



Local Road Safety Planning in a Small County

Developing Funding and Saving Lives

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Background

- ▶ Population - 84,895
- ▶ Chemung County is home to
 - ▶ Rolling topography and hilly terrain
 - ▶ Central urban and suburban valley surrounded by rural areas and hills on all corners



Why is a LRSP an important tool?

While local roads are less traveled than State highways, they have a much higher rate of fatal and serious injury crashes. (3x the rate compared to interstates.)

Aspects common to LRSPs include:

- **Engagement** of stakeholders representing the 4E's engineering, enforcement, education, and emergency medical services, as appropriate. 5E's = Everyone!
- **Collaboration** among municipal, county, Tribal, State and/or Federal entities to leverage expertise and resources.
- **Identification** of target crash types and crash risk with corresponding recommended proven safety countermeasures.
- **Timeline** and goals for implementation and evaluation.

The plan should be viewed as a **living document** that can be updated to reflect changing local needs and priorities.



Chemung County LRSP



U.S. Department of Transportation
Federal Highway Administration

Chemung County, New York Local Road Safety Plan



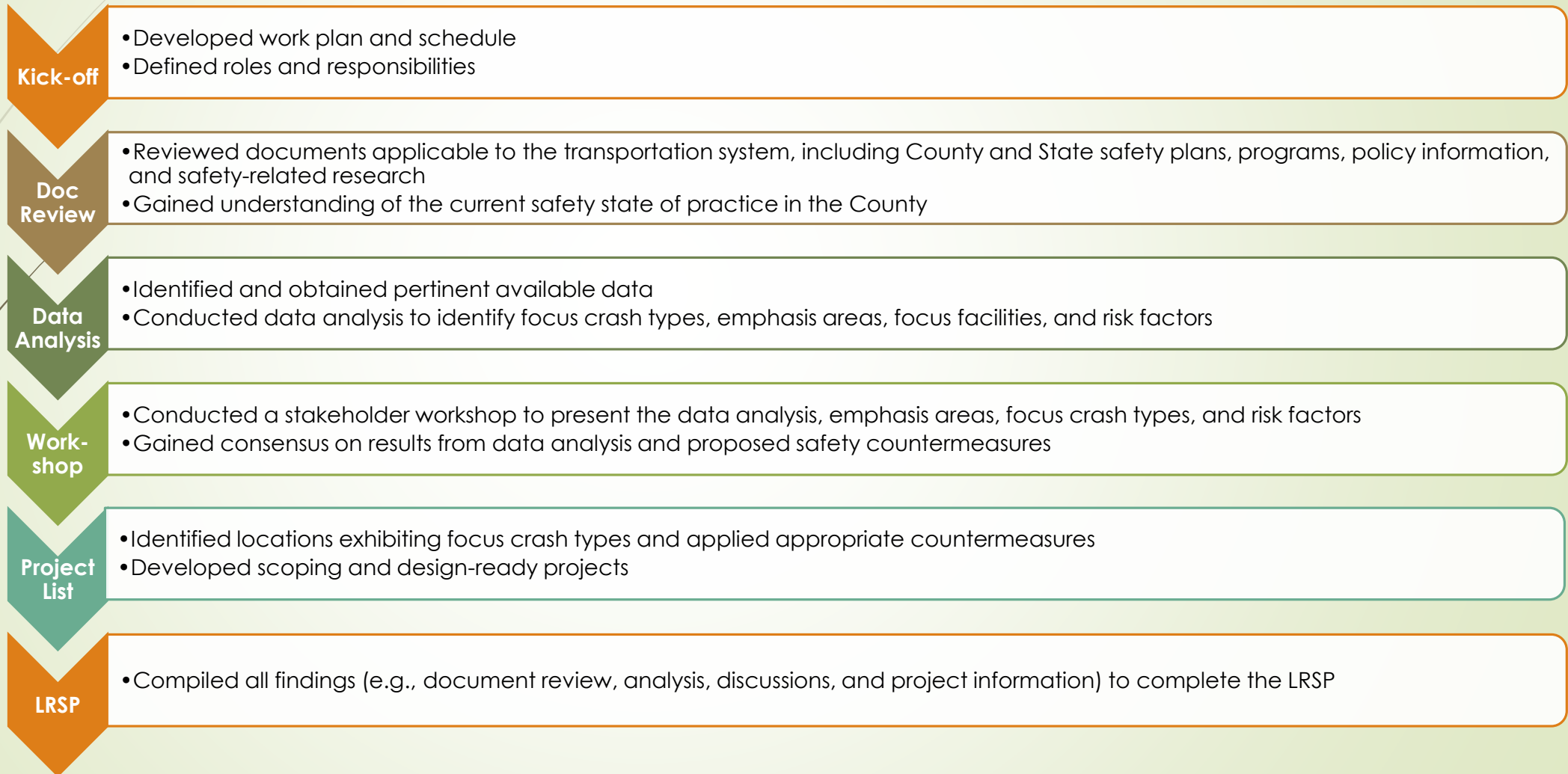
- ▶ The purpose of this local road safety plan (LRSP) is to serve as a guide and roadmap for Chemung County to improve roadway safety by reducing fatalities and serious injuries on local agency roads.
- ▶ In Chemung County, NY, motor vehicle traffic injuries are the fourth leading cause of injury-related deaths. Between 2011 and 2015, the County experienced 44 roadway fatalities, with 21 of them occurring on locally-owned roadways.

Our LRSP Vision, Mission, and Goal

- ▶ **Vision:** Chemung County will work toward zero deaths.
- ▶ **Mission:** To implement and maintain a data-driven 4E (engineering, enforcement, education, and emergency medical services) approach to safety that will provide a safer and more sustainable transportation system for all motorized and non-motorized users on all public roads in the County, and to improve infrastructure and assist with behavior change by focusing efforts in those areas where the greatest opportunity for reductions in traffic-related fatalities and severe injuries exist.
- ▶ **Goal:** The goal of Chemung County's LRSP is to contribute to the New York SHSP by meeting its targets and achieving the long-term vision of zero fatalities and serious injuries on the public roadways in the County.



LRSP Methodology and Approach



Countermeasures – Lane Departure Crashes

TIER 1	
Fundamental signing and marking for curves	Wider edge line markings
Wider centerline pavement markings	Pavement wedge/SafetyEdge _{SM}
Low noise rumble strips (mumble strips)	Fixed object delineation, including delineators on guiderail
Standard edge line markings	Policy development for utility pole relocation
TIER 2	
Enhanced signs and markings for curves	Alignment delineation
Improve superelevation	Tree removal / utility pole relocation
Optical speed bars	Lighting
TIER 3	
High friction surface treatment	Enhanced signing and marking for curves plus dynamic curve warning system
Enhanced signing and marking for curves plus flashing beacons	Shield fixed objects
TIER 4	
Center line rumble stripes	Curve flattening or other major reconstruction
Edge Line Rumble Stripes or Shoulder Rumble Strips	Improved recovery areas, slope flattening (possibly with water permeable material)
Raised thermoplastic centerline rumble strips	Alternate passing lanes (2+1 design)
Raised thermoplastic edge line rumble strips	Four to three lane conversions
Wider shoulders	Median buffer
Paved shoulders	Corridor 4E improvements
Reconstruct Curve, minor to intermediate	Area-Wide 3E Improvements

Countermeasures – Intersection Crashes Tiers 1 & 2

TIER 1	
Basic set of sign and marking improvements (e.g., intersection/stop/signal ahead and corresponding pavement marking, reflective posts)	Advance cross street name signs for high-speed approaches on arterial highways
Clear sight triangles	Pedestrian ladder or cross-hatched crosswalk and advanced pedestrian warning signs
Lane narrowing using pavement marking	Enforcement-assisted lights
"Slow" pavement markings	Signal coordination
Basic set of signal and sign improvements	No Turn On Red restrictions
Backplates with retroreflective borders	Automated red-light enforcement
Flashing yellow arrow signal	
TIER 2	
Either a) flashing solar powered LED beacons on advance intersection warning signs and STOP signs or b) flashing overhead intersection beacons (red/red)	RCUT modifications on high-speed divided arterials
Dynamic warning sign which advises through traffic that a stopped vehicle is at the intersection and may enter the intersection	Pedestrian countdown signals
Lane narrowing using pavement marking and shoulder rumble strips	Separate pedestrian phasing
Peripheral transverse pavement markings	Bicycle boxes
Dynamic speed warning sign to reduce speed	Change of permitted and protected left-turn phase to protected-only
High-friction surface treatment	Advance detection control systems
Installation of a 6 ft. or greater raised divider on stop approach (installed separately as a supplemental countermeasure)	



Countermeasures – Intersection Crashes Tiers 3 & 4

TIER 3	
New or upgraded lighting	Install right-turn lane
Install left-turn lane	If intersection has skew, reduce or eliminate skew or create offset T-intersections
TIER 4	
Roundabouts	Municipal-wide 3E improvements in municipalities with high frequencies of severe intersection crashes
Corridor engineering, education, and enforcement (3E) improvements on high-speed arterials with very high frequencies of severe intersection crashes	

Countermeasures – Pedestrian & Bicycle Crashes

TIER 1	
Crosswalk visibility enhancements	Curb extensions
Rectangular Rapid Flashing Beacon (RRFB)	Pedestrian refuge islands
Add pedestrian push button actuation to existing traffic signals	Bicycle lanes
Leading pedestrian interval	
TIER 2	
Sidewalks, walkways, and paved shoulders	Separated bicycle lanes
Pedestrian hybrid beacons	Bike boulevard
Raised crosswalk and speed tables	School zone improvements
TIER 3	
Road diets	

Countermeasures – Speeding and Aggressive Driving Tiers 1 & 2

TIER 1	
One direction large arrow sign (W1-6)	Speed Limit XX Pavement Legend
Curve Treatment Level 1: Basic Curve Signing (advanced warning, chevrons, speed plates)	"Slow" pavement legend
Delineator Post	"XX MPH" + Curve Symbol
Longitudinal rumble strips	"Radar Enforced" signs
Converging chevron marking pattern	Automated enforcement
Transverse markings	Speed Limit Setting Guidelines
Optical Speed Bars	Speed Limit Reviews
Add shoulder markings to narrow lane	USLIMITS2
Add on-street parking	
TIER 2	
Add flashers to existing curve warning signs	Speed Limit Sign with LED
Add flags to existing curve warning signs	Transverse rumble strips
Curve Treatment Level 2: Enhanced signing/delineation	In-Roadway Warning Lights
Sequential Dynamic Curve Warning System	High friction surface treatment
Speed feedback signs	Gateway Treatment
Speed activated warning sign	

Countermeasures – Speeding and Aggressive Driving Tiers 3 & 4

TIER 3	
Roundabout	Choker
Road diet	Neckdown
Variable speed limit sign	Chicane
Red signal enforcement lights (tattletale lights)	Lateral Shift
Speed Hump	Center Island
Speed Cushion	Tubular channelizers
Speed Table	Landscaping
Raised Intersection	
TIER 4	
Internally illuminated raised pavement markers	Corridor 3-E Initiative (engineering, education, enforcement)



Strategies and Countermeasures for Young Driver Crashes

Young Driver

Conduct high visibility enforcement of GDL, no cell and texting laws, underage drinking and driving, and seatbelt use laws. Conduct enhanced enforcement and public outreach for young driver safety. Publicizing is best done through community events to attract local media and a community public education campaign about young driver laws, enhanced enforcement, and the necessary parental involvement.

Adjust curfew to include 9 p.m. – 5 a.m., the hours when young driver serious injury and fatality crashes are highest. Currently, City of Elmira curfew is between 11 pm and 5 am.

Promote required parent education component of local driver education programs (private and public school providers) to educate parents about teen driving risks, Graduated Driving License (GDL) provisions and their protections, parental role in supervising teen driving skill development, encourage selection of safer vehicles for teen driver, and to facilitate parent/teen driving agreements.

Strategies and Countermeasures for Older Driver Crashes

Older Driver

Examples from [Desk Reference Handbook for Designing Roadways for the Aging Population](#) include:

- Intersecting angle (limiting the skew);
- Channelization
- Intersection sight distance
- Offset left-turn lanes
- Delineation of edge lines and curbs
- Advanced and oversized street name signs
- Oversized Stop and Yield signs; enhance striping
- Intersection lighting
- Pedestrian crossings islands and high visibility crosswalks
- Roundabouts and Reduced Left-Turn-Conflict Intersections
- Supplemental pavement markings for Stop and Yield signs
- Accessible Pedestrian Signal (APS) treatments
- Flashing yellow arrow





Implementation Process & Funding

The County can pursue grant or Federal funding for capital improvement projects. In New York, half of the HSIP funds, an amount of \$48 million per year is available statewide to local projects. (It is a competitive grant based program.)

- ▶ Chemung County was awarded \$3.75M in HSIP funds in 2021 to complete final design and implementation of Phase I of the LRSP.
 - ▶ RFQu for design was sent to the Local Design Services Agreement Consultant List in March.

Additional funding for projects may also be available through the following:

- ▶ The Elmira-Chemung Transportation Council (MPO) has a budget of \$207,000 for projects, some of which can be allocated to safety improvements.
- ▶ The Governor's Traffic Safety Committee provides funding through annual competitive grants.
- ▶ Look for opportunities to incorporate strategies from the LRSP into already planned projects such as regular maintenance projects or resurfacing projects.

To reach the goal of \$5M in funding, Chemung County has applied for Federal Safety funding (Safe Streets and Roads for All.) If needed, we will request County bonded funds to make up any difference. We will also continue to seek outside funding.

Project Development

- ▶ Projects developed for Chemung County's LRSP focused on intersections and segments exhibiting risk factors for different site categories (e.g., signalized intersection, unsignalized intersections, etc.), have known safety issues, or both.
- ▶ The risk factors used for Chemung County LRSP were based on data available countywide, including speed limits, lane width, shoulder width, AADT, and number of lanes.
- ▶ Our team cross-referenced findings on project recommendations with already planned and funded improvements listed in the County's Traffic Signal Evaluation Study (TSES) and Pedestrian Safety Action Plan (PSAP) to avoid overlaps. The team adjusted the improvements proposed in this LRSP accordingly to accommodate planned improvements through these two programs.



Recommended Next Steps

- **Verify and Develop Projects.** The County will need to field-verify roadway information, conduct studies (where applicable), determine which countermeasures (per project) are necessary, and refine costs.
- **Improve Data Integration and Analysis.** Chemung County has an opportunity to improve safety data analysis capabilities by taking advantage of the data available through NYSDOT, FHWA, and other publicly available resources.
- **Conduct Road Safety Audits.** The County may consider performing road safety audits (RSA) for corridors appearing on numerous lists. An RSA is the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users.



Chevron signs installed along a curve.

Additional Steps

- ▶ **Develop a Policy on Utility Pole Removal/Replacement.** Chemung County has an opportunity to develop a policy for utility pole relocation as well as for safely locating future pole installations. The stakeholder group identified the placement of utility poles as contributing to the severe lane departure crashes on local roads and the data analysis results confirmed their concerns.
- ▶ **Identify Meaningful Performance Measures and Set Targets.** Rather than relying solely on measures chosen because the data is readily available, the County should identify performance measures that would prove helpful for decision makers and program managers. This may mean implementing performance measurement using a phased-in approach—initially using measures based on available data while working toward acquiring the desired data.
- ▶ **Establish performance targets and consistent evaluation periods.** An important element of setting performance goals that should be taken into account during this process is understanding what each stakeholder considers “successful” performance.



Example of SafetyEdge_{SM} after backfill material settles or erodes.



Final Steps to Implementation

- ▶ **Engage Partner Agencies.** Although one agency may be ultimately responsible for managing the local road safety plan, successfully implementing it will require continued participation by supporting stakeholders, who may also have access to additional data that will support more accurate performance measurement.
- ▶ **Assign Responsibility and Accountability and Set a Schedule.** It is important to assign responsibility for collecting and reporting performance measurements. It is equally important to assign accountability for the measures at the appropriate level. In addition, a schedule for performance reporting will need to be established.
- ▶ **Annual Performance Measures** are common, but in some cases a more frequent measure may help a program adjust direction if early indicators show a need to deviate from the original plan. Having a responsible party and an expected schedule will ensure performance measurements are taken and that they occur on a regular basis.

Questions?

- ▶ **For more information on FHWA Proven Safety Countermeasures, please visit <https://highways.dot.gov/safety/proven-safety-countermeasures>**
- ▶ **For more information from FHWA on Local Road Safety Plans, please visit <https://highways.dot.gov/safety/local-rural/local-road-safety-plans>**

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