



FINAL REPORT

Merchants Row Parking, Transit and Traffic Study

14 November 2008

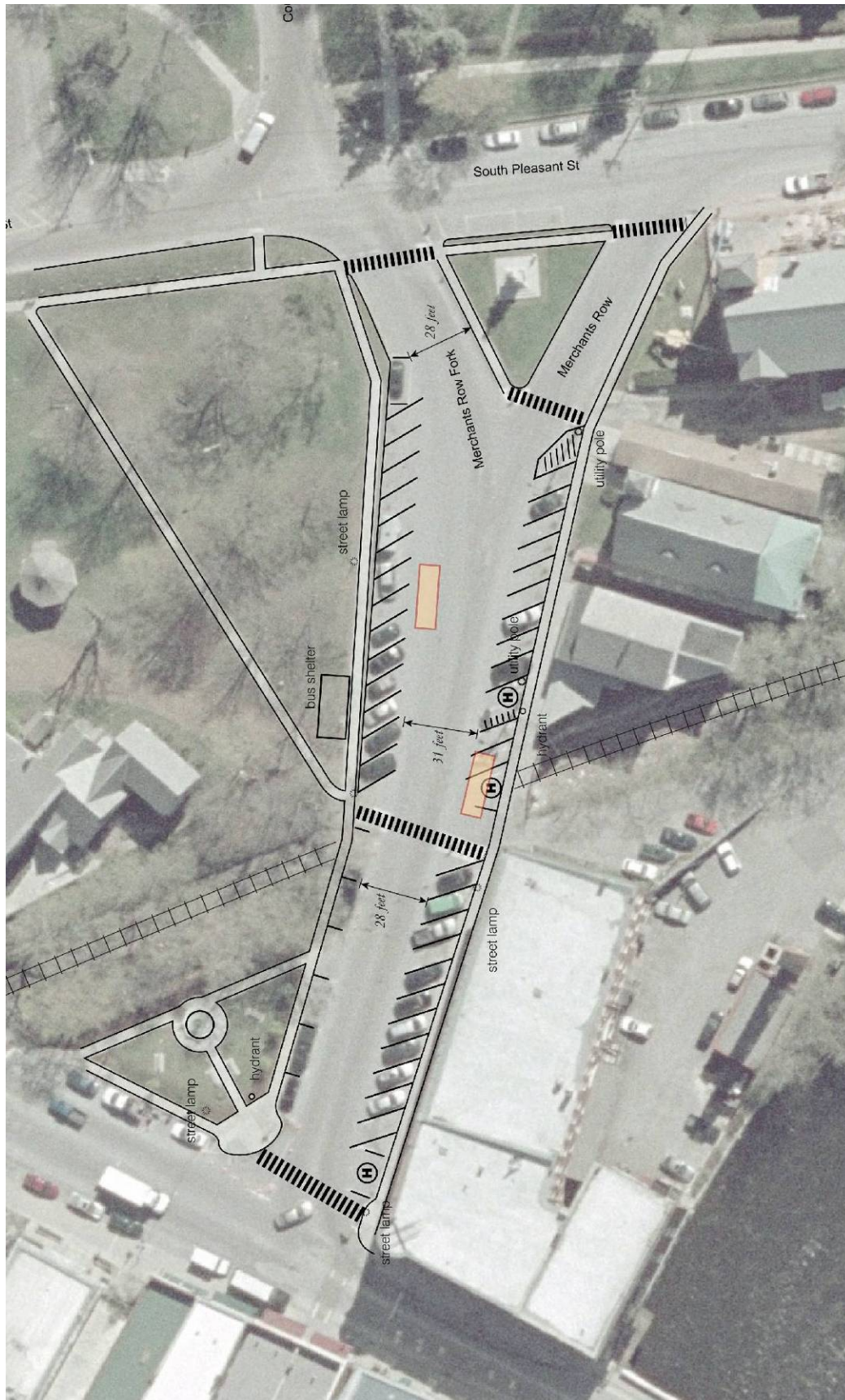
With the growth of the Addison County's transit service, Merchant's Row has become an important transit hub for Addison County, in addition to the street's other roles as a connecting street, shopping destination, a place to park, and part of Middlebury's historic townscape. These multiple uses of one street can at times create chaos, resulting from conflicts between traffic, buses stopping for passengers, pedestrians, and customers parking along the street.

This report reviews the existing conditions on Merchants Row related to parking configuration and transit operations, and provides recommendations for short term, low cost changes to the parking and traffic configuration to reduce these conflicts while preserving important on-street parking. It is anticipated that the Cross Street bridge project will result in substantial traffic circulation changes, with traffic relief for Merchant's Row. Once the new crossing is in place, longer term options for Merchant's Row can be explored.

Existing Conditions

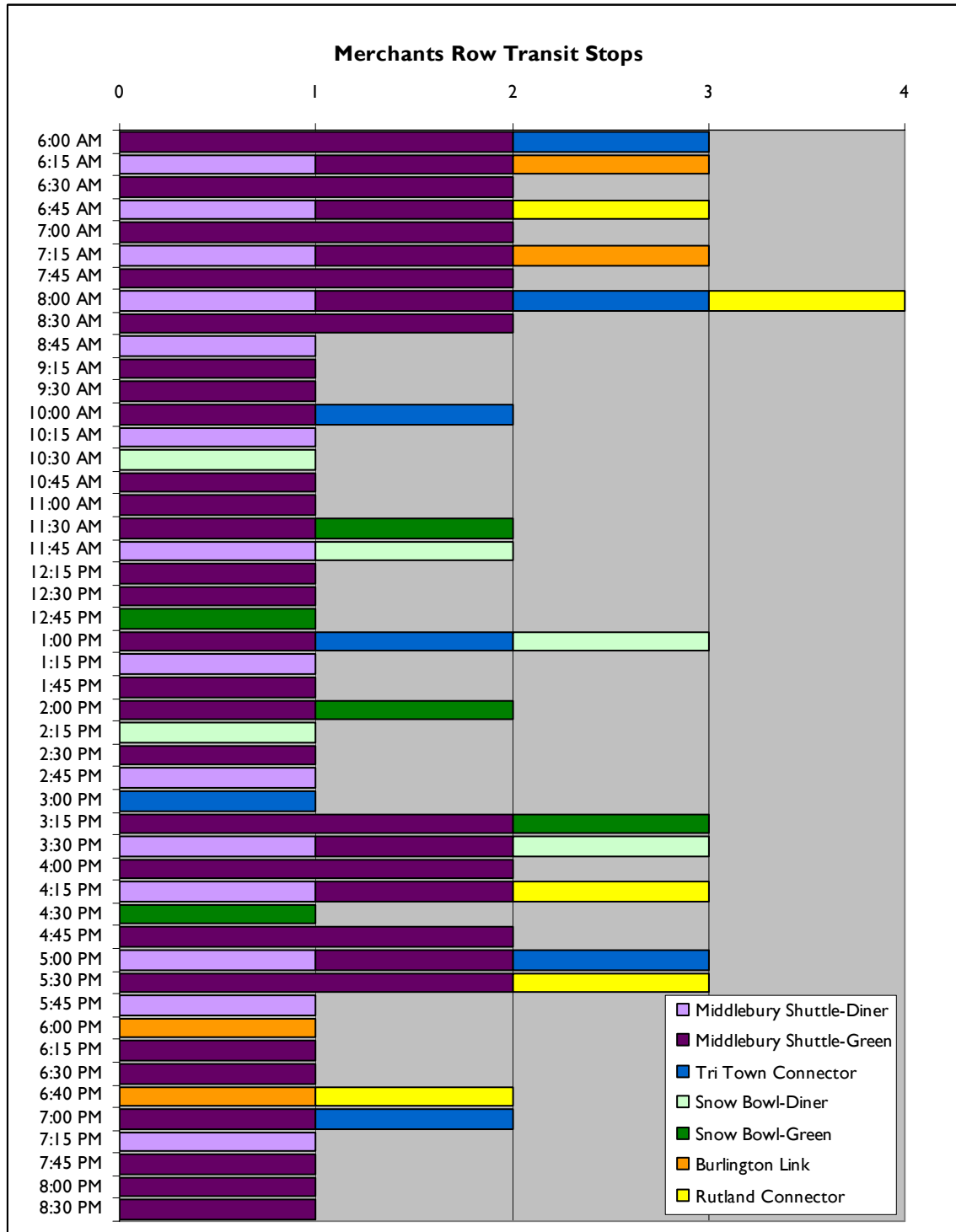
The map on the following page shows the existing features of the Merchants Row study area. There are a total of 43 general purpose parking spaces, plus 3 handicapped parking spaces on the street. There are several features along the street, including driveways, a fire hydrant, and utility poles that restrict where on-street parking can occur. There are no defined loading and unloading spaces for businesses along Merchants Row.

Observations were conducted in between 7:30 and 9:30 a.m. on May 2, 2008; and from 2:45 to 4:30 p.m. on May 16, 2008. These were Fridays, which are typically the busiest days of the week, when both the local schools and Middlebury College were in session. Attached to this report are more detailed notes and photographs, and the key findings and observations are summarized below.



Transit Operations

There is a bus shelter on the “green” side (i.e. westbound direction) of Merchants Row, where ACTR (Addison County Transit Resources) buses stop. Buses also stop on the “diner” side of Merchants Row, although not as frequently. The chart below shows the scheduled transit stops on Merchants Row by route. All stops are on the “green” side of the road except as noted for some of the Middlebury Shuttle stops.



The following photographs illustrate some of the peak hour conditions.

Morning



Exchange between Link and local bus in early morning, with high parking vacancy



Buses are able to use vacant parking spaces in early morning stops, as well as crosswalk area



When no vacant parking spaces are available, the bus stops east of shelter where street is wider



Afternoon



Passengers waiting at shelter



Bus uses vacant parking space to assist disabled passenger



Bus stops east of shelter in wider section of street so that traffic can pass without hitting pedestrian sign.



Eastbound buses are often able to stop in vacant parking spaces

A few observations:

The specific location of the bus stops varied somewhat during the observation period, and depended on whether or not there were vacant parking spaces near the bus shelter..

Most bus stops are relatively quick, and there were only a few instances during the observation period that buses waited at the stop for passenger exchanges.

The crosswalk bollard in the street prevents buses from stopping near the crosswalk and shelter, as it wouldn't allow vehicles to pass the bus without hitting the sign.

Buses were able to use vacant parking spaces at times, which was particularly helpful when the driver assisted a disabled passenger or bicycle user.

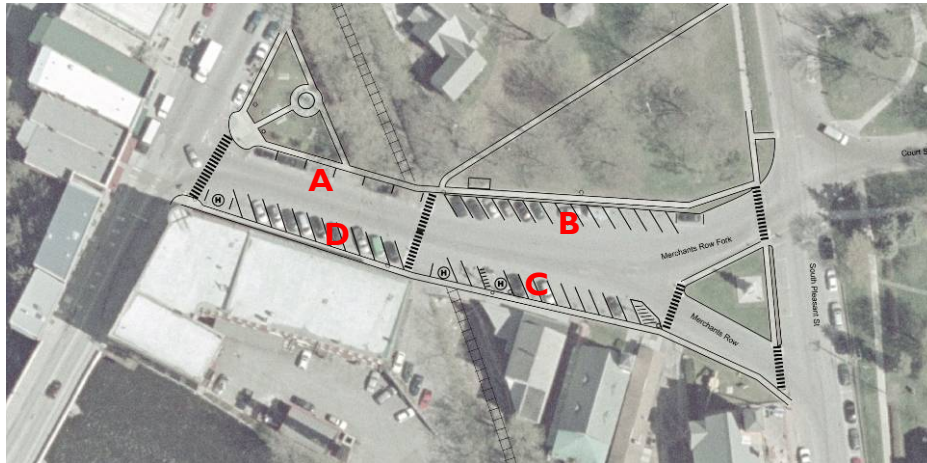
Truck Unloading Activity

The amount of parking related to unloading trucks was limited, and seemed most active early in the morning. The following photos show the most common locations where this occurred.



Parking Utilization

Parking use of Merchant's Row on-street spaces was monitored through out the observation period. The parking area is divided into groups as shown below. The parking utilization only considered non-handicapped, general purpose parking spaces.



Average Utilization	A	B	C	D
Total Capacity (spaces)	6	15	11	11
7:30 to 8:30 a.m.	17%	73%	52%	67%
7:30 to 9:30 a.m.	45%	76%	62%	69%
2:45 to 4:30 p.m.	60%	79%	64%	52%

In general, average utilization remains well below the recommended target of 85% during the observations, indicating that there does not appear to be a parking shortage along Merchant's row.

Certain parking spaces appear to be avoided until other areas are full. During the early morning period before 8:30, there was no use of the far westbound parallel spaces (except for one vehicle of a project team member). These spaces become more highly utilized later in the morning, and throughout the afternoon, probably due to their proximity to businesses that open later in the morning. Data collected on three additional days in May, 2008 by ACRPC staff confirmed the same pattern of light early morning utilization.

Throughout both observation periods, no one was ever observed using the diagonal eastbound spaces just east of the crosswalk. They were occasionally used for truck loading and bus stops, but never for parking. The reason these are avoided may be related to several factors, including the availability of more convenient parking elsewhere on the street, and that these parking spaces are "sandwiched" between handicapped spaces and a fire hydrant restricted area, which may make users less certain of their ability to park there legally.

During the entire observation period, there was no use of the handicapped spaces for parking. The ITE parking guidelines that there should be 2 handicapped parking spaces for a parking area between 25 and 50 spaces total. Depending on the number and distribution of handicapped spaces on adjacent downtown streets, one of the handicapped spaces could be considered for conversion to a designated loading area.

Traffic Congestion

Traffic volumes on Merchants' Row are generally steady and not excessive, but congestion and traffic bottlenecks on the surrounding street system frequently impedes vehicles from leaving Merchants Row, resulting in occasional long queues that will extend the entire length of the street. This can happen in either direction, and was most severe during the afternoon between 3:00 and 4:00 p.m. during local school release time. Bus schedules appeared to be running a few minutes late during the time, and they did not wait at the stop for passenger exchanges, but rather continued immediately on their route after stopping. During the peak of afternoon traffic congestion, vehicles moved so slowly on Merchants Row due to downstream bottlenecks that the buses appeared to have little or no effect on traffic movement. Parked cars often had to wait for a clear spot in the queue on Merchants Row to pull out, but the bus traffic did not appear to have a negative effect on their ability to move.

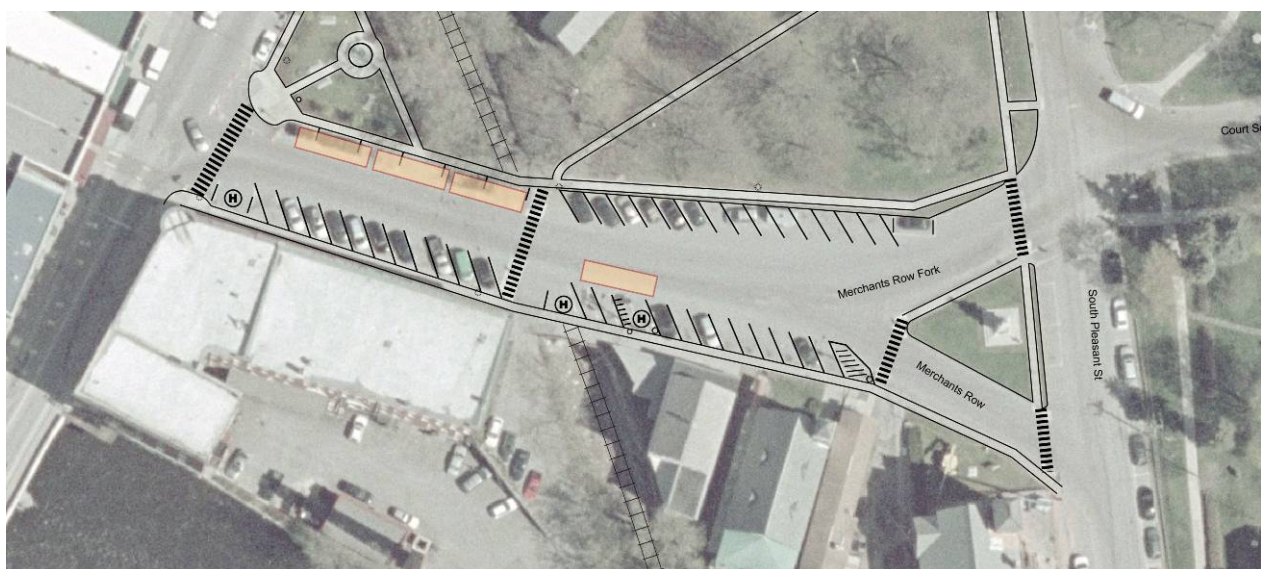
Design Concept Alternatives

Several potential alternatives to address some of the traffic conflicts that have been observed are described below. These are presented as draft concepts, and have not yet had the scrutiny of project team or public review.

Early Action Measures

This concept involves a few relatively simple measures that could be implemented relatively quickly and inexpensively, and can be combined with any of the other design concepts. These include the following:

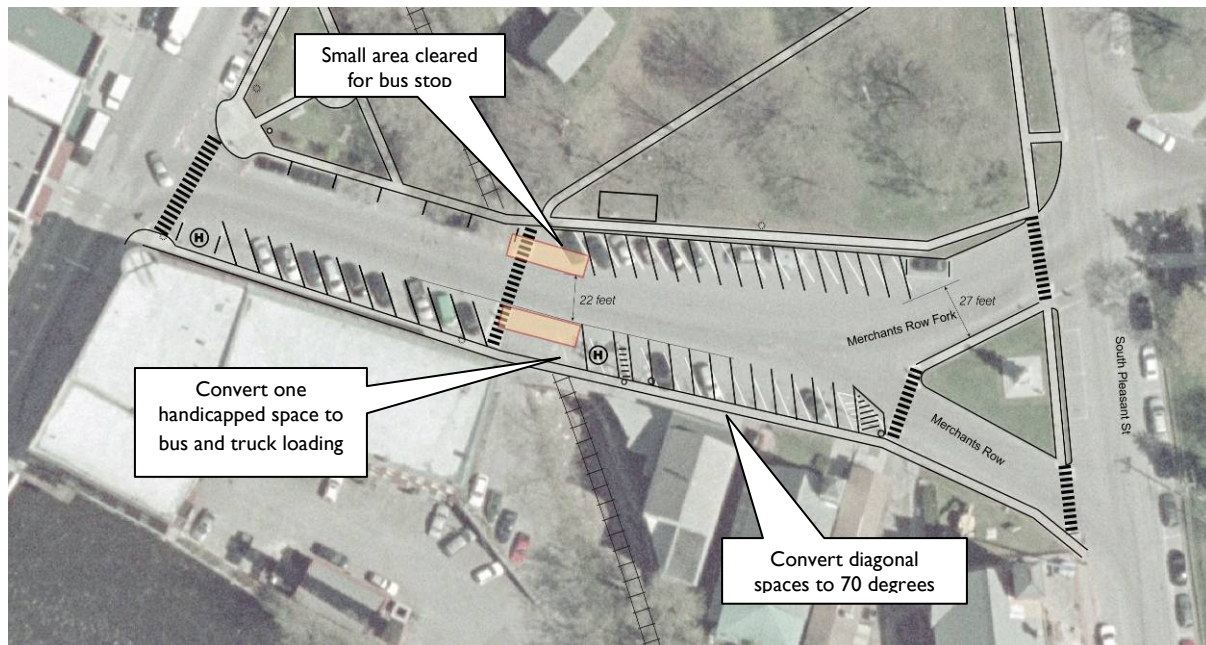
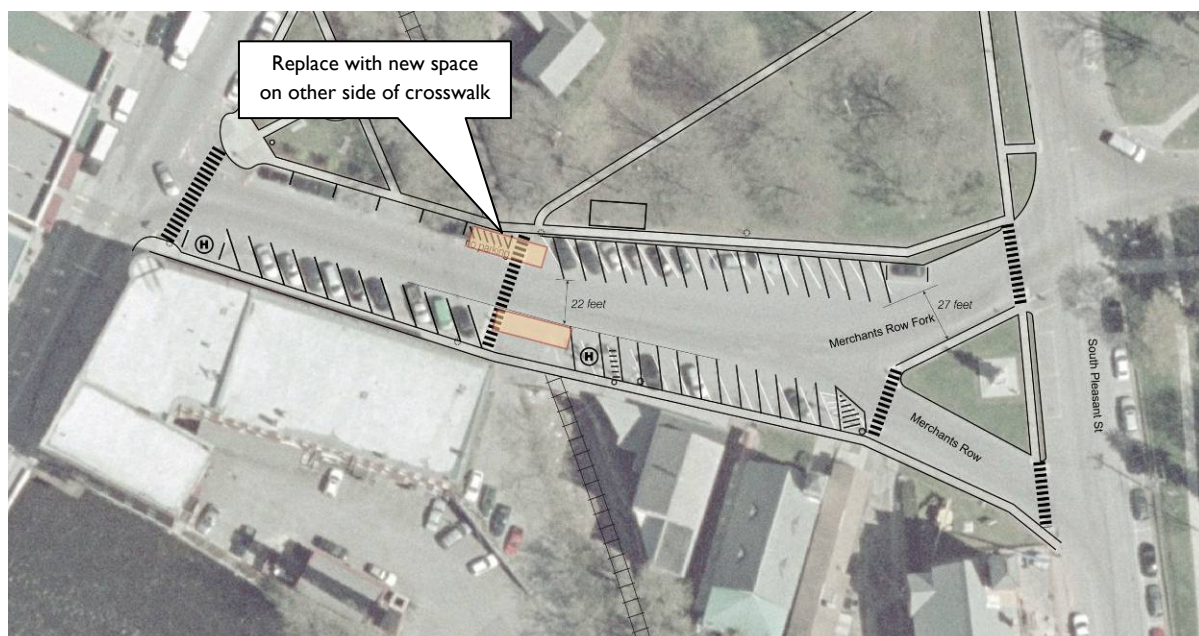
- Sign the westbound parallel spaces “No parking 6:30 to 8:30 a.m. Mon – Fri”, as these were very lightly used during this period. This will allow for buses to wait for passengers without blocking parking spaces or traffic during the busy early morning period.
- Consider removing the pedestrian bollard sign, as it impedes the use of the crosswalk area for passenger loading.
- Consider eliminating handicapped space over railroad bridge, which may provide some room for legal truck unloading



** shaded beige areas show approximate size of a 31 foot bus, slightly larger than the current 26 ft buses.*

Design Option A: Change Angle of Diagonal Spaces

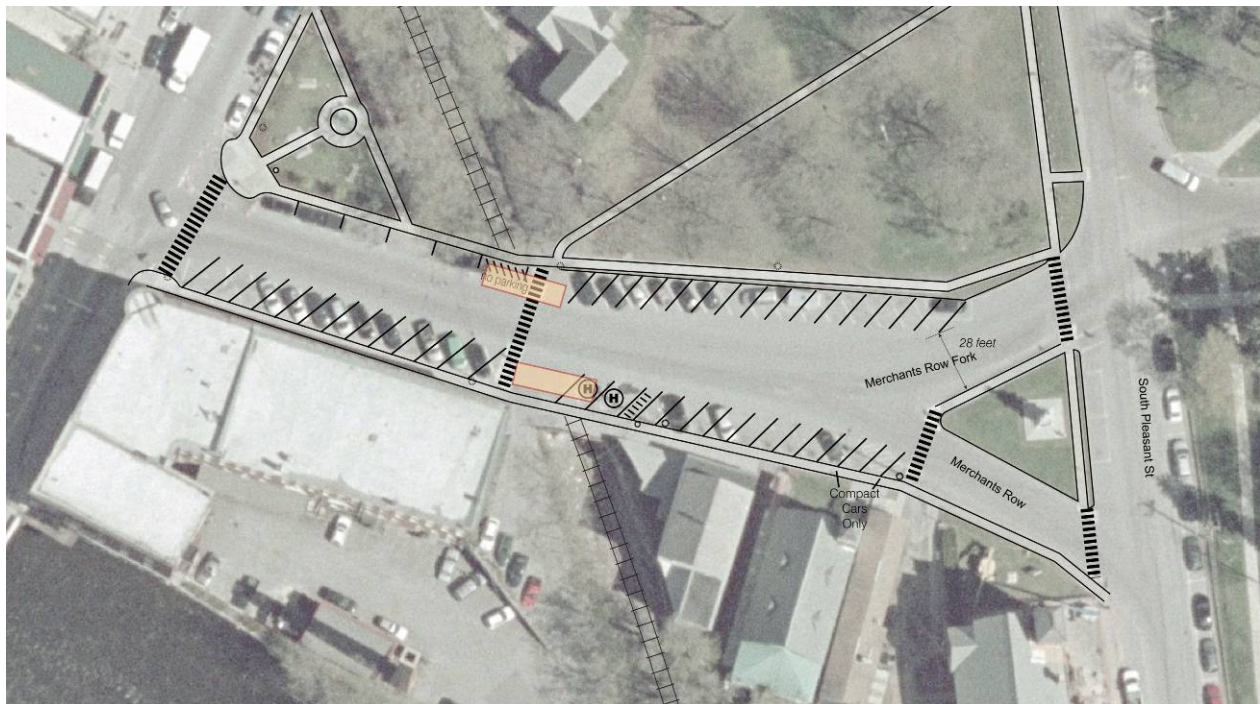
This option would preserve the same number of general spaces, but would slightly reallocate the parking spaces, and eliminate one handicapped space. The existing parking along Merchants Row is at an angle of 55 degrees from the curb. The east portion of Merchants Row is generous in its width, and the parking on this portion could be changed to an angle of 70 degrees, which would provide the same number of parking spaces in a shorter curb length. This would then allow some space near the bus shelter and crosswalk to be designated for bus stops. In addition, one handicapped space could be converted to a loading area.

Variation A-1***Variation A-2***

Design Option B: Reverse Angle Parking Reconfiguration

This alternative reconfigures the diagonal spaces to be reverse diagonal, where users back into the parking spaces. This parking configuration has many safety advantages, primarily because the driver's visibility of oncoming traffic is much better than when they begin reversing while in the street, rather from a parking space where sightlines are much more restricted. In addition, passengers are naturally directed toward the sidewalk rather than toward the street, and loading of parcels into the rear trunk of a car can occur more safely on the sidewalk than at the edge of the street.

The parking arrangement shown below includes converting the handicapped space at the corner of Merchants Row and Main Street to a general purpose space. This allows for the conversion of a space near the bus shelter to be dedicated as a bus stop with no loss of parking. This results in the same number of general purpose spaces, with one fewer handicapped spaces. Several spaces at the far eastbound use of Merchants Row, near the triangle green, would need to be designated for compact cars only.



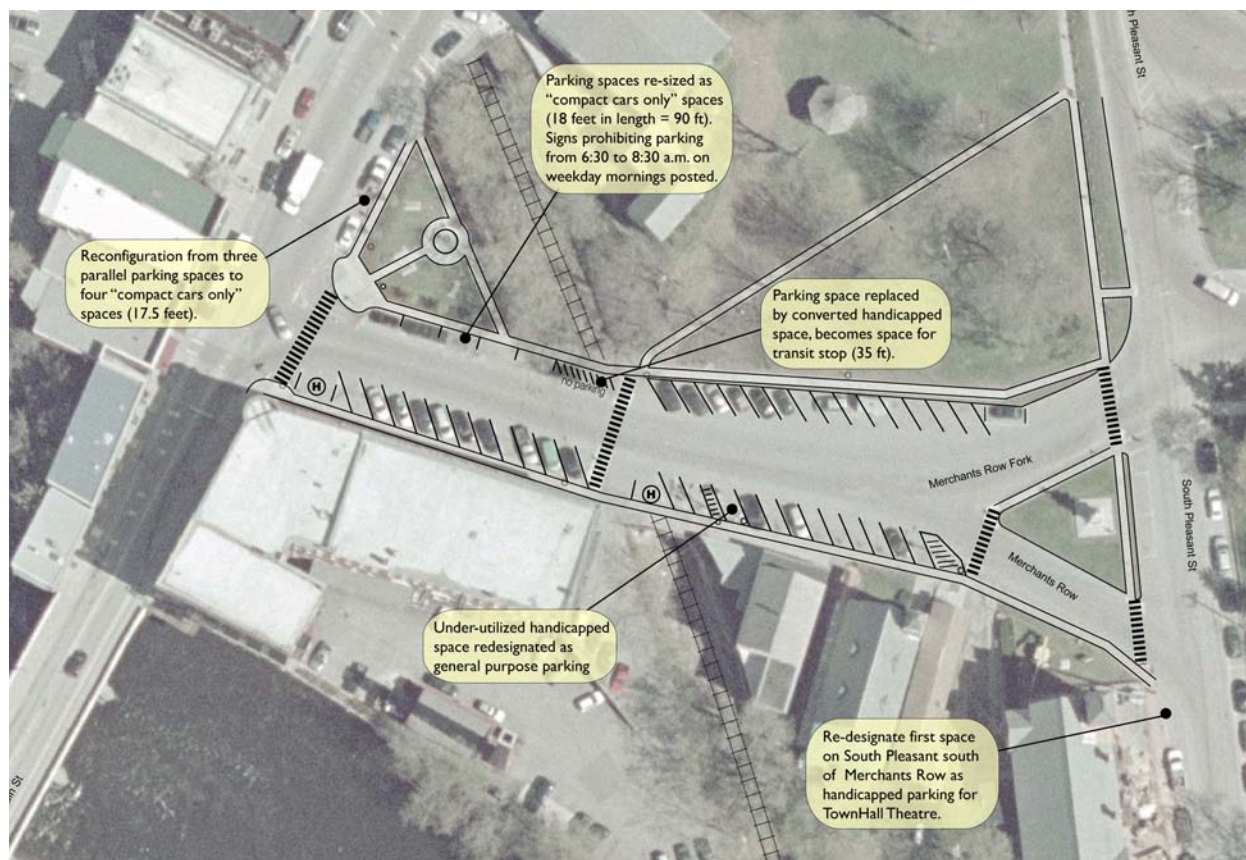
This alternative does not have the advantages of the first one in terms of more efficient use of space, but it should result in some efficiency and safety gains with the reverse angle parking. It may be possible to combine this with a slight change in the parking angle of 5 degrees (i.e. from 55 to 60 degree parking), which may result in more space created at the bus shelter and crosswalk area.

Design Option C: Relocate parallel space, provide bus landing at crosswalk

This alternative includes the following changes in parking configuration:

- 1) Re-designation of the easterly handicapped space on Merchants Row eastbound (next to the fire hydrant) as a general purpose space.
- 2) Elimination of the westernmost parallel space on Merchants Row westbound (next to the crosswalk), and re-designation as a transit stop area.
- 3) Designation of the remaining 5 parallel spaces on Merchants Row westbound for “Compact Cars Only”, and “No Parking 6:30a.m. to 8:30 a.m.”. These spaces should be 18 feet in length, compared to 20 feet for the existing spaces. The additional 10 feet created will enlarge the transit stop area, to approximately 35 feet in length, sufficient for a full sized bus.

This plan will achieve the primary goals of the study, with the lowest cost and least change from existing parking configurations. The bus stop area will allow for safe loading and unloading near the transit shelter, and provide safe and convenient access between the bus and sidewalk network. All general purpose parking spaces are conserved. The proposed distribution of handicapped spaces will better serve the area, and in particular the newly renovated Town Hall Theatre.



Summary

Below is a table describing the features of each alternative for comparison purposes.

Alternative	# General Use Spaces	# Handicapped Spaces	Truck Loading Areas	Design Considerations
Existing	43	3	None are designated	Green-side Buses do not have space to stop off street, pedestrians must walk through parking to get to sidewalk.
Option A	43	2	Small area provided on RR bridge	Loss of one handicapped space; slightly narrower width of Merchants Row.
Option B	43 (2 spaces for smaller cars only)	2	None	Could consider slight change in angle to 60 degrees for additional space; Change to reverse parking will take education and adjustment period.
Option C (preferred)	43 (5 spaces for smaller cars only)	2	None	Can be accomplished with minimal changes in pavement marking, and results in minor changes for parking, conserving all parking spaces.

The report was presented to the Middlebury Board of Selectmen on Tuesday, September 9, 2008, and to a group of downtown merchants on Thursday, September 25. At both meetings, there was general consensus that the recommendations of this report would improve conditions for transit users, buses, vehicle traffic and pedestrians with minimal impacts to parking.