Nothing Compares
NORTH CAROLINA

North Carolina Highway Safety Improvement Program (HSIP)

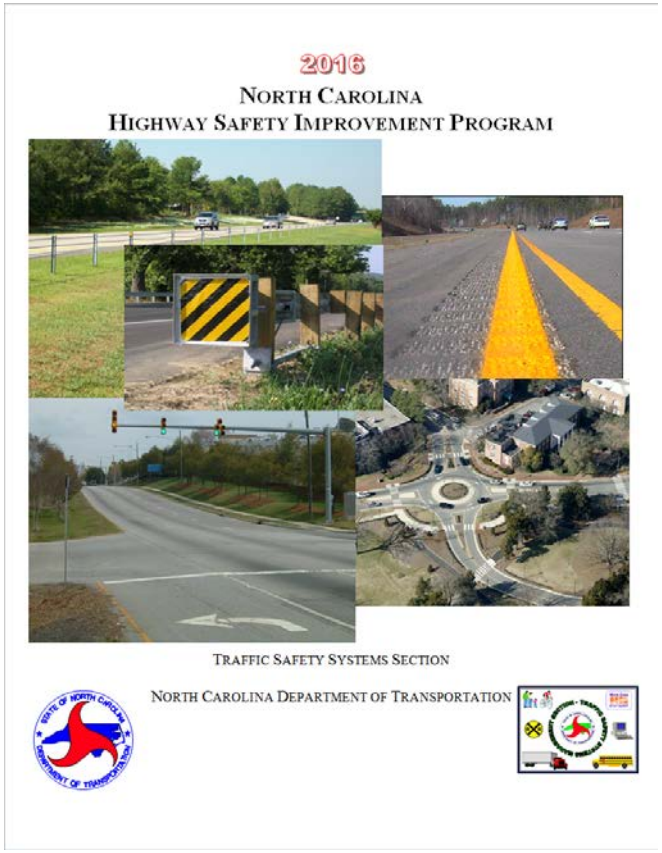
Brian Mayhew, PE

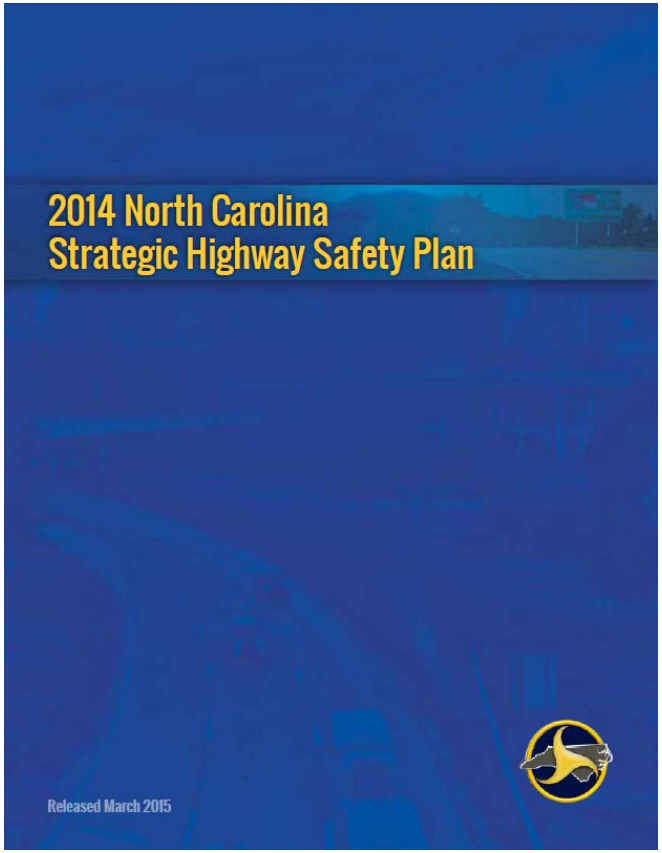
NC HSIP

The Purpose of the NC Highway Safety Improvement Program

- **Implement Effective Safety Projects**
  - ➢ **Reduce Fatalities and Injuries**
  - ➢ **Maximize Value (lower cost with high returns)**

NC HSIP

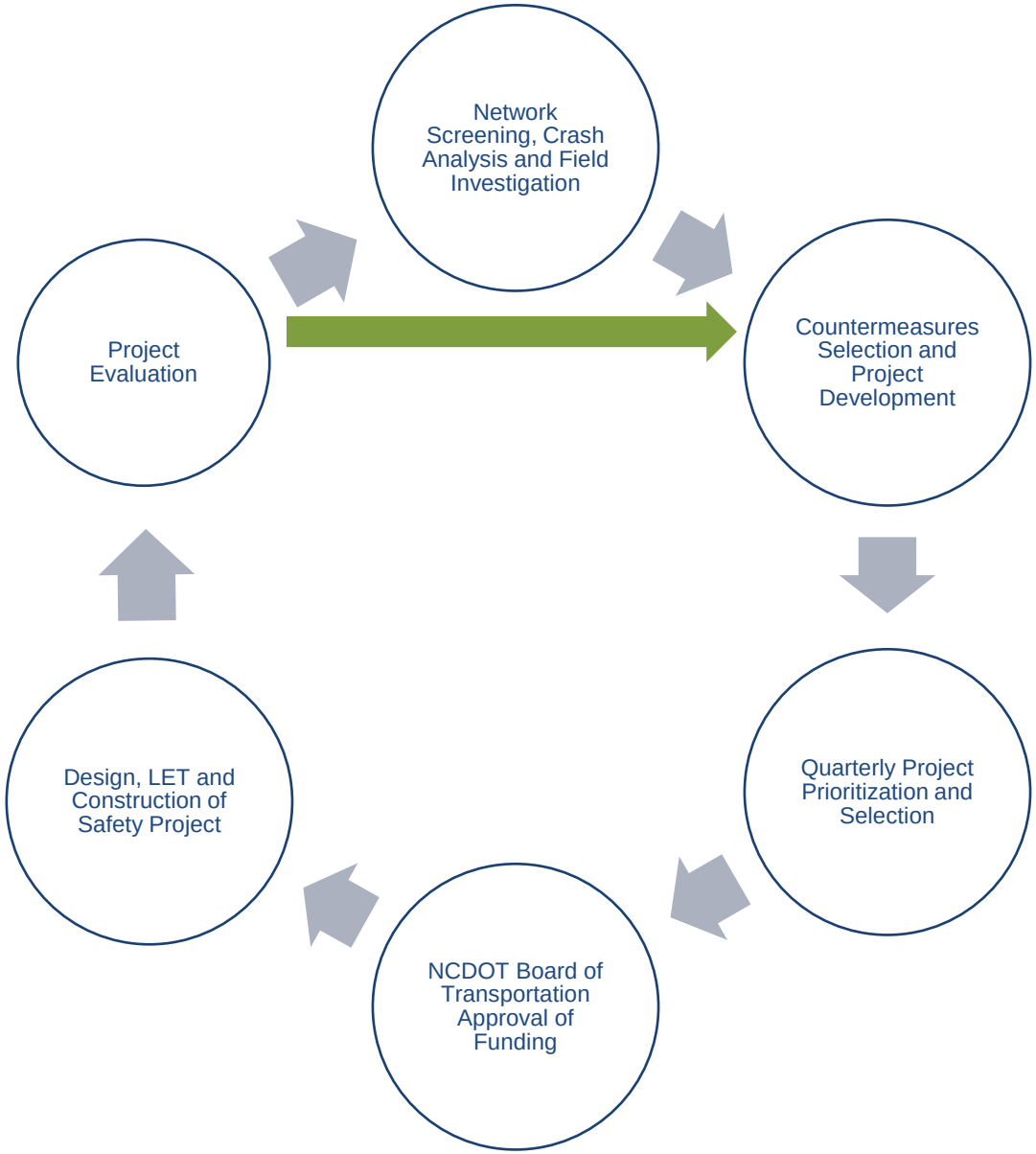




Emphasis Areas

- Lane Departure
- Keeping Drivers Alert
- Speed
- Intersection Safety
- Occupant Protection
- Demographic Considerations
- Pedestrians & Bicyclists
- Impaired Driving
- Emerging Issues & Data

Safety Project Cycle

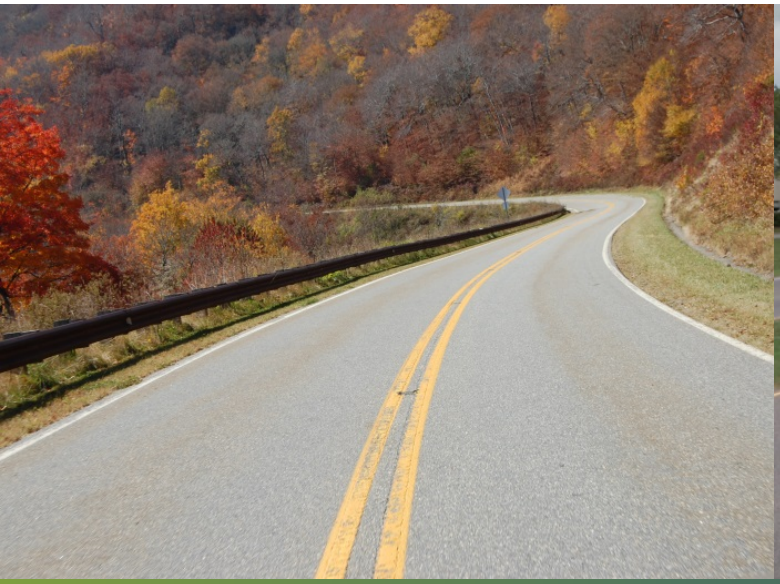


NC HSIP

- Most safety projects originate from using crash data to identify patterns or from fatal crash investigations
- Projects also come from citizens reporting concerns…
- And Safety Partners participating in the process

NC Highway Mileage

- The Safety Program is focused on all public roads
- 80,000 miles of state-maintained roads
- 26,000 miles of non-state maintained roads mostly maintained by municipalities



Typical Safety Projects

- Intersection Improvements
    - Traffic Signals (new & upgrades)
    - Roundabouts
    - Turn Lanes
    - Channelization
    - Pedestrian Refuge Islands
- Corridor Improvements
    - Median Modifications / Left-Overs / Super Street Configurations
    - Shoulder and Lane widening
    - Guardrail and roadside hardware
    - Rumble strips
- Systemic Features
    - Median Barrier, Curve Warnings, Flashing Yellow Arrows

NC HSIP

Available Sources of Safety Funds:

- Spot Safety Program
  - Traditional Max of $400,000 per project
  - State Funded - 87 Projects funded in 2015 worth $9.6 million
  - Reviewed by Safety Oversight Committee (SOC) and approved by the Board of Transportation (BOT)

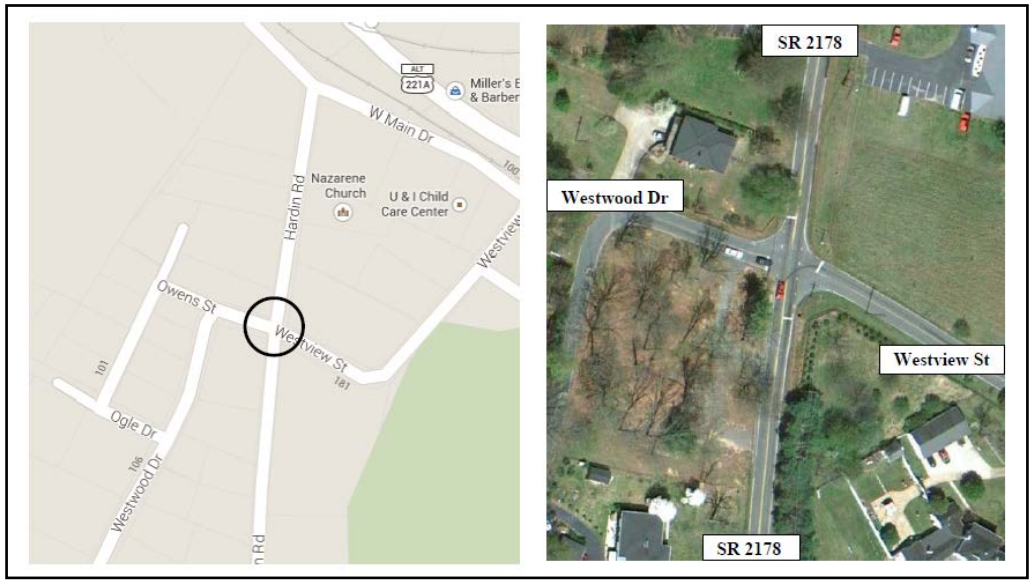
- Hazard Elimination Program
  - Traditional Max of $1,000,000 per project
  - 90/10% Federal and State funds
  - Selected 123 Projects in 2015 to be funded at a total estimated cost of $70.3 million
  - Reviewed by SOC and approved by the BOT

- Division Maintenance/Construction
  - Recommendations submitted to Highway Division Staff

Safety Project Evaluation

Example Intersection – All Way Stop

- Location Map



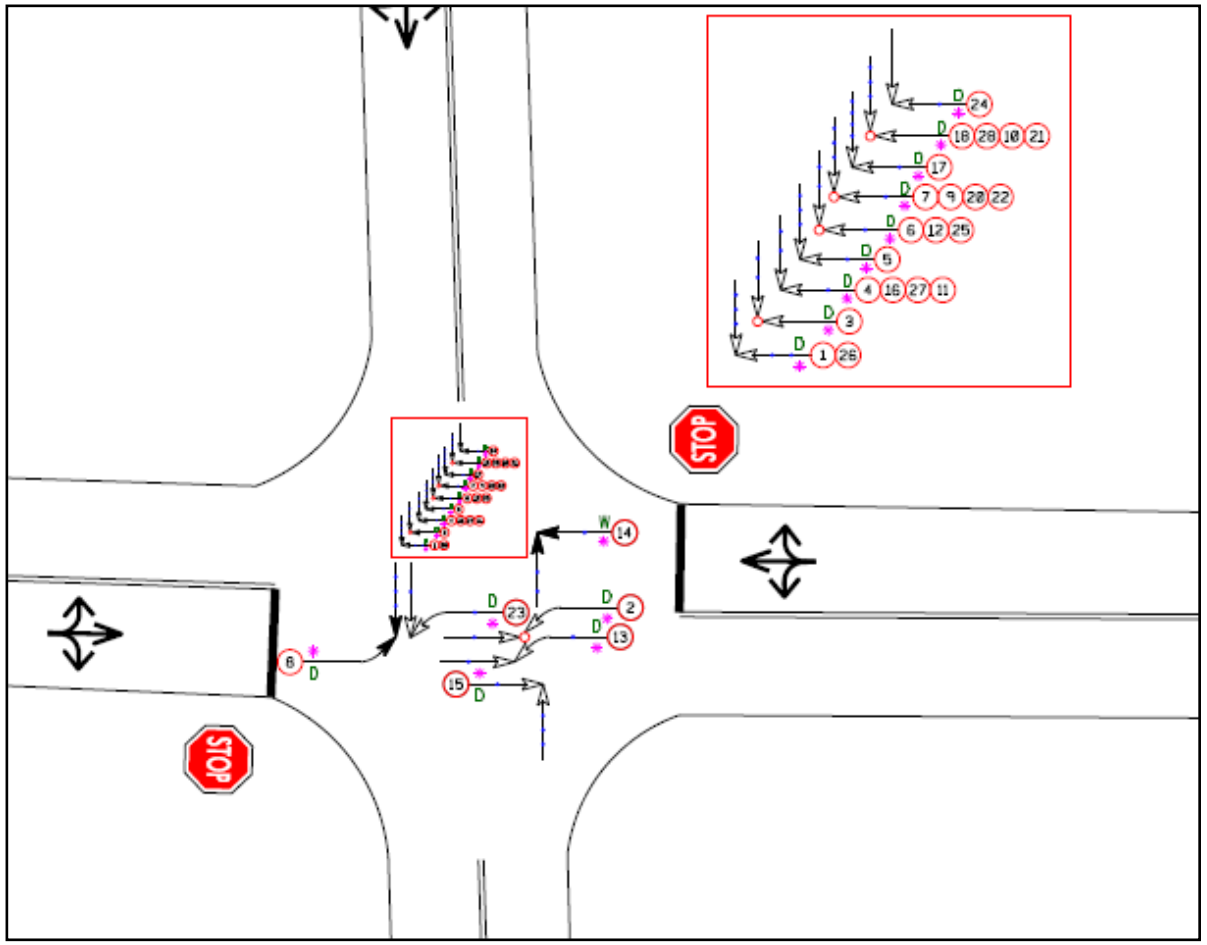
- Naïve Before and After Data Summary (4.33 years of data)

Treatment Information	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	28	3	- 89.3 %
Total Severity Index	4.17	5.93	+ 42.2 %
Target Crashes	27	2	- 92.6 %
Target Crash Severity Index	4.29	8.40	+ 95.8 %
Volume (2007, 2011)	6,700	6,000	- 10.4 %

Safety Project Evaluation

Example Intersection – All Way Stop

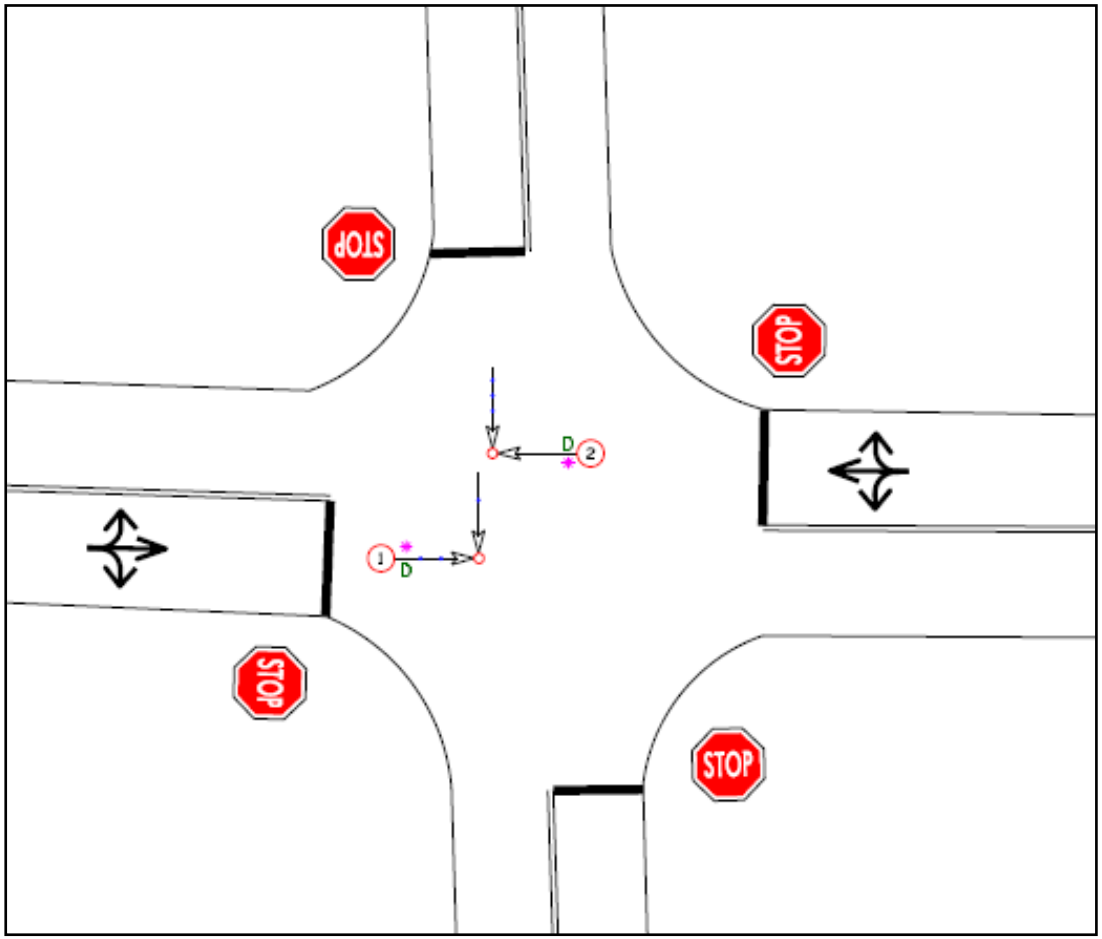
- Before Period Collision Diagram



Safety Project Evaluation

Example Intersection – All Way Stop

- After Period Collision Diagram



Safety Project Evaluation

Example Intersection – Reverse Directional Crossover

- Location Map

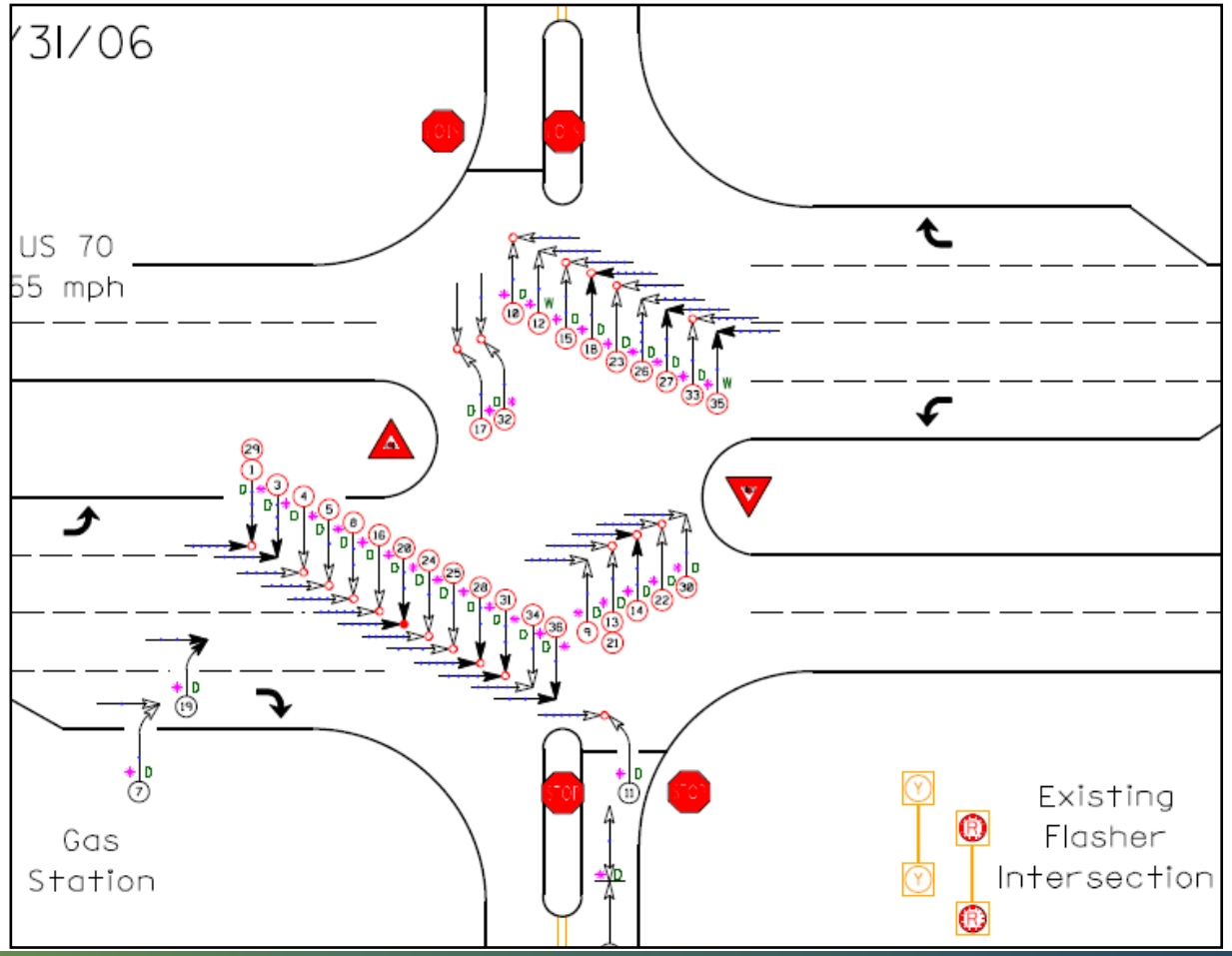
- Naïve Before and After Data Summary (3.92 years of data)

Treatment Information	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	36	10	- 72.2 %
Total Severity Index	11.43	3.22	- 71.8 %
Target Crashes	31	0	- 100.0 %
Target Crash Severity Index	12.87	0.00	- 100.0 %
Volume (2005, 2009)	20,450	17,800	- 13.0 %

Safety Project Evaluation

Example Intersection – Reverse Directional Crossover

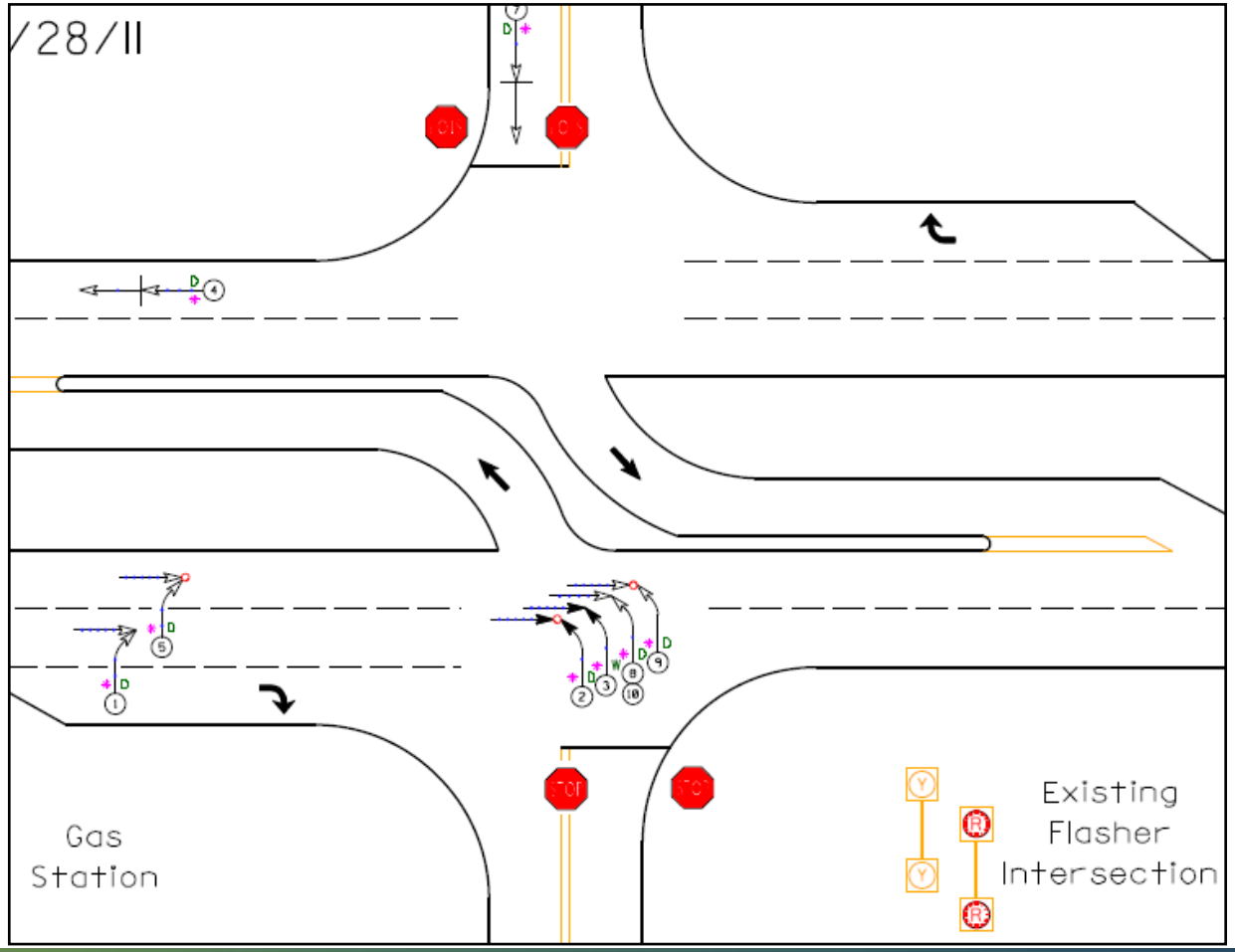
- Before Period Collision Diagram



Safety Project Evaluation

Example Intersection – Reverse Directional Crossover

- After Period Collision Diagram



Safety Project Evaluation

Example Section – Superelevation and Overlay in Curve

- Location Map

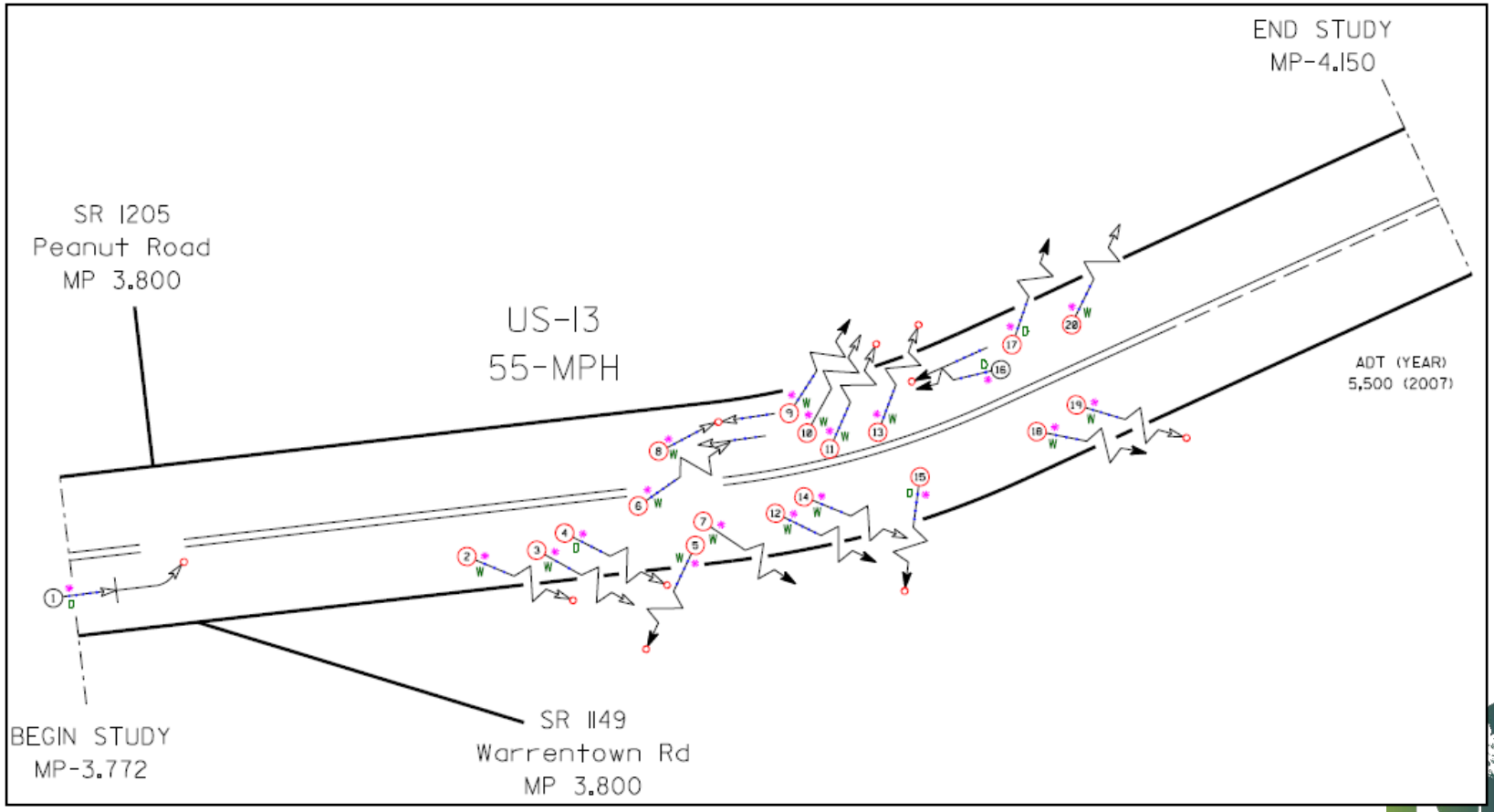
- Naïve Before and After Data Summary (4.42 years of data)

Treatment Information	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	20	2	- 90.0 %
Total Severity Index	8.12	4.70	- 42.1 %
Target Crashes – Lane Departure	18	1	- 94.4 %
Target (LD) Crash Severity Index	8.09	8.40	3.8 %
Volume (2007, 2012)	5,500	4,700	- 14.5 %

Safety Project Evaluation

Example Section – Superelevation and Overlay in Curve

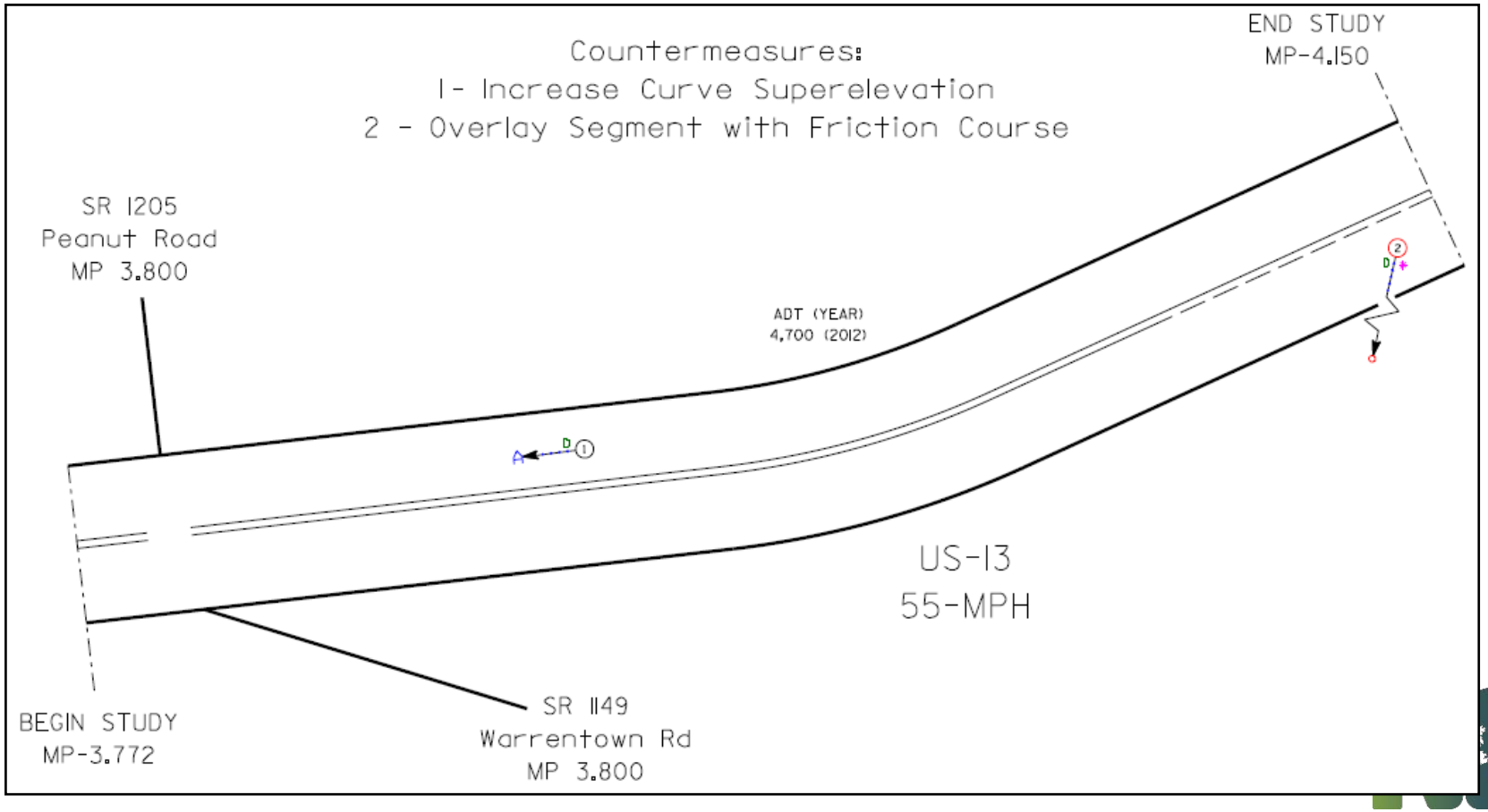
- Before Period Collision Diagram



Safety Project Evaluation

Example Section – Superelevation and Overlay in Curve

- After Period Collision Diagram



QUESTIONS?

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