

# 3500S ARTERIAL RECONSTRUCTION SALT LAKE CITY, UT

MOVEABLE BARRIER FOR CONSTRUCTION  
URBAN ARTERIAL APPLICATION



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### CONSTRUCTION ON A BUSY ARTERIAL BENEFITS FROM MOVEABLE BARRIER

In Utah, construction has recently been completed on 3500 South in Salt Lake City, which was completely reconstructed by UDOT Region 2 from the Bangerter Highway to 2700 West. The construction added two center lanes that are now the first dedicated Bus Rapid Transit lanes in Utah.

With a significant ADT that runs between 38,000 and 48,000 vehicles throughout the corridor, keeping traffic moving was the most important and the most difficult task during construction. The first phase of the project called for 2 lanes to be open for traffic in each direction, and plastic barrels were used to separate directional traffic and to delineate the work zone. The work zone area was confined and restricted, and it lacked positive protection, which created dangerous conditions as confused motorists occasionally turned into the work zone. In addition, accidents occurred when drivers made left turns into businesses through the barrels, which contributed to congestion. For the second phase of the project, it was decided that a moveable barrier system would be used to create a larger work zone, while minimizing the impact on traffic and limiting left-hand turns.

It was determined that moveable barrier could keep two lanes open for peak traffic by using a total of only three lanes, instead of the four lanes required when using barrels. This would give the contractor an extra lane to expand the work zone, keeping workers safe and accelerating construction. 1.7 miles (2.7 km) of moveable barrier was deployed as a positive barrier separation between east and westbound traffic, and the barrier was moved multiple times each day to create a 1/2, 2/1 traffic pattern based on

peak traffic needs. The barrier was transferred 12 feet (3.7 meters) in one pass at 5 mph (8 km/h). The entire transfer took approximately 20 minutes, including repositioning the traffic control and signage.

The expanded work zone resulted in the elimination of one complete phase of construction, reducing the total number of phases from three to two. This accelerated the construction schedule and helped the contractor finish the project seven months early. In a report commissioned by UDOT and compiled by T.Y. Lin International, the user delay savings from the early completion were estimated at US\$1.3 to \$1.4 million (vehicle operating costs were not included). The report conservatively estimated the total benefits of using moveable barrier on the project between US\$1.7 to \$2.4 million, with a benefit/cost of 4:1. The authors also stated that if all benefits were considered, the benefit/cost for moveable barrier would be greater than 10:1.

The barrier also limited left hand turns except at five major intersections, which reduced accidents and helped keep traffic running smoothly. The report estimates a reduction in crash costs of \$1,000,000. The T.Y. Lin report stated: "Moveable barrier provides the ability to separate more of the highway corridor for use by the contractor which aids in completing the work more quickly... moveable barrier is definitely beneficial in high volume corridors where the morning and evening traffic split vary significantly. This traffic control strategy should be considered for use to manage congestion and improve safety on future projects."

