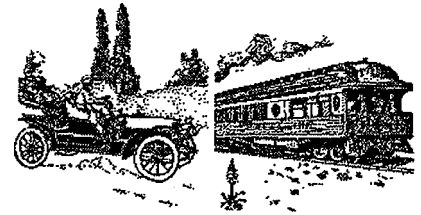


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Morro Hills Community Services District June 3, 2004
P. O. Box 161
Fallbrook, CA 92088-0161
Attn: Mr. Tom Harrington
Dear Mr. Harrington:

Re: Morro Hills Traffic Safety & Calming Study Report

Daniel Benson & Associates is pleased to submit this report on our professional transportation engineering services relative to the Morro Hills Traffic Safety & Calming Study in order to recommend improvements in traffic safety and traffic calming within the community.

In brief, the scope of services of the traffic safety and calming analysis includes review of the existing traffic and planned land use conditions in and near the community, identification of traffic safety problems, development of traffic volume and speed studies for peak movement periods, identification and recommendation of possible traffic calming devices and improvements at various locations, considering the frequent roadway curves and hills, and a report with traffic safety recommendations.

Executive Summary

The initial work phase confirmation of our traffic safety and calming goals and objectives. We received a series of detailed aerial photos and made windshield surveys to confirm street conditions, signs, obstructions of District right-of-way, and approximate grades. We estimated annual traffic growth in the area plus traffic from 50 new houses being built at del Valle.

The District contracted with Southland Car Counters to complete standard speed studies be made at 5 locations of key downgrades, curves, and straight-aways. They also completed tube counts at 5 key locations. They also made an automated truck classification count, but the results were not able to discriminate size of trucks. We completed peak turn counts at Morro Hills at Sleeping Indian, and Sleeping Indian at Tumbleweed. Results indicate that there are peak hours in mid-afternoon and late morning that are almost as high as the 8 am and 5 pm peaks. There was minimal peaking on east-west streets. Speed studies of 85 per cent of drivers, who are considered to be the safe drivers, do up to 44 mph on Sleeping Indian straight segments and 41 mph on Sleeping Indian curves. Speeds are 37 mph on Morro Hills Road and 33 mph on Tumbleweed. On Morro Hills between the San Jacinto Circles speeds are 37 mph. These speeds appear to have dropped by 5 to 10 mph since the 1989 studies. In general, speed limits should reflect these speeds. None of these speeds are unusually high for conditions, but some drivers do not slow enough for the curves in between these locations.

Daniel Benson and Associates

Speeds may have decreased because traffic counts since 1989 have increased approximately 50 per cent, from 800 to 900 daily in 1989 on Sleeping Indian to 1150 in the north end and 1350 in the south end. Morro Hills has also grown about 50 per cent from 330 to 480 daily. First-ever counts on Tumbleweed are only 220 vehicles daily. This growth is consistent with overall growth in the North County and represents 3 per cent annually without compounding.

We evaluated the ability of the existing intersections and curves, straight-aways, and hills to safely accommodate travel needs of the community and identified problem locations, most of which are already fairly obvious to residents. We were provided with a comprehensive list of 19 accidents in the District from County records for the past 10 years. Almost half, or 8, were in the dark where there are no street lights. Almost a quarter involved alcohol or drugs, which indicates that street improvements or traffic calming might have limited benefit in those cases. Most were at or near intersections, and the largest number, 5 accidents, were at or near Sleeping Indian and Morro Hills, including 3 hitting objects at unsafe speeds. The data did not indicate exact locations. There were 5 more near Morro Hills and high volume--Olive Hill (probably outside the District). Two accidents were near Sleeping Indian and Tumbleweed. The accidents do not appear to show an alarming pattern caused by unsafe roadway design.

Findings

We developed the following alternative traffic mitigation measures and improvements to provide an acceptable level of safety for peak traffic, bicycle, equestrian, and pedestrian safety at locations of concern, as follows:

- 1. We found that standard roundabouts of approximately 100 foot diameter of pavement would require excessive property contributions by members who are adjacent property owners of the District. However, mini-roundabouts can be developed generally within available rights of way. Incoming traffic would have Yield signs and would have to turn before the roundabout, causing drivers to slow down. Roundabouts are documented to improve intersection safety because any accidents are likely to be indirect sideswipes. We have some concerns that the current speeds on Sleeping Indian at Tumbleweed may be too high for a mini-roundabout design, however. Only the intersection of Tumbleweed and del Valle could be wide enough for a mini-roundabout, but the speeds are so low there that it may not be necessary.
- 2. We considered median islands and choker islands similar to those used on the County's Corral Canyon Road project at Shadow Canyon. Such treatments have limited potential because most of the Morro Hills streets are narrow two lane roads without paved shoulders. Median islands (12 ft x 20 ft) on both sides of Sleeping Indian at Tumbleweed would require minor street widening by paving tapered triangles of 6 feet by 20 feet plus taper on all four corners of Sleeping Indian. The two islands would provide limited protection for left turning vehicles, as well.
- 3. More stop signs were considered, but they would be routinely violated. Drivers who are made to stop for no cross traffic tend to speed up even more to make up for lost time.
- 4. We also considered rumble strips, which are too noisy for most residential use. A temporary demonstration site should be considered if the roadway slope at one or two locations cannot be rebuilt, and if a low-noise-impact site can be found on the downhill entrance road from Oceanside.
- 5. Speed bumps with highway-type gentle slopes could be considered at sections of roadway with less than eight per cent slope, such as the downward slopes at both ends of Sleeping Indian Road. They should not be the stiff shopping center speed bumps. Locations would be the North and South

Dudenhoffer curves, but building up the roadway edge would be preferred. Curve warning signs would also be needed, in the northbound direction. They also slow fire and police vehicles.

-6. We have found no evidence in speed studies or accident data to recommend changes in speed limits except at curves with inadequate superelevation (sloping to the side the wrong way). It is preferable to raise the elevation of the northbound edge of 4686 Sleeping Indian Road,, the South Dudenhoffer curve . The private driveway at that curve is elevated, so there would be no problem with meeting the driveway at the higher superelevation. At the North Dudenhoffer or Zoo curve, a similar slide slope improvement is needed, although the culvert there would need to be protected with a curb or barrier.

-7. The pedestrian "tunnel" on the west side of Sleeping Indian north of Tumbleweed is well maintained. Notification or warning signs are needed in both directions on the east side where there is no access.

-8. The 4105 Sleeping Indian Road property north of the "tree tunnel" is in violation of ROW, with a post at 19 feet from the centerline, walls at 20 feet, and chain link fence at 21 feet. Other properties may be cited based on on-site measurements by maintenance crews. We recommend that your District's Attorney write to this violator, offering a two year period to move the fence or fund a bond if the owner signs a document now acknowledging ownership by the District. This depends on how long the violation of ROW has been in effect. The matter should be considered in closed session, of course.

-9. We advise removing the Oceanside entrance warning sign referencing "risk" as a liability flag. Curve or winding roadway standard yellow signs are better. A modern reflectorized entrance sign at the four main entrance streets would be more visible. A reference to "speeds and signs are strictly enforced" would be preferable.

-10. Shoulder widening for mailpersons and school buses is not practical in many locations. School bus stop locations vary from year to year. Work with the school district transportation supervisor to grade current locations off the road and to identify new student stops in future years on a continuing basis. School bus warning signs should be considered on both sides of the road at each current location. They can readily be moved or removed when all students have moved from that location.

-11. Based on my traffic engineering experience, the stop signs at Sleeping Indian and Burma Road do not improve safety. I estimate that half the vehicles do not stop. They do not meet any safety warrants or standards and should be removed. Their presence merely engenders disrespect for stop signs. Remove the stop lines as well. Only the eastbound Burma Road approach should have a stop sign. The vehicles already slow down to make the turn.

-12. There are warning and speed control signs that are obscured by bushes and trees. They should be trimmed within the next month.

-13. We do not recommend closing Tumbleweed at del Valle at the District boundary to reduce traffic volumes. Traffic levels are minimal all day and speeds are relatively low in that area.

-14. Road work can be hazardous on narrow roads with turns and hills. As a member of the Work Area Traffic Control Handbook (WATCH) Committee, I urge the District to strictly follow the WATCH Manual for safety and for limitation of liability.

-15. We cannot recommend walkways/ equestrian ways on the edges of the through roadways because the right of way is narrow or sloped in many locations. A separate study is needed to identify off-road

paths where property owners are willing to allow easements, and along short streets. This would best be done by an Association Pathways Committee rather than a consultant. This could be a significant enhancement of land values, as it has been in Fullerton and other towns. In future years they could be paved, with bollards to allow bicycles but deny motorcycles.

-16. There are about a dozen mailboxes that create a hazard on roads with horizontal or vertical curves that limit sight distance around the mail trucks when stopped. Based on safety justification, the District should work with the US Postal Service to move these mailboxes to safe mailbox cluster locations nearby. This is standard practice for the Postal Service in new subdivisions, and that agency should be asked by the District to take the lead, in consultation with homeowners and the District staff.

Recommendations

1. The most practical location for a mini-roundabout is at Tumbleweed and del Valle, but speeds are moderate and it is not recommended unless traffic from new developments becomes a future problem.

2. Intersection widening by 6 feet on both sides of a 12-foot median island on Sleeping Indian at Tumbleweed is not recommended unless the community decides that the current speeds are unacceptable and agrees to fund it.

3. The traffic engineering profession is in agreement that all-way stop signs are not a solution for excessive speeds, and they only encourage stop sign running and create added noise.

4. Rumble strips are not recommended at the two downhill entrances on Sleeping Indian unless a location can be found that does not transmit noise to nearby houses.

5. Speed bumps are not recommended at this time. Curve signs provide adequate warning that vehicles should slow down for most curves.

6. At the south and north "Dudenhoffer curves" additional asphalt on the northbound roadway edge is recommended to reduce tire and braking noise and increase safety. Curve signs should be added.

7. At the pedestrian "tree tunnel" on Sleeping Indian, both sides of the bluff that prevents pedestrian traffic on the northbound side need a "No Pedestrians" symbol sign, R9-3a. An option would be to add a sign, "Pedestrians must cross street."

8. The District's Attorney should take steps to notify the 4105 Sleeping Indian property owner of his right-of-way (ROW) fence violation. We recommend an urgent signed agreement allowing a limited time to move the posts, wall, and fence. This would set a precedent for other ROW violations.

9. We recommend removing the "risk" entrance sign as a liability flag. Modern reflectorized entrance signs indicating strict enforcement of speed and other traffic regulations.

10. Work with the school district transportation supervisor to identify next Fall's school bus stop locations. Provide improved off-road grading at those sites where possible and post "SCHOOL BUS STOP AHEAD" signs on both sides of the street where visibility is limited, or at all stops.

11. Remove most of the stop signs at Burma and Sleeping Indian. They do not meet safety warrants or improve safety. The sharp turn slows vehicles, anyway. Keep the stop sign on eastbound Burma.

12. Several warning and speed control signs are obscured by trees and bushes. Trim them within the next month.

13. We do not recommend closing Tumbleweed at del Valle near the District boundary. Speeds and volumes are low.

14. Whenever road work is done in the District, it can be very hazardous, with significant risk of lawsuits. Follow the WATCH Manual in all respects and regularly retrain flag personnel.

15. Set up an Association Pathways Committee to identify possible off-road pedestrian-horseback trails and request easements from adjacent property owners. The District's roadway shoulders are too narrow and obstructed for general widening. They can enhance area property values.

16. Request that the US Postal Service inventory and order mailboxes moved from locations that become hazardous whenever mail vehicles stop there, obstructing driver sight distance and endangering the carriers.

Thank you for the opportunity to assist you in this effort to improve traffic safety in Morro Hills. I look forward to answering any questions as you implement your safety program.

**RESPECTFULLY SUBMITTED,
DANIEL BENSON & ASSOCIATES**

Daniel E. Benson

**DANIEL E. BENSON, P.E., A.I.C.P., PRINCIPAL
DEB:JE**