

**TRANSIT ANALYSIS FOR
POINT REYES SEASHORE**

A Report

Crain & Associates, Inc.

1. INTRODUCTION

A Transportation Planning Project for the Point Reyes National Seashore is being conducted as part of the Marin Transit Futures Plan. This working paper presents the results of Tasks 1, 2, and 4 of the Work Plan for the project. Following meetings with National Park Service (NPS) staff, and in conjunction with the short and long-term transportation planning efforts by Marin County Transit District (MCTD), the following is included.

- A summary of background data and information from NPS staff pertaining to current and projected visitor demand and infrastructure to accommodate demand.
- A review of current transit services within and to the park.
- Updates on the near-term West Marin Transit Demonstration Project and NPS grant applications for intra-park transportation improvements and the long-term Marin Transit Futures Project.
- Suggested mid-range transit service scenarios for “Limantour” and “Bed and Breakfast” shuttle services.
- Suggested long-range transit alternatives for an “Explorer” service with inter and intra-park components.

Based on the NPS staff’s review and comments, we will proceed with developing ridership and cost estimates for long-range transit service (Task 3) and a second workshop to include Marin County residents (Task 5).

2. CURRENT AND PROJECTED VISITOR DEMAND AND INFRASTRUCTURE

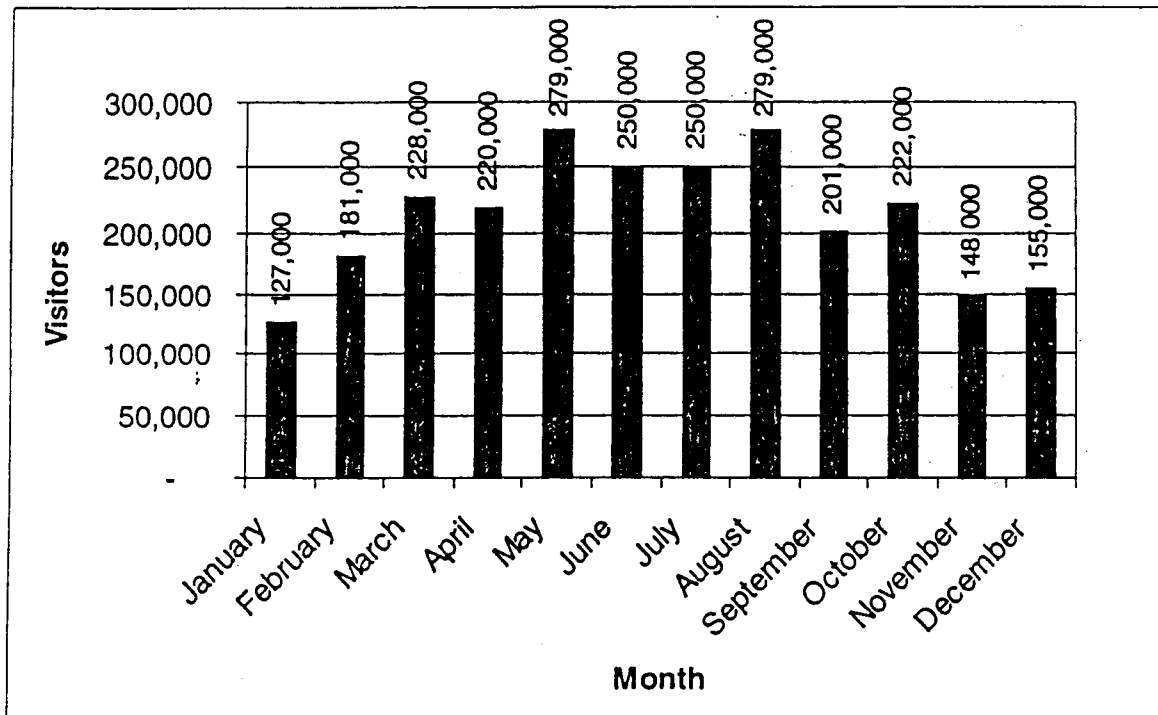
2.1. VISITOR TRENDS

Congress established the Point Reyes National Seashore as a National Park in 1960. The Point Reyes National Seashore Transportation Study¹ profiles visitor use of the park, transportation to the park, and the existing transportation infrastructure. The findings of the study and meetings with park management point to several factors that affect existing and future transportation demand. The nature of visitors' use of the park and the park's location favor automobiles over mass transportation to travel to and within the park.

- Use of the park is slowly growing while the level of parking has remained constant.
- Because many areas of the park, particularly the Lighthouse and more popular beaches are at their carrying capacity, senior staff members confirm that parking shall not be expanded in the future.
- The level of visitor use varies substantially depending upon the month.
- One of the main draws of the park is to view the whale migration from January to April. Visitation levels are also affected by seasonal weather variations. As shown in Exhibit 1 on the following page, May and August have the highest usage while January and November rank at the bottom of the list.
- Visitor use also varies substantially from day to day within seasons due to weather conditions, and those who visit arrive relatively late in the day.
- The majority of park visitors, 67.5% on average, reside within the Bay Area and many do not begin their journey to the seashore until they have confirmed the weather conditions. According to park officials, the heaviest influx of visitors is in the late morning and early afternoon.
- Traveling to and within the park requires substantial travel time by automobile.

Travel time to the park from Route 101 is at least an hour using any of the three major access roads: Sir Francis Drake (used by 37% of all visitors); southbound Highway 1

¹ Point Reyes National Seashore Transportation Study. Prepared for the United States Department of Interior, National Park Service by BRW, Inc., 1999

Exhibit 1: 1997 Month-to-Month Visitation²

Source: Point Reyes National Seashore, 1998.

² Source: Ibid.

(20%); and Point Reyes-Petaluma Road (14%). From the park entrance to the Lighthouse is another 43-minute drive.

- The most popular activities at the park are recreational rather than site seeing.

“Hiking” and “going to the beach” were the top two activities that patrons planned to do, while “going to the Visitor’s Center” ranked third.

- 80% of the park’s visitors arrive in groups.

On the date of survey, 50% of patrons traveled to the park with family members, while 30% arrived with friends. Only 5% traveled alone to the Seashore. The average vehicle occupancy was 3.3 people.

- Two-thirds of visits are only for day use.

Over the course of a year, 65% of all patrons stay only for the day, while, 35% camp overnight in the Park. Note that the percentage of overnight users is considerably higher in the summer months. Of those people staying over-night, 63% stay in hotels, bed and breakfasts, second homes or other facilities near the park. Of the remainder, half camp with the park while the other half camp outside the park.

- One-half of visitor trips include other destinations.

Only 52% of all patrons who visit the park list it as their only destination that day.

2.2. ROAD SYSTEM AND PARKING

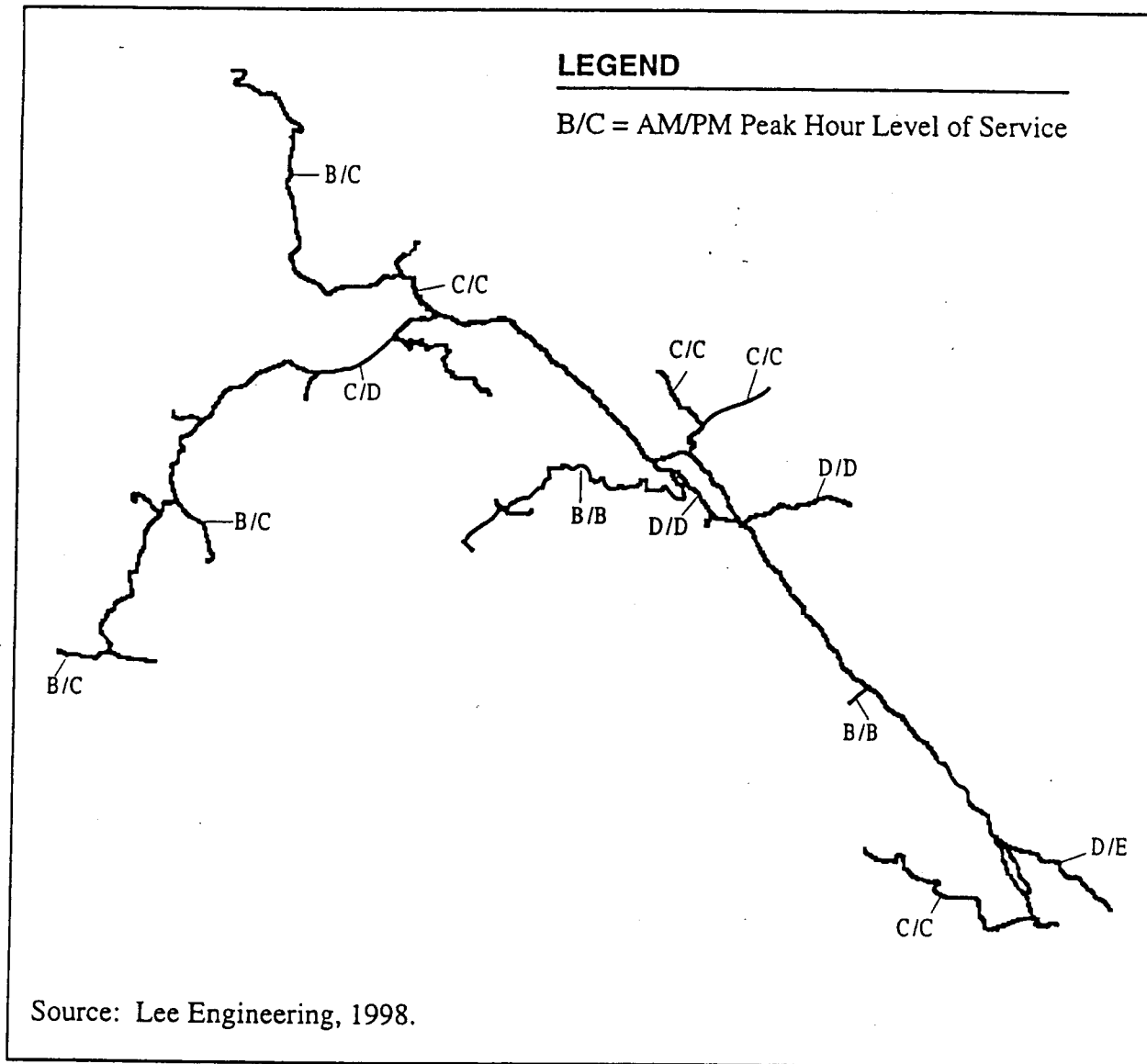
Approaches to the Park

According to projections for the year 2010 found in the Point Reyes National Seashore Transportation Study, level D will be the worst level of service on average for all roads leading to the park. In some cases during peak periods, park goers can expect level E service. In other words, though congested, traffic will continue to flow at the same speed on all park approaches, except during peak periods when it will slow considerably.

Inside the Park

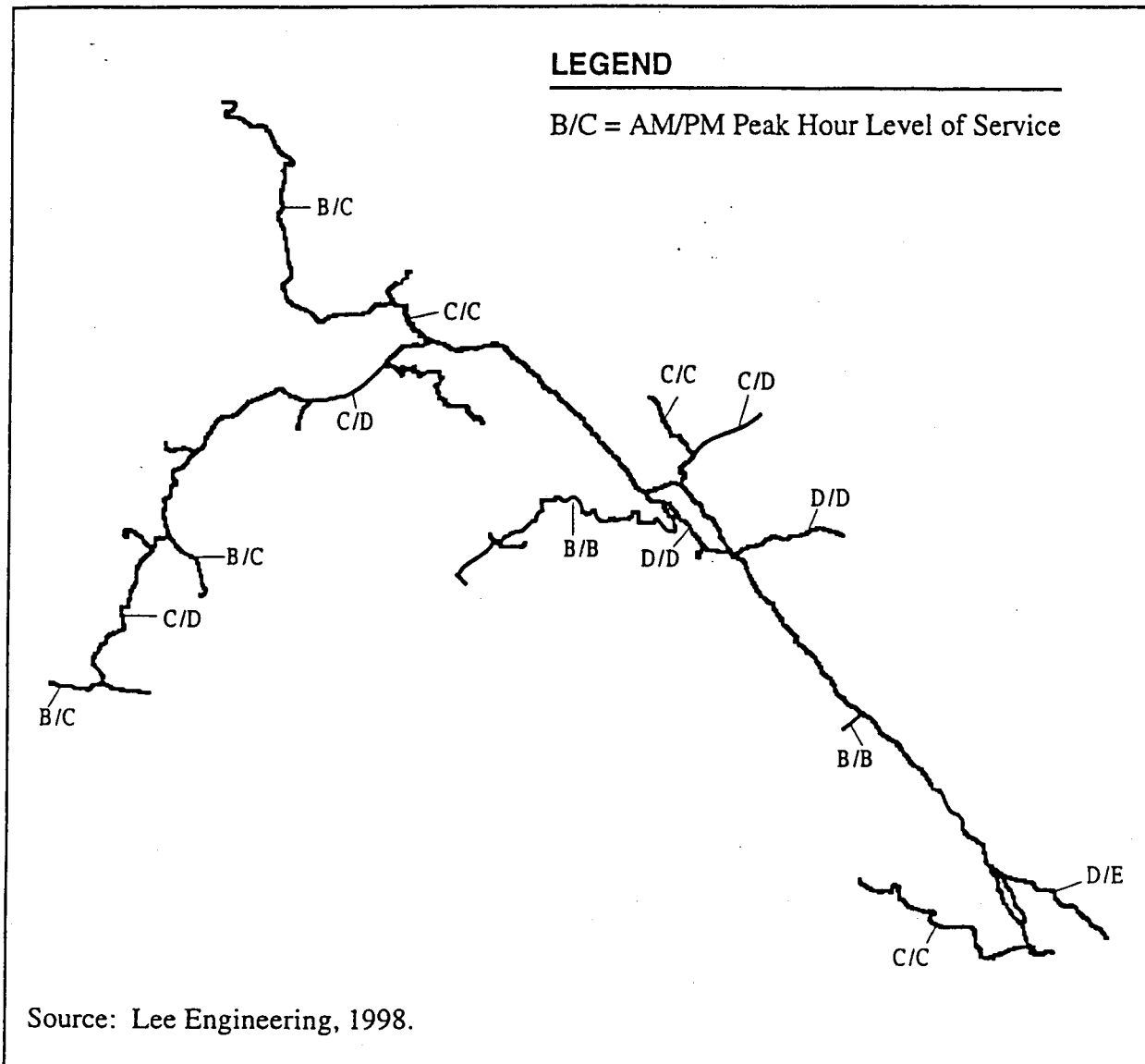
Exhibits 2 and 3 (from the Transportation Study) show the levels of service (LOS) for the years 1998 and 2010 within the park. With little exception, service levels do not deteriorate over time, even though park usage will continue to climb. Bear Valley road will remain at D level, Limantour at a B level and Mesa road at C level of service. Due to their small size, both Lifeboat Station Road and Lighthouse Road, do not appear on Exhibits 2 and 3. However, they deserve mention because, at the present road width of twelve feet, they greatly restrict the flow of large vehicles in and out of the Chimney Rock and Lighthouse areas.

Exhibit 2: 1998 Roadway Level of Service³



³ Ibid.

Exhibit 3: 2010 Roadway Level of Service⁴



⁴ Ibid

Parking Facilities

Exhibit 4 (from the Transportation Study) illustrates that a lack of parking is one of the most critical problems facing transportation within the park. On the day of the field survey, and, on many other days during spring and summer, the demand for parking exceeds supply. Note that the only place not checked off as having 90% of capacity, Limantour Beach, was at 87% of capacity.

2.3. DEMAND FOR EXISTING TRANSPORTATION SERVICES

Existing Lighthouse Shuttle

The Lighthouse Shuttle was instituted in response to increased travel to the Lighthouse during whale watching season and limits on parking at the site to 60 spaces. All visitors from approximately January to April must ride a shuttle from the Drakes Beach Visitor's Center Parking lot to Chimney Rock and the Lighthouse on weekends and holiday. The shuttle runs from 9 AM to 5:30 PM. Adult passengers pay \$2.50 per ride while kids ride free. According to data obtained from the National Park Service, during the winter and early spring of 2000, 13,311 passengers rode these shuttles, for an average daily ridership of 700. As of 1998, the shuttles cost \$26,000 per year to operate while bringing in \$16,000 in revenues, for a net operating cost of \$10,000.

Tour Buses

According to the Transportation Study, private tour buses are allowed inside the park with a permit and are able to access some areas that private cars can not. All buses entering the park must guarantee close to full capacity and can not travel on the narrow segments of Lighthouse and Lifeboat Roads due to safety issues.

Golden Gate Transit's Routes 63 and 65

Golden Gate Transit currently operates two routes that provide service to the National Park. Route 63 runs on Saturdays and Sundays from Marin City to Stinson Beach. Route 65 runs on Saturday and Sundays from San Rafael to Inverness via Bear Valley Road. The 65 makes two round trips per service day while the 63 makes four. Therefore, riders on the 63 have considerably more options for return trips, accounting for the fact that it has almost five times the ridership for 1999. Thus, higher productivity on Route 63 may be due to more outgoing and return options.

Exhibit 5 shows ridership on these routes since their inception. When Route 63 service began in 1977, patronage was 24,400. By the following year, ridership grew to 29,500. Ridership dropped off over the next few years, bottoming out in 1983 due to the El Nino rains. Ridership subsequently rose until service was suspended in 1993. Service was reinstated in 1996 and ridership has remained steady at about 14,500.

On the other hand, ridership on Route 65 has remained between 3,000 and 4,000 for most of the time the route has been in service.

Exhibit 4: Parking Lot Capacity Summary Table⁵

Parking Lot	Capacity Level (number of spaces)	Lots with 1998 Peak Hour Occupancy at 90% of Capacity or Higher	
		Weekday	Weekend
Pt. Reyes Lighthouse	39	✓	✓
Chimney Rock	31	✓	✓
Drakes Beach	414		✓*
Limantour North	200		
Limantour South	15		✓
Pierce Point Ranch	23	✓	✓
Five Brooks	60		✓**
Bear Valley V.C. (Large Gravel Lot)	200		✓
Bear Valley V.C. (Main Paved Lot)	74	✓	✓
Bear Valley V.C. (Gravel RV Lot)	60		✓

*Note 1: Drakes Beach lot occupancy is above 90% on days when the shuttle is operating.

**Note 2: Occupancies of 88% observed in a lot without bumper blocks. The maximum 60 spaces is thought to be achievable with bumper blocks marking the spaces. Without them, this lot has reached 90% occupancy for practical purposes.

Source: BRW, Inc. based upon Weekday and Weekend Data by Lee Engineering as presented in the appendix.

⁵ Ibid.

Exhibit 5
Ridership on Golden Gate Transit Routes 63 and 65

Fiscal Year	Golden Gate Transit			
	Route 63	% change	Route 65	% change
1977	24,405	-	1,090	-
1978	29,500	20.9%	3,875	-
1979	26,700	-9.5%	-	-
1980	25,300	-5.2%	-	-
1981	20,185	-20.2%	-	-
1982	11,375	-43.6%	-	-
1983	4,280	-62.4%	-	-
1984	11,425	166.9%	-	-
1985	8,910	-22.0%	4,060	-
1986	9,125	2.4%	4,300	5.9%
1987	9,843	7.9%	3,780	-12.1%
1988	10,690	8.6%	3,325	-12.0%
1989	9,200	-13.9%	3,340	0.5%
1990	8,922	-3.0%	4,000	19.8%
1991	10,680	19.7%	4,160	4.0%
1992	12,800	19.9%	3,060	-26.4%
1993	-	-	-	-
1994	-	-	-	-
1995	-	-	-	-
1996	14,770	-	3,465	-
1997	14,501	-1.8%	3,248	-6.3%
1998	14,510	0.1%	3,004	-7.5%
1999	15,050	3.7%	3,193	6.3%

3. CURRENT TRANSPORTATION PLANNING EFFORTS FOR WEST MARIN

3.1. NEAR TERM TRANSIT IMPROVEMENTS: THE WEST MARIN DEMONSTRATION PROJECT

Marin County was awarded Federal Transit Administration (FTA) Section 5311 funding to implement a shuttle demonstration project in West Marin. The project is envisioned as the first step in meeting the long-range transportation needs in West Marin. FTA grants provide for the purchase of two buses and \$180,000 in operating funds over 18 months. The operating funds will provide only a limited amount of service – an estimated 28.5 hours weekly for each vehicle or about six hours per vehicle per weekday. The County was not successful with its application for additional funding to add demand response feeder service during the demonstration phase. Funding beyond the demonstration phase is not certain. A fare of \$1.50 per ride is being suggested because it is comparable to the fare charged by Golden Gate Transit in East Marin.

At this stage of the planning process, MTCDD proposes to operate limited weekday fixed route service on two routes in West Marin for an eighteen-month trial period. One route would operate five days per week from Inverness, via Inverness Park and Point Reyes Station, to Fairfax. A second route would operate three days per week from Stinson Beach and Bolinas to Point Reyes Station. Currently, neither route passes by the Bear Valley Visitor's Center. The service day spans from 8:30 AM to 6:20 PM for the Inverness-Fairfax route and from 7:45 AM to 7:10 PM for the Stinson Beach- Point Reyes Station route. However, the exact location and time of stops will be determined following additional public review. If the service can maintain high ridership over the eighteen-month period, it may receive a grant for permanent operations.

3.2. LONG TERM TRANSIT IMPROVEMENTS: THE MARIN TRANSIT FUTURES PLAN

The service changes proposed in the Marin Transit Future Plan, presented on the following page, consist of two types of service: core and local route. Core service would connect West Marin communities with the eastern county while local routes would feed into the core service. Together, these two service types would be phased in over the course of the next twenty years.

Core service to West Marin would be provided with two routes. Route 150 would travel from Point Reyes Station via Bear Valley Visitor's Center to downtown San Rafael. Service would begin at 7AM, running until 8 PM with a bus every 60 minutes. Ridership on route 150 would likely warrant a full-size bus. Route 160 would provide service from Bolinas, via Stinson Beach and Panoramic Highway to Marin City. A 16 to 18-passenger bus would operate daily on two-hour headways from 6AM to 7PM on weekdays and from 7 AM to 8 PM on weekends.

Exhibit 6⁶:

WEST MARIN SERVICE CHARACTERISTICS

Route #	Service Description	Start Time	Finish	Number of Daily Trips Service (7 Days a week)	Service Frequency (Minutes)
Intercommunity					
150	Service between San Rafael & Point Reyes	7 AM (PR)	8 PM	To San Rafael: 13 To Point Reyes: 12	60
160	Services between Bolinas & Southern Marin (SM) Transit Junction via Stinson Beach	6 AM (Bol) 7 AM (SM)	8 PM (Bol) 7 PM (SM)	To Bolinas: 7 To Manzanita: 7	60
Core Services					
221	Service between Point Reyes & Bolinas	9:15 AM	5 PM	To Point Reyes: 4 To Bolinas: 5	120
222	Demand Response service Inverness & Point Reyes	6:30 AM	8:30 PM	28	Demand
223	Demand Response service for San Geronimo Valley (:15 west, :33 east)	7 AM	8 PM	Demand	Demand

⁶ Marin Transit Futures Report, Crain and Associates, 2000

Routes 221, 222 and 223 make up the local service. Route 221 would provide north-south mid-day service from Bolinas to Point Reyes. As envisioned in the plan, this route would bypass the Bear Valley Visitor center by remaining on Sir Francis Drake. Route 222 would provide demand response service from Inverness and Inverness Park to Point Reyes Station on an hourly basis from 6:30 AM until 8:30 PM. Lastly, route 223 would feed into route 150 and provide trips for passengers within the San Geronimo Valley. It would operate between the hours of 7 AM until 8 PM.

4. SERVICE SCENARIOS TO MEET EXISTING AND PROJECTED VISITOR DEMAND

4.1. NEAR TERM SCENARIO

The Point Reyes National Seashore has submitted two grant requests to the National Park Service in order to secure funding for immediate transportation improvements to the Park. The first grant, submitted in January 2000, requested two alternative fuel 40-passenger transit buses, a bus shelter, an alternative fuel eight passenger van, road improvements for the narrow section of Lifeboat Road, an alternative fuel station, and funds to plan and prepare a bid package for the road improvements. The second grant, submitted in July of 2000, did not request a van, however, it included all of the previous elements as well as a traffic management kiosk and a changeable electric highway sign.

Success in obtaining the grant would allow the park to operate the Lighthouse Shuttle on without a service contractor and would allow the use clean fuel vehicles. This service alternative would also avoid costly cancellation charges that are currently part of contracted service. The grant would increase the accessibility of Chimney Rock and the Lighthouse areas, as the road improvements allow two buses to operate simultaneously on the shuttle route. The traffic management kiosk and the electric sign would help drivers avoid areas with limited or no parking on peak days.

4.2. MID-RANGE SCENARIO

Limantour Shuttle

Park service staff propose that a shuttle between the Bear Valley Visitor Center and Limantour Beach, with stops at the Youth Hostel and major trailheads, would be very popular.

Proposed Service

Allowing for stops along the way, the trip from the Bear Valley Visitor Center to the North Parking Lot at Limantour Beach takes 23 minutes (see Appendix A for more details). Four possible service scenarios are presented: Winter Slow, Winter Peak, Summer Slow and Summer Peak. "Winter" refers to a short service day, service from the hours of 10 AM to 6 PM. On the other hand, "Summer" service days start earlier and end later than those of Winter. "Slow" and "Peak" refers to headways. On Slow days, service runs on hour headways (one bus per hour in each direction). On Peak days, buses traveling in the same direction have half-hour headways, with the exception of the first and last runs of the summer scenario.

The appendix contains the possible variations for the Limantour Shuttle and associated schedules, service hours, miles and vehicle requirements. In order to maintain the Summer Peak level of service, the system would have to employ at least two full time drivers and four part time drivers.

Potential Ridership

According to park staff, hikers, campers, beach-goers, Environmental Education Center visitors, and other sightseers make up the core of riders. This bus would be especially desirable for those hikers who do not have the time, stamina, or desire to hike both to and from the beach from the Bear Valley Visitor or to and from other trailheads. Campers could use the bus as well, in order to avoid having to leave their car overnight at trailheads. However, steps would have to be taken so that the bus does not encourage camping in any unpermitted areas. Visitors could take the bus to the Environmental Education Center without having to deal with limited parking or the narrow roads leading there. Lastly, park sightseers could enjoy the scenic drive and spend a considerable time down at the beach, still having time to visit other park attractions in one day. However, operating the Limantour shuttle alone would create even more demand on already limited parking at the Bear Valley Visitor Center. In order to mitigate this problem, this working paper proposes an additional Bed and Breakfast shuttle system to be used in conjunction with the Limantour Shuttle.

Bed and Breakfast Shuttle

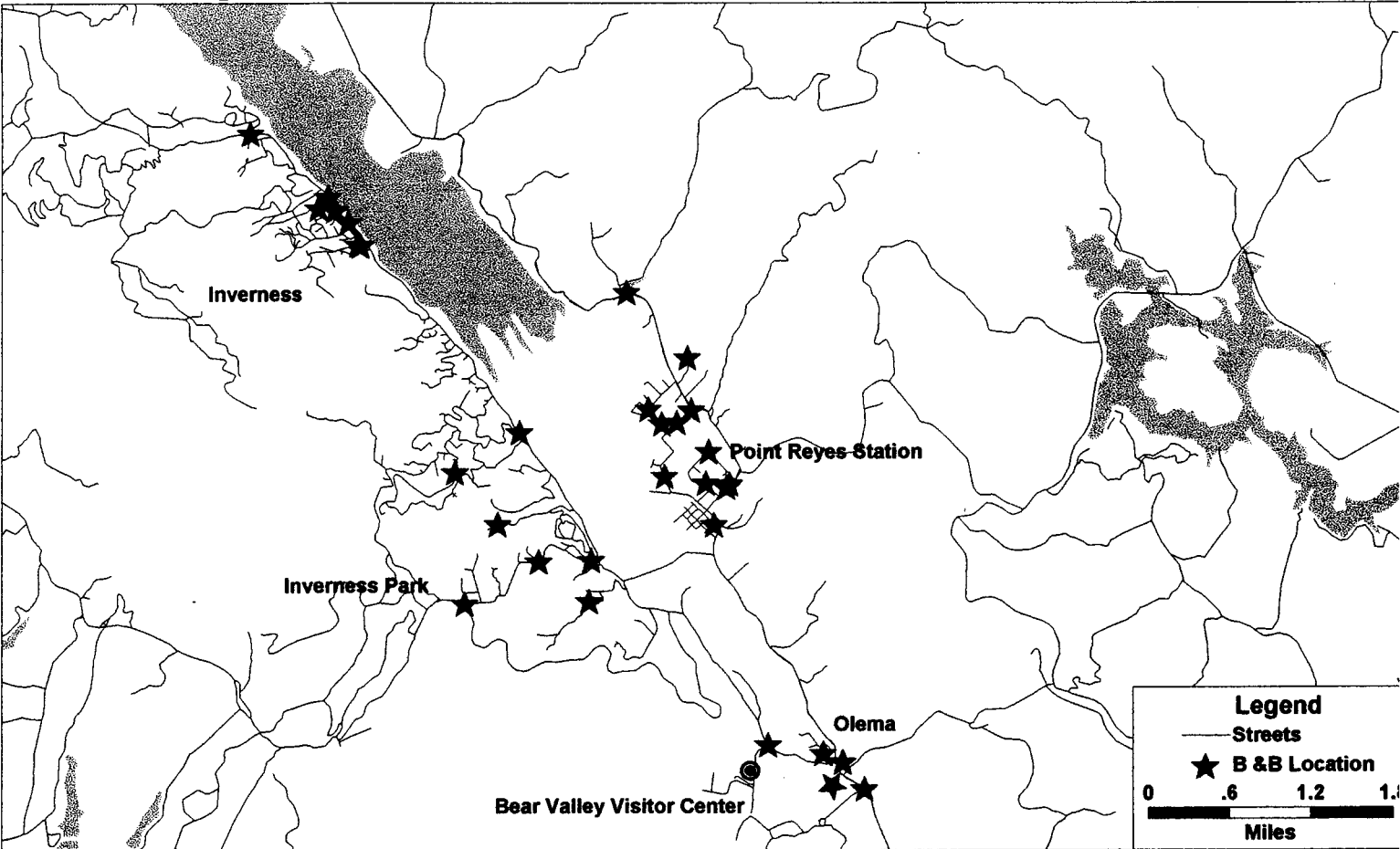
The Marin County Visitor's Bureau estimates there are approximately 500 "bed and breakfast beds" in West Marin. A shuttle to collect some of these visitors would alleviate parking demand within the park and traffic through Inverness and Inverness Park.

Proposed Service

Exhibit 7 on the following page shows many of the bed and breakfast locations in the area around the Park. The shuttle system could operate on a demand response basis. Park Headquarters would receive and arrange trips. A dispatcher there would radio the data to a driver over the course of the day. The driver would pick up as many passengers as possible in Point Reyes and Olema. After dropping off those passengers and picking up more at Bear Valley, the shuttle could then continue to Inverness and Inverness Park to pick up or drop off other passengers. This alternating pattern would continue throughout the day, allowing for connections at Bear Valley with the Limantour Shuttle.

The number of service hours and miles would depend upon the length of the day for the Limantour Shuttle, as well as the nature of pick-ups and drop-offs. The shuttle would most likely be a large van able to negotiate most of the narrow streets and steep hills of the area. This service would require a least one full-time driver and two part-time relief drivers. The system would also need a back-up vehicle. This same vehicle could also serve as a spare for the Limantour Shuttle.

Exhibit 7: Bed and Breakfast Locations in West Marin⁷



⁷ Source: Marin County Yellow Pages

Potential Ridership

To avoid competing for limited parking at the Visitor Center, passengers could leave their cars at their hotels and ride into the park. Riders would likely be attracted to the fact that they can enjoy the Visitor Center, trails, the Environmental Education Center, and Limantour Beach without having to drive at all. According to a recent article in the Marin Independent Journal, the number of people staying overnight in West Marin is growing steadily due the strong economy, large growth in Bay Area population, and the fact that many Bay Area residents work long hours and need a close place to make a “quick get-a-way.”⁸ Therefore, shuttle ridership should grow over time. However, many visitors would still have to drive during whale watching season in order access the Lighthouse viewing areas because no service runs there from Bear Valley.

4.3. LONG TERM SCENARIO

The Point Reyes National Seashore General Management Plan was last completed in 1980 and is presently being updated. The long-term vision of senior Park Service staff is an “Explorer Bus” concept similar to that adopted for Acadia National Park. Acadia’s transit service consists of six routes that serve the campgrounds, hotels, restaurants, and beaches located in this Island Park. In Marin County, the Explorer Bus service would begin at the Larkspur ferry terminal or another major intermodal transfer point in East Marin. Once within the park, visitors would have the option to continue on the Explorer Bus or transfer to one of the in-park shuttles. In-park shuttle buses would provide access to the Point Reyes lighthouse, Drakes Beach, Limantour Beach and Visitors from East Marin, who account for the largest proportion of visitors from any single county (14%), could transfer from the inter-community Routes 150 or 160 proposed in the Marin Transit Futures Plan.

Intra-park Service

The Point Reyes National Seashore Transportation Study discusses the possibility of a park-wide shuttle system. It states that between 10 and 15 vehicles would be needed in order to provide 30 and 20-minute headways to most park destination. Hourly headways would most likely prove sufficient during non-peak periods with half-hour headways in peak times. Such a system would require the acquisition of these buses, the construction of bus shelters and signage at key locations. The system would also require hiring additional part and full time staff and a contractor to provide route planning and scheduling.

One possible refinement to the system proposed in the Transportation Study would be a system that pulses from Bear Valley towards the Lighthouse, Limantour, and Pierce Point every hour. The buses traveling to these locations would all leave at the same time on an hourly basis. Thus, someone arriving to the park could board a bus at 10:00 AM that

⁸ Nickerson, John. “Tourism Industry Booming in Marin.” Marin Independent Journal. April 3, 2000.

would take them to the Lighthouse via Drakes Beach Visitor Center, or one that takes them to Limantour Beach or Pierce Point. This scenario would require at least five buses running at a given time in order to maintain hourly service or ten buses to do it on a half-hour basis. This calculation was derived from the travel times noted in Exhibit 8 and the appendices multiplied by the number of buses needed to maintain the given headway. Time is allowed for stops given the route characteristics listed above. Note that a similar scenario is in place in the Explorer System in Arcadia, with all but one of the six buses leaving from one point on half-hour or hour intervals.

Ferry Service

These buses that meet intra-park buses on an hourly basis at Bear Valley will open access to Point Reyes National Seashore to population groups that are not currently able to experience the park, as well as providing an educational experience. The Transportation Study shows that seniors comprise a low percentage of visitors to the park. Likewise, the park is not accessible to those with disabilities who can not drive and wish to travel independently or to those who do not have access to a running car. Also, an educational tour could be provided using tour guides, docents, or using tape-recorded information and headsets, similar to those used at museums.

Parking fees within the park could be one element of the Explorer Service to both encourage transit use and generate operating funds. Discount pricing for families, seniors, and the disabled would also encourage transit use and afford the opportunity to visit the park to lower income persons.

Visitor facilities at the park would need to be upgraded to accommodate Explorer Service patrons or the buses would need to make stops in Inverness and/or Point Reyes Station. Presently, the only food service in the park is a small lunch bar at Drakes Beach and there are no gift or sundry sales. Visitors rely on their automobiles to access local restaurants and shops.

Sample Service Scenarios

Exhibit 9 on the following pages presents for alternatives for Explorer service. The alternatives range from a high level of service with 1,710 operating hours annually to minimal service operating 630 hours annually. Alternative 1 is the High Level service operating within the park on 30 minute headways on weekends during peak season. This intra-park service would operate on 60-minute intervals on weekdays during the same four months. Service would also run every 60 minutes on weekends during the months of March, April, September, and October. These buses would stop at all major trailheads, beach access roads (if applicable), and other points of interest along their journey. In one possible specific service characteristic, the bus to Piece Point would make stops in Inverness Park and Inverness, while the bus to the Lighthouse would not, in order to save time. Thus, the general public could use the Explore System to access these areas from eastern Marin County.

Ferry service in this alternative would run on 60-minute intervals, meeting the intra-park buses at Bear Valley. Note that this 60-minute period includes about 45 minutes of run time with seven minutes of break time on either end. This service could be modified to make stops in San Geronimo or other designated places of interest along the way, allowing passengers to buy food, shop, or see any sights along the way such as Samuel L. Taylor Park.

Alternatives 2 and 3 operate on the same routes as described above. However, as one can see looking at Exhibit 9, these alternatives have scaled-down service hours and only operate during peak season from May-August. Alternative four services target whale watch visitors. Under this scenario, one bus would cycle between Larkspur and Bear Valley while another would run from Bear Valley to the Lighthouse only.

Exhibit 8: Intra-park Travel Times⁹

From	To	Cumulative Time (min:sec)	Cumulative Distance (miles)
Bear Valley Visitor Center	Bear Valley Rd. @ Sir Francis Drake	3:53	2.0
Bear Valley Rd. @ Sir Francis Drake	Inverness	9:18	5.1
Inverness	Sir Francis Drake @ Pierce Point Rd.	13:53	7.7
Sir Francis Drake @ Pierce Point Rd.	D Ranch	14:56	8.3
D Ranch	Estero Trail Access Road	17:20	9.7
Estero Trail Access Road	E Ranch	20:00	11.1
E Ranch	F Ranch	21:49	12.2
F Ranch	Bullpoint Trailhead	22:36	12.8
Bullpoint Trailhead	North Beach Access Road	23:30	13.3
North Beach Access Road	C Ranch	25:30	14.5
C Ranch	Drakes Beach Access Road	27:00	15.4
Drakes Beach Access Road	South Beach Access Road	28:09	16.0
South Beach Access Road	B Ranch	31:48	18.1
B Ranch	A Ranch	35:08	19.5
A Ranch	Lifeboat Sta Rd./Lighthouse Intersection	35:39	19.7
Lifeboat Sta Rd./Lighthouse Intersection	Lighthouse Parking Lot	39:00	20.8
Lighthouse Parking Lot	Lifeboat Sta Rd./Lighthouse Intersection	42:39*	21.9
Lifeboat Sta Rd./Lighthouse Intersection	Sea Lion Overlook	43:34*	22.2
Sea Lion Overlook	Chimney Rock Parking Lot	45:06*	22.9

*Travel times estimated based upon the travel speed and travel time between the Lighthouse Parking lot and the to Chimney Rock/Lighthouse Intersection.

Source: BRW Inc, April 17 1998.

From	To	Cumulative Time (min:sec)	Cumulative Distance (miles)
Pierce Pt. Rd. @ Sir Francis Drake	Tomales Bay State Park Access Road	2:25	1.3
Tomales Bay State Park Access Road	H Ranch	4:56	2.8
H Ranch	Abbotts Lagoon	6:10	3.4
Abbotts Lagoon	G Ranch	7:58	4.4
G Ranch	Kehoe Beach	10:15	5.6
Kehoe Beach	J Ranch	11:10	6.2
J Ranch	Tomales Point Trailhead	16:30	9.1
Tomales Point Trailhead	McClure's Beach	17:10	9.4

Source: BRW Inc, April 16 1998.

⁹ Point Reyes National Seashore Transportation Study

Point Reyes National Seashore

Exhibit 9

Alternative 1: Explorer Service - High Level

Service Type	Headways	Days of Service	Span of Service	Total Daily Hours	Days per year	Total Annual Hours
Intrapark	30 mins.	Weekends: May-August	10am- 9pm	87.5	35	3,063
Intrapark	60 mins.	Weekdays: May-August	10am- 9pm	42	87	3,654
Intrapark	60 mins.	All Weekends: Mar, Apr, Sep, Oct	10am- 8pm	37	35	1,295
Ferry Service	60 mins.	7 days: May-August	9am- 10pm	24	122	2,928
Ferry Service	60 mins.	All Weekends: Mar, Apr, Sep, Oct	9am- 9pm	22	35	770
Total						11,710

Alternative 2: Explorer Service - Peak Season

Service Type	Headways	Days of Service	Span of Service	Total Daily Hours	Days per year	Total Annual Hours
Intrapark	60 mins.	Weekends: May-August	10am- 9pm	42	35	1,470
Ferry Service	60 mins.	Weekends: May-August	10am- 9pm	24	35	840
Intrapark	2 hours	Weekdays: May-August	10am- 9pm	21	87	1,827
Ferry Service	2 hours	Weekdays: May-August	9am-10pm	13	87	1,131
Total						5,268

Alternative 3: Explorer Service - Peak Season/Weekend Only

Service Type	Headways	Days of Service	Span of Service	Total Daily Hours	Days per year	Total Annual Hours
Intrapark	2 hours	Weekends: May-August	10am- 9pm	21	35	735
Ferry Service	2 hours	Weekends: May-August	9am-10pm	13	35	455
Total						1,190

Alternative 4*: Whale Watch Service Only

Service Type	Headways	Days of Service	Span of Service	Total Daily Hours	Days per year	Total Annual Hours
Intrapark	2 hours	Weekends: Jan-April	10am-6pm	8	35	280
Ferry Service	2 hours	Weekends: Jan-April	9am- 7pm	10	35	350
Total						630

Alternative 4*: Interpark shuttle goes only to Lighthouse.

Appendix

Winter Slow

Bear Valley to Limantour Beach

Bear Valley	Limantour Rd.	Sky Trail	Bayview Trail	Env. Ed. Center	Limantour Beach
10:00	10:03	10:10	10:14	10:18	10:23
11:00	11:03	11:10	11:14	11:18	11:23
12:00	12:03	12:10	12:14	12:18	12:23
1:00	1:03	1:10	1:14	1:18	1:23
2:00	2:03	2:10	2:14	2:18	2:23
3:00	3:03	3:10	3:14	3:18	3:23
4:00	4:03	4:10	4:14	4:18	4:23
5:00	5:03	5:10	5:14	5:18	5:23

Limantour Beach to Bear Valley

Limantour Beach	Env. Ed. Center	Bayview Trail	Sky Trail	Limantour Rd.	Bear Valley
10:30	10:36	10:40	10:44	10:50	10:53
11:30	11:36	11:40	11:44	11:50	11:53
12:30	12:36	12:40	12:44	12:50	12:53
1:30	1:36	1:40	1:44	1:50	1:53
2:30	2:36	2:40	2:44	2:50	2:53
3:30	3:36	3:40	3:44	3:50	3:53
4:30	4:36	4:40	4:44	4:50	4:53
5:30	5:36	5:40	5:44	5:50	5:53

Daily Totals

Buses	Hours	Miles
1	8	150.4

Winter Peak

Bear Valley to Limantour Beach

Bear Valley	Limantour Rd.	Sky Trail	Bayview Trail	Env. Ed. Center	Limantour Beach
10:00	10:03	10:10	10:14	10:18	10:23
10:30	10:33	10:40	10:44	10:48	10:53
11:00	11:03	11:10	11:14	11:18	11:23
11:30	11:33	11:40	11:44	11:48	11:53
12:00	12:03	12:10	12:14	12:18	12:23
12:30	12:33	12:40	12:44	12:48	12:53
1:00	1:03	1:10	1:14	1:18	1:23
1:30	1:33	1:40	1:44	1:48	1:53
2:00	2:03	2:10	2:14	2:18	2:23
2:30	2:33	2:40	2:44	2:48	2:53
3:00	3:03	3:10	3:14	3:18	3:23
3:30	3:33	3:40	3:44	3:48	3:53
4:00	4:03	4:10	4:14	4:18	4:23
4:30	4:33	4:40	4:44	4:48	4:53
5:00	5:03	5:10	5:14	5:18	5:23

Limantour Beach to Bear Valley

Limantour Beach	Env. Ed. Center	Bayview Trail	Sky Trail	Limantour Rd.	Bear Valley
10:30	10:36	10:40	10:44	10:50	10:53
11:00	11:06	11:10	11:14	11:20	11:23
11:30	11:36	11:40	11:44	11:50	11:53
12:00	12:06	12:10	12:14	12:20	12:23
12:30	12:36	12:40	12:44	12:50	12:53
1:00	1:06	1:10	1:14	1:20	1:23
1:30	1:36	1:40	1:44	1:50	1:53
2:00	2:06	2:10	2:14	2:20	2:23
2:30	2:36	2:40	2:44	2:50	2:53
3:00	3:06	3:10	3:14	3:20	3:23
3:30	3:36	3:40	3:44	3:50	3:53
4:00	4:06	4:10	4:14	4:20	4:23
4:30	4:36	4:40	4:44	4:50	4:53
5:00	5:06	5:10	5:14	5:20	5:23
5:30	5:36	5:40	5:44	5:50	5:53

Daily Totals

Buses	Hours	Miles
2	15	282.0

Summer Slow

Bear Valley to Limantour Beach

Bear Valley	Limantour Rd.	Sky Trail	Bayview Trail	Env. Ed. Center	Limantour Beach
9:00	9:03	9:10	9:14	9:18	9:23
10:00	10:03	10:10	10:14	10:18	10:23
11:00	11:03	11:10	11:14	11:18	11:23
12:00	12:03	12:10	12:14	12:18	12:23
1:00	1:03	1:10	1:14	1:18	1:23
2:00	2:03	2:10	2:14	2:18	2:23
3:00	3:03	3:10	3:14	3:18	3:23
4:00	4:03	4:10	4:14	4:18	4:23
5:00	5:03	5:10	5:14	5:18	5:23
6:00	6:03	6:10	6:14	6:18	6:23
7:00	7:03	7:10	7:14	7:18	7:23

Limantour Beach to Bear Valley

Limantour Beach	Env. Ed. Center	Bayview Trail	Sky Trail	Limantour Rd.	Bear Valley
9:30	9:36	9:40	9:44	9:50	9:53
10:30	10:36	10:40	10:44	10:50	10:53
11:30	11:36	11:40	11:44	11:50	11:53
12:30	12:36	12:40	12:44	12:50	12:53
1:30	1:36	1:40	1:44	1:50	1:53
2:30	2:36	2:40	2:44	2:50	2:53
3:30	3:36	3:40	3:44	3:50	3:53
4:30	4:36	4:40	4:44	4:50	4:53
5:30	5:36	5:40	5:44	5:50	5:53
6:30	6:36	6:40	6:44	6:50	6:53
7:30	7:36	7:40	7:44	7:50	7:53

Daily Totals

Buses	Hours	Miles
1	11	206.8

Summer Peak

Bear Valley to Limantour Beach

Bear Valley	Limantour Rd.	Sky Trail	Bayview Trail	Env. Ed. Center	Limantour Beach
9:00	9:03	9:10	9:14	9:18	9:23
10:00	10:03	10:10	10:14	10:18	10:23
10:30	10:33	10:40	10:44	10:48	10:53
11:00	11:03	11:10	11:14	11:18	11:23
11:30	11:33	11:40	11:44	11:48	11:53
12:00	12:03	12:10	12:14	12:18	12:23
12:30	12:33	12:40	12:44	12:48	12:53
1:00	1:03	1:10	1:14	1:18	1:23
1:30	1:33	1:40	1:44	1:48	1:53
2:00	2:03	2:10	2:14	2:18	2:23
2:30	2:33	2:40	2:44	2:48	2:53
3:00	3:03	3:10	3:14	3:18	3:23
3:30	3:33	3:40	3:44	3:48	3:53
4:00	4:03	4:10	4:14	4:18	4:23
4:30	4:33	4:40	4:44	4:48	4:53
5:00	5:03	5:10	5:14	5:18	5:23
5:30	5:33	5:40	5:44	5:48	5:53
6:00	6:03	6:10	6:14	6:18	6:23
7:00	7:03	7:10	7:14	7:18	7:23
8:00	8:03	8:10	8:14	8:18	8:23

Limantour Beach to Bear Valley

Limantour Beach	Env. Ed. Center	Bayview Trail	Sky Trail	Limantour Rd.	Bear Valley
9:30	9:36	9:40	9:44	9:50	9:53
10:30	10:36	10:40	10:44	10:50	10:53
11:00	11:06	11:10	11:14	11:20	11:23
11:30	11:36	11:40	11:44	11:50	11:53
12:00	12:06	12:10	12:14	12:20	12:23
12:30	12:36	12:40	12:44	12:50	12:53
1:00	1:06	1:10	1:14	1:20	1:23
1:30	1:36	1:40	1:44	1:50	1:53
2:00	2:06	2:10	2:14	2:20	2:23
2:30	2:36	2:40	2:44	2:50	2:53
3:00	3:06	3:10	3:14	3:20	3:23
3:30	3:36	3:40	3:44	3:50	3:53
4:00	4:06	4:10	4:14	4:20	4:23
4:30	4:36	4:40	4:44	4:50	4:53
5:00	5:06	5:10	5:14	5:20	5:23
5:30	5:36	5:40	5:44	5:50	5:53
6:00	6:06	6:10	6:14	6:20	6:23
6:30	6:36	6:40	6:44	6:50	6:53
7:30	7:36	7:40	7:44	7:50	7:53
8:30	8:36	8:40	8:44	8:50	8:53

Daily Totals

Buses	Hours	Miles
2	20	376.0