



Frederick Law Olmsted National Historic Site Transportation Plan

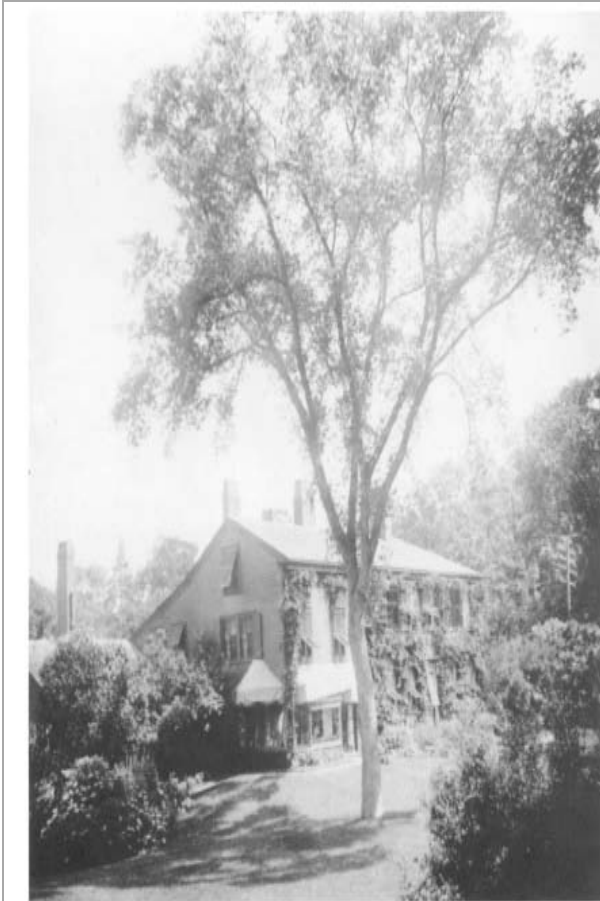


Fig. 1. View of the south lawn and American elm before 1903. Courtesy the National Park Service, Frederick Law Olmsted National Historic Site Archives (Olmsted NHS).



Conditionally Reserved, FRLA Special Events – —
Reserved FRLA Visitor Parking – —
Unreserved Parking – —



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Report notes

This report was prepared by the U.S. Department of Transportation John A. Volpe National Transportation Systems Center, in Cambridge, Massachusetts. The project manager and chief planner for the project was David Spiller of the Systems Operations and Assessment Division.

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Executive Summary

The National Park Service (NPS) has received funding to engage in a strategic planning effort with the aim of revising and updating the 1983 General Management Plan (GMP) for the Frederick Law Olmsted National Historic Site (Olmsted NHS). The GMP sets forth a preferred plan of action for how Olmsted NHS will be managed for the next twenty years. This effort has just started, with an Open House and public meeting that engaged the public and solicited their ideas and concepts in September 2009. The focus of this study is to provide concepts and ideas for a complementary transportation plan in support of the revised GMP that will address issues and problems identified under existing conditions, and support adaptation to future conditions that are planned for the site.

Existing Conditions

A review of existing conditions highlights a number of issues/problems that need to be addressed in the Transportation Plan for Olmsted NHS. Complicating the matter is that major decisions affecting the general management of the site, its resources and its programs affecting the public and use of its archives – which have implications on both access and circulation – have yet to be articulated under the GMP process (see Section 4 of the report). Therefore, the Transportation Plan needs to be both flexible and anticipatory of likely future conditions, recognizing at the same time that existing issues/problems also need to be addressed going forward.

Existing issues/problems are summarized below:

- Ad-hoc system for visitor parking
- Lack of reserved parking space for special events
- Excessive speed of vehicles down Dudley Street, impacting pedestrian and visitor access from curbside parking
- Discontinuity of sidewalks on Dudley Street
- Lack of safe bicycle access
- Undesirable and at-risk location and operation of bus group tour drop-off and pick-up
- Lack of holding area for buses associated with group tours
- Missing transit link in connecting the regional transit system to Olmsted NHS
- Missing transit link in connecting Olmsted NHS to Olmsted's signature achievement (the Emerald Necklace)
- Lack of adequate signage and wayfinding system at both the pedestrian and vehicular scale

General Management Plan Process and Future Conditions

A number of decisions affecting future conditions for the site and neighborhood and impacting both access and parking have yet to be decided within the GMP planning process or by Olmsted NHS management staff. These include:

- Extension of days the site is open to the public beyond Friday through Sunday (three days)
- The number, frequency and size of special events (including lectures and changing exhibits)
- Expansion of the existing educational program to more schools within the Town of Brookline and City of Boston
- Use of Olmsted NHS as headquarters for administrative staff for two other NPS units – Longfellow National Historic Site (Cambridge, MA) and the John F. Kennedy National Historic Site (Brookline, MA)

- Distribution and locations for archive storage, and whether plans will be brought on-site or researchers accommodated off-site
- Proposed use of the conservation lands (acquired in April 2002) by the public (i.e., whether open and accessible by the public for ‘recreational use’ or restricted from public access and used (absent of visitors) to preserve existing or historic view shed)

The Transportation Plan for Olmsted NHS

To address the issues/problems identified under existing conditions, and to accommodate future decisions that will impact both access and parking needs as articulated above, the Transportation Plan comprises seven mutually-reinforcing components. The seven components are listed below:

- Dudley Street Neighborhood Traffic Calming Component
- Curbside Parking Management Component
- Bus Group Tour Facility Options
- Transit Shuttle System: Regional Transit Connections
- Transit Shuttle System: Emerald Necklace Connection
- Bicycle Concepts
- Signage and Way Finding Concepts

As an example of how the components are linked, the *Dudley Street Neighborhood Traffic Calming Component* works jointly with a more formalized curbside parking system embedded in the *Curbside Parking Management Component* to provide both a safer and more pleasant pedestrian realm in the proximity of and in support of access to Olmsted NHS. Likewise, the *Bus Group Tour Facility Options* require a pedestrian path from the off-site bus drop-off/pick-up zone that uses either the Brookline Reservoir pathway and/or Walnut Street for access to Olmsted NHS. This path benefits from the proposed raised crosswalk – an element of the *Dudley Street Neighborhood Traffic Calming Component* - just prior to the junction of Walnut with Dudley Street.

On the issue of the necessity to adapt to future conditions, the *Curbside Parking Management Component* includes a flexible reservation system to expand the available curbside space to meet the parking needs for special events at Olmsted NHS.

The Transportation Plan proposes two transit shuttle links, and designs a cost-effective system to implement it as a pilot or demonstration service to gain ‘ground truth’ experience before making a long-term commitment on sustainability. It is NOT possible to quantify ridership or ‘demand’ for the service – all the more so due to the very low visitation base attracted to Olmsted NHS, the lack of survey data as a basis for projection or stated preference, and the technical difficulty in making projections for a non-existent service. But there are compelling reasons to go forward with this Plan Component:

- (a) completing the missing link to the regional transit system converts a zero probability to a finite although small probability of attracting tourists across the region, but especially those who stay in Boston, to Olmsted NHS via transit;
- (b) it would enhance interpretation possibilities and visitor experience, and provide options for access to the site for those without a car or who desire not to drive; and
- (c) it would reduce parking pressure on the neighborhood.

Also, the technical conditions are ripe for designing and implementing a cost-effective system. The transit connection to/from the Emerald Necklace is more complex, and may be best served by an event-driven system.

Logical next steps (see Section 7) have been articulated as follow-on to this plan.

1. Introduction

The Frederick Law Olmsted National Historic Site (NHS), at 99 Warren Street, Brookline, MA, preserves and interprets the home, office and surrounding grounds of pioneer landscape architect Frederick Law Olmsted and his successor firms. Olmsted is widely recognized as the founder of the American landscape architecture design profession and is considered the nation's foremost park-maker. The site serves as both a public museum with interpretation and education programs, and a facility for the preservation and research of the Olmsted Archives, which contain an extensive collection of the work done by Olmsted and the firms. Olmsted NHS also serves as the park headquarters for the Longfellow National Historic Site (Cambridge, MA) and the John F. Kennedy National Historic Site (Brookline, MA). The 7.3-acre site has 16 classified structures, including the Barn and the Building Complex, which consists of the Home and Office, and the site also contains landscaped grounds. (See Figure 1).

Figure 1
Olmsted NHS

Source: Google Maps, modified by U.S. DOT/Volpe Center project staff



Olmsted NHS has been closed to the public since 2005 to complete an extensive rehabilitation of the Building Complex (along with site utility improvements) and is planned to reopen in 2010.

The Olmsted Archives are an essential resource for anyone interested in the projects designed by Frederick Law Olmsted and his successors between 1857 and 1980. The Olmsted Archives contain over 1,000,000 records documenting the firm's work, including 139,000 drawings and plans. The Olmsted Archives are an essential source to today's stewards of the parks, campuses and private estates designed by Frederick Law Olmsted and his firm.

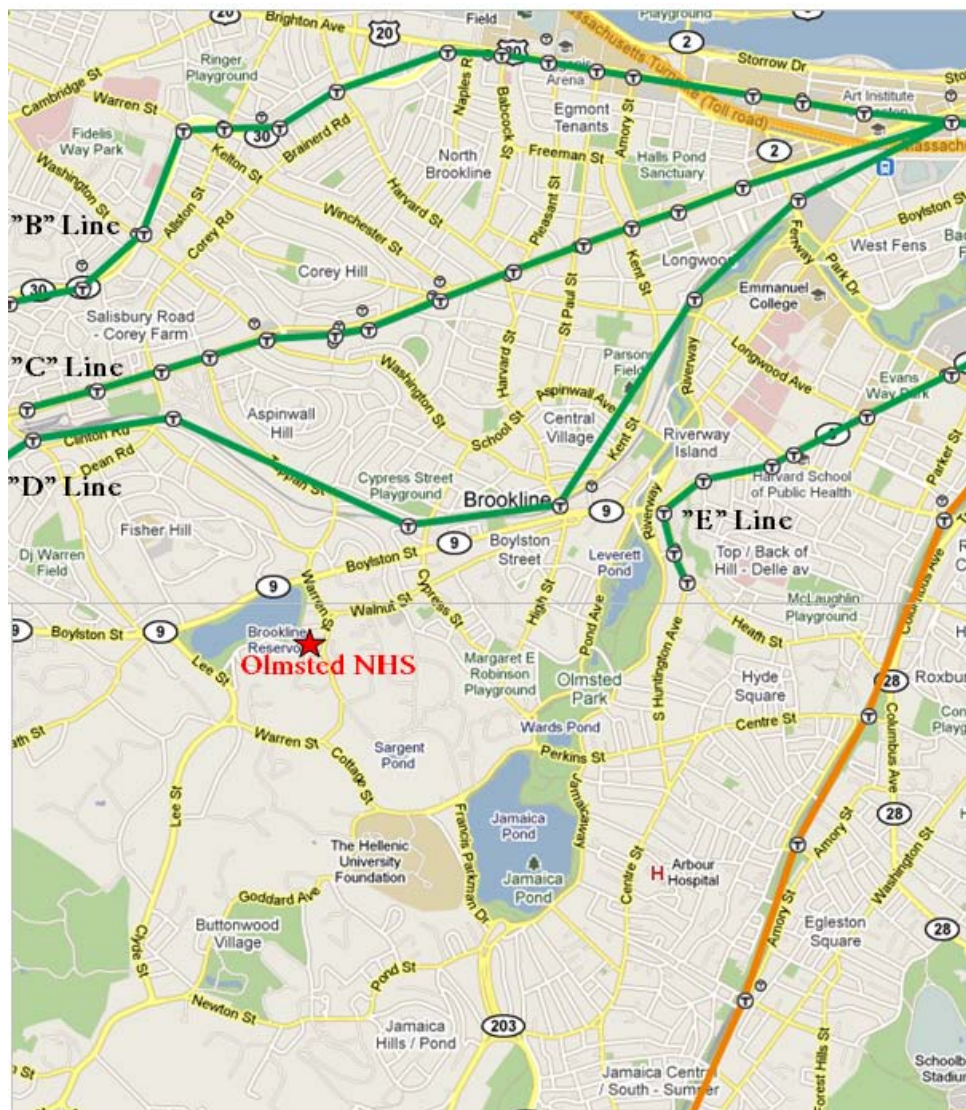
Recently, the National Park Service has received funding to engage in a strategic planning effort with the aim of revising and updating Olmsted NHS's 1983 General Management Plan (GMP). The GMP sets forth a preferred plan of action for how the site will be managed for the next twenty years. This effort has just started, with an Open House public meeting that engaged the public and solicited their ideas and concepts in September 2009. The focus of this study is to provide concepts and ideas for a complementary transportation plan in support of the revised GMP that will address issues and problems identified under existing conditions, and support adaptation to future conditions that are planned for the site.

2. Site and Regional Context

Olmsted NHS is located within the Town of Brookline, itself an historic “classic” streetcar suburb of Boston – as documented by the historian Sam Warner.^{*} Two streetcars – the Massachusetts Bay Transportation Authority (MBTA) Green line ‘C’ and ‘D’ branches – still run through the town and one streetcar (the ‘B’ branch) operates on the boundary of the town with the City of Boston, providing transit access to the eastern portion of the town. The general location and context is illustrated in Figure 2. The closest commercial district – really an urban village – is Brookline Village at the convergence of Washington, Harvard, and Boylston streets.

Figure 2
Regional Context of Olmsted NHS

Source: Google Maps modified by US DOT Volpe Center.



^{*} See S. Warner, *Streetcar Suburbs*, 1962.

What drew Olmsted to purchase the Clark estate and establish “Fairsted” as his home and office is that it represented many of the characteristics and design principles Olmsted had identified in his town and park designs (e.g., Riverside, Illinois and Central Park) – curvilinear streets (see Figure 3 and the 1863 plan for Dudley Street, Figure 4), pastoral quality of the residential neighborhood, well-laid but irregular shaped plots, and a nearby body of water (the Brookline Reservoir, originally owned and a part of the Boston Water Works). It also happened that two of his close friends – architect H. H. Richardson and Charles Sprague Sargent, Director of the Arnold Arboretum and with whom Olmsted had worked on the design of the Arboretum within the context of the plan for the Boston Park System, The Emerald Necklace – lived in the neighborhood.*

Figure 3
Local Context of Olmsted NHS

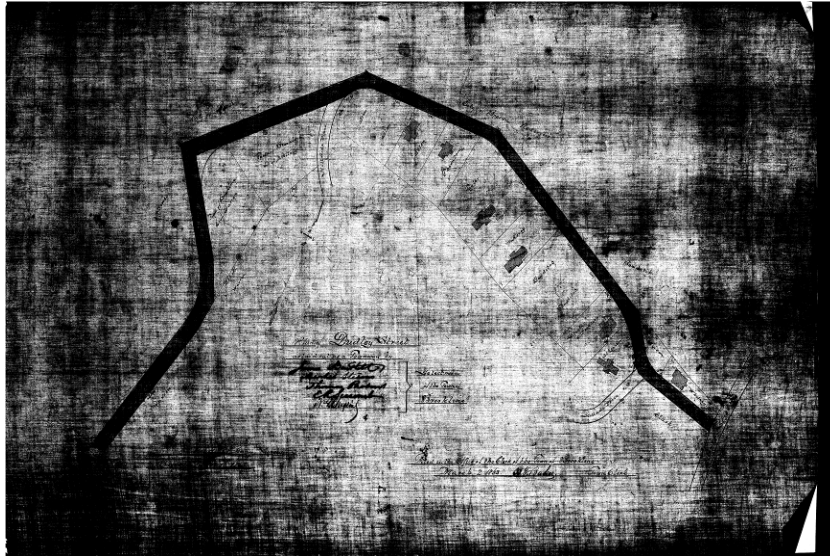
Source: National Parks of Massachusetts. http://www.nps.gov/applications/state/ma/trip_planner.cfm



* See C. Zaitzevsky, *Frederick Law Olmsted in Brookline: A Preliminary Study of his Public Projects*, Proceedings of the Brookline Historical Society, fall 1977, pp. 42-65.

Figure 4
1893 Plan for Dudley Street

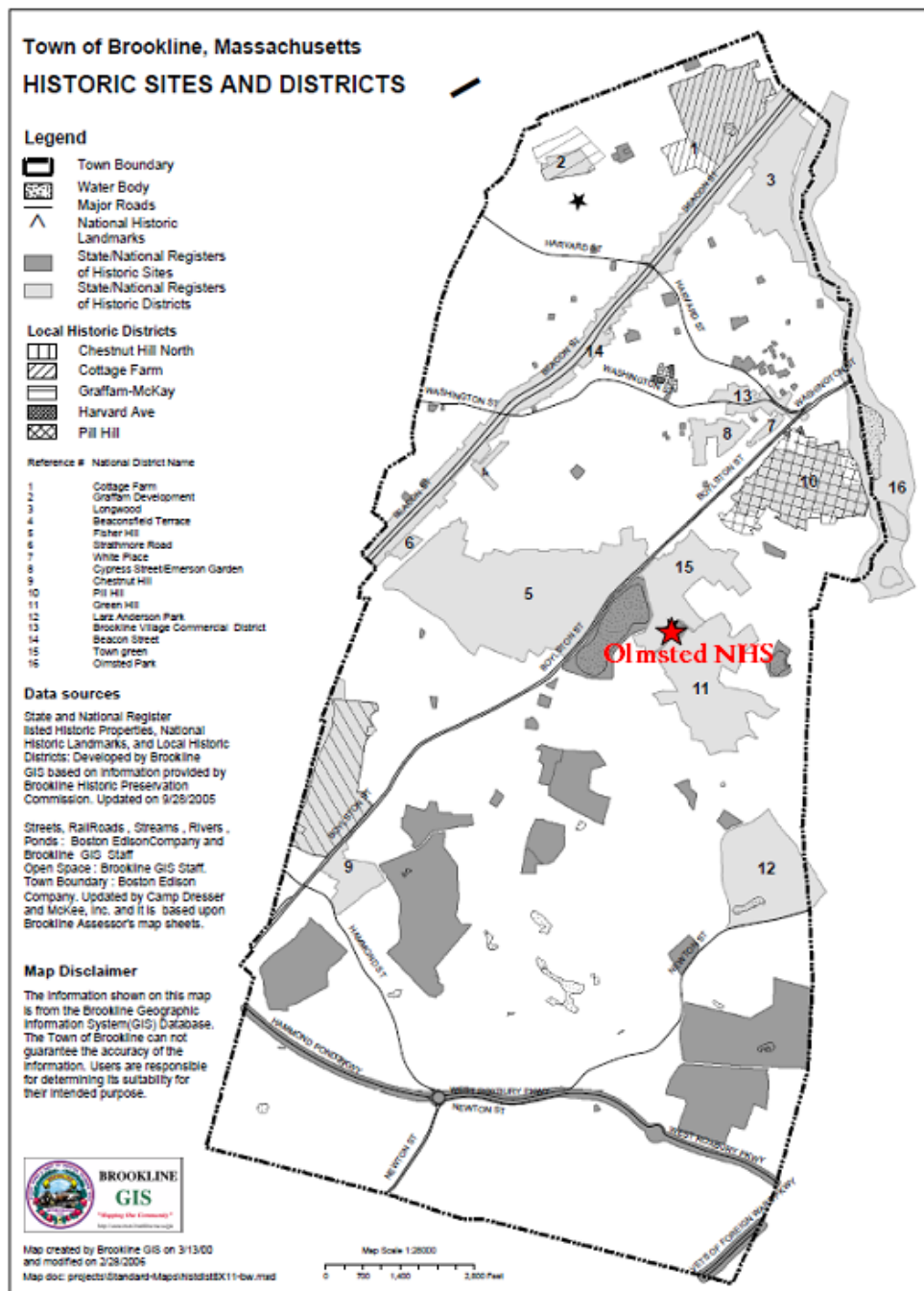
Source: Plan of Dudley Street as laid out as a town way, March 2, 1863; Town of Brookline, and Olmsted Archives, 673-28



Olmsted NHS currently resides within the Green Hill Historic District of the Town of Brookline, and is adjacent to the Town Hill Historic District (see Figure 5). It also lies a short distance on the opposite side of Boylston Street to one of the great subdivisions that Olmsted designed - Fisher Hill.*

* See C. Zaitzevsky, op. cit, pp. 49-50.

Figure 5
Town of Brookline Historic Sites and Districts
Source: Town of Brookline



3. Existing Conditions

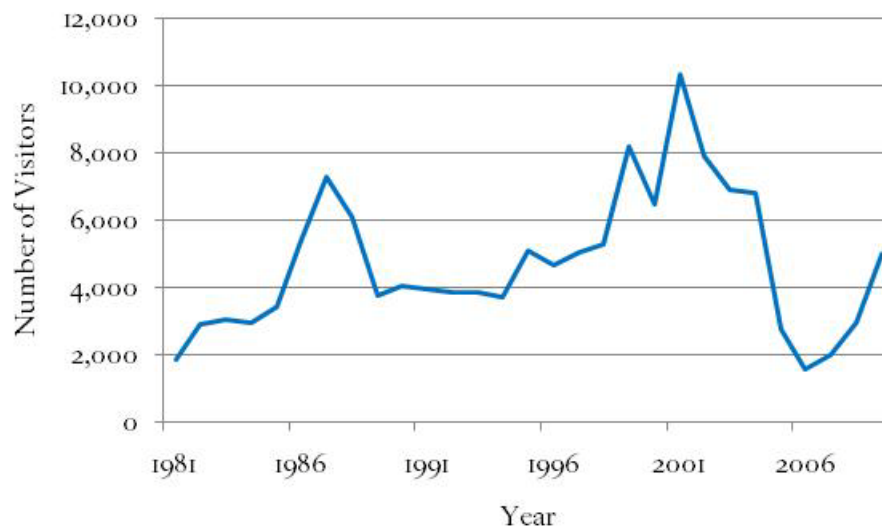
This section reviews existing conditions at Olmsted NHS, including visitation, site circulation, and access via vehicle, transit, pedestrian, bicycle, and bus group tour means, and highlights a number of issues/problems that need to be addressed in the proposed *Transportation Plan*.

a. Existing and Anticipated Visitation

Annual visitation has been at a relatively low level – averaging 4,000-10,000 per annum – since the site’s incorporation into the National Park System in 1981. Olmsted NHS has been closed to the public since 2005 to complete an extensive rehabilitation of Olmsted NHS Building Complex (along with site utility improvements) though it continues to offer walks and other programs and take research requests. This closure accounts for the precipitous drop in annual visitation illustrated in Figure 6 after 2005. The Building Complex is normally open to the public only on Friday through Sunday. So too is the provision of ranger-led tours of both the Building Complex and the landscape.

Figure 6
Yearly Recreational Visitors 1981-2009

Source: NPS Public Use Statistics



A sample of the distribution of visitors over the three days per week that the site is open to the public is illustrated in Table 1. The second week of each month in 2002, the year with the highest visitation, was selected for the sample data set. The data correspond to the peak visitation year shown in Figure 5 – 2002. The maximum per day visitation – exclusive of a special event – occurs in the May-October timeframe, and averages 30 visitors. Average duration of visit approximates two (2) hours.*

* Personal communications, Alan Banks/Chief Ranger, Olmsted NHS staff.

Table 1**2002 Visitation for Friday, Saturday, and Sunday of the 2nd Week of Each Month**

Source: A. Banks, Chief Ranger, Olmsted staff

Month	Friday	Saturday	Sunday
October	14	13	32
November	4	12	18
December	7	13	6
January	29*	6	13
February	0	6	14
March	9	23 [†]	14
April	0	22	25
May	30 [‡]	21	31
June	16	25	58 [§]
July	29**	7	8
August	15	28	22
September	8	29	30
<i>Total</i>	<i>161</i>	<i>205</i>	<i>271</i>
<i>Average</i>	<i>13.4</i>	<i>17.1</i>	<i>22.6</i>

Sample data illustrating both the number of tours of the home and office and the group size distribution for each tour are provided in Table 2. The number of tours ranges from 0 to 5 per day depending on visitor demand, with the average for Friday, Saturday and Sunday at 1.5, 3.2 and 3.0 respectively. The weighted average group size on Fridays is 2.91, with corresponding averages for Saturday and Sunday at 2.63 and 2.86 respectively. These numbers are surprisingly uniform across the three days.

Table 2**2002 Number of Tours and Group Size for Tours of Home and Office for Friday, Saturday, and Sunday of 2nd Week of Month**

Source: A. Banks, Chief Ranger, Olmsted staff

Month	Friday	Saturday	Sunday
October	2/1, 2 ^{††}	2/4, 1, 2, 1, 3	1, 1/5, 5, 3, 3/4
November	1, 2	4, 1/2, 1	3, 2, 2/2/2, 2/1/1, 1
December	0	2, 4	2, 2
January	2/1/1, 10, 10	2/2, 1, 1	3/2, 2, 2/1
February	0	2, 1, 3	2, 2, 3/4
March	3, 3, 2, 1	6, 5/3, 2	2, 2/2/2, 2
April	0	1, 2, 3/2, 3	1/4/4
May	1/6, 2/3, 1, 2	3/2/2,	3, 2/4, 6
June	1/2/2, 1, 3	6/2/2, 1, 1, 2/2/2	1/2/4/1, 1/3
July	2/2/3, 2, 4, 4, 4	15	1, 2, 2/2
August	7, 3	7, 5/2, 1, 2, 2	2, 2, 1/2/2, 4
September	6	2/2/2, 2, 2/2,	3, 1/2/13

* Includes 20 Student Program (Roger Williams College)

† Includes 6 On-site group

‡ Includes 6 Student Program

§ Includes 40 On-Site meeting (Brookline Green Space Alliance)

** Includes 15 On-site group

†† These figures mean two tours with one tour made up of a group of 2 people and 1 person (2/1) and the other one group of 2.

The average number of persons on-site at a time is approximately 20 over the 7-day week. * This number is made up of NPS staff primarily during the workweek. The number can also include contract workers and people on-site for meetings with Olmsted NHS staff, among others. During the weekend, the average number of people, including NPS staff, is about 10.

The maximum visitors on-site (VOAT) at a time is 60-65[†]. This number is what the site considers its maximum carrying capacity and is based on the comfort of visitors in inclement weather (when they would all be gathered in the first floor of the Home) as well as the parking capacity (see section 3f).

The educational program specialist[‡] has outlined current thinking as to the potential expansion of educational programs at Olmsted NHS once the rehabilitation program is complete (including the rehab of the Barn). The programming season would be March 1 – October 30 and the types of programs would include the following:

- Student groups
- Youth groups (after-school and summer camp)
- Teacher workshops/professional development
- Familiarization tours (i.e. orgs. involved in landscape education)

The programming would use the following spaces:

- Model shop
- Landscape
- Design office
- Coat/lunch storage
- Book store (except for after-school program)

The proposed schedule is summarized below in Table 3.

Table 3
Envisioned Education Program[§]

Source: Olmsted Staff (Liza Stearns, Educational Program Specialist)

Type of Group	Months	Days / week	Time of Day	# of Students	Access mode
After-school Program	March 1 – June 14	3	3:00-4:30	12	Car, van, bus, walk
	October 1-30	3	3:00-4:30	12	Car, van, bus, walk
Summer Youth Groups	July 1 - Aug. 15	4	9:30-noon	24	Car, van, bus, walk
	July 1-Aug. 15	4	1:00-3:00	24	Car, van, bus, walk
Teacher workshops	July 1- Aug. 15	4	9:30-noon	24	car, van, walk
School Programs	April 15-June 15	3	9:30-1:15	24	car, bus
	October 1-30	3	9:30-1:15	24	car, bus
Note: Groups in rows shaded gray share time slots.					
According to this schedule, 2,472 students/teachers can be served each year through on-site programming.					

* Personal communications, Alan Banks/Chief ranger, Olmsted NHS staff.

† Personal communications, Alan Banks/Chief ranger, Olmsted NHS staff.

‡ Personal communications, Liza Stearns, Educational Program Specialist, Olmsted NHS staff.

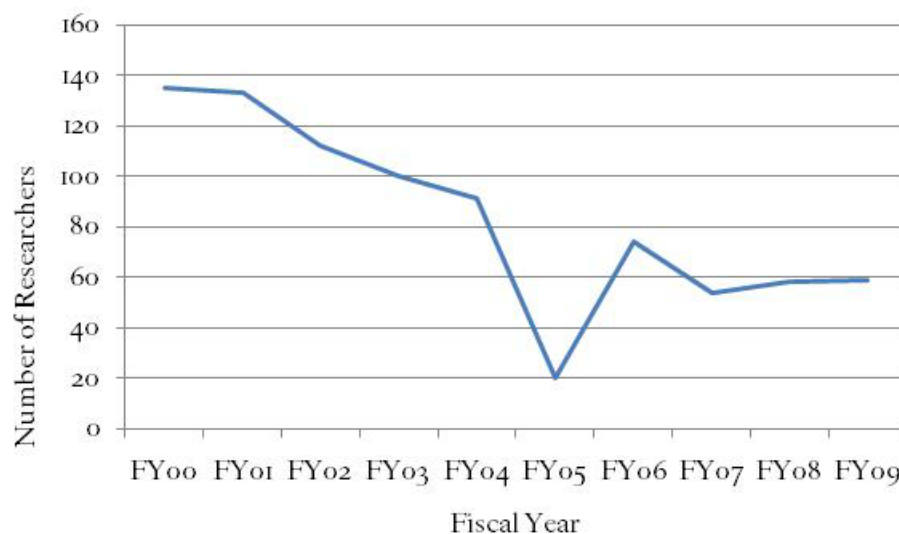
§ Cursory thoughts communicate maximum capacity. Not intended to be comprehensive – just a starting point for discussion

Three days a week (Tuesday-Thursday) are set aside for research visits with original archival material (requiring one archivist to conduct each research appointment, generally 9:30 AM-4:30 PM). If materials are NOT on-site, then the plans need to be delivered from the off-site storage facility at the Springfield Armory (SPAR)*.

Future plans once Olmsted NHS is reopened may include a reading room function for researchers to view reformatted materials and an expanded digitizing program, which would require more frequent transport of plans off-site.† Existing historical data on the number per annum of research appointments are provided below in Figure 7. Research appointments have been declining over the past decade, although the unusual drop in 2004-5 was due to the temporary closure of the Archives for relocation to South Boston, where they will remain until Olmsted NHS is reopened.

Figure 7
Number of researchers per annum

Source: J. Trebbe, Chief Archivist, Olmsted NHS staff



b. Site Circulation

The primary and desired access route is to proceed on foot under the arch at the corner of Warren and Dudley Streets into the circular driveway to the office's entrance doorway. Two unmarked parking spaces* are available for visitors with handicap-plate vehicles at the Warren Street edge of the circular driveway near to the entrance. General visitor parking, however, is along Dudley Street and/or in the back of the Building Complex adjacent to the Barn (see Section 3f), which connects to a secondary access point via the service driveway off of Dudley Street. This will bring visitors onto the grounds – which they can explore and traverse at leisure – but for access to the Home and Office, visitors need to proceed to the front entrance off of the circular driveway. NPS staffing limitations and security concerns require that all access and egress from the Building Complex (except under special events when additional staffing is provided) occur via the single Office entrance doorway, which is adjacent to the circular (formal) driveway – the point of access that was used by the Olmsted Firm clients. A mark-up of the desired pedestrian flow pattern onsite is illustrated in Figure 8, keeping in mind that NPS staff have no control of

* Personal communications, Jill Trebbe, Chief Archivist, Olmsted NHS staff

† Personal communications, Jill Trebbe, Chief Archivist, Olmsted NHS staff

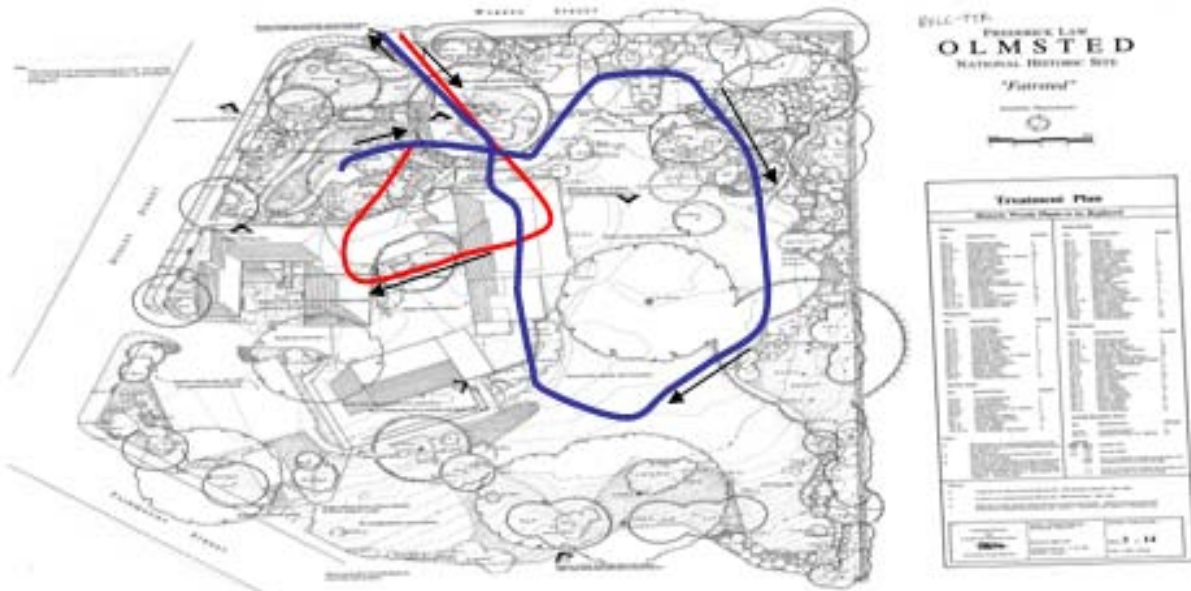
* Personal communications, Alan Banks/Chief Ranger, Olmsted NHS staff.

the sequence by which visitors tour both the Building Complex, the Barn* and the key components of the landscape (Hollow, Rocky Garden and South Lawn and Elm) except to the extent that they control the flow pattern within the Building Complex to provide both a coherent story and to secure the resources, and provide tours of the landscape to lead visitors in a desired sequence that thematically makes sense and articulates Olmstedian principles and his design intent by illustration of his own estate at 'Fairsted'.

Figure 8

Desired Pedestrian Flow Pattern: Building Complex (red) and Landscape (blue)

Source: Site Plan, Olmsted Archives, from Jill Trebbe, NPS Supervisory Archivist, Olmsted NHS staff; modified by US DOT Project Staff



Under the “Good Neighbors: Landscape Design and Community Building Program,” which is run by the National Park Service Olmsted NHS staff in conjunction with the Town of Brookline public schools, the Olmsted staff have more control on the sequence by which group tours experience the site. This is illustrated in Figure 9 and Figure 10 respectively.

* Both models and exhibits are displayed in the Barn; this program is anticipated to be greatly expanded in the future under the preferred GMP alternative.

Figure 9
School Group Tour Itinerary

Source: Liza Stearns, Educational Program Specialist, Olmsted NHS staff

**GOOD NEIGHBORS:
 LANDSCAPE DESIGN AND COMMUNITY BUILDING**

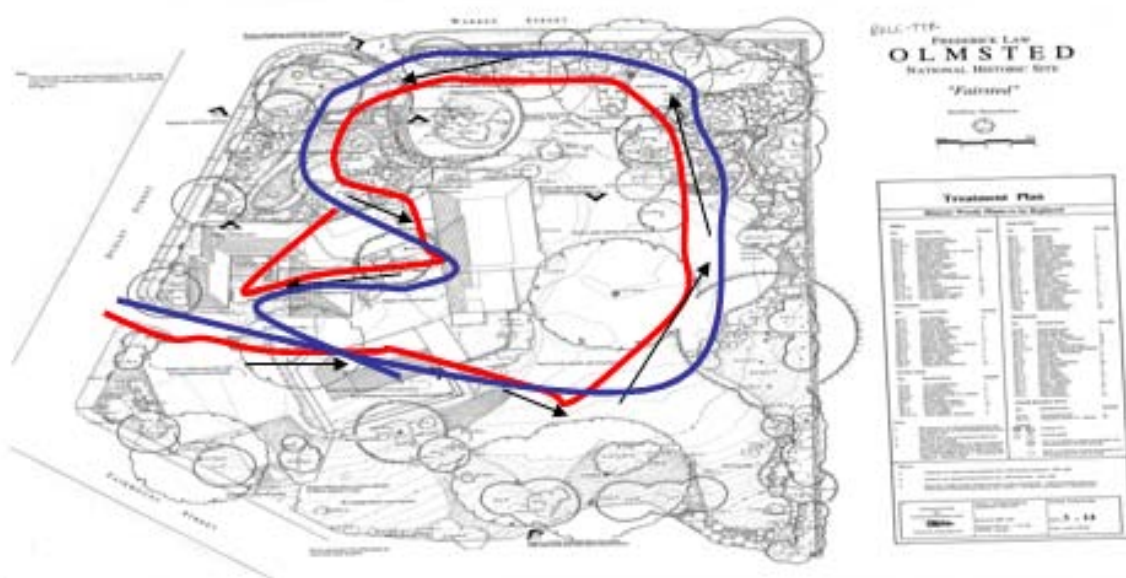
An interdisciplinary field study for 3rd grade students

FAIRSTED ITINERARY

10:00 – 10:05	Arrive and divide class into two groups (Group A & Group B)
<u>Group A</u>	
10:05 – 10:15	Welcome, store coats and lunches (rear laundry room), travel to model shop
10:15 – 11:45	Model Shop activity
11:45 – 12:15	Lunch and rest room (behind barn/model shop)
12:15 – 12:20	Travel to landscape (south lawn)
12:20 – 1:35	Landscape Exploration (south lawn, hollow, rock garden)
1:35 – 1:40	Travel to North Parlor
1:40 – 2:30	Design Office Experience
2:30 – 2:45	Program conclusion
<u>Group B</u>	
10:05 – 10:15	Welcome, store coats and lunches (rear laundry room), travel to landscape
10:15 – 11:30	Landscape exploration (south lawn, hollow, rock garden)
11:30 – 11:35	Travel to North Parlor
11:35 – 12:20	Design Office Experience
12:20 – 12:25	Travel to lunch and restroom (behind barn/model shop)
12:25 – 12:55	Lunch and restroom
12:55 – 1:00	Travel to Model Shop
1:00 – 2:30	Model Shop activity
2:30 – 2:45	Conclusion (rear of barn, the exit to circular drive via south lawn)

Figure 10
School Group Tour Desired Pedestrian Flow Pattern: Group A (red) and Group B (blue)

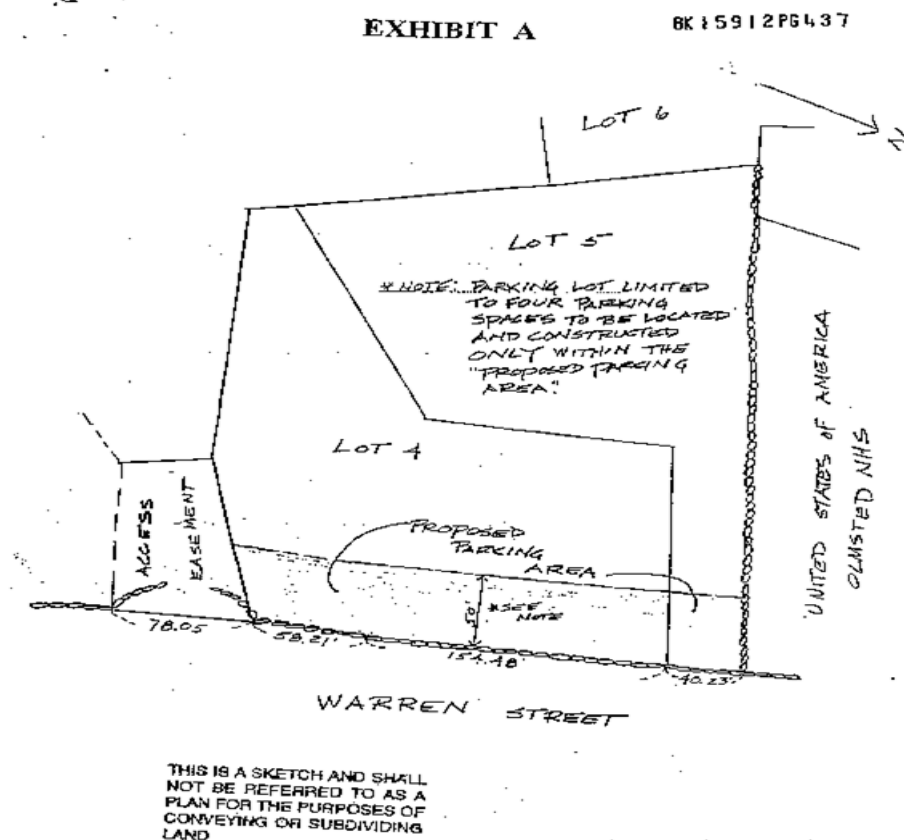
Source: Site Plan, Olmsted Archives, Jill Trebbe, NPS Supervisory Archivist, NPS Staff; modified by US DOT Project Staff



The NPS has recently acquired a large ~5 acre parcel adjacent to but south of the existing site boundary from the Gardner Estate (see Figure 11). This land will primarily be used to preclude additional undesirable development and preserve the views that Olmsted had across his estate during his tenure. However, the title deed could permit a small cutout off of Warren Street to accommodate a small (up to 4 spaces) paved parking lot that could be used for long-term parking for NPS staff and possibly in support of parking for researchers who come to the Olmsted Archives (although the deed restriction exclusively refers to ‘staff vehicles’).^{*} The NPS has not yet determined the intended use of the land. If parking is considered as a use, it is recommended that the NPS determine how best to provide a safe and efficient pedestrian path that is well demarcated in order to preclude the possible creation of social trails across the expanded landscape in order to reach the Building Complex.

Figure 11
Plan of Acquired Land and Parking Allowance

Source: Olmsted NHS staff



c. Visitor Vehicular Access

Primary vehicular access to Olmsted NHS is via Boylston Street (Route 9) and the signalized intersection with Warren Street. Olmsted NHS is at the junction of Warren Street and Dudley Street. Boylston Street (Route 9) is a major east/west arterial road that connects to Boston at Kenmore Square and to the regional

^{*} Personal communications, Lee Farrow Cook, site manager, NPS Staff; Memorandum LI425 (NER/LRPC), FRLA 101-02 & 101-03, and Title Deed Book 15912 Page 433 recorded at Norfolk Registry of Deeds, Commonwealth of Massachusetts, September 13, 2001.

highway system at Exit 20 on I-95 (Route 128). Out-of-state visitors arriving via the regional highway system would take Boylston Street (Route 9) eastbound. Local residents familiar with the street network could also take Walnut Street, which runs parallel to Boylston Street and intersects with Warren Street..

d. Regional Transit Connections

Olmsted NHS is NOT directly served by transit service. However, one bus route and two transit stations of the Massachusetts Bay Transportation Authority (MBTA) are within one-mile walking distances of the site.

MBTA Bus Route 60 – operating between Kenmore Station in Boston and Chestnut Hill in Newton – operates along Boylston Street with the closest stop to Olmsted NHS at the intersection with Warren Street, 0.3 miles to the north. The routing and the schedule are presented in Figure 12 and Figure 13 below.

Figure 12
Route 60 Map

Source: <http://mbta.com>

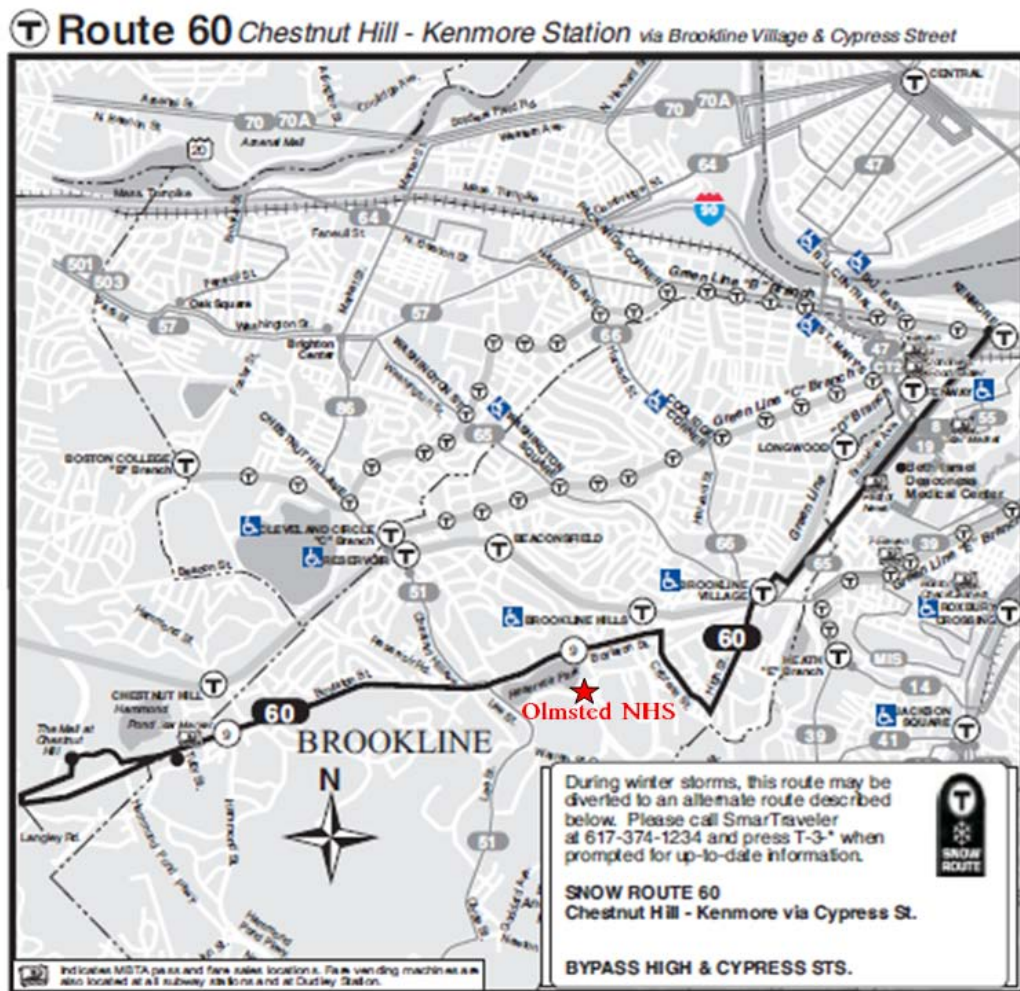


Figure 13
Route 60 Schedule
Source: <http://mbta.com>

60 WEEKDAY								60 SATURDAY								60 SUNDAY							
INBOUND				OUTBOUND				INBOUND				OUTBOUND				INBOUND				OUTBOUND			
Leave Mall at Chestnut Hill	Arrive Baylitten at Tully	Arrive Brookline Village	Arrive Kenmore Station	Leave Kenmore Station	Arrive Brookline Village	Arrive Chestnut Hill	Arrive Baylitten at Tully	Leave Mall at Chestnut Hill	Arrive Brookline Village	Arrive Kenmore Station	Leave Kenmore Station	Arrive Brookline Village	Arrive Mall at Chestnut Hill	Leave Mall at Chestnut Hill	Arrive Brookline Village	Arrive Kenmore Station	Leave Kenmore Station	Arrive Brookline Village	Arrive Mall at Chestnut Hill				
.....	5:12A	5:17A	5:28A	.....	4:55A	5:07A	5:10A	5:00A	5:14A	5:21A	.....	4:45A	5:00A	6:30A	6:44A	6:51A	6:00A	6:07A	6:25A		
.....	6:00	6:09	6:23	5:30A	5:34	5:49	5:56	6:00	6:14	6:21	5:30A	5:37	5:55	7:30	7:44	7:51	7:00	7:07	7:25				
.....	6:30	6:39	6:53	6:00	6:04	6:19	6:26	7:00	7:14	7:21	6:30	6:37	6:55	8:30	8:46	8:55	8:00	8:07	8:25				
.....	6:58	7:11	7:31	6:27	6:31	6:46	6:53	7:30	7:44	7:51	7:00	7:07	7:25	9:30	9:46	9:55	9:00	9:09	9:27				
.....	7:22	7:35	7:55	6:43	6:47	7:03	7:17	8:00	8:14	8:21	7:30	7:37	7:55	10:30	10:46	10:55	10:00	10:09	10:27				
.....	7:49	8:02	8:22	7:06	7:12	7:30	7:44	8:30	8:44	8:51	8:00	8:07	8:25	11:30	11:46	11:55	11:00	11:09	11:27				
.....	8:17	8:30	8:50	7:34	7:40	7:58	8:12	9:00	9:16	9:26	8:30	8:37	8:55	.....	.....	.....	.....	.....	.....
.....	8:41	8:54	9:12	7:58	8:04	8:22	8:36	9:35	9:51	10:01	9:00	9:07	9:25	.....	.....	.....	.....	.....	.....
.....	9:06	9:15	9:34	8:25	8:31	8:49	9:02	10:10	10:26	10:36	9:35	9:46	10:06	.....	.....	.....	.....	.....	.....
.....	9:40	9:49	10:08	8:53	8:59	9:16	9:26	10:45	11:01	11:11	10:10	10:21	10:41	.....	.....	.....	.....	.....	.....
.....	10:15	10:24	10:43	9:16	9:23	9:40	9:50	11:20	11:36	11:46	10:45	10:56	11:16	.....	.....	.....	.....	.....	.....
.....	10:50	10:59	11:18	9:38	9:45	10:02	10:12	11:55	12:11P	12:21P	11:20	11:31	11:51	.....	.....	.....	.....	.....	.....
.....	11:25	11:34	11:53	10:12	10:19	10:36	10:46	.....	.....	.....	11:55	12:07P	12:27P	.....	.....	.....	.....	.....	.....
.....	12:00N	12:09P	12:28P	10:48	10:55	11:12	11:22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	12:35P	12:44	1:04	11:22	11:29	11:46	11:56	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	11:58	12:05P	12:22P	12:32P	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1:10P	1:12P	1:24P	1:44P	12:35P	12:42P	1:02P	.....	12:30P	12:46P	12:56P	12:30P	12:49P	1:09P	12:40P	12:56P	1:05P	12:00N	12:10P	12:29P			
1:43	1:45	1:57	2:17	1:06	1:14	1:37	.....	1:05	1:25	1:36	1:05	1:19	1:36	1:50	2:08	2:17	1:10P	1:20	1:39			
2:10	2:12	2:24	2:44	1:35	1:43	2:06	.....	1:45	2:05	2:16	1:45	1:58	2:16	3:00	3:18	3:27	2:20	2:30	2:49			
2:40	2:42	2:54	3:14	2:05	2:13	2:36	.....	2:25	2:45	2:56	2:25	2:38	2:56	4:10	4:28	4:37	3:30	3:40	3:59			
3:10	3:12	3:24	3:44	2:35	2:43	3:06	.....	3:05	3:25	3:36	3:05	3:18	3:36	5:20	5:38	5:47	4:40	4:50	5:09			
3:45	3:47	3:59	4:19	3:05	3:13	3:36	.....	3:45	4:05	4:16	3:45	3:58	4:16	6:30	6:45	6:53	5:50	5:58	6:17			
4:20	4:22	4:34	4:54	3:35	3:44	4:13	.....	4:25	4:45	4:56	4:25	4:38	4:56	7:30	7:45	7:53	7:00	7:08	7:27			
4:45	4:47	4:59	5:18	4:00	4:09	4:38	.....	5:05	5:25	5:36	5:05	5:18	5:36	8:30	8:45	8:53	8:00	8:07	8:26			
5:14	5:17	5:31	5:50	4:30	4:39	5:08	.....	5:45	6:04	6:12	5:45	5:53	6:13	9:30	9:45	9:53	9:00	9:07	9:26			
5:41	5:44	5:58	6:17	5:00	5:09	5:38	.....	6:25	6:41	6:49	6:25	6:39	6:53	.....	.....	.....	.....	.....	.....
6:08	6:11	6:25	6:44	5:25	5:34	6:03	.....	7:00	7:16	7:24	7:00	7:08	7:28	.....	.....	.....	.....	.....	.....
6:35	6:38	6:52	7:06	5:55	6:04	6:32	.....	7:30	7:46	7:54	7:30	7:38	7:58	.....	.....	.....	.....	.....	.....
6:59	7:00	7:10	7:22	6:22	6:30	6:50	.....	8:00	8:15	8:23	8:00	8:07	8:26	.....	.....	.....	.....	.....	.....
7:19	7:20	7:30	7:42	6:50	6:55	7:15	.....	8:30	8:45	8:53	8:30	8:37	8:56	.....	.....	.....	.....	.....	.....
7:45	7:46	7:56	8:08	7:15	7:20	7:40	.....	9:00	9:15	9:23	9:00	9:07	9:26	.....	.....	.....	.....	.....	.....
8:15	8:16	8:26	8:38	7:45	7:50	8:10	.....	10:00	10:14	10:21	10:30	10:37	10:55	.....	.....	.....	.....	.....	.....
8:45	8:46	8:56	9:08	8:15	8:20	8:39	.....	11:00	11:14	11:21	11:30	11:37	11:55	.....	.....	.....	.....	.....	.....
9:15	9:16	9:26	9:38	8:45	8:50	9:07	.....	12:00M	12:14A	12:21A	12:25A	12:32A	12:50A	.....	.....	.....	.....	.....	.....
10:15	10:16	10:26	10:38	9:45	9:50	10:07	.....	12:50A	1:04	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
11:15	11:16	11:26	11:38	10:45	10:50	11:07	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12:05A	.....	12:21A	.....	11:40	11:45	12:02A	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

ALL BUSES ON THIS ROUTE ARE WHEELCHAIR ACCESSIBLE

Route 60
Chestnut Hill - Kenmore Station
via Brookline Village & Cypress St.

FARES			
Payment Method...	1-Bus trip	2-Bus trip	Bus + subway trip
CharlieCard	\$1.25	\$1.25	\$1.70
CharlieTicket	\$1.50	\$1.50	\$3.50
Cash onboard	\$1.50	\$3.00	\$3.50
T Pupil Badge*	80¢	60¢	85¢
Senior/TAP card**	40¢	40¢	60¢

Children 11 and under ride free when accompanied by an adult.
Blind persons ride free with MBTA Blind Access card or Mass. Comm. for the Blind ID card.

VALID PASSES: Local Bus Pass (\$40mo.); LinePass (\$50mo.); Student Pass* (\$20mo.); Senior/TAP Pass** (\$20mo.); and express bus, zoned, interzoned, and bus passes.

* Available to students through participating middle schools and high schools.
** Available to Medicare cardholders, seniors 65+ and persons with disabilities.

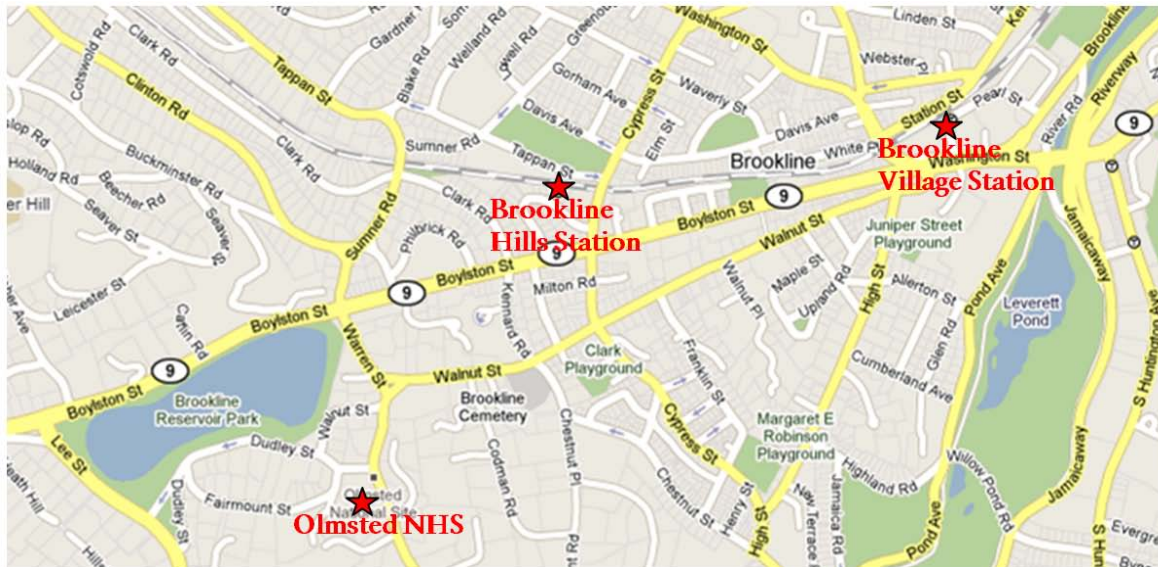
Fall 2009 Holidays
Oct. 12: See Sat. Sept. 7, Nov. 28, Dec. 25: See Sun. Nov. 11: See Wkdy.

As Figure 2 above and Figure 14 below indicate, the MBTA Green 'D' line runs through Brookline north of Olmsted NHS, with two stations – Brookline Village and Brookline Hills – within a 1.1 mile proximity and 0.7-mile walking distance. Daily boarding counts for both directions at Brookline Village and Brookline Hills stations respectively in 2009 were 3,512 and 1,654 passengers*. As detailed in the next sections, both pedestrian and bicycle access from these stations are problematic under current conditions.

* Source: MBTA Blue Book, 2009.

Figure 14
Proximity of Olmsted NHS to MBTA Green Line Stations

Source: Google Maps, modified by U.S. DOT/Volpe Center project staff.



e. Pedestrian Issues

Except for the immediate local neighborhood, pedestrian access is generally the ‘last link’ in a vehicular trip for visitors who park curbside on Dudley Street. Warren Street has both narrow and often discontinuous sidewalks (see Figure 15 and Figure 16). There are also few marked crosswalks (the nearest is adjacent to the boundary of the 1st parish church, approximately opposite to and providing access to Walnut Street), and none in the vicinity of Olmsted NHS.

Figure 15

Warren Street at Walnut Street

Source: Google Map Streetview™, modified by US DOT Project Staff



Figure 16

Dudley Street

Source: Google Map Streetview™, modified by US DOT Project Staff



South of the junction of Warren Street with Dudley Street – along the spruce-pole fenced and walled border of Olmsted NHS – there are no sidewalks along Warren Street (see Figure 17). This is now problematic and of greater urgency since NPS has now acquired the Gardner Estate lots, which allow by deed a limited (up to 4 spaces) surface parking facility along the Warren Street frontage for staff and/or researchers requiring all-day stays.* The natural and best resource-protecting pedestrian access from this location back to the Building Complex is along this frontage (with proper signage). The park has two less desirable options. If such a parking lot is built, the park could develop a new formal pedestrian path interior to the landscape. Alternatively, the park could anticipate the creation of a social trail along the desired line for pedestrian access, also across the interior of the expanded landscape of the site. This is apt to both impair the landscape and require continuous site maintenance.

Figure 17

Warren Street – Looking north to Boylston Street / Looking south and intersection with Dudley Street

Source: U.S. DOT/Volpe Center photographs (Fall 2009)



As mentioned earlier, pedestrian access to Olmsted NHS from the nearest MBTA stations is quite problematic and difficult. Only the northern edge of Boylston Street has a sidewalk, and the sidewalk is not protected by a physical buffer (e.g., parking) against the high-volume, high-speed adjacent traffic. Signal timing at the junctions of Boylston Street with Cypress Street, Chestnut Hill Avenue and Warren Street is not conducive to frequent and safe pedestrian crossing.

On Dudley Street, there is a discontinuity in the sidewalk on the southern edge (see Figure 16). The sidewalk runs from the junction with Lee Street to Fairmount Street (1st entry point). At that point, pedestrians must cross over to the other side (with no marked crosswalk or advanced warning signage compliant with the Federal Highway Administration’s Manual on Uniform Traffic Control Devices (MUTCD)) to continue their walk to Olmsted NHS (eventually requiring a second crossing to the southern edge). This includes visitors who have parked at the western end of Dudley Street near the junction with Lee street (adjacent to the triangular ‘Green’), as well as visitors who reside in South Brookline and arrive at this end of Dudley Street by foot.

f. Bicycle Access

The major north-south roads that provide access to at least within the proximity of Olmsted NHS and that accommodate bicycles to some degree are Chestnut Hill Avenue and Cypress Street. As mentioned under *Pedestrian Issues* (Section 3e), the crossing of Boylston Street at Chestnut Hill Avenue is both

* Personal communications, Jim O’Connell/NPS; deed # provided by Olmsted staff.

complex and intimidating, and not particularly pedestrian and bicycle friendly. At Cypress Street, there is no provision for bicycle accommodation going westbound on Boylston Street to the junction with Sumner Road and Warren Street. This of course affects access by bicycle from the Brookline Hill MBTA station. Eastbound on Boylston Street (between Chestnut Hill Avenue and Warren Street), an experienced bicyclist could ride in a continuous shoulder lane adjacent to the Brookline Reservoir.

The most direct bicycle route from the Brookline Village MBTA station would also involve travel along the westbound segment of Boylston Street to the junction with Sumner Road and Warren Street, which as mentioned, is problematic. Because of the one-way traffic pattern at the Brookline Village MBTA station, bicyclists would have to turn east on Station Street, then make a sharp U-turn onto Kent Street to Washington Street which would then bring bicyclists to Boylston Street. An alternative route would be to take Davis Avenue, at its junction with Washington Street, to Greenough Street (near Brookline High School) to Sumner Road to the junction with Boylston and Warren Streets. However, while the traffic stress would be reduced since the roads are generally low-volume, low-speed neighborhood roads, the indirectness of the route and the steep grades are likely to deter most bicyclists.*

Bicycle parking, which is an essential element to encourage bicycle access to desired destinations, is provided to some extent at both the Brookline Village and Brookline Hills MBTA stations,[†] but is not provided at Olmsted NHS.

The *Brookline Bicycle Plan*[‡] envisions a contra-flow bicycle lane on Dudley Street (for access to the Brookline Reservoir, Olmsted NHS and connection to Warren Street). However, it is not clear how the bicycle lane (which would have to be situated on the southern edge because parking is curbside on the northern edge) would be protected from on-coming cars, or excessive speeds of vehicles down Dudley Street.

The Brookline ‘*Green Routes*’ *Network Plan*[§] envisions a number of improvement projects over the next five (5) years that could improve bicycle access. These are summarized in Table 4 below.

* Routing checked via Google Streetview™.

† According to the MBTA website, Brookline Village has 15 bicycle spaces (http://www.mbt.com/schedules_and_maps/subway/lines/stations/?stopId=15614&lat=42.332002&lng=-71.118129) and Brookline Hill has 6 (http://www.mbt.com/schedules_and_maps/subway/lines/stations/?stopId=15679&lat=42.331133&lng=-71.127031)

‡ Brookline Bicycle Advisory Committee, ‘*Green Routes*’ *Network Plan: A Bicycle Network Master Plan*, Draft, November 10, 2008.

§ Brookline Bicycle Advisory Committee, ‘*Green Routes*’ *Network Plan: A Bicycle Network Master Plan*, Draft, November 10, 2008.

Table 4
Bicycle Improvement Projects for Brookline

Source: Dr. Peter Furth, *Green Routes network Plan: A Bicycle Network Master Plan*, Brookline Bicycle Advisory Committee, DRAFT, November 10, 2008.

Target Year	Project	Summary	Total Cost (\$)	Local Budget Impact	Opportunities and Obstacles
2009	Cypress Street bike lanes	<ul style="list-style-type: none"> ▪ Bike lanes from Washington Street to Riverdale Circle, including short sections of High and Chestnut ▪ Bike priority lanes in narrower sections north of Rt. 9 	30,000	30,000	Lose 5 metered spaces near the D-line bridge, plus a few more south of Rt.9. Potential funding: Community development Block grant
2014	Lee/Clyde greenway	<ul style="list-style-type: none"> ▪ Road diet to 1 lane per direction ▪ Greenway/service road on east side 	3,000,000	300,000	Major planning effort to make this a 'green street'
2015	Rt. 9 crossing at Chestnut Hill Avenue	<ul style="list-style-type: none"> ▪ Crossing improvements to connect Chestnut Hill Avenue, Heath Street and Lee Street 	40,000	40,000	Also a pedestrian safety improvement
2015	Brookline Reservoir area bike lanes and paths	<ul style="list-style-type: none"> ▪ Bike path along reservoir park from Heath & Lee to Dudley Street & Dudley Way ▪ Contra-flow bike lane on Dudley Street fronting Reservoir ▪ Sidewalk level bike path along Dudley Street near Warren Street ▪ Bike priority lanes on Warren street ▪ Contra flow lane on Cottage street 	70,000	70,000	Affects Reservoir Park

g. Parking: On-site

Parking is limited on-site. At the Warren Street edge of the circular driveway leading to the Building Complex, an offset space is available for three (3) parking spaces (see Figure 18). As mentioned previously, two of these spaces, although unmarked, are used for handicap-accessible spaces for visitors, while the third is used for maintenance, park operations and contract service vehicles that need to be in this location. At the rear of the Building Complex, accessed by a driveway off of Dudley Street, is a fenced, unsurfaced parking lot of approximately 12 spaces (see Figure 19). These spaces are available to visitors and researchers. These spaces are particularly important to researchers since the two-hour parking duration limit that applies to public curbside parking (e.g., on Dudley Street) does not apply.

Figure 18
On-site Offset Circular Driveway Parking

Source: US DOT/Volpe Center staff (Fall 2009)

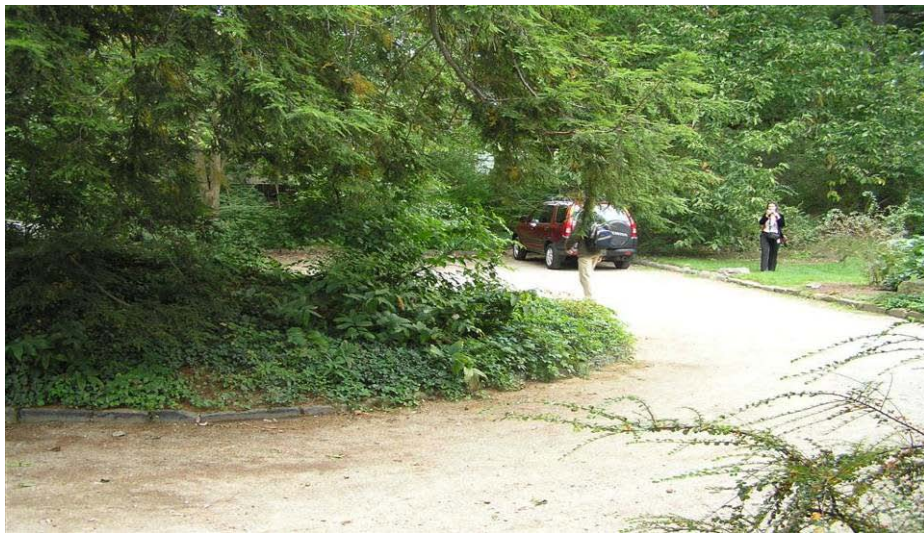


Figure 19
On-site employee parking in the rear (current)

Source: US DOT/Volpe Center staff (Fall 2009)



Historically, the rear surface lot was used by employees of the Olmsted Brothers Firm (see Figure 20). Clients of the firm would arrive via the formal driveway off of Warren Street*. Unless they arrived via taxi,

* Personal communications from J. Trebbe, Chief Archivist Olmsted staff, based on reviewing information in both the Historic Furnishings Report and the Historic Structures Report. Both seem to indicate that, in the early years of the firm (and even after the

they would have probably have parked within the circular driveway adjacent to the Office entry where they likely would have been met by one of the Olmsted brothers. The current offset parking area off of the circular driveway did NOT exist circa 1930.*

Figure 20
On-site employee parking in rear (historical)

Source: Olmsted Archives



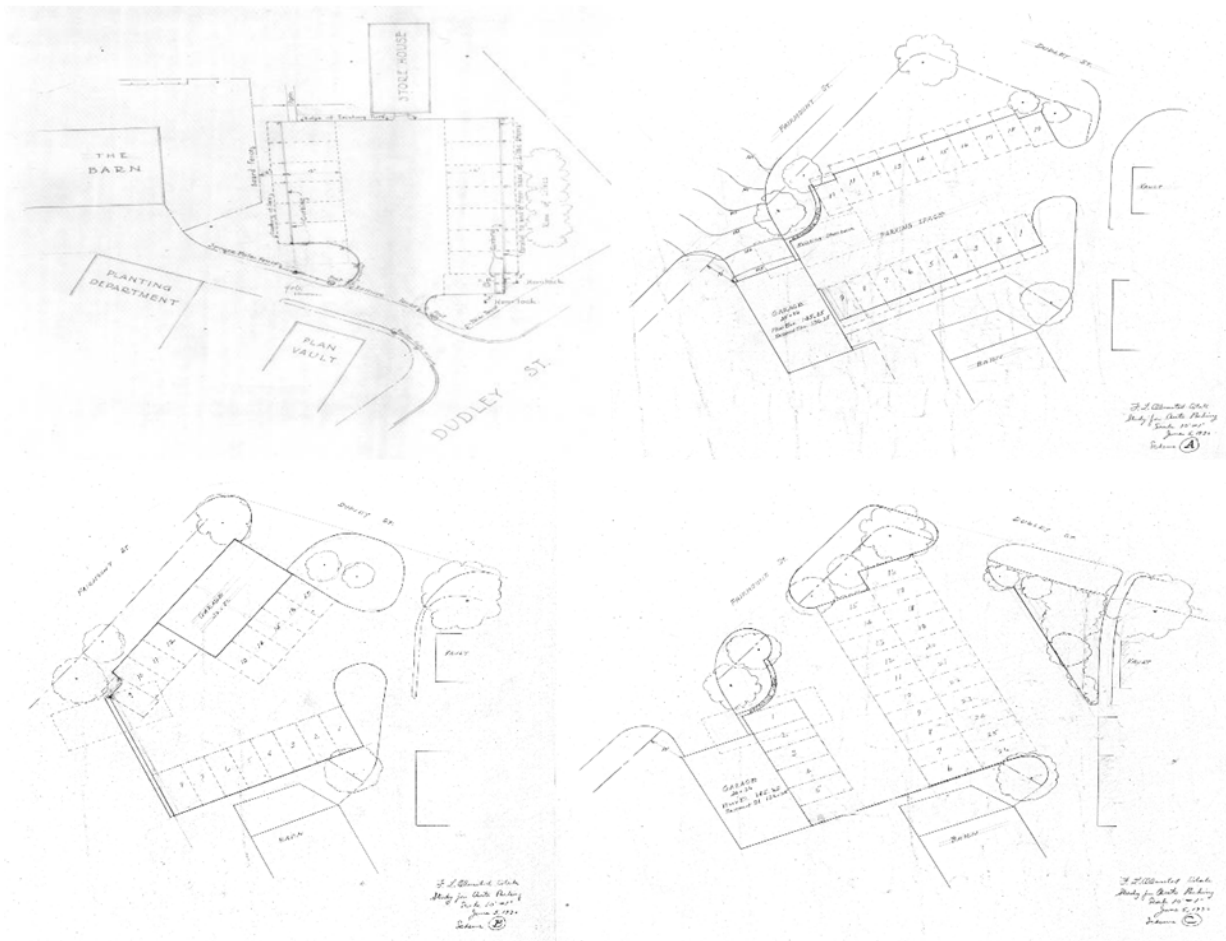
As the firm prospered and grew in the late 1920s and early 1930s, a series of studies and sketches were undertaken to change both the configuration and size of the rear lot to accommodate more vehicles (the problem of parking has a long, historic root![†]). These are illustrated in Figure 21 below. The last concept (lower right) would have expanded the rear lot to accommodate up to 26 vehicles, but would also have necessitated a second access point or driveway off of Fairmount Street because of the double stacked row of parking. None of these concepts or ideas was ever implemented.

office wing addition), the front circle would have been where guests entered the building. There seems to be some changes between use of the door at the front central hall and use of the front entry (current visitor desk area) as the firm grew and expanded.

* See L. Meier, Cultural landscape Report for the Frederick Law Olmsted National Historic Site: Volume 2 Existing Conditions, Analysis, and Treatment, 1994, p.45.

† See, also C. Zaitzevsky, Fairsted A Cultural Landscape report for the Frederick law Olmsted National Historic Site, Volume 1 Site History.

Figure 21
Sketches of Configuration and Size of Rear Parking Lot
 Source: Olmsted Archives



h. Parking: Off-site

Visitor parking is curbside along Dudley Street, primarily along the northern edge adjacent to the Brookline Reservoir with the exception of the segment along the southern edge adjacent to Olmsted NHS near the junction with Warren Street. The western end of Dudley Street splits into Dudley Way – adjacent to the triangular Green – and this curbside area is also available for parking. Curbside parking with a two-hour limit is allowed along either Warren Street or Walnut Street, the streets adjacent to and proximate to Olmsted NHS.^{*} Fairmount Street is a private way, unavailable for public parking.

Staff generally attempts to use the curbside parking along Dudley Street at the mid to western end of the street. To date, they have not had problems with the Town of Brookline two-hour parking limit, although it is a concern.

^{*} Personal communication with Peter Ditto, Director Public Works and Engineering Division, Town of Brookline. September 27, 2010.

Table 5 below presents the range in the number of staff vehicles requiring parking per day based on an alternative work schedule in place to minimize the number of staff vehicles drawn to the site each day competing for scarce curbside space.

Table 5
Number of Staff Vehicles Requiring Parking by Day of Week

Source: Summary of data provided by Alan Banks, Chief Ranger, Olmsted NHS.

Day of Week	Number of Cars*
Monday	11-19
Tuesday	11-14
Wednesday	11-17
Thursday	13-19
Friday	9-16
Saturday	3-7
Sunday	3-7

The Brookline Reservoir is a regional park – drawing its visitors far beyond the immediate neighborhood or even the Town of Brookline – and is the major competing generator for parking demand. This is particularly the case during summer, weekend days – coincident with the peak visitor days for Olmsted NHS. Visitors with vehicles compete in an ad hoc way for curbside parking during these peak days. The problems are especially acute – with a potential scarcity of parking for Olmsted visitors – when there is a special event at Olmsted NHS.

i. Signage

Local signage to Olmsted NHS within the Town of Brookline is quite limited, and fails to provide effective wayfinding guidance to visitors not familiar with the local road system. For motorists, the only signage is on Boylston Street traveling westbound from Boston and Brookline Village at ~ 450 feet east of the junction with Warren Street. The sign is attached to a light standard in the median of Boylston Street (see Figure 22). There is similar signage for motorists traveling eastbound on Boylston Street off of the regional highway network. However, there is no wayfinding signage on the regional highway system, particularly at the critical intersection of I-95 (Route 128) and Boylston Street (Route 9) eastbound (Exit 20A off of I-95/128). The only additional local signage is on Warren Street, directing visitors on foot or by vehicle to Olmsted NHS at the junction of Warren with Dudley Street. A complication with wayfinding signage is providing the appropriate content while still maintaining legibility by motorists. While the grounds are open seven days a week, the Building Complex is open to visitors only Friday through Sunday.

* Data reflects existing conditions based on Alternative Work Schedule (AWS); Variation in number of cars is based on expectations for future conditions pending certain management decisions, including the need of Archives staff to use a GSA vehicle on a regular basis for the transport of plans between off-site facility storage and Olmsted NHS, and the vehicle needs resulting from the joint administration of the three sites (Longfellow NHS, John F. Kennedy NHS, and Olmsted NHS) at Olmsted NHS and from maintenance requirements, and on an unknown number of vehicles from volunteers and interns..

Figure 22
Signage at Warren and Boylston

Source: Google Maps Streetview™



Design, placement and signage needs at the pedestrian scale and at the vehicular scale are quite different. At both Brookline Village and at the Brookline Reservoir, where there are large numbers of pedestrians, an information map kiosk or graphic could be quite useful in (a) educating the public about the significance of Olmsted NHS; (b) orienting the public as to the proximity of Olmsted NHS to their current location; and (c) indicating a safe pedestrian path to get there. The Town of Brookline is in the process of developing a wayfinding study to enhance access to destinations in and around Brookline Village and accelerate economic and tourist development of the area.* This planning process is an ideal vehicle for Olmsted NHS staff and NPS to engage with the Town of Brookline to develop such a concept – including compatible and consistent design elements and acceptable placement locations. Section 5, *Transportation Plan*, develops a wayfinding concept for the Brookline Reservoir.

j. Bus Group Tours

Olmsted NHS is visited by several bus group tours, both of school groups and other groups, such as garden clubs, Elderhostel groups, and others, throughout the year. An estimate of the number of non-school bus tours per annum is on the order of 12.† These tend to peak in May and October. Data from the last year prior to the building restoration indicate 4 and 3 tours respectively for these peak months.‡

* Personal communications with Jeff Levine, Town Planner and Marge Amster, Commercial Area Coordinator and project manager for the study.

† Personal Communications, Alan Banks, Chief Ranger, Olmsted NHS.

‡ Personal Communications, Alan Banks, Chief Ranger, Olmsted NHS.

Any buses that arrive at the site do so by advanced reservation and have a maximum group size of 45 people. In some cases, a larger group may wish to have two buses that arrive separately, with one having to leave before the next can arrive. This restriction is due to the carrying capacity limit (~65 persons) within the Building Complex.

All buses are directed to off-site parking. Traditionally, this has meant one of the larger parking lots adjacent to the shopping areas on Boylston Street (Route 9). These are located approximately one mile west of Olmsted NHS. This is done more for the convenience of the neighbors than any lack of parking along Dudley Street. One issue of concern is that all buses that park along the south side of Dudley Street must have their passengers disembark on to the street due to the bus design (doors on the opposing side of the driver). Site observations have confirmed that due to an excessively large turn radius, some vehicles turn from Warren Street down Dudley Street at speeds that can place disembarking passengers at great risk. The safe stopping distance (SSD) for these vehicles would exceed the zone of disembarkation.

k. Olmsted NHS Vehicular Operations

The maintenance facility for Olmsted NHS is in Brighton, MA. This necessitates the transport of both staff and maintenance vehicles to the site, necessitating use of on-site parking for long duration. A portion of the Olmsted Archive materials (e.g., original plans) are housed off-site in the Springfield, MA Armory, a 1.5-hour drive from the site. On a regular basis, depending on researcher requests for specific materials, plans are brought back to Olmsted NHS via a van. This van needs to park on-site for safe transport to the area within the Building Complex for long-term researcher use. The proposed increased digitalization of the Archives could result in a temporary increase in van trips as materials are digitized. During the rehabilitation, a temporary facility in South Boston provided Archive storage but it will be shut down in December 2010 when the restoration is complete.

l. Summation of Issues/problems

A review of existing conditions highlights a number of issues/problems that need to be addressed in the Transportation Plan for Olmsted NHS. Complicating the matter is that major decisions affecting the general management of the site, its resources and its programs affecting the public and use of its archives – which have implications on both access and circulation - have yet to be articulated under the General Management Plan (GMP) process (see Section 4.o) that got underway in September 2009 with a public meeting. Therefore, the Transportation Plan needs to be both flexible and anticipatory of likely future conditions, recognizing at the same time that existing issues/problems also need to be addressed going forward.

The existing issues/problems are summarized below:

- Ad-hoc system for visitor parking
- Lack of reserved parking space for special events
- Excessive speed of vehicles down Dudley Street, impacting pedestrian and visitor access from curbside parking
- Discontinuity of sidewalks on Dudley Street
- Lack of safe bicycle access
- Undesirable and at-risk location and operation of bus group tour drop-off and pick-up
- Lack of holding area for buses associated with group tours
- Missing transit link in connecting the regional transit system to Olmsted NHS
- Missing transit link in connecting Olmsted NHS to Olmsted's signature achievement (the Emerald Necklace)
- Lack of adequate signage and way finding system at both the pedestrian and vehicular scale

4. General Management Plan Process and Future Conditions

In 2009, the National Park Service received funding to update and revise the 1983 General Management Plan (GMP) to address new issues and set a future course of action on how the site will be managed, resources and landscape protected, and public programs and use of the archives operated. The 1983 GMP has accomplished its target benchmarks. These include cataloguing and conserving all the archives, restoring the historic landscape,* rehabilitating the historic buildings and upgrading utility and fire suppression systems (end date, Fall 2010), opening the site to visitors and providing interpretation and educational programs both on and off-site. An Open House and Public Meeting were held September 13 and 23, 2009 respectively. To help frame the discussion, a number of planning issues were raised for the public to consider. These issues are presented in Figure 23. Unsolicited ideas and concepts were also entertained, and the public responded enthusiastically.†

Figure 23

Planning Issues presented at the Open House (9/13/09) and Public Meeting (9/23/09)

Source: GMP Newsletter 1. Fall 2009. <https://nercms.nps.gov/frla/upload/FRLA%20GMP%20Newsletter%201%20-%20WEB.pdf>

Planning Issues for the Public to Consider

From a large list of issues, here are a few questions to stimulate your thinking in advance of the public meeting. How would you address these? What other ideas should be considered?

AUDIENCE DEVELOPMENT
The country's demographics are rapidly changing. How can we make this site, and the Olmsteds' work in general, relevant and interesting to ethnically diverse urban audiences?

HISTORIC ARCHIVES
We have focused on conserving the original, hard copy Olmsted archives. How important is it to make them available online or via electronic formats?
How can we best ensure wide access to the Olmsted archives while preserving them safely for future generations?

OPERATING THE SITE
We'd love to have more people enjoy the site, but want to protect it from wear-and-tear. What are your ideas for how to manage this?
Shared staff for three national historic sites (Kennedy, Longfellow and Olmsted) is headquartered at Fairsted. How can we best balance the needs for administrative space with the importance of providing access to visitors?
Given Frederick Law Olmsted's national impact, should our site attempt to take on a national leadership role regarding his legacy? If so, what form should it take?

PARTNERSHIPS
Based on our legislated mission "to preserve and interpret for the benefit, inspiration, and education of present and future generations the home and office of Frederick Law Olmsted," are there partnerships you think we should explore or deepen with other organizations, either locally or nationally?

HISTORIC NEIGHBORHOOD
F.L. Olmsted was deeply attracted to the scenic qualities of Green Hill. How can we balance the modern, evolving needs of the neighborhood with the desire to preserve its historic character and setting?
What are the best ways to allow more people to enjoy the site without adding traffic? How might we encourage use of alternative transportation?

VISITOR EXPERIENCE
We serve a professional audience with deep knowledge of the Olmsteds' work and visitors just beginning to explore the subject. How can we best meet the needs of both?
What programs or events would be fun or interesting for you to attend, either at Olmsted NHS or other places designed by them?
Some have suggested a satellite visitor contact station along the Emerald Necklace with shuttle service to the site. Do you like or dislike this concept, and why?

EDUCATION
We receive inquiries from educators serving students from young children to senior citizens. What are your thoughts about how we might best serve different learners?

A number of decisions affecting future conditions for the site and neighborhood and impacting both access and parking have yet to be decided within the GMP planning process or by Olmsted NHS management staff. These include:

- Extension of days the site is open to the public beyond Friday through Sunday (three days)

* See, e.g., L. Meier, Restoring Landscape Character at Fairsted, the Frederick law Olmsted National Historic Site, APT Bulletin, Vol. 30, No. 1 1999; L. Meier, Notes on Restoring the Woody Plants at Fairsted, Arnoldia 56(2) 1996; and L. Meier, Restoring Olmsted's Garden: the Restoration of the Frederick Law Olmsted National historic Site, Landscape Design, October 1994.

† Public comments are posted at <http://www.nps.gov/frla/upload/Public%20Comments%20-%20Public%20Scoping%20Meeting,%20Sept%202009%20-%20WEB.pdf>

- The number, frequency and size of special events (including lectures and changing exhibits)
- Expansion of the existing educational program to more schools within the Town of Brookline and City of Boston
- Use of Olmsted NHS as headquarters for administrative staff for two other NPS units – Longfellow National Historic Site (Cambridge, MA) and the John F. Kennedy National Historic Site (Brookline, MA)
- Distribution and locations for archive storage, and whether plans will be brought on-site or researchers accommodated off-site
- Proposed use of the conservation lands (acquired in April 2002) by the public (i.e., whether open and accessible by the public for ‘recreational use’ or restricted from public access and used (absent of visitors) to preserve existing or historic view shed)

5. Transportation Plan

To address the issues/problems identified under existing conditions, and to accommodate future decisions that will impact both access and parking needs as articulated above, the Transportation Plan comprises seven mutually-reinforcing components. The seven components are listed below and will be described in more detail in this section:

- Dudley Street Neighborhood Traffic Calming Component
- Curbside Parking Management Component
- Bus Group Tour Facility Options
- Transit Shuttle System: Regional Transit Connections
- Transit Shuttle System: Emerald Necklace Connection
- Bicycle Concepts
- Signage and Way Finding Concepts

As an example of how these components are linked, the *Dudley Street Neighborhood Traffic Calming Component* works jointly with a more formalized curbside parking system embedded in the *Curbside Parking Management Component* to provide both a safer and more pleasant pedestrian realm in the proximity of and in support of access to Olmsted NHS. Likewise, the *Bus Group Tour Facility Options* require a pedestrian path from the off-site bus drop-off/pick-up zone that uses either the Brookline Reservoir pathway and/or Walnut Street for access to Olmsted NHS. This path benefits from the proposed raised crosswalk – an element of the *Dudley Street Neighborhood Traffic Calming Component* - just prior to the junction of Walnut with Dudley Street.

On the issue of the necessity to adapt to future conditions, the *Curbside Parking Management Component* includes a flexible reservation system to expand the available curbside space to meet the parking needs for special events at Olmsted NHS.

The Transportation Plan proposes two transit shuttle links, and designs a cost-effective system to implement it as a pilot or demonstration service to gain ‘ground truth’ experience before making a long-term commitment on sustainability. It is NOT possible to quantify ridership or ‘demand’ for the service – all the more so due to the very low visitation base attracted to Olmsted NHS, the lack of survey data as a basis for projection or stated preference, and the technical difficulty in making projections for a non-existent service. But there are compelling reasons to go forward with this Plan Component:

- (a) completing the missing link to the regional transit system converts a zero probability to a finite although small probability of attracting tourists across the region but especially those who stay in Boston to Olmsted NHS via transit;
- (b) it would enhance interpretation possibilities and visitor experience, and provide options for access to the site for those without a car or who desire not to drive; and
- (c) it would reduce parking pressure on the neighborhood.

Also, the technical conditions are ripe for designing and implementing a cost-effective system. The transit connection to/from the Emerald Necklace is more complex, and may be best served by an event-driven system.

a. Dudley Street Neighborhood Traffic Calming Component

The goal of the *Dudley Street Neighborhood Traffic Calming Component* is to address the issue of excessive speed of vehicles down Dudley Street (Dudley Street is one-way between Walnut and Lee Streets^{*}), particularly at the turn off of Warren Street and in the proximity of Olmsted NHS. The goal is also to enhance the pedestrian realm and achieve a *desired future condition* that facilitates safe and pleasurable pedestrian crossing of Dudley Street from Warren and Walnut Streets, and between visitor curbside parking on Dudley Street and the access points to Olmsted NHS (rear and front).

Excessive speeds were observed on several site visits to the area.[†] However, measurement of the actual distribution of speeds at various observation points along Dudley Street (including identification of the 85th percentile speed) is beyond the scope of this study.[‡] An engineering study that makes these measurements would be required under Town of Brookline policy[§] to move forward on elements of the traffic calming plan articulated here. That said, it still is vital to put forth a traffic calming plan as a component of the overall transportation plan for Olmsted NHS as a basis for further conversation with both the neighborhood and the Town of Brookline.^{**} The *Dudley Street Neighborhood Traffic Calming Component* needs to address a critical issue of excessive speeding that places visitors at risk, and must achieve through mutually enforcing elements a desired future condition providing more visibility to pedestrians at street crossings and a pedestrian realm that is safer and more pleasant.

i. Concept Design

An initial concept design for the *Dudley Street Neighborhood Traffic Calming Component* is illustrated in Figure 24. The elements include:

- A landscaped curb extension at the junction of Warren and Dudley Streets;
- A raised intersection (serving as a pedestrian crosswalk on both approaches) at the junction of Walnut Street with Dudley Street; and
- A marked crosswalk (with MUTCD-compliant advance warning signage) at the second entry point or junction of Fairmount Street with Dudley Street (near the western end of Dudley Street) where the sidewalk on Dudley Street on the southern edge suddenly terminates

^{*} Personal communication with Peter Ditto, Director Public Works and Engineering Division, Town of Brookline. September 27, 2010.

[†] In addition, NPS staff reported observing high speeds on Walnut Street.

[‡] Personal communications with Town of Brookline DPW and Community Development confirm that the Town of Brookline also has not measured speeds on Dudley Street.

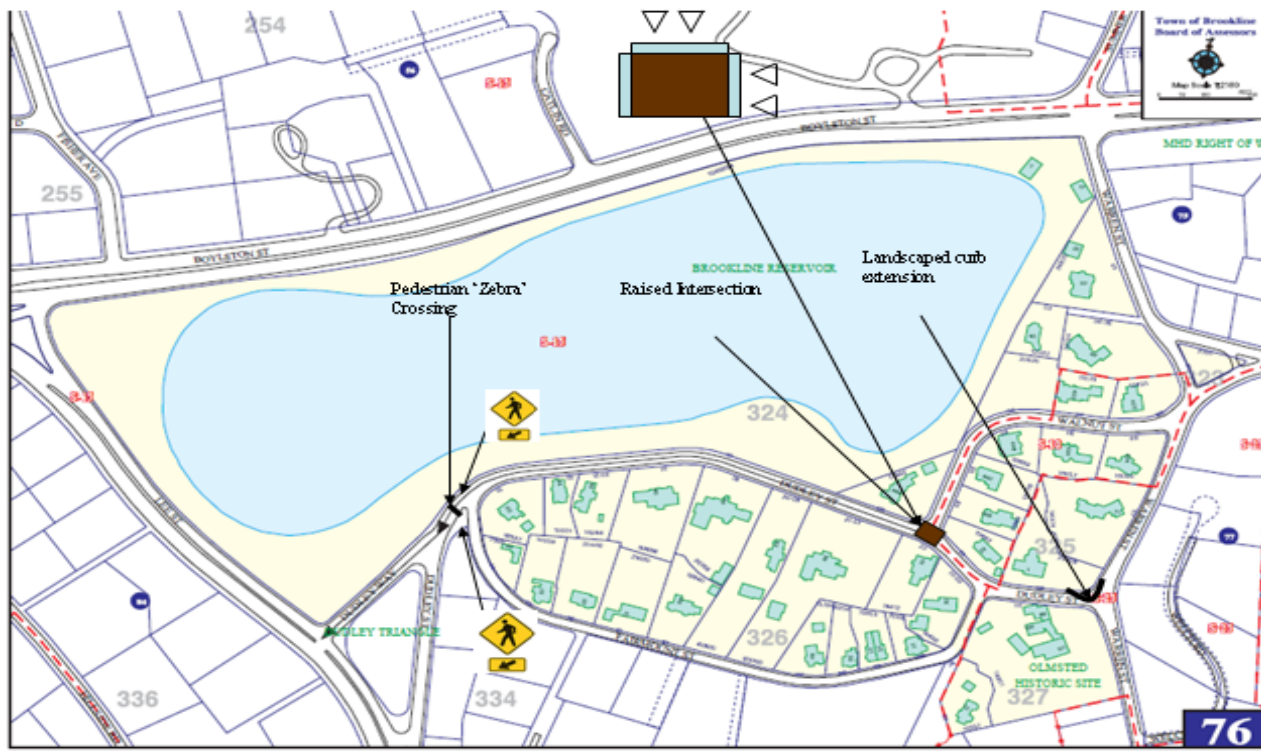
[§] Town of Brookline, Department of Public Works, Engineering and Transportation Division, Traffic Calming Policy and Procedures, April 2001.

^{**} The process is quite complex and includes multiple steps and public meetings: (1) Request for neighborhood traffic calming measures; (2) Clarification and preliminary evaluation of traffic calming requests; (3) Preparation of needs assessment; (4) determination of need; (5) Appointment of design review committee; (6) Screening of alternative traffic calming measures; (7) Public meeting to discuss alternative traffic calming measures; (8) Development of conceptual traffic calming plans; (9) Public meeting to review conceptual traffic calming plans; (10) Selection of preferred traffic calming plan; (11) Approval of traffic calming plan; (12) Development of plan documents and cost estimates; (13) Prioritization of traffic calming projects for implementation; (14) Award of construction contracts; and (15) Plan implementation and evaluation. See Town of Brookline, Department of Public Works, Engineering and Transportation Division, Traffic Calming Policy and Procedures, April 2001.

Figure 24

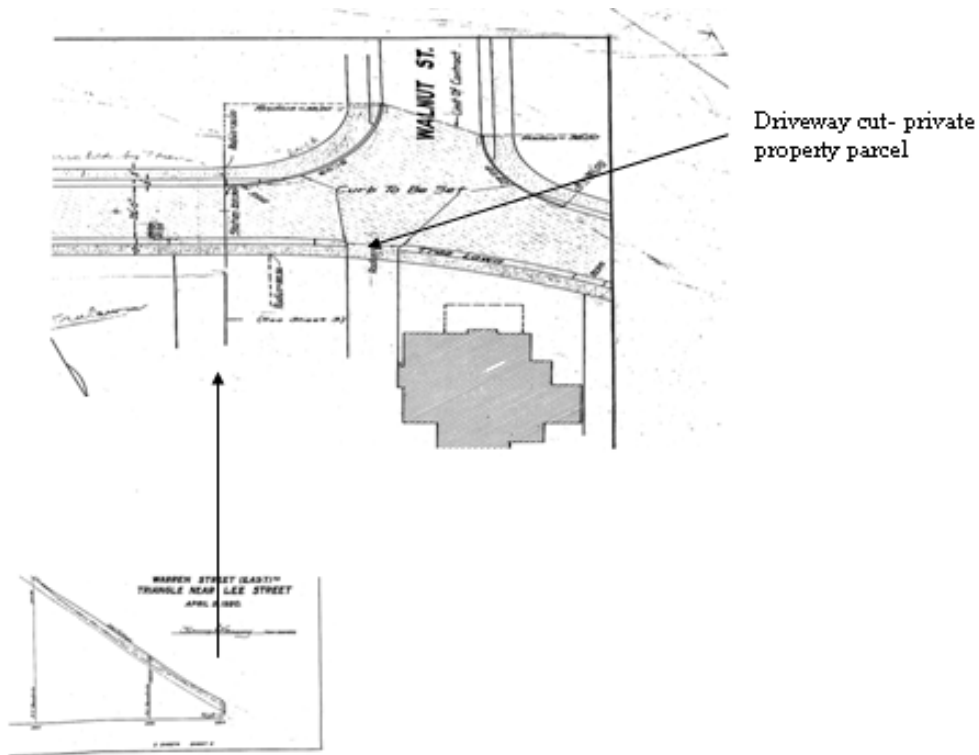
Initial Concept Design for Traffic Calming

Source: Base Map, Town of Brookline Atlas; schematic developed by US DOT staff



The raised intersection was considered because it is a best practice and it would reinforce the curb extension and the resulting reduced speed of vehicles. However, subsequent technical review of the engineering drawing schematic (see Figure 25) and a site reconnaissance visit to confirm the situation ‘on the ground’ have determined that the raised intersection at the junction of Walnut Street with Dudley Street is NOT technically feasible. First, there is a private land parcel with two curb cuts and raising the intersection would pose both access and drainage issues/problems. Secondly, the junction is not level at a constant elevation but rather has a 5.8° upgrade heading west on Dudley Street, which precludes construction of a raised intersection.

Figure 25
Technical Review of Engineering Drawing Schematic
Source: Town of Brookline DPW, Engineering and Transportation Division



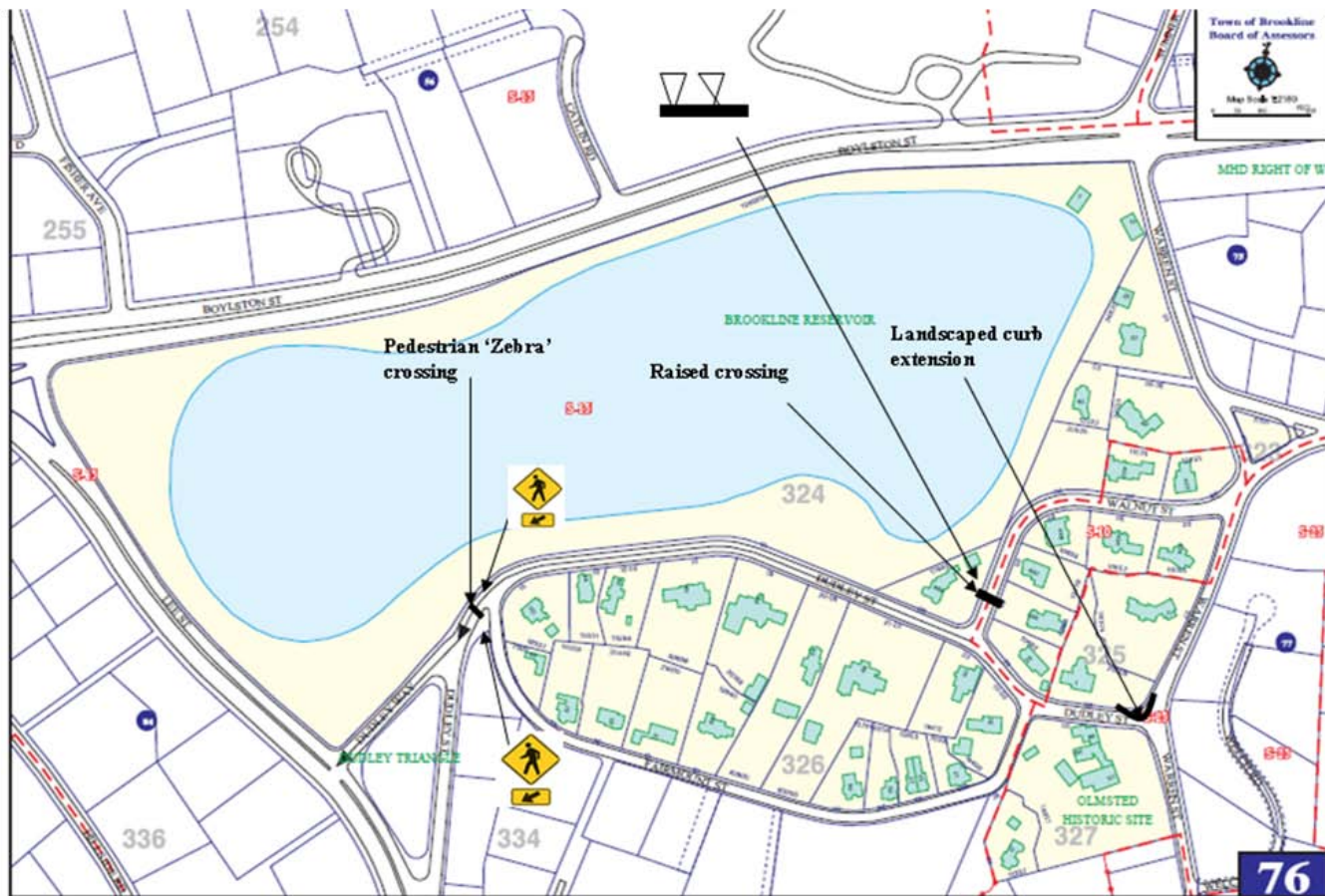
A revised concept design for traffic calming is illustrated in Figure 26. The elements include:

- A landscaped curb extension at the junction of Warren and Dudley Streets;
- A raised pedestrian crossing at the approach of Walnut Street with Dudley Street but prior to the junction (see illustration); and
- A marked crosswalk (with MUTCD-compliant advance warning signage) at the second entry point or junction of Fairmount Street with Dudley Street (near the western end of Dudley Street) where the sidewalk on Dudley Street on the southern edge suddenly terminates.

Figure 26

Revised Concept Design for Traffic Calming

Source: Base Map, Town of Brookline Atlas; schematic developed by US DOT staff



ii. Curb Extension

The curb extension is a critical element to enforce slow turning speeds at the junction of Warren Street with Dudley Street and for several hundred feet downstream on Dudley Street (adjacent to the boundary of Olmsted NHS). The current turning radius is $R=30'$ (see Figure 27). The concept design proposes to extend the Warren Street curb line into Dudley Street, tighten the curb return radius to $R=15'$, narrow the opening to 18', and taper the curb extension curb line to join the Dudley Street curb line. Pending professional and public consensus through a detailed landscape treatment plan, one concept would be to plant the curb extension native 'wild' grasses (kept low enough so as to not obstruct sight lines). ADA-compliant curb cuts would be embedded in the design. Before and 'after' visualization images are presented in Figure 28 and Figure 29.

Figure 27 Plan Schematic of Warren and Dudley Street Intersection

Source: Town of Brookline Engineering Division, Department of Public Works

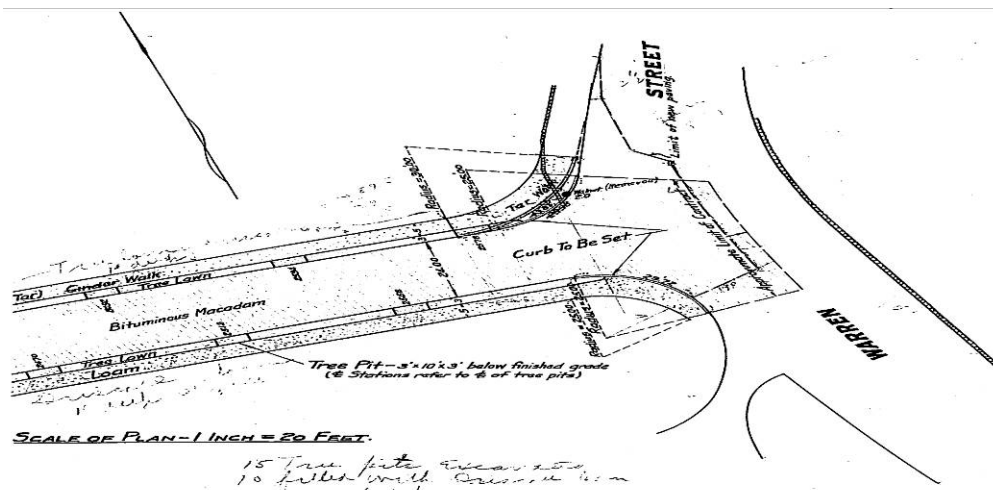


Figure 28 Corner of Warren and Dudley Streets: Existing and Proposed

Source: Google Earth, modified by U.S. DOT Volpe Center



Corner of Warren and Dudley streets, existing



Corner of Warren and Dudley streets, with proposed curb extension (street width at corner = 18 feet)

Figure 29

Corner of Warren and Dudley Streets: Existing and Proposed

Source: U.S. DOT/Volpe Center photograph (Fall 2009), modified by U.S. DOT/Volpe Center project staff



Corner of Warren and Dudley streets, existing



Corner of Warren and Dudley streets, with proposed curb extension

iii. Raised Pedestrian Crossing

A raised pedestrian crossing at the approach of Walnut Street to Dudley Street will provide greater visibility to pedestrians and Olmsted NHS visitors on bus group tours (including school children). Each of the Bus Group Tour Facility options (see section 5c) has a pedestrian link for ambulatory visitors – led by a Park Service Ranger – that traverses Walnut Street and makes use of this crossing to bring visitors to the northern sidewalk edge of Dudley Street (see Figure 30). Visitors would then proceed to the proposed crossing at the curb extension at Warren and Dudley (see Figure 29) to the formal entrance way to Olmsted NHS at the circular driveway.

Figure 30

Raised Pedestrian Crossing on Walnut Street prior to Dudley Street

Source: Google Streetview™, modified by US DOT project staff



iv. Marked Crosswalk

The last traffic calming plan element proposes a marked crosswalk in the vicinity of the second entry point of Fairmount Street with Dudley Street. Here, the sidewalk on the southern edge of Dudley Street terminates, leaving pedestrians or visitors who park along the triangular ‘Green’ near the junction of Dudley with Lee Street stranded unless they cross over to the northern sidewalk edge of Dudley Street. This element would provide a safe, visible crossing – with advanced warning to motorists heading west down Dudley Street and identification of the proper place to cross to pedestrians heading east up Dudley Street. This element would meet the general criteria for the Town of Brookline for non-school mid-block crosswalks – namely that a crosswalk may be marked at mid-block locations only if an engineering study determines it is safe to do so, and that its presence is necessary to concentrate pedestrian crossing activity at a specific location and position pedestrians to be more visible by motorists.^{*} However, it is unlikely that this element will meet the specific criteria for installation, particularly a requirement for the pedestrian volume at the location to exceed 30 pedestrians per hour (pph) during the peak pedestrian hour, and the Average Daily Traffic (ADT) requirement that traffic volumes (both directions combined, although in this case Dudley Street is one-way) exceed 3,000 vehicles per day[†]. Further discussion with the Town of Brookline might permit a design variance to the specific criteria if the overarching reason to mark the crosswalk here is compelling (as we believe it is).

^{*} See Town of Brookline, Department of Public Works, Crosswalk Policy and design Guidelines, July 2006, p. 14

[†] See Town of Brookline, Department of Public Works, Crosswalk Policy and design Guidelines, July 2006, p. 14

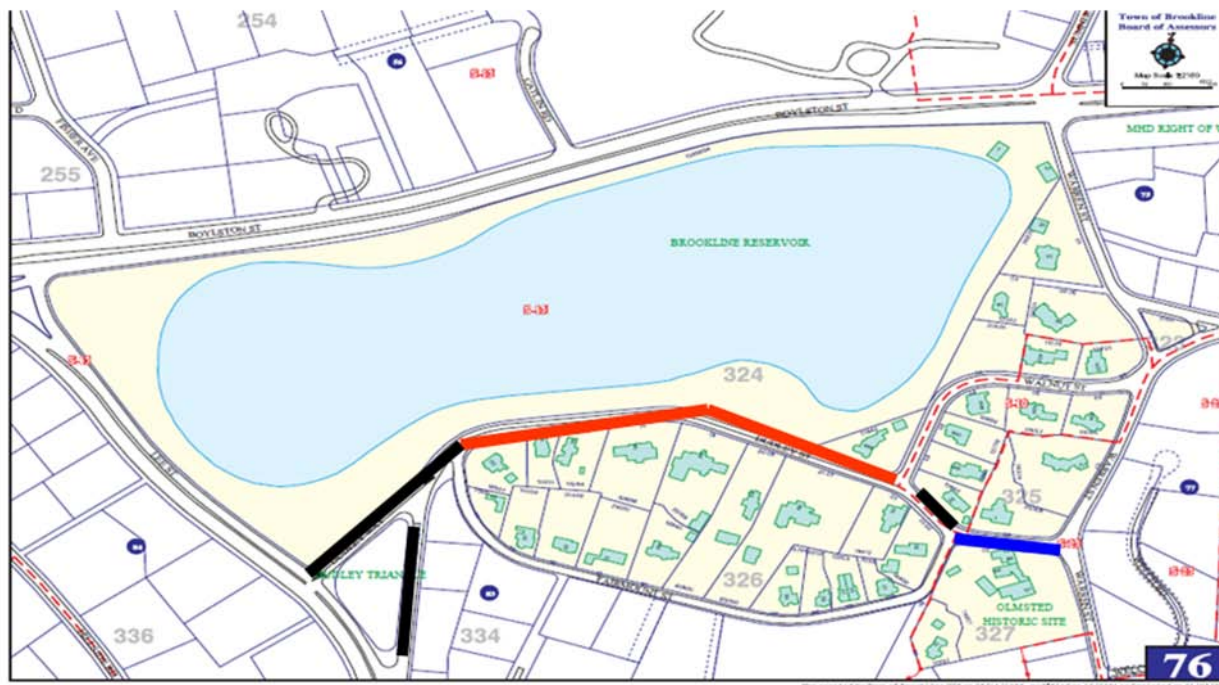
b. Curbside Parking Management Component

A review of existing conditions, including site observations, has established that an ad-hoc system of visitor parking exists. This is particularly acute for special events. Visitor parking competes for curbside parking space with the other generator for parking demand – the Brookline Reservoir. Where there is parking for visitors, signage is poor and does little to guide visitors to the appropriate curb space.

The *Curbside Parking Management Component* has been designed to address these issues in collaboration with the Town of Brookline’s approval for the identification of reserved and ‘conditionally’ reserved curbside parking zones for visitors to Olmsted NHS. Figure 31 illustrates the concept.

Figure 31
Curbside Parking Management Component

Source: Base Map, Town of Brookline Atlas; schematic developed by US DOT staff



Conditionally Reserved, FRLA Special Events – —

Reserved FRLA Visitor Parking – —

Unreserved Parking – —

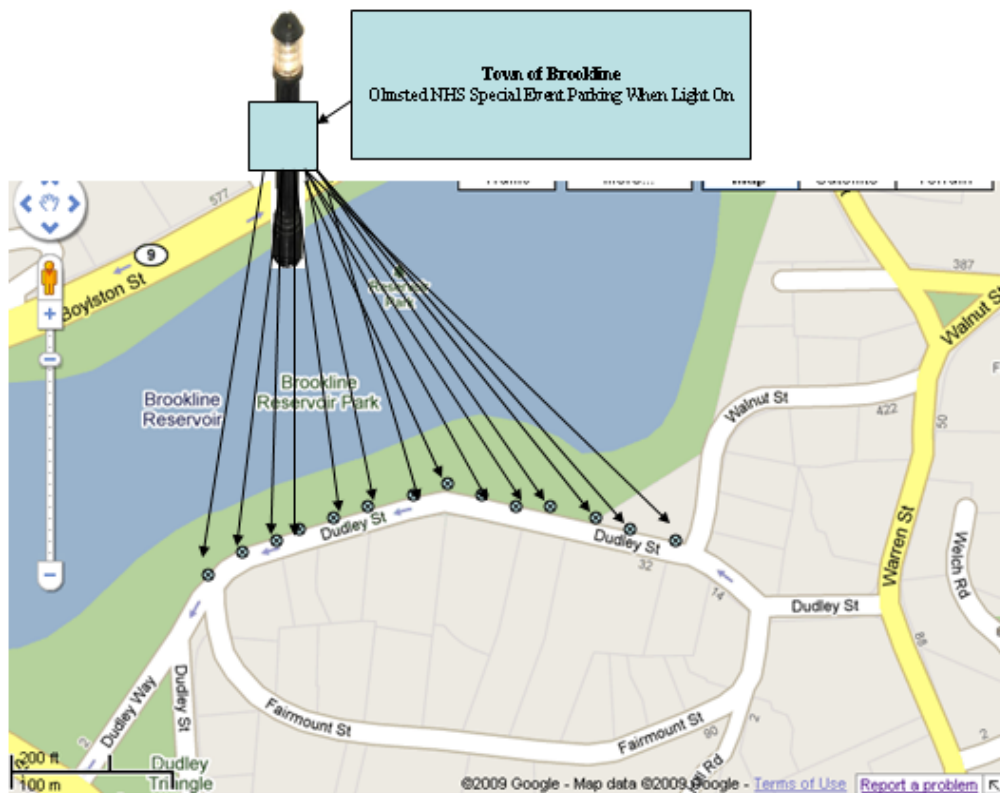
A few years ago, with Town of Brookline approval, the National Park Service constructed a curbed sidewalk on the southern edge of Dudley Street adjacent to the Olmsted boundary line extending from the junction with Warren Street to the rear driveway onto the site. This has informally been treated as visitor parking. The *Curbside Parking Management Component* proposes to formalize this space by reserving it exclusively for Olmsted NHS visitors and delineating the space by installing bollards at the limits of the space (illustrated by the green line in Figure 31). Attached thereto would be signage with the NPS logo, a message content displaying ‘Visitor Parking’, and a right and left arrow at the respective limits of this parking zone.

To accommodate the parking needs for special events (on the assumption that they are relatively infrequent, approximating ~ 6 per year), the *Curbside Parking Management Component* proposes a flexible system that would **conditionally reserve** the curbside space on the northern edge of Dudley

Street between the limits of the junction of Dudley with Walnut Street and the second entry or junction of Dudley with Fairmount Street (illustrated by the red line in Figure 31). To enforce the system and provide guidance to the public on use of the curbside parking space, a lighted bollard system at 50' intervals along the length of this zone would be installed (see Figure 32).^{*} Activation would be controlled by a switch on the premises of Olmsted NHS. Town of Brookline parking regulation signage would be attached to each bollard indicating that when the bollard is lighted, the space is reserved for Olmsted visitors. In the absence of a lighted bollard, the curb space is open on a first-come, first-served basis to the public – servicing the Brookline Reservoir, Olmsted NHS, and the local neighborhood. Other sections of Dudley Street (illustrated by the black line in Figure 31) are also unreserved for the public on a similar basis.

Figure 32
Special Event Parking

Source: Google Maps and U.S. DOT / Volpe staff.



An earlier design had also reserved three spaces for Olmsted staff (all-day parking) within the conditionally reserved parking zone, but the Town of Brookline has indicated that this is NOT a possibility.[†] An earlier design had also suggested that the conditionally reserved parking zone (the red line in Figure 31) be reserved for residential permit parking (e.g., either the local neighborhood or Town of Brookline resident) when not in use servicing Olmsted visitors. This would have had the desirable condition that views to the Brookline Reservoir would have been kept open most of the time – particularly if the residential permit were restricted to the local neighborhood only (most of whom have off-site

^{*} Section 7 provides a cost estimate for this system. Concerns about intrusion should be addressed through a public outreach process.

[†] Personal communications, Erin Gallentine, Director of Parks and Open Space.

parking on their property). Town staff have said that this too is NOT acceptable.* To the Town of Brookline's credit, the Town considers the Brookline Reservoir a regional park, open to all the public irrespective of residency.

c. Bus Group Tour Facility Options

The current baseline access plan for bus group tour management (which is by appointment only and includes school-age and adult groups) is to route the buses through the neighborhood down Dudley Street, with both drop off and pick up of passengers on the street. Buses are discouraged from parking curbside on Dudley Street as part of a 'good neighbor' policy. Current operations place visitors who are both dropped off and picked up streetside at risk from turning vehicles (off of Warren Street onto Dudley Street) that do not expect the congregation of people within the street. Lack of a holding area to park the buses during the group tours is also a problem, although the use of cell phone technology has eased the coordination problem of assuring that the buses return to Olmsted NHS for the proper time of pick up.

This section provides advantages and disadvantages of three options developed for an off-site Bus Group Tour Facility that is proximate to Olmsted NHS. The NPS has not yet made a decision on which if any of the options to pursue. The options were developed to address the issues with unloading and holding mentioned above. They are intended to show the range of all possible options. For all options, the facility would support both visitor drop off and pick up and a holding area for the buses. Olmsted NHS park rangers would meet the bus group tour. Ambulatory visitors would be led by an Olmsted NHS park ranger on an interpretative walk on a short pedestrian link back to Olmsted NHS (and on the return to the Bus Group Tour Facility). Non-ambulatory visitors would transfer to a small van for transport to/from the Bus Group Tour Facility and Olmsted NHS.

i. Option 1

Option 1 proposes to negotiate a partnership agreement with the 1st parish Church of Brookline to use their surface parking lot as a combined visitor parking overflow facility and a bus group tour facility for buses to drop off, pick up and hold. Preliminary discussion with the 1st Parish Church has established (a) that it is technically feasible; (b) the Church has a desire to be a 'good neighbor' and enter into a partnership agreement (with both terms and price subject to negotiation) with the National Park Service, and (c) the parking lot may be available Monday through Saturday.[†]

Technical feasibility establishes that:

- Blocks of time are consistently available (Fridays and Saturdays) when the surface parking lot of the Church is not utilized or highly underutilized for Church affairs; therefore it could be made available for shared use with Olmsted NHS[‡]
- Buses could have a safe, one-way flow pattern to access and egress from the lot (turn into the lot from Warren Street, and exit the lot onto Walnut Street).

* Personal communications, Erin Gallentine, Director of Parks and Open Space.

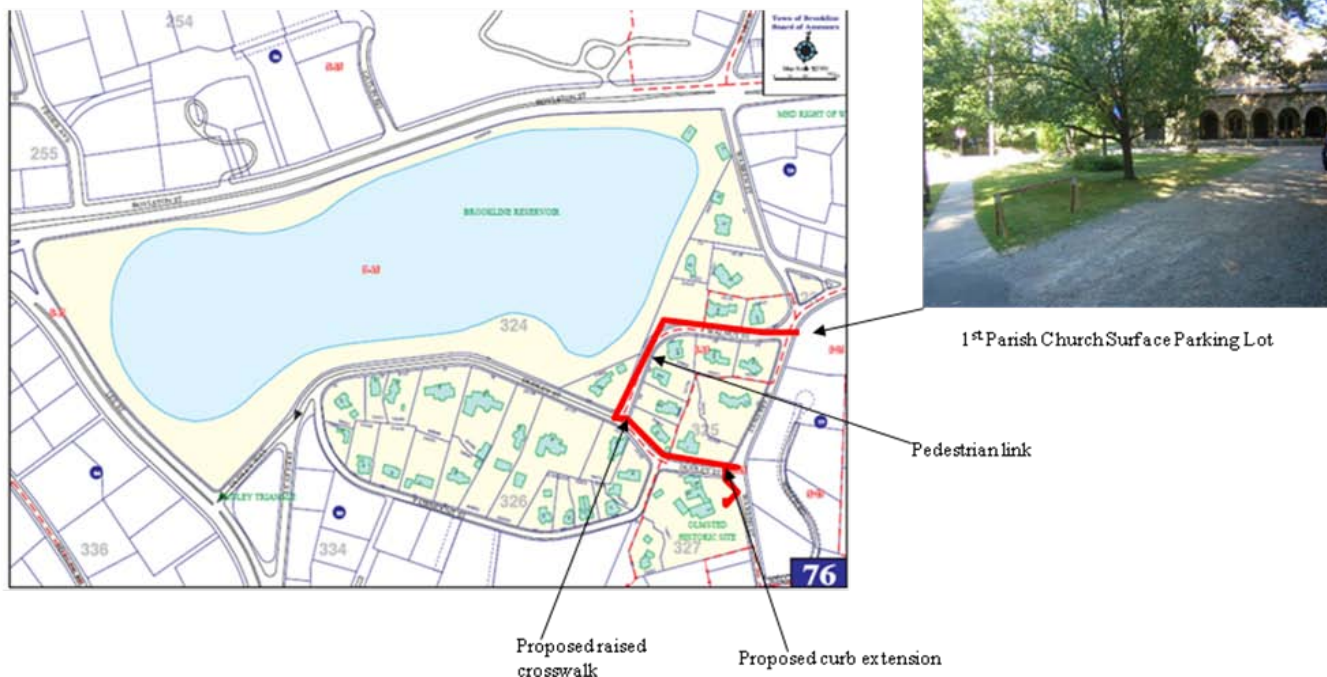
† Personal communications with Sonya Abbott, Administrator, 1st parish Church; also documented in e-mail communications referenced in Appendix A.

‡ The surface lot lies on rock ledge and is unsurfaced. It is subject to wheel rutting during winter months due to poor drainage. The Church has consulted with geotechnical engineers but there are limits to what can be done to improve the drainage without adversely affecting abutting properties. So the Church does close off the lot during winter months (also to prevent motorist cut through from Warren to Walnut Street). However, bus group tour activity (including school groups) for Olmsted NHS occur dominantly in Spring, Summer and Fall so this constraint is not problematic to negotiating a partnership agreement that would still work for Olmsted NHS. There are also times when the Church would have to notify the Olmsted staff that it needs to preempt use of the lot (e.g., for funerals). A proper communication protocol, however, could be worked out as part of the agreement. .Personal communications, Sonya Abbott.

- Sufficient linear space exists along the backside of the lot (adjacent to the landscape triangle (see Figure 33) to hold a large bus and a small van.
- 8-10 parking spaces exist for the visitor overflow facility
- Location is proximate to Olmsted NHS, facilitating a short attractive walk (see Figure 33) for ambulatory visitors and a short 2-minute ride for visitors who transfer to the small van for transport to/from Olmsted NHS
- Crosswalk already exists at the entrance to the surface lot across Warren Street to Walnut Street.

Figure 33
Option 1

Source: Base Map, Town of Brookline Atlas; schematic and photograph by US DOT staff



There is also a nice historical connection to the proposed use of the 1st Parish Church of Brookline under Option 1. The Olmsted firm was invited to advise on landscape development beginning in 1891, after the site of the building had been determined. A contract was signed in 1893, with Moses Williams, an Olmsted client and neighbor, serving as the head of the building committee. In a memo to Williams, the firm volunteered to donate their services since two members of the firm belonged to the parish. Frederick Law Olmsted Sr. donated most of the plant material. They also provided designs to the landscape treatment in relation to the construction of a new wing in 1906. Lewis I. Prouty, on whose property the Olmsted Firm also worked, volunteered to pay for modification to the landscape in 1936-37, which the firm oversaw.*

* See K. Morgan, Community by Design: The Role of the Frederick Law Olmsted Office in the Suburbanization of Brookline, Massachusetts, 1880 to 1936, Draft 2009.

ii. Option 2

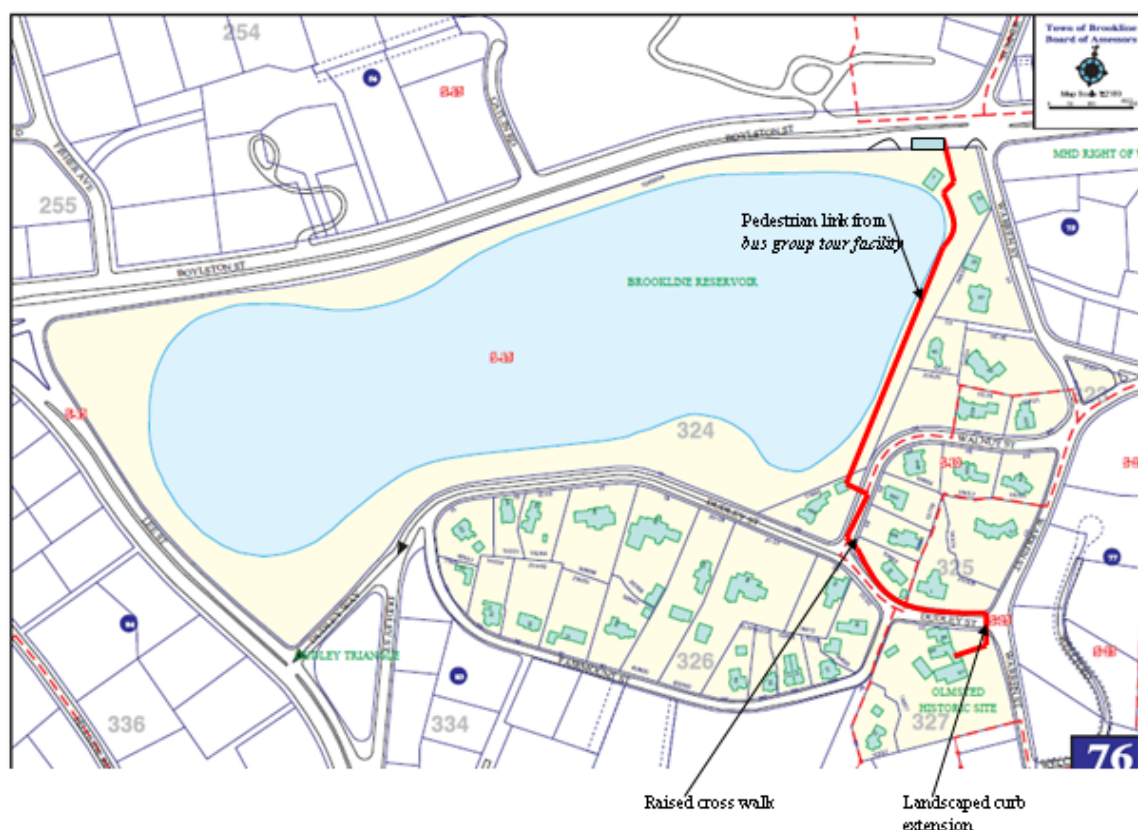
Option 2 proposes the following:

- Conversion of the existing right-only turn lane on Boylston Street to a protected, recessed Bus Group Tour Facility with adequate linear length for two bus bays,* with independent entry and exit for bus arrivals and departures.
- Moving the near-side bus stop for the MBTA bus route #60 to the far-side of the junction of Boylston Street with Warren Street

The concept of operations envisions that bus group tours (based on prior appointment) would arrive via Boylston Street (Route 9) heading eastbound (from either the local or regional road system) for entry to the protected and recessed Bus Group Tour Facility. The bus would be met by a National Park Service shuttle van with two rangers. One ranger would facilitate transfer of non-ambulatory visitors to the shuttle van for transport to Olmsted NHS (Warren Street to the formal circular driveway for access to the Building Complex). The other park ranger would lead the ambulatory visitors off-loaded from the bus on a lovely interpretative tour of the neighborhood and its connection to the Olmsted firm via the Brookline Reservoir to Walnut Street to Dudley Street and into the formal driveway to the Building Complex (see Figure 34). Visitor experience is enhanced by the sudden transition from urban highway to parkland and Reservoir, to elegant neighborhood to Olmsted home and site.

Figure 34
Option 2

Source: Base Map, Town of Brookline Atlas; schematic by US DOT staff



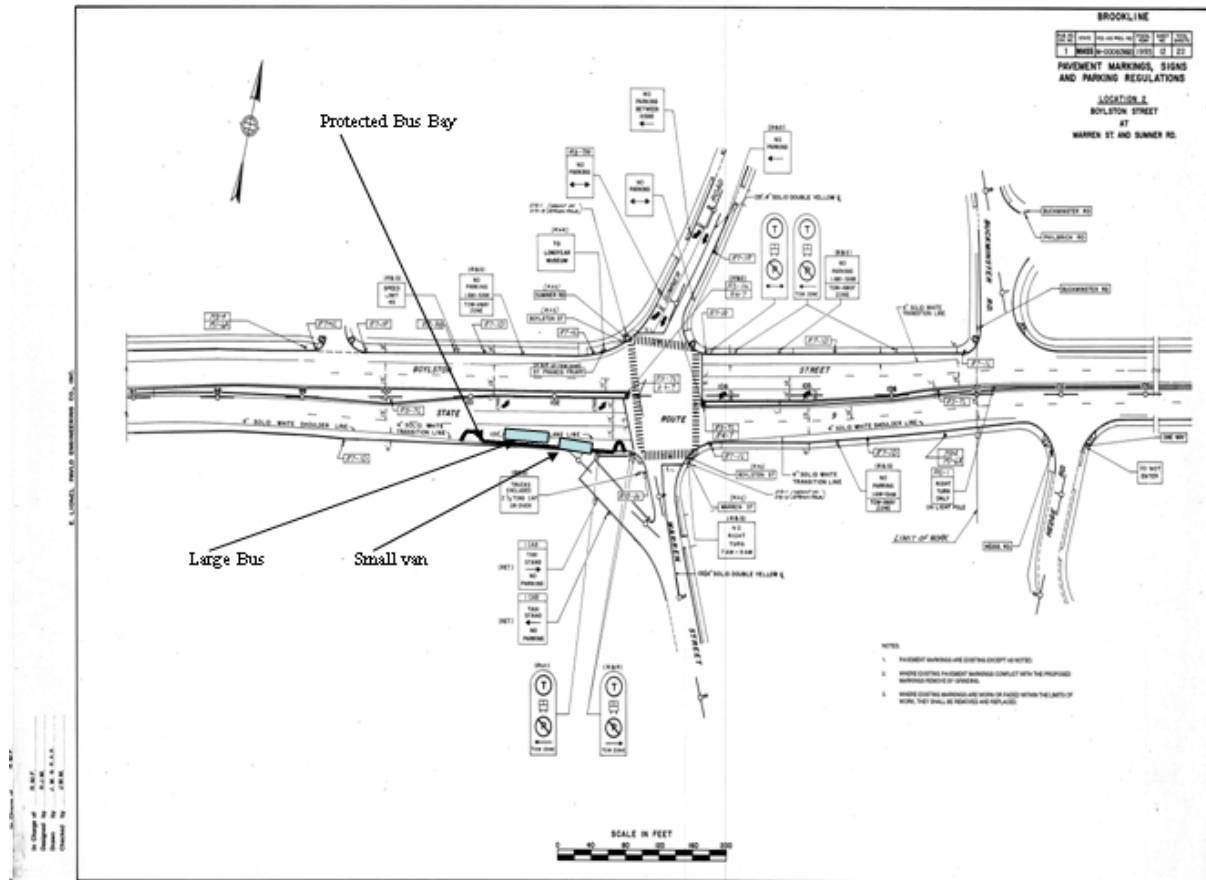
* One bus bay would hold a 45' motor coach (or 40' school bus), the other bus bay would hold a 20' NPS shuttle van.

The bus would hold at the Bus Group Tour Facility (after passenger drop-off) until the tour is complete. Non-ambulatory visitors would be transported back to the Bus Group Tour Facility for loading onto the bus. Ambulatory visitors would be led by the park ranger on the reverse routing of the pedestrian link back to the Bus Group Tour Facility for loading onto the bus.

Figure 35 illustrates changes to the existing conditions for the installation of the Bus Group Tour Facility.

Figure 35
Option 2: Installation of the Bus Group Tour Facility

Source: Base Map: Connie Raphael, Massachusetts Department of Transportation / modified by U.S. DOT/Volpe Center project staff.



There are some adverse traffic operational impacts that would have to be considered and weighed. These include:

- Removal of the existing right-only turn lane would increase both queue length and service time at the Warren Street intersection with Boylston Street for both through and right-turning traffic on Boylston Street; the adjacent lane (which is now through-traffic only) would now be a combined through and right-turning traffic lane. Level-of-service (LOS) would decrease.

- The right-turn lane primarily serves the local Walnut/Warren/Cottage Street neighborhoods,* so removal of this lane would primarily adversely impact the local neighborhood. This option is likely to elicit strong negative neighborhood reaction.
- Moving the MBTA Bus Route #60 bus stop to the far-side of the intersection could result in spill back of traffic into the intersection, and place the stopped bus at risk of a rear-end collision unless operational and geometric changes are also made to mitigate these potential impacts.

iii. Option 3

Under Option 3, an off-road Bus Group Tour Facility would be implemented by making use of the triangular 'green' space at the junction of Boylston Street and Warren Street that fronts the historic gatehouse pump station at the Brookline Reservoir. The Bus Group Tour Facility would consist of a bus-only lane/bus bays. As Figure 36 indicates, the turning radius would be adequate to facilitate a large 45' bus turn, and the linear space is long enough to hold within the bus bay zone two buses – a 45' motor coach and a small 20' van. The concept-of-operations is identical to both Option 1 and 2 in servicing ambulatory and non-ambulatory visitors (i.e., a small van to transfer non-ambulatory visitors to Olmsted NHS, with ambulatory visitors led by a park ranger on a short interpretative walk to Olmsted NHS – see Figure 37).

Figure 36
Option 3 Turning Radius Diagram

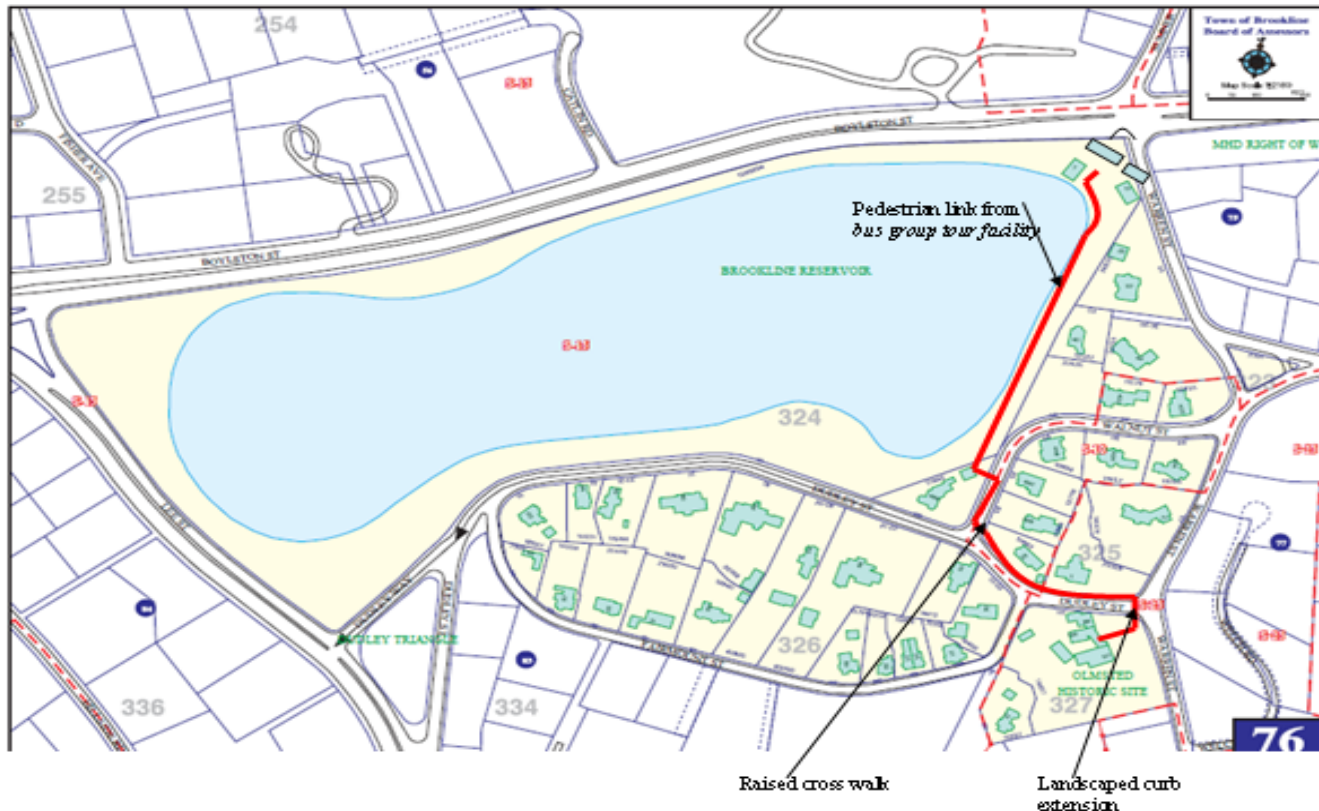
Source: Google Maps, modified by U.S. DOT/Volpe Center project staff.



* Personal communications, Effie Pagitsas/Central Transportation Planning Staff (CTPS), who also happens to live in this neighborhood and makes use of the right-turn only lane to access her home.

Figure 37
Option 3

Source: Base Map, Town of Brookline Atlas; schematic by U.S. DOT/Volpe Center project staff



Option 3 avoids the adverse traffic operational impacts associated with Option 2 (i.e., longer queue lengths, higher vehicular delay, and lower level-of-service for the junction of Boylston Street with Warren Street). It has the advantage similar to the other two options of easy vehicular access via the local and regional road system, and a short pedestrian link for ambulatory visitors to Olmsted NHS. Visitor experience is enhanced by the sudden transition from urban highway to parkland and Reservoir, to elegant neighborhood to Olmsted home and site.

There are, however, some important adverse considerations to weigh^{*}:

- Despite both the relatively infrequent use of the Bus Group Tour Facility and the proposed landscape screening of the facility (see visualization image, Figure 38), the Brookline Historical Commission is likely to oppose this option since they would like to keep the view shed to the façade of the historic gatehouse open (especially since the incongruous 1940-era building in this space has been removed).
- The Town of Brookline plans to engage in a master planning effort for the Brookline Reservoir commencing in 2014. A treatment plan for enhancing the junction of Boylston and Warren streets as a new 'gateway' and access point for the neighborhood to the Brookline Reservoir is part of the planning work prospectus. Thus the Town of Brookline's Park Department is also unlikely to look with favor on Option 3.

^{*} Personal communications with Greer Hardwicke, Brookline Historical Commission; personal communications with Erin Gallentine, Director of Parks and Open Space.

- This option is also likely to elicit strong reactions within the local neighborhood.

Figure 38
Option 3 Before/After

Source: U.S. DOT/Volpe Center photograph (Winter 2009), modified by U.S. DOT/Volpe Center project staff.



View of the Reservoir Gatehouse (with temporary shed)



View of the Reservoir Gatehouse (with temporary shed) with proposed bus lane and trees

d. Transit Shuttle System: Regional Transit Connection

As mentioned in the introductory discussion to this section, the connection to the regional transit system is a missing link that prevents access by transit to Olmsted NHS by visitors who desire NOT to drive, or who have no vehicle available yet desire to visit the site. Discussion with the Town of Brookline indicates a preference for connecting to the MBTA stop at Brookline Village rather than at Brookline Hills.* This would be highly supportive of efforts by the Town of Brookline to enhance tourism and economic development within the commercial shed of Brookline Village.† It would have only a marginal effect on operations and operational costs due to the slightly longer route distance. There would be no increase in transit fleet requirements.

A concept design in synoptic form for a low-impact, low-volume system - proposing a shared-ride taxi shuttle system – is articulated below. Quantitative demand estimates are unknown (and unknowable at this point) as also mentioned previously so the system has been designed to be cost-effective in the face of uncertain demand.

Problem: Olmsted NHS has a low visitation base (~ 7,000 per annum). Even were this to double, the volume of visitation is still low – making transit connections on a cost-effective basis problematic. Regional transit is relatively nearby (Green Line D branch at Brookline Village and at Brookline Hills stations), but it is difficult to walk to Olmsted NHS due to the traffic and design of Boylston Street (Route 9), and far enough away to deter most visitors from doing so. Similarly, on a thematic and interpretative basis, it makes sense to provide a linkage between Olmsted NHS and Olmsted’s signature achievement (the Emerald Necklace). But it is highly uncertain what the potential ridership could be, even when the best or optimal location(s) along the Emerald Necklace (with high concentrations of visitors and activity) are chosen as origination points (see Section 5e, *Transit Shuttle System: Emerald Necklace Connection*).

Concept Design (solution): Consider two points A and B between which a shuttle operates. Two vehicles[‡] are deployed, each to their respective ‘home’ base A and B. Each vehicle holds at its ‘home base’ until a demand for service (to the other point) is registered. The vehicle ‘holds’ for an additional 5-minutes to see whether other persons arrive for service (hence, shared-ride operation up to the capacity of the vehicle) then proceeds to transport the person(s) to the other point. The vehicle then returns to its ‘home base’. This cycle of hold and transport epochs continue at both points A and B throughout the span of service the system operates. Point A and point B correspond here to the Brookline Village MBTA station and Olmsted NHS respectively.

System Characteristics: low-capacity, low-impact but designed to accommodate uncertain, low demand

Infrastructure: well-designed and sited taxi stand with signage (e.g., “Taxi Shuttle to Olmsted NHS”; “Taxi Shuttle to Green Line”); possible passenger amenity, e.g., shelter. Detailed site placement at the Brookline Village MBTA station, and at Olmsted NHS to be studied in a later phase (see Section 7 *Next Steps*).

Vehicle Type: accessible, clean-fuel taxi

Fleet Size: Minimum of two (2)

Contract Mechanism: contract with local taxi company, cost determined by the equivalent taxi meter time cost – offering to pay the equivalent meter cost for time per hour to retain the taxis at the two respective sites (A and B) for the span of time the system operates, e.g., ~ \$35 per hour per taxi; user fee set to nominal

* Personal communications with Jeff Levine, Town Planner, Community Development and with Marge Amster, Commercial Area Coordinator, Economic Development.

† See, e.g., The Gateway East Citizen’s Advisory Committee, Department of Planning and Community Development Town of Brookline, Economic Development Department Town of Brookline, Von Grossman and Company, Rizzo Associates, Brook line’s Gateway East Public Realm Plan, October 2006.

‡ We would propose accessible, clean-fuel taxis – in the case of FRLA, 1930 style, the historic period to which the rehabilitation program seeks to restore the buildings and site at the Estate.

amount (e.g., \$2 per one-way trip), but taxi retains all fare revenue as added incentive to provide courteous and efficient service.

System Performance: Each vehicle operates in two states: a ‘Hold’ time H and a ‘Transport’ time T. During an H time epoch, the expected wait time to a patron is zero (i.e., the person arrives at point A or point B and the vehicle is waiting). During a T time epoch, the expected wait time is $\frac{1}{2}$ the cycle time (C) that is required to proceed to the other point and return (with a passenger or deadheading) to its home base. A person will arrive with probability p during an H epoch and with probability (1-p) during a T epoch. This implies that the expected wait time (E (w)) is:

$$E(w) = p(0) + (1-p)\frac{1}{2}C = (1-p)\frac{C}{2}$$

Capacity of System (passengers per hour): Theoretical two-way capacity would be equivalent to: Number of Vehicles x Vehicle Capacity x $\frac{60}{C} \times 2$ one-way trips per cycle. In reality, each vehicle would probably deadhead one-way after delivering its passenger(s) at the other point, so *practical* capacity is one-half theoretical capacity.

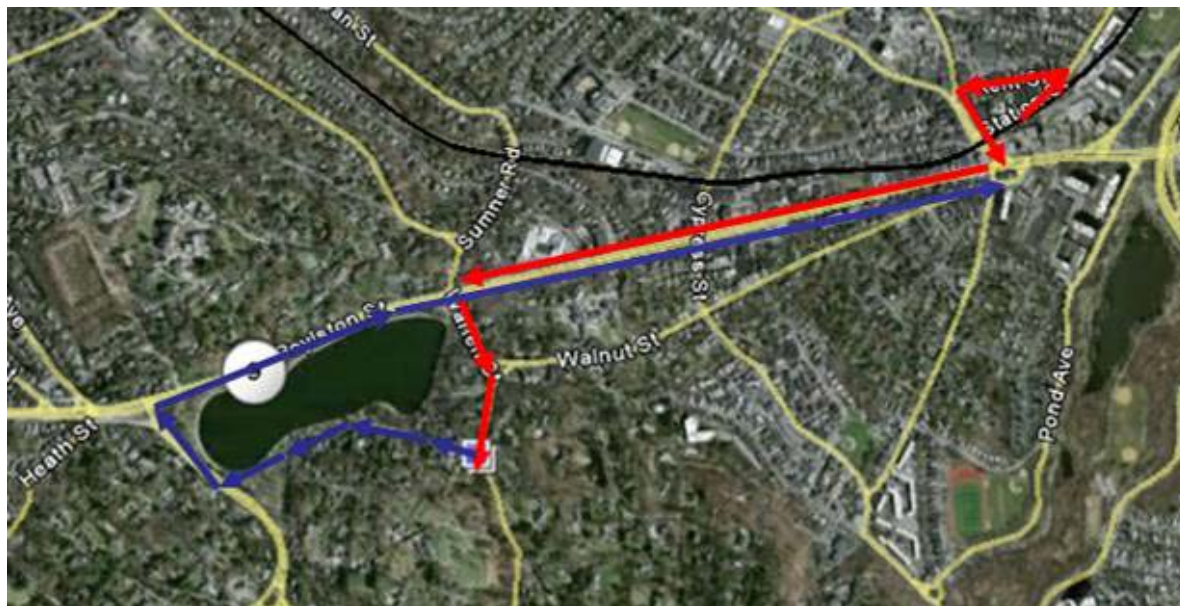
Example. A system comprising two (2) taxis at six (6) passenger capacity with a 20 minute cycle time (including the five (5) minute extension time to permit additional shared rides), with a deadhead trip as a component to each trip* would have a *practical* passenger flow capacity equal to: $2 \times 6 \times \frac{60}{20} \times 1 = 36$ passengers per hour counting both directions (18 passengers per hour, each direction).

Figure 39 illustrates the shuttle route and connection between the Brookline Village MBTA station and Olmsted NHS.

Figure 39

Shuttle route and connection from Brookline Village T Stop to Olmsted NHS (red) and back (blue)

Source: Base map Google Earth; schematic provided by U.S. DOT Volpe Center staff.



* E.g., a taxi shuttle from Brookline Village would carry passengers to Olmsted NHS, then deadhead (with no passengers) back to the T stop at Brookline Village; conversely, a taxi whose ‘home’ base is at Olmsted NHS would take passengers completing their visits at Olmsted NHS back to the Brookline Village T stop, then probably deadhead back with no passengers to its ‘home’ base at Olmsted NHS.

e. Transit Shuttle System: Emerald Necklace Connection

At the public meeting for the General Management Plan, there was a general discussion (with mixed reviews) of connecting Olmsted NHS to other Olmsted landscapes, in particular the Emerald Necklace.* Discussion focused on both virtual or experiential connections, as well as a physical connection via operation of a transit shuttle. This section focuses on issues related to establishing a physical connection via a transit shuttle.

Some fundamental questions are raised by the proposal:

- Should the transit shuttle system be a service operation on a predictable and known schedule, or should it be an adjunct to special events organized and operated within the Emerald Necklace?
- Should there be user-fees or a fare for the service, or should it be a ‘free’ service to users?
- Should it be operated by professional or volunteer drivers?
- Who should take ownership of the operation (e.g., the National Park Service, the Emerald Necklace Conservancy, the Boston Parks Department, the MBTA, or a private party (under contract to whom?)?
- What is the optimal location(s) for staging the service?
- Who will be responsible for street infrastructure (e.g., signage, and passenger amenities such as shelters, trash receptacles, etc.)?

In discussion with the Emerald Necklace Conservancy, several potential staging areas were tested against the following criteria:

- Informal or formal nodes (locations) of activity where there are large concentrations of people, or areas where large numbers of people pass by;
- Safe and efficient access/egress to the street network;
- Off-street space for loading/unloading of passengers, and for passenger amenities (e.g., shelter; bicycle racks) and information kiosk (space available currently, or is easily developed without adverse impact on the resource);
- Proximity to Olmsted NHS so that transit times are reasonable and a relatively high frequency of service can be offered with limited number of vehicles;
- Direct routing via main arterials (avoiding circuitous routes or routes through neighborhoods on residential streets); and
- Avoidance of sensitive areas on the Emerald Necklace where noise, and emissions could be a problem for flora and fauna.

The staging areas are shown in Figure 40 and the results of the assessment are presented in Table 6.

* Indeed, Olmsted himself – who also designed Central Park among other notable projects – considered the Emerald Necklace park system to be his greatest achievement. See http://www.emeraldnecklace.org/static/filelib/Microsoft_Word_-_ForWebsitePresentationDescription2009.pdf

Figure 40

Emerald Necklace and Potential Staging Areas

Source: Emerald Necklace Conservancy (<http://www.emeraldnecklace.org/static/filelib/EmeraldNecklaceMap.pdf>)



Table 6

Results of Assessment of Potential Transit Staging Areas

Source: Jointly developed by Emerald Necklace Conservancy and US DOT/Volpe Center Project staff

Criteria	Gatehouse* (Fenway)	Olmsted Park	Jamaica Pond	Arnold Arboretum
Informal or formal nodes (locations) of activity where there are large concentrations of people, or areas where large numbers of people pass by	+	0 [†]	+	+ [‡]
Safe and efficient access/egress to the street network	0 [§]	+	+	+
Off-street space for loading/unloading of passengers, and for passenger amenities (e.g., shelter; bicycle racks) and information kiosk (space available currently, or is easily developed without adverse impact on the resource)	0	+	+	+
Proximity to FRLA so that transit times are reasonable, and a relatively high frequency of service can be offered with limited number of vehicles	-	+	+	0
Direct routing via main arterials (avoiding circuitous routes or routes through neighborhoods on residential streets)	-	+	+	+
Avoidance of sensitive areas on the Emerald Necklace where noise, and emissions could be a problem for flora and fauna	+	+	+	+
Public transit access	+	+	0	+

NOTE: + indicates that the staging area meets the criteria, 0 means it is uncertain whether the area does or not, and – means that the area does not meet the criteria well.

* The Emerald Necklace Conservancy will be negotiating a long-term lease with the Boston Parks Department/ Boston Water and Sewer Department (primary owner) to rehabilitate the Gatehouse in the Fenway (near the Museum of Fine Arts) and convert it to a visitor contact station with a planned projector and exhibit space to interpret the Emerald Necklace Park System. Planned carrying capacity is ~ 20 visitors-on-site-at-a time (VOAT).

[†] Not generally a 'destination' park, but the space is capable of hosting large special events.

[‡] Restrooms available at Hunnewell Building

[§] Potential modification to side street to create an offset or recessed space for pick up and drop off

f. Bicycle Concepts

As detailed in Section 3e *Bicycle Access*, the Town of Brookline has proposed a number of bicycle infrastructure improvements that would improve the ability of bicyclists to reach Olmsted NHS in a safer manner. These projects should have the strong support of the National Park Service and the Olmsted staff with the exception of the contra flow bicycle lane on Dudley Street for which a lack of design information is available. It is therefore unclear whether it would conflict with the *Transportation Plan* components – particularly the *Dudley Street Neighborhood Traffic Calming Component* and the *Curbside Parking Management Component*.

There are several other concepts, however, that would facilitate good bicycle access.

Good bicycle parking at Olmsted NHS is critical to encouraging bicycle use as a mode of access. As articulated in Section 3e *Bicycle Access*, there is currently none. Providing bicycle parking encourages people to use their bicycles as transportation. People are more likely to use a bike if they are confident that they will find convenient and secure parking at their destination. Providing a designated area for bike parking gives a more orderly appearance to a building and prevents cyclists from locking their bikes to unacceptable fixtures, such as trees, benches, or railings. However, if a bike rack appears insecure, does not fit bikes well, or is in the wrong location, cyclists will not use it.*

Getting it Right†

When installing bicycle parking, it is important to consider the following:

- Location of building entrance(s) that the cyclists will be using;
- Quantity of bikes (current or anticipated) parking at the site; and
- Amount of time that bikes will be parked there (a few hours versus all day).

Acceptable Bike Racks‡

There are multiple designs for bicycle racks produced by many manufacturers. Bike racks can be purchased as single units, with a capacity of two (2) bikes (one on each side), or as multiple units, with a larger capacity. Only some designs have proven successful.

Features of a good bike rack include§:

- Stable structure and permanent foundation that is securely anchored in the ground;
- Support for an upright bicycle by its frame horizontally in **two (2)** or more places;
- Design that prevents the bicycle from tipping over;
- Ability to support a variety of bicycle sizes and frame shapes;
- Space to secure the frame and one or both wheels to the rack; and
- Keeps bike wheels on the ground.

Site placement of bicycle racks at Olmsted NHS must not only adhere to the desired criteria for safe, secure and convenient access but must also respect the proposed treatment plan for the historic landscape and structures. According to the historical analysis for the proposed interpretation period (c. 1930)**, the circular drive retained its original configuration into the 1920s and 1930s. Circling a central planting bed,

* See City of Cambridge Community Development Department, *Bicycle Parking Guide*, Spring 2008.

† See City of Cambridge Community Development Department, *Bicycle Parking Guide*, Spring 2008., p. 3

‡ See City of Cambridge Community Development Department, *Bicycle Parking Guide*, Spring 2008., p. 4

§ See City of Cambridge Community Development Department, *Bicycle Parking Guide*, Spring 2008., p. 4

** See L. Meier, *Cultural landscape Report for the Frederick Law Olmsted National Historic Site: Volume 2 Existing Conditions, Analysis, and Treatment*, 1994, p.45.

the drive is lined with Roxbury puddingstone curb (see Figure 41). A rustic stone walkway extends from Warren Street along the Hollow retaining wall to the office entrance. This walkway continues as a band of square stones to the Home entrance. From here, the drive continues in a circle, lined with puddingstone curb. **No parking area (off the circular driveway) existed in 1930.**

Figure 41

Roxbury Puddingstone Curbing and Offset Parking Area

Source: US DOT Project Staff photograph (Fall 2009), modified by U.S. DOT/Volpe Center project staff.



The historic configuration of the circular drive is documented in the annotations to the 1904 survey (Plans #673-1, 673-2, and 673-3).^{*} These suggest slightly different alignment than exists today, which is very likely since the drive is known to have been altered in the 1960s, when the offset parking space (off of the circular driveway) was also constructed[†].

The existing treatment plan retains the offset parking area (off of the circular driveway) although it is a non-historic element[‡] as it still provides an important function for the management of the site, and fortunately does NOT lie within the sight lines of key historic views that are now restored and preserved.[§]

^{*} Olmsted Archives.

[†] See L. Meier, *Cultural landscape Report for the Frederick Law Olmsted National Historic Site: Volume 2 Existing Conditions, Analysis, and Treatment*, 1994, p.16

[‡] See L. Meier, *Cultural landscape Report for the Frederick Law Olmsted National Historic Site: Volume 2 Existing Conditions, Analysis, and Treatment*, 1994, Figure 14, p. 73.

[§] See L. Meier, *Cultural landscape Report for the Frederick Law Olmsted National Historic Site: Volume 2 Existing Conditions, Analysis, and Treatment*, 1994, Figure 10, p. 49.

Accordingly, the *Transportation Plan* proposes a rationalization of the parking area in the offset space off of the front entry circular drive to articulate one space (with appropriate signage) for handicap parking, one space for National Park Service vehicles only (broadly interpreted to also include utility and maintenance vehicles under contract to Olmsted NHS), and to use the third parking space to install proper bicycle racks. This location achieves not only safe, secure and convenient access for bicycles, but is also consistent with the proposed treatment plan adopted for Olmsted NHS.

The articulation of the parking stalls would use the same Roxbury puddingstone curbing (but flush to the ground surface) as is used to articulate the edge of the circular driveway. This concept is illustrated in the visualization images presented in Figure 42, Figure 43, and Figure 44. For design consistency, the *Transportation Plan* would propose the same bollard and sign system that is proposed to articulate visitor parking on Dudley Street under the *Curbside Parking Management Component* (see Section 5b *Curbside Parking Management Component*).

Figure 42
Olmsted NHS Formal Entry and Design Details of Circular Driveway

Source: Historic Photos, NPS Archives; Modern Photo, US DOT Project Staff (Fall 2009)

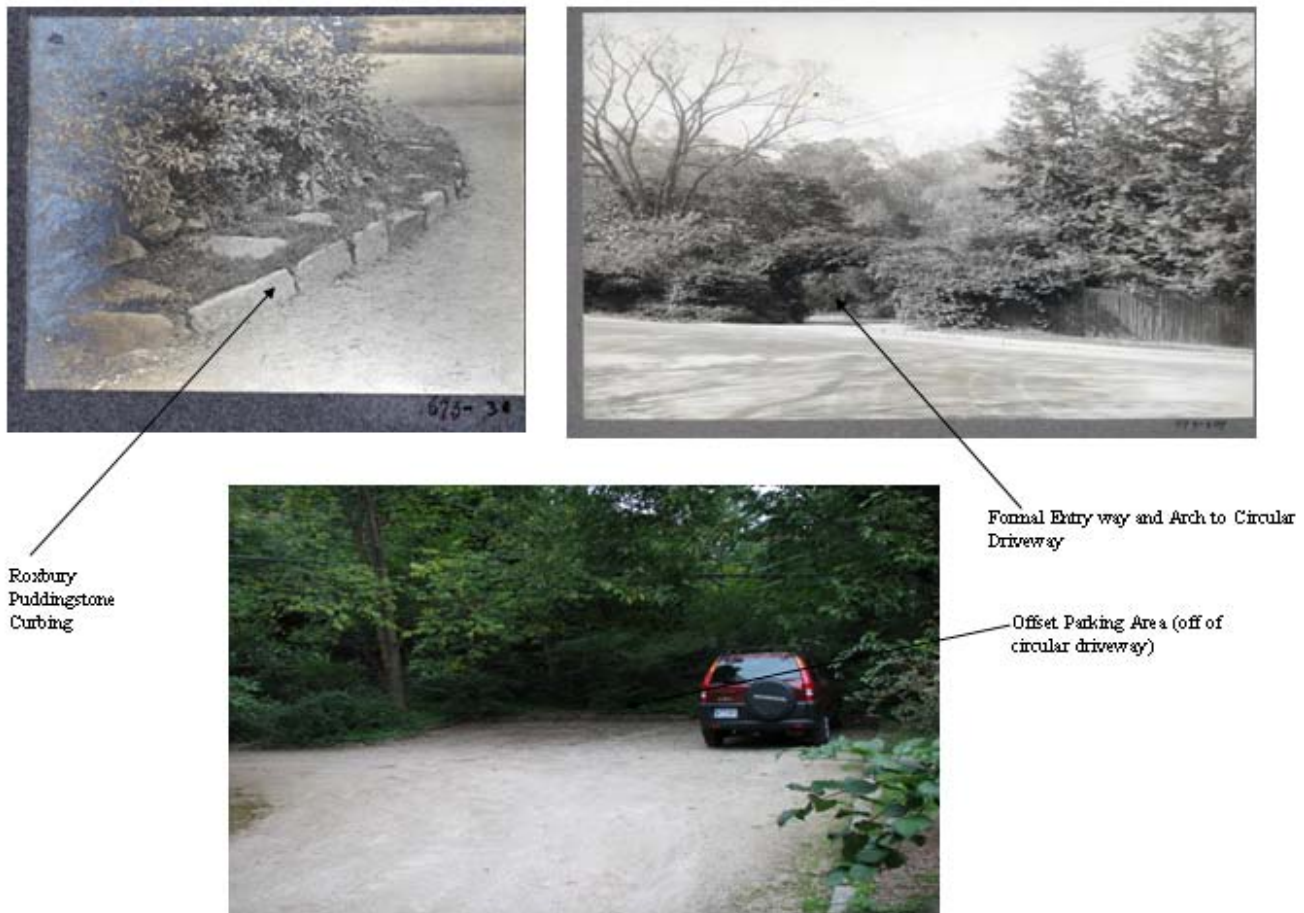


Figure 43

Redesign of Offset Parking Area

Source: Photograph and changes – U.S. DOT project team staff



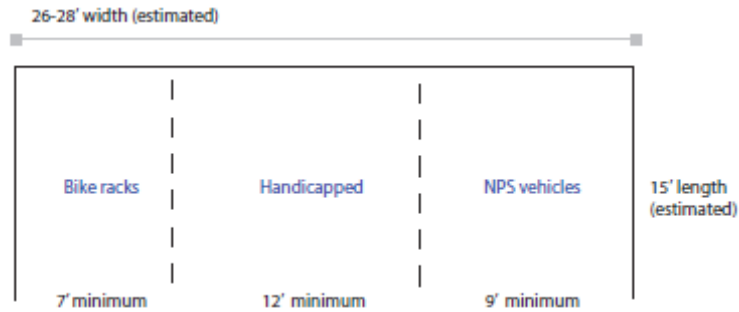
Existing parking area



Proposed parking area with space for bike racks, handicapped parking and NPS vehicles

Figure 44
Offset Parking Space Reconfiguration

Source: U.S. DOT/Volpe Center project staff



A second possible location for siting bicycle racks on-site is the service courtyard in the back of the Building Complex. Olmsted NHS staff have expressed preference for this option, as they would prefer not to make changes to the front driveway or have additional construction, despite the following disadvantages:

- Conflict with pedestrian activity to/from the Barn (with an enhanced program proposed under the GMP for schools and new exhibits proposed for the Barn);
- Conflict with both service vehicles and visitor parking accessing the rear parking lot;
- Inability for bicyclists to enter via the rear entrances due to security access control, and staffing limitations (less convenient to bicyclists than the offset parking site, since bicyclists would have to walk to the front to gain entry to the Building Complex); and
- Desire on the part of the Olmsted staff to keep this area relatively clear.

Several additional bicycle concepts include:

- At the urging of the National Park Service (NPS), the Town of Brookline should develop maps and add to its website “safe, best routes” by bicycle from strategic locations in Brookline to Olmsted NHS; NPS should add to its website hyperlinks to these maps
- At the urging of the National Park Service (NPS), the Town of Brookline in the future should develop software for a *bicycle trip planner* which would allow an individual to key specific origin and destination addresses and return to individual’s personal digital device (PDD) the “best, safe route” (map and directional instructions) to connect origin to destination (which would allow keying as a destination Olmsted NHS address)

g. Signage and Wayfinding Concepts

The Town of Brookline hired Lozano Baskin & Associates in October 2005 to develop a design proposal for improving the MBTA Brookline Village station area.* (See Figure 45). As discussed in Section 3g *Signage*, the *Brookline Gateway East Public Realm Final Plan* proposes two projects† that strengthen the possibility of incorporating an information kiosk/map graphic to identify a pedestrian/bicycle connection from the Village area to Olmsted NHS, and the incorporation of signage and shelter associated with a proposed shared ride taxi shuttle system – with a ‘home base’ at the MBTA station – to Olmsted NHS. These two projects are:

- Hire a design consultant to revise design
 - **Improve shelters with village character preserved** (*emphasis added – could include signage and shelter for the shared ride taxi shuttle system*)
 - Create strong axis connecting to the Emerald Necklace
 - Increase shelter and shade, especially on the outbound platform
 - Introduce appropriate materials and luminaries
 - Organize furnishings and expand gateways/entry points to the platform area,
 - Eliminate obstacles to pedestrians
 - **Add signs to promote clear and attractive pedestrian connections to the Village, the Emerald Necklace and the bus** (*emphasis added – could include information kiosk/map graphic to Olmsted NHS*)
- Hire a designer to develop directional signs with a distinct Village identity. **Include directions to important destinations** (*emphasis added*)
 - Brookline Village
 - MBTA Station
 - Emerald Necklace
 - Parking (Station Street, Brookline Place, Town Hall)
 - **Olmsted NHS** (*destination and emphasis added*)

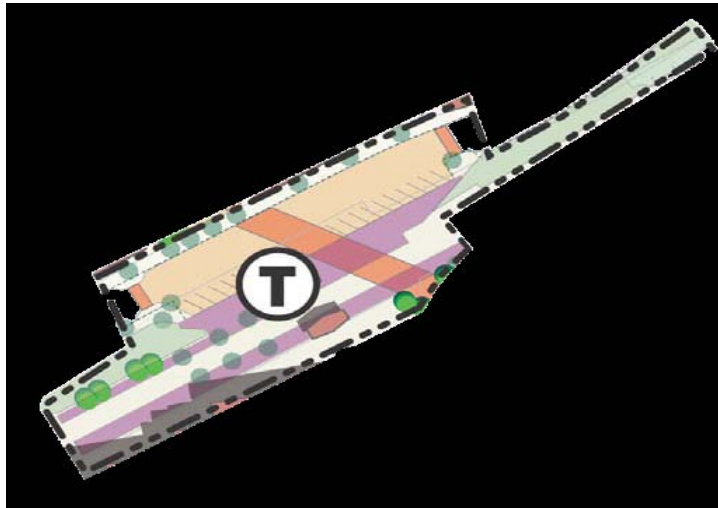
* See, e.g., The Gateway East Citizens’ Advisory Committee, Department of Planning and Community Development Town of Brookline, Economic Development Department Town of Brookline, Von Grossman and Company, Rizzo Associates, Brook line’s Gateway East public Realm Plan, October 2006, p. 6.

† Ibid., p. 6 and p. 8.

Figure 45

MBTA Brookline Station Proposal

Source: The Gateway East Citizen's Advisory Committee, Department of Planning and Community Development Town of Brookline, Economic Development Department Town of Brookline, Von Grossman and Company, Rizzo Associates, Brookline's Gateway East Public Realm Plan, October 2006



i. The Brookline Reservoir

The Brookline Reservoir draws an enormous number of residents and non-residents, many of whom are unaware of the close proximity by foot of Olmsted NHS to the Brookline Reservoir. While most are there solely for recreational purposes, there are clearly some visitors to the Reservoir who would also enjoy the opportunity to combine a visit to the Reservoir with a visit to Olmsted NHS but who may be unaware of an easy pedestrian connection between the two sites. An information map graphic is an easy solution.

The Town of Brookline generally has a policy of not allowing additional signage at public parks – including the Reservoir.^{*} At the Brookline Reservoir, there is an historical marker describing the history of the Reservoir (and approved by the Department of Parks and the Historical Commission, Town of Brookline). The Town of Brookline has indicated, however, that they would be amenable to a design proposal by the National Park Service to establish an information kiosk/map graphic at the reservoir.[†] The process involves first a design review by park department staff – possibly augmented by a member of the Town of Brookline's Open Space Plan Committee who is a landscape architect. Assuming acceptance of the concept design (including material, and sign placement), the proposal would go before the Open Space Plan Committee in a public meeting. The proposal could be accepted, accepted with modifications, or rejected by a vote of the Committee (after receiving public input).[‡]

The Signage and Way finding Component of the Transportation Plan for Olmsted NHS offers an initial proposal/concept-design for a map graphic at the Brookline Reservoir§. The sign design and placement options are described below.

^{*} Personal communications, Erin Gallentine, Director of Parks and Open Space.

[†] Personal communications, Erin Gallentine, Director of Parks and Open Space.

[‡] Personal communications, Erin Gallentine, Director of Parks and Open Space.

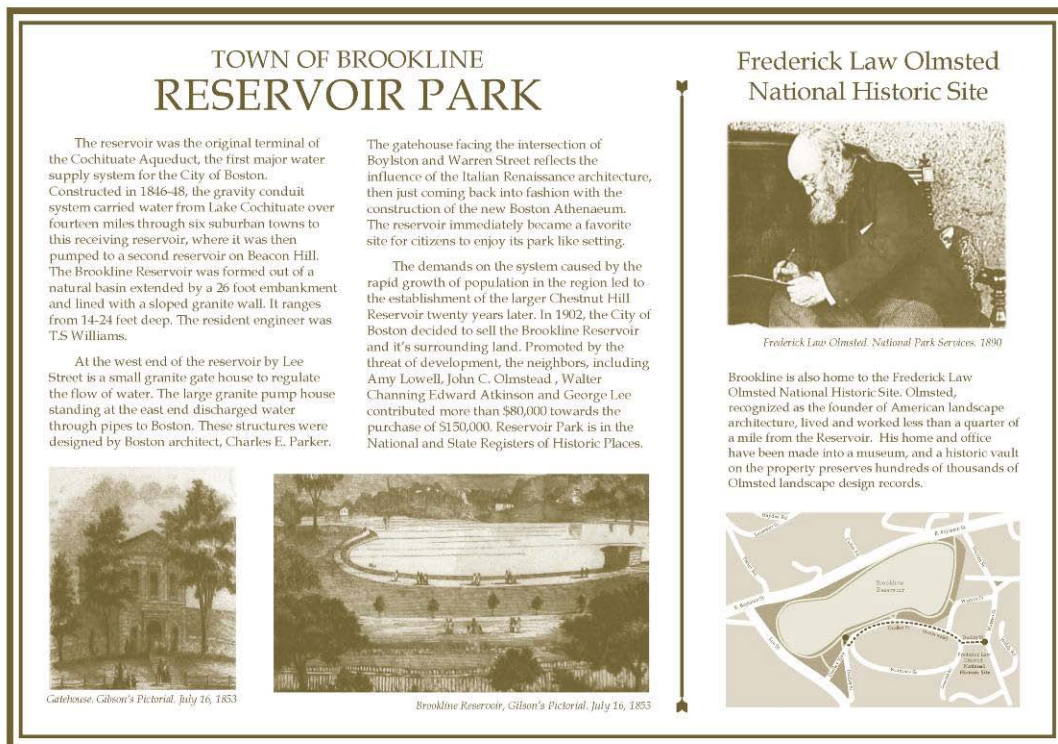
[§] Proposal jointly developed by Catherine Duffy, Macro Sys Corp. and David Spiller/US DOT Volpe Center.

Sign Design

Option A (see Figure 46 and Figure 48): Currently, there is only one historic marker sign for Reservoir Park. This sign is beginning to show signs of ageing and will need to be replaced sometime in the future. As the town of Brookline desires to minimize signage in the area, this option combines the information presently on the sign with additional information pertaining to Olmsted NHS. The sign will maintain its current dimensions and all text and graphics, with the exception of the photograph of the gatehouse from the Brookline public library, which will be removed to make room. There are two images of the gatehouse – the engraved image will better complement the engraved image of the Reservoir.

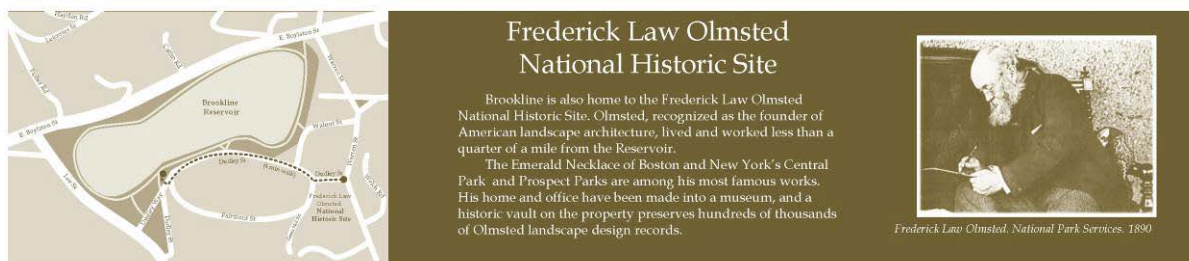
Figure 46
Sign Design Option A

Source: U.S. DOT/Volpe Center project staff



Option B (see Figure 47 and Figure 48): If the town wishes to keep the current sign, a small addition to the sign can be attached to the bottom of the sign. If the town of Brookline wants to maintain consistency with the current historic signage, the following should be noted: Font size for the text on both sign options should match the current size, or not drop below 12 points. Font size for street names on the map should be 8 – 10 points. Colors will be limited to black and white, as is the current standard for Brookline historic marker signs. The current signs are made from porcelain enamel, and this material should be used on future signage, unless there is a desire from the Parks Department to change material.

Source: U.S. DOT/Volpe Center project staff.



Source: U.S. DOT Volpe Center project staff



Before Image



After Image (Option A)



After Image (Option B)

Coordination with Parks Department

The Parks Department may call for new designs for historical marker signs. The current Brookline historic signs are about 10 years old and may all be redone. Additionally, new historic information about the significance of the gatehouse at the Reservoir has emerged and may need to be incorporated into language on a new sign. A master plan for the entrance to the Reservoir from the corner of Boylston Street and Warren Street is also underway. Although there was no foot traffic entering the park from this corner from winter observation, this may not be the case in the summer (although Warren and Boylston are both busy streets, and it seems unlikely that there would be many pedestrians entering from this side). Further consultation with the Parks Department and a second site visit during the spring or summer months is recommended. Further development of this corner as a 'gateway' to the Reservoir could increase the volume of foot traffic in the future at this location.

Sign Placement

The sign should be located on an entrance pathway to avoid viewers blocking walkers/runners around the main circuit path. Locations (A) and (B) appear to be the most common entrances to the reservoir and currently have signage. A simple solution would be to replace the existing sign at its current placement (A), located on the path leading into the park from the corner of Dudley Way and Dudley Street. Moving the sign further down the path to the point where it intersects with the circular path around the reservoir will increase visibility to visitors who enter the park from another entry point, however, this may also cause congestion problems, which is likely the reason behind the placement choice of the current sign.

Keeping the sign at or near its current location is likely the best option.

A second option would be to locate the sign on one segment of the forked path leading to the circular path from the center of Dudley Street (**B**). The sign could be placed at the end of the trash can at the end of the eastern path, relocating the trash can further east along the path. This would allow people to linger on the entrance path and not block those who may be walking briskly around the reservoir.

A third option is to include (**A**) and (**C**) at the end of the entrance way adjacent to the historic Gatehouse, at the corner of Boylston and Warren streets. This could be a more prominent and used entry way from the neighborhood once the Master Plan for the reservoir – including treatment options for this gateway – is complete. Intercepting visitors at both (A) and (C) would make sense.

Figure 49 illustrates the sign placement location options.

Figure 49
Sign Placement Locations

Source: U.S. DOT/Volpe Center project staff.



ii. Regional Destination Signage on the Highway Network

As mentioned in Section 3f *Signage*, the most glaring missing element at the vehicular scale is the lack of destination signage on the regional road network. The *Transportation Plan* for Olmsted NHS proposes to remedy this situation. The most critical single location is at the junction of I-95 (Route 128) and Route 9 (Boylston Street) eastbound (arriving either northbound or southbound on I-95/Route 128). Consideration should also be made of signage along the Jamaicaaway/Arborway but would require collaboration and coordination with the City of Boston, the Department of Conservation and Recreation, and the Town of Brookline to provide adequate trail-blazing signage at key decision points.

Destination signage for Olmsted NHS needs to comply with a number of standards (design, material, construction, installation, and placement) including the NPS UniGuide sign standards and the standards of the Massachusetts Department of Transportation (MassDOT)* (which also incorporate by reference Federal Highway Administration (FHWA) MUTCD standards).

Per Director Order 52C Park Signs†, NPS signage should:

- Offer clear, concise, and consistent communications to park visitors while not intruding on natural and historic settings.

* See MassDOT, Supplemental Sign Policy, Revised 12/23/09; and Tourist Oriented Directional Signs: General Information and Application, Revised 12/23/09.

† See National Park Service Director Order 52C Park Signs.

- Maximize the public convenience and safety and reduce the Service's liability exposure by ensuring compliance with pertinent federal regulations and principles of sound engineering and communication.
- Build upon, but are not bound by, NPS design traditions.
- Strengthen the NPS public identity and perception as one organization by reflecting current NPS graphic design standards.
- Are appropriate in appearance, size, and material to a wide range of park environments.
- Allow changes as park communication needs and other circumstances change.
- Are easy to acquire, maintain, and replace, and are reasonably priced.
- Comply with NPS's commitment to rely more on standardized design.

Under an existing agreement between NPS and FHWA, signs that follow the NPS standards are typically considered in conformance with the MUTCD standards.

MassDOT's non-waivable requirements for tourist-oriented directional sign placement include an 800' offset distance in advance of the exit direction sign at the interchange from which the facility (i.e., Olmsted NHS) is accessible, as well as an 800' spacing between supplemental signing on freeways and other guide or supplemental signing^{*}. Attractions must be within 10 miles of the initial point of turn on the state highway[†]; Olmsted NHS meets this requirement.

MassDOT's procedure[‡] that the National Park Service would have to comply with is:

- A. Upon receiving written approval from the communities for trailblazing, the petitioner shall apply to the appropriate District Highway Director[§] for approval. The applicant shall submit copies of written approval from the communities for trailblazing signs, a map showing proposed trailblazing sign locations and design of trailblazing signs showing dimensions, color, legend, materials, etc.
- B. The applicant shall be responsible for erecting the trailblazing signs prior to the installation of the Tourist Oriented Directional Sign(s) on the state highway.
- C. After approval by MassDOT - Highway Division, copies of Standards and Specifications shall be sent to the applicant for the fabrication of the proposed panels. The petitioner shall be required to supply panels and vandal proof fasteners to MassDOT - Highway Division for erection by MassDOT - Highway Division forces. The appropriate District Highway Office shall determine and perform maintenance for the sign assembly, with panels and vandal proof fasteners supplied by the applicant. The applicant shall be responsible for the maintenance of all associated trailblazing signing.

^{*} See MassDOT, Supplemental Sign Policy, revised 12/23/09, p. 4.

[†] See MassDOT, Supplemental Sign Policy, revised 12/23/09, p. 18.

[‡] See MassDOT, Supplemental Sign Policy, revised 12/23/09, p. 20

[§] This is likely to be 'New' District 6; personal communications, Connie Raphael/MassDOT District 4 Planner.

6. Cost Estimate of the Transportation Plan

A rough order of magnitude for the cost associated with each component of the *Transportation Plan* for Olmsted NHS is presented below in Table 7. Some cost elements are unknowable at this time and thus total cost is not shown. Assumptions, limitations and sources are documented in the notes to the table. Costs are shown irrespective of whether the National Park Service, Commonwealth of Massachusetts or the Town of Brookline is likely to bear the cost.

Table 7
Transportation Plan Cost Estimates

Source: Various

<i>Transportation Plan Component</i>	<i>Cost</i>
Dudley Street Neighborhood Traffic Calming Component	Detailed design and public process - TBD Landscaped curb extension - ~\$20K depending on drainage issues* Raised crosswalk - ~\$45K depending on materials and drainage issues†
Curbside Parking Management Component	Detailed design and public process – TBD Lighted bollard system and signage - TBD‡
Bus Group Tour Facility Options	NPS 12-passenger van – ~\$20-30K Option 1 Partnership Agreement – TBD§ Option 2 Protected Bus Bays - ~\$100-300K depending on utility relocation and drainage issues** Option 3 Off-site Bus lane and bays – TBD
Transit Shuttle System: Regional Transit Connections	Contract cost - ~ \$15-20K††
Transit Shuttle System: Emerald Necklace Connection	Special event cost - ~ \$2400 per event‡‡
Bicycle Concepts	See Table 4 for Town of Brookline proposed bicycle projects Bicycle parking at Olmsted NHS - ~\$10-15K§§ Other bicycle concepts (e.g., trip planner; website changes) – TBD
Signage and Wayfinding Component	Brookline Village – TBD Brookline Reservoir, additional design and public process - ~\$20-30K*** Brookline Reservoir, construction and installation - ~ \$10-15K††† Regional Highway Network - TBD

* Personal communications with Juan Avendano, Traffic Calming Manager, City of Cambridge based on prior experience and projects implemented within the city of Cambridge

† Personal communications with Juan Avendano, Traffic Calming manager, City of Cambridge based on prior experience and projects implemented within the city of Cambridge

‡ Costs are difficult to estimate without knowing whether the system would require installation of a trenched conduit (tied into the electric system at Olmsted NHS, and extending ~one thousand feet carrying electrical power; lighted bollards are on the order of \$500-\$1000 per unit (see e.g., <http://www.arcadianlighting.com/bollard-and-pagoda-lights.html>) – assuming a need for ~12, this would equal \$6-12K.

§ Subject to negotiating an option to use the surface parking lot of the 1st Parish Church of Brookline

** Extrapolation based on a case study in Australia, see 4650_396_ - _Brighton_Secondary_School_ - _Indented_Bus_Bays_ - _King_George_Ave_Nth_Brighton.pdf

†† Assumes pilot demonstration one day per week (Saturday) for 20 weeks (Mid May-Mid October); assumes \$35 per hour per taxi x 2 taxis x 8 hours operating day; assumes \$3-9K for contract management and oversight.

‡‡ Assumes shuttle operates initially once per year (special event); lease costs are assumed to be ~ \$150 for driver and 12-passenger van x 2 vans in operation x 8 hours operating day = \$2400 per event.

§§ Estimate from US DOT project staff. Costs would include not only the bicycle rack, but site preparation for the off-set parking area, the articulation of the stalls (Roxbury puddingstone curbing flush to the ground surface), and the bollard and sign system to delineate the stall use.

*** Estimate from US DOT project staff.

††† Estimate from US DOT project staff.

7. Next Steps

Next steps for the National Park Service and Olmsted NHS staff are summarized below:

- The *Transportation Plan* for Olmsted NHS articulated here is intended to be considered within the process of the development of the General Management Plan, which will include NEPA compliance before a record-of-decision (ROD) is published. Other transportation plan component alternatives – in sketch form – could be:
 - No Action – baseline conditions hold
 - Alternative 1 – *Curbside Parking Management Component*, plus bicycle parking on-site and information map graphic at the Brookline Reservoir
 - Alternative 2 – Alternative 1, plus *Dudley Street Neighborhood Traffic Calming Component*
- Seek Parks Road and Parkways Program (PRP) Category III: Alternative Transportation or Federal Transit Administration Paul S. Sarbanes Transit in Parks (TRIP) funds for an implementation project to develop detailed design and placement recommendations for street infrastructure (signage and shelter) in support of the *Regional Transit Connection Shuttle System*. This project would also provide public process support to advance this concept (including street infrastructure installation, and contract arrangement for operation of the taxi shuttle) going forward. Seek additional Olmsted NHS Operation of National Park Service (ONPS) funds to cover operational costs at least for a three (3) year demonstration (to also include operation of a shuttle for at least one special event per annum from the Emerald Necklace).
- Seek PRP Category III or TRIP funds for an implementation project to develop detailed plans and provide public process support to advance the *Dudley Street Neighborhood Traffic Calming Component* in accordance with Town of Brookline procedures.
- Seek PRP Category III or TRIP funds for an implementation project to develop detailed plans and provide public process support to advance the *Curbside Parking Management Component* in accordance with Town of Brookline procedures.
- Seek PRP Category III or TRIP funds for an implementation project to acquire a 12-passenger van in support of the *Bus Group Tour Facility* options (needed irrespective of which option is moved forward).
- Convene Olmsted staff working group to make a decision with respect to which of the three *Bus Group Tour Facility* options is the preferred option. If Option 1 (1st Parish Church of Brookline) is the preferred option, negotiate an agreement with the 1st Parish Church. If Option 2 (on-street protected bus bays) is the preferred option, then seek PRP Category III or TRIP funds for an implementation project to develop detailed plans and provide public process support in accordance with Town of Brookline and Commonwealth of Massachusetts procedures. If Option 3 (off-street bus lane/bus bays) is the preferred option, then seek Cat III or TRIP funds for an implementation project to develop detailed plans and provide public process support in accordance with Town of Brookline procedures.
- Seek PRP Category III or TRIP funds for an implementation project to redesign the off-set parking area off of the formal entry and circular driveway to Olmsted NHS, and to install acceptable bicycle racks.
- Seek PRP Category III or TRIP funds for an implementation project to refine the design proposal articulated in the *Transportation Plan* for the information map graphic signage at the Brookline Reservoir and to provide public process support in accordance with the Town of Brookline procedures.

- Seek PRP Category III or TRIP funds for an implementation project to develop detailed plans and provide public process support to place regional destination signage on the highway network in accordance with both the Town of Brookline and MassDOT procedures.

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Appendix A – Select Stakeholder Coordination Communications

Hi Jeff, Peter and Erin:

I'm working on a Federal Study/Plan that will document existing conditions, identify access and circulation issues/problems in the recent past and going forward when the building rehabilitation is complete and the site re-opens, and propose concepts for enhanced multi-modal access to the Frederick Law Olmsted National Historical Site (NHS). This work is being done in collaboration with staff from the National Park Service.

I'm sending you a list of the kind of information/data that I'm looking for from the Town of Brookline (see attachment). This is to give you a "heads-up", but I really would like to sit down with the three of you to get your full input and suggestions (including neighborhood issues that we need to be aware of). Could you suggest a time and date next week (week of October 26) that would work for the three of you? Thanks!

Best regards,

David Spiller, MS. Trans. Eng.
Community Planner
US DOT/RITA/Volpe Center RVT-91
55 Broadway
Cambridge, MA 02142
Tel #: 617-494-2252
Fax #: 617-494-3260

Erin:

Thanks so much for meeting with me today! It was a great help to me (US DOT/RITA/Volpe) and the National Park Service (and probably to you and the Town of Brookline) that we had a good, open discussion (i.e., what's of great interest, what may be difficult to move forward, and what's DOA without major revision) of some of the concepts and ideas that I'm thinking about as part of the Federal Study/Plan for Olmsted NHS. As we discussed, please share this conversation with Peter, Jeff and Todd. If you collectively think it useful, I am prepared to meet again with all of you to discuss in more detail these concepts/ideas. **I do hope that Peter and Jeff can pull together as much of the material in the attached data/information request as is available to fully test feasibility and impact of these concepts/ideas.** As I am sure you recognize, I was reluctant to leave any graphics or written proposals at this point (other than the data list as attached herein) since these have a tendency to diffuse and "lead a life of their own", as well as harden peoples' positions.

We agreed that you will provide (1) an electronic site plan of the Brookline Reservoir (and surrounding streets); and (2) a plan or schematic indicating boundary lines (and Mass Highway Department (MHD) right-of-way (ROW) limits) for the intersection of Boylston Street and Warren Street.

Best regards (and I look forward to receiving the material from you, Peter and Jeff),

David Spiller, MS. Trans. Eng.
Community Planner
US DOT/RITA/Volpe Center RVT-91
55 Broadway
Cambridge, MA 02142
(617)494-2252
Fax: (617) 494-3260

Peter:

Thanks again for taking the time today to find and copy the engineering drawings for Dudley Street. If you or Jeff has the 111 Boylston Street Traffic Impact Study, I would greatly appreciate a copy.

Todd: Thanks for the policy guidance for *Town of Brookline Neighborhood Traffic Calming*. Also, thanks for the document on *Pedestrian Treatment Design Guidance*.

Best regards,

David Spiller, MS Trans. Eng.
Community Planner
US DOT/RITA/Volpe Center RVT-91
55 Broadway
Cambridge, MA 02142
(617) 494-2252
Fax: (617) 494-3260

Erin:

Were you able to find a plan or schematic indicating boundary lines (and Mass Highway Department (MHD) right-of-way (ROW) limits) for the intersection of Boylston Street and Warren Street? Thanks!

Best regards,

David

-----Original Message-----

From: Erin Chute Gallentine [mailto:erin_gallentine@town.brookline.ma.us]
Sent: Thursday, November 12, 2009 10:01 PM
To: Spiller, David J (VOLPE)
Cc: Peter_Ditto@town.brookline.ma.us; jeff_levine@town.brookline.ma.us;
Spiller, David J (VOLPE); Todd_Kirrane@town.brookline.ma.us
Subject: Re: FW: Federal Study/Plan, Frederick Law Olmsted National
Historical Site

David -

I do not have a base plan with the state/town right-of-way yet, however attached please find a copy of the Brookline Reservoir aerial as discussed.

Erin Chute Gallentine
Town of Brookline
Parks and Open Space Director
333 Washington Street
Brookline, MA 02445
email: egallentine@brooklinema.gov
tel: 617.730.2088
fax: 617.730.2258
website: www.brooklinema.gov/parks
~~~~~

<David.Spiller@dot.gov> writes:  
>Erin:  
>

>  
>Thanks so much for meeting with me today! It was a great help to me (US  
>DOT/RITA/Volpe) and the National Park Service (and probably to you and  
>the Town of Brookline) that we had a good, open discussion (i.e., what's  
>of great interest, what may be difficult to move forward, and what's DOA  
>without major revision) of some of the concepts and ideas that I'm  
>thinking about as part of the Federal Study/Plan for Olmsted NHS.  
> As we discussed, please share this conversation with Peter, Jeff and  
>Todd. If you collectively think it useful, I am prepared to meet again  
>with all of you to discuss in more detail these concepts/ideas. I do  
>hope that Peter and Jeff can pull together as much of the material in the  
>attached data/information request as is available to fully test  
>feasibility and impact of these concepts/ideas. As I am sure you  
>recognize, I was reluctant to leave any graphics or written proposals at  
>this point (other than the data list as attached herein) since these have  
>a tendency to diffuse and "lead a life of their own", as well as harden  
>peoples' positions.  
>  
>  
>  
>We agreed that you will provide (1) an electronic site plan of the  
>Brookline Reservoir (and surrounding streets); and (2) a plan or  
>schematic indicating boundary lines (and Mass Highway Department (MHD)  
>right-of-way (ROW) limits) for the intersection of Boylston Street and  
>Warren Street.  
>  
>  
>  
>Best regards (and I look forward to receiving the material from you,  
>Peter and Jeff),  
>  
>  
>  
>David Spiller, MS. Trans. Eng.

---

Sonya:

Thanks! At this point, we want to develop the concept and indicate to the National Park Service that there exists the potential for a partnership agreement. As you indicate, it is too premature to work out implementation details, or actually negotiate the agreement just yet. Once our plan is made public, I will forward a copy to you.

Best regards,

David

---

**From:** Sonya Abbott (First Parish in Brookline) [mailto:admin@firstparishinbrookline.org]  
**Sent:** Monday, December 28, 2009 12:03 PM  
**To:** Spiller, David J (VOLPE)  
**Cc:** 'Sonya A. Abbott (First Parish in Brookline)'  
**Subject:** RE: Potential long term Parking Income

Hi David,



Below is a copy of the email sent back on December 11 ... note: I used .org instead of .gov Also for your reference, the Parish Committee of First Parish only meets once a month (first Mondays) and I was under the impression that we are waiting for your report before needing to discuss this matter further. We need to know what is proposed first!

Sonya Abbott  
Parish Administrator  
First Parish in Brookline

---

**From:** Sonya Abbott (First Parish in Brookline) [mailto:admin@firstparishinbrookline.org]  
**Sent:** Friday, December 11, 2009 2:24 PM  
**To:** financechair@firstparishinbrookline.org; parishchair@firstparishinbrookline.org  
**Cc:** ministers@firstparishinbrookline.org; David.Spiller@dot.org; 'Sonya A. Abbott (First Parish in Brookline)'  
**Subject:** Potential long term Parking Income

Hi Jim and Karla,

This morning I met with David Spiller of the US DOT/Volpe Center - Cambridge. He is currently creating a master plan for the NPS Olmstead House that addresses parking logistics and the technical feasibility of how to handle future tour type groups (bus drop off/parking options) and he wanted to know if First Parish would be interested in partnering on this. He feels our upper parking lot would be an excellent location for this type of need. I indicated that we want to be a good neighbor and we would be interested, if an arrangement could be worked out financially to everyone's satisfaction.

So that you know, I did indicate that there should be no problem with this type of arrangement during the week (since our upper parking lot is currently under utilized Monday thru Friday) and also possibly on Saturdays, but that Sundays the church parking lot needs to be reserved for our usage. I also included the caveat that due to events beyond my control (memorial services etc) we would need to be assured that at certain times the arrangement might not be feasible and David felt that this shouldn't be a problem, but that naturally all of that would be part of the negotiation process in the future and would be handled through an established communication process.

David indicated that his report is not due until next spring (2010) and he envisions that implementation of a plan probably wouldn't take place until the spring of 2011 or even 2012 and while that does seem to be down the road a bit, it is good to know about all of this in advance.

I've copied David as he requested. His telephone number is 617-494-2252 should either of you care to give him a call for more information.

Sonya

Note to David:

Karla Baehr is the Chair of the Parish Committee (or board of directors)  
Jim Womack is the Treasurer of the Parish

Hi John:

Liza Stearns gave me your contact address. I understand you were at the Olmsted Open House in September for the General Management Plan (GMP). I am working with the Olmsted staff to develop a transportation plan as a component of the GMP.

Peter Furth has given me a draft of the Brookline Bicycle Plan, but I would like to ask some specific questions and get your input:

1. What is the preferred bicycle route between the Brookline Village T station and the Brookline Reservoir (and by adjacency, Olmsted NHS)?
2. Who is responsible for installing bicycle racks at the two T stations (Brookline Village and Brookline Hills)?
3. What are the existing bicycle facilities and future plans for bicycle facilities for Cypress Street (between Harvard Street and Boylston Street)?
4. How do you envision connecting (by bicycle) North Brookline and South Brookline across Boylston Street (Rt. 9)?
5. MASSDOT (formerly MHD) controls the signals on Boylston Street. What is the Town's position and ideas (and the Bicycle Committee if the Committee takes a different view) (and is the Town working the situation) to provide safer pedestrian and bicycle crossings?
6. Are there plans to accommodate bicycles along Boylston Street (between the Newton border and Brookline Village)?
7. Do you plan an extensive way finding signage system within Brookline to connect key destinations?
8. The Brookline Bicycle Plan envisions a contra-flow bicycle lane on Dudley Street (for access to the Reservoir, Olmsted NHS and connection to Warren Street). How do you envision this working (e.g., will there be a physical separation between traffic and bicycles; how does the plan deal with excessive speed of vehicles on Dudley street)?

Thanks for your input!

Best regards,

David Spiller, MS Trans. Eng.  
Community Planner  
US DOT/RITA/Volpe Center RVT-91  
55 Broadway  
Cambridge, MA 02142  
(617) 494-2252  
Fax: (617) 494-3260



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| <b>REPORT DOCUMENTATION PAGE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                |                                                  |                                                 |                                              | <i>Form Approved<br/>OMB No. 0704-0188</i>                                                 |  |
| The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. |                                |                                                  |                                                 |                                              |                                                                                            |  |
| <b>PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                |                                                  |                                                 |                                              |                                                                                            |  |
| <b>1. REPORT DATE (DD-MM-YYYY)</b><br>XX-10-2010                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                | <b>2. REPORT TYPE</b><br>GMP Transportation Plan |                                                 |                                              | <b>3. DATES COVERED (From - To)</b><br>September 2009 to October 2010                      |  |
| <b>4. TITLE AND SUBTITLE</b><br>Frederick Law Olmsted National Historic Site<br>Transportation Plan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                |                                                  |                                                 | <b>5a. CONTRACT NUMBER</b><br>F4505087777    |                                                                                            |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                |                                                  |                                                 | <b>5b. GRANT NUMBER</b>                      |                                                                                            |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                |                                                  |                                                 | <b>5c. PROGRAM ELEMENT NUMBER</b>            |                                                                                            |  |
| <b>6. AUTHOR(S)</b><br>Spiller, David                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                |                                                  |                                                 | <b>5d. PROJECT NUMBER</b><br>PMIS 74564A     |                                                                                            |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                |                                                  |                                                 | <b>5e. TASK NUMBER</b><br>NP65               |                                                                                            |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                |                                                  |                                                 | <b>5f. WORK UNIT NUMBER</b>                  |                                                                                            |  |
| <b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b><br>U.S. Department of Transportation<br>Research and Innovative Transportation Administration<br>John A. Volpe National Transportation Systems Center<br>55 Broadway, Cambridge, MA 02142                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                |                                                  |                                                 |                                              | <b>8. PERFORMING ORGANIZATION<br/>REPORT NUMBER</b><br>DOT-VNTSC-NPS-10-13                 |  |
| <b>9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b><br>U.S. Department of the Interior<br>National Park Service<br>Northeast Region<br>15 State Street, Boston, MA 02109                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                |                                                  |                                                 |                                              | <b>10. SPONSOR/MONITOR'S ACRONYM(S)</b><br>NPS NER and FRLA                                |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                |                                                  |                                                 |                                              | <b>11. SPONSOR/MONITOR'S REPORT<br/>NUMBER(S)</b><br>NPS 486/105657                        |  |
| <b>12. DISTRIBUTION/AVAILABILITY STATEMENT</b><br>Public distribution/availability                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                                  |                                                 |                                              |                                                                                            |  |
| <b>13. SUPPLEMENTARY NOTES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                |                                                  |                                                 |                                              |                                                                                            |  |
| <b>14. ABSTRACT</b><br><p>This study provide concepts and ideas for a complementary transportation plan in support of the revised General Management Plan (GMP) for the Frederick Law Olmsted National Historic Site. The GMP sets forth a preferred plan of action for how Olmsted NHS will be managed for the next twenty years. It addresses issues and problems identified under existing conditions, and support adaptation to future conditions that are planned for the site.</p>                                                                                                                                                                                                                                                                                                                                                                                                         |                                |                                                  |                                                 |                                              |                                                                                            |  |
| <b>15. SUBJECT TERMS</b><br><p>national park, transportation, park, alternative transportation</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                                  |                                                 |                                              |                                                                                            |  |
| <b>16. SECURITY CLASSIFICATION OF:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                |                                                  | <b>17. LIMITATION OF<br/>ABSTRACT</b><br><br>NA | <b>18. NUMBER<br/>OF<br/>PAGES</b><br><br>70 | <b>19a. NAME OF RESPONSIBLE PERSON</b><br>Peter Steele, NER & Jim O'Connell, FRLA          |  |
| <b>a. REPORT</b><br><br>None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>b. ABSTRACT</b><br><br>None | <b>c. THIS PAGE</b><br><br>None                  |                                                 |                                              | <b>19b. TELEPHONE NUMBER (Include area code)</b><br>617-223-5130, NER / 617-223-5222, FRLA |  |









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.