Lake Mary Loop Road
Multimodal Transportation Concept Alternatives Evaluation

PURPOSE

The purpose of this study is to present and evaluate a series of preliminary multimodal transportation improvement alternatives for Lake Mary Loop Road (Lake Mary Loop), which is located in the Mammoth Lakes Basin (Lakes Basin).

The evaluation utilizes information and data collected during the Lakes Basin Special Study (LABSS), a joint transportation and recreation planning process undertaken by the Town of Mammoth Lakes (Town), the Inyo National Forest (INF), and Mammoth Lakes Trails and Public Access (MLTPA) with funding from the Sierra Nevada Conservancy.

The LABSS study, as well as previous studies and INF management plans, identify transportation as one of the key management concerns for the Lakes Basin. The recent LABSS process found that the Lake Mary Loop is an area of particular concern due to its high levels of activity and lack of infrastructure to support the demand in a safe and efficient way and therefore the study recommended that additional analysis of potential improvement alternatives be completed.

BACKGROUND

Over the last several years, the Inyo National Forest and the Town of Mammoth Lakes have implemented a number of multimodal improvements to provide greater transportation access and to reduce automobile use in the Lakes Basin. Adding additional transportation options encourages visitors to get out of their cars, which reduces air pollution, water quality impacts from erosion, and noise; and improves safety for all users of the basin, including wildlife.

The most significant recent multimodal improvement is the construction of the Lakes Basin Path by the Town and Inyo National Forest. The 5.3-mile multiuse non-motorized paved path (MUP) travels from town to the Lakes Basin, and then continues through the basin to Horseshoe Lake, generally along Lake Mary Road. The MUP has seen a high-level of use by both pedestrians and bicyclists since Phase I was competed in the summer of 2010 and Phase II was completed in 2011. Construction of the MUP has reduced the number of vehicles on the road and improved safety by providing a separate facility for pedestrians and bicyclists so that they are not sharing the road with vehicles.

Also, in 2007, the Town started a free trolley service from town to and within the Lakes Basin. The route, which is served by two trolleys per hour, stops at 12 stops within the basin. Each trolley is also equipped with a bike trailer that carries 12 bikes. Funding for this service is provided by the Town through a dedicated percentage of the local transient

occupancy tax. While the existing trolley service provides access to most locations within the basin, there are still a number of locations that remain unserved, or areas where transit service can be improved.

EXISTING CONDITIONS

Lake Mary Loop is a narrow paved road circling Lake Mary, the largest lake in the Lakes Basin. The road provides access to the lake, as well as other popular areas of the Lakes Basin, including the Lake George and Coldwater recreational areas, which include popular campgrounds and trailheads. Lake Mary Loop also provides access to the Pine City campground, the Crystal Crag Lodge, the Lake Mary Store & Marina, and a number of Forest Service tract cabins along the southern shore of the lake.

The area also hosts a number of popular recreation activities, including fishing, hiking, boating, sight-seeing, walking, running, and biking. Because of the ease of accessibility and the number of recreational opportunities, Lake Mary and the Lake Mary Loop experience the highest levels of vehicle and multimodal activity in the Lakes Basin.

In many ways, the transportation infrastructure in the Lakes Basin, does not adequately meet the demands of today. Many of the roads, including Lake Mary Loop, are very narrow and were not built to accommodate the levels of vehicle traffic (transit buses, large RVs, personal vehicles) and other uses that currently share the road today (there is no separated multiuse path along Lake Mary Loop as there is in other areas of the Lakes Basin).

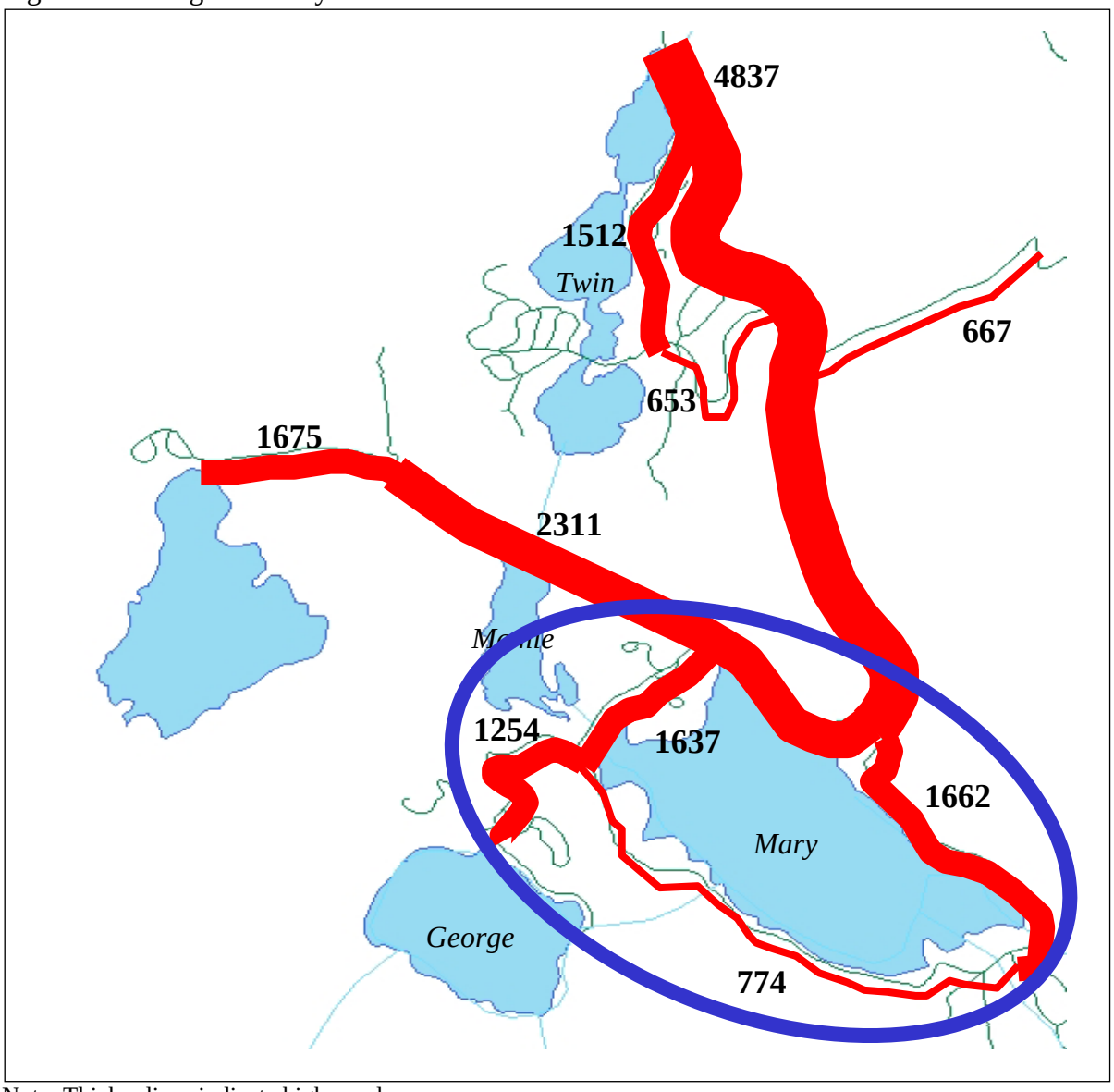
While a standard roadway pavement cross-section is typically 22 to 24 feet, the width of the pavement on Lake Mary Loop ranges between 14 and 24 feet, although the average width is closer to 17 or 18 feet. Figure 1 illustrates the typical conditions on Lake Mary Loop during a peak summer weekend, where large RVs and transit buses have to squeeze by traffic coming from the opposite direction and cars parked along the roadway shoulders. This situation is also difficult for pedestrians and bicyclists who are forced to travel in the roadway.

Figure 1: Lake Mary Loop Users Sharing the Road

Vehicle, Pedestrian, and Bicycle Volumes

While vehicle volumes may not appear to be extraordinarily high on Lake Mary Loop (between 700 and 1600 vehicles per day on an average summer Saturday), the physical conditions, coupled with high levels of pedestrian and bicycle activity, present a challenge for managing the joint use of the roadway and providing a safe environment for users. Figures 2 and 3 depict the vehicle, pedestrian, and bicycle volumes on an average Saturday during the summer.[1]

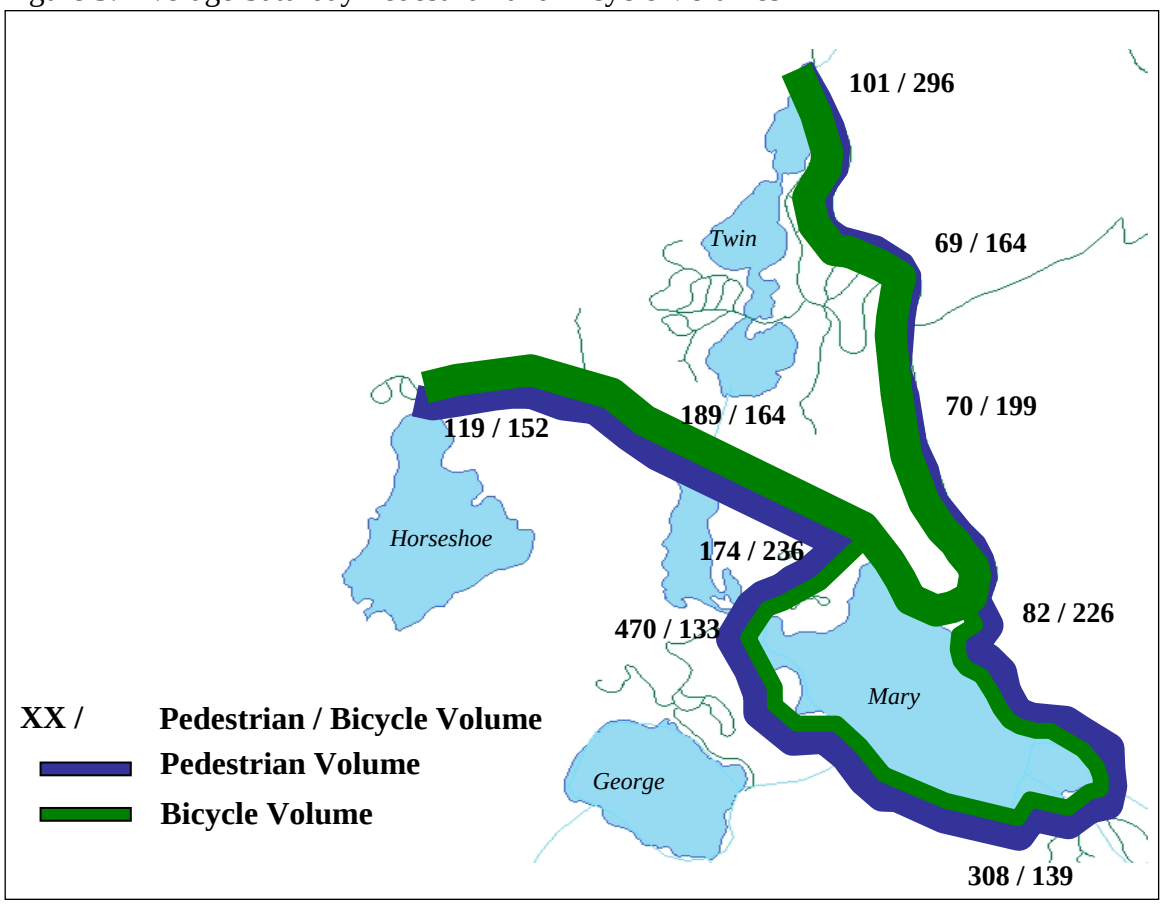
Figure 2: Average Saturday Vehicle Volumes



Note: Thicker lines indicate higher volume.

[1] Vehicle, pedestrian, and bicycle volume data was collected during the summer of 2010. Data was collected at 12 nodes throughout the basin.

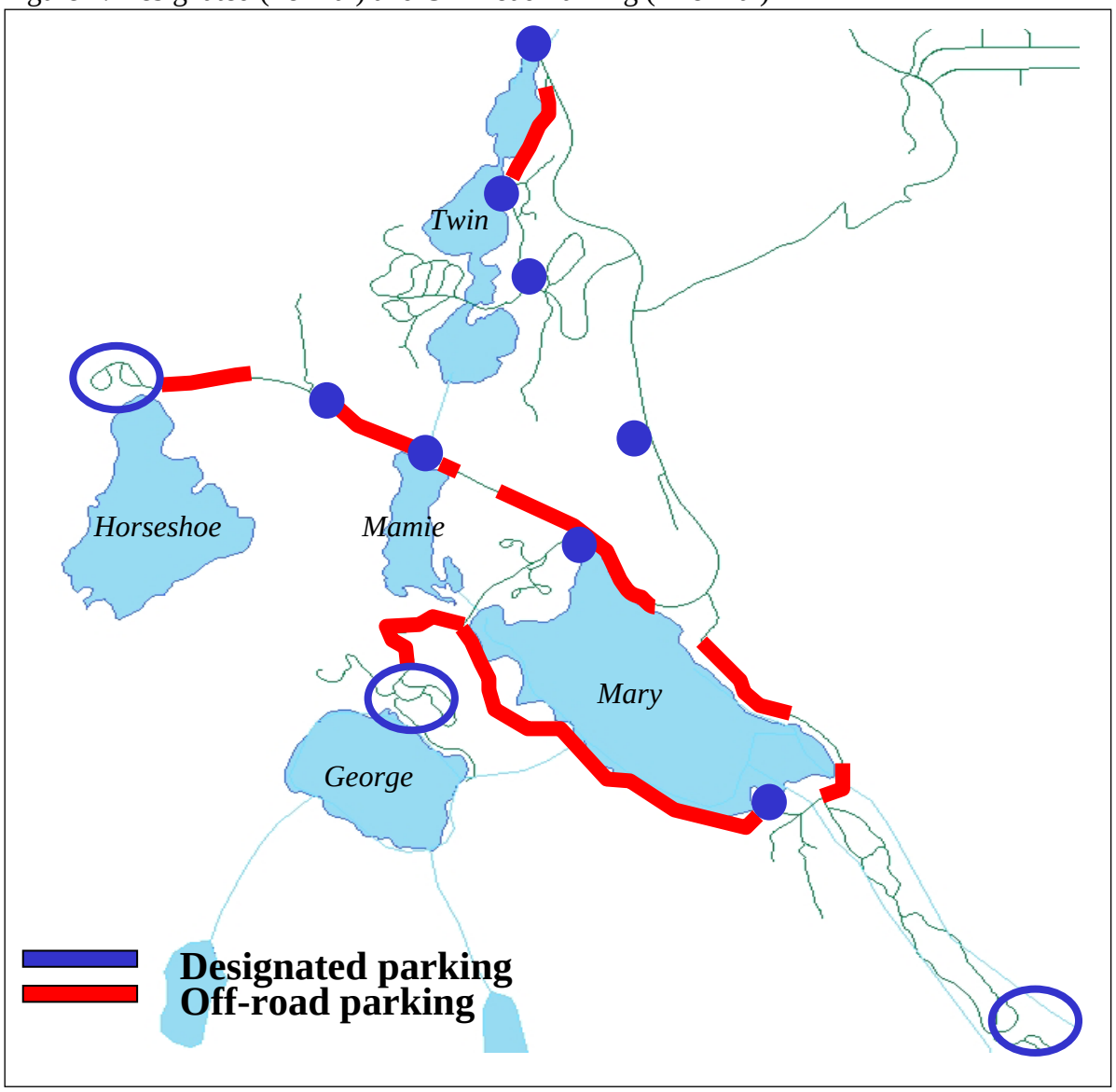
Figure 3: Average Saturday Pedestrian and Bicycle Volumes



Parking

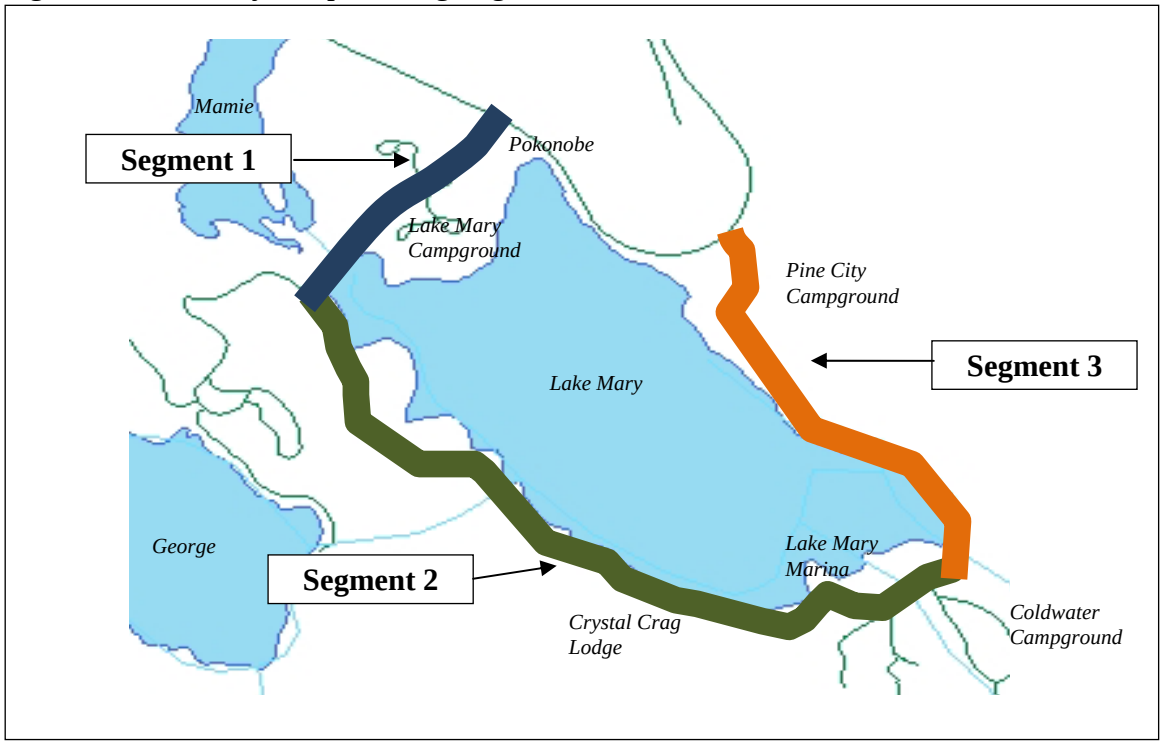
Vehicle parking along the shoulders of Lake Mary Loop is also a concern. There is little official designated parking in the area, and because most people want to park as close to their desired activity as possible, most visitors park on the dirt shoulder of the road. This not only further constrains the roadway cross-section and makes it potentially less safe for all users of the road; it also contributes to soil erosion and water quality impacts. In most sections of Lake Mary Loop, there are "no parking" signs; however, many visitors ignore these signs and, in general, there is no enforcement through ticketing. Figure 4 depicts areas of designated parking and undesignated off-road parking.

Figure 4: Designated (Formal) and Off-Road Parking (Informal)



In an effort to determine the peak roadside parking demand during a peak summer weekend on the Lake Mary Loop, parking data was collected on Labor Day weekend of 2010. Parking counts were conducted hourly between 7:00 am and 8:00 pm for three separate segments of Lake Mary Loop, which are depicted in Figure 5. Segment 1 is on the west side of the Loop, between Pokonobe and Lake George Road. Segment 2 is on the south side of the Loop, between Lake George Road and Coldwater campground. Segment 3 is on the east side of the Loop, between Lake Mary Road and Coldwater campground.

Figure 5: Lake Mary Loop Parking Segments



The highest roadside parking volumes occur on Segment 3. On this segment a maximum of 40 parked vehicles were counted during the peak-hour, which occurred between 6:00 and 7:00 pm. On Segment 2, which experiences the second highest parking volumes, a maximum of 23 cars was counted during the peak-hours, which were between 3:00 and 5:00 pm. Segment 3, which is the shortest segment, had a maximum of 8 parked cars during the peak-hours, which were between 10:00 am and 12:00 pm and then again between 3:00 and 5:00 pm. Therefore, the data indicates that the maximum demand for parking on the Lake Mary Loop during the peak hour of a peak weekend is approximately 71 vehicles.

While these numbers represent a worst-case scenario in terms of the maximum number of cars parking along the shoulders of Lake Mary Loop during a peak hour, roadside parking occurs on a daily basis and continues to create safety and resource issues.

Transit

There are four existing transit stops on Lake Mary Loop: Pine City campground, Lake Mary Marina, Woods Lodge, and Pokonobe. None of these stops has a designated bus turnout area or transit shelter. Therefore, riders must load and unload on the roadway shoulder and wait for the bus in an unsheltered location.

Topographical Survey

To gain further understanding of the physical constraints of the Lake Mary Loop, the Town was able to contract with Triad/Holmes Associates, Inc. to perform a topographical survey of road. In general, the survey included all pavement, intersections, utilities,

major and minor drainages, trees over 4 inches in diameter, large boulders, structures, signs, campground facilities, docks, wetlands, creeks, and pedestrian/equestrian paths between the edge of Lake Mary (or 100 feet) and 200 feet on the other side of the road. Figure 6 depicts the general limits of the topographical survey.

Figure 6: Approximate Limits of Topographical Survey

The topographical survey, in conjunction with the collected volume data and public comments received, is a valuable tool for both the Town and INF. The information allows for a more detailed evaluation of potential multimodal improvements and their feasibility, both physically and financially.

LAKE MARY LOOP ROAD CONCEPT ALTERNATIVES

This section discusses and evaluates a set of five concept alternatives for multimodal transportation improvements on Lake Mary Road Loop. The alternatives generally represent a range of physical improvements, from the least amount of change to the most amount of change, but do not encompass all potential options.[2]

In general, each alternative aims to support the following broad objectives (in no particular order), although some alternatives or portions of alternatives may meet some objectives more fully:

- Continue to provide access for all users;
- Provide improved safety for all users;
- Improve resource protection (including soil, watershed, wildlife, air quality, etc.); and
- Improve multimodal transportation options.

Alternative 1: No Build / Minor Enhancements

This alternative generally represents little to no change to Lake Mary Loop Road in terms of transportation infrastructure improvements or current operations. Vehicle travel would remain two-way the entire length of the roadway and vehicles, pedestrians, bicyclists, and transit would continue to share the roadways (i.e. no separation of users). Minor enhancements, such as adding improved signage and wayfinding, the formalization of some existing off-road parking, or increased enforcement (parking or speed) may occur under this alterative, as well as the other alternatives.

<u>Alternative 1 Pros:</u>

- Improved signage and wayfinding would reduce driver confusion, leading to an improved user experience and reduced vehicle miles travelled.
- Increased parking enforcement or the limited improvement of existing off-road parking could reduce some erosion and water quality impacts.
- Increased enforcement of vehicle speeds could improve safety of pedestrians, bicyclists, and wildlife.
- Generally would be the easiest and least costly to implement.

[2] The information contained in this study represents potential concept-level design alternatives and associated costs and does not represent a specific design or indicate an approved action to be taken by the Town of Mammoth Lakes or Inyo National Forest.

Alternative 1 Cons:

- Would not provide substantial improvement to multimodal transportation options or safety, therefore not encouraging substantial reductions to vehicle use.
- All users would still share the limited existing cross-section of the road, therefore there are no substantial safety improvements.
- Parking would generally continue to occur on the road-side in unimproved dirt spaces, therefore impacts to erosion and water quality would continue.

Alternative 2: Complete One–Way Vehicle Traffic, Segment 1 MUP

Alternative 2 involves changing Lake Mary Loop Road to one-way vehicular travel, which is a concept that was discussed during the LABSS process, as well as in many other previous USFS planning documents. There are a number of issues, opportunities, and constraints in implementing this type of change, including (but not limited to) the following:

Issues:

- Would increase the trip-length for some drivers and could be considered "inconvenient."
- Would require additional signage.
- Would likely require construction of turnaround(s).
- Could be confusing for drivers, especially when first implemented.
- Could increase vehicle speeds if not designed appropriately.

Opportunities:

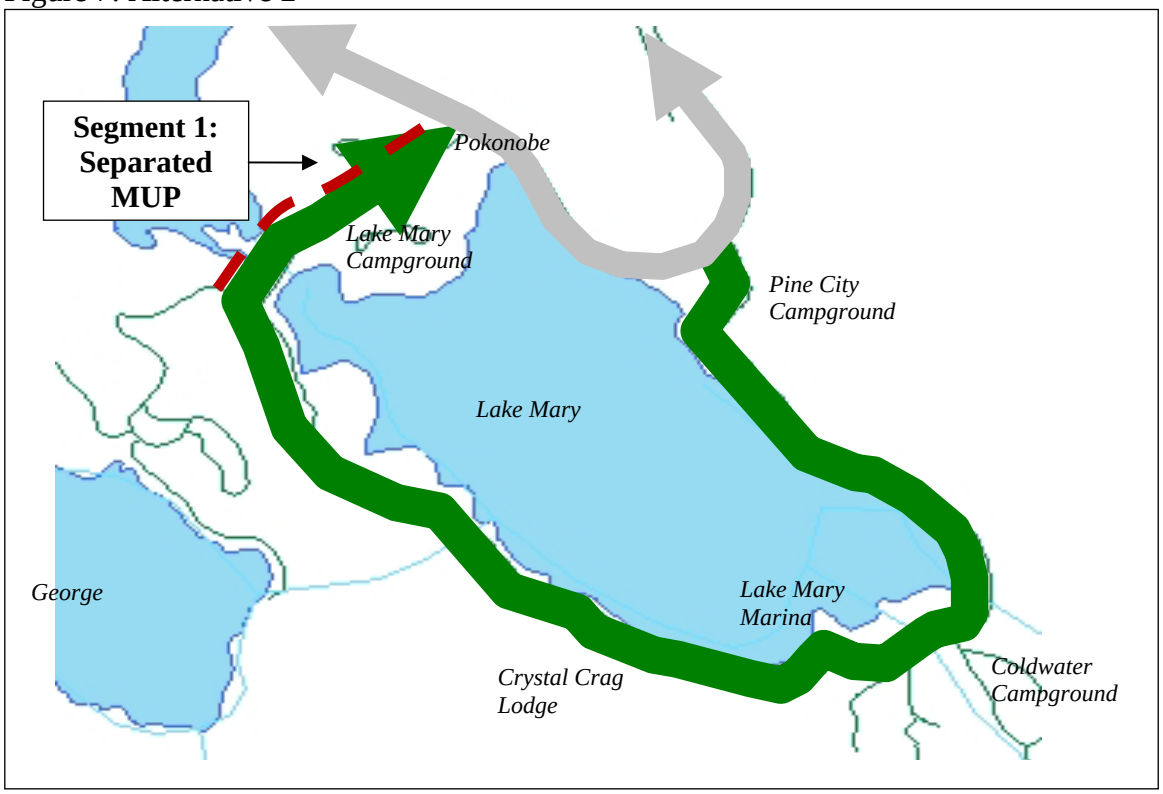
- Could free-up space within the existing road cross-section to allow for designated parallel parking and pedestrian/bicycle use (more room for all users).
- Could encourage pedestrian and bicycle use and therefore reduce vehicle use.
- Less erosion and resource damage.
- Improved safety.

Constraints:

- May be difficult to implement on certain portions of the Loop where the existing cross-section is particularly narrow.
- Financial constraints of both the USFS and the Town may impact the ability to implement a one-way travel pattern.

There are several options for implementation of a one-way travel pattern for vehicles on Lake Mary Loop. Implementation of a one-way vehicular travel pattern could either occur in a clock-wise or counter-clockwise direction and could potentially be implemented over the entire loop or just portions of the loop. Vehicle volume data that was collected suggests that a clockwise travel pattern would be more efficient, based on the segments of the Lake Mary Loop that experience the highest traffic volumes. Figure 7 depicts a complete clockwise pattern around the entire Lake Mary Loop.

Figure 7: Alternative 2



In this alternative, a continuous one-way travel pattern would allow for the conversion of some of the paved area into parallel parking and potentially an area for designated pedestrian and bicycle use. This alternative also includes the construction of a separated MUP along the west side of Lake Mary Loop between Pokonobe and Lake George (Segment 1). This segment is called the Lake George Connector. The MUP will connect to the recently completed Lakes Basin Path, providing connectivity to destinations along Lake Mary Road.

Funding to construct this MUP was awarded to the Town and INF through the Paul S. Sarbanes Transit in Parks grant program through the Federal Transit Administration Paul S. Sarbanes Transit in Parks grant program. Construction of this segment of path is anticipated to occur in the summer of 2013 or 2014, following design, environmental review, and permitting.

Alternative 2 Pros:

- Construction of a MUP along Segment 1 of Lake Mary Loop will significantly improve user safety and multimodal transportation access along this section of the Loop, by providing pedestrians and bicyclists a facility separated from vehicle traffic.
- Would be a moderate improvement to multimodal transportation access and safety given that that there would be more area within the existing cross-section dedicated to pedestrian/bike travel, but users are still sharing the road.
- Would provide the ability to formalize some parking in areas where the roadway cross-section is wider, particularly along Segment 1 where there is an adjacent MUP. This reduces erosion and impacts to water quality and other resources.
- Implementation costs would be among the lowest of all the alternatives because it does not include substantial infrastructure improvement or construction. Construction of the Segment 1 MUP is grant funded.

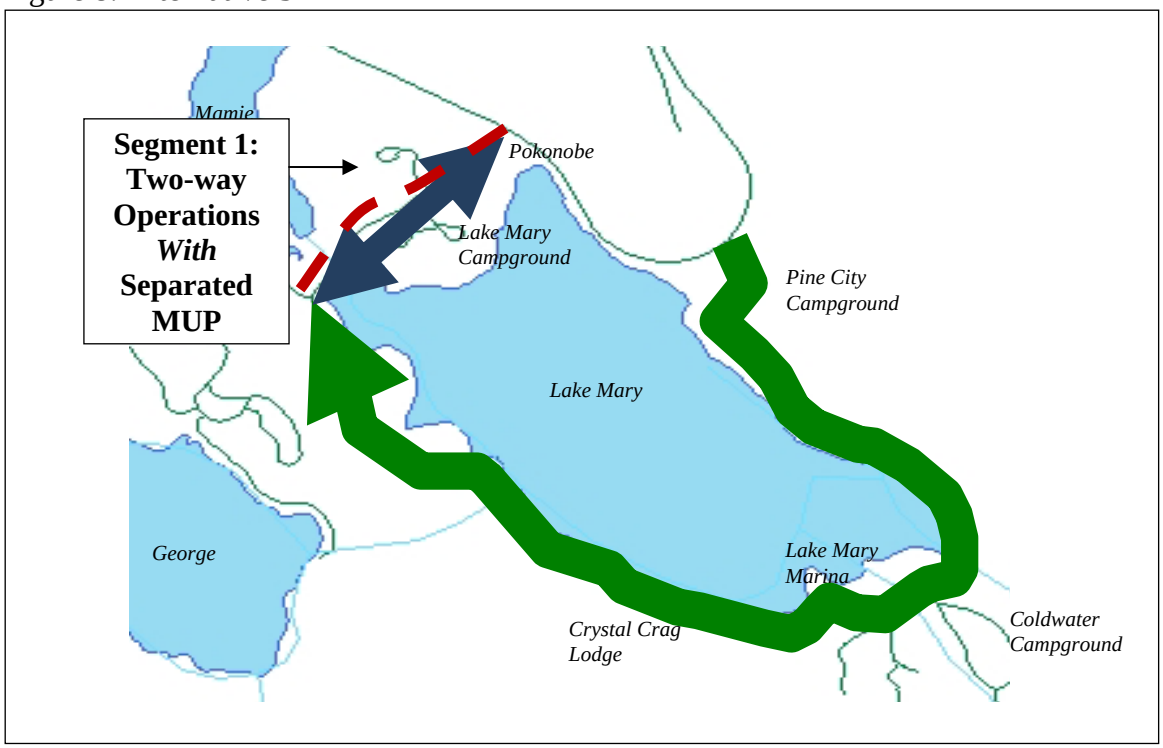
Alternative 2 Cons:

- Would increase vehicle trip-lengths the most among all the alternatives due to the one-way travel pattern completely around Lake Mary Loop.
- Could be unnecessary to implement one-way vehicle traffic on Segment 1 since a separated MUP is provided adjacent to this section.

Alternative 3: Partial One-way Vehicle Traffic, Segment 1 MUP

Alternative 3 would include two-way vehicle travel and a separated MUP on Segment 1 of the Loop, between Pokonobe and Lake George Road, as depicted in Figure 8. One-way vehicle travel would be implemented on the remainder of the Loop, but there would be no separated MUP along this section (users would share the road). Limited on-street parking may be able to be provided in certain areas. Alternative 3 also would include limited on street-parking, as in Alternative 2.

Figure 8: Alternative 3



Alternative 3 Pros:

- Construction of a MUP along Segment 1 of Lake Mary Loop will significantly improve user safety and multimodal transportation access along this section of the Loop, by providing pedestrians/bicyclists a facility separated from vehicle traffic.
- Because a separated MUP is provided on Segment 1, it is possible for the vehicle travel to remain two-way on this section of roadway, which provides the most convenient access for vehicles traveling to the Lake George recreation area.
- Would be a moderate improvement to multimodal transportation access and safety on the sections of the Loop where vehicle traffic would be one-way, given that that there would be more area within the existing cross-section dedicated to pedestrian/bike travel, but users are still sharing the road.
- Would provide the ability to formalize some parking in areas where the roadway cross-section is wider (excluding Segment 1) where there is an adjacent MUP. This reduces erosion and impacts to water quality and other resources.
- Implementation costs would be among the lowest of all the alternatives because it does not include substantial infrastructure improvement or construction. Construction of the Segment 1 MUP is grant funded.

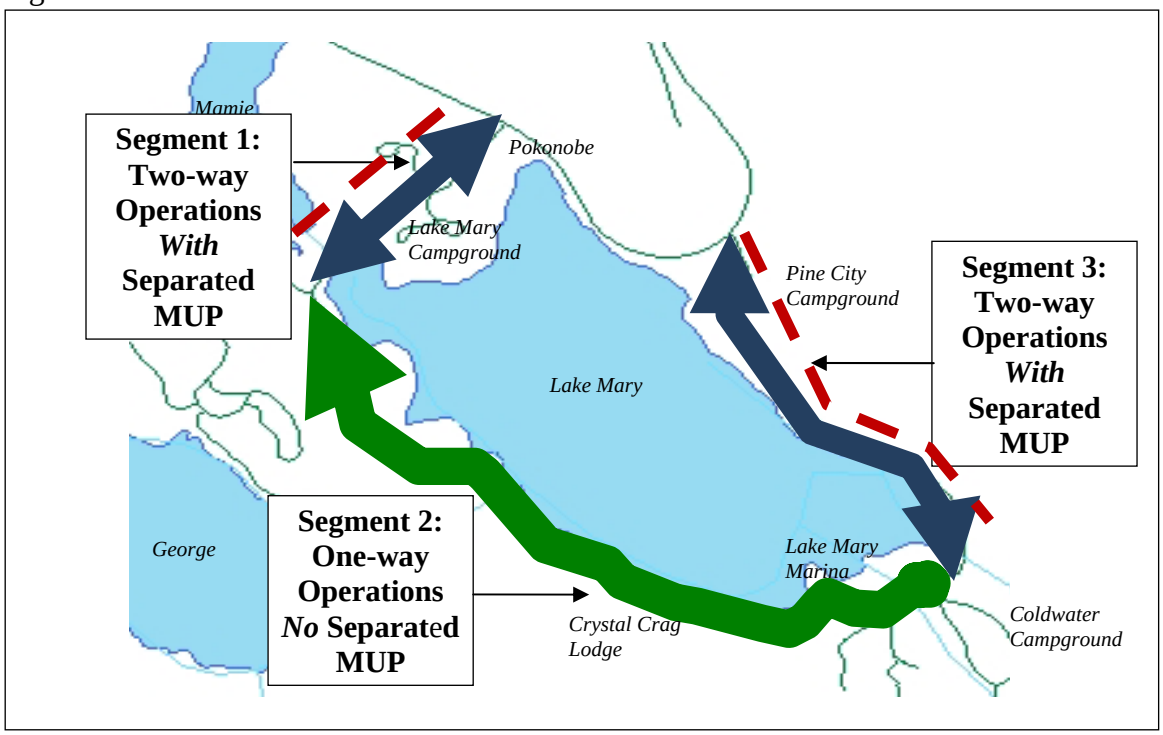
Alternative 3 Cons:

- Would require the construction of a vehicle turnaround at the intersection of Lake Mary Loop and Lake George Road.

Alternative 4: Partial One-Way Vehicle Traffic (Segment 2), Segments 1 and 3 MUP
Alternative 4 would include two-way vehicle travel and a separated MUP on Segments 1 and 3 of the Loop. One-way vehicle travel would be implemented on Segment 2 of the Loop, but there would be no separated MUP along this section (users would share the road). Limited on-street parking may be able to be provided in certain areas.

Segment 3, as shown in Figure 9 below, maintains two-way travel between Lake Mary Road and Coldwater campground; however, it is possible that this one-way section could be shortened, terminating at the Pine City campground.

Figure 9: Alternative 4



Alternative 4 Pros:

- Construction of a MUP along Segments 1 and 3 of Lake Mary Loop will significantly improve user safety and multimodal transportation access along these sections of the Loop, by providing pedestrians/bicyclists a facility separated from vehicle traffic. These two segments of the Loop experience the highest level of pedestrian, bicycle, and vehicle traffic.
- Because a separated MUP is provided on Segments 1 and 3, it is possible for the vehicle travel to remain two-way on this section of roadway, which provides the most convenient access for vehicles traveling to the Lake George and Coldwater recreation areas.
- Would be a moderate improvement to multimodal transportation access and safety on Segment 2 where vehicle traffic would be one-way, given that that there would

be more area within the existing cross-section dedicated to pedestrian/bike travel, but users are still sharing the road.

- May provide the ability to formalize some parking in areas where the roadway cross-section is wider on Segment 2. This reduces erosion and impacts to water quality and other resources.

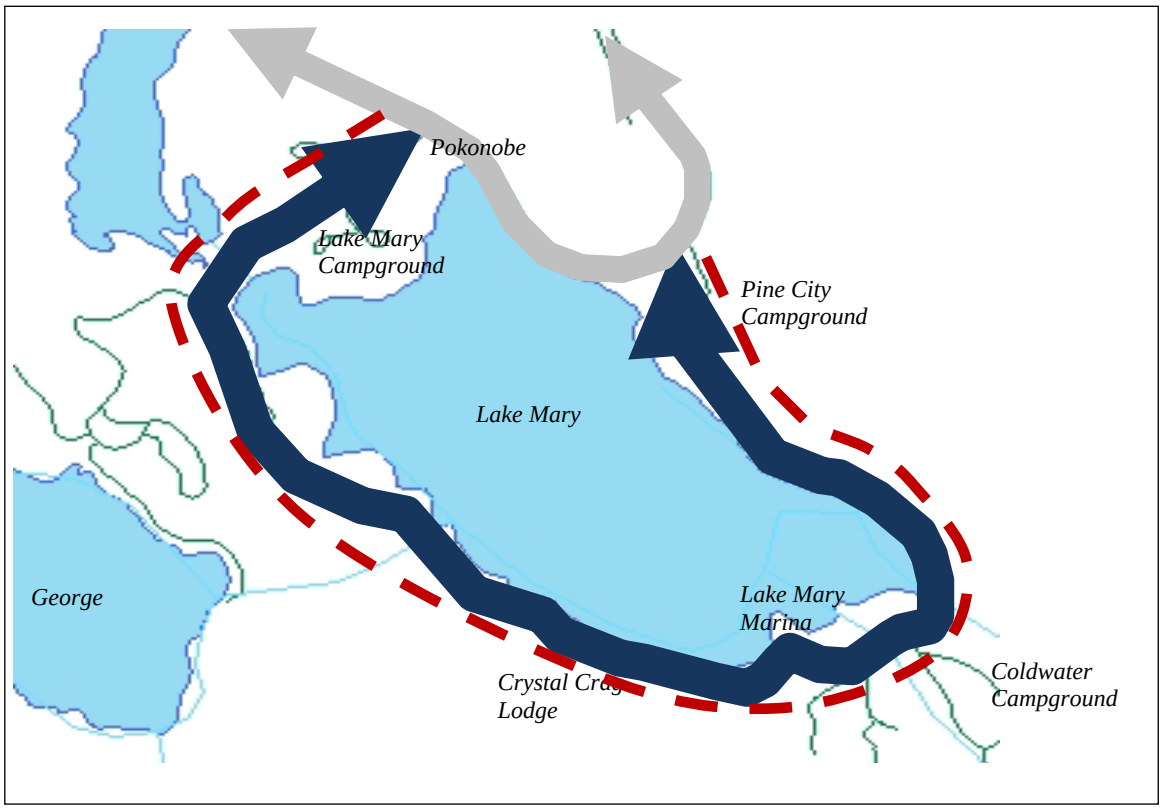
Alternative 4 Cons:

- Would require the construction of a vehicle turnaround at the intersection of Lake Mary Loop and Lake George Road and at Coldwater campground (or Pine City campground).
- Implementation costs would be among the highest of all the alternatives because it includes the construction of MUP on Segments 1 and 3, as well as multiple vehicle turnarounds. Construction of the Segment 1 MUP is grant funded.
- Maintaining two-way vehicle traffic, as well as providing a separated MUP, along Segments 1 and 3 would provide less area/opportunity to provide on-street parking in those areas.
- Maintaining two-way vehicle access one Segments 1 and 3 may not encourage users to get out of their cars and use alternative transportation. These two segments currently experience the highest vehicle and pedestrian/bike volumes.
- Could be among the more confusing alternatives to visitors because some portions of the Loop would have one-way vehicle travel and some portions would be two-way. Would require the most signage.

Alternative 5: Two-way Vehicle Traffic, Segments 1 through 3 MUP

Alternative 5 would maintain two-way vehicle travel around the entire Lake Mary Loop, as currently exists, but would also include a separated MUP around the entire Loop as well (Segments 1 through 3), as depicted in Figure 10. Limited on-street parking may be able to be provided in certain areas.

Figure 10: Alternative 5



Alternative 5 Pros:

- This alternative provides the most transportation options of all the alternatives by maintaining full vehicle access, as well as improving pedestrian and bicycle access.
- Construction of a MUP along the entire length of Lake Mary Loop will significantly improve user safety and multimodal transportation access along these sections of the Loop, by providing pedestrians/bicyclists a facility separated from vehicle traffic.

Alternative 5 Cons:

- Implementation costs would be the highest of all the alternatives because it includes the construction of a MUP along the entire length of Lake Mary Loop, which in certain very constrained areas (particularly along Segment 2), could be very costly. Multiple vehicle turnarounds would also be required. Construction of the Segment 1 MUP is grant funded.
- Maintaining two-way vehicle traffic, as well as providing a separated MUP, along the entire Loop would provide less area/opportunity to provide on-street parking.
- Maintaining two-way vehicle access along the entire Loop may not encourage users to get out of their cars and use alternative transportation.

Other Alternatives
Components from each of the alternatives could also be combined to form additional alternatives. For example, Alternatives 2 and 5 could be combined to include one-way vehicle travel and a separated MUP around the entire Lake Mary Loop. Also, all components under Alternative 1 could be added to each of the other alternatives.

INFRASTRUCTURE COST ESTIMATES

The following are preliminary cost estimates for some of the potential infrastructure improvements that have been described in the above alternatives, including the potential cost of construction of on-street parking spaces, vehicle turnarounds/traffic circles, bus turnouts, and MUP segments 1 through 3.

The cost estimates are general in nature and include four categories of costs, including general project items (mobilization, erosion control, traffic control, etc.), civil items (asphalt/concrete removal, clearing/grubbing, earthwork, installation of base and asphalt/concrete, etc.), and miscellaneous items, such as signage or striping. Additional detail about each cost estimate in provided in Attachment A.

Parking spaces
As described previously, parking along the dirt shoulders of Lake Mary Loop is common, which causes resource damage in the form of erosion and damage to vegetation, which impacts water quality. Parking on the roadside also further constrains the roadway and causes safety issues for users who are sharing the road. Paving some roadside parking spaces or creating additional small-scale parking areas in places where it is feasible and practical, may reduce these impacts.

Currently, the maximum demand for roadside parking along the Loop (on a peak weekend during the peak hour) is approximately 71 spaces (8 spaces on Segment 1, 23 spaces on Segment 2, and 40 spaces on Segment 3). As detailed in Attachment A, it is estimated that it would cost approximately $3,678 to pave each parking space. This includes mobilization, traffic management, and any necessary signing/striping.

Assuming that 71 new paved parking spaces were provided, it would total approximately $261,138. However, it is likely not feasible or practical to pave 71 spaces along the Loop due to topographical and vegetative (trees) constraints. Additionally, some parking demand could be satisfied without paving new spaces if existing paved areas within the current roadway cross-section were converted to parallel parking, particularly in areas where one-way vehicle travel may be implemented.

Bus Turnouts
There are currently no bus turnouts on Lake Mary Loop at the four existing transit stops. Providing a safe space for transit vehicles to pull off of the roadway to load and unload passengers would improve safety and would encourage transit use. As detailed in Attachment A, it is estimated that each bus turnout would cost approximately $15,693 to install, or $62,772 for all four. However, as stated above, it may not be feasible or practical to provide bus turnouts at all stop locations and it may be possible to provide a

safe turnout space without the construction of new turnouts if a one-way vehicle travel pattern were implemented.

MUP Segment 1
MUP Segment 1, which would be located along the west side of the Loop between Pokonobe and Lake George Road, is estimated to cost approximately $221,185. This segment is approximately 1600 feet long and would include a 30-foot bridge over the outlet of Lake Mary. As noted previously, grant funding for this section of MUP has been awarded to the Town and the INF and construction will likely occur in 2013 or 2014, following design, environmental review, and permitting.

MUP Segment 2
MUP Segment 2, which would be approximately 4,100 feet long, is the most expensive of the three MUP segments to construct at approximately $1,623,379. This is primarily due to the topography in this area, which could require significant grading and stabilization in order to construct a MUP, including approximately 10,000 square feet of retaining walls. A series of streams and wetland areas are also a constraint and would likely require the construction of a 500-foot raised boardwalk and two small 15-foot bridges. Additionally, a number of existing cabins and lodges are located on the south side of roadway for which their driveways would likely need to be realigned and repaved if a MUP were constructed.

MUP Segment 3
MUP Segment 3, which is approximately 3,100 feet long, is estimated to cost approximately $837,130 to construct. This includes approximately 4,500 square feet of retaining walls, one small 15-foot bridge, and other miscellaneous costs.

Vehicle turnaround/traffic circle
Vehicle turnarounds or traffic circles would be necessary in some locations if one-way vehicle travel were implemented. As detailed in Attachment A, the cost to construct one vehicle turnaround/traffic circle is approximately $91,025. In Alternative 3, one vehicle turnaround would be required. In Alternative 4, two vehicle turnarounds would be required, for a total of $182,050.

It should be noted that these estimates may increase or decrease depending on the amount of earthwork necessary to construct a turnaround. For example, more earthwork would be required to construct a turnaround at the intersection of Lake Mary Loop and Lake George, than at Lake Mary Loop and Coldwater campground (or Pine City campground) due to the topography in this location.

CONCLUSIONS, PRELIMINARY RECOMMENDATIONS, AND NEXT STEPS

The Town, INF, and partners will continue to work together to improve multimodal transportation access, safety, and the visitor experience in the Lakes Basin and on Lake Mary Loop Road, consistent with Forest Service and Town management objectives. Although the transportation concepts described in this study are consistent with existing Forest Service management objectives and plans, it is necessary to conduct additional

analysis, environmental review, and public engagement prior to initiating any significant components of the alternatives evaluated, particularly with regard to the implementation of a one-way traffic pattern or the construction of additional MUPs.

As mentioned earlier, in January 2012, the TOML and the INF were notified that they had received two Federal Transit Administration grants through the Paul S. Sarbanes Transit in Parks program (formerly known as the Alternative Transportation in Parks and Public Lands program). One grant award is dedicated to completing capital improvements and the other grant is dedicated to continued planning for the Lake Mary Loop Road area of the basin.

The capital project grant award of approximately $1.25 million will be used to construct the Lake George Connector (Segment 1), which will tie into the recently completed Lakes Basin Path and will connect to Lake George Road. The capital grant funding will also be used to construct additional transit stops and shelters, purchase an additional trolley and several bike trailers. It is expected that these capital improvements will be completed in 2013 or 2014, following design, environmental review, and permitting.

The other grant award will provide an additional $153,000 of funding for more detailed planning, analysis, and public review of the multimodal transportation alternatives described in this preliminary study. In the interim however, a number of low-level implementation actions should be pursued by the planning partners, including the following:

- Make strategic improvements to signage and wayfinding and coordinate signage improvements with the Mammoth Lakes Trail System signage, as well as Town of Mammoth Lakes signage;
- Continue to pursue grants and other funds to improve multimodal transportation access and safety;
- Implement parking management strategies, which may include formalizing or removing roadside parking spaces;
- Strive to increase enforcement activities related to vehicle speed and parking; and
- Strategically implement pedestrian and bicycle improvements as funding sources become available.

Attachment 1

Preliminary Infrastructure Cost Estimates

LAKE MARY LOOP PRELIMINARY COST ESTIMATES

Infrastructure Cost Estimate Summary

	Base Estimate	Contingency	Final Estimate
Parking Space	$ 3,678.41	15%	$ 4,230.17
Bus Turnout	$ 15,692.85	15%	$ 18,046.78
MUP Segment 1	$ 221,185.19	15%	$ 254,362.96
MUP Segment 2	$ 1,623,379.81	15%	$ 1,866,886.79
MUP Segment 3	$ 837,129.63	15%	$ 962,699.07
Vehicle Turnaround/traffic circle	$ 91,026.41	15%	$ 104,680.37

Schedule A - General Project Items
Parking Space - no curb or drainage improvements

Item No.	Description	Unit	Qty	Unit Price	Total Amount
A-1	Mobilization	LS	1 Job	$ 250.00	$ 250.00
A-2	SWMP Erosion Control	LS	1 Job	$ 500.00	$ 500.00
A-3	Traffic Control including design and all related work	LS	1 Job	$ 500.00	$ 500.00
				Schedule A General Project Items Schedule Subtotal:	**$ 1,250.00**

Schedule B - Civil Items
Parking Space - no curb or drainage improvements

Item No.	Description	Unit	Qty	Unit Price	Total Amount
B-1	Sawcut	LF	20	$ 1.00	$ 21.00
B-2	Remove Asphalt and Concrete	SF			
B-3	Clear and Grub including all trees, shrubs, and all other material required to be removed to construct the project	LS	1	$ 1,000.00	$ 1,000.00
B-4	Earthwork	CY	7	$ 25.00	$ 185.19
B-5	Aggregate Base (Class 2) = 4"	CY	2	$ 50.00	$ 122.22
B-6	Asphalt Concrete (Type B) - 3" thick	SF	200	$ 4.00	$ 800.00
				Schedule B Civil Items Schedule Subtotal:	**$ 2,128.41**

Schedule C - Miscellaneous Items
Parking Space - no curb or drainage improvements

Item No.	Description	Unit	Qty	Unit Price	Total Amount
C-1	Install Signs	LS	1	$ 300.00	$ 300.00
				Schedule C Miscellaneous Items Schedule Subtotal:	**$ 300.00**

Schedule A - General Project Items	**TOTAL Schedule A**	**$ 1,250.00**
Schedule B - Civil Items	**TOTAL Schedule B**	**$ 2,128.41**
Schedule C - Miscellaneous Items	**TOTAL Schedule C**	**$ 300.00**
	TOTAL	**$ 3,678.41**

BUS TURNOUT

Schedule A - General Project Items
Bus Turnout (TS 113-1) - No curb or sidewalk

Item No.	Description	Unit	Qty	Unit Price	Total Amount
A-1	Mobilization	LS	1 Job	$ 1,000.00	$ 1,000.00
A-2	SWMP Erosion Control	LS	1 Job	$ 1,500.00	$ 1,500.00
A-3	Traffic Control including design and all related work	LS	1 Job	$ 1,500.00	$ 1,500.00
				Schedule A General Project Items Schedule Subtotal:	**$ 4,000.00**

Schedule B - Civil Items
Bus Turnout (TS 113-1) - No curb or sidewalk

Item No.	Description	Unit	Qty	Unit Price	Total Amount
B-1	Sawcut	LF	140	$ 1.00	$ 141.00
B-2	Remove Asphalt and Concrete	SF			
B-3	Clear and Grub including all trees, shrubs, and all other material required to be removed to construct the project	LS	1	$ 3,000.00	$ 3,000.00
B-4	Earthwork	CY	52	$ 25.00	$ 1,296.30
B-5	Aggregate Base (Class 2) = 4"	CY	17	$ 50.00	$ 855.56
B-6	Asphalt Concrete (Type B) - 3" thick	SF	1,400	$ 4.00	$ 5,600.00
				Schedule B Civil Items Schedule Subtotal:	**$ 10,892.85**

Schedule C - Miscellaneous Items
Bus Turnout (TS 113-1) - No curb or sidewalk

Item No.	Description	Unit	Qty	Unit Price	Total Amount
C-1	Install Signs	LS	1	$ 800.00	$ 800.00
				Schedule C Miscellaneous Items Schedule Subtotal:	**$ 800.00**

Schedule A - General Project Items	**TOTAL Schedule A**	**$ 4,000.00**
Schedule B - Civil Items	**TOTAL Schedule B**	**$ 10,892.85**
Schedule C - Miscellaneous Items	**TOTAL Schedule C**	**$ 800.00**
	TOTAL	**$ 15,692.85**

VEHICLE TURNAROUND/TRAFFIC CIRCLE

Schedule A - General Project Items
Vehicle Turnaround/Traffic Circle

Item No.	Description	Unit	Qty	Unit Price	Total Amount
A-1	Mobilization	LS	1 Job	$ 7,500.00	$ 7,500.00
A-2	SWMP Erosion Control	LS	1 Job	$ 7,500.00	$ 7,500.00
A-3	Traffic Control including design and all related work	LS	1 Job	$ 5,000.00	$ 5,000.00
				Schedule A General Project Items Schedule Subtotal:	**$ 20,000.00**

Schedule B - Civil Items
Vehicle Turnaround/Traffic Circle

Item No.	Description	Unit	Qty	Unit Price	Total Amount
B-1	Sawcut	LF	70	$ 1.00	$ 70.00
B-2	Remove Asphalt and Concrete	SF	3,850	$ 3.00	$ 11,550.00
B-3	Clear and Grub including all trees, shrubs, and all other material required to be removed to construct the project	LS	1	$ 15,000.00	$ 15,000.00
B-4	Earthwork	CY	385	$ 25.00	$ 9,617.49
B-5	Aggregate Base (Class 2) = 4"	CY	127	$ 50.00	$ 6,347.54
B-6	Asphalt Concrete (Type B) - 3" thick	SF	5360	$ 4.00	$ 21,441.37
				Schedule B Civil Items Schedule Subtotal:	**$ 64,026.41**

Schedule C - Miscellaneous Items
Vehicle Turnaround/Traffic Circle

Item No.	Description	Unit	Qty	Unit Price	Total Amount
C-1	Install Signs	LS	1	$ 5,000.00	$ 5,000.00
C-1	Striping	LS	1	$ 2,000.00	$ 2,000.00
				Schedule C Miscellaneous Items Schedule Subtotal:	**$ 7,000.00**

Schedule A - General Project Items	**TOTAL Schedule A**	**$ 20,000.00**
Schedule B - Civil Items	**TOTAL Schedule B**	**$ 64,026.41**
Schedule C - Miscellaneous Items	**TOTAL Schedule C**	**$ 7,000.00**
	TOTAL	**$ 91,026.41**

MUP SEGMENT 1 - Along the west side of Lake Mary loop Road from Lake Mary Road to the Lake George intersection

Schedule A - General Project Items
MUP - Segment 1

Item No.	Description	Unit	Qty	Unit Price	Total Amount
A-1	Design	LS	1 Job	$ 40,000.00	$ 40,000.00
A-2	Construction Engineering	LS	1 Job	$ 20,000.00	$ 20,000.00
A-3	Environmental	LS	1 Job	$ 20,000.00	$ 20,000.00
A-4	Mobilization	LS	1 Job	$ 15,000.00	$ 15,000.00
A-5	SWMP Erosion Control	LS	1 Job	$ 10,000.00	$ 10,000.00
A-6	Traffic Control including design and all related work	LS	1 Job	$ 10,000.00	$ 10,000.00
				Schedule A General Project Items Schedule Subtotal:	**$ 35,000.00**

Schedule B - Civil Items
MUP - Segment 1

Item No.	Description	Unit	Qty	Unit Price	Total Amount
B-1	Bridge	LF	30	$ 1,000.00	$ 30,000.00
B-2	Abutments	EA	2	$ 10,000.00	$ 20,000.00
B-3	Clear and Grub including all trees, shrubs, and all other material required to be removed to construct the project	LS	1	$ 30,000.00	$ 30,000.00
B-4	Earthwork	CY	296	$ 25.00	$ 7,407.41
B-5	Aggregate Base (Class 2) = 4"	CY	196	$ 50.00	$ 9,777.78
B-6	Asphalt Concrete (Type B) - 3" thick	SF	16000	$ 5.00	$ 80,000.00
				Schedule B Civil Items Schedule Subtotal:	**$ 177,185.19**

Schedule C - Miscellaneous Items
MUP - Segment 1

Item No.	Description	Unit	Qty	Unit Price	Total Amount
C-1	Install Signs	LS	1	$ 5,000.00	$ 5,000.00
C-1	Striping	LS	1	$ 4,000.00	$ 4,000.00
				Schedule C Miscellaneous Items Schedule Subtotal:	**$ 9,000.00**

Schedule A - General Project Items	**TOTAL Schedule A**	**$ 35,000.00**
Schedule B - Civil Items	**TOTAL Schedule B**	**$ 177,185.19**
Schedule C - Miscellaneous Items	**TOTAL Schedule C**	**$ 9,000.00**
	TOTAL	**$ 221,185.19**

MUP SEGMENT 2- Along the sorth side of Lake Mary loop Road from Coldwater Campground entrance to the Lake George intersection

Schedule A - General Project Items
MUP - Segment 2

Item No.	Description	Unit	Qty	Unit Price	Total Amount
A-1	Design	LS	1 Job	$ 80,000.00	$ 80,000.00
A-2	Construction Engineering	LS	1 Job	$ 30,000.00	$ 30,000.00
A-3	Environmental	LS	1 Job	$ 20,000.00	$ 20,000.00
A-4	Mobilization	LS	1 Job	$ 20,000.00	$ 20,000.00
A-5	SWMP Erosion Control	LS	1 Job	$ 15,000.00	$ 15,000.00
A-6	Traffic Control including design and all related work	LS	1 Job	$ 10,000.00	$ 10,000.00
				Schedule A General Project Items Schedule Subtotal:	**$ 175,000.00**

Schedule B - Civil Items
MUP - Segment 2

Item No.	Description	Unit	Qty	Unit Price	Total Amount
B-1	Redi Rock Retaining Wall	SF	10000	$ 64.00	$ 640,000.00
B-2	Bridge #1	LF	15	$ 1,000.00	$ 15,000.00
B-3	Bridge #2	LF	15	$ 1,000.00	$ 15,000.00
B-4	Abutments	EA	4	$ 10,000.00	$ 40,000.00
B-5	Culverts	EA	1	$ 5,000.00	$ 5,000.00
B-6	Abutments	EA	2	$ 10,000.00	$ 20,000.00
B-7	Paved Parking Spaces	EA	15	$ 3,678.41	$ 55,176.11
B-8	RE-Align and Pave Driveways	LS	1	$ 25,000.00	$ 25,000.00
B-9	Elevated Boardwalk	LF	500	$ 500.00	$ 250,000.00
B-10	Clear and Grub including all trees, shrubs, and all other material required to be removed to construct the project	LS	1	$ 75,000.00	$ 75,000.00
B-11	Earthwork	CY	1519	$ 35.00	$ 53,148.15
B-12	Aggregate Base (Class 2) = 4"	CY	501	$ 50.00	$ 25,055.56
B-13	Asphalt Concrete (Type B) - 3" thick	SF	41000	$ 5.00	$ 205,000.00
				Schedule B Civil Items Schedule Subtotal:	**$ 1,423,379.81**

Schedule C - Miscellaneous Items
MUP - Segment 2

Item No.	Description	Unit	Qty	Unit Price	Total Amount
C-1	Install Signs	LS	1	$ 15,000.00	$ 15,000.00
C-1	Striping	LS	1	$ 10,000.00	$ 10,000.00
				Schedule C Miscellaneous Items Schedule Subtotal:	**$ 25,000.00**

Schedule A - General Project Items	**TOTAL Schedule A**	**$ 175,000.00**
Schedule B - Civil Items	**TOTAL Schedule B**	**$ 1,423,379.81**
Schedule C - Miscellaneous Items	**TOTAL Schedule C**	**$ 25,000.00**
	TOTAL	**$ 1,623,379.81**

MUP SEGMENT 3 - Along the east side of Lake Mary loop Road from Lake Mary Road to the Coldwater Campground Entrance

Schedule A - General Project Items
MUP - Segment 3

Item No.	Description	Unit	Qty	Unit Price	Total Amount
A-1	Design	LS	1 Job	$ 80,000.00	$ 80,000.00
A-2	Construction Engineering	LS	1 Job	$ 30,000.00	$ 30,000.00
A-3	Environmental	LS	1 Job	$ 20,000.00	$ 20,000.00
A-4	Mobilization	LS	1 Job	$ 20,000.00	$ 20,000.00
A-5	SWMP Erosion Control	LS	1 Job	$ 15,000.00	$ 15,000.00
A-6	Traffic Control including design and all related work	LS	1 Job	$ 10,000.00	$ 10,000.00
				Schedule A General Project Items Schedule Subtotal:	**$ 175,000.00**

Schedule B - Civil Items
MUP - Segment 3

Item No.	Description	Unit	Qty	Unit Price	Total Amount
B-1	Redi Rock Retaining Wall	SF	4500	$ 64.00	$ 288,000.00
B-2	Bridge	LF	15	$ 1,000.00	$ 15,000.00
B-3	Abutments	EA	2	$ 10,000.00	$ 20,000.00
B-4	Culverts	EA	4	$ 5,000.00	$ 20,000.00
B-5	Abutments	EA	2	$ 10,000.00	$ 20,000.00
B-6	Clear and Grub including all trees, shrubs, and all other material required to be removed to construct the project	LS	1	$ 60,000.00	$ 60,000.00
B-7	Earthwork	CY	1148	$ 35.00	$ 40,185.19
B-8	Aggregate Base (Class 2) = 4"	CY	379	$ 50.00	$ 18,944.44
B-9	Asphalt Concrete (Type B) - 3" thick	SF	31000	$ 5.00	$ 155,000.00
				Schedule B Civil Items Schedule Subtotal:	**$ 637,129.63**

Schedule C - Miscellaneous Items
MUP - Segment 3

Item No.	Description	Unit	Qty	Unit Price	Total Amount
C-1	Install Signs	LS	1	$ 15,000.00	$ 15,000.00
C-1	Striping	LS	1	$ 10,000.00	$ 10,000.00
				Schedule C Miscellaneous Items Schedule Subtotal:	**$ 25,000.00**

Schedule A - General Project Items	**TOTAL Schedule A**	**$ 175,000.00**
Schedule B - Civil Items	**TOTAL Schedule B**	**$ 637,129.63**
Schedule D - Signage and Miscellaneous Items	**TOTAL Schedule C**	**$ 25,000.00**
	TOTAL	**$ 837,129.63**