



Louisianans Speak Out on Traffic Safety



PILOT FORCE ACCOUNT PROGRAM

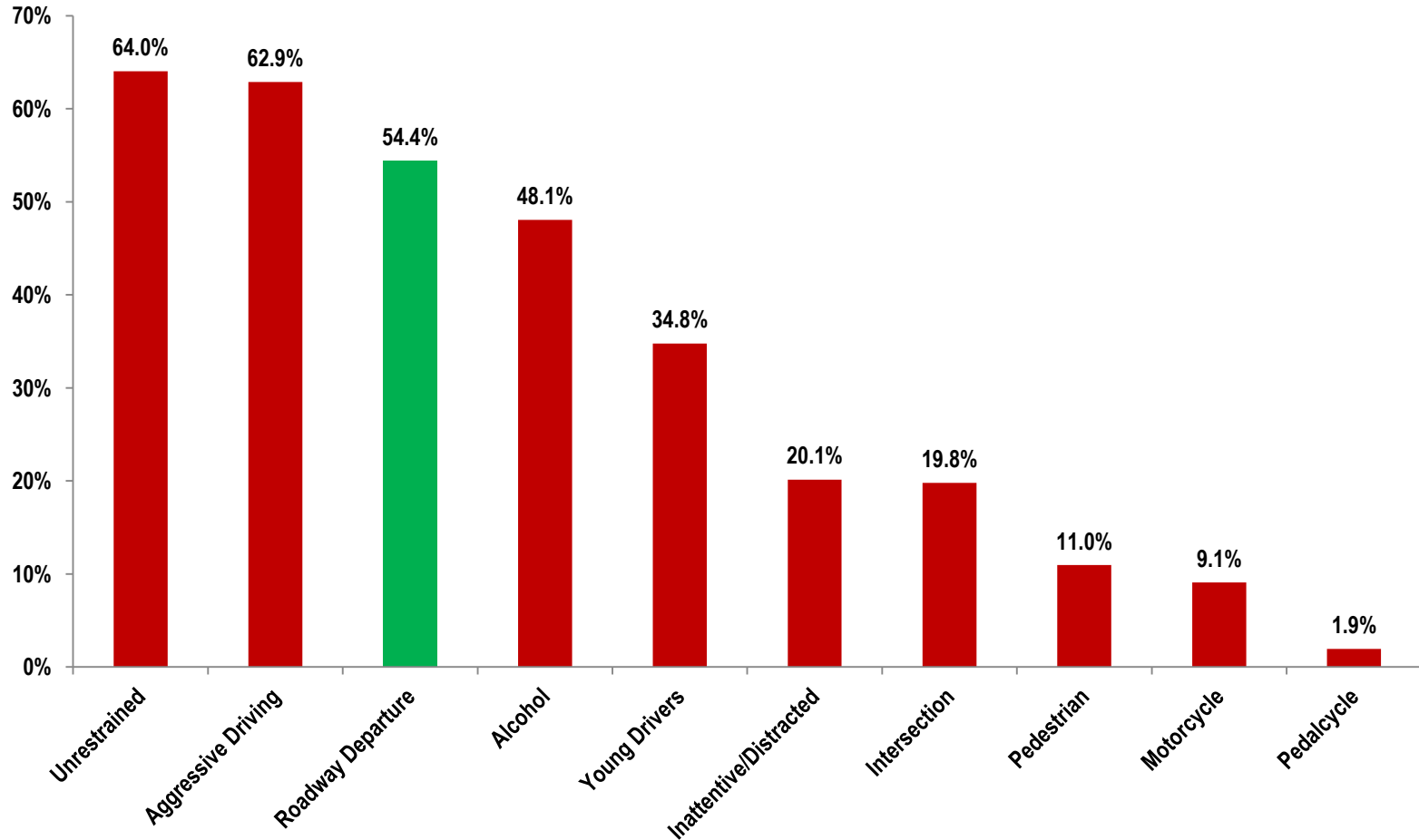
Low-Cost Safety Countermeasures for
Roadway Departure Crashes



History

- Request to initiate force account work for safety and pavement preservation in 2010 (LADOTD)
- Pilot considered for safety ONLY as part of the SHSP (FHWA 6/1/10)
- 23 CFR 635.104 and 635.202
 - Identify, locate, describe project(s)
 - Type of safety materials
 - Cost effectiveness
- Tracking mechanism needed

SHSP Roadway Departure



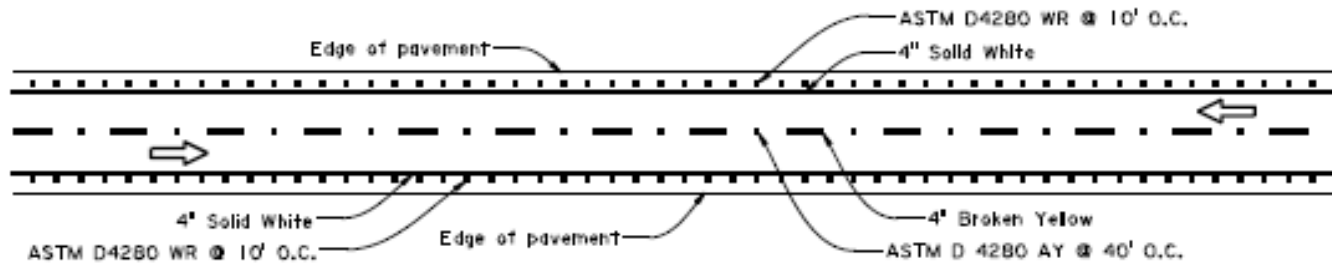
Identifying Locations

- Systematic approach
- 2-lane rural
- Width $\geq 22'$
- 5 crashes/yr/route/Dist
- $\geq 50\%$ Rwd crashes
- Prioritized by # of Rwd crashes in 3 yrs
- Segmented by tangent/curve

Eligible Materials

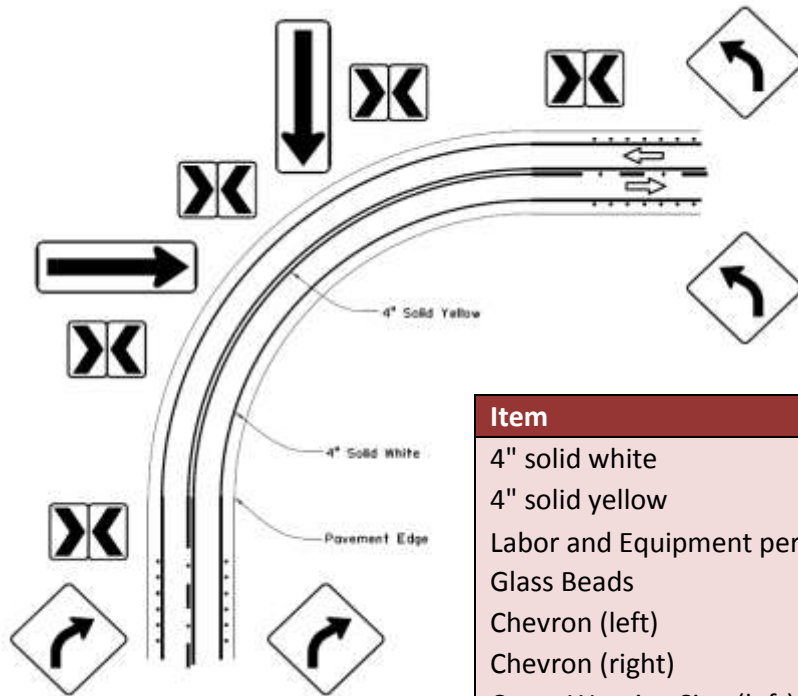
- Paint
- Glass beads
- Retro-reflective sign sheeting
- Sign posts
- Sign stabilizers
- Retro-reflective RPMs in tangents
- Epoxy

Tangent Typical



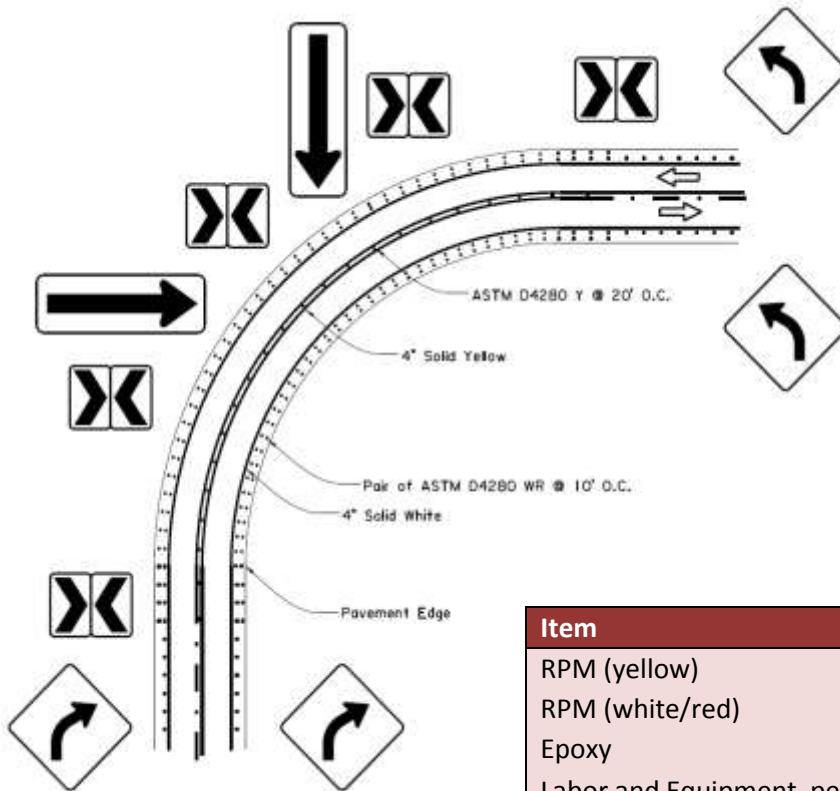
Item	Cost per Unit	Quantity	Units	Total Cost
4" solid white	\$201.12	2	mile	\$402.24
4" broken yellow	\$69.12	1	mile	\$69.12
Labor and Equipment per Mile of Striping	\$25.12	3	mile	\$75.36
Glass Beads	\$90.00	2.25	mile	\$202.50
RPM (yellow)	\$0.69	132	quantity	\$91.08
RPM (white/red)	\$0.69	1056	quantity	\$728.64
Epoxy	\$0.89	297	pound	\$264.33
Labor and Equipment per RPM	\$0.48	1188	quantity	\$570.24
TOTAL COST PER TANGENT MILE			GRAND TOTAL	\$2,403.51

Curve Typical (Signs & Striping)



Item	Cost per Unit	Quantity	Units	Total Cost
4" solid white	\$201.12	2	mile	\$402.24
4" solid yellow	\$201.12	2	mile	\$402.24
Labor and Equipment per Mile of Striping	\$25.12	4	mile	\$100.48
Glass Beads	\$90.00	4	mile	\$360.00
Chevron (left)	\$16.75	8	quantity	\$134.00
Chevron (right)	\$16.75	8	quantity	\$134.00
Curve Warning Sign (left)	\$49.18	2	quantity	\$98.36
Curve Warning Sign (right)	\$49.18	2	quantity	\$98.36
Large Arrow Sign (left)	\$41.88	1	quantity	\$41.88
Large Arrow Sign (right)	\$41.88	1	quantity	\$41.88
Labor and Equipment per Sign	\$12.55	22	quantity	\$276.10
Sign Support (2")	\$1.96	280	linear foot	\$548.80
Sign Support (2.25")	\$2.29	84	quantity	\$192.36
TOTAL COST PER CURVE			GRAND TOTAL	\$2,830.70

Curve Typical (RPM)



Item	Cost per Unit	Quantity	Units	Total Cost
RPM (yellow)	\$0.69	528	quantity	\$364.32
RPM (white/red)	\$0.69	2112	quantity	\$1,457.28
Epoxy	\$0.89	660	quantity	\$587.40
Labor and Equipment per RPM	\$0.48	2640	quantity	\$1,267.20
TOTAL COST PER CURVE MILE			GRAND TOTAL	\$3,676.20

Latest Research

- Chevrons and curve warning signs
 - CMF = 0.59
- Doubled up
- Increased sign size
- Centerlines and edge lines
- RPM???

Case Study – LA 1019

- Before: 12' lanes, no shoulders
- After: Overlay, 12' lanes, 2' shoulders, centerline rumble strips, enhanced signing and striping/RRPMs (doubled-up at 10' spacing)

Case Study - LA 1019



Crash Rate	Before	After
Total	6.29	4.07
ROR	1.87	1.07
Wet Weather	2.77	0.46
Nighttime	1.94	1.09
Nighttime ROR	0.65	0.50
Nighttime Wet Weather	0.92	0.14

Case Study – LA 1019

Condition	Observed Crashes	Expected Crashes	Expected Crash Rate	CMF?
Before (w/out CL rumble)	68	67.88	5.6	
Before (w/ CL rumble)*	57	56.3	4.64	0.83
After	33	36.52	3.01	0.65

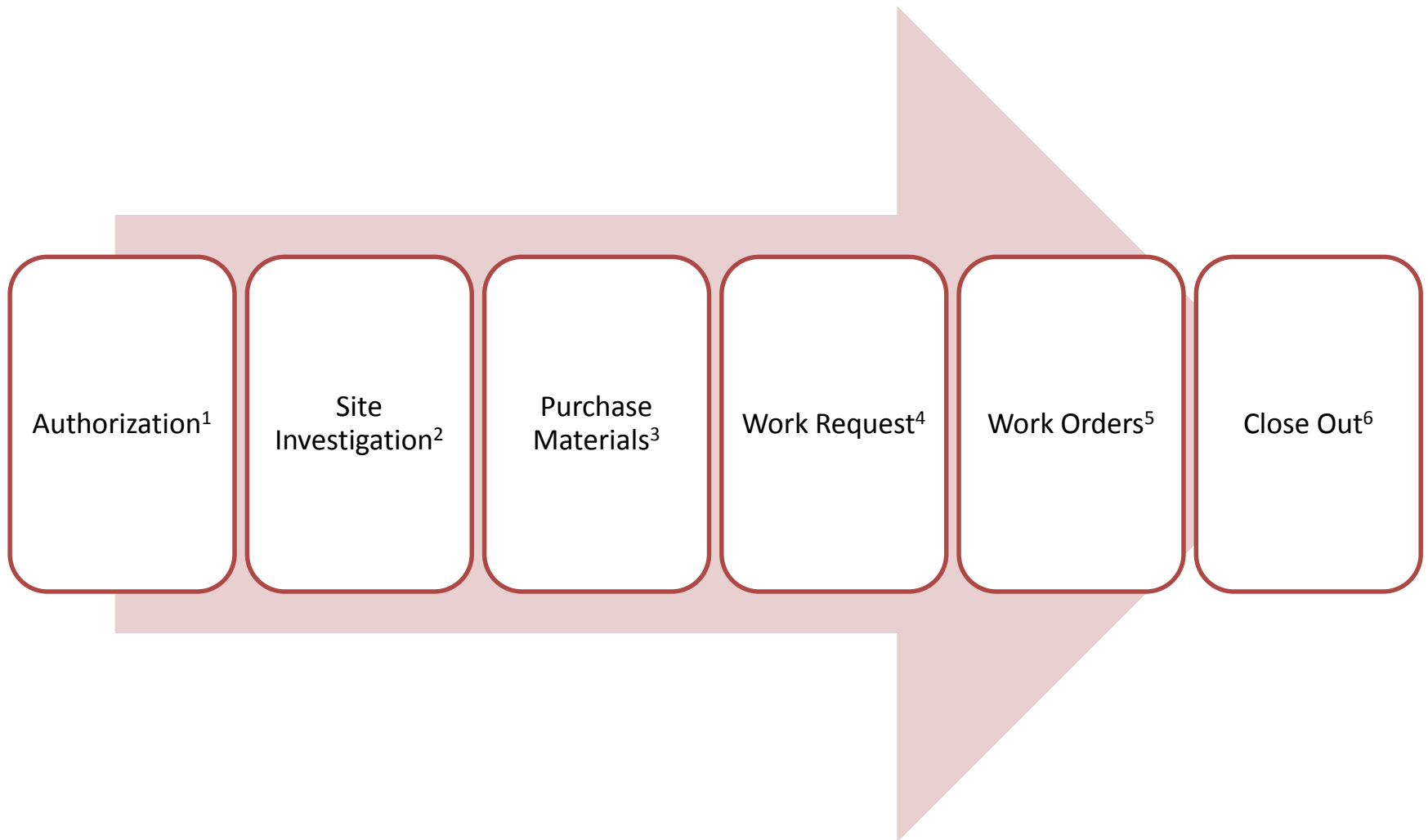
*Crashes correctable by centerline rumble strips were removed from the data set.

Cost Effectiveness

Item	DOTD Cost*	Contractor Cost	Quantity	Total DOTD Cost	Total Contractor Cost
Cost per Mile, Tangent	\$2,833.92	\$6,264.62	766.4	\$2,171,916.29	\$4,801,204.77
Cost per Curve, Sign/Stripe	\$3,255.20	\$6,664.65	1285.0	\$4,182,925.58	\$8,564,075.25
Cost per Curve Mile, RPM	\$4,441.80	\$3,743.52	119.6	\$531,239.28	\$447,724.99
GRAND TOTAL				\$6,886,081.14	\$13,813,005.01

*Includes materials, equipment and labor (w/ benefits factor)

Implementation Process



Authorization

- HQ Safety
- District-wide project numbers H.967XXX
- Budget request
- HQ Safety will notify the DTOE
- WHEN?

DISTRICT INPUT NEEDED HERE

Site Investigation

- Curve speed study form
- Passing zone verification
- Document any exceptions
- Adjustment to quantities
- FHWA MUST APPROVE ALL EXCEPTIONS!

Purchase Materials

- Upon approval of any exceptions, if applicable, the DTOE can order the materials through statewide contracts
- OR Section 45 can place the order

DISTRICT INPUT NEEDED HERE

Work Request

- Through Agile Assets
- By Route
- Must be associated with H.967XXX
- Notification sent to HQ Safety and FHWA
- **MUST BE INSTALLED WITHIN 6 MONTHS!!!**

Work Orders

- DTOE provides oversight.
- Multiple work orders may be associated with a work request.
- Once all work orders are complete, DTOE will close the work request.
- Notification sent to HQ Safety and FHWA.

Quality Assurance

- Section 45?
- DTOE?

DISTRICT INPUT NEEDED HERE

Close Out

- Reimbursement will NOT occur if ALL elements are not completed within 6 months
- Back into District Traffic Budget, not replaced
- Pilot will be evaluated by FHWA before consideration of expansion of force account program

Safety Effectiveness Evaluation

- 3 years before and after
- Research project to evaluate RPM effectiveness in Louisiana

Legal Ruling

- This document has undergone a legal review by the Louisiana Department of Transportation and Development's General Counsel and the proposed activities set forth in this document are deemed allowable under Title 48.

Questions/Comments

- A questionnaire will be sent out to the DTOEs
- Please discuss with your DA