



Malden is one of the more populous and densely developed of the inner suburbs of the Boston metropolitan area. Malden Center Station is situated right in the center of this city’s activity, adjacent to the government and commercial center of the community as well as to residential areas. Furthermore, the City of Malden has recently undertaken efforts to support development in the vicinity of MBTA transit infrastructure in its community. Therefore, this community just five miles north of downtown Boston not only produces many transit trips, but attracts many trips as well. In the immediate area around the station, the population meets the environmental justice criteria for both minority percentage (34 percent of residents are considered minorities) and household income (the median is less than 75 percent of the metropolitan region’s median household income).

Malden Center Station is served by Orange Line rapid transit, bus, and commuter rail. A commuter parking lot is available for riders; however, this lot reaches capacity early in the morning. The most recent MBTA Program for Mass Transportation rates parking expansion at Malden Center as “low” in priority, primarily due to the lack of available land for at-grade parking.

Malden Center Station was chosen for inclusion in this study because of the level of activity; the function of a multimodal transit station on a rapid transit line; the support of transit-oriented development; a population with lower incomes and a high percentage of minorities and of car-free households; and a limited opportunity for adding park-and-ride capacity.

Station Area Characteristics

In the area within half a mile of this station approximately 11,400 people reside in just over 5,200 households, according to the 2000 census. (Nearly 24,250 people reside within a three-quarter-mile radius of this station, in over 10,200 households.) Approximately 25 percent of the households do not have a private vehicle. Forty-six percent of the land use in the station area is residential, 22 percent commercial, and 22 percent light industrial.

A 1994 survey of Orange Line passengers revealed approximately 4,500 boardings at Malden Center during the morning peak period, between 6:00 and 9:00 A.M.¹ Forty-four percent of passengers surveyed accessed the station by walking—the dominant mode of access. Malden Center Station is also a significant bus-to-rail transfer point: nearly 25 percent of passengers arrived at the station by bus. Out of those passengers who walked to the station, 44 percent had a walk of five minutes or less, and over 93 percent had a walk of fifteen minutes or less.

¹ *MBTA Systemwide Passenger Survey: Rapid Transit/Light Rail 1994*, a report produced by the Central Transportation Planning Staff for the Massachusetts Bay Transportation Authority, May 1996.



Station Amenities

In terms of station amenities for pedestrians and bicyclists at Malden Center Station, the following three issues are discussed in this section:

- Bicycle parking
- Crosswalks and sidewalks
- Station signs

During the time of the field audit and this study, Malden Center Station was undergoing a general improvement program, which included wheelchair accessibility.² The discussion in this (and the next) section notes any relevant features that are included on the design/construction plans.

Bicycle Parking



According to an inventory conducted by CTPS for the Congestion Management System program,³ Malden Center Station provides the third-highest number of bicycle parking spaces on the transit system, with 62 spaces. On the day of the inventory, 52 spaces were used (78 percent).

On the west side, the bicycle rack (containing eight inverted-U rack elements) is located adjacent to the station building near the entrance. A short roof overhang provides partial cover for the parked bicycles.

On the east side, where most of the bicycle parking is provided, the bicycle racks were located in the open square, just northeast of the station entrance. During the recent construction period, eight inverted-U racks were relocated to the outside sidewalk of the bus/vehicle passenger drop-off area, along Commercial Street. These provide fewer bicycle parking spaces than the previous location. These racks were being used; additional bicycles were found locked to the fence along bus platform #2, on the east side of the station.

The site plans for the station improvements have designs for bicycle parking. Inverted-U racks have been installed on the east side (21 new racks), and another set is planned for installation on the west side (28 new racks). Essentially, once construction is completed, the same number of spaces will still be provided. On the west side of the station, the existing and proposed racks are provided in a good location (close to building, in visible area, yet away from pedestrian traffic), but lack adequate shelter. On the east side of the station, the bicycle racks do not have a shelter. Furthermore, a set of 15 inverted-U racks on the east side are located in an area that is hidden from most of the station activity; the other set of 6 inverted-U racks are situated in an open area next to the newly reconstructed square.

Recommendations:

- Add a roof/shelter over each of the bike rack locations. This should be easiest at those locations closest to the station building.
- Add another streetlight to illuminate the set of 15 bicycle racks on the east side.

² Malden Center Station Accessibility Improvements, Site Plan, MBTA Contract Number A32CN01.

³ CTPS conducted an inventory of bicycle racks at MBTA rapid transit stations and their use in August 2002.

Crosswalks and Sidewalks

As part of the Malden Center Station accessibility construction, concrete wheelchair ramps are being reconstructed on the west side of the station. The MBTA is replacing the existing sidewalk and wheelchair ramps at the crosswalk ends along the MBTA vehicle bays at the end of Pleasant Street, the two midblock crosswalks, and the entrance at Centre Street.

Pedestrians heading to the west and southwest areas of the station often cut through the commuter parking lot to reach the sidewalk along Centre Street near Pearl Street. At the southwest corner of the parking lot a path is present leading from the parking lot pavement to the sidewalk; it is well worn, indicating heavy use.

Recommendation: Construct a concrete staircase at the southwest corner of the commuter parking lot, connecting the lot to the sidewalk on Centre Street.

Station Signs

On the commuter rail platform as viewed from the rapid transit platform side, the Malden Center signs are orange with white lettering—not the usual commuter-rail white-on-purple.

Recommendation: The station identification sign at the commuter rail platform should be the standard purple with white lettering.

The station has “lollipop” T signs on the east and the west sides. The two north-south-facing signs are each about midblock between Pleasant Street and Centre Street. An east-west-facing sign is located on the northeast side of the station area on Pleasant Street. All these lollipops are short in height, and they are not visible from many locations outside the immediate station area, such as Pleasant Street east of Malden Government Center.

Recommendations: The station signs should be more prominent. The height of the two north-south-facing lollipop signs could be raised. In addition, the MBTA should consider adding a big T sign at the railroad overpasses/bridges at Pleasant Street and at Route 60/Centre Street; these overpasses face east and westbound traffic and are visible from a block or two away.

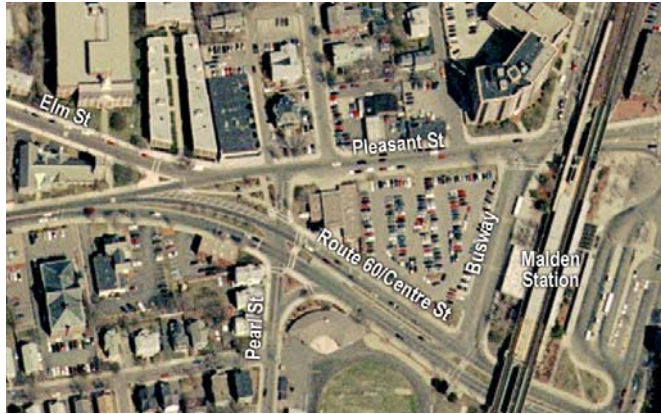
Station Access by Pedestrians and Bicyclists

This section discusses the station-area accessibility issues at the following locations:

- Pleasant Street and Elm Street
- Pearl Street and Centre Street (West)
- Summer Street
- Florence Street
- Florence Street at Pleasant Street and Commercial Street
- Malden Center and Pleasant Street East
- Exchange Street
- Centre Street (Route 60) East
- Centre Street (Route 60) at Commercial Street
- Commercial Street South

Pleasant Street and Elm Street

The main approach to Malden Center Station from the west is along Pleasant Street. Abutting the north side of the station property, Pleasant Street is a two-lane road between Commercial Street and Pearl Street. Sidewalks are available on both sides, and appear adequate, except for the sidewalk adjacent to the MBTA commuter parking lot.



The short section of Pleasant Street between Pearl Street and Centre Street carries one-way traffic in the westbound direction only. Here a sidewalk is available on the north side of the street; on the south side, a triangular-shaped public square is present. The public square—bounded by Pleasant Street to the north, Centre Street to the south, and Pearl Street to the east—has an east–west sidewalk traversing the center of the triangle, benches, and shrubs and trees.

West of Centre Street, Pleasant Street (also Route 60) is a two-lane arterial roadway with on-street parking and concrete sidewalks on both sides. An elementary school is located along Pleasant Street between Centre Street and Highland Avenue. Before and after school hours, crossing guards are active at two midblock crosswalks across Pleasant Street. The sidewalk on the north (school) side of the street is wide. All the crosswalks on this stretch of road are brick with white borders. The signalized intersection of Pleasant Street with Highland Avenue has pedestrian-activated crossing signals and brick crosswalks with white borders.

Elm Street to the north of the elementary school also functions as a westside access route to Malden Center Station. This street splits from Pleasant Street two short blocks west of the station. Despite being a one-way (westbound) street at this point, the split street width is very great. Farther west, Elm Street has two-way traffic and functions more as a residential street or collector road. Wide sidewalks are located on both sides of the street, and streetlights are present from the station to Highland Avenue.

Recommendations:

- Repair the sidewalk on the south side of Pleasant Street adjacent to the commuter parking lot. Consider reducing the roadway width by two feet in order to provide a landscaped buffer between the sidewalk and the roadway.
- Extend the sidewalk and curb at the gore of the Elm Street–Pleasant Street split to reduce the lane width for vehicles and provide additional refuge for pedestrians. Pavement striping, particularly for lane shoulders for vehicles, should clearly delineate the roadway split. The curb at the gore point should be clearly marked, possibly with yellow paint on the curb and/or reflective or nonreflective pavement markers.





Figure 15
Malden Center Station
Overview of Recommendations

SCALE
 (approximate)
 1 inch = 528 feet
 0 528

Pearl Street and Centre Street (West)



Centre Street (and the Route 60 designation) splits off from Pleasant Street just west of Pearl Street. Centre Street abuts the south side of Malden Center Station and is used by MBTA buses approaching from the west. Centre Street is a four-lane, median-divided road on this stretch. Sidewalks are available on both sides and appear to be in good condition.

Pearl Street, a north–south street that intersects Centre Street just to the west of the Malden Center Station commuter parking lot, serves a primarily residential neighborhood. Pearl Street is a narrow, two-lane street with no marked shoulders, sidewalks on both sides, and street lamps along the east side.



The intersection of Pearl Street at Centre Street (Route 60) is signalized. Northbound-to-eastbound right-turning traffic has its own lane, which is channel-separated from the northbound through and left-turning traffic. The design of the sidewalk curb cuts and crosswalks does not favor pedestrian movement in the direction of the nearby station. This may explain why pedestrians were observed crossing Pearl and Centre Streets outside of the crosswalks.

The traffic signal cycle has an all-red/all-walk phase for pedestrians, which is activated by push buttons. Vehicles are allowed to turn on a red light. Not all of the pedestrian-activated buttons seem to function, though, and the east-facing pedestrian “walk” signal on the south side does not turn on. A pedestrian crossing signal is missing for those pedestrians crossing Centre Street from the northeast side to Pearl Street.

Recommendations: The intersection of Pearl Street at Centre Street should be redesigned to improve pedestrian flow; the following actions should be implemented:

- Align the ramps/curb cuts and the corresponding crosswalks in the direction of pedestrian flow, parallel to Centre Street
- Paint the crosswalks with ladder-style stripes
- Fix the malfunctioning pedestrian-activated push buttons and install the missing pedestrian crossing signal
- Add a “Yield to Pedestrians” sign to all traffic approaches

Summer Street



Summer Street approaches Malden Center Station from the north, linking a large residential area to Pleasant Street on the northwest side of the station. Summer Street is a two-lane road with on-street parking and concrete sidewalks on both sides. The sidewalks are paved to the curb and have trees, posts, and signs along their extent. The intersections, such as those with Maple Street, Mountain Avenue, Chestnut/Lincoln Street, and Clifton Street, all have a similar crosswalk design: two parallel, solid white lines delineating the crosswalk with ramps/curb cuts placed back from the intersection. In general, the sidewalks along Summer Street are in good

condition. However, at some street corners, obstructions (such as mailboxes, streetlights, and sign posts) are in the pathway of pedestrians and the crosswalk/curb cuts.

The crosswalks at the signalized intersection of Summer Street at Pleasant Street are also simply striped with two parallel, solid white lines. The traffic signal cycle has a pedestrian-activated all-red/all-walk phase; turns on a red light are permitted.

Recommendations: In order to enhance pedestrian safety and comfort at the intersections along Summer Street, implement the following improvements:

- Add ladder-style striping to the crosswalks, in order to increase visibility
- Relocate mailboxes and other obstructions from the path of pedestrians
- Add “Yield to Pedestrians” signs at the intersections, particularly at Pleasant Street
- Redo the corner curbs at Mountain Avenue and at Clifton Street to add perpendicular wheelchair ramps
- Consider adding bulb-outs at the intersection with Mountain Avenue

Florence Street



Florence Street approaches Malden Center Station from the northeast, bringing vehicular and pedestrian traffic from residential and commercial areas in Malden Center. Florence Street has two lanes of traffic in each direction, and on-street parking is not allowed. A raised median separates the opposing traffic on Florence Street, and is narrow at intersections to provide for a turning lane.

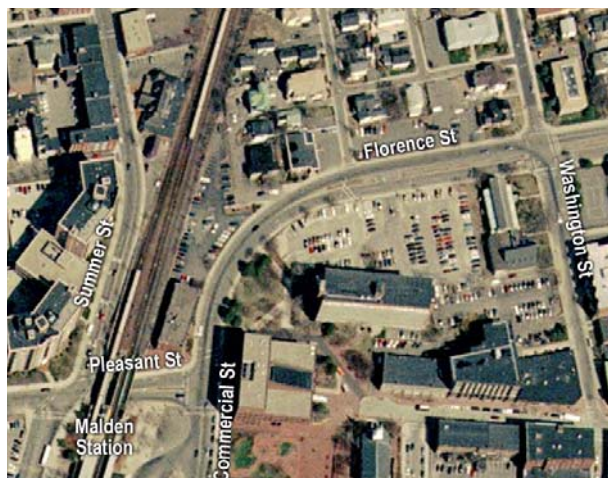
The intersection of Florence Street at Washington Street is signalized. The crosswalks at the intersection are striped with two parallel, solid white lines. The traffic signal cycle has a pedestrian-activated all-red/all-walk phase. However, not all the buttons are functioning. Turns on a red light are allowed.

The sidewalks on both sides of Florence Street west of Washington Street are in poor condition: street curb cuts are present that lead to a fence, no buffer separates vehicle traffic from the sidewalk, significant cracks are found in the concrete, and debris was found along both the street curb and the fence that lines the sidewalk. (Please note that the City of Malden is currently selecting proposals for redeveloping property along Florence Street. Changes could occur within the next three years.)

Recommendations:

- Improve the sidewalk condition and design along Florence Street by implementing the following:
 - Reconstruct the sidewalk in order to correct for unnecessary street curb cuts and improve surface condition. Consider narrowing the traffic lanes in order to increase the sidewalk width or even add a landscaped buffer to further separate vehicle traffic from pedestrian activity.
 - Stripe shoulder lanes to provide a buffer between vehicle traffic and the sidewalk
- Increase pedestrian safety at the intersection of Florence Street at Washington Street by implementing the following:
 - Add ladder-style striping to the crosswalks
 - Extend the median closer into the intersection in order to create a midcrossing refuge for pedestrians using the crosswalk
 - Fix malfunctioning pedestrian-activated push buttons
 - Add a “Yield to Pedestrians” sign to all traffic approaches

Florence Street at Pleasant Street and Commercial Street



Just northeast of the station is the signalized intersection of Florence Street at Pleasant Street and Commercial Street. This three-legged intersection features many turning vehicles, particularly right turns from southbound Florence Street, right turns from eastbound Pleasant Street, and left turns from northbound Commercial Street; right turns are permitted on red. Crosswalk signal buttons activate an all-walk pedestrian phase. Crosswalks on all three approaches are simply two parallel white lines, which are fading. During recent observations in the morning peak hour, 360 pedestrians crossed Pleasant Street, over 168 pedestrians crossed Commercial Street, and 106 pedestrians crossed

Florence Street.⁴ Evening peak-hour pedestrian volumes were approximately 60 percent of the morning peak-hour volumes.

As part of the Malden Center Station accessibility construction, the crosswalk curb ramps across Pleasant Street at Commercial Street and at Florence Street have been reconfigured. The MBTA is replacing the existing sidewalk and wheelchair ramp at the crosswalk ends with new concrete wheelchair ramps. A new concrete wheelchair ramp is also being constructed on the east side of Commercial Street at Pleasant Street.

Recommendations: Increase pedestrian safety at the intersection of Florence Street at Pleasant Street and Commercial Street by implementing the following:

- Restripe the existing crosswalks, adding ladder-style striping
- Add signs indicating vehicles should yield to pedestrians in the crosswalk
- Install pedestrian signals that have the crossing-time countdown display
- Extend the median at Pleasant Street closer toward the intersection so that the pedestrians using the crosswalk have a mid-crossing refuge
- Add bulb-outs at the intersection corners and the eastside crosswalk curb cuts; this will shorten crossing distances and increase vehicle awareness of crossing pedestrians

⁴ Pedestrian counts were conducted on Tuesday, June 4, 2003, for the *Congested Intersections Study in the Inner Core Subregion*, conducted by CTPS for MassHighway [T. Nixon, March 2004]. Morning peak hour occurs at 7:45–8:45 A.M., evening peak hour at 5:00–6:00 P.M.

Exchange Street



Exchange Street at Commercial Street, on the east side of Malden Center Station, is a signalized intersection. Traffic at this intersection also enters the station's eastside passenger drop-off bay. The northbound and southbound lanes have unlimited green signal time (Exchange Street is a one-way, eastbound street), except when triggered by an all-way pedestrian-actuated walk signal. Crosswalks are simply striped with two parallel white lines, on the north side of the intersection (leading toward the station entrance) and across Exchange Street.

This intersection experiences much pedestrian activity.⁵ In the morning peak hour, over 650 pedestrians crossed Commercial Street, and nearly 100 crossed Exchange Street. Evening peak hour counts are slightly lower than those observed in the morning.



As part of the Malden Center Station accessibility construction, the crosswalk and curbs across Commercial Street at Exchange Street have been reconfigured. The MBTA is replacing the existing sidewalk and wheelchair ramp at the crosswalk ends with new wheelchair ramps. New white thermoplastic striping will be added to the crosswalk, including ladder stripes. The MBTA is also removing and resetting the northern-end curb of the drop-off bay back by eight feet.

Recommendations: The following amenities should be provided to increase pedestrian safety at the intersection of Exchange Street and Commercial Street:

- Restripe the existing crosswalks, adding ladder-style striping.
- Add signs indicating that vehicles should yield to pedestrians in the crosswalk.
- Install pedestrian-crossing signals that have the crossing-time countdown display.
- Add a curb extension on the west side of the crossing on Commercial Street at the passenger drop-off bay. This would slow right-turning traffic and possibly keep vehicles from stopping too close to the crosswalk.

⁵ See preceding footnote.

Centre Street (Route 60) at Commercial Street



Centre Street (Route 60) at Commercial Street is a busy, signalized intersection. Each approach of the intersection has two lanes, and Centre Street is divided by a landscaped median. Pedestrian crossings are striped across all four approaches, with only simple, parallel white stripes; each corner features only one sidewalk curb cut for wheelchair ramps. Pedestrian walk signals turn on concurrently with the two-way through traffic, during which left turns are permitted. A sign is posted for pedestrians with the warning, “Watch for Turning Vehicles on Walk Signal.” However, the concurrent pedestrian walk signal does not activate during the phase that includes one-way through traffic and a protected left.

As part of the Malden Center Station accessibility construction, the corner curbs on the northeast and northwest corners of the intersection of Commercial Street and Centre Street have been reconfigured. The MBTA is replacing the existing sidewalk and wheelchair ramp on the northwest corner with two new wheelchair ramps. These two new ramps will line up with the

crosswalks across Commercial Street and Centre Street. A new wheelchair ramp will be added to the northeast corner, across Commercial Street. New thermoplastic striping will be added to the north Commercial Street crosswalk and halfway across the west Centre Street crosswalk.

Recommendation: Increase pedestrian safety at the intersection of Centre Street (Route 60) at Commercial Street by implementing the following:

- Restripe the existing crosswalks, and add ladder-style striping.
- Add signs indicating that vehicles should yield to pedestrians in the crosswalk.
- Extend the median at Centre Street closer toward the intersection so that the pedestrians using the crosswalk have a midcrossing refuge.
- Install pedestrian-crossing signals that have a crossing-time countdown display.
- Add a concurrent “walk” phase for pedestrians crossing Commercial Street at the eastbound side of Centre Street. In other words, pedestrians should be able to cross Commercial Street during Centre Street’s eastbound-through-and-protected-left-turn phase. Currently, the “walk” phase for crossing the south side of Commercial Street only activates during the subsequent signal phase (Centre Street through movements). Thus, this modification would provide a longer opportunity for pedestrians to cross Commercial Street. (Furthermore, this additional phase actually provides the safest crossing for pedestrians, because opposing left-turn vehicles from Centre Street westbound will not be crossing the southside crosswalk.)

Centre Street (Route 60) East

Centre Street (Route 60) provides a link to commercial establishments east of Commercial Street, including a major grocery store. Concrete sidewalks are present on both sides of this four-lane, divided roadway; no buffer is present between the sidewalk and the roadway. Traffic signals are closely spaced along this stretch of road, with signals at Commercial Street, Jackson Street, Middlesex Street, and Main Street.

The pedestrian-actuated signal at Jackson Street is near the grocery store; however, no ramp/curb cut for wheelchair access is present at the crosswalk, which is simply striped with two parallel white lines.

Recommendation: The following amenities should be provided to increase pedestrian safety along Centre Street:

- Restripe the existing crosswalks, adding ladder-style striping
- Add a curb cut/wheelchair ramp at the crosswalk at the Jackson Street pedestrian-crossing signal

Commercial Street South

South of Centre Street, the area is primarily commercial and light industrial. Commercial Street is the main north–south approach road serving this area. Concrete sidewalks are provided on both sides of the street; neither are buffered from the four-lane, undivided road. The street is wide and lined with trees. No improvements are suggested for this stretch of road.

The cities of Malden and neighboring Medford and Everett have plans to redevelop an area farther south along Commercial Street called River’s Edge (formerly Telecom City). If this development comes to fruition, Commercial Street may become a more important connection for pedestrians and bicyclists between the development and Malden Center Station. In fact, roadway improvements near Wellington Station are underway.

Also planned for the neighboring area is the Bike-to-the-Sea shared-use path. Connections are strongly suggested for bicyclists (and pedestrians) to this path from the station, whether these connections are made via an on-street, signed route or via a striped/buffered lane along existing roadways. Ferry Street to Pleasant Street through the Malden business district may be one possible connector route; Charles Street to either Canal or Commercial Street would be another option. The City of Malden should keep these options open as it redevelops and reshapes its downtown area.

Malden Center and Pleasant Street East



Currently, Pleasant Street at the Malden Center business district is cut off from Commercial Street and Malden Center Station by the Malden Government Center buildings and plaza. This eastern extension of Pleasant Street itself offers a favorable pedestrian environment: the wide, brick sidewalks with street-level shops are buffered from the low traffic volumes by on-street parking.

In order to access the station from the commercial center of Malden, travelers must either walk through the Government Center plaza and down stairs (or a long ramp) to Commercial Street, or take a side street to

Exchange Street, which connects to Commercial Street and the station. The station is not clearly visible from the west end of Pleasant Street (the T “lollipop” sign is not visible at all), and trailblazing signs at Government Center do not direct people to the station.

The City of Malden and the Malden Redevelopment Authority are considering proposals to sell and redevelop Malden Government Center. The City is encouraging the concept of reconnecting Pleasant Street at Commercial Street, which would entail demolishing the current city offices building and plaza.



The Mansfield commuter rail station serves not only the residents of this southern suburb of Boston, but also those of other, nearby communities. Therefore, park-and-ride lots strongly define the character of the station. They allow the station to accommodate commuters from neighboring towns such as Foxborough, Sharon, Easton, and Norton. The parking lot's capacity is often fully utilized, and projections indicate a possible increase in demand of 75 to 100 percent by the year 2010. The Program for Mass Transportation assigns a medium priority rating to parking expansion at Mansfield Station, but it cites costs as one potential barrier to achieving additional capacity.

The station is located near the historic town center and the residential areas around it. Furthermore, construction of an off-street shared-use path to the center of town from the south was completed last year; the path terminates a few blocks south of the station and connects to the station via an on-street path and signed network.

Mansfield Station was chosen for analysis because it has the potential to increase ridership despite park-and-ride lot capacity constraints through enhanced access for pedestrians and bicyclists.

Station Area Characteristics

In the area within a half-mile of this station reside just over 3,200 people in slightly more than 1,400 households, according to the 2000 census. (About 5,500 people reside within a three-quarter-mile radius from this station, in fewer than 2,400 households.) Most of the land use in this area is residential (quarter- to half-acre lots), with very little multifamily housing. Less than 9 percent of households do not have a private vehicle.

Park-and-ride commuters are the primary users of Mansfield Station. The facilities around the station illustrate this: large parking lots are located on the west side of the station as well as to the southwest, just across Route 106. Additional parking is also found to the immediate east (along Mansfield Avenue) and to the southeast (along Old Colony Road).

Based on a recent boarding audit of the commuter rail service through Mansfield, over 1,400 passengers boarded the inbound trains from 6:00 to 10:00 A.M.



Figure 16
Mansfield Station
Area Features

Station Amenities

Please note that observations were made during the time Mansfield Station was undergoing construction of a new station house, which opened in March 2004.

Bicycle Parking



Only one bicycle rack is installed at the station, a ribbon rack on the south side of the station on the east (inbound) side of the tracks. On the day of the field audit and passenger observation, the rack was used by eight bicycles. In addition, two bicycles were locked to the chain-link fence.

Recommendation: The bicycle parking facilities should be enhanced by installing a covered bicycle parking rack at the following locations:

- On the south side of the station house, for cyclists arriving via the pedestrian bridge
- On the north side of the station house, close to Mansfield Avenue, for cyclists arriving from the north and east
- On the outbound-track side, near the staircase, for cyclists arriving from the west

Station Access by Pedestrians and Bicyclists

Staff spent a Wednesday morning (on September 10, 2003, which was clear and cool) observing the use of the station by commuters. They noted the use of the park-and-ride lots and the volume and approach direction of riders arriving at the station. The observations were made from 6:00 A.M. (just after the first inbound train of the day) until the end of the boardings for the second-to-last peak-period inbound train at 8:07 A.M.

This section discusses the station-area accessibility issues at the following locations:

- Rail-Trail-to-Station Connection
- Pedestrian Bridge over Route 106
- N. Main Street at Route 106/Chauncy Street
- Access from the Southwest
- Access from the West
- Mansfield Avenue
- N. Main Street at Mansfield Avenue

Rail-Trail-to-Station Connection



In 2003, a new paved, off-road shared-use path was constructed in Mansfield. Called the Old Colony Rail Trail, this path extends north from the Mansfield-Norton town line to North Main Street in downtown Mansfield at Old Colony Road/High Street. The terminus is just four blocks south of the commuter rail station. On-street signs and even a short on-street bike lane are in place to guide bicyclists to and from the commuter rail station. Our field audit found that some modifications are called for to the trailblazing signs that direct bicyclists to and from the commuter rail station; these recommendations, along with others related to the path are described below.

Northernmost Segment of Off-Street Bike Path

Between the terminus of the bicycle path at N. Main Street and Court Street two blocks south, this northernmost section of the path shares right-of-way with housing parking lots and driveways. Hence, even though the path is technically still an off-street path at this point, bicyclists must contend with vehicles accessing the residences along the parking lot.

Recommendation: Install raised pavement markers along the sides of the bicycle path. These will provide a physical delineation of the bicycle path, while not interfering with bicycle and motor vehicle operations.

Signs at Northern Terminus of Off-Street Bike Path at N. Main Street



At the north end of the off-street path at N. Main Street, a sign directs bicycle traffic to head north along Main Street. Taking this route, a cyclist heading to the station would encounter the traffic of Main Street and have to navigate the intersection with Route 106/Chauncy Street. However, a signed on-street route is in place to lead cyclists from the end of the bicycle path, through a residential neighborhood along High Street and Rumford Avenue, straight to a pedestrian/bicyclist crossing of Route 106 to Mansfield Station.

Recommendations:

- Reverse the arrow on the sign on Main Street facing the bicycle path so that it points left, instead of right. This will direct bicyclists to the on-street, signed bicycle route.
- Add a sign that specifically points bicyclists to the commuter rail station.

Signs along the Northbound On-Street Bike Route

Westbound on High Street, bicyclists encounter a sign directing them to the right. The intent of the sign is to let bicyclists know that they should turn right onto Rumford Avenue. However, the placement of the sign midblock in a stretch with several curb cuts may create some confusion as to where the right turn should occur.

Recommendation: Move the bike-route right-turn sign on High Street to the end of the block, at the intersection with Rumford Avenue.

Signs along the Southbound On-Street Bike Route

Heading south toward the Old Colony Rail Trail from the station, cyclists can use a bike lane along Old Colony Road. A one-way street, Old Colony Road heads south from Rumford Avenue and Thomas Street, just southeast of Mansfield Station. The bike lane is clearly marked along the right side of the road, adjacent to on-street vehicle parking; the marked lane width varies between four and six feet. The bike lane ends at N. Main Street, just short of High Street, where a sign indicates to cyclists that a bike route continues to the right (on High Street) or left (Old Colony Road and rail trail).

Recommendations: At the start of the Old Colony Rail Trail, a more prominent sign indicating the beginning of the bike path could be added. In addition, or instead, a trailblazing sign that points to the bike route to the left could be placed at the southeast corner of N. Main Street and Old Colony Road; the sign should face the southbound bicycle traffic.

N. Main Street at Route 106/Chauncy Street

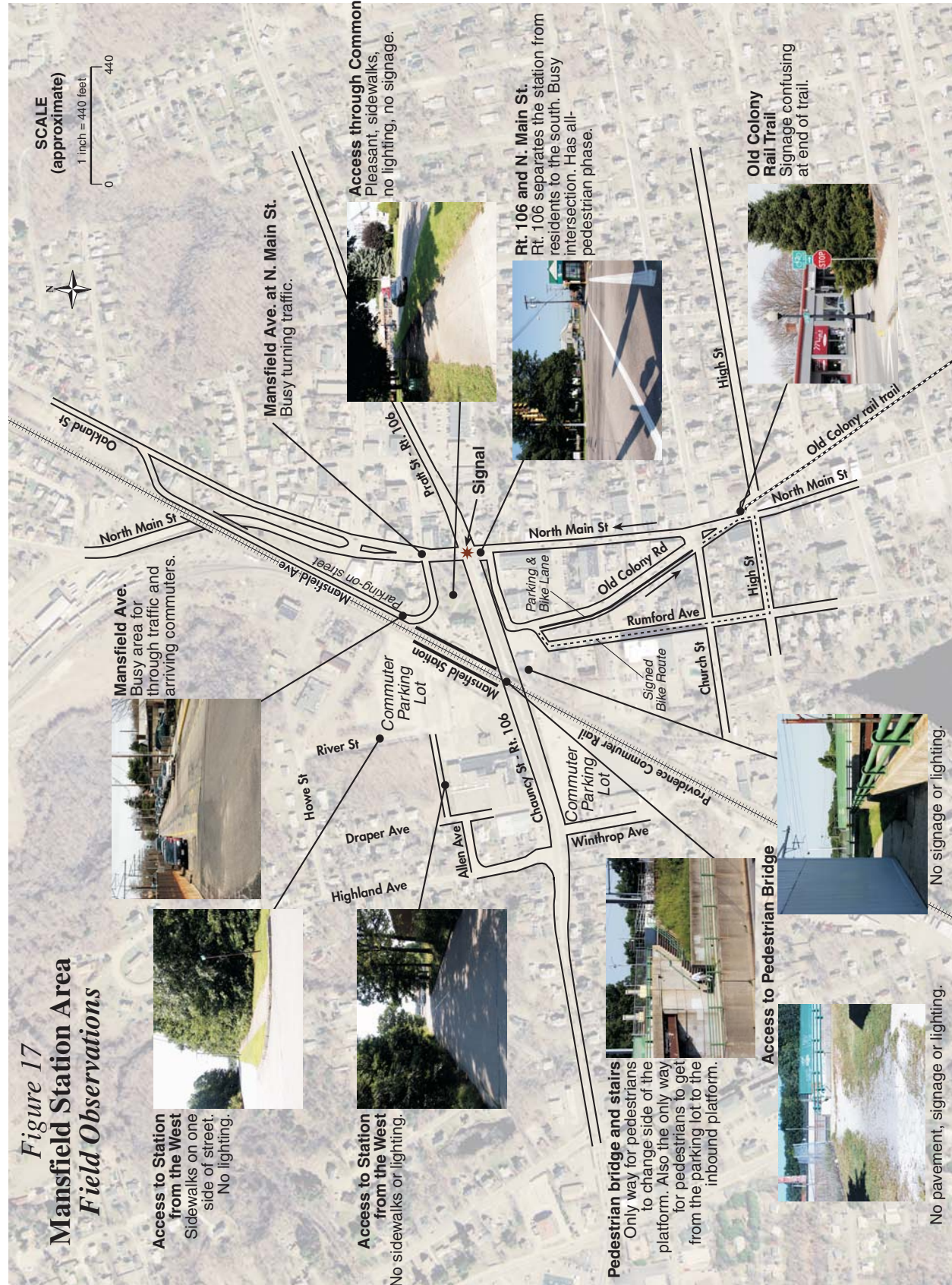


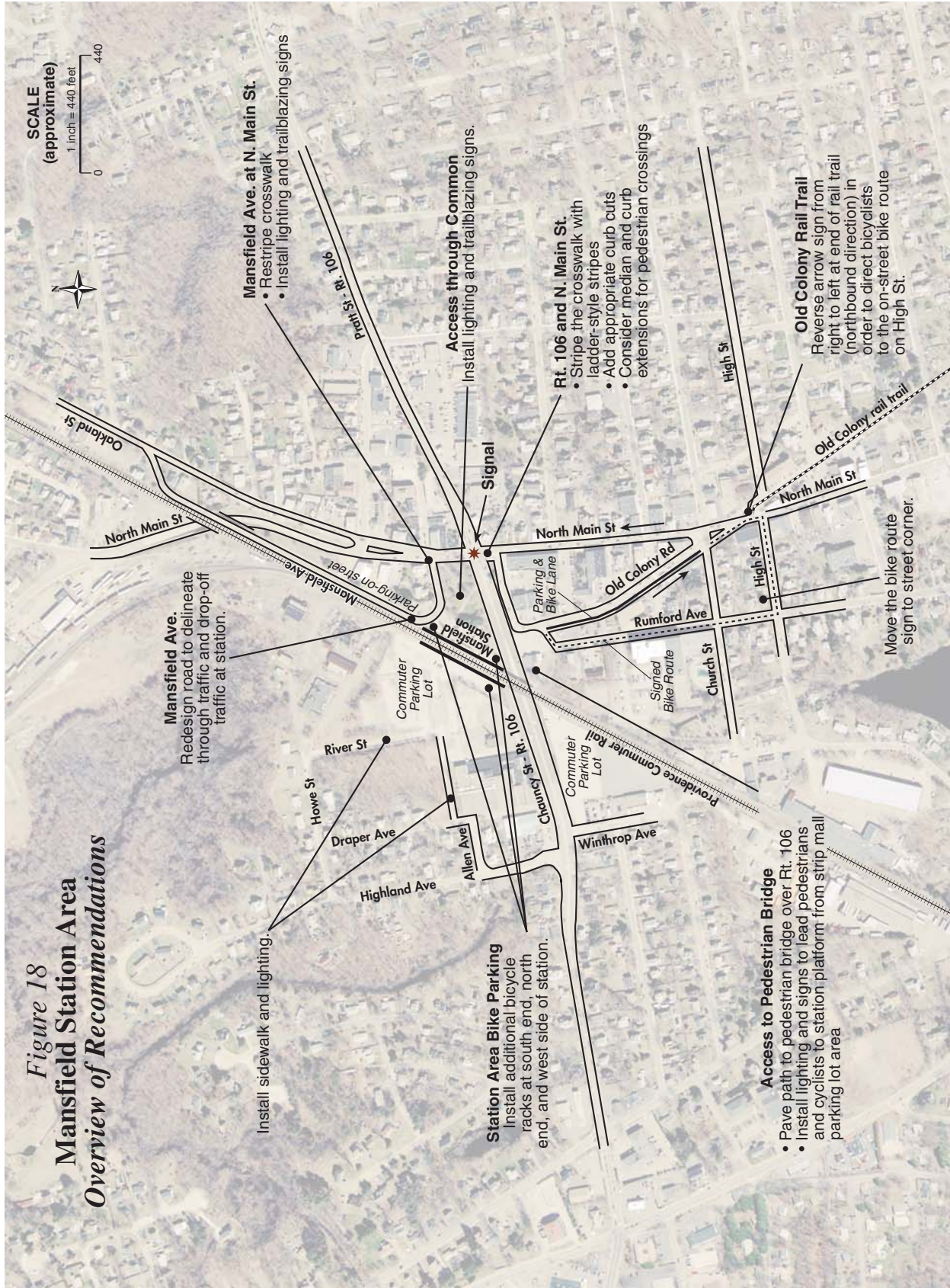
Pedestrians approaching from the east must cross N. Main Street to get to the station. If coming from along Route 106/Chauncy Street or from points south of Chauncy Street, the safest and easiest crossing is at the signalized intersection of these two streets. The pedestrian phase is actuated by pedestrian-crossing buttons; this triggers an all-walk phase for pedestrians. The time seems adequate, with a total of 26 seconds of “Walk” and flashing “Don’t Walk” signals. However, pedestrians must wait until the all-walk phase enters the cycle, which lasts 135 seconds. Also, the red “Don’t Walk” signals did not work at some signal posts.



Recommendations:

- Add ladder-style stripes to the crosswalks, in addition to the existing horizontal lines
- Fix malfunctioning and broken pedestrian crossing signals
- Add additional lighting to the sidewalks on the public common at the northwest corner of N. Main Street and Route 106





Pedestrian Bridge over Route 106



Route 106 (Chauncy Street) separates the commuter rail station from the parking and residential areas to the south. The roadway is divided and below grade where its four lanes cross under the railroad tracks. Both sides of the road have sidewalks, which are elevated from the street level and separated from the vehicle lanes by metal railing. In order to cross to the south side from the station, pedestrians and bicyclists must use the pedestrian overpass, which is adjacent to the railroad right-of-way.



The pedestrian overpass, to the south and east of the station, leads pedestrians and bicyclists across Route 106 to an area behind a commercial building. There is a paved sidewalk that heads east, parallel to Route 106 and along the building, to a commuter parking area and commercial establishments in the Thomas Street and N. Main Street area. The field audit noted desire lines in the hard ground leading around the other (south) side of the commercial building toward Rumford Street, where there is additional commuter parking and the beginning/end of the on-street bike lane and route. An often-used access point to the station, the pathway to the pedestrian bridge is unmarked (no signs), hidden from view, and uninviting.

Neither the pedestrian bridge nor the paved and unpaved pathways on the southeast side have direct lighting. Nearby street lamps do provide some illumination, but this light does not even illuminate the surface of the bridge walkway.

The pedestrian bridge across the below-grade Route 106/Chauncy Street was utilized by 288 commuters during the morning of the field observations. The commuters originated from the southwest lot (149 were counted during the observation period) or the smaller southeast parking and drop-off area (139 commuters). Approximately 40 of the commuters who approached from the southeast area were dropped off; seven cyclists were observed coming from the southeast area across Route 106.

Recommendation: Pedestrian and bicyclist access to the pedestrian bridge should be enhanced by implementing the following:

- Install trailblazing signs that direct station users to the pedestrian bridge behind the commercial building; these signs could be MBTA-issued signs
- Improve bridge, staircase, and pathway lighting conditions, for visibility and safety of users at night; light should shine directly onto the walking surfaces
- Pave the dirt pathway on the south side of the commercial building, where desire lines currently exist, for bicyclist and pedestrian use

Access from the Southwest

People from the residential areas to the southwest and those commuters from the southwest parking lot heading to the station use a pedestrian underpass to cross the railroad tracks and an overpass to cross Route 106. In order to reach the Route 106 crossing, pedestrians can choose to either walk on the sidewalk along Route 106 or cut through the commuter parking lot. The area and existing facilities do not appear to present any barriers to pedestrians or bicyclists heading to the station. Sidewalks are present along the local neighborhood streets, which do not seem to carry much traffic. Lighting conditions appear adequate on both sides of Route 106 and in the commuter parking lot.

Access from the West



People from the residential areas to the immediate west of the station have to walk on the street in order to reach the commuter parking lot and west side of the station. However, most of these streets (such as River Street) lead to cul-de-sacs within a small residential area (approximately 60 houses), and thus do not carry much traffic. The only exception is Allen Street, which leads traffic to the commuter rail lot from Route 106 (via Highland Avenue). No sidewalks or streetlights are present on these roads.

Residents from the neighborhood even farther west have a natural barrier—a brook—and, thus, must first walk south to Route 106 in order to head east toward the station. A sidewalk follows Route 106 to the pedestrian under/overpass at the south entrance to the station.

CTPS staff observed that most of the people originating from the west side were park-and-ride users. Only eight pedestrians were observed arriving from the neighborhood streets to the west. The parking lot on the west side of the station and the on-street parking along Mansfield Avenue filled up by the 8:07 A.M. peak-period inbound train.

Recommendations: Install simple safety improvements that visually connect drivers with pedestrians or that keep vehicle speeds low. These improvements should include:

- Install street lighting
- Post low-speed-limit signs or pedestrian activity signs
- Add speed humps along the approach to the commuter parking lot
- Cut back the foliage at street corners to provide visibility for turning vehicles

Mansfield Avenue



From the north, pedestrians and cyclists can approach the station along Mansfield Avenue. Both Oakland Street and N. Main Street connect to Mansfield Avenue. Mansfield Avenue has a sidewalk only on the east side; this is adequate for the pedestrian volume observed. The west side of Mansfield Avenue, which is adjacent to the railroad right-of-way, offers vehicle parking for commuters.

The most defining characteristic of Mansfield Avenue is the considerable traffic volume, especially in such proximity to the station house. The stretch of Oakland

Street between Mansfield Avenue and North Main Street is designated for one-way northbound traffic. Therefore, southbound traffic on Oakland Street coming from the north must use Mansfield Avenue to head south toward N. Main Street and Route 106. Trucks are allowed and traverse this segment of roadway, even during commuter-activity periods.

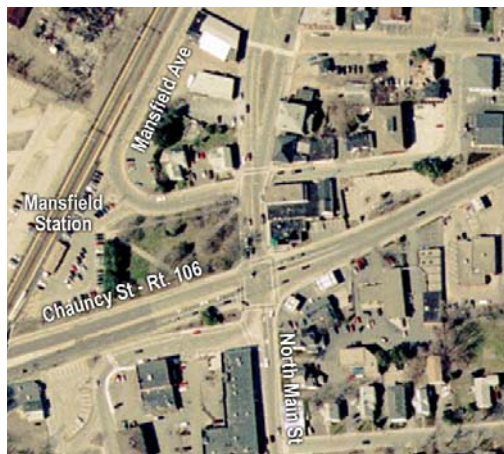
The through-traffic volume on Mansfield Avenue creates a conflict between pedestrians and other commuters arriving at the station from the north and east directions. After all, this is the side of the commuter rail station with the station house, the northbound (inbound) train platform, and a drop-off area for kiss-and-ride commuters as well as GATRA bus/shuttle passengers. Due to the high volume of traffic and vehicle parking, bicycle travel along Mansfield Avenue requires heightened awareness by bicyclists.

On the day of passenger observations, CTPS staff counted 299 commuters who approached the station from the east using Mansfield Avenue. These commuters were, in terms of access mode, park-and-ride users (parking spaces are available along Mansfield Avenue), kiss-and-ride commuters, pedestrians, and persons dropped off by the GATRA transit shuttles or taxis. Slightly over one-third of the commuters were observed walking south along Mansfield Avenue to the station; these were pedestrians and park-and-riders. Another third of the commuters were dropped off by private vehicles. Fifty pedestrians approached from the east, typically through the common. In addition, GATRA shuttled 24 commuters to the station during this period; the shuttle service with the most drop-offs was the Norton–Mansfield/Route 140 route.

Where Mansfield Avenue curves at the station, recent improvements include pavement markings and striping that help delineate the drop-off and wait areas and the through traffic lanes, and sidewalk improvements on the station side.

(Please note: The area between Mansfield Avenue and Oakland Street has been identified as a candidate site for redevelopment; alternatively, it may be part of the station area improvements headed by GATRA.)

N. Main Street at Mansfield Avenue



Approaching the station from east of N. Main Street and north of Chauncy Street, pedestrians do not have any signalized locations to cross. A pedestrian crosswalk is striped on the north side of Mansfield Avenue to cross N. Main Street; this crosswalk is a short distance north of the signalized intersection with Chauncy Street. The crosswalk leads pedestrians to a sidewalk on the north side of Mansfield Avenue, just east of the station. This sidewalk has just been rebuilt as part of the station area improvements. It remains without a buffer separation from the road but has a yellow-painted curb. Across the street, a wide, grass-buffer-separated sidewalk is located on the south side of Mansfield Avenue along the common.



The current configuration of the crosswalks at Mansfield Avenue at N. Main Street encourages pedestrians to cross N. Main Street to the north side of Mansfield Avenue using the striped crosswalk, or alternatively, walk down to Chauncy Street and cross using the signalized intersection. In other words, a crosswalk across N. Main Street to the south side of Mansfield Avenue is absent. Such a crosswalk would create conflicts with the numerous right-turning vehicles from Mansfield Avenue to southbound N. Main Street.

Recommendations:

- Paint the crosswalks with ladder-style stripes
- Align the wheelchair ramp/curb cuts with the crosswalks
- Add signs warning motorists of pedestrian activity
- Add a bulb-out at each of the Mansfield Avenue corners of the intersection, in order to slow down the turning traffic

