



Washoe County Public Works

Lemmon Drive Road Safety Audit
North Virginia to Ramsey

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Road Safety Audit Purpose

- ❖ Identify potential road safety issues.
- ❖ Recommend countermeasures.
- ❖ Include countermeasures in future projects.



Statutory Notice:

23 U.S.C. § 409 : US Code - Section 409: Discovery and admission as evidence of certain reports and surveys

Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

Lemmon Drive Characteristics

- 3 Jurisdictions
- Number of Lanes varies from 2 – 6
- Speeds vary from 35 to 45 MPH
- Commercial to rural residential
- Pedestrian improvements include sidewalk, separated path and nonexistent.



Characteristics Continued

- High volume intersections
 - N. Virginia
 - Sky Vista/Buck
 - Military Rd
- Low volume intersections
- Multiple Driveways



Accident Summary

- 5 year crash history, 133 total
 - 83 property damage only
 - 48 injury
 - 2 fatal (the crash history didn't include the Nov 2013 fatal)



Timeline

- Request to NDOT for Road Safety Audit
- 12/9/2013 NVCAB meeting
- Team Field Review 2/11/2014
- Road Safety Audit Report
- 4/14/2013 NVCAB meeting



Recommendations

- 27 recommendations
- Listed by Jurisdiction as either near future improvements or long range project planning.



SUMMARY OF RECOMMENDATIONS

Lemmon Drive from North Virginia Street to Ramsey Way

Pre-Construction Phase RSA

Note: Numbered recommendations can be found on the attached aerial photo plan sheets.

Priority 1A - is defined as those improvements that can be done in the immediate future by Washoe County Maintenance staff.

- 1. Determine if the beginning of the median ditch approaching from Military Road is within the clear zone.*
- 2. Stripe minimum lanes of 9' with the excess added to each shoulder for the crossovers on Lemmon Drive starting at Bernoulli Street to Fleetwood Drive.*
- 3. Review the guidelines in the MUTCD Section 2B.40 for all of the crossovers on Lemmon Drive to adjust the one way signs for uniformity.*
- 4. Move the object marker for the head wall on the south side of the roadway east of Patrician Drive up and in front of the headwall of the ditch.*
- 5. Add new chevron signs at the curve located a Deodar Way. Include chevrons to be seen from both directions of travel on Lemmon Drive with equal spacing if possible.*
- 6. Discuss with the US Postal Service about replacing the on street mailboxes with a set of cluster boxes on one of the adjacent side streets.*
- 7. Replace the signs along Lemmon Drive that do not meet reflectivity.*
- 8. Coordinate with Washoe RTC to remove the bus stops on the westbound side of the roadway and provide both pick-up and drop-off service for the stop on the eastbound side of the roadway on Lemmon Drive between Military Road and Surge Street. Add solar lights to the bus stops to provide better visibility of waiting riders*

Priority 1B - is defined as those improvements that can be done in the immediate future by City of Reno Maintenance staff.

- 9. Construct a sidewalk between the offset sidewalk and the curb and gutter for the RTC Bus stop located 180 feet east of the North Virginia Street and Lemmon Drive intersections.*
- 10. Restripe the Sky Vista intersection cat-tracks for the eastbound and westbound dual left turn lanes.*

11. *Add shoulder material and re-grade the shoulders between the curb and gutter area east of Sky Vista Boulevard to Military Road.*
12. *Add delineation to the raised islands at Military Road and Lemmon Drive.*
13. *Replace the signs along Lemmon Drive that do not meet reflectivity.*

Priority 1C - is defined as those improvements that can be done in the immediate future by NDOT District II Maintenance Staff.

14. *Add a sign to the stop sign to warn eastbound traffic that opposing westbound traffic does not stop at the intersection on the east side of the Lemmon Drive and I-80 interchange.*

Priority 2A - is defined as those improvements that can be included in the long range project planning for Washoe County when funding is available.

15. *If the beginning of the median ditch approaching from Military Road is in the clear zone, then construct a method of protecting it from errant vehicles such as reshaping the slope extending the box culvert, or adding a railing or barrier along the shoulder.*
16. *Replace the light poles to a standard breakaway base and luminaire for the crossovers on Lemmon Drive starting at Bernoulli Street to Fleetwood Drive.*
17. *Construct bike lanes or a multi use path from Military Road to Bernoulli Street.*
18. *Install an RRFB crossing system for each direction of traffic on Lemmon drive for the crossing location at Surge Street.*
19. *Construct sidewalk, curb and gutters, street lighting, and access points for the businesses between Limber Pine Drive and West Surge Street on the north side of the roadway.*
20. *Update the controller and flashers for the school zone and add to the system a pedestrian activated RRFB system for when pedestrians are actually in the crossing. This will also add to the safety of the intersection when pedestrians cross during non school zone hours.*
21. *Move the multi use path to the other side of the drainage ditch from East Patrician Drive to Palace Drive.*
22. *Move ditch farther away from the road if right-of-way width is available for the ditch on the west side of the roadway between Ramsey Way and Pompe Way.*

Priority 2B - is defined as those improvements that can be included in the long range project planning for City of Reno when funding is available.

- 23. Perform a sight distance study at the intersection of North Virginia Street and Lemmon Drive. Lower the vertical curve if the sight distance study determines a need.*
- 24. Construct bike lanes or a multi use path from Military Road to Sky Vista Parkway.*

Priority 2C - is defined as those improvements that can be included in NDOT 3R project planning when funding is available.

- 25. Construct sidewalks from the east side of the I-80/ Lemmon Drive interchange to the west side to connect into the existing sidewalks.*
- 26. Reconstruct the intersection for the northbound off-ramp and Lemmon Drive to be a slower speed radius and move the gore point farther to the west to allow for a longer weave area to make the left turn lanes and approach entrances.*
- 27. Perform a feasibility study to change the US 395 intersections at Lemmon Drive for the on and off ramps to a roundabout controlled intersection for the northbound and southbound ramp intersections.*



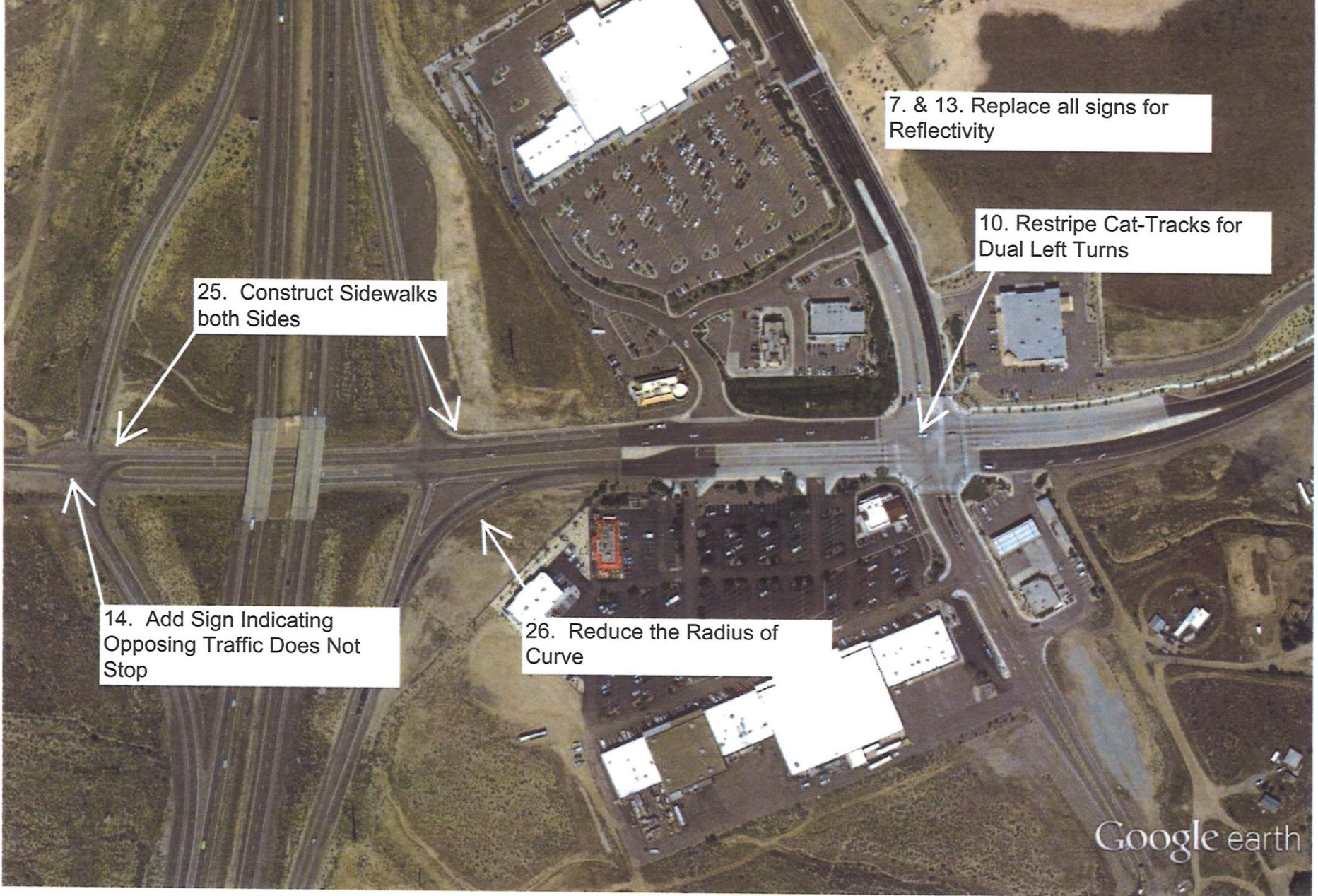
7. & 13. Replace all signs for Reflectivity

9. Connect Sidewalk to Curb Area Bus Stop

23. Sight Distance Issue From Vertical Curb

Google earth





7. & 13. Replace all signs for Reflectivity

10. Restripe Cat-Tracks for Dual Left Turns

25. Construct Sidewalks both Sides

14. Add Sign Indicating Opposing Traffic Does Not Stop

26. Reduce the Radius of Curve

Google earth



7. & 13. Replace all signs for Reflectivity

11. Add Shoulder Material to Both Sides

24. Construct Bike Lane

12. Add Delineation to Raised Islands

Google earth



7. & 13. Replace all signs for Reflectivity

16. Replace the Light Poles to Breakaway Type Luminares

2. & 3. Stripe Crossover for Lanes and Shoulders and Update One Way Signs

4. Add Delineation to Raised Islands

1. & 15. Ditch Next to Roadway

17. Construct Bike Lane

7. & 13. Replace all signs for Reflectivity

16. Replace the Light Poles to Breakaway Type Luminaires

8. Move Bus Stops to Other Side

Construct Bike Lane

2. & 3. Stripe Crossover for Lanes and Shoulders and Update One Way Signs



7. & 13. Replace all signs for Reflectivity

18. Install RRFB at Surge Street Crossing

19. Construct Curb & Gutter, Sidewalk and Driveways

2. & 3. Stripe Crossover for Lanes and Shoulders and Update One Way Signs

16. Replace the Light Poles to Breakaway Type Luminaires

7. & 13. Replace all signs for Reflectivity

20. Replace School Zone Equipment and Install New RRFB.

4. Object Marker to be Moved

21. Multi Use Path Next to Road


7. & 13. Replace all signs for Reflectivity

5. Add and Replace Chevron Signs for Curve





7. & 13. Replace all signs for Reflectivity



6. Mailboxes Close to Shoulder



7. & 13. Replace all signs for Reflectivity

22. Move Roadside Ditch Away From Shoulder

Questions



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