Testimonials and Success Stories

Following the recommendation of the FHWA Office of Operations to the FHWA Massachusetts Division, the **Boston Region MPO** staff responded in turn to undertake a study of candidate local congestion hot spots and "agreed with FHWA that if there are opportunities to implement low-cost (congestion) mitigation countermeasures . . . those countermeasures should be identified, studied, implemented and designed." In June of 2011 (initial study findings of six candidate locations) and March of 2012 (follow-up report that focuses on the two most cost efficient locations) the Boston Region Metropolitan Planning Organization moved towards implementation. The MPO quoted the LBR program tenets and clearly acted on endorsement of FHWA precepts and guidance in this area.

"Rhode Island acknowledges the Localized Bottleneck Reduction program for contributing the nexus for the congestion relief elements of our STARS program." . . . In 2011, Rhode Island inaugurated their "Strategically Targeted Affordable Roadway Solutions" (STARS) program to identify safety and congestion-related problem areas using the "4E" approach (emergency, enforcement, education and engineering). If this program looks similar to VA's STARS programs, that's because it's modeled from a 2009 scan tour that RI took to Virginia. The genesis for said tour itself came from a 2008 LBR workshop at which VA presented, and RI attended. The congestion-targeted elements of the RI plan, and the decision-tree solution to identifying candidate locations for localized congestion, stem from the early LBR workshops.

"Thank you for coming to **Indiana** to participate in the Indiana Localized Bottleneck Summit. The summit did exactly what we had hoped and it spurred INDOT to start development of a BN program. It is in the very beginning stages at this time. INDOT is transitioning to a new funding system that is asset management-based with multiple funding teams. There will now be a Congestion Asset Team and it is anticipated that the BN program will be an integral part of that effort. It is expected that BN countermeasures will have a very good benefit-cost ratio and compete well in the funding decision matrix that is part of the new funding system. Still under consideration is how best to identify the spot locations, but you have provided ample good guide books on how to consider this. Brad Steckler, who attended the Summit, has become the INDOT champion for the program." – FHWA-IN staff

"Much of **Michigan** DOT's efforts in moving toward the development of a structured program have been the result of the LBR workshop which you conducted last year." -- FHWA-MI staff

In 2010 **New York** DOT Planning Region 11 (NY City) proposed a Localized Bottleneck Reduction program (LBR). The program was an off-and-on idea for a couple of years but was cemented following HQ's visit almost one year ago. Thanks! -- FHWA-NY staff

Pennsylvania

"Neil – a motorist's testimonial! . . a bottleneck improvement pays off! We don't get these much!" -- Daniel Cessna, PennDOT

Use of Shoulder Allows for Lengthened Merge

The traditional approach to widening northbound I-279 merging into I-79 north of Pittsburgh would have called for expensive environmental and noise studies, plus expensive earthwork and out-year construction. Two-lane northbound I-279 merges into one lane prior to that lane continuing as the third lane on I-79. The traffic volume and the friction from merging were causing a routine bottleneck. Rather than pursue a time-consuming and expensive facility redesign, PennDOT chose to convert the existing right shoulder on I-79 to a 2200-foot fourth freeway lane, allowing for I-279's two lanes to flow into I-79 unencumbered. The now-four lane I-79 is merged back to three lanes further downstream, at a point where I-79 goes from a cut section to a fill section. The solution is low-impact and low cost. The work entails milling and resurfacing of the former shoulder, plus restriping. The estimated cost is \$550,000. By constructing a new 12-foot shoulder, a design exception is not required. The project is expected to be fully completed in 2009, years ahead of what normally would have been a multi-year analysis, redesign, and reconstruction of much of the interchange.

Update (**December 2009**): This project is now open and solicited this unedited testimonial to PennDOT from a citizen:

To: Mr. Rich Yakapkovic, PennDOT

Subject: Re: Intestate 279 merge point with Interstate 79

Dear Mr. Yakapkovic,

You had replied to me earlier this year concerning the Interstate 279 improvement project for the northbound merge with Interstate 79 northbound. This project has almost entirely eliminated the constant traffic back-ups at this point. You and your team must be very proud that your design has been validated by the results.

Thank you very much.

Mr. David Conte

Pittsburgh, PA

San Francisco

"Thus, a perennial member (4th worst in 2008) of the nation's top 10 worst segments was dramatically improved (now 491st in 2009) with some new paint."

In the San Francisco Bay area, restriping in early May 2009 expanded the ramp between I-580 WB and US 101 NB in Marin County from one to two lanes in a work zone. As a result, an upstream segment of I-580 WB that approached and included Bellam Boulevard saw significantly less congestion, enough to drop from 4th nationwide in 2008 to 491st. Thus, a perennial member of the nation's top 10 worst segments was dramatically improved with some new paint.

Georgia

Ramp metering program provides one response to the Governor's 2006 "Fast Forward" initiative to alleviate congestion.

Bottleneck Projects: A public information campaign exists to inform and educate the public about the purpose, function, and justification for ramp metering. Ultimately, as many as 120 Atlanta area interchanges will receive this treatment by April 2009. In 2005, ramp meters were installed on Freedom Parkway and North Avenue. Along with ramp meters installed as early as 1996, the system has produced a noticeable improvement to the traffic flow on I-75/85. Ramp meters were recently installed in the SR400 corridor between Exits 5 and 10. Pursuant to the ongoing initiative, more will be installed elsewhere in the region in short order.

The first corridor expected to be operational is I-285 on the north side of Atlanta. GDOT intends to have 166 meters operating by summer of 2009.

Minnesota

Background: The success of these three projects lead to the implementation of the "Congestion Management Planning Study", an iterative process that has already sorted through 180, then 100, then 50, then finally 19 candidate projects via a screening process.

Bottleneck Projects:

A long-suffering need for an auxiliary lane was finally executed. Look what happened! I-394 WB from east of MN-100 to US-169 suffered from weaving and merging conflicts. Recent changes due to the installation of HOT lanes on I-394 made it imperative that the addition of an auxiliary lane be constructed. The project is since complete. An estimated 8:1 B/C ratio ensued; an increase in throughput by 4,600 veh's during peak periods daily was realized; and a decrease from 6.0 miles of congestion before, to 0.0 miles after was garnered. Also, a reduction in crash rates favors less property damage crashes too.

A 6-4-6 lane section of highway was made a continuous 6-lane section. I-94 in St. Paul, WB from Century Avenue and McKnight Road (near 3M HQ) was plagued by congestion for years due to its 4-lane section having 6-lanes up- and downstream. The 6-4-6 alignment was constricting entry and exit movements therein. Following \$10.5M of construction for the missing 2-lanes, the now-6 lane continuous section experienced a 14:1 B/C ratio; 3,200 veh's of throughput were increased during peak periods; and anywhere from 4-5 miles of backups (depending on direction) were reduced to 2-4 miles.

Modified two sub-standard interchanges. TH-100 from 36th street to I-394 was a 4-lane section sandwiched between two 6-la sections. A prior Mn/DOT study found this section was exposed to congestion for the longest amount of time per day on the Twin Cities metropolitan freeway system. For the most part, a full third lane was added in each direction. (Short sections of shoulders were converted in some places for sake of congruency.) Additionally, a close-by diamond interchange was connected via C-D roads, reducing access points from 7 to 4. Through traffic now has a much improved ability to avoid weaving traffic through this stretch of on- and off-ramps past the city. The result yielded a (some say conservative!) 13:1 B/C ratio; an increase of 14,400 veh's during peak periods daily; and backups of 5-6 miles (depending on direction) were reduced to 0.25 miles. Mn/Dot received an outpouring of positive public reaction, including one local newspaper's "public project of the year" award. Remarkably, this \$7.1M project accomplished much the same result as a \$138M project on a parallel freeway facility, I-494 from highway 5 to highway 55. Granted, the latter design/build project was closer to a total facility rehab, including noise walls and other costs, but the effect of practically eliminating long bottleneck queues was realized for a fraction of the cost on the former project.

Washington

Listening to a citizen's suggestion and acting upon it.

Background: This project was suggested to WSDOT by a citizen.

Bottleneck Project: Freeway restriping on SR 167 in Seattle metro area. In vicinity of, and as a result of the afternoon shift change at the Boeing facility along SR 167, in combination with normal, heavy commute patterns, there was one short section of freeway that carried only two SB lanes just north of SR 18. A citizen suggested that the chokepoint could be revised at very reasonable cost to extend the three-lane continuity. By utilizing full depth shoulders, and extra lane was effected and the resulting directional lanes were restriped at 11-foot widths, with 2.5 foot shoulders. A comprehensive study was conducted to gauge the outcomes, benefits, and safety considerations. All indications predicted a positive return. Cost was estimated to be \$42,000. Following the project, congestion has been noticed to be less, average speeds are recorded to have increased by 10 to 20 mph, and throughput has recorded to increase by approximately 10 percent.

Los Angeles

City wide "Operation Bottleneck" began in 2006 to identify the worst bottleneck intersections on the city grid and apply signal adjustments or identify other potential solutions (i.e., turn lanes, remove curb parking, etc.) to improve operations.

Bottleneck Project: Operation Bottleneck was conceived following a national "report card" of traffic signal efficiency sponsored by FHWA and ITE. After reviewing the self-assessment of their "grade", the LADOT felt it was necessary and worthwhile to survey their inventory of signalized intersections and begin a proactive program to identify and tweak even more efficient timing patterns and operation at those locations. Up to 80 intersections per year are improved and the program will continue indefinitely, and in rotation, until all intersections have been reviewed numerous times.

Florida

Try it! You'll like it! A trial traffic pattern worked so well that it became a permanent fix.

Bottleneck Project: I-95 to I-595. The long-standing traffic pattern was for two lanes of I-95 to merge into one lane before merging with the three through lanes on I-595. However, this choke down caused some legendary backups. State engineers observed that the traffic balance favored

I-95, and therefore it might be better to narrow I-595, as opposed to I-95; i.e., go from a 3+1 merge to a 2+2 merge. Using only barrels and temporary striping, a temporary work zone-like lane drop was effected to try this scheme. This trial worked so well that FDOT implemented a full restriping through here. Now, two lanes of traffic from I-95 flow freely to merge with 2 lanes on the I-595 mainline. No added pavement, no added right of way, and a minimum of investment yielded a significant improvement.

Before: Florida state engineers used traffic barrels where I-95 joins I-595 to test if a new merge pattern could work.



After: The trial proved successful, so the state restriped the merge and made it permanent.



FHWA 'Localized Bottleneck Program' – Testimonials and Success Stories

Texas

Using Proactive Rather than Reactive Signal Operations

Background: Traditional arterial signal systems use fixed timings, i.e., pre-set timings that rely on historical or "expected" traffic volumes. While the fixed timing programs can be different for A.M. or P.M. conditions, they nevertheless can't be interrupted except by manual override. Then it is necessary to manually return the timings to their original settings. Both of these tasks are time consuming and typically lag behind either of the actual needs.

Bottleneck Project: Traffic conditions along Highway 69 and Highway 323 are highly variable and had generated frequent citizen complaints over the years. Adaptive Signal Control (ASC) was installed on 16 intersections on these two highways, along with some minor geometric improvements and detection upgrades.

The Return: Traffic operations thereon have shifted from a reactive mode to a proactive mode dependent on information sent directly from the intersection detectors (volumes, wait times, et al) to the signal controllers. Highlights of the return on investment include reduced congestion and delay, fewer unnecessarily long stops, reduced fuel consumption (e.g., less idling) and an annual savings of close to \$40,000 per year to the agency because signals need less human oversight, i.e., less retiming and attention.

Colorado (City of Arvada)

Grade-Separation of Train-Highway Crossing

Background: Train traffic (especially) and also vehicles on Grandview Avenue routinely blocked vehicular traffic on Wadsworth Boulevard, causing numerous delays and jams, but also requiring the expense and upkeep of two fire stations; one on each side of the tracks.

Bottleneck Project: Wadsworth Boulevard was lowered 25 feet and now passes under Grandview Avenue. Much of the cost was to purchase and relocate a restaurant that sat in the project footprint, and also to enable a "shoofly" (i.e., temporary RR bridge to keep trains running) and to pay for MOT and the defacto project. The fire stations were merged into one station, and the resulting project acts as a gateway boulevard into Arvada.

The Return: While \$32M and two years of construction may sound at the high end of a "low cost, low impact" remediation, don't tell that to the City of Arvada and CDOT. The highly visible and publicly praised project remedied a long-time problem and is an unequivocal success.

For a more thorough listing of successful bottleneck . . .

Projects http://ops.fhwa.dot.gov/bn/successful_efforts/index.htm

Programs http://ops.fhwa.dot.gov/bn/resources.htm#state