length barriers allow for lane curvature and expansion joints.



3. In one pass, the barrier can be transferred up to 24 ft (7.3 m) and gently set down without damaging the road, at speeds up to 10 mph (15 km/h).

SERVING CUSTOMERS AROUND THE WORLD



Lindsay Transportation Solutions is the world's leading manufacturer of moveable barrier technology for both managed lanes and construction applications. Lindsay Transportation Solutions also offers a full line of road safety products, including the Universal TAU-II®, ABSORB 350®, and X-TENUator® Crash Cushions, ArmorGuard™ Safety Barriers and Gate systems, Safe-T-Curve™, X-Tension™, X-LITE® and X-MAS® End Terminal Systems, U-MAD TMAs and various safety accessories and specialty barrier products.



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