



Transportation and Infrastructure

TRANSPORTATION AND INFRASTRUCTURE GOALS

1. Improve vehicle access through Upper Marlboro and relieve traffic congestion in the town core.
2. Improve the availability and appearance of town core parking.
3. Increase walkability within Upper Marlboro by providing continuous pedestrian connections and a pleasant streetscape environment.

EXISTING CONDITIONS

STUDY AREA ROADWAYS

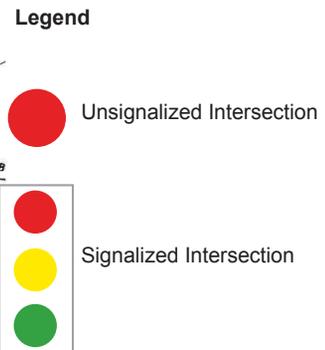
The study area consists of 14 signalized and unsignalized intersections in and around the Town of Upper Marlboro (see Map 8). The study intersections include:

- Old Marlboro Pike at Ritchie Marlboro Road (MD 980D)
- Old Marlboro Pike (MD 725) at Brown Station Road
- Old Marlboro Pike (MD 725) at John Rogers Boulevard
- Old Marlboro Pike (MD 725) at Rectory Lane
- Old Marlboro Pike and Main Street (MD 725) at Old Crain Highway at Trinity Lane
- Main Street (MD 725) at Water Street (MD 717) and Elm Street
- Main Street and Marlboro Pike (MD 725) at Governor Oden Bowie Drive
- Marlboro Pike (MD 725) at Largo Road (MD 202)
- Marlboro Pike (MD 725) at US 301 (Crain Highway)
- Elm Street at Governor Oden Bowie Drive
- Water Street (MD 717) at Judges Drive
- Water Street (MD 717) at Pennsylvania Avenue westbound (MD 4)

- Water Street (MD 717) at Pennsylvania Avenue eastbound (MD 4)
- Pratt Street at Judges Drive

Major roadways providing access to Upper Marlboro are US 301 (Crain Highway) and Pennsylvania Avenue (MD 4). Direct access is via MD 725 Old Marlboro Pike/Main Street/Marlboro Pike, Water Street, Old Crain Highway, and Largo Road (MD 202). Main Street, Water Street, and Governor Oden Bowie Drive are the main roadways in the town core street network.

Table 5 details the roadways included in the transportation analysis.



Map 8: Study Area and Study Intersections

TABLE 5 UPPER MARLBORO STUDY AREA ROADWAYS

Name	Type	Connects	Speed Limit	Owned and Maintained by
Ritchie Marlboro Road	Two-lane undivided rural major collector	Capital Beltway (I-95/I-495) and Pennsylvania Avenue (MD 4)	30 mph	Maryland State Highway Administration (SHA), between MD 4 and Old Marlboro Pike
Brown Station Road	Two-lane undivided roadway	Old Marlboro Pike and White House Road	40 mph	Prince George's County
John Rogers Boulevard	Four-lane divided roadway	Old Marlboro Pike and Brown Station Road	40 mph	Prince George's County
Rectory Lane	Two-lane undivided roadway	Old Marlboro Pike and Wilson Lane	15 mph	Town of Upper Marlboro
Old Crain Highway	Two-lane undivided roadway	Pennsylvania Avenue (MD 4) and Old Marlboro Pike, Main Street (MD 725), and Trinity Lane	40 mph	SHA
Trinity Lane	Two-lane undivided roadway	Church Street and Old Marlboro Pike/Main Street (MD 725)	25 mph	Town of Upper Marlboro
Water Street (MD 717) and Elm Streets	Two-lane undivided urban local roadways	Governor Oden Bowie Drive and Pennsylvania Avenue (MD 4)	25 mph	Water Street: SHA Elm Street: Town of Upper Marlboro
Governor Oden Bowie Drive	Two-lane undivided roadway	Elm Street and Old Marlboro Pike/Main Street (MD 725)	25 mph	Prince George's County
Largo Road (MD 202)	Two-lane undivided roadway	Capital Beltway (I-95/I-495) and Marlboro Pike (MD 725)	40 mph	SHA
US 301 (Crain Highway)	Four-lane divided major arterial roadway	US 50 and MD 5	50 mph	SHA
Judges Drive	Three-lane undivided roadway	Water Street and Pratt Street	25 mph	Prince George's County
Pratt Street	Two-lane undivided roadway	Main Street (MD 725) and Judges Drive	25 mph	Town of Upper Marlboro
Pennsylvania Avenue (MD 4)	Limited-access divided freeway	Capital Beltway (I-95/I-495) and US 301	55 mph	SHA
Old Marlboro Pike/Main Street/ Marlboro Pike (MD 725)	Two-lane undivided minor arterial roadway; in town core, becomes Main Street, a two-lane undivided roadway	Ritchie Marlboro Road and US 301	30 mph	SHA, beginning at Brown Station Road

PROPOSED ROADWAY IMPROVEMENTS

The 1993 Subregion VI master plan proposed a number of roadway improvements for the Upper Marlboro area detailed in Table 6.

TABLE 6 1993 SUBREGION VI MASTER PLAN PROPOSED ROADWAY IMPROVEMENTS

Roadway/Corridor	Proposed Improvement	Responsible Entity
MD 4 (Pennsylvania Avenue)	Reversible and HOV lanes	SHA
MD 4 (Pennsylvania Avenue) at Water Street	Interchange revision; elimination of access to/from the east	SHA
MD 4 (Pennsylvania Avenue) at Old Crain Highway	Remove interchange	SHA
MD 4 (Pennsylvania Avenue) at Ritchie Marlboro Road	Upgrade interchange	SHA
US 301 corridor	Interchange and service roads	SHA
MD 202 (Largo Road)	Widen and connect to US 301 and MD 4 (Pennsylvania Avenue)	SHA
Ritchie Marlboro Road	Widen northward from MD 4 (Pennsylvania Avenue)	Prince George's County
Brown Station Road	Widen to four lanes to Brooke Road	Prince George's County
Ring Road	Concept and alternatives	Prince George's County and the Town of Upper Marlboro
Old Marlboro Pike	Widen to four lanes west of Brown Station Road	Prince George's County
Water Street	Widen to four lanes between MD 4 (Pennsylvania Avenue) and Judges Drive	Prince George's County

Source: M-NCPPC

NONAUTO ACCESS

Existing nonauto access in the Town of Upper Marlboro was inventoried, including bus transit, sidewalks, and a hike/bike recreational trail (see Exhibit 5-2).

Pedestrian facilities within the town limits of Upper Marlboro include sidewalks, curb ramps, marked crosswalks, and streetlights along roadways within the town limits. No pedestrian signals are provided at any of the 14 study intersections. Select roadway segments in town and on primary corridors surrounding

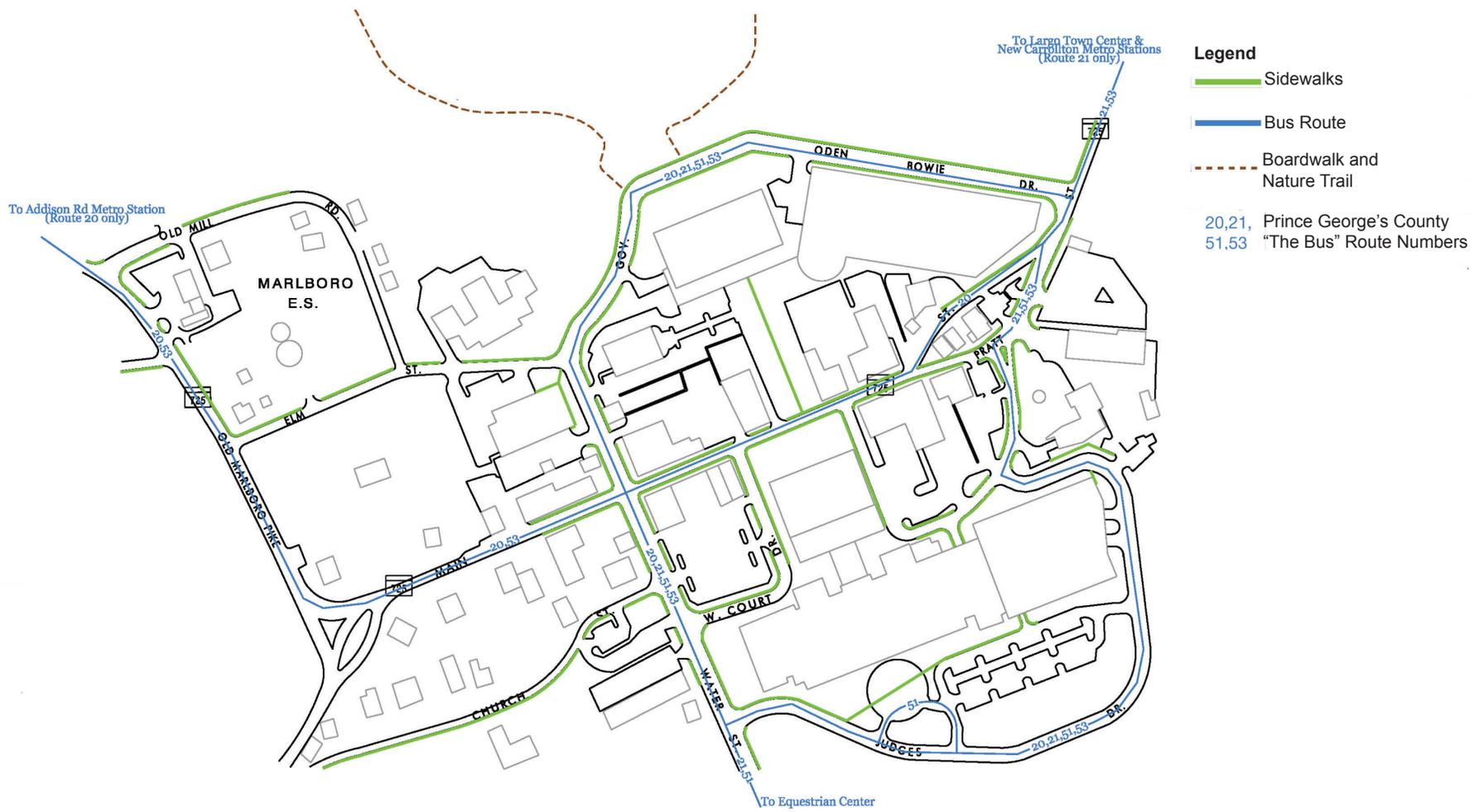
the town, including Old Crain Highway and Old Marlboro Pike, lack pedestrian facilities, as noted in Map 9.

No bicycle facilities or equestrian trails exist within the study area.

The study area is served by four local bus routes ("The Bus") operated by Prince George's County: (1) Route 20 connects Upper Marlboro to the Addison Road Metrorail station, (2) Route 21 connects the town to the New Carrollton and Largo Town Center Metrorail stations and the Equestrian Center, (3) Route 51 connects the

town core to the Equestrian Center parking lots, and (4) Route 53 connects the town to points east and west of the town boundaries.





Map 9 Existing Sidewalks, Trails, and Transit

EXISTING TRAFFIC VOLUMES

Traffic data were collected at all 14 study intersections in February, March, and September 2007. Morning and evening weekday peak hour turning movement counts were performed at all study intersections from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.

CAPACITY AND LEVEL OF SERVICE

The methodology of the Highway Capacity Manual (HCM) was used to evaluate capacity for selected intersections during the morning and evening peak hours. A Synchro traffic model was developed and coded with existing conditions data for each peak period, including roadway geometry, traffic volumes, and signal timing and phasing data as inventoried and documented in the field or as provided by the Maryland State Highway Administration (SHA).

Performance measures of effectiveness for HCM intersection analysis include level of service (LOS), delay, and volume-to-capacity ratio (v/c ratio). The level of service is a letter designation that corresponds to a certain range of roadway operating conditions. The levels of service range from A to F, with A indicating the best operating conditions and F indicating the worst—a failing—operating condition. The v/c ratio is the ratio of current flow rate to the capacity of the intersection. This ratio often is used to determine how sufficient capacity is on a given roadway. Generally speaking, a ratio of 1.0 indicates that the roadway is operating at capacity. A ratio of greater than 1.0 indicates that the facility is operating above capacity as the number of vehicles exceeds the roadway capacity.

TABLE 7: SUMMARY OF EXISTING INTERSECTION CAPACITY ANALYSIS, AM AND PM

Intersection	Delay sec/veh	V/C Ratio	Level of Service	Critical Lane Volume	V/C Ratio	Level of Service
MD 725 (Old Marlboro Pk) at Ritchie Marlboro Rd ¹	29.4 (17.8)	0.89 (0.69)	C (B)	1,358 (1,090)	0.85 (0.68)	D (B)
MD 725 (Old Marlboro Pk) at Brown Station Rd ¹	18.0 (15.2)	0.32 (0.31)	B (B)	504 (491)	0.31 (0.31)	A (A)
MD 725 (Old Marlboro Pk) at John Rogers Blvd ¹	18.2 (19.1)	0.43 (0.44)	B (B)	620 (625)	0.39 (0.39)	A (A)
MD 725 (Old Marlboro Pk) at Rectory La ²	12.8 (16.1)	0.03 (0.05)	B (C)	484 (641)	0.30 (0.40)	A (A)
MD 725 (Old Marlboro Pk & Main St) at Old Crain Highway ²	9.5 (9.1)	0.26 (0.13)	A (A)	546 (805)	0.34 (0.50)	A (A)
Elm Street at Governor Oden Bowie Dr ²	12.2 (24.3)	0.27 (0.65)	B (C)	411 (832)	0.26 (0.52)	A (A)
MD 725 (Main St) at Elm St and MD 717 (Water St) ¹	12.0 (10.1)	0.66 (0.54)	B (B)	968 (829)	0.60 (0.52)	A (A)
MD 717 (Water St) at Judges Dr ²	18.2 (99.4)	0.22 (1.11)	C (F)	591 (811)	0.37 (0.51)	A (A)
MD 717 (Water St) at WB MD 4 Ramps ²	22.3 (32.9)	0.76 (0.83)	C (D)	382 (993)	0.24 (0.62)	A (A)
MD 717 (Water St) at EB MD 4 Ramps ²	18.6 (>500)	0.58 (3.91)	C (F)	552 (1,571)	0.35 (0.98)	A (E)
Pratt St at Judges Dr ²	12.2 (11.2)	0.09 (0.14)	B (B)	493 (349)	0.31 (0.22)	A (A)
MD 725 (Main St & Marlboro Pk) at Governor Oden Bowie Dr ¹	9.8 (12.7)	0.60 (0.50)	A (B)	936 (774)	0.59 (0.48)	A (A)
MD 725 (Marlboro Pk) at MD 202 (Largo Rd) ¹	25.0 (25.0)	0.63 (0.72)	C (C)	951 (1,193)	0.59 (0.75)	A (C)
MD 725 (Marlboro Pk) at Us 301 ¹	46.4 (33.4)	0.95 (0.86)	D (C)	1,468 (1,374)	0.92 (0.86)	E (D)

¹ Existing signalized intersection

² Stop-controlled intersection. Level of service, delay and V/C for critical movement only (HCM)

Map 10 shows the existing intersection levels of service. The results of the existing conditions intersection capacity analysis are summarized in Table 7.

The existing conditions capacity analysis indicates that two intersections are operating at a failing level of service in the evening peak hour: Water Street (MD 717) at Judges Drive, and Water Street (MD 717) at the eastbound MD 4 (Pennsylvania Avenue) ramps. All other intersections at peak hours are currently operating at a level-of-service D or better.

In addition, a capacity analysis was performed for year 2018 future conditions. The Upper Marlboro road network was tested with estimated future traffic volumes and with the proposed roadway improvements discussed in the recommendations section below. The results of the future capacity analysis are summarized in Table 8.

EXISTING PARKING SUPPLY

A survey was completed of all on- and off-street parking facilities in the town. This survey identified the facilities as public, private, and/or restricted lots and noted the number of available spaces. On-street metered parking can be found along both sides of Main Street to the blocks east and west of Water Street, on both sides of Water and Elm Streets between Judges Drive and Governor Oden Bowie Drive, and along Governor Oden Bowie Drive. On-street parking is generally not available along the study area roadways outside the town limits.

Two structured parking facilities are provided in the town: a 551-space facility on Governor Oden Bowie Drive and a 783-space facility on Judges

TABLE 8: SUMMARY OF FUTURE INTERSECTION CAPACITY ANALYSIS WITH ROADWAY IMPROVEMENTS—FUTURE PM

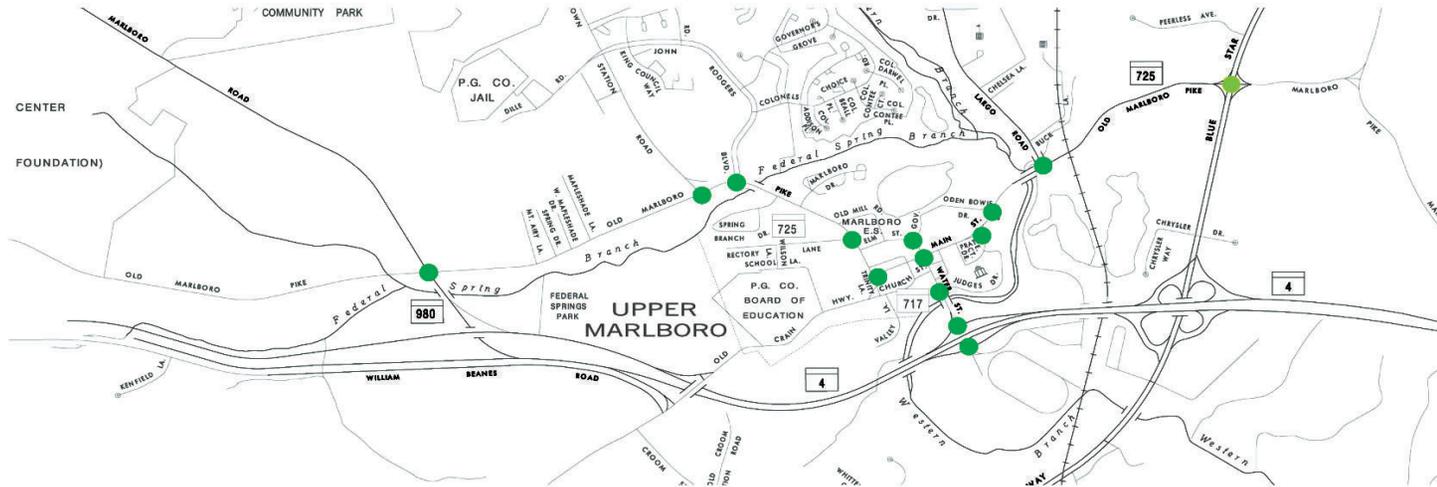
Intersection	Control	Delay (sec/veh)	Volume-to-Capacity Ratio	Level of Service
PM Peak Hour				
Old Marlboro Pk at Ritchie Marlboro Rd	Signal	18.5	0.72	B
Old Marlboro Pk at Brown Station Rd	Signal	25.4	0.48	C
Old Marlboro Pk at John Rogers Blvd	Signal	20.0	0.48	C
Old Marlboro Pk at Rectory Lane ¹	Stop	17.6	0.06	C
Old Marlboro Pk and Main St at Old Crain Hwy ²	Roundabout	2.5	0.47	A
Elm St at Governor Oden Bowie Dr	Signal	20.1	0.51	C
Main St at Elm and Water Sts	Signal	11.9	0.64	B
Water St at Judges Dr	Signal	14.5	0.60	B
Water St at WB MD 4 Ramps	Signal	16.0	0.71	B
Water St at EB MD 4 Ramps	Signal	24.0	0.82	C
Old Crain Hwy at Brown Station Rd Extension	Stop	13.8	0.17	B
Main St & Marlboro Pk at Governor Oden Bowie Dr and Judges Dr	Signal	25.1	0.74	C
Marlboro Pk at Largo Rd and Marlboro Race Track Rd	Signal	53.2	0.96	D
Marlboro Pk at US 301	Signal	77.1	1.05	E

¹ Stop-controlled intersections; delay, V/C ratio and level of service for stop-controlled movement only

² Roundabout control

Drive. The Equestrian Center satellite parking facility was also surveyed for the number of spaces available and its occupancy rate. The overflow parking provided at this facility south of town allows for up to 1,013 vehicles in four parking lots. When surveyed it was found that 542 spaces (53.5 percent) were occupied at midday on a typical weekday. This satellite parking is served by a free shuttle bus to the town core operated as part of The Bus system. Map 11 shows existing parking conditions.

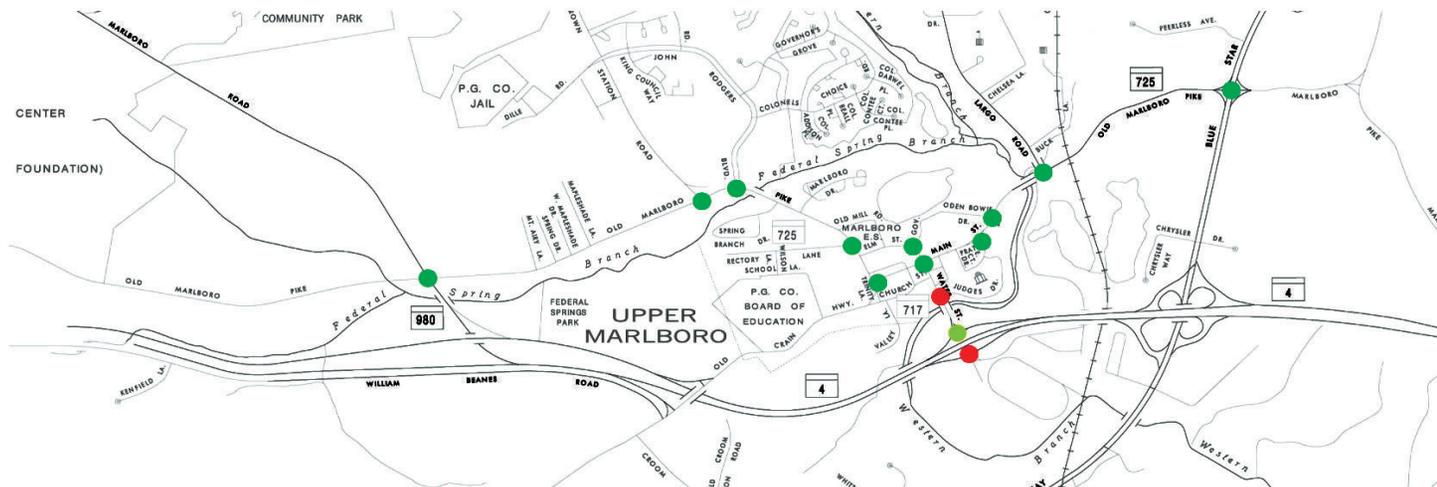
EXISTING LEVEL OF SERVICE AM



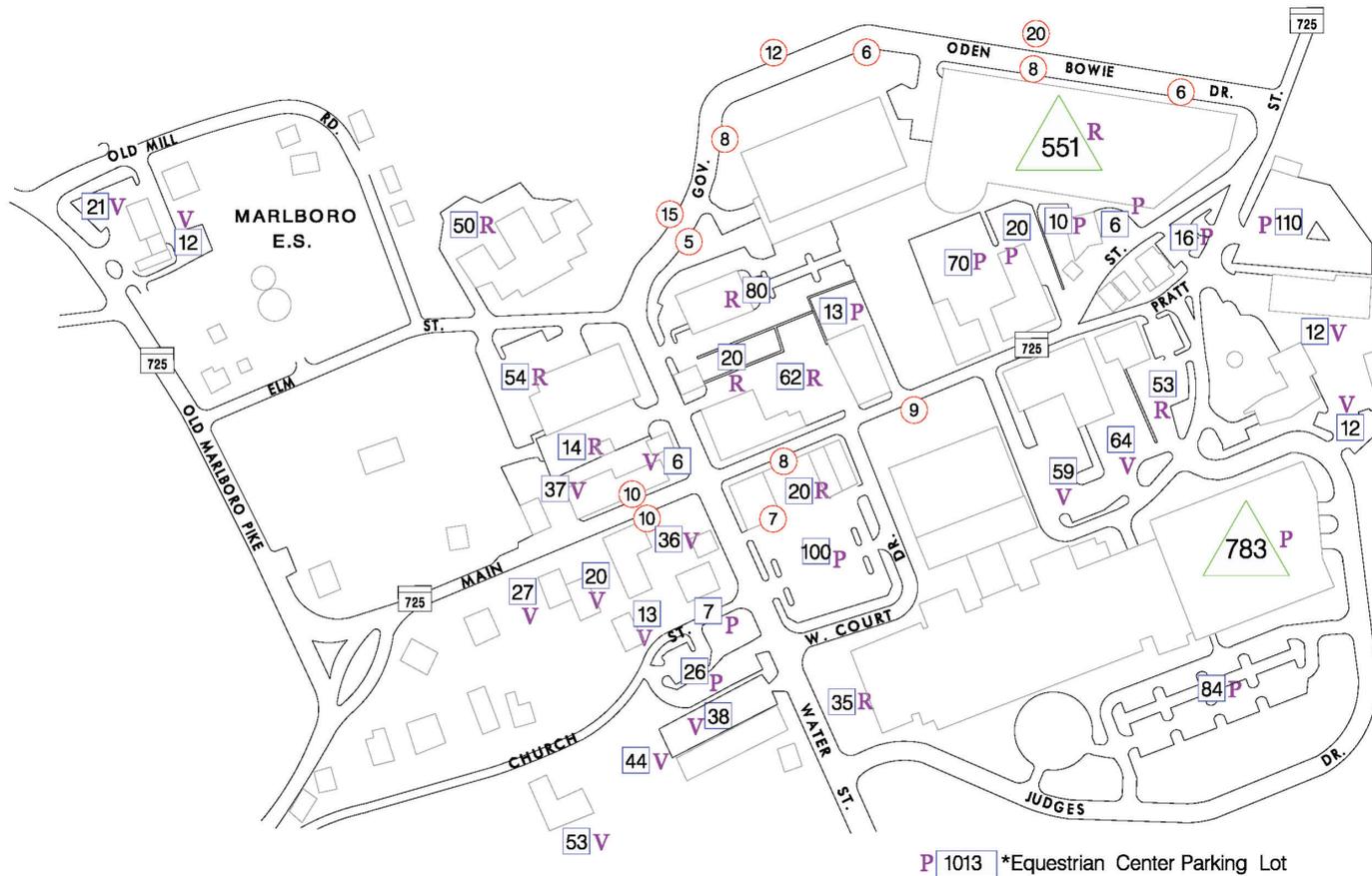
Legend

- Level of Service A, B, or C
- Level of Service D
- Level of Service E, or F

EXISTING LEVEL OF SERVICE PM



Map 10: Existing Levels of Service, AM and PM



Legend

- P** Public Parking
- V** Private Parking
- R** Restricted Parking
- 00** Number of On-Street Spaces
- 00** Number of Off-Street Spaces
- 00** Number of Spaces Within Structured Facility



Map 11: Existing Parking Conditions