

Appendix D:
Traffic Impact Analysis



COMMUNITY DEVELOPMENT
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DATE: SEPTEMBER 21, 2010
TO: RAY JARVIS, PUBLIC WORKS; MARK WARDLAW, COMMUNITY DEVELOPMENT
FROM: JESSICA MORRISS, TRANSPORTATION PLANNER
RE: TERRY PLUM VTPM/UPA 10-001 – TRAFFIC IMPACT ANALYSIS SUMMARY

BACKGROUND:

The Terry Plum Vesting Tentative Parcel Map/Use Permit 10-001 (Project) proposes to subdivide one parcel into four lots for the future development of single-family homes. Three of the new lots would take access at the south end of Tamarack Street (Gibbs Cemetery Road) and the fourth lot would take access from Le Verne Street in the Bluffs subdivision. A public parking area with a maximum of six spaces is also proposed (but not required) as part of the Project. The proposed public parking area is intended to serve existing demand by recreational users who access the public lands south of the Project.

The purpose of this memo is to summarize the traffic impact analysis prepared by Town staff (and peer-reviewed by LSC Transportation Consultants, Inc.) for the Project, including an assessment of vehicle speed data and roadway capacity for Tamarack Street. Because the Project does not propose additional single-family lots accessing Le Verne Street than were already assumed as part of the Bluffs Subdivision, analysis of traffic impacts on Le Verne Street was not conducted.

DISCUSSION/ANALYSIS:

Tamarack Street Roadway Capacity Analysis

A traffic impact analysis for the Project was prepared by Town staff (dated July 27, 2010) in which the number of cumulative vehicle trips on Tamarack Street, with and without the Project, were estimated and potential roadway capacity impacts (from the three additional single-family homes accessing Tamarack Street) were analyzed. The traffic impact analysis is attached for reference.

Single-Family Home Trip Generation

The traffic analysis estimated the number of vehicle trips on Tamarack Street under cumulative conditions by applying the Institute of Transportation Engineers (ITE) standard trip generation rate (daily and peak hour) for a single-family home to the number of existing single-family home parcels (built and vacant) accessing Tamarack Street. Using this method, the estimated number of cumulative daily trips on Tamarack Street without the Project is 549 and the estimated number

of peak hour trips is 55. The three additional single-family homes that are proposed to access Tamarack Street are estimated to produce 39 daily trips and 14 peak hour trips, bringing the total estimated cumulative daily trips on Tamarack Street to 588 and the total peak hour trips to 69.

Proposed Public Parking Area Trip Generation

The Project also proposes to provide a maximum of six public parking spaces to accommodate existing parking use. While it is unlikely that the construction of a formalized parking area would create a much greater parking demand than that which already exists, the traffic impact analysis included an estimation of potential new vehicle trips associated with the proposed public parking area.

The analysis assumed that each parking space would turnover three times per day, adding a total of 18 daily trips and 4 peak hour trips to Tamarack Street. Also included was an estimation of potential new “drop-off” trips created by recreational users who drop one vehicle off at a trailhead and then drive to another trailhead location in order to do a loop trip. The analysis assumed that approximately four “drop-offs” may occur at the Project location and that each of these “drop-offs” would create 4 trips for a total of 16 additional vehicle trips. Therefore, the total trips on Tamarack Street under cumulative conditions, including the Project, are estimated to be 622 daily trips and 75 peak hour trips.

Tamarack Street Roadway Capacity

The cumulative vehicle trips were then compared to the roadway capacity of Tamarack Street. As noted in the traffic impact analysis, the actual roadway capacity for a typical secondary two-lane residential street is approximately 4,000 to 6,000 vehicles per day. However, to provide a more conservative analysis reflecting the physical constraints and residential nature of the roadway, a “livability” capacity of 1,500 vehicles per day and 150 peak hour trips was used to represent the maximum vehicle volume that could be accommodated on Tamarack Street while maintaining safety and “livability.”

Results

In conclusion, the traffic impact analysis determined that there are no roadway capacity impacts to Tamarack Street because the total estimated cumulative trips, including the Project (622 daily and 75 peak-hour trips), are well within the established “livability” capacity for the roadway (1,500 daily and 150 peak hour). A peer-review, conducted by LSC Transportation Consultants, Inc. (dated July 28, 2010), concurred with the methodology and results of the analysis. The peer-review letter is attached for reference.

Following the preparation of the initial traffic impact analysis and peer-review by LSC, Inc., Town staff collected existing “on-the-ground” volume data on Tamarack Street to verify the trip estimates used in the initial traffic impact analysis. A tube-counter was installed on Tamarack Street between Friday, July 30, 2010 and Tuesday, August 10, 2010 (12 days, 24 hours per day).

Results from the tube-counter indicate that the existing average daily traffic (ADT) was 247 vehicles and that the peak daily traffic during the study period was 312 vehicles (occurring on Friday, August 6, 2010). The peak-hour traffic volume during the study period was 38 vehicles and occurred between 11:45 AM and 12:45 PM on the peak day. As shown through the

collected data, the existing volumes on Tamarack Street are significantly less than the volumes estimated in the traffic analysis using standard ITE trip rates for the existing single-family home parcels (built and vacant) accessing Tamarack Street (312 daily and 38 peak-hour vs. 549 daily and 55 peak-hour trips).

In summary, existing traffic as measured “on-the-ground,” plus future traffic related to the Project, and future traffic resulting from the development of currently vacant parcels accessing Tamarack Street is less than the trip generation assumed in the initial traffic impact analysis. Therefore, the initial traffic impact analysis represents a conservative analysis of the cumulative trips on Tamarack Street with the Project, and shows that there are no anticipated roadway capacity impacts to Tamarack Street.

Tamarack Street Vehicle Speed Analysis

Speed data was collected on Tamarack Street between Friday, July 30, 2010 and Tuesday, August 10, 2010 (12 days, 24 hours per day). The current speed limit on Tamarack Street is 25 mph, although there are currently no speed limit signs along the street.

Results

The results of the speed survey indicate that the average vehicle speed during the study period was 21.8 mph and the 85th percentile speed (defined as the speed at or below which 85 percent of vehicles are traveling) was 27 mph. Federal and State law require that the speed limit on a roadway be set to the closest 5 mph increment of the 85th percentile speed as measured by survey. Therefore, the speed limit of 25 mph on Tamarack Street appears to be correct. The Town may wish to add appropriate speed limit signage along Tamarack Street and to consider potential additional traffic calming measures if desired by Tamarack Street residents (via the adopted neighborhood traffic management/calming public process as defined in the Town’s Traffic Management Plan).

Attachments:

1. Terry Plum TPM 10-001 Trip Generation and Tamarack Street Capacity, July 27, 2010
2. LSC Transportation Consultants, Inc. Peer-Review Letter, July 28, 2010

**Terry Plum TPM 10-001
Trip Generation and Tamarack Street Capacity
July 27, 2010**

Tamarack Street Estimated Existing Roadway Capacity						
				Daily Trips	PM Peak Hour Trips	
					In	Out
Existing Roadway Capacity¹				1,500	75	75
Existing Single-Family Home Parcels Accessing Tamarack Street						
Land Use	LUC	Size	Units	Daily Trips	PM Peak Hour Trips	
					In	Out
Single Family Detached	210	50	d.u.	549	30	25
Remaining Roadway Capacity				951	45	50
Percent Remaining Roadway Capacity				63%	60%	67%
Proposed Number of Additional Single-Family Home Parcels with TPM 10-001						
Land Use	LUC	Size	Units	Daily Trips	PM Peak Hour Trips	
					In	Out
Single Family Detached	210	3	d.u.	39	8	6
Total Trips with Added Parcels				588	38	31
Percent Increase from Existing				7%	27%	24%
Existing Roadway Capacity¹				1,500	75	75
Remaining Roadway Capacity with Added Parcels				912	37	44
Percent Remaining Roadway Capacity with Added Parcels				61%	49%	59%
Estimated Public Parking Lot Trips						
Parking Spaces (max) ²	N/A	6	spaces	18	2	2
"Drop-off Trips" ³	N/A	4	drop-offs	16	1	1
Total Trips with Added Parcels and Public Parking and "Drop-off"				622	41	34
Percent Increase from Existing				10%	33%	32%
Existing Roadway Capacity¹				1,500	75	75
Remaining Roadway Capacity with Added Parcels and Public Parking				878	34	41
Percent Remaining Roadway Capacity with Added Parcels and Public Parking				59%	45%	55%
Notes:						
1. Actual roadway capacity is approximately 4,000 vehicles per day; however, a reduced "livability" capacity of 1,500 vehicles per day was used to represent the maximum vehicle traffic that could be accommodated on Tamarack Street while maintaining safety and "livability."						
2. Project proposes a maximum of 6 spaces to accommodate existing parking use; however, the total number of spaces will most likely be reduced to accommodate one ADA space. The assumed turnover rate for each space is 3 times per day.						
3. "Drop-off trips" refer to trips where trail users drop one vehicle off at a trailhead location and drive to another trailhead location in order to do a loop. Each "drop-off" produces four trips. A total of 4 "drop-offs" per day are assumed.						
Sources : ITE <i>Trip Generation</i> , 7 th Ed., 2003, LSC, Inc., Arlington County, VA; Rockville, MD						

LSC TRANSPORTATION CONSULTANTS, INC.



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July 28, 2010

Ms. Jessica Morriss, Transportation Planner
Town of Mammoth Lakes
PO Box 1609
Mammoth Lakes, CA 93546

RE: Terry Plum Tentative Parcel Map 10-001

Dear Ms. Morriss:

Per your request, I have reviewed the traffic analysis prepared by the Town of Mammoth lakes regarding the roadway capacity impacts of the proposed "Terry Plum Tentative Parcel Map 10-001." I agree with the Town's methodology with regards to the traffic volume impact of the proposed project as well as the capacity of the roadway.

With regards to the capacity of local residential streets, it is appropriate to consider both the physical capacity (the actual ability for vehicles to move without excessive delay) as well as the "livability" capacity. Physically, a roadway with Tamarack Street's configuration could be used by up to 4,000 to 6,000 vehicles per day. However, many jurisdictions appropriately define a lower capacity of 1,500 to 2,500 vehicles per day as the upper limit of activity on a local residential street with front-on lotting that avoids undue impacts to the residential properties regarding noise, air pollution, perception of safety, and the ability to back out of driveways. The Town has appropriately identified the lowest of these figures as the capacity.

I also note that the analysis includes trips associated with public trailhead parking. As legal public parking is already available in non-winter seasons along the street, existing trail users are not currently dissuaded from parking at the trailhead due to the lack of available parking. These designated parking spaces therefore do not generate additional vehicle-trips.

I agree with the conclusion that traffic on Tamarack Street will remain well within the capacity of the roadway, even with the proposed project.

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Thank you for the opportunity to assist the Town of Mammoth Lakes with regards to this matter. Please contact me with any questions or comments.

September 21, 2010

Respectfully Submitted,

LSC Transportation Consultants, Inc.

by 
Gordon Shaw, PE, AICP, Principal

Encl: Spreadsheet