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Roosevelt-Vanderbilt NHS Alternative Transportation System Implementation Plan-Phase II

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Prepared for
National Park Service
Northeast Region

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1. Introduction

The *Phase II Alternative Transportation System Implementation Plan* supports the development of transportation services for the Roosevelt historic sites: Home of Franklin Delano Roosevelt National Historic Site (Home of FDR NHS), the Eleanor Roosevelt NHS, and Top Cottage, the planned retirement home of FDR, all of which are National Park Service (Park Service) properties, and the Franklin Delano Roosevelt Presidential Library, operated by the National Archives and Records Administration. The study has consisted of six major components:

- Identification of promising Alternative Transportation System (ATS) services that can improve access to the sites, enhance the visitor experience, protect the environment, and support the sites' cultural resources and programs;
- Specification of service characteristics: route configuration, hours and days of service, headways (i.e. service intervals or frequencies), vehicle type, integration of interpretive features;
- Market analysis;
- Cost estimation and financial analysis;
- Identification of opportunities to operate service cooperatively with local partners;
- Identification and analysis of potential site improvements.

These components are intended to define the potential ATS, determine its feasibility, and identify key features and issues that are crucial to its success.

The study has considered two separate timeframes: (1) short-range, addressing only an ATS serving the Roosevelt sites, operated over existing roadways; (2) long-range, taking into account plans for the restoration of the "Roosevelt Corridor" carriage road connecting the Home of FDR NHS and the Eleanor Roosevelt NHS across the historic Roosevelt estate, as well as a possible Regional Information and Transportation Center that would serve as a hub for an ATS integrated with community and regional public transit services.

Phase I of the ATS planning effort for the Roosevelt sites, complete in August 2001, investigated a range of alternative service configurations, traffic operational improvements, conceptual facility designs, and a strategy for integrating ATS with other area transportation services. The Phase II effort reflects the recommendations of a November 2001 ATS Technical Advisory Group (TAG) review conducted by the Park Service. The TAG recommended continued planning for improved access to and circulation among the Home of FDR NHS, Eleanor Roosevelt NHS, and Top Cottage, coordination with local and regional transit services, including the development of a Regional Information and Transportation Center, and providing service along the historic Roosevelt corridor.



2.0 Transportation Conditions

2.1 Existing Access and Circulation Characteristics

Highways: The Roosevelt historic sites are located in the Town of Hyde Park, which borders the Hudson River in Dutchess County, New York, approximately 80 miles from New York City and 70 miles from Albany. To the north of Hyde Park is the Town of Rhinebeck and to the south, the City of Poughkeepsie, the county seat. U.S. Route 9 (the Albany Post Road) and New York State Route 9G are two-lane rural arterial highways extending the length of the county in a north-south direction, about 1 mile apart. Regional access to Hyde Park is provided by Routes 9 and 9G and via connections with Interstates I-84, I-684, I-87 and I-287.

The Home of FDR is located on the west side of Route 9, approximately 1 3/4 miles south of Hyde Park Center. Eleanor Roosevelt NHS is located at the end of a 0.43-mile single-lane access road connecting to Route 9G. Top Cottage is close to 3 miles to the east of Eleanor Roosevelt NHS via existing roadways, including Route 40 (East Dorsey Lane), which connects Route 9G to Dutchess Hill Road and an access road from Route 39 (Cream Street). (Roosevelt Historic Site locations are shown in Figure 1). Land use along this circuitous routing, which is predominantly low-density suburban in character, does not provide a strong visual approach linking Top Cottage to the other sites.

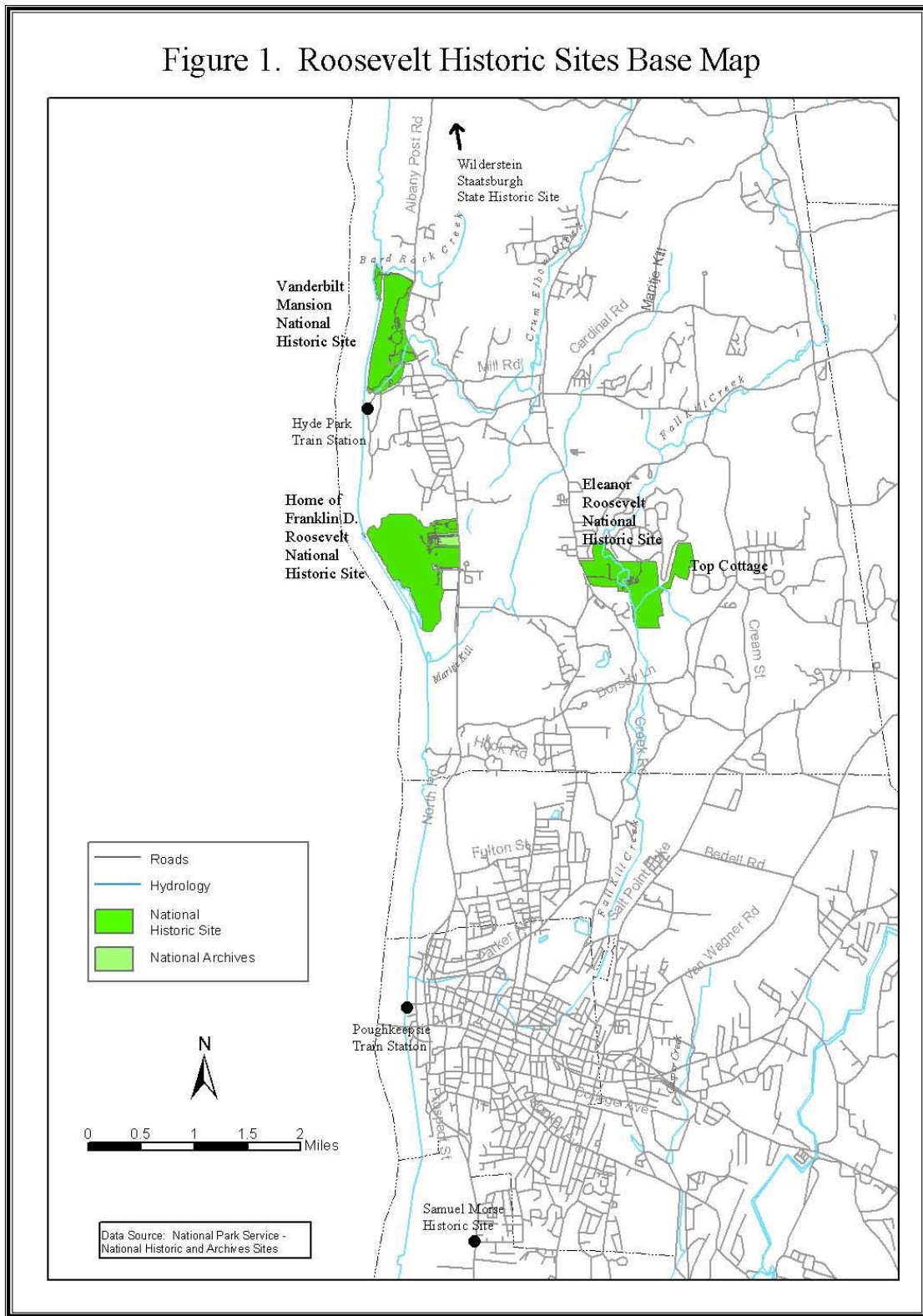
Both Routes 9 and 9G carry large traffic volumes, averaging 20,000 vehicles on Route 9 near the Home of FDR NHS and 13,000 on Route 9G near Eleanor Roosevelt NHS. The intersections of these roadways and the east-west cross-streets through Hyde Park center at East Market Street and Pines Wood Road are frequently congested with traffic. Perhaps the most serious existing traffic problem affecting both FDR NHS and Eleanor Roosevelt NHS is the difficulty of exiting the sites, particularly for left-turning vehicles, which poses a significant safety risk.

Home of FDR NHS and Eleanor Roosevelt NHS are highly dependent on access by private automobile. Over 80 percent of visitors to the Home of FDR NHS arrive by car, as do nearly 95 percent of visitors to Eleanor Roosevelt NHS. Average vehicle occupancy is 2.7 occupants. Visitor access to Top Cottage is restricted to shuttle buses originating at Home of FDR, which are coordinated with scheduled tours of the site.

Transit: The Hudson Line of MetroNorth commuter rail and AMTRAK run along the eastern edge of the Hudson River through Hyde Park. MetroNorth operates frequent service between Poughkeepsie and Grand Central station in Manhattan and AMTRAK provides multiple daily trips connecting both Poughkeepsie and Rhinecliff with Albany and Manhattan's Penn Station. There are no active rail stations within the Town of Hyde Park. The Hyde Park Train Station is an historic site owned by the Town of Hyde Park and was restored and is maintained by the Hudson Valley Railroad Society.



Figure 1. Roosevelt Historic Sites Base Map



Dutchess County operates the “Loop” bus service, including several routes on the section of Routes 9 and 9G where Home of FDR NHS and Eleanor Roosevelt NHS are located. A Commuter Train Connections Loop route provides multiple trips between Hyde Park and the Poughkeepsie train station during the early morning and afternoon/evening, but the service does not operate during the weekday hours or on weekends, when they could serve the Roosevelt sites.

Pedestrian and Bicycle Movement: The Hyde Park Trail extends approximately 1 3/4 miles north-south along the Hudson River between the Vanderbilt National Historic Site and the Home of FDR NHS and eastward to Eleanor Roosevelt NHS. Within the last few years, sidewalks were constructed between the town center and the Vanderbilt National Historic Site. Routes 9 and 9G are designated State bicycle routes and any future roadway improvements must include provisions that support bicycle use. The construction of sidewalks between the Route 9 crossroads in the town center and the Hyde Park Train Station has been funded and is scheduled for 2003-2004.

2.2 Transportation Problems and Needs

The dependence of the Roosevelt historic sites on access by private vehicles results in a number of adverse conditions:

- Visitation effectively is limited to users of private vehicles and group bus charters; although the sites are located in a region with rail and bus transit service, the sites are not accessible by transit;
- Traffic congestion and the need to navigate through a network of suburban roadways lacking a strong visual connection among sites detract from the visitor experience and may reduce visitation;
- Parking occupies a significant share of the Home of FDR site and parking demand exceeds the capacity of the on-site parking lot at times of peak visitation; parking is severely constrained at Eleanor Roosevelt NHS, while no visitor parking is provided at Top Cottage.
- Vehicles turning left from the sites (and to a lesser degree, to the sites) contribute to congestion and pose a safety risk.
- Air pollution, energy consumption, and noise produced by high traffic volumes are detrimental to the environment of the sites and the local community.

2.3 Future Plans

Regional Information and Transportation Center: The Park Service, the Town of Hyde Park, Scenic Hudson Inc., a private, non-profit environmental organization, and the Hudson River Valley National Heritage Area have jointly developed a proposal to create a Regional Information and Transportation Center (Center). The Center will provide a consolidated “one-stop” gateway offering visitors an orientation to heritage sites throughout the midHudson Valley and connections to the region’s shuttle and public bus systems, inter-city rail, and Hudson River ferries.



There are a number of sites in Hyde Park that can be considered as potential locations for the Center, including a parcel that is the site of a drive-in movie and seasonal farmer's market on the east side of Route 9, less than ¼-mile to the north of the new entrance to the Home of FDR. Hyde Park's comprehensive plan identifies an area known as the Bellefield Core, surrounding the Roosevelt properties, as the most "logical" site for development related to tourism. The Center can serve as a hub for transit services, provide a location for parking away from historic sites and the town center, and anchor an expanded network of pedestrian and bicycle pathways.¹

The proposed design program for the center includes a 4,500-visitor transportation facility with pedestrian walkways and amenities, bus loading/unloading space, and other features (described in Section 5.2). Circulation and parking facilities consist of 3,000 square feet of access road and 1,300 square feet of walkways, incorporating the following elements:

- Traffic controlled intersection or rotary
- Separate bus, oversize vehicle, and car access routes
- Bikeway along access road system
- Entry and road signage to direct vehicular circulation
- Parallel pedestrian walkways

In addition, a four-acre parking area includes designated spaces for regular and oversized vehicles, including tour buses, as well as staging/waiting areas for shuttle buses. Landscaping is strategically designed to screen the parking lot.

Historic Carriage Trail: The Home of FDR, Eleanor Roosevelt's home, called "Val-Kill," and Top Cottage formerly were connected by a roughly 2 ½-mile path accommodating occasional vehicle use across the historic Roosevelt estate. Restoration of a 1.8-mile segment of this "carriage trail" between Home of FDR and Val-Kill would encourage visitors to travel by shuttle bus, foot, or bicycle among the Roosevelt sites. The trail would provide a shorter and more direct connection between Home of FDR and Val-Kill and would enhance the visitor experience by recreating the original route connecting the Roosevelt homes.

3.0 Transportation Options

3.1 Service Characteristics

Short-Range Plan 1:

To provide an attractive ATS that will offer convenient shuttle service to visitors of the Roosevelt historic sites, a service configuration is proposed with the following characteristics:



¹ A Hyde Park Planning Concept. . Gateway to the Hudson River Valley, May 2002.

- Two routes: one route would consist of a shuttle operating on Route 9 and Route 9G and St. Andrews Road between Home of FDR/Library and Eleanor Roosevelt Historic Site; a second route would consist of a shuttle operated between Home of FDR and Top Cottage, operating over Route 9, St. Andrews Road, Route 9G, Dutchess Hill Road, and Cream Street (Figure 2).
- Headways: The desired headway or service frequency on the Home of FDR-Eleanor Roosevelt Historic Site route is 15 minutes (although 30-minute headways are considered as a sub-option in the cost estimation section); the headway on the Home of FDR-Top Cottage route would be 30 minutes.
- Vehicles: Options include buses of varying sizes and characteristics or large vans. To be most attractive to visitors and compatible with the historic character of the sites, a replica vehicle such as the Red Bus operated in Glacier Park is preferred. Ideally, a customized vehicle with style authentic to the Roosevelt era would be used.
- Connections to Poughkeepsie train station: Loop 2 of the local bus service operates 12 round trips between the train station and a location in downtown Poughkeepsie (Market and Main Streets) less than ½ mile away. Extending the current bus route to the train stations for trips between 9:00 AM and 5:00 PM would be desirable to provide connections to the Roosevelt sites from New York City and other points along the rail corridor. The Park Service will need to work with the Dutchess County Division of Mass Transportation and arrange for necessary funding to implement the bus route extension (possible funding sources are discussed in Section 4.2).

Long-Range

Plan 2: Basic ATS

Plan 2 provides for a future enhancement of the ATS at its most basic: the shuttle bus route between Home of FDR and Eleanor Roosevelt NHS would be reconfigured to operate on the restored historic carriage road, rather than on existing roadways, as in Plan 1 (Figure 3). A separate route would be operated between Home of FDR and Top Cottage over local roadways. As in Plan 1, headways would continue to be 15 minutes on Home of FDR-Eleanor Roosevelt NHS route, if it is operated with 2 vehicles, and 30 minutes on FDR-Top Cottage route, which would be operated with a single vehicle.



Figure 2. Plan 1 - Roosevelt Historic Sites
Short-Term (limited) ATS Option

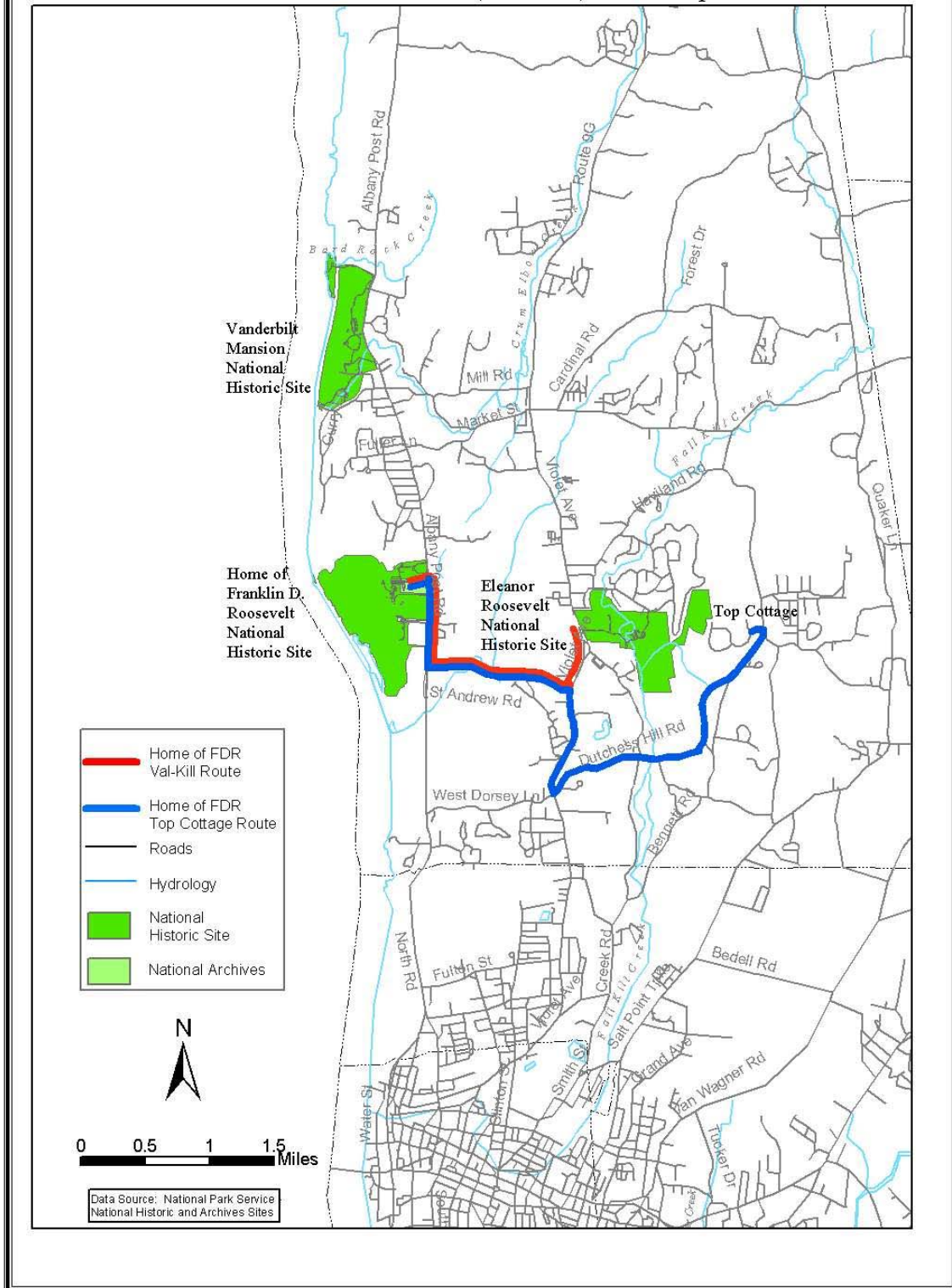
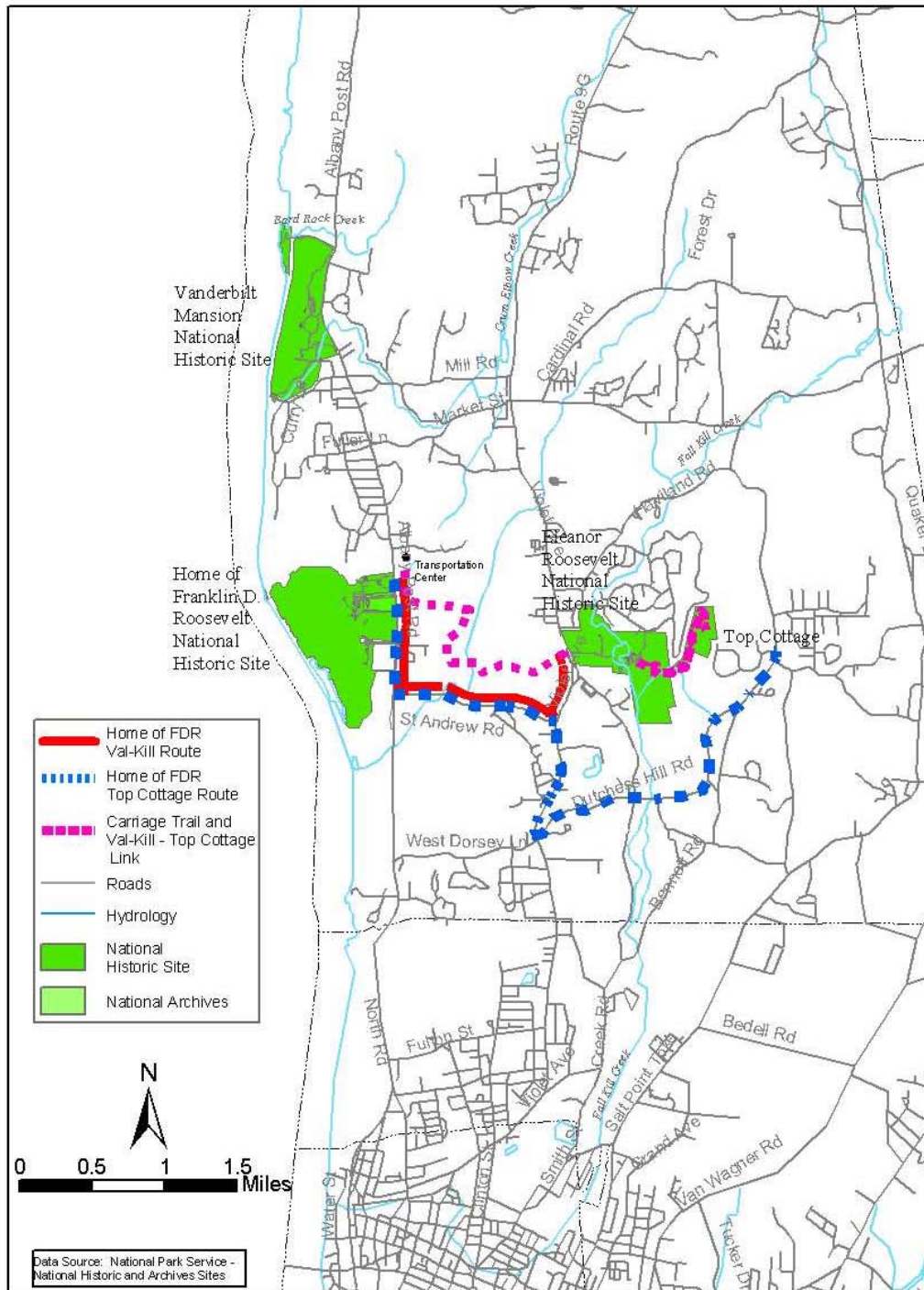


Figure 3. Plan 2 - Roosevelt Historic Sites
Long-Term (Limited) ATS Option



Plan 3: Integrated ATS/Public Transportation System

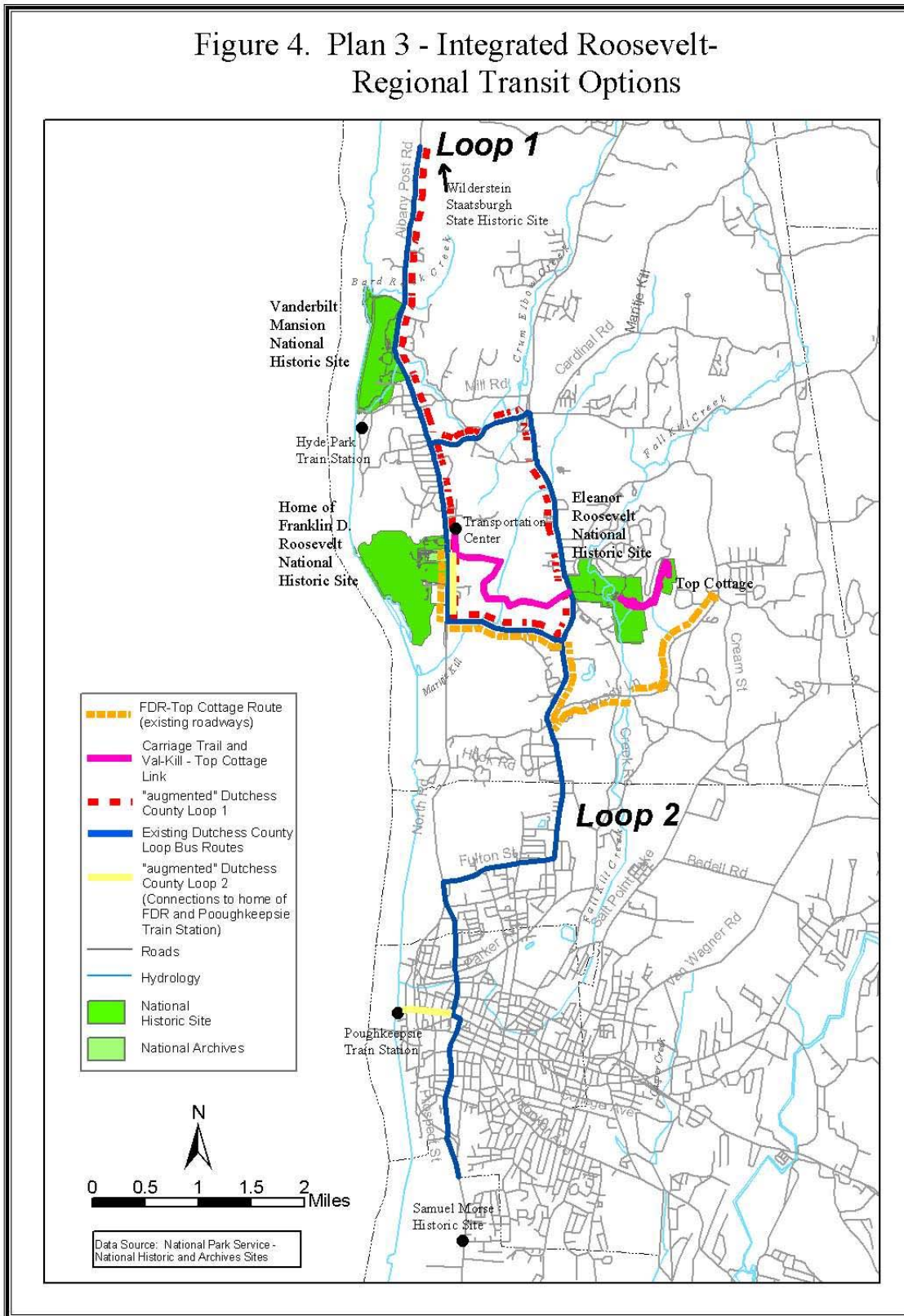
Plan 3 fully integrates the Roosevelt ATS with local and regional public transit, such that several public bus routes and intercity private bus services will be reconfigured slightly to converge at the planned Regional Information and Transportation Center. From this hub, buses will serve major heritage tourism sites in region, including Wilderstein, the Staatsburgh State Historic Site, the Vanderbilt National Historic Site, the Culinary Institute of America, the Samuel Morse Historic Site, Poet's Walk, and Montgomery Place.

Major components of the plan are identified below (illustrated in Figure 4).

- Shuttle bus service operated between Home of FDR and Eleanor Roosevelt NHS on restored carriage road, with routing and headways as in Plan 2;
- Hub at new Center on east side of Route 9 near Home of FDR; transfer between two ATS routes and local public bus service at Center
- Extension of Dutchess County Loop bus routes to Poughkeepsie train station.
- Augment Loop 1 of public bus system to add 5 trips per day between Rhinebeck and Center. This service is likely to be most feasible, from a financial standpoint, during the peak season and perhaps only on weekends.



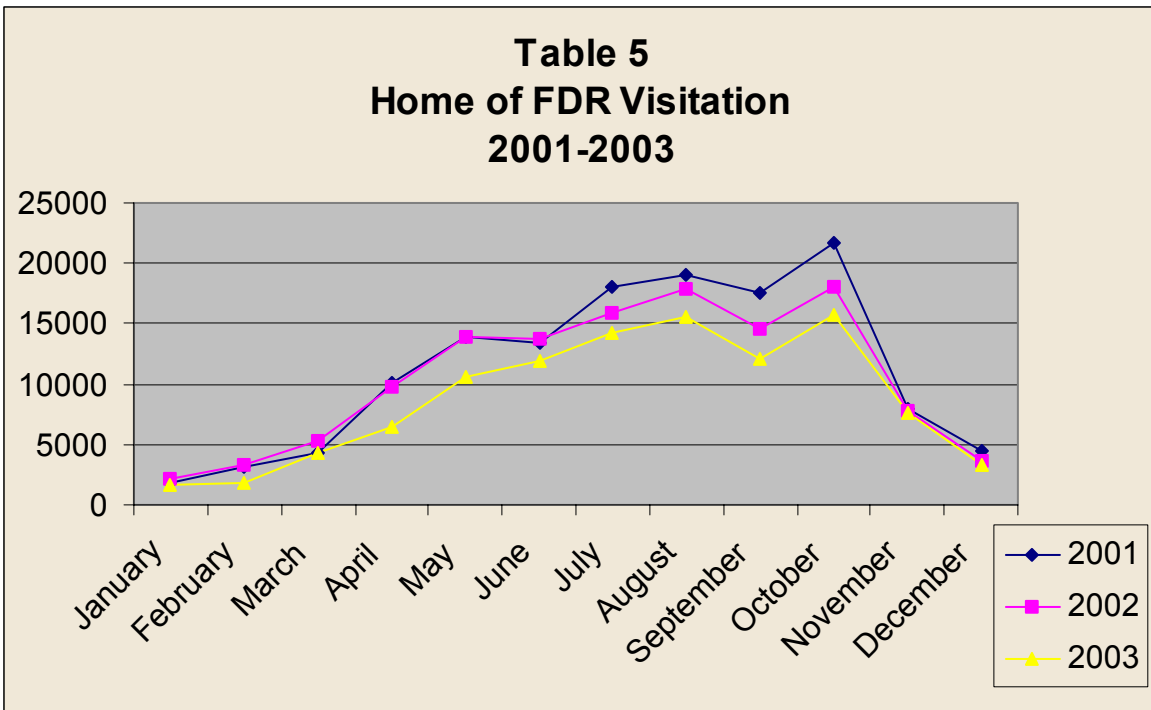
Figure 4. Plan 3 - Integrated Roosevelt-Regional Transit Options

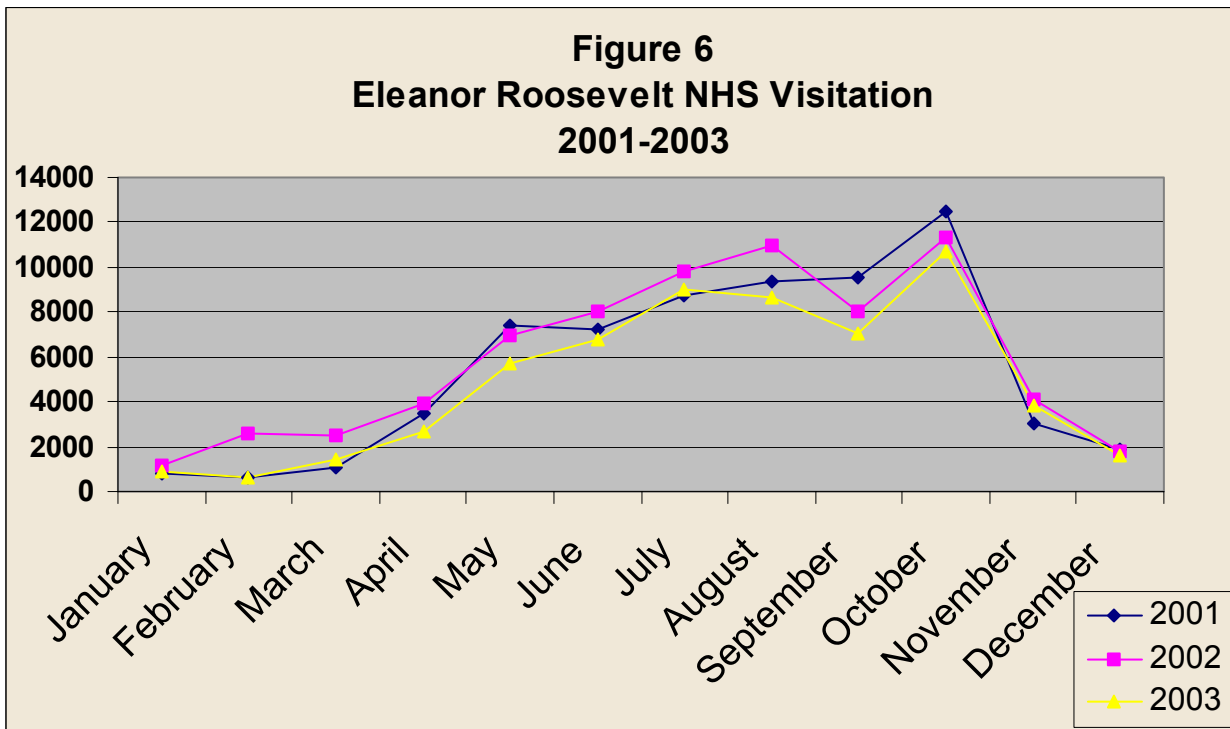


3.2 Market Characteristics

Visitation has followed a slowly declining trend at the Home of FDR. The 2003 total of 105,026 visitors was equal to about 28 percent of the 371,000 visitors in 1977. Visitation at Eleanor Roosevelt NHS is lower and has decreased in each of the past two years by 17 percent, following several years in which the number of visitors increased. Visitation in 2003 was 58,843.

The annual visitation pattern reveals a high degree of concentration in the summer and in fall foliage season. About 14-15 percent of annual visitation occurs in each of July and August, and 16 percent occurs in October, the peak month of the year. Between 75 and 80 percent of annual visitation occurs in the six months from May through October (Figures 5 and 6).





The “capture rate” for the ATS relative to total visitation will depend to a significant degree on policies governing parking at Eleanor Roosevelt NHS. If all visitor parking is eliminated from the site, it is reasonable to anticipate that ridership on the Home of FDR-Eleanor Roosevelt NHS might approach total Eleanor Roosevelt visitation levels, or roughly 75,000 annually. It is conceivable that with strong marketing of the Eleanor Roosevelt NHS and the ATS, ridership could exceed this estimate. If parking continues to be provided at the site, however, it is reasonable to assume that ATS ridership would decline to 20-50 percent of total current annual visitation, or to 15,000-38,000. Another possible scenario would be to augment the function of the ATS by providing an on-board interpretive experience. Even if parking at Val-Kill continues to be permitted under this scenario, ridership can be expected to be higher than if the shuttle serves solely as a mode of transportation between the two sites.

A possible source of some insight into the demand for an ATS among the Roosevelt sites, as well as a regional shuttle service like that incorporated in Plan 3, is a survey conducted in the summer and fall of 2002 among visitors to historic sites in the Hudson River Valley.² Approximately 40 percent of respondents thought that a regional shuttle service was needed, while only 14 percent thought that an “on-site” shuttle was needed at “FDR sites.” It is not clear how respondents interpreted the question about on-site ROVA transportation, although probably they thought the question referred to service that would be provided at individual sites, rather than among Home of FDR, Eleanor Roosevelt NHS, and Top Cottage. Thus, the survey results have limited relevance for estimating

² Ann Davis, Marist College, *Preliminary Report of Interviews at Historic Sites in the Hudson River Valley, Summer and Fall, 2002*, February 18, 2003.



ridership for an ATS exclusive to ROVA that would provide connections among the different sites. However, the survey data do suggest that there is significant interest in a regional shuttle service.

4.0 Financial Analysis

4.1 Cost Estimates

Operating Costs:

Estimated costs for the short-range (Plan 1) and long-range (Plan 2 and Plan 3) transportation options are shown in Table 1. Several sub-options have been considered for each time period, including modification of public bus routes to improve service to the Roosevelt historic sites and other heritage tourism sites in the mid-Hudson Valley region.

	Home of FDR-Eleanor Roosevelt NHS		Home of FDR-Top Cottage		Total	
	Year-Round	Half-Year	Year-Round	Half-Year	Year-Round	Half-Year
Plan 1						
- 2 vehicles	\$130,320	\$65,160	\$130,320	\$65,130	\$260,640	\$130,320
- 3 vehicles	\$260,640	\$130,320	\$130,320	\$65,130	\$390,960	\$195,480
Plan 2						
- 2 vehicles	\$130,320	\$65,160	\$130,320	\$65,130	\$260,640	\$130,320
- 3 vehicles	\$260,640	\$130,320	\$130,320	\$65,130	\$390,960	\$195,480
Plan 3 = Plan 2+ -Loop 2 extension to rail -Augmented Loop 1 service ATS to Rail					\$21,700	\$10,900
					\$164,880	\$82,440
					\$77,490	\$38,740

Short-Range – Plan 1: While the desired headway to provide high-quality service on the Home of FDR-Eleanor Roosevelt NHS route is 15 minutes, as described in Section 3.1, the cost analysis considered both 15-minute and 30-minute alternative headway scenarios for the Home of FDR-Eleanor Roosevelt route. A single scenario with 30-minute headways was considered for the Home of FDR-Top Cottage route. Two vehicles in active service would be needed to provide 15-minute headways on the Home of FDR-Eleanor Roosevelt NHS route. With a single vehicle operating between Home of FDR and Top Cottage, a total of two vehicles for both routes combined would be required with



30-minute headways on the FDR-Eleanor Roosevelt NHS route; three vehicles would be needed in total if headways on the route were decreased to 15 minutes.

Alternative unit cost factors of \$45 per vehicle-hour and \$3.86 per vehicle-mile were applied in the analysis, based on cost data reported for a range of small-scale bus services operated with small buses (i.e. capacity of 25 or fewer passengers).³ Operating costs were estimated for both year-round service and service operated only from May through October, the six consecutive months of peak visitation. Total cost for the three-vehicle scenario (i.e. 15-minute headways on Home of FDR-Eleanor Roosevelt NHS) was estimated to be about \$390,000 for a full year of service and half that amount, or \$195,000, for six months. With 30-minute headways on the Home of FDR-Eleanor Roosevelt NHS route, estimated cost would be reduced to \$260,000 for year-round service and \$130,000 for six months.

Another potential option to be incorporated in both the short-range and long-range plans is an extension of the existing Dutchess County Loop bus service to the Poughkeepsie train station. The estimated cost for six round trips, 7 days per week, is \$21,700 for a full year of service and \$10,900 for 6 months.

Long-Range – Plan 2 and Plan 3: As discussed in Section 3.1, long-range options differ from the short-range options in two key respects:

- ATS shuttle buses would operate between Home of FDR and Eleanor Roosevelt NHS over the restored carriage trail crossing the historic Roosevelt estate, rather than on the existing roadway network
- ATS and other public bus services would converge at a hub to be incorporated in a new Regional Information and Transportation Center.

Plan 2 consists only of ATS shuttle bus services. **Plan 3** builds on Plan 2 to encompass enhancements of local bus services to provide connections between the transportation hub and the Poughkeepsie train station and additional service on Dutchess County Loop 1. With this option, five round trips per day would be added between Rhinebeck and the new transportation hub at the Center, thus increasing the amount of service provided among the historic sites along the route to 8 trips daily.

Plan 2 would consist of two separate routes connecting Home of FDR-Eleanor Roosevelt NHS and Home of FDR-Top Cottage. Two buses in service on the FDR-Eleanor Roosevelt route NHS would operate on 15-minute headways (i.e. frequencies) and a single bus in service on the Home of FDR-Top Cottage route would operate on 30-minute headways. Total estimated costs are \$390,000 for year-round service and \$195,480 for 6 months, with the 3-vehicle scenario.

If **Plan 3** consists of Plan 2 plus the extension of Loop 2 to connect to the Poughkeepsie rail station, estimated total cost is \$412,660 for a full year and \$206,380 for a half year (assuming the three-vehicle scenario for ATS service). If a separate ATS service is operated to the rail station, *instead of extending Loop 2*, the incremental cost (above Plan

³ References shown in Appendix.



2) to the Park Service is estimated to be \$77,490 for year-round service and \$38,740 for 6 months. Assuming that Loop 2 is extended to connect to the Poughkeepsie rail station, additional service on Loop 1 between Rhinebeck and the Regional Information and Transportation Center would bring total costs to \$577,540. Reducing service to just ½ year would halve operating costs.

Public Transit Interface:

Poughkeepsie Train Station Connection: Extension of the Dutchess County Loop 2 route approximately ½ mile (in each direction) on 6 trips per day is estimated to cost about \$60 daily or \$21,700 for a full year and \$10,900 for 6 months. This option could be implemented with both short-range and long-range ATS systems.

Dutchess County Loop 1 Augmented Service: The addition of 5 round trips per day between Rhinebeck and the Center is estimated to cost about \$455 daily, or \$165,000 year-round and \$82,500 for 6 months.

Capital Costs:

The purchase prices for a range of vehicle types that may be appropriate for the Roosevelt ATS are shown in Table 2 below.

Vehicle Type	Passenger Capacity	2000 Unit Costs
Gasoline:		
Minivan	7	\$30,000
Modified van with lift	10	\$44,000
Vanpool van	15	\$36,000
Touring sedan	15	\$250,000
Diesel		
22' Cutaway bus	14	\$49,000
25' Cutaway bus	18	\$52,000
30' Transit bus with lift	32	\$256,000

A replica vehicle like the Red “Jammer”Bus operated in Glacier Park is categorized as a “touring sedan” and is more expensive than more standard vehicles of comparable size. Alternative fueled-buses, which are desirable for a truly environmentally-friendly ATS, will increase costs as follows:

- Advanced diesel engine buses - \$10,000
- CNG buses - \$40,000-\$60,000
- Methanol buses - \$60,000-\$80,000
- Hybrid-electric - \$100,000 -\$140,000



- Fuel cells – up to \$300,000

The most likely options are buses fueled by CNG, methanol, or conceivably the “bi-fuel” gasoline- and propane-powered vehicles in use in the Red Bus fleet. A minimum of three ATS vehicles would be required, even if only two are in active service, to provide a back-up vehicle and maintain acceptable levels of service.⁴

4.2 Revenue Estimates

Admission Fee Options: Estimates for total operating cost requirements, as discussed in Section 4.1, can be summarized as follows for the major scenarios considered:

	Full Year	Half Year
Plan 1 (short-range) with 3 active vehicles:	\$390,960	\$195,480
Plan 2 with 3 active vehicles:	\$390,960	\$195,480
Plan 3 (long-range integrated ATS-public bus service):	\$577,540	\$288,770

A number of possible options could be pursued to address the financial requirements for prospective transportation services. Experience at the Roosevelt sites and elsewhere suggests that the most viable general strategy is to incorporate any user fees into admissions fees, rather than imposing separate charges for use of the ATS. Thus, the options considered herein involve additions to existing fees for guided tours. In fiscal year (FY) 2002, guided tours attracted 103,500 visitors at Home of FDR and 28,400 visitors at Eleanor Roosevelt NHS. The fee for the guided tours currently is \$14 per person at Home of FDR and \$8 per person at Eleanor Roosevelt NHS. Table 3 below summarizes the fees that would be required to cover operating costs for Plans 1, 2, and 3, if additional fees were collected for Home of FDR tours versus Eleanor Roosevelt NHS tours.

⁴ It is assumed that maintenance and fueling facilities will be located off-site at facilities shared by other vehicles. Overnight parking for the shuttle vehicles may be provided either on- or off-site. With contractor operation, it is more likely that vehicles would be stored off-site. Costs estimated in this section are exclusive of the costs of constructing any fixed facilities, such as a garage for overnight storage of shuttle buses



Table 3				
Required Addition to Fees				
	Home of FDR	Tour Fee	Eleanor Roosevelt NHS	
	Year-	Half-Year	Year-	Half-Year
	Round		Round	
Plan 1	\$2.52	\$1.26	\$9.17	\$4.59
-2 vehicles				
-3 vehicles	\$3.78	\$1.89	\$13.77	\$6.88
Plan 2				
-2 vehicles	\$2.52	\$1.26	\$9.17	\$4.59
-3 vehicles	\$3.78	\$1.89	\$13.77	\$6.88
Plan 3: 3 vehicles	\$3.78	\$1.90	\$13.77	\$6.88
+with Loop	\$3.99	\$2.00	\$14.53	\$7.27
extension to rail				
+augmented Loop	\$5.58	\$2.79	\$20.34	\$10.17
1 service				

Because the number of visitors on the Home of FDR tours is several times the number of visitors on Eleanor Roosevelt NHS tours, the increase in fees needed to meet transportation operating costs would be far lower if the revenues were to be derived from an increase in fees for Home of FDR tours.

Additional Sources: In addition to tour fees, possible sources of funding include Federal Transit Administration (Section 5307 formula funds), Federal Congestion Mitigation and Air Quality (CMAQ) funds, or partnering arrangements with private or local public transportation operators (Dutchess County Loop and/or Poughkeepsie Transit). It should be noted that no Section 5307 funding has been provided in support of ATS services to date. Substantial CMAQ funds have been awarded for ATS systems in Acadia National Park, Golden Gate National Recreation Area, and Yosemite National Park, which are all areas with serious air pollution problems. Dutchess County is in a moderate non-attainment area for ozone and, therefore, is eligible to receive CMAQ funding. Acadia and Golden Gate are examples of systems that also have received funding through local partnering arrangements, which may serve as a useful model for ROVA. The likelihood of obtaining funding to cover a large share of operating costs from the above sources is small, although the prospects might be better for adding linkages to Roosevelt-Vanderbilt (ROVA) sites (including Vanderbilt National Historic Site) as part of a broader regional transit plan that would include the Regional Information and Transportation Center as a hub.

4.3 Ownership and Operation of ATS

The ATS can be operated by the NPS directly or through a concession. Both modes of operation are in effect at National Parks throughout the country, although concession operations are more common. The major potential advantages of direct operations by NPS would be superior quality control (assuming appropriate staff capabilities), flexibility to adapt and modify the service as needed, and greater ability to integrate the



ATS with interpretive programs. Concession agreements, however, could establish performance standards that specify required service characteristics, including service frequency, schedule adherence, and cleanliness. They also can specify required coordination with NPS staff to provide for interpretive experiences on-board the ATS shuttles and to complement tour schedules. Intangibles such as driver demeanor are more difficult to control in a concession operation, although the overall track records of concessions are good in some parks.

Operating the system by the NPS directly would require hiring and training qualified staff. In addition, the NPS would need to provide maintenance or fueling facilities or arrange for these functions to be performed by off-site providers. A more cautious approach would be to begin service under a concessions contract and to re-assess the feasibility of direct operations by NPS, after staff have had the opportunity to experience and evaluate the ATS under actual operating conditions.

5.0 Site Improvements/Design

5.1 Carriage Trail

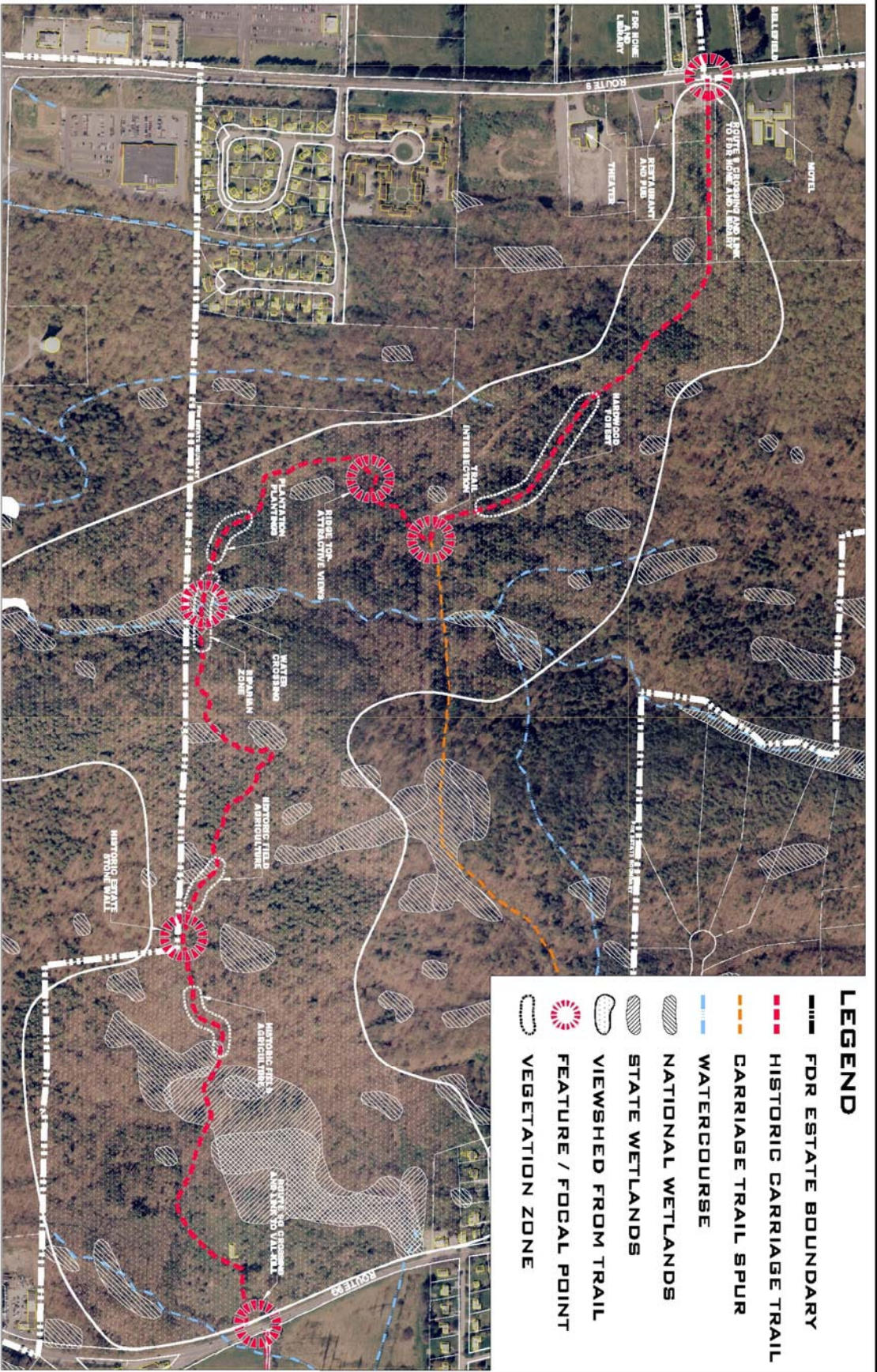
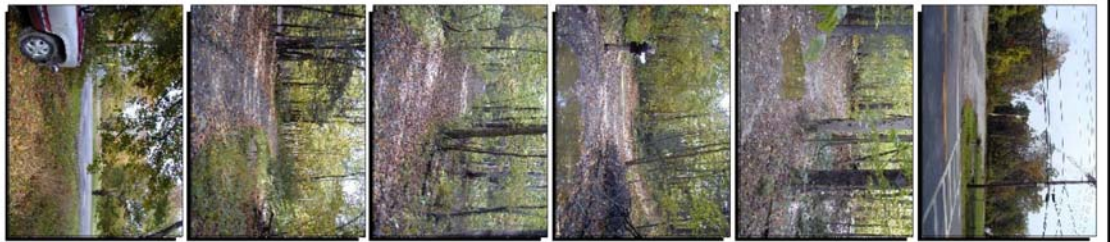
Site Description: The 1.8-mile historic carriage trail is located between Route 9 and Route 9-G within the boundaries of the former Roosevelt Estate. The trail, a designated segment of the Hyde Park Trail, passes through a largely open parcel of land sometimes referred to as the Bellefield Property and provides a critical link between the FDR Home and Library, Val-Kill (the Eleanor Roosevelt National Historic Site), and the continuing trail to Top Cottage. The landscape is gently rolling hills densely covered in second growth Eastern hardwood forest and punctuated by craggy rock outcrops and marshy wetlands. While the parcel is largely undeveloped in its interior, commercial development borders Route 9 and housing subdivisions lie to the northeast and west. The existing trail surface is compacted native soil that has been degraded by illicit motorcycle use, erosion and the encroachment of forest vegetation. Some areas are so degraded that they present unsafe conditions for public use.





CARRIAGE TRAIL - EXISTING CONDITIONS

ROOSEVELT-VANDERBILT NATIONAL HISTORIC SITES PLANNING FOR ALTERNATIVE TRANSPORTATION SYSTEMS





CARRIAGE TRAIL - DEVELOPMENT ANALYSIS
ROOSEVELT-VANDEBILT NATIONAL HISTORIC SITES
SITE PLANNING FOR ALTERNATIVE TRANSPORTATION SYSTEMS

SCALE: 1" = 500'
 0' 500' 1000' 1500'



Section Number	Grade	Tread Fill	Widen	Cleaning	Drain Slope	Drain Structure	Slope Retaining	Align.	Total
1	1	1	1	2	0	0	0	0	5
2	1	1	2	2	1	0	0	0	7
3	2	2	2	2	1	0	0	0	9
4	2	2	2	2	2	2	0	0	12
5	1	2	1	1	1	0	0	0	6
6	2	1	2	2	1	0	0	0	10
7	1	1	1	2	1	0	0	0	6
8	2	2	2	2	2	1	1	0	11
9	2	2	1	2	2	1	1	0	12
10	1	1	1	2	1	0	0	0	5
11	3	2	2	2	2	2	2	1	14
12	3	2	3	2	2	2	2	2	17
13	3	3	3	3	3	3	3	2	22
14	2	2	2	2	2	1	1	0	14
15	3	3	3	3	3	2	2	1	18
16	3	3	3	3	3	2	2	1	18
17	1	1	1	2	1	1	1	0	8
18	3	3	3	3	3	2	1	3	20
19	1	2	1	2	1	1	0	0	8
20	2	2	1	1	2	0	1	0	9
21	1	2	1	1	1	1	1	0	7
0 = No change									
1 = Light	1-7			6					
2 = Moderate	8-15			11					
3 = Severe	16-24			4					

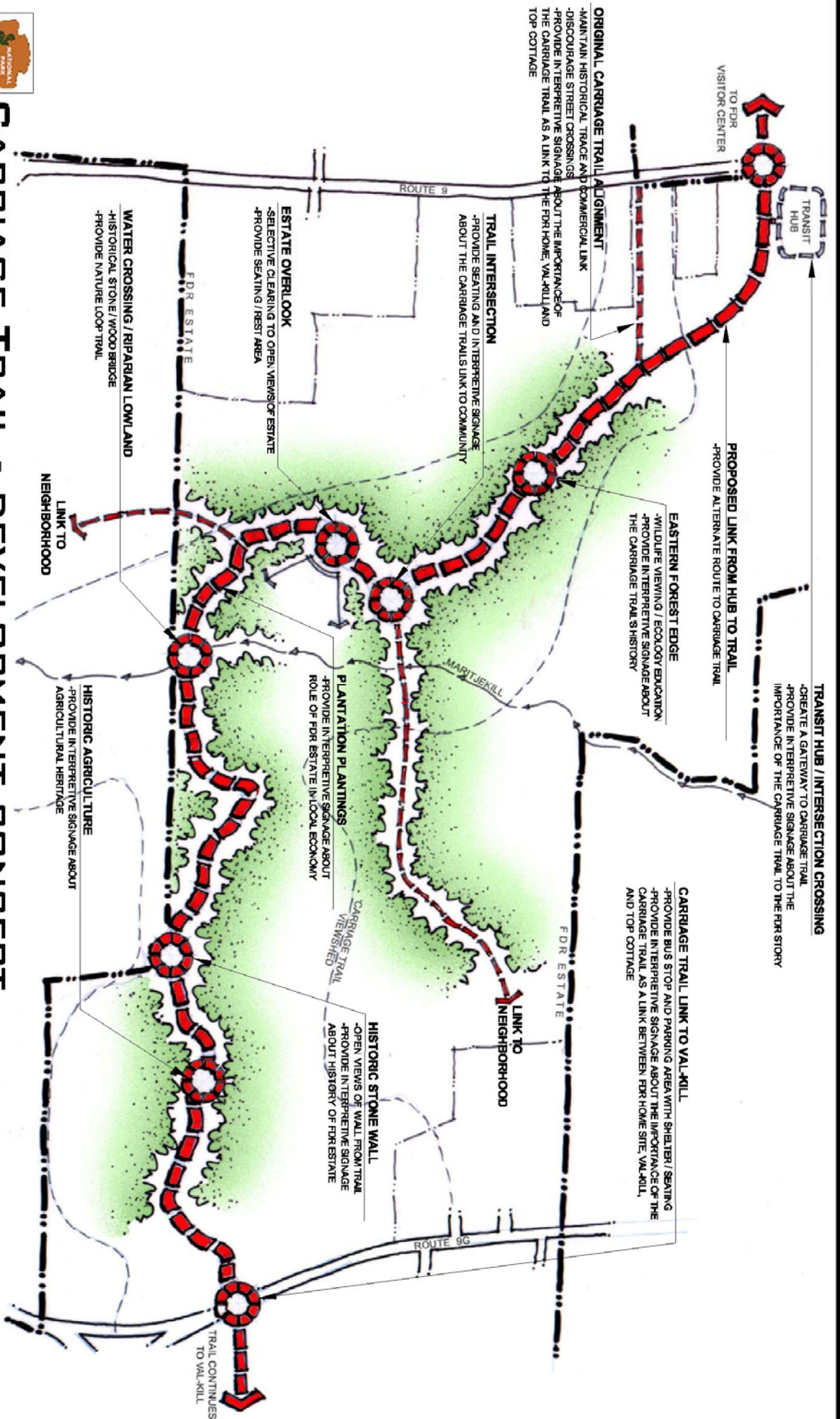
DEGREE OF CONSTRUCTION DEVELOPMENT

LIGHT
 MODERATE
 SEVERE



CARRIAGE TRAIL - DEVELOPMENT CONCEPT

ROOSEVELT-VANDERBILT NATIONAL HISTORIC SITES PLANNING FOR ALTERNATIVE TRANSPORTATION SYSTEMS



Analysis / Findings: Historically, the trail passed through areas that were mostly cleared for pasture or crop cultivation bisected by slow moving streams with patches of forest. The carriage trail was used by the Roosevelts for pleasure outings and for access to outlying forest plantations and agricultural areas. The planning team assessed the trail corridor conditions for improvement both as hike/bike trail and alternately as a one-way vehicular road which could accommodate an alternative transportation shuttle system connecting the Roosevelt historic sites. On-site investigations and surveying of the trail corridor evaluated specific existing conditions in eight categories allowing a more accurate estimate of improvement costs. Additionally, the trail has a potential to be developed as a linear park which would provide scenic vistas, seating areas, shelters, overlooks, nature loop trails, and interpretive signage about the history and significance of the FDR estate. The opportunity to develop specific points along corridor for various activities could enhance the experience of simply moving through the landscape.

Site Facility Recommendations: The carriage trail represents an excellent opportunity to create a public amenity that serves the community's recreational needs, links the historic sites, and educates visitors on the FDR story. The carriage trail will link to and enhance the Hyde Park Trail. Trail heads at either end of the carriage trail would create gateways into the estate and would offer sheltered seating areas and potential bus stops. As visitors move along the trail they encounter small developed activity areas that would encourage them to stop and linger, enjoy a view, see wildlife, or learn about a historic event or feature. In addition to their visitor functional uses, these facility "nodes" can be developed as park amenities that convey a design character that further enhance the visitor experience. Interpretive signage along the trail could serve as a guide to the FDR story, historic agricultural/plantation practices, estate history, as well as land stewardship messages and natural features. Selective view clearing in strategic locations would create estate overlooks that offer the visitor opportunities that existed in the historic period. A historic bridge could be recreated at the main stream crossing, where a nature loop walk would be extended from the main trail to explore the riparian ecosystem. Views of historic features such as the existing stone walls and plantation plantings could be featured to enhance the experience. Additionally, the trail should be made accessible from the surrounding neighborhoods via secondary trail linkages to the north, south, and west. Estimated costs for recommended facilities are shown in Table 4.



Table 4

ROVA Carriage Trail - Class 'C' Estimate of Probable Cost		
	Trail	Road
Characteristics		
Use	hike/bike trail	one-way vehicular road
Length	9600'	9600'
Width	10'	15'
Area	10,666 sq.yd. 2.2 acres	16,000 sq.yd. 3.3 acres
Surfacing	4" base, 3" asphalt overlay	6" base, 4" asphalt overlay
Pathway Construction		
Clearing/grubbing	Sparse = \$4,000 per acre 2.2 acres \$8,800	Medium = \$11,000 per acre 3.3 acres \$36,300
Grading	Light (2490 In.ft.) = 0" excavation Medium (5210 In.ft.) = 0" excavation Heavy (1900 In.ft.) = 12" excavation \$16 per cu.yd. 703 cu.yd. \$11,248	Light (2490 In.ft.) = 6" excavation Medium (5210 In.ft.) = 18" excavation Heavy (1900 In.ft.) = 36" excavation \$16 per cu.yd. 8,200 cu.yd. \$131,200
Base course	\$38 per ton 2,346 tons \$89,148	\$38 per ton 5,280 tons \$200,640
Asphalt overlay	\$125 per ton 1,760 tons \$220,000	\$125 per ton 3,520 tons \$440,000
Retaining walls	n/a	\$1,125 per cu.yd. (8'-12" reinf. conc.) 11 cu.yd. (300 l.f., 3' high, 12' thick) \$12,375
Culverts	\$70 per l.f. (36"CMP) and \$590 per end section 40 l.f. and 2 end sections \$3,980	\$70 per l.f. (36"CMP) and \$590 per end section 50 l.f. and 2 end sections \$4,680
Subtotal	\$329,196	\$825,195
Site Improvements		
Shelters	4 @ 400 sf each 1,600 sf (\$55 per sf) \$88,000	3 @ 400 sf each 1,200sf (\$55 per sf) \$66,000
Picnic Tables	2 per shelter 8(\$800 each) \$6,400	2 per shelter 6(\$800 each) \$4,800
Bridge	10' x 30' wood footbridge 300 sf (\$65 per sf) \$19,500	15' x 30' concrete vehicular bridge 450 sf (\$78 per sf) \$35,100
Signs	10 signs (\$400 per sign) \$4,000	10 signs (\$400 per sign) \$4,000
Benches	10 (\$950 per bench) \$9,500	10 (\$950 per bench) \$9,500
Trash	1 per shelter 4(\$500 per receptacle) \$2,000	1 per shelter 3(\$500 per receptacle) \$1,500
Subtotal	\$129,400	\$120,900
Total	\$458,596	\$946,095
5% Contingency	\$22,930	\$47,305
Total	\$481,526	\$993,400



ROVA - Carriage Trail Alternative Surfacing	
Item	Cost
Crushed stone	
Clearing/grubbing	Sparse = \$4,000 per acre 2.2 acres \$8,800
Grading	Light (2490 ln.ft.) = 0" excavation Medium (5210 ln.ft.) = 0" excavation Heavy (1900 ln.ft.) = 12" excavation \$16 per cu.yd. 703 cu.yd. \$11,248
Geotextile liner	\$5 per sq.yd. 10,666 sq.yd. \$53,330
Crushed stone	\$38 per ton (4" cover) 2,346 tons \$89,148
Total	\$162,526
Soil Cement	
Clearing/grubbing	Sparse = \$4,000 per acre 2.2 acres \$8,800
Grading	Light (2490 ln.ft.) = 0" excavation Medium (5210 ln.ft.) = 0" excavation Heavy (1900 ln.ft.) = 12" excavation \$16 per cu.yd. 703 cu.yd. \$11,248
Geotextile liner	\$5 per sq.yd. 10,666 sq.yd. \$53,330
Base Course	\$38 per ton (4" base) 2,346 tons \$89,148
Soil cement (unit costs provided by PolyPavement, ™)	\$0.80 per sq.ft. (2" cover) 96,000 sq.ft. \$76,800
Total	\$239,326



5.2 Regional Alternative Transportation Hub

Design Concept: This document has highlighted how an alternative transportation system can help address traffic congestion, limited parking, protection of park resources, and a more convenient and informative park visit. Key to a transportation system being fully integrated with other regional and statewide transportation options, is the development of an alternative transportation hub, as is proposed in the document, future plans for the Roosevelt and Vanderbilt Sites and the region. The central role of the hub as part of a regional tourism strategy is documented in the plan, *A Hyde Park Planning Concept*. The hub would provide a consolidated transportation intercept located strategically in the mid-Hudson River Valley that could serve all four NPS sites and regional visitor destinations with commuter and inter-city rail, intercity bus transit and Hudson River ferry services. The facility would also stimulate the tourist industry and visitation to the mid-Hudson Valley by providing a new Regional Information and Transportation Center with interpretative programs and tourist information materials.

No specific site has been selected for an alternative transportation hub facility, although a number of candidate sites have been discussed, including the Hyde Park Drive-In and public land at Route 9 and St. Andrews Road. Whichever site ultimately is selected, it must possess some important site attributes including:

- a central location served by a high capacity arterial roadway with controlled access, preferably by a signalized intersection.
- adequate size for collector vehicle parking and facilities for multimodal transfer.
- linkages to commercial, activity centers and visitor destinations.
- cost-effective access to utilities and services.

The transportation hub facility should be a landmark to be viewed from the roadway, promoting the heritage of the area and enhancing town character. Pedestrian walks and exterior spaces would be developed that promote safe and adequate access and linkage with adjacent town centers and visitor destinations.





TRANSIT HUB

ROOSEVELT-VAN DER BILT NATIONAL HISTORIC SITES PLANNING FOR ALTERNATIVE TRANSPORTATION SYSTEMS



Recommended Facilities and Programming: The following represents a program of recommended facilities for a regional alternative transportation hub and information center serving local park units, regional attractions and town commercial and civic centers.

Visitor Transportation Transfer Facility (45,000 s.f. / 1 ac.)

- Pedestrian Walkways to Station Facilities
- Visitor Shelter Structures with seating (50 –100 person capacity)
- Schedule Boards and Ticket Facilities
- Bus / Shuttle Vehicle Loading Areas (4-6 bays)
- Vehicle Access Roadway and Maneuvering Space
- Possible Bicycle Rental

Regional Visitor Orientation Center (2,500-5,000 s.f.)

- Entry / Welcome / Seating Area
- Restrooms / Telephone / Water Fountain / Vending Area w/ Exterior Access Door
- Information Desk / Orientation and Trip Planning Area
- Multi-Media Exhibit Area / Regional Cultural and Historical Theme Presentation Space.
- Sales Area / Theme-Related Educational Materials / Local Crafts

Visitor Plaza / Multiple-Use Space (15,000 – 20,000 s.f.)

- Pedestrian Paving, Landscaping and Lighting
- Universal (incl. disabled) Accessibility
- Exterior seating (50 – 100 capacity)
- Shade and Rain Shelters

Access Roads (3,000 l.f.) and Walkways (1,300 l.f.)

- Signalized Intersection
- Separate Bus, Oversize Vehicle and Car Access Routes
- Bikeway along Access Road System
- Entry and Road Signage to Direct Vehicular Circulation
- Parallel Pedestrian Walkways

Vehicle Parking (4 ac.)

- Paved Parking for Regular and Oversized Vehicles (300 vehicles)
- Landscaped Islands, Accessible Pedestrian Walkways and Lighting
- Unpaved or Gravel Overflow Parking (150 vehicles)
- Expansion Area for Future Needs (100+ vehicles)
- Tour Bus Long Term Parking (20 vehicles)
- Staging / Waiting Area for Shuttles (6 vehicles)
- Entry and Road Signage to Direct Vehicular Circulation
- Landscape Buffers and Screening for Parking Areas

Multiple Use Trails (8,000 l.f.)

- Trail Connection to Regional Greenway



- Trail Linkages to Adjacent Use Areas

Landscape Buffers (3 ac.)

- Screen Hedgerows Separating Adjacent Development
- Managed Open Space Compatible with Historic Landscape

Stone Walls (7,500 l.f.)

- Replace Historic Stone Walls

Developed Open Space (.5 ac.)

- Picnic Area w/ Improved Sites and Tables

Estimated costs for recommended transportation hub facilities are shown in Table 5.

Table 5

ROVA - Transit Hub Class 'C' Estimate of Probable Cost	
Improvement	Estimated Cost
Structures	
Regional Visitor Orientation Center	\$1,794,000
Visitor Transportation Transfer Facility	\$296,000
Visitor Plaza / Multiple-Use Space	\$639,000
Circulation and Parking	
Access Roads	\$585,000
Pedestrian Walkways	\$60,000
Auto and Bus Parking / Loading	\$992,000
Park Shuttle Vehicles	\$779,000
Amenities and Open Space	
Multiple Use Trails (8,000 l.f.)	\$288,000
Historic Carriage Trails	\$1,401,000
Landscape Buffers (3 ac.)	\$130,000
Stone Walls (7,500 l.f.)	\$584,000
Developed Open Space / Picnic Area (.5 ac.)	\$52,000

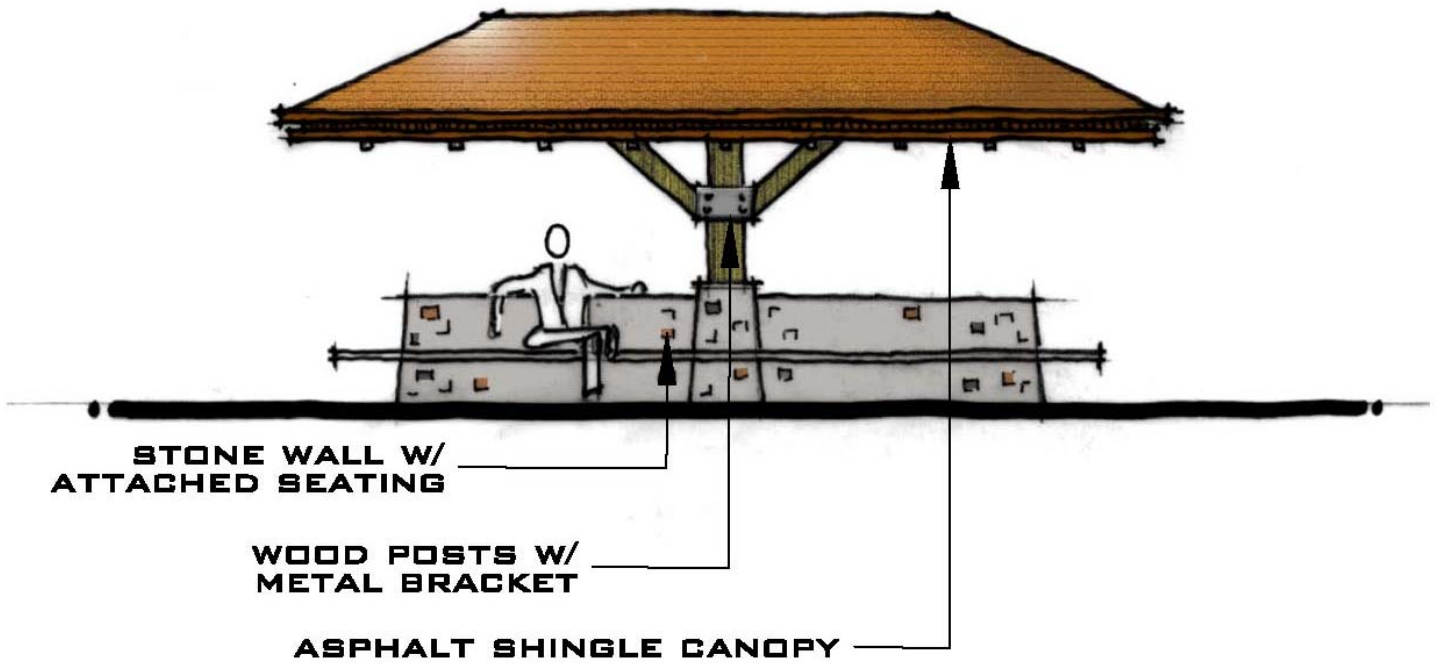
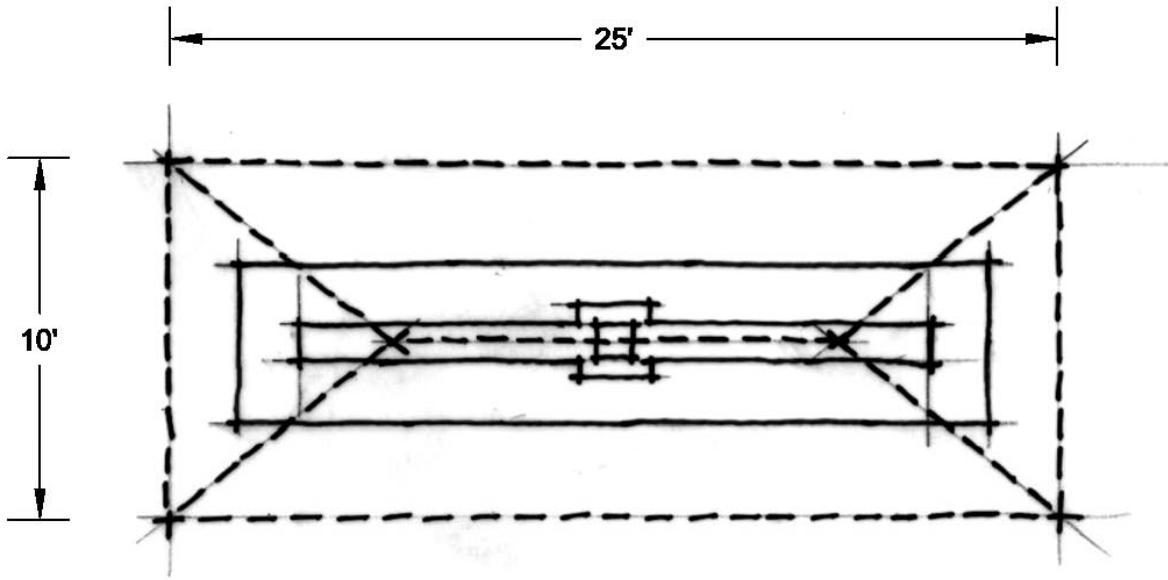
Construction Improvements Total (est.)	\$7,600,000
Planning and Design	\$1,200,000.00
Heritage Corridor Easement Acquisition	\$1,000,000.00
Total Costs	\$9,800,000.00



5.3 Shuttle Stop Shelter

Recommended Design /Specifications: The proposed shuttle stop shelter is designed to be compatible with the local architectural vernacular. It will seat approximately 16-18 people waiting for a shuttle with a surrounding paved area to facilitate loading/unloading and additional waiting space. The shelter would be initially recommended for use at Val-Kill. Siting considerations included a minimum intrusion into historic areas and needed space to accommodate safe pedestrian circulation and loading within the existing parking area shared by private vehicles and tour buses. The canopy is a hipped roof with exposed trusses covered in tile or asphalt shingles, supported by a single 8” wood post with diagonal supports attached to a steel bracket. The post would be set in a concrete footing and would be surrounded by a stone wall with attached seating. A 6”-8” stem wall would hold the angle brackets which support an 18” wood seating platform. The stem wall fascia would be native stone and would act as the backrest for the seating. Estimated cost for shuttle bus stop shelters are shown in Table 6.





PROPOSED SHELTER

ROOSEVELT-VANDERBILT NATIONAL HISTORIC SITES
PLANNING FOR ALTERNATIVE TRANSPORTATION SYSTEMS

Table 6

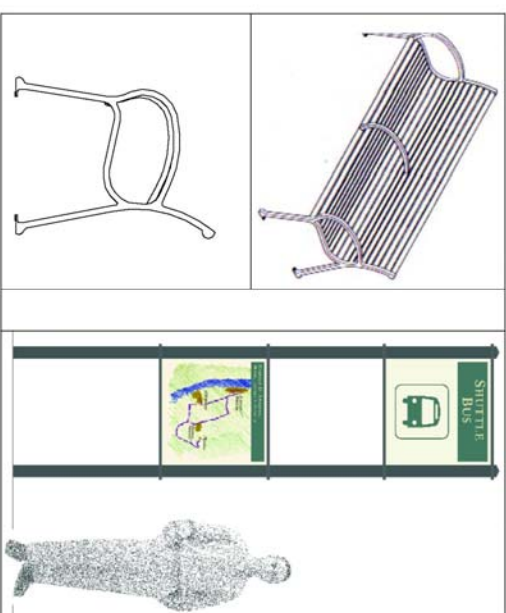
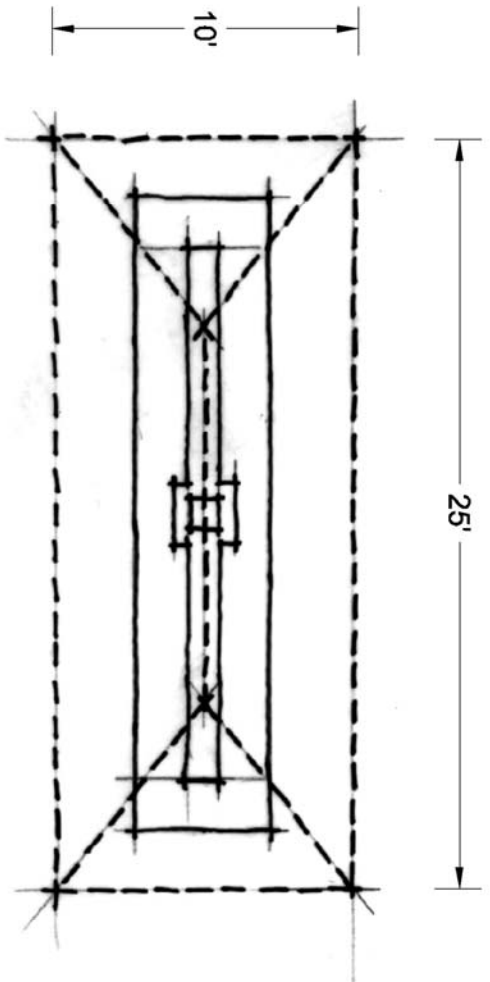
ROVA - Shelter Structure Class 'C' Estimate of Probable Cost	
Item	Cost
Shelter	
Stem wall	\$1,125 per cu.yd. 1.2 cu.yd conc. wall \$1,350
Stone veneer	\$18 per sq.ft. 48 sq.ft. \$864
Benches	Wood decking (\$20/sq.ft.) 66 sq.ft. \$1,320
Shelter	\$55 per sq.ft. 250 sq.ft. \$13,750
Roofing	\$400 per 100 sq.ft. asphalt shingle 250 sq.ft. \$1,000
Stone wall Entry Feature (Top Cottage only)	\$45 per cu.ft. 40 cu.ft. \$1,800
Surfacing	
Base course	\$12 per sq.yd. 78 sq.yd. \$936
Pavement	
Vehicular	\$105 per sq.yd.(6" reinf. conc.) 78 sq.yd. \$8,190
Walks	\$55 per sq.yd. (4" conc.) 89 sq.yd. \$4,895
Total	\$34,105



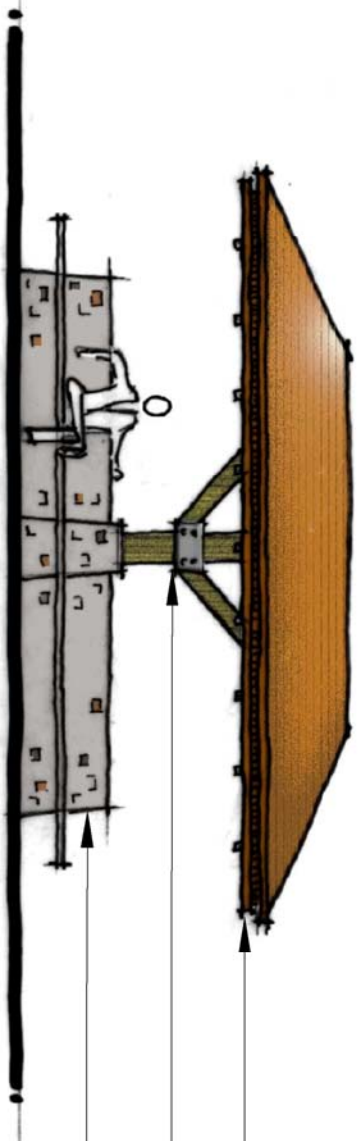
5.4 Shuttle Stop Sign and Seating

Recommended Design / Specifications: The proposed shuttle stop sign will be located at designated pick-up/drop-off locations throughout the Roosevelt-Vanderbilt National Historic Sites. These locations will include the FDR Home and Library site, the Vanderbilt Estate, Val-Kill, and Top Cottage. In addition to shuttle stop designation, the lower panel will illustrate the shuttle route throughout the historic sites for visitor reference. The metal benches will be located beneath the covered seating area at the Visitor Center. The bench design was selected to reinforce the horizontal lines of the new building as well as for its ability to be moved and relocated to additional sites if necessary. Additional shuttle stops and seating areas can be added in strategic locations if they are required by visitor demand.





PROPOSED SEATING AND SHUTTLE SIGNAGE



ASPHALT SHINGLE CANOPY
 WOOD POSTS W/ METAL BRACKET
 STONE WALL W/ ATTACHED SEATING



PROPOSED SHELTER AND SIGNAGE
ROOSEVELT-VANDERBILT NATIONAL HISTORIC SITES
PLANNING FOR ALTERNATIVE TRANSPORTATION SYSTEMS

5.5 FDR Visitor Center / Library / Home Site

Site Description: The FDR Library and Home Site is undergoing a substantial reorganization with the construction of the new Wallace Visitor and Education Center north of the existing library. A new entry drive access from Route 9 will be constructed on the north side of the Bellefield estate and will serve the entire visitor center complex. The drive would lead to a new parking lot on the west of the new visitor center that will accommodate 144 passenger vehicles. A separate vehicle drop-off/pick-up loop north of the main building entrance has been provided to serve tour buses, over-the-road coaches, and the proposed shuttle system. Most of the existing library and home site parking lot will be removed and restored to historic conditions. New pedestrian walkways /service roads will serve the north, west and south entrances of the new visitor center building continuing on the east side of the library, connecting with the original access road to the home site.

Analysis Approach / Findings: The new visitor center site plan was assessed to determine the new pedestrian circulation patterns and best drop-off/pick-up point for a new park shuttle system. There was a concern that the proposed drop-off loop on the north of the new visitor center building would be blocked visually and spatially from visitors circulating from other buildings and areas in the complex to the south. In addition, the drop-off loop was a considerable distance, almost 1,400 feet or 1/4 mile from Springwood, the most distant southern point in the complex. This presented a long walk, especially for elderly or disabled visitors. An alternate shuttle stop was considered on the southern edge of the new parking lot that would be more central to all buildings in the complex and about 500 feet closer to Springwood. While this potential stop site could be considered again in the future, it was not recommended, due to operational and safety problems with shuttle vehicles circulating through active aisles of the parking lot. The park is also addressing the long walking distances by acquiring electric carts that will be used to transport visitors that need assistance. Consideration was also given to accommodating visitors that may be arriving by foot or bike from the Hyde Park Trail and or the historic carriage trail. It was noted that for safety reasons, both hikers and bikers needed to cross Route 9 at the new access road intersection. A pathway could then be designated utilizing existing routes across the Bellefield Estate to the Hyde Park Trail.

Site Facility Recommendations: The advantages of locating the new drop-off area on the north side of the visitor center, such as space for outdoor seating, gathering, and circulation and 450 square feet of adjacent interior lobby/exhibit area where people can wait, make this the right choice for a new shuttle stop. In addition to potential seating provided in the building lobby, new benches would be provided under the roof eaves that would be architecturally compatible with the building design. Signage would be provided that would identify the shuttle stop area and include a schedule. Additional traffic striping in the drop-off area would delineate the shuttle loading area to avoid conflicts with other vehicles. An additional pedestrian walkway may be needed on the southwestern side of the visitor's center building to allow pedestrians to access the shuttle stop from the south without circulating back through the building. Additionally, some short sections of multiple use trails would be needed to establish a continuous hike/bike path from the Route 9 intersection across the Bellefield Estate through the complex and connecting to the existing Hyde Park Trail.



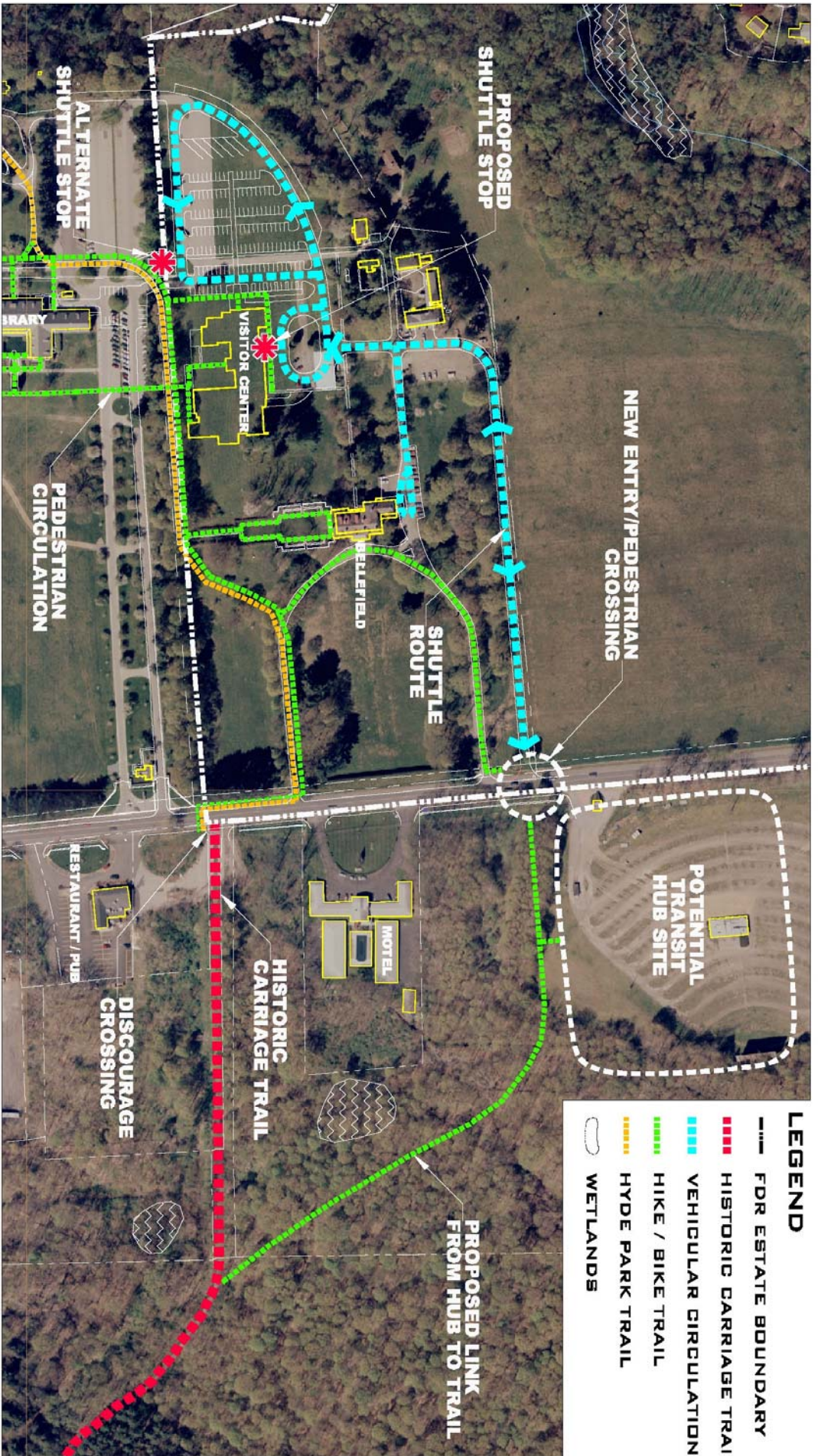


VISITOR CENTER - EXISTING CONDITIONS
ROOSEVELT-VANDEBILT NATIONAL HISTORIC SITES
PLANNING FOR ALTERNATIVE TRANSPORTATION SYSTEMS



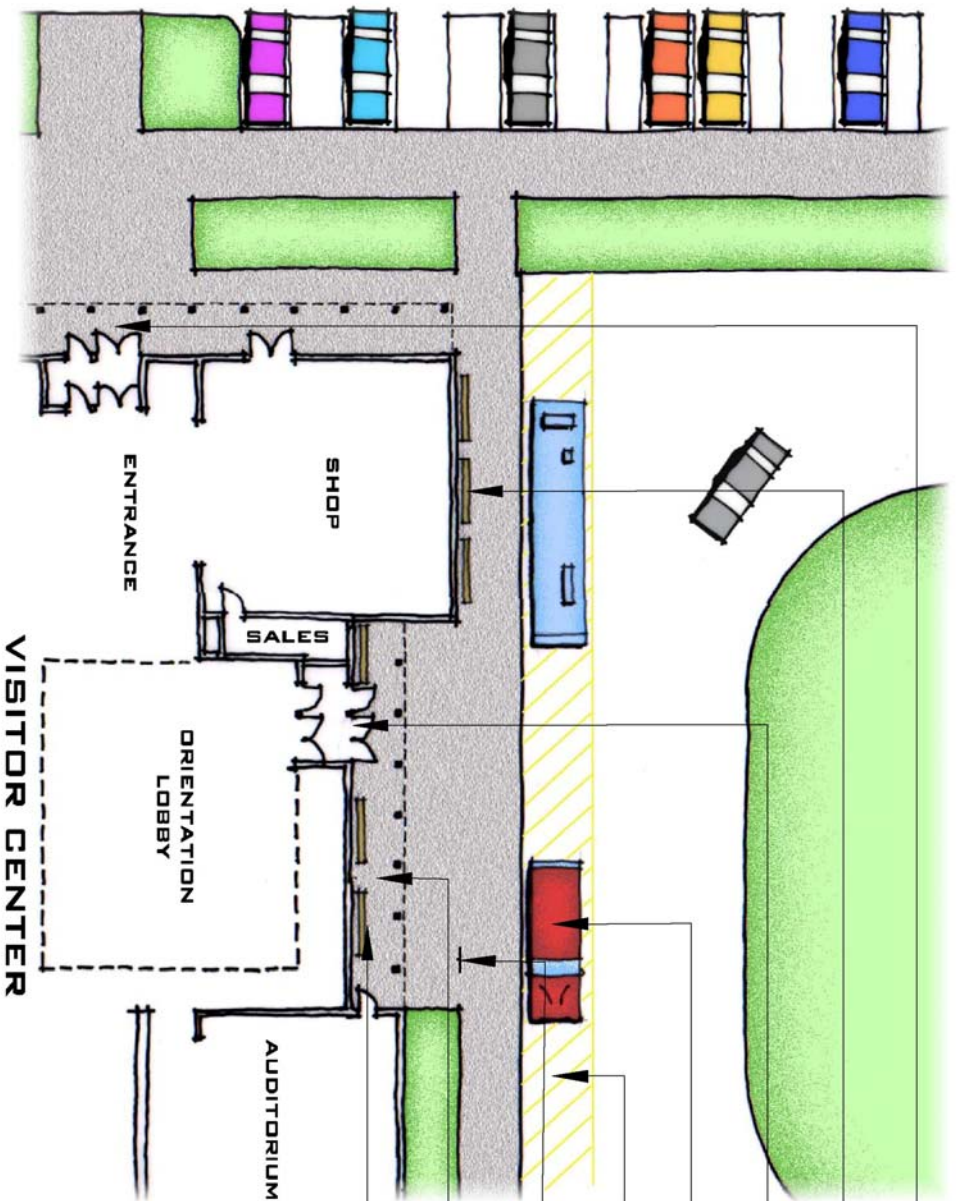


VISITOR CENTER - OPTIONS & CONSTRAINTS
ROOSEVELT-VANDERBILT NATIONAL HISTORIC SITES
PLANNING FOR ALTERNATIVE TRANSPORTATION SYSTEMS

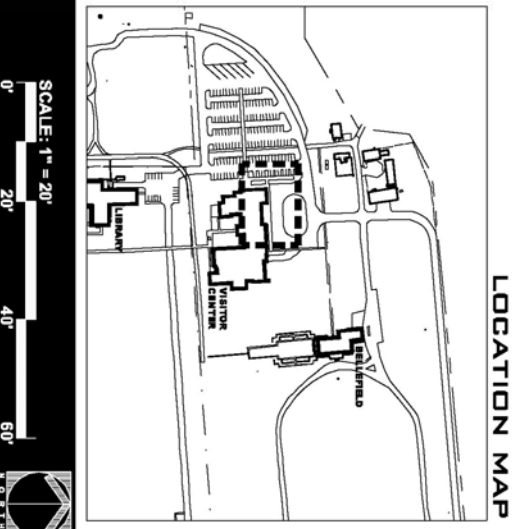




VISITOR CENTER - PROPOSED SHUTTLE STOP
ROOSEVELT-VAN DERBILT NATIONAL HISTORIC SITES
PLANNING FOR ALTERNATIVE TRANSPORTATION SYSTEMS



- MAIN PARKING ENTRANCE
- TOUR BUS WAITING AREA
- SHUTTLE/TOUR BUS ENTRANCE
- HISTORIC THEMED SHUTTLE
- LOADING / UNLOADING AREA
- SHUTTLE STOP SIGNAGE
- COVERED SEATING AREA
- METAL BENCHES



SCALE: 1" = 20'
 0" 20' 40' 60'

5.6 Val-Kill

Site Description: Val-Kill is the home of Eleanor Roosevelt located within the boundaries of the historic Roosevelt Estate, presently a 180-acre parcel to the east of the FDR library and home site. A 0.4-mile entry drive provides access to the home site from Route 9G. The historic core area is a 23-acre site including Val-Kill Cottage, Stone Cottage, landscape gardens, a pool, tennis court, and a playhouse located on a small peninsula surrounded by Val-Kill pond. Picturesque views of the historic core area can be seen across the pond as visitors enter along the access drive. The wider site is rolling topography with areas managed as open grasslands and patches of Eastern hardwood forest on the west side and dense second growth forest on the east.

The core area is a very intimate setting with extensive border plantings and garden plots designed for Mrs. Roosevelt. Private vehicle access to the heart of the historic core area is prohibited (except by people with disabilities) and a parking lot has been developed southwest of the core on the opposite side of the pond. Most visitors access by private vehicle or private tour bus that will park in the southwest parking lot. Visitors then walk through a small stone gateway, over the Val-Kill bridge and into the core area. Handicapped visitors are allowed to drive over the bridge, drop off near the Stone House and park in the adjacent administrative parking. This administrative parking is served by a service road which passes through an adjoining residential neighborhood to the north of the Val-Kill property.

Analysis Approach / Findings: The Val-Kill property was assessed to determine the best possible location for a shuttle drop-off/pick-up area. Due to the intimacy and sensitivity of the historic core setting, vehicular intrusion into the site should be limited. Accessibility for disabled and elderly visitors should be enhanced while maintaining the original character of the property as it was when it was inhabited by Mrs. Roosevelt. Any new facility or shuttle improvements must not impact the visual environment either to or from the historic core. Views of the property from the entry drive should also be maintained as well as existing plantings and stone walls.

A shuttle turn-around and stop area was considered just north of the existing parking lot, to eliminate congestion in the parking lot, but this was rejected due to impacts to surrounding trees and potential visual impacts to the narrow rural character of the access road. The existing parking lot southwest of Val-Kill bridge was determined to be the best location for the shuttle stop due to its proximity to the core area, visual and acoustic separation from the historic core area, and the existing parking improvements..

Site Facility Recommendations: The shuttle bus would access the site via the Route 9G entrance and would proceed to the existing visitor parking lot. The proposed shuttle stop would be located on the south side of this parking lot to avoid intrusion into the historic orchard to the west and to preserve the existing parallel parking spaces on the east and west sides of the lot. The shelter would be located on the south side of the lot and would include a proposed shelter structure for passenger waiting and seating. The stop would be designed as an extra pull-off lane adjacent to the existing parking to avoid conflicts with

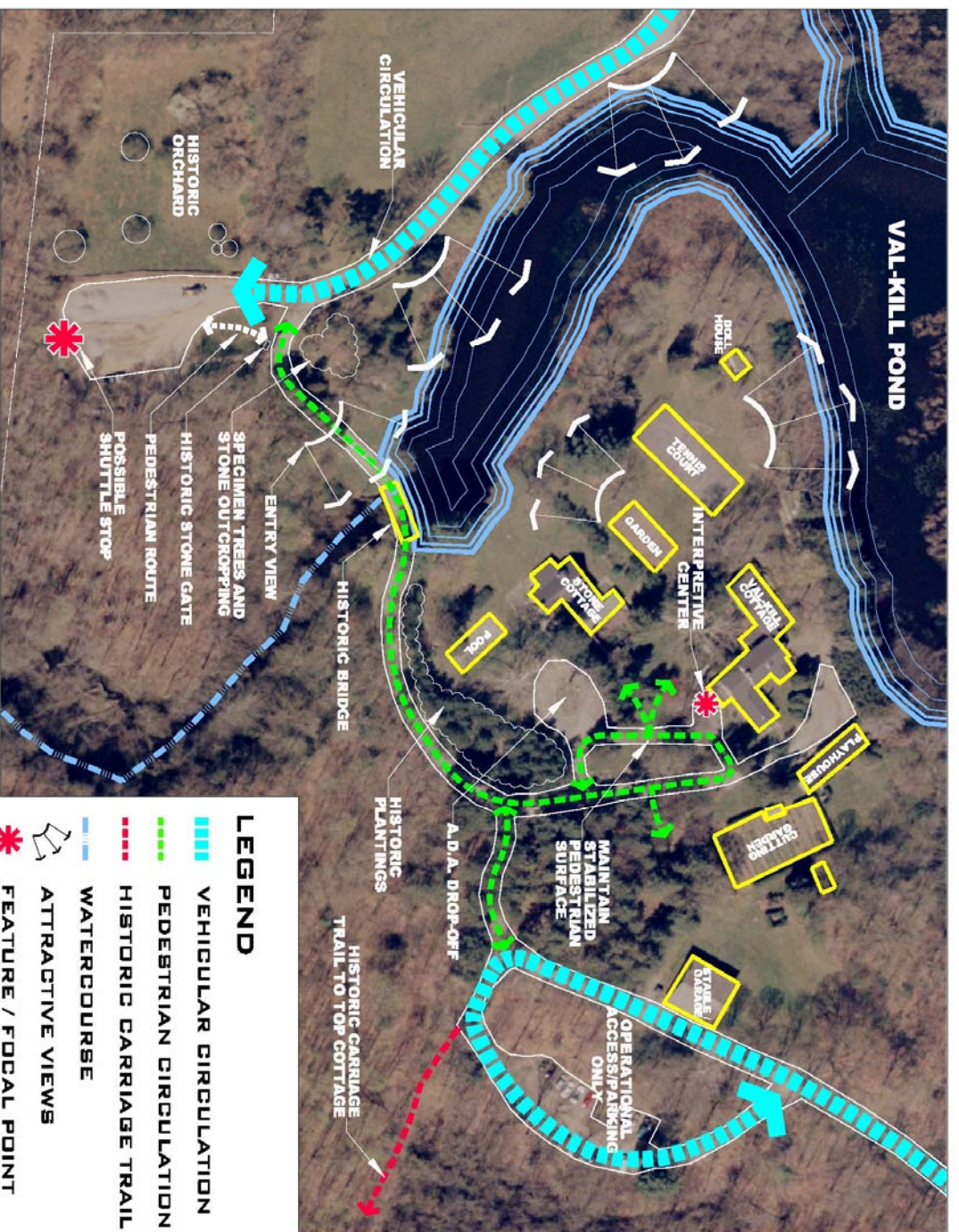


parked vehicles and pedestrians. A new pedestrian walk would extend from the shelter around the east side of the parking area to provide safe pedestrian circulation. The new walk would connect with the existing walk that passes through the stone gateway, then on to the road leading across the bridge and towards the core area. A minimum turning radius of 45' would be maintained to accommodate tour buses as well as the shuttle bus. All pathways and roadways used by pedestrians should be maintained with a firm base and stabilized surfacing to maximize accessibility.



CONSIDERATIONS AND OBJECTIVES

- SHORTEN DISTANCE OF STEEP GRADES FROM PARKING AREA FOR PEDESTRIANS
- PRESERVE AND ENHANCE VIEWS OF VAL-KILL CORE, POND AND ENTRY EXPERIENCE
- PROVIDE FOR HIKERS AND BIKERS (BIKE STORAGE)
- STABILIZE ROADS AND PATHWAYS
- IMPROVE ORIENTATION FOR PEDESTRIANS
- PLAN FOR AUTO/BUS PARKING WITH SAFE, EFFICIENT SHUTTLE OPERATIONS



LEGEND

- VEHICULAR CIRCULATION
- PEDESTRIAN CIRCULATION
- HISTORIC CARRIAGE TRAIL
- WATERCOURSE
- ATTRACTIVE VIEWS
- FEATURE / FOCAL POINT

SCALE: 1" = 100'

0' 100' 200' 300'



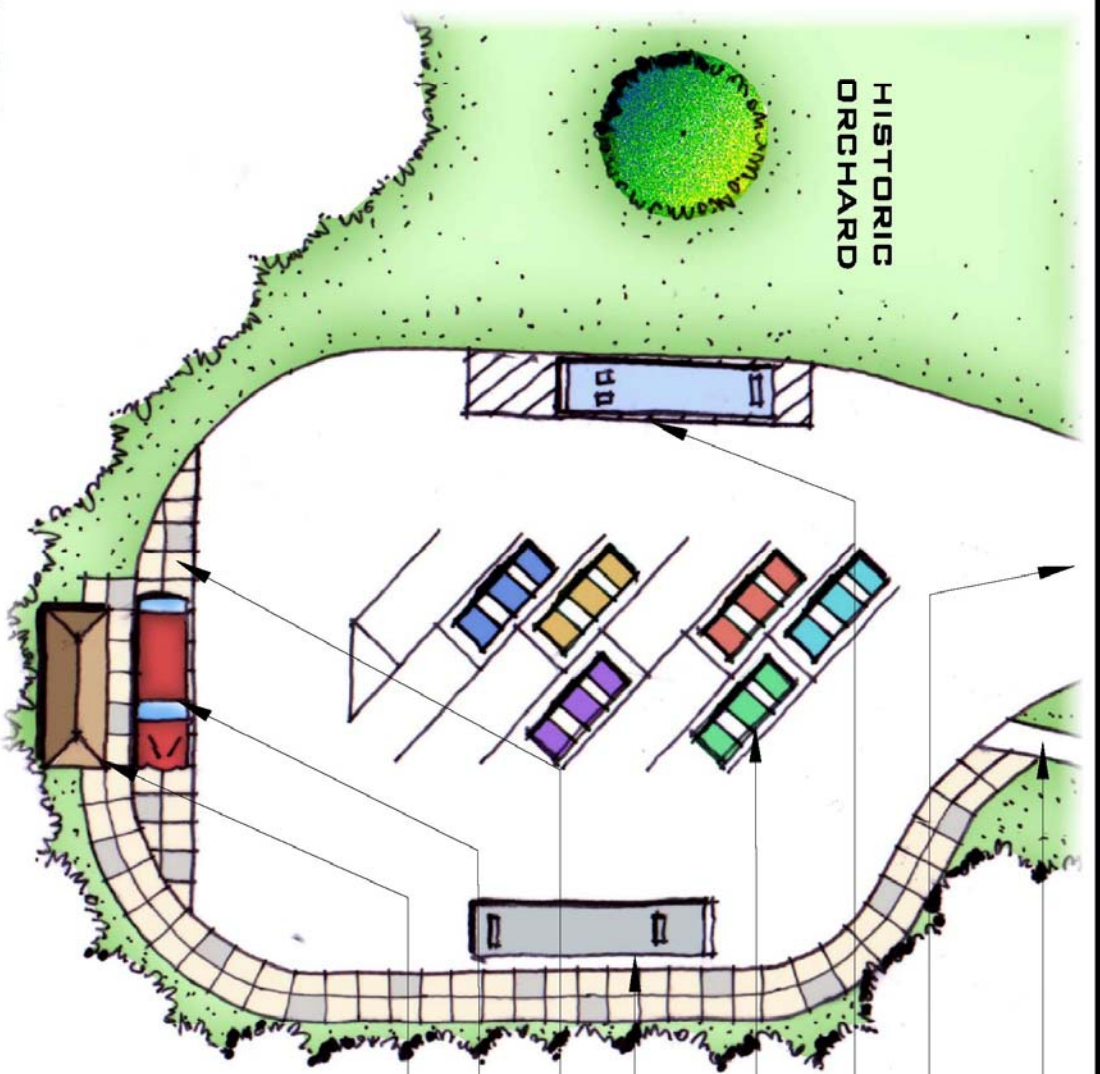
VAL-KILL - OPPORTUNITIES AND CONSTRAINTS

ROOSEVELT-VAN DER BILT NATIONAL HISTORIC SITES

PLANNING FOR ALTERNATIVE TRANSPORTATION SYSTEMS



VAL-KILL - PROPOSED SHUTTLE STOP
ROOSEVELT-VANDERBILT NATIONAL HISTORIC SITES
SITE PLANNING FOR ALTERNATIVE TRANSPORTATION SYSTEMS



- PATH TO STONE GATEWAY AND VAL-KILL
- TO ROUTE 9G
- SPECIAL EVENT STAGING AREA
- EXISTING PARKING
- BUS STAGING AREA
- DROP-OFF/PICK-UP AREA
- HISTORIC THEMED SHUTTLE
- 10' X 25' SHELTER W/ SEATING



LOCATION MAP

SCALE: 1" = 20'
 0' 20' 40' 60'



5.7 Top Cottage

Site Description: Top Cottage is the planned retirement home built by Franklin Delano Roosevelt and the site of meetings with foreign dignitaries as well as intimate private moments in the later days of his life. The cottage is located on the far eastern side of the historic Roosevelt Estate, just east of Val-Kill on a hilltop site with an expansive view of the estate and the Hudson River Valley. The extension of the carriage road trail that FDR used to access the property from the west has been lost by the development of a residential subdivision. In its place, a pedestrian trail has been laid out to bypass the subdivision and reconnect with a carriage road leading west to Val-Kill. The last section of the former estate road that connects to the cottage climbs the steep hill and accesses the cottage from the north.

Access to Top Cottage on existing public streets is a circuitous route on a combination of collector and residential streets. Once the site is reached by public roads, an inconspicuous asphalt loop road connects the cottage to the residential street. There is presently no provision for visitor parking at Top Cottage and only a small clearing near the entrance to the loop road for staff parking. Visitors arrive exclusively by a park shuttle vehicle on a regularly-scheduled, guided park tour. The present practice for shuttle access utilizes the loop road with the shuttle parking by the front door and unloading and waiting for visitors to complete the tour.

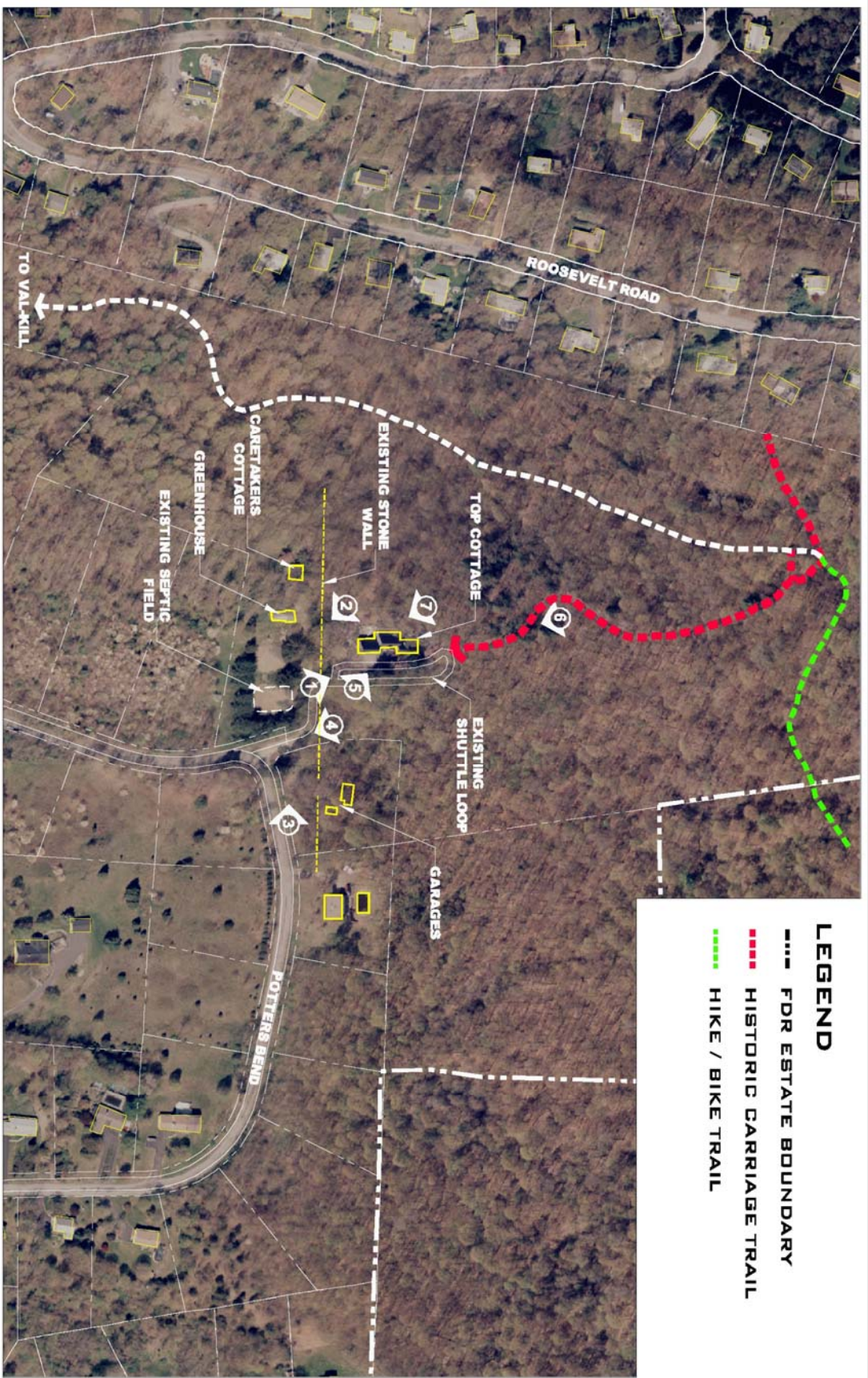
Analysis Approach / Findings: The Top Cottage site was assessed to determine the best possible location for a shuttle loading and parking area associated with the public road system. A future ATS route from Val-Kill up to Top Cottage within the former Roosevelt Estate was not specifically evaluated in this study, but could be compatible with any short term shuttle improvements. To evaluate the shuttle stop served by the public road, there were two primary considerations. The first consideration was preserving the privacy of the local neighbors and residential character of the neighborhood and the second, the transportation improvements that would alter the historic character of the site. Two sites were identified as potential shuttle stops. The first was the area where the loop road entrance joins the residential street. The second was a site 75 feet to the south along Val-Kill Drive on the west side of the road. Each site was assessed from a functional standpoint as well as for the potential impact upon the surrounding residential neighborhood. It was noted that a shuttle stop in either of these locations would need to be modest in scale with minimum impact to the character of the street. The site of a former garage was noted to the east of the cottage that could be suitable for employee parking.

Site Facility Recommendations: The proposed shuttle stop at the entrance of the loop road was selected as the best alternative. This location resulted in the least impact on the surrounding neighborhood. An area near the existing entrance drive would be used as the loading/unloading area. To lessen the impact even further than the specific choice of location, a planted median was added to screen the shuttle loading/parking area and the shuttle stop area was removed. The proposed loading parking area was offset from the entry road in order to maintain the entry drive's vehicular access for park interpretive and maintenance staff vehicles. A stone wall feature would frame the entrance and direct



visitors on foot up the entry drive, slowly and dramatically revealing the expansive view and the cottage building. This progressive view could only be experienced with the same magnitude if the visitor enters the site from east, below the crest of the hill. The park has acquired some electric carts for assistance to disabled visitors. Additional staff parking would be provided adjacent to the entry drive on a former garage site that could be effectively screened with evergreen plantings.





LEGEND

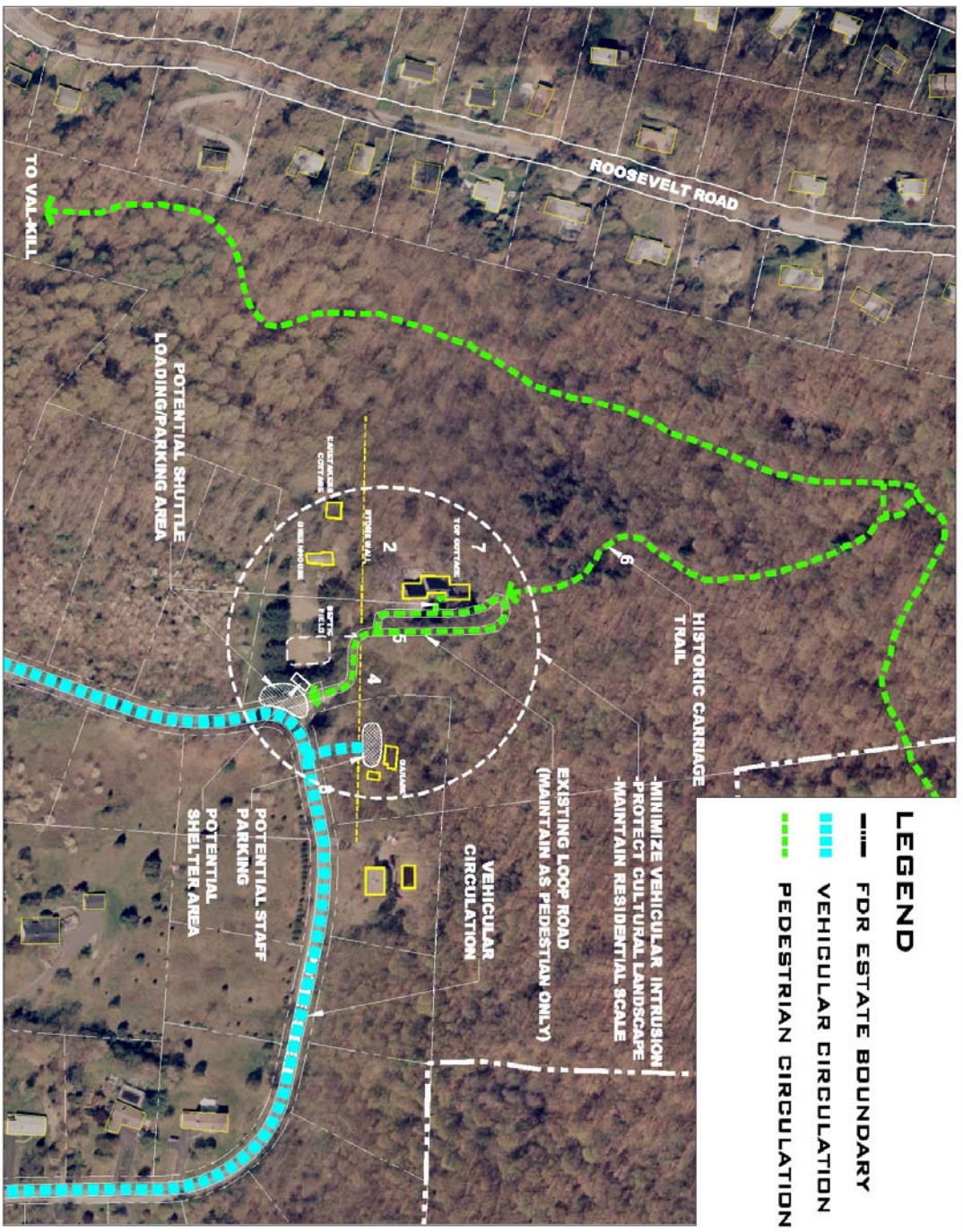
- FDR ESTATE BOUNDARY
- HISTORIC CARRIAGE TRAIL
- HIKE / BIKE TRAIL

TOP COTTAGE - EXISTING CONDITIONS
ROOSEVELT-VANDERBILT NATIONAL HISTORIC SITES
PLANNING FOR ALTERNATIVE TRANSPORTATION SYSTEMS



CONSIDERATIONS AND OBJECTIVES:

- MINIMIZE VEHICULAR USE NEAR COTTAGE
- ENHANCE PEDESTRIAN EXPERIENCE AROUND STRUCTURE
- PROVIDE SHUTTLE STOP PARKING WITH SEATING AT STREET IN KEEPING WITH RESIDENTIAL CHARACTER
- PROVIDE BICYCLE STORAGE
- PROVIDE FOR EMPLOYEE PARKING



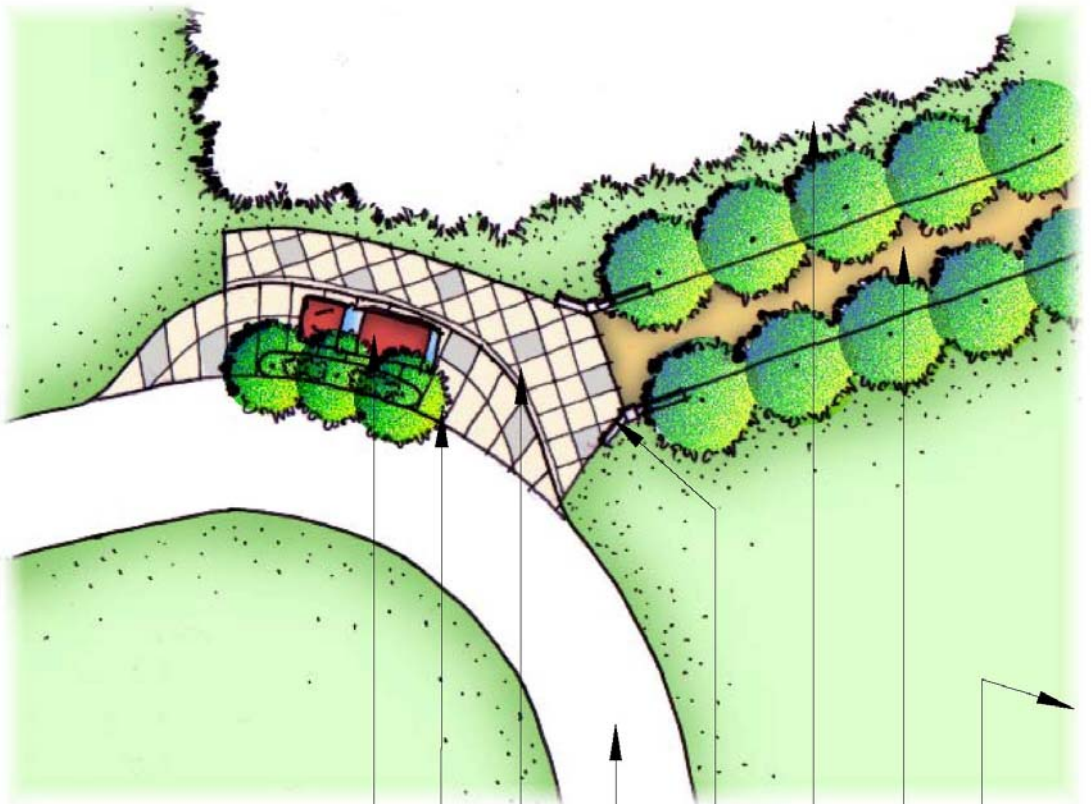
TOP COTTAGE - OPPORTUNITIES & CONSTRAINTS

ROOSEVELT-VANDERBILT NATIONAL HISTORIC SITES

PLANNING FOR ALTERNATIVE TRANSPORTATION SYSTEMS



TOP COTTAGE - PROPOSED SHUTTLE STOP
ROOSEVELT-VANDERBILT NATIONAL HISTORIC SITES
PLANNING FOR ALTERNATIVE TRANSPORTATION SYSTEMS



STAFF PARKING

EXISTING PATH TO TOP COTTAGE

EXISTING EVERGREEN TREES

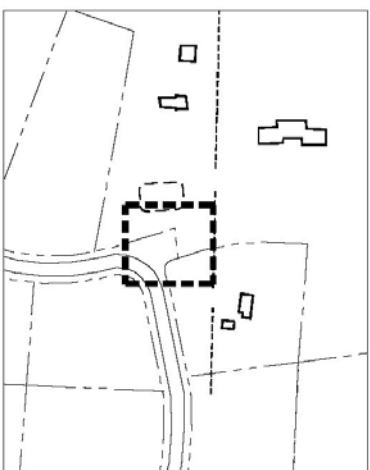
STONE WALL ENTRY FEATURE

EXISTING LOOP ROAD

DROP-OFF/PICK-UP AREA

PLANTED MEDIAN

HISTORIC THEMED SHUTTLE



LOCATION MAP

SCALE: 1" = 20'
 0' 20' 40' 60'



6.0 Conclusions

6.1 Summary

The Roosevelt historic sites' heavy dependence on auto access imposes a number of problems and constraints that could be addressed effectively with implementation of a sustainable ATS and, in the longer-range future, integration of ATS with the regional public transportation system. Adverse conditions that could be ameliorated with improved transit service include: lack of access by potential visitors who do not own automobiles or cannot drive to the sites; traffic congestion and accidents, particularly for vehicles turning left to and from the sites; circuitous routing through a roadway network that juxtaposes the historic sites with a contemporary suburban jumble of land uses; parking constraints, most often at Eleanor Roosevelt NHS; negative site impacts; and negative environmental impacts—specifically, air pollution, noise, and excess energy consumption.

Three plans have been developed to meet the need for an efficient, high-occupancy transportation system that will enhance the visitor experience at the Roosevelt sites. In the short-range future, *Plan 1* provides for an ATS shuttle service consisting of two routes operating over the existing street network: a route connecting Home of FDR and Eleanor Roosevelt NHS, which ideally would operate every 15 minutes; and a route between Home of FDR and Top Cottage, to be operated on half-hour headways. While a number of vehicle types ranging from a large van to a 30-foot bus might be considered for deployment on the ATS, to be sufficiently comfortable and appealing to attract a large number of users, the best choice would be a replica vehicle appropriate to the Roosevelt era.

A further addition to transportation service that could be implemented either in the short-range or longer-range future would be a connection to the Poughkeepsie train station via an extension of the existing Dutchess County Loop 2 bus route. The Park Service would need to work in partnership with the Dutchess County Division of Mass Transportation to implement this service. While the Park Service could operate an ATS shuttle route to the train station independently of the Dutchess County bus system, extending the Loop 2 bus route would be more cost-effective and would establish a key link between the Roosevelt ATS and local public bus service.

Plan 2 is a longer-range option that would continue the shuttle bus services implemented in Plan 1, but instead of operating over existing highways, the ATS vehicles would travel over a restored carriage trail that would link the Home of FDR and Eleanor Roosevelt NHS across the historic Roosevelt estate. In addition, the ATS would connect to local and regional bus services at a newly-created transportation hub serving the mid-Hudson Valley region. The transportation hub is part of the *Regional Information and Transportation Center* proposal developed jointly by the Park Service, the Town of Hyde Park, and the environmental organization, Scenic Hudson Inc. The Center would be located within convenient walking distance of the Home of FDR, on the east side of Route 9.



Plan 3 would expand on Plan 2, creating a seamless connection between the Roosevelt ATS shuttle bus system and community and regional transit services. Plan 3 includes the extension of service on the Dutchess County Loop 2 bus route to the Poughkeepsie train station. As a result, potential visitors originating in New York City, Albany, and other locations along the Hudson Line rail corridor will have transit access to the Roosevelt historic sites. As in Plan 2, Plan 3 links the ATS with public buses and private carriers at the proposed information/transportation Center. A further Plan 3 component is the augmentation of Dutchess County Loop 1 to provide additional service between Rhinebeck and the new information/transportation center. The increased service frequency on the route (five additional round trips daily, total of nine round trips from 9:00 AM to 5:00 PM) will create an attractive transit option for traveling between the Roosevelt sites and other heritage sites in the mid-Hudson Valley, such as Wilderstein, Staatsburgh, the Vanderbilt National Historic Site, the Culinary Institute of America and the Samuel Morse Historic site.

Estimated **operating costs** for the short-range ATS incorporated in Plan 1 are \$390,960 for a full year of service and \$195,480 if operations are limited to the peak six-month period from May through August; these costs assume that a total of three vehicles will be in active service, providing 15-minute headways on the Home of FDR-Eleanor Roosevelt NHS route and 30-minute headways on the Home of FDR-Top Cottage route. If headways on the Home of FDR-Eleanor Roosevelt are increased to 30 minutes, the service could be operated with two vehicles at an estimated cost of \$260,640 for year-round service and \$130,320 for a half-year. Operating costs for Plan 2 are estimated to be the same as for Plan 1. Extending Loop 2 bus service to the Poughkeepsie train station is estimated to cost about \$21,700 for a full year and \$10,900 for a half year. Alternatively, operating a spur of the ATS to the train station is estimated to cost approximately \$77,500 for a full year and \$39,000 for a half year.

Capital costs can range from about \$100,000 to \$300,000 for an alternative-fueled, low-emission vehicle, depending on vehicle capacity and features. The cost of a replica vehicle, customized for implementation at the Roosevelt sites, is likely to be at the upper end of this range, but this type of vehicle is likely to be most attractive to visitors.

Summary capital cost estimates for site improvements are as follows:

- X carriage trail-asphalt (for hiking and bicycles): \$481,530
- X carriage road-asphalt (accommodating shuttle buses): \$993,400
- X transit hub: \$5,420,000
- X shelter structure: \$34,100

Productivity, measured in terms of passengers per dollar of operating cost, will depend on the number of riders, which in turn will depend to a large extent on parking policies at Eleanor Roosevelt NHS. If visitor parking is eliminated at the site, it is reasonable to expect ridership of about 75,000 year-round, or 56,250 (75 percent) over 6 months. With 2 vehicles in active service on the Home of FDR-Eleanor Roosevelt National Historic Site



route and visitor parking prohibited at Eleanor Roosevelt NHS, the cost per passenger for Plan 1 would be \$3.50 for year-round service or \$2.30 for 6 months (in the latter case, parking would be allowed in the off-peak six months). If visitor parking continues to be allowed at Eleanor Roosevelt NHS, a reasonable estimate of annual ridership would be 22,000 (roughly 30 percent of existing visitation), yielding a cost per passenger of \$11.90 for a full year of service or \$7.90 for a half-year.

The most viable strategy for funding the proposed transportation services is increasing the admission fee for guided tours at Home of FDR. Approximately 103,500 visitors per year tour the Home of FDR, which is over 3 ½ times the 28,400 visitors who tour Eleanor Roosevelt NHS. Increases in Home of FDR tour fees needed to fund operating costs would be reasonable: for Plan 1 with three vehicles in active service, \$3.78 for year-round service and \$1.89 for six months; with only two vehicles in active service, \$2.52 for a full year and \$1.26 for half a year. The Park Service also can seek funding from other sources, including Federal programs such as Federal Transit Administration Section 5307 and Congestion Mitigation and Air Quality (CMAQ) funds, as well as partnering arrangements with public transit operators and tourist industry businesses and organizations.

6.1 Field Demonstration

A recommended next step in the development of the ATS would be operation of a demonstration service modeled on Plan 1, primarily to obtain a reliable indication of potential demand and financial feasibility, as well as to fine-tune operating characteristics. A fair test of the ATS concept will require that adequate time and resources be devoted to present the service to its best advantage. Thus, the demonstration must incorporate a high level of service consistent with parameters specified in Plan 1: headways at the desired frequencies, adherence to schedule, and comfortable and attractive vehicles. Optimally, the demonstration would operate with three vehicles, matching the planned service frequencies of 15 minutes on the Home of FDR-Eleanor Roosevelt NHS route and 30 minutes on the Home of FDR-Top Cottage route. If only one or two vehicles are available, they should be deployed on the Home of FDR-Eleanor Roosevelt NHS route. Using vehicles with a high level of visual or novelty appeal, such as the Red Bus replica vehicle, is highly recommended.

Vigorous marketing will be required through the Park Service website and regional tourism media. On site, the availability of the service should be promoted through signage in visible places, such as entrances at the south, east, and west sides of the new FDR Visitor and Conference Center, assuming the demonstration takes place after the Center is open. Informational media, such as schedules, should be provided at the visitor center, and interpretive programs, including guided tours, should promote the ATS. Another critical requirement is the provision of on-site amenities such as functional, comfortable and attractive boarding areas. At a minimum, outdoor seating should be provided at the new FDR Visitor and Conference Center, as recommended in Section 5.5, as well as signage and markings to identify the shuttle stop area. These crucial elements are necessary for the demonstration to test the true market potential of proposed transit services.



Appendix Cost Data Sources

Florida Department of Transportation, Office of Policy Planning, 2000 Transportation Costs, August 2001

Diesel Forum – 2000 website comparison of bus fuel options

US Department of Energy, Case Study – Alternative-Fuel Buses in Antelope Valley

Glacier Park, Inc. – website--Red Bus tours

Transportation Cooperative Research Report 61 - Analyzing Costs of Small Transit Vehicles





As the nation's principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.