Sunset Drive/Circle

from Lebanon Road to Lebanon Road **(FIRST PHASE FROM LEBANON ROAD TO SUNSET CIRCLE)**

RECOMMENDED COUNTERMEASURES

				ID	Countermeasure	Cost	Schedule	Project Readiness
YES	●	●		7.1	Install/Extend Guardrail	$$	Long-Term	● ●
YES	●	●	●	7.2	Widen Lanes & Pave 2’ Shoulders	$$$$	Long-Term	● ●
NO		●		7.3	Install Advance Warning Signage for Single-Lane Bridge	$	Short-Term	●
YES	●	●		7.4	Install Combination Centerline / Edge line Rumble Strips	$$	Short-Term	Ready
NO		●	●	7.5	Realign Intersection to Correct Skew	$$$$	Long-Term	● ●

$ - 0 to 50,000; $$ - 50,001 to 100,000; $$$ - 100,001 to 500,000; $$$$ - Over 500,000

● FHWA Proven Safety Countermeasure

● Crash Modification Factors Countermeasure

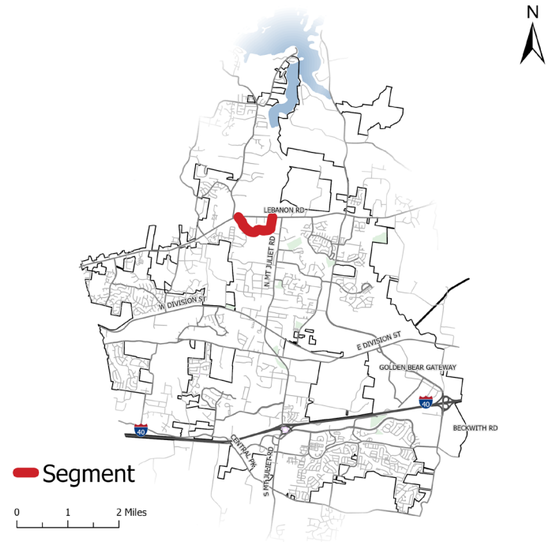
● Vulnerable Road User Related Countermeasure

● Requires ROW Acquisition

● Requires Utility Relocation

Benefit Summary

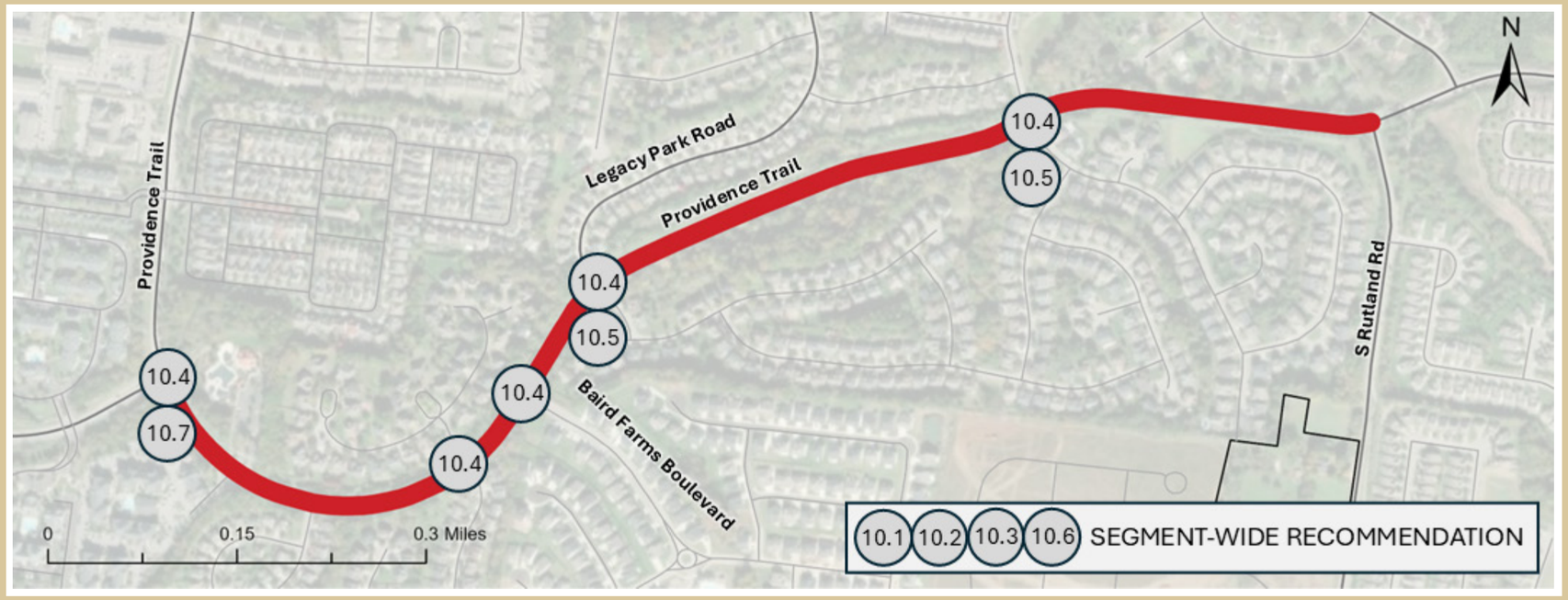
- Enhanced signage, striping, and rumble strips can collectively reduce the risk of crashes at stop-controlled intersections. These low-cost countermeasures provide a significant safety return on investment, improving safety without the need for expensive infrastructure modifications.
- Realignment can provide more space for turning lanes and improve the geometry of the intersection, making it safer and easier for vehicles to turn. By adjusting the angles at which roads intersect, realignment can reduce the number of conflict points where vehicles paths cross. This decreases the potential for crashes.
- Guardrails are designed to absorb and dissipate the energy of a crash, reducing the impact force on the vehicle and its occupants. This can significantly lower the risk of serious injuries or fatalities.
- Wider shoulders provide an increased recovery area for errant vehicles and offer a safer space for non-motorized roadway users.



Sunset Drive/Circle
from Lebanon Road to Lebanon Road

Providence Trail
from Providence Parkway to S Rutland Road

RECOMMENDED COUNTERMEASURES



				ID	Countermeasure	Cost	Schedule	Project Readiness
YES	●	●		10.1	Install Combination Centerline / Edge line Rumble Strips	$$	Short-Term	Ready
YES		●		10.2	Install Raised Pavement Markings in Advance of Intersections	$	Short-Term	Ready
YES	●	●		10.3	Implement Various Speed Reducing Countermeasures	$$	Short-Term	Ready
YES	●	●	●	10.4	Install Rectangular Rapid Flashing Beacons (RRFBs)	$	Short-Term	Ready
YES		●		10.5	Upgrade Striping & Signage at Minor Street Approaches	$	Short-Term	Ready
NO		●		10.6	Install Raised Medians between Opposing Travel Lanes	$$	Short-Term	● ●
NO	●	●	●	10.7	Install Roundabout	$$$$	Long-Term	● ●

$ - 0 to 50,000; $$ - 50,001 to 100,000; $$$ - 100,001 to 500,000; $$$$ - Over 500,000

● FHWA Proven Safety Countermeasure

● Crash Modification Factors Countermeasure

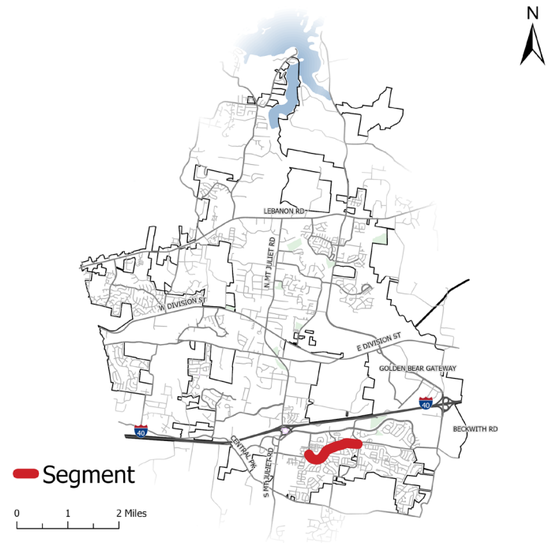
● Vulnerable Road User Related Countermeasure

● Requires ROW Acquisition

● Requires Utility Relocation

Benefit Summary

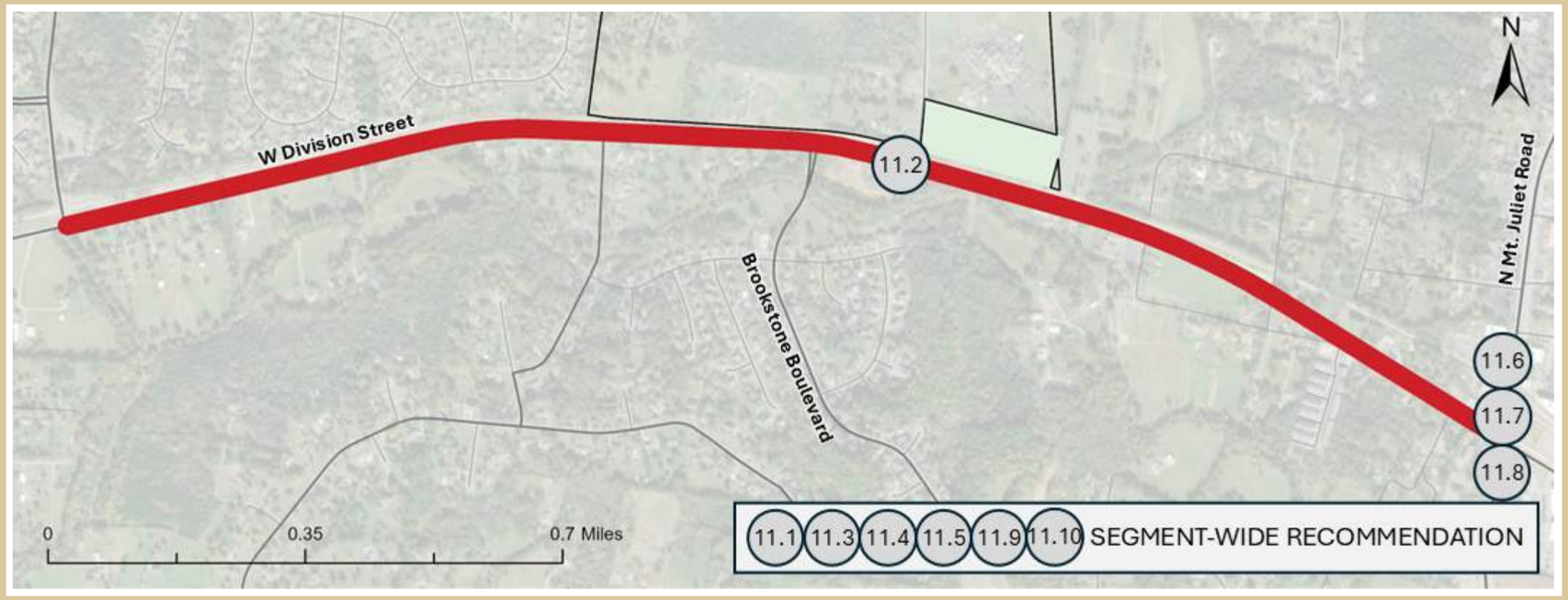
- Raised medians provide a safe refuge for pedestrians crossing the road, allowing them to focus on one direction of traffic at a time. This reduces the complexity of crossing and enhances pedestrian safety. Medians help streamline traffic flow by limiting left-turn movements to designated locations, reducing congestion and the likelihood of rear-end collisions.
- Slower speeds reduce the impact force in the event of a crash, leading to fewer severe injuries and fatalities. This is particularly important for vulnerable road users like pedestrians and cyclists.
- RPMs provide continuous lane guidance, which is particularly useful in navigating curves and complex intersections. The reflective properties of RPMs make them highly visible at night, reducing the risk of accidents by guiding drivers safely along the road.
- Enhanced signage, striping, and rumble strips can collectively reduce the risk of crashes at stop-controlled intersections. These low-cost countermeasures provide a significant safety return on investment, improving safety without the need for expensive infrastructure modifications.



Providence Trail
from Providence Parkway to S Rutland Road

W Division Street
from S Greenhill Road to N Mt. Juliet Road

RECOMMENDED COUNTERMEASURES



				ID	Countermeasure	Cost	Schedule	Project Readiness
YES	●	●		11.1	Install/Extend Guardrail	$$	Short-Term	● ●
NO			●	11.2	Consider ICE Study for Intersection Alteration	$$	Short-Term	● ●
NO	●	●	●	11.3	Widen Lanes & Pave 2’ Shoulder	$$$	Long-Term	● ●
YES	●	●		11.4	Install Combination Centerline / Edge line Rumble Strips	$$	Short-Term	Ready
NO		●		11.5	Upgrade to Retroreflective Signage and Pavement Markings	$	Short-Term	Ready
NO		●		11.6	Install Flashing Yellow Arrows (FYAs)	$$	Short-Term	Ready
NO		●	●	11.7	Optimize Crosswalk Lenths / Alignments	$$	Short-Term	Ready
NO	●	●	●	11.8	Improve Lighting	$$	Short-Term	Ready
NO	●	●	●	11.9	Install a Two-Way Left-Turn Lane (TWLTL)	$$$$	Long-Term	● ●
YES	●	●		11.10	Install Raised Pavement Markers (RPMs)	$	Short-Term	Ready

$ - 0 to 50,000; $$ - 50,001 to 100,000; $$$ - 100,001 to 500,000; $$$$ - Over 500,000

● FHWA Proven Safety Countermeasure

● Crash Modification Factors Countermeasure

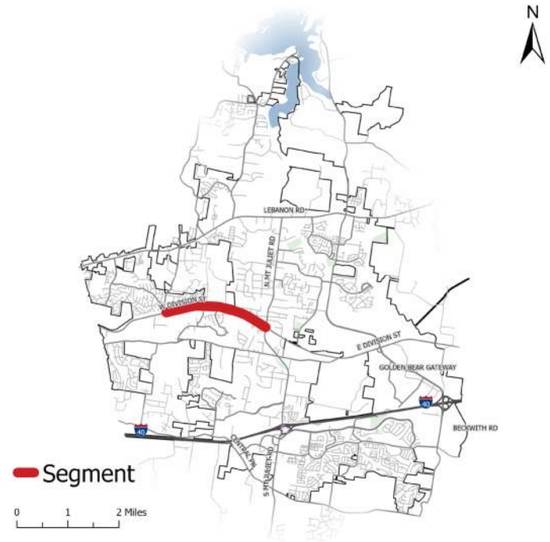
● Vulnerable Road User Related Countermeasure

● Requires ROW Acquisition

● Requires Utility Relocation

Benefit Summary

- Enhanced signage, striping, and rumble strips can collectively reduce the risk of crashes at stop-controlled intersections. These low-cost countermeasures provide a significant safety return on investment, improving safety without the need for expensive infrastructure modifications.
- Improved lighting helps drivers see the road and its surroundings more clearly, reducing the likelihood of accidents caused by poor visibility. Adequate lighting at pedestrian crossings and intersections increases the visibility of pedestrians, reducing the risk of pedestrian-related accidents.
- Guardrails help prevent vehicles from leaving the roadway, which can reduce the severity of crashes by preventing vehicles from hitting fixed objects or rolling over.
- By evaluating different intersection control options, ICE helps identify solutions that can reduce crash rates and improve overall safety for all road users, including pedestrians, cyclists, and drivers.
- Wider shoulders provide an increased recovery area for errant vehicles and offer a safer space for non-motorized roadway users.



W Division Street
from S Greenhill Road to N Mt. Juliet Road

Curd Road
from Lebanon Road to Golden Bear Gateway

				ID	Countermeasure	Cost	Schedule	Project Readiness
NO	●	●	●	12.1	Widen Shoulder	$$$	Long-Term	● ●
YES	●	●		12.2	Install Curve Feedback Warning Signs	$$	Short-Term	●
YES	●	●		12.3	Install Combination Centerline / Edge line Rumble Strips	$$	Short-Term	Ready
YES	●	●		12.4	Upgrade Guardrail and Extend Guardrail Lengths at Bridges/Culverts	$$	Short-Term	● ●
NO		●	●	12.5	Conduct ICE Study for Intersection Geomerty	$$	Short-Term	● ●
NO	●	●		12.6	Implement Various Speed Reducing Countermeasures	$$	Short-Term	Ready
NO	●	●		12.7	Install Advanced Warning Signage Ahead of Intersection	$	Short-Term	Ready
NO		●		12.8	Evaluate Left-Turn Lane Warrant for Westbound Approach	$	Short-Term	Ready
NO		●		12.9	Correct Horizontal & Vertical Geometry of Roadway	$$$$	Long-Term	● ●

$ - 0 to 50,000; $$ - 50,001 to 100,000; $$$ - 100,001 to 500,000; $$$$ - Over 500,000

● FHWA Proven Safety Countermeasure

● Crash Modification Factors Countermeasure

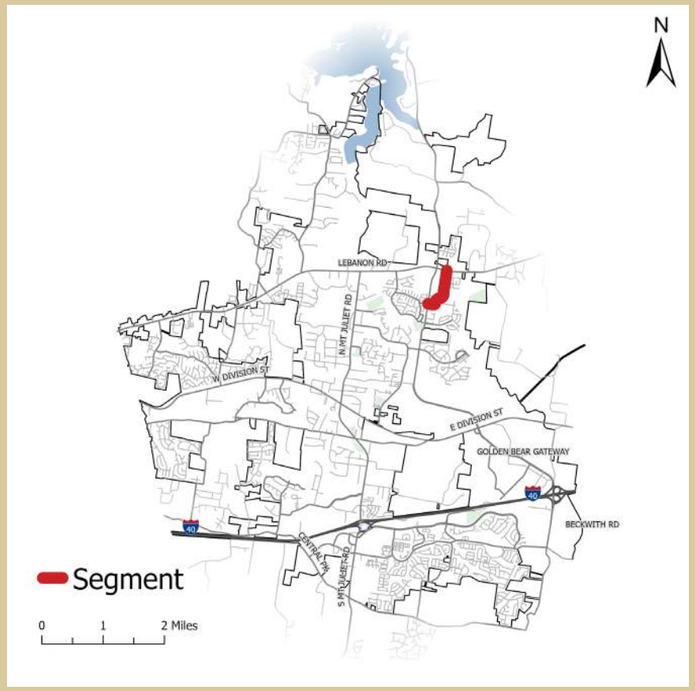
● Vulnerable Road User Related Countermeasure

● Requires ROW Acquisition

● Requires Utility Relocation

Benefit Summary

- Wider shoulders provide an increased recovery area for errant vehicles and offer a safer space for non-motorized roadway users.
- Speed-reducing countermeasures make it clear to drivers that lower speeds are expected and required. Safer speeds have been shown to lead to lower crash severity, increased driver reaction time, enhanced pedestrian and cyclist safety, and environmental benefits.
- By evaluating different intersection control options, ICE helps identify solutions that can reduce crash rates and improve overall safety for all road users, including pedestrians, cyclists, and drivers.
- Guardrails are designed to absorb and dissipate the energy of a crash, reducing the impact force on the vehicle and its occupants. This can significantly lower the risk of serious injuries or fatalities.
- Enhanced signage, striping, and rumble strips can collectively reduce the risk of crashes at stop-controlled intersections. These low-cost countermeasures provide a significant safety return on investment, improving safety without the need for expensive infrastructure modifications.



RECOMMENDED COUNTERMEASURES

Curd Road
from Lebanon Road to Golden Bear Gateway

W Division Street
from Chandler Road to S Greenhill Road

RECOMMENDED COUNTERMEASURES

				ID	Countermeasure	Cost	Schedule	Project Readiness
NO	●	●	●	13.1	Widen Shoulders	$$$	Long-Term	● ●
NO	●	●		13.2	Implement Various Speed Reducing Countermeasues	$$	Short-Term	Ready
YES	●	●		13.3	Install Combination Centerline / Edge line Rumble Strips	$$	Short-Term	Ready
YES	●	●		13.4	Install/Extend Guardrail	$$	Short-Term	● ●
NO		●		13.5	Clear and Grub to Optimize Driver Sight Distance (15 ft Both Sides of Road)	$	Short-Term	●
YES	●	●		13.6	Install Curve Feedback Signage	$	Short-Term	Ready
NO	●	●	●	13.7	Extend Town Center Greenway to Mt. Juliet Elementary	$$$	Long-Term	● ●
YES	●	●	●	13.8	Install Pedestrian Hybrid Beacons (PHBs) for Multi-Use Connection	$$$	Mid-Term	● ●

$ - 0 to 50,000; $$ - 50,001 to 100,000; $$$ - 100,001 to 500,000; $$$$ - Over 500,000

● FHWA Proven Safety Countermeasure

● Crash Modification Factors Countermeasure

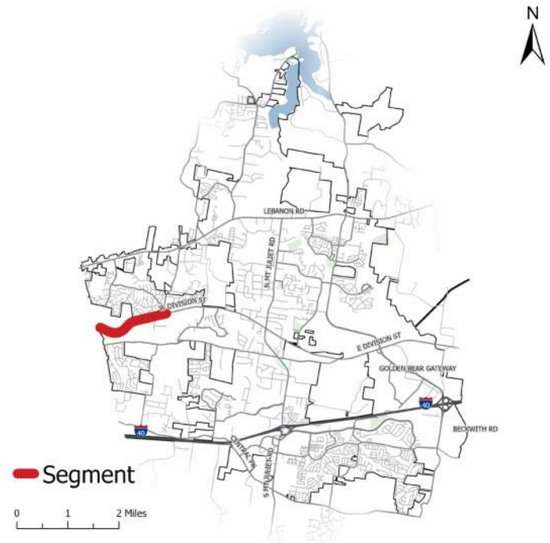
● Vulnerable Road User Related Countermeasure

● Requires ROW Acquisition

● Requires Utility Relocation

Benefit Summary

- Speed-reducing countermeasures make it clear to drivers that lower speeds are expected and required. Safer speeds have been shown to lead to lower crash severity, increased driver reaction time, enhanced pedestrian and cyclist safety, and environmental benefits.
- Guardrails help prevent vehicles from leaving the roadway, which can reduce the severity of crashes by preventing vehicles from hitting fixed objects or rolling over.
- Backplates with retroreflective borders increase the conspicuity of traffic signal heads, especially under low-light conditions. They also help drivers quickly and easily identify traffic signals in the presence of visual clutter. This enhanced visibility and recognition can lead to a reduction in rear-end and angle crashes at signalized intersections.
- FYAs help reduce the frequency of left-turn crashes, particularly those involving collisions between left-turning vehicles and oncoming traffic. Studies have shown a significant decrease in these types of crashes after implementing FYAs.
- Wider shoulders provide an increased recovery area for errant vehicles and offer a safer space for non-motorized roadway users.



W Division Street
from Chandler Road to S Greenhill Road

Nonaville Road
from Sports Road to Lebanon Road

				ID	Countermeasure	Cost	Schedule	Project Readiness
NO	●	●	●	18.1	Install Median (Install Left-Turn Lanes as Necessary)	$$$	Long-Term	Ready
NO		●		18.2	Upgrade Signage and Pavement Marking	$	Short-Term	Ready
YES	●	●		18.3	Upgrade Guardrail and Extend Guardrail Lengths at Bridges/Culverts	$$	Short-Term	● ●
NO	●	●	●	18.4	Implement Various Red-Light Running Countermeasures	$	Short-Term	Ready
NO	●	●	●	18.5	Optimize Signal Timings & Coordination Plans	$$	Short-Term	Ready
NO	●	●	●	18.6	Evaluate Yellow Clearance Intervals	$$	Short-Term	Ready
YES	●	●		18.7	Install Raised Pavement Markers (RPMs)	$$	Short-Term	Ready
NO	●	●	●	18.8	Improve Lighting	$$	Short-Term	●
YES	●	●		18.9	Install Combination Centerline / Edge line Rumble Strips	$$	Short-Term	Ready

$ - 0 to 50,000; $$ - 50,001 to 100,000; $$$ - 100,001 to 500,000; $$$$ - Over 500,000

● FHWA Proven Safety Countermeasure

● Crash Modification Factors Countermeasure

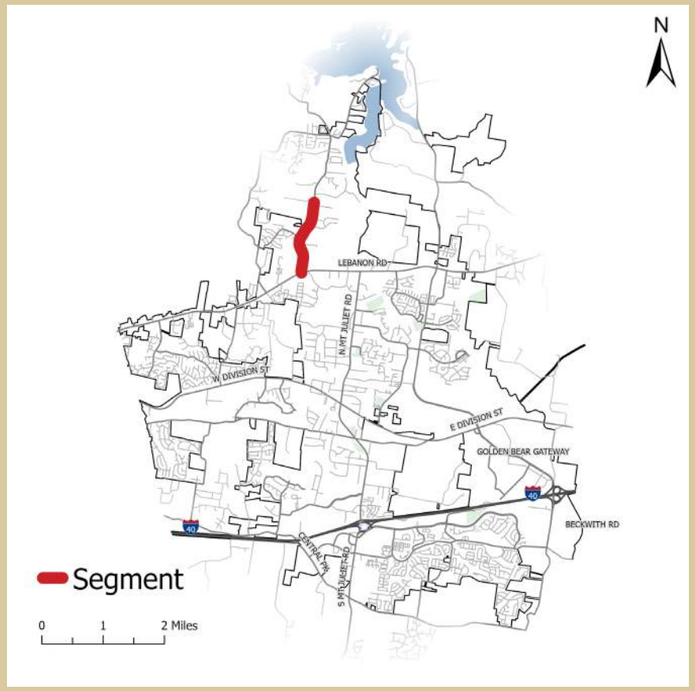
● Vulnerable Road User Related Countermeasure

● Requires ROW Acquisition

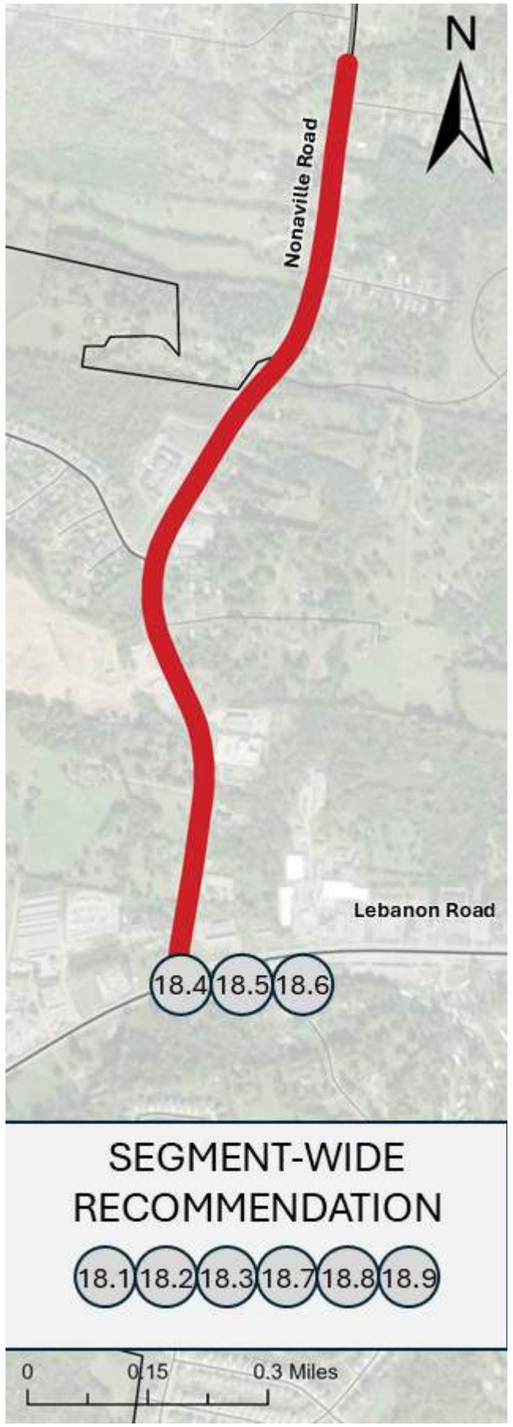
● Requires Utility Relocation

Benefit Summary

- Wider shoulders provide an increased recovery area for errant vehicles and offer a safer space for non-motorized roadway users.
- Properly timed signals reduce the likelihood of vehicles entering intersections simultaneously, thereby decreasing the risk of collisions.
- Shorter crosswalks reduce the time pedestrians spend in the roadway, minimizing their exposure to vehicular traffic and decreasing the likelihood of accidents.
- Guardrails are designed to absorb and dissipate the energy of a crash, reducing the impact force on the vehicle and its occupants. This can significantly lower the risk of serious injuries or fatalities.
- FYAs help reduce the frequency of left-turn crashes, particularly those involving collisions between left-turning vehicles and oncoming traffic. Studies have shown a significant decrease in these types of crashes after implementing FYAs.
- Medians can prevent left-turn and head-on crashes by separating opposing traffic flows. They also facilitate better access management by controlling where vehicles can turn, thereby reducing unpredictable movements that can lead to crashes.



RECOMMENDED COUNTERMEASURES



Nonaville Road
from Sports Road to Lebanon Road