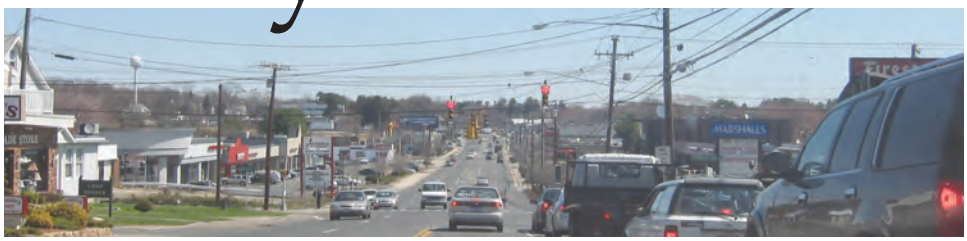
Westport-North-Main Corridor Study and Plan



Prepared for the **City of Norwalk, Connecticut**

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December 2006

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Introduction

This study has been commissioned by the City of Norwalk to evaluate land use, transportation, urban design and economic development policies for a corridor consisting of Westport Avenue from the Westport town line to East Avenue; North Avenue from East Avenue to Main Street; and Main Avenue/Street from North Avenue to the Merritt Parkway. The purpose of the study is to suggest a set of policies that could be used to alter existing development patterns within the corridor in order to promote residential development, reduce retail development, and support walking and public transit. In preparation for the drafting of this report, we conducted a series of analyses including an evaluation of the existing land uses and urban design patterns in the corridor; an analysis of existing traffic patterns, potential future transportation changes, and an inventory of traffic safety issues; and a real estate market study for the corridors in the context of Norwalk and the broader Fairfield County real estate market. These background studies and analyses can be found in the appendix to this report.

Description of Policy Recommendations

This report suggests a series of land use, transportation, urban design, zoning and economic development policy changes that could be used, either together or separately, to affect the corridors over the next 10 years. The report recommends that new large-scale retail (such as big-box stores and supermarkets) be limited to two locations—Main Avenue at the Merritt Parkway and Westport Avenue in the immediate vicinity of Stew Leonard's. Both of these locations have good highway access and existing large-scale retail operations that are doing well. Because this scenario would entail significant additional development at the northern end of Main Avenue, the report also includes an alternative that restricts large-scale retail at this location for comparison purposes.

For the remainder of the corridors, the report recommends that retail development be sharply limited. In the Main Street/Avenue corridor, it is recommended that the size of an individual retail store be limited to 10,000 square feet and that drive-through operations be prohibited so as to exclude many high traffic-generating uses such as fast-food restaurants and chain drug and convenience stores. The segment of Main Street between Union Avenue and New Canaan Avenue would become a neighborhood shopping and residential center with an upgraded streetscape and shared parking to encourage pedestrian activity, while Main Avenue from New Canaan Avenue to Perry Avenue would be reserved for residential and mixed use development and auto service uses.

Along North Avenue, retail stores would be restricted to 5,000 square feet, and the maximum nonresidential floor area ratio would be reduced to 0.5; however, these restrictions would not apply to low-traffic retailers such as home furnishings stores. These changes would encourage residential, rather than retail development, on this congested stretch of Route 1. On Westport Avenue east of Stew Leonard's, the report proposes that retail uses be limited to the ground floor and that structured parking and parking in buildings be permitted only as part of mixed-use developments. It also recommends that the industrial/residential area along Willard Road and Lois and Brookfield streets be rezoned to an industrial/residential transition zone that would prohibit most retail development. These restrictions would limit the potential for large-box retail growth in this area while encouraging mixed-use projects and continuing to allow most of the existing one-story shopping centers that characterize this corridor.

The effect of these changes would be to reduce the amount of potential new retail development by 16,274 square feet, almost all of which would be concentrated at the junction of Main Avenue and the Merritt Parkway. These policies would also produce 350 new housing units in the corridor that would not be built under the current policies. Traffic levels of service would decline (largely because of new development elsewhere in the City); however, the decline would not be as severe as if the current land use pattern were continued because residential development produces significantly less traffic than retail development and the new retail would be concentrated at the end of the corridor and therefore would have less impact on the corridor as a whole than if it were spread throughout the corridor, as would be likely under the existing zoning. Roadways could therefore be narrower and more conducive to pedestrian activity.

The proposal also includes an exploration of economic development policy options for Main Street/Avenue. It recommends the creation of a Special Services District to improve the street's appearance and assist businesses with marketing and upgrading. It also evaluates the potential for redevelopment of three particular parcels—the Muller Avenue industrial property, the Linco Superfund site, and the Board of Education's vocational school property and adjoining central kitchen. We find that a detailed plan and initiative by the City is likely to be needed to induce redevelopment of the Muller property, which could potentially be linked with the redevelopment of the Linco site via a new roadway connection. The potential City ownership of the Board of Education property, meanwhile, gives the City significant latitude over the redevelopment of that site.

Findings and Conclusions

This report shows that Norwalk is faced with a series of choices about the future development of the Westport-North-Main corridor. The report includes a number of policy changes that cumulatively reduce and redirect the amount of retail development in the corridor, and these are shown to have a significant effect on the amount and distribution of traffic. Each of the projected policy changes also has benefits and drawbacks on its own, and these are detailed further in this report. Because it is not expected that the City will adopt all of the policy changes recommended in this report, we have isolated the benefits and detriments of each change while also acknowledging that, from a traffic perspective, the effects are more cumulative than individual.

1 Introduction

1.1 Description of the Study Area

The study area for this report, shown in Figure 1.1, consists of a series of state highways and adjoining properties that form a single, unbroken, largely commercialized corridor through the eastern and northern portions of the City of Norwalk. Beginning at the eastern end of Norwalk at the Westport town line, the corridor begins as Westport Avenue and extends west to East Avenue, near the historic center of Norwalk. At East Avenue, Westport Avenue changes its name to North Avenue, where it continues for several blocks, skirting the northern outskirts of downtown Norwalk. At a complex intersection with Main Street, the study corridor turns northwest up Main Street/Avenue, which it follows to the Merritt Parkway. Main Avenue itself continues farther north to the Wilton town line; however, the study area stops at the Merritt interchange.

Throughout the study area, there are significant opportunities and challenges. Traffic congestion is intense and growing more so, creating quality-of-life issues for those who use the corridors for living, working and shopping. Most of the corridor and adjoining properties are situated in the Business 2 zone, which allows virtually any type of land use at relatively high development intensities, making it difficult to control growth and change in the corridors through land use regulations. Many of the existing commercial properties in the corridors are aging; at the same time, development pressures are increasing as real estate values rise throughout Fairfield County. Norwalk itself has witnessed significant development in recent years, revolving around the Merritt 7 office and residential complex to the north of the study area and the revitalized SoNo area in the southern part of the City. Significant growth and change is also beginning to occur in downtown Norwalk, just south of the study area.

In the midst of all this, the study corridors are showing their age and are ripe for redevelopment. Therefore, this report has been prepared to provide a series of land use, urban design, transportation and economic development options for the corridors. The report divides the corridors into six segments, shown in Figure 1.2. The segments have been delimited based on the differing land uses, neighborhood characteristics, historical development patterns, and redevelopment potential found in each segment. For the corridor as a whole and each segment within it, the report identifies a series of proposed policy changes which would limit the potential for retail development in most of the corridor and would instead encourage residential and mixed-use developments. These policy changes would change the land use and development patterns of the corridor and would apply to zoning, roadway design and economic development strategies.

1.2 Description of the Study Process and This Report

The consultants conducted a series of studies to arrive at the policy recommendations that are included in this report. Three separate studies were undertaken, as follows:

- Land use and urban design surveys of the corridor, described in Appendix B.1.
- A real estate market study, described in Appendix B.2.
- A transportation study, including traffic counts at key intersections, projections of future growth in traffic, and recommendations for transportation improvements, described in Appendix B.3.

The remainder of this report is divided into five additional sections and three appendices. Section 2 describes the recommended land uses for each segment of the corridor. Section 3 provides urban design recommendations for the corridor. Section 4 recommends procedural changes to the City's land development review processes that would provide for additional levels of review in the corridor. Section 5 summarizes the transportation projections for the horizon year of 2016 based on the land use recommendations in Section 2 and details the transportation improvements that are recommended to mitigate the impact of the projected land use changes. Section 6 details economic development recommendations for the study area, focusing primarily on Main Street/Avenue. Appendix A lists the specific zoning recommendations intended to implement the policy changes described in sections 2 and 3. Appendix B includes the background studies we conducted to develop our recommendations. These include a land use and urban design study, a real estate market analysis, and a transportation analysis of existing conditions and likely future conditions for both the current land use policies and the proposed land use policies. Appendix C shows diagrams of peak hour trips and potential intersection improvements under different traffic growth scenarios.

The zoning and urban design recommendations presented in this report have been devised to encourage an alternative pattern of development by making the corridor less attractive to future big box retailers, either by prohibiting retail use or by limiting the developable area of a site through a real or effective reduction of the floor area ratio. It is first important to recognize that it is realistic, despite the market trends described in the real estate market study, to encourage non-retail types of development in the corridor. In fact, the real estate analysis suggests that the City has an opportunity to reposition both Main Street/Avenue and Westport Avenue, and especially the North Avenue connector, to multi-family residential and mixed uses. Residential uses that already exist appear to be doing well, and a redevelopment approach that focuses on pedestrian amenities and other neotraditional neighborhood design would certainly enhance the area's residential character. Residential development on Main Avenue and Westport Avenue seem to be taking advantage of the area's unique topography, with condominiums situated on the hills and bluffs commanding outstanding views of the City. Lots not fronting on Westport Avenue and Main Street/Avenue are particularly well-suited to residential, not retail uses. Some sites, particularly those near the multi-plex movie theater on Westport Avenue, seem to be prime locations for family-oriented retailing and sit-down restaurants.

As a result of the following recommendations, the buildout analysis projects 16,274 square feet less retail and 350 additional housing units will be built in the study area compared with the existing land use policies and regulations. Almost all of the new retail will be concentrated on the northern end of Main Avenue near Merritt Parkway, where retail of this magnitude appears more appropriate due to its proximity to major highways and the Merritt 7 complex. We assumed all of this development would take place on the existing Stop & Shop shopping center site, which is underbuilt according to our real estate analysis, but it could also occur on other nearby parcels such as the Board of Education parcel or even the Linco Superfund site. If the substantial projected redevelopment at the northern end of the Main corridor is excluded, then the changes are even more dramatic: a reduction of 470,317 square feet of

Legend
Study Area
Source: Connecticut DOT
ESRI
Phillips Preiss Shapiro Associates, Inc.
Map prepared by: Vollmer Associates LLP
0
500
1,000
Feet
NORTH
Figure 1.1: Study Area

retail space compared with the existing land use policies and regulations.

The full buildout analyses under existing and proposed zoning, from which these figures are derived, are provided in tables B.2 through B.6 of Appendix B in this report. These buildout analyses are somewhat higher than those which the City has commissioned for other purposes, such as downtown redevelopment. There are two reasons for this. First, for traffic projection purposes, we felt that it was appropriate to be conservative in our assumptions; this led us to adopting a "realistic worst case scenario" approach, wherein we assume that the maximum amount of development that could occur based on zoning and market conditions does occur. Under a scenario that is not worst-case, some sites are not developed to their worst-case maximum due to such unpredictable factors as the reluctance on the part of individual owner to sell or redevelop when economics would dictate otherwise. The second reason for our projections is that, as explained further in Appendix A, there is an enormous amount of pent-up demand for retail in Fairfield County, and few places to put it. Norwalk is one of those places, particularly in light of the fact that little, if any, commercially zoned land is available for development in the surrounding municipalities. Therefore, potential demand for retail space in Norwalk is higher than it would be for a typical city of its size and income levels, particular near the City's boundaries (i.e., at the northern end of the Main corridor and the eastern end of the Westport Avenue corridor).

The purpose of this report is not to propose a single all-or-nothing plan, but rather to describe a set of largely separate policy changes that would lead to change in the land uses and transportation patterns of the corridor over time and to describe, in qualitative terms, the costs and benefits of each. Except where noted, most of the proposed changes can be implemented independently of one another. One major exception to this is the intersection improvements shown in Appendix B. Three sets of potential intersection improvements are shown—one anticipating high growth in traffic, the second anticipating moderate growth, and the third anticipating low growth. The specific improvements to be implemented will depend on the actual amount of growth that occurs, which in turn will depend on the totality of the land use changes that occur in the corridors. These changes will depend on both the land use policy changes that are implemented and the actual market conditions that prevail before the horizon year of 2016.

Figure 1.2: Study Area Segments

2 Land Use Recommendations

The proposal envisions the following buildout and land uses for each of the study corridor's six segments, as identified on Figure 1.2 above. For each proposed land use change, the potential benefits and costs involved are described.

2.1 Northern Main Avenue (Segment 1)

Description

It is recommended that big box retail development be limited to the northern end of Main Avenue, where the Stop & Shop is now located. This location is logical for this type of development because it is next to a large employment and residential center, has excellent highway access, and has the potential for improved transit connections in the future if the Danbury branch is upgraded to a light rail line and a new station is added. The build-out scenario envisions an expansion of the existing large-format retail at this location to a larger or multistory facility with structured parking.

Benefits

Takes advantage of a key location to concentrate development and capture retail demand from surrounding municipalities that have convenient access to the site via Main Avenue and the Merritt Parkway. Encourages the further clustering of development near the Merritt-Main interchange, thereby potentially creating transit-supportive intensities in the future, which may be appropriate given the site's proximity to the Danbury Branch.

Costs

Creates a substantial increase in trips to and from the site compared with the existing shopping center; may reduce the viability of retail redevelopment in downtown Norwalk, particularly if restrictions are not put on redevelopment elsewhere in the study area. As an alternative, we have calculated traffic data without the increase in floor area on this site so that its effects can be measured.

2.2 Central Main Street/Main Avenue (Segments 2 and 3)

Description

For the segment of Main Avenue between Linden Street and Union Avenue, we recommend that retail stores be limited to 10,000 square feet and that drive-through facilities be prohibited. This size threshold is below the minimum required for a typical medium-box drugstore, and the drive-through restriction will further discourage high traffic-generating chain stores. As a result, we project that several properties that would otherwise have been redeveloped with retail will instead be redeveloped with residential.

Benefits

Reduces potential growth in traffic through these segments of the corridor and encourages mixed-use development and the retention of small, locally owned businesses. If the Linco and Muller sites are redeveloped for residential purposes, the land use changes envisioned here would encourage the gradual conversion of the remainder of the corridor to uses more complementary to residential development on those parcels.

Costs

Limits potential retail expansion; makes many existing businesses non-conforming. Segment 2 in particular currently serves as a service corridor for auto-related uses; these uses may be threatened by a change in zoning that limits their expansion potential.

2.3 Lower Main Street/North Avenue (Segment 4)

Description

On Main Street south of Union Avenue and on North Avenue to East Avenue, we recommend that the City implement two strategies in order to limit high-traffic generating uses in light of the vehicular traffic restrictions on this street.[1] The first strategy is to restrict the size of an individual retail store to 5,000 square feet; the second strategy is to reduce the maximum nonresidential floor area ratio to 0.5. An exception for low-traffic generating retail uses such as furniture stores, home furnishings suppliers, antique stores and similar establishments is recommended. As a result of these changes, we project that the properties in this area will be redeveloped with residential rather than retail uses. The existing retail proposal for the property next to Lillian August, which has been submitted to the City, would not be permitted under this scheme, but Lillian August and similar low-traffic retailers occupying more than 5,000 square feet of space would be permitted uses. It is our projection, however, that due to market demand, the corridor will be developed mainly with residential uses under this scenario.

Benefits

Reinforces the current, largely residential character of this stretch of the corridor, while allowing for the continuation of nonresidential uses similar to Lillian August. Provides for a strong northern buffer to the downtown and protects against continued encroachment by commercial uses into residential neighborhoods surrounding downtown.

Costs

Imposes significant burdens on most prospective retail uses in this portion of the study area. Forecloses the possibility of extending the Downtown retail core to include the North Avenue corridor.

1. In the future, following the widening of North Avenue, these restrictions could be reassessed. However, it is our recommendation that development be restricted at this time so as to avoid exacerbating an already severe traffic situation to the extent possible.

2.4 Stew Leonard's Vicinity (Segment 5)

This segment includes Stew Leonard's and other retail uses, and enjoys easy access to and from I-95 via East Avenue. There are also no apparent soft sites ripe for redevelopment; thus there are no land use changes foreseen or recommended here.

2.5 Eastern Westport Avenue (Segment 6)

Description

On Westport Avenue from the Fortunoff site to the Westport border, we recommend that big-box retail be limited and mixed-use development be encouraged. To this end, we recommend a zoning strategy that would prohibit retail use except on the ground floor and prohibit structured or underground parking for exclusively retail projects. We do, however, recommend that multistory mixed-use projects involving retail on the ground floor and residential above, be permitted to include structured parking. These regulations would effectively limit the retail potential in this strip to the types of development that already exist and would not allow another development like the cinema. We also envision that the larger soft sites in this corridor (such as Fortunoff) would, at full buildout, be developed as mixed use rather than exclusively retail projects, as would likely be the case under the existing zoning.

Benefits

Prevents big-box retailers from establishing a larger presence in this area than they have currently. Provides for a more mixed character in this portion of the study area, making it more feasible to serve with public transit.

Costs

Reduces the opportunity to capitalize on the corridor's proximity to high-value residential neighborhoods in both Norwalk and Westport. Retail to the standard of that on Connecticut Avenue in the southwestern part of Norwalk could not be constructed in this scenario.

2.6 Willard, Lois, Brookfield and Surrounding Streets (Segment 6)

Description

To encourage residential development within this segment, we recommend that properties lacking frontage on Westport Avenue, including properties along Willard Road, the mobile home park, and the properties along Lois and Brookfield streets, be rezoned to a new zone that would allow primarily residential and light industrial land uses (so as not to render existing uses nonconforming), but not retail use. The Pepperidge Farm site could also be included in this zone or a similar zone.

Benefits

This rezoning would have several advantages: it would foreclose the possibility of a developer consolidating parcels in this area for a large retail project, it reflects the current actual land use pattern in this area, and it allows for the gradual transition of the area from industrial to residential, which is likely to occur based on market trends.

Costs

Reduces the possibility of a developer acquiring the sites for a large-scale redevelopment that could improve the City's tax base. Reinforces a mixed industrial-residential land use pattern that may be undesirable due to the potential for land-use conflicts between residential and industrial uses.

Further details about the proposed zoning configuration of each segment are provided in Appendix A.

3 Urban Design Recommendations

Urban design guidelines are especially important to control additional traffic and parking loads placed on the corridor by new development, as well as to promote a pedestrian-friendly streetscape despite the probable widening of Route 1. While new zoning controls recommended will control the bulk and use of development in the corridor, PPSA recommends that the following urban design guidelines also be instituted to promote a safe and interesting pedestrian environment.

3.1 Build-to Line

Description

We recommend "build-to" lines throughout the study corridor to govern new building placement. A build-to line is similar to a front setback in application, but it sets both a minimum and a maximum setback.

It is our recommendation that different sets of build-to lines be established for different segments of the Westport-North-Main corridor. In Segments 2 and 3, we recommend that the build-to line be sited close to the street, at or within a few feet of the sidewalk. In Segments 4 and 6, we recommend that the build-to line be established, at the developer's option, either (a) at or within a few feet of the sidewalk or (b) at 70–80 feet from the street. The latter option allows for a parking lot in front of the building with adequate off-street space for vehicular maneuvering as well as a landscaped buffer strip between the street and the parking lot. In Segments 1 and 5, we do not recommend the establishment of a build-to line but rather the continuation of traditional setback regulations.

Photographic illustrations of the concept of a build-to line are provided in Figure 3.1. The buildings shown in the figures are flush with the sidewalk. Parking is provided to the side and rear of the buildings, and most of the lot frontage is occupied by the building itself rather than by parking.

Figure 3.2, a more conventional development scenario in upstate New York, shows how a build-to line would work with a building accommodating a parking lot. Here, the building is set back far enough to accommodate two rows of parking stalls with an access aisle, as well as a landscaped island between the parking lot and the sidewalk. The objective is to ensure that the building is set back no farther than needed to accommodate the parking. As shown in the figure, it is important to provide a direct, prominent pedestrian walkway to the street from the entrance of the

Figure 3.1: Buildings with a full set of build-to lines and façade regulations

building when constructing a building with parking in the front.

A build-to line definition includes two components: the maximum setback from the sidewalk (typically between 0 and 10 feet on shopping streets, or somewhat deeper if sidewalk café seating will be provided) and the minimum percentage of lot frontage that must include building mass within this build-to distance (for example, at least 75 percent of the front lot width must have building mass within a build-to line of 10 feet from the sidewalk. In this example, the other 25 percent could be used for driveways, parking areas, landscaping, plazas, etc.), or portions of the building set further back. In the portions of Segment 3 that already exhibit a built-to-the-street character, build-to lines may be used to regulate incremental infill and redevelopment; however, the regulations should be tailored to ensure that new buildings match the typical setbacks of existing development.

Figure 3.2: Conventional development with front-yard parking illustrating application of build-to line concept

Benefits

A build-to line encourages buildings to be lined up in a consistent manner along the street, which promotes pedestrian activity between different properties. Over time, as sites are redeveloped consistent with the build-to line, the aesthetics of the corridor are improved as buildings are constructed in a consistent manner.

Costs

The build-to line is inherently less flexible than traditional setback requirements because it imposes a maximum setback as well as a minimum setback. This could cause difficulties for developers of some sites with sloping topography, although exceptions could be made for hillside sites.

3.2 Pedestrian-oriented building design

Description

Pedestrian-oriented building design ensures that buildings frame the street and create an interesting walking environment for pedestrians. Elements of pedestrian-oriented building design are apparent in traditional, pre-war commercial buildings in downtown Norwalk and even in some of the storefronts along Segment 3 on Main Street. They include the following:

* Generous storefront windows (occupying 50 to 75 percent of the ground floor façade area) with "active" window displays; entries and facades highlighted by framing, massing, and/or prominent architectural elements
* Awnings or overhangs
* Other human-scale details such as baseboards and cornice lines
* Pedestrian-scale signage meant to be read at walking or slow driving speed.
* Buildings are fairly narrow, no more than 40 to 50 feet wide, or are broken into a series of bays approximately 50 feet wide through window pattern and massing.
* Building entrances face the street. Where modest front parking areas exist, painted, textured, and/or landscaped pathways connect building entries to the sidewalk.
* Blank walls and tinted or mirrored glass should be prohibited on all street-facing facades.
* Façade materials should continue around corners to the sides of the building so as to avoid a "pasted-on" appearance

The bank building shown in Figure 3.1 above, in addition to conforming to the build-to line, also illustrates the concepts of these facade regulations. We recommend that façade regulations be adopted for the entire corridor that incorporate the principles of pedestrian-oriented building design outlined above. These regulations should be tailored for each segment, as described below under "zoning recommendations."

Benefits

It should be emphasized that the intent of the façade regulations is not to mandate a particular style of architecture, but rather to ensure that adequate visual interest is provided to encourage pedestrians to walk, and to ensure that all portions of the building visible from the public right of way receive similar architectural treatment.

Costs

Pedestrian-oriented building design can limit the accessibility of commercial buildings to potential customers in vehicles because it reduces the visibility of the structures and makes the location of parking lots less obvious, particularly to those driving at a high rate of speed. In "Zoning Recommendations," below, we describe a separate set of building design regulations that are recommended for application to each segment. Some segments are simply not as pedestrian oriented as others and would not benefit as much from pedestrian-oriented building design.

3.3 Regulation of Parking Lots and Curb Cuts

Description

When low-intensity or low-value buildings are to be replaced or expanded, the building should be built close to the street and all or most of the parking should be placed at the side and/or rear of the building. The width of two-way driveways and curb cubs leading to side or rear parking lots should be restricted to 20 feet, with one lane for each direction. One-way driveways and curb cuts should be restricted to 10 feet in width. Loop driveways that create two curb cuts at the sidewalk should be avoided because they disrupt the pedestrian environment.

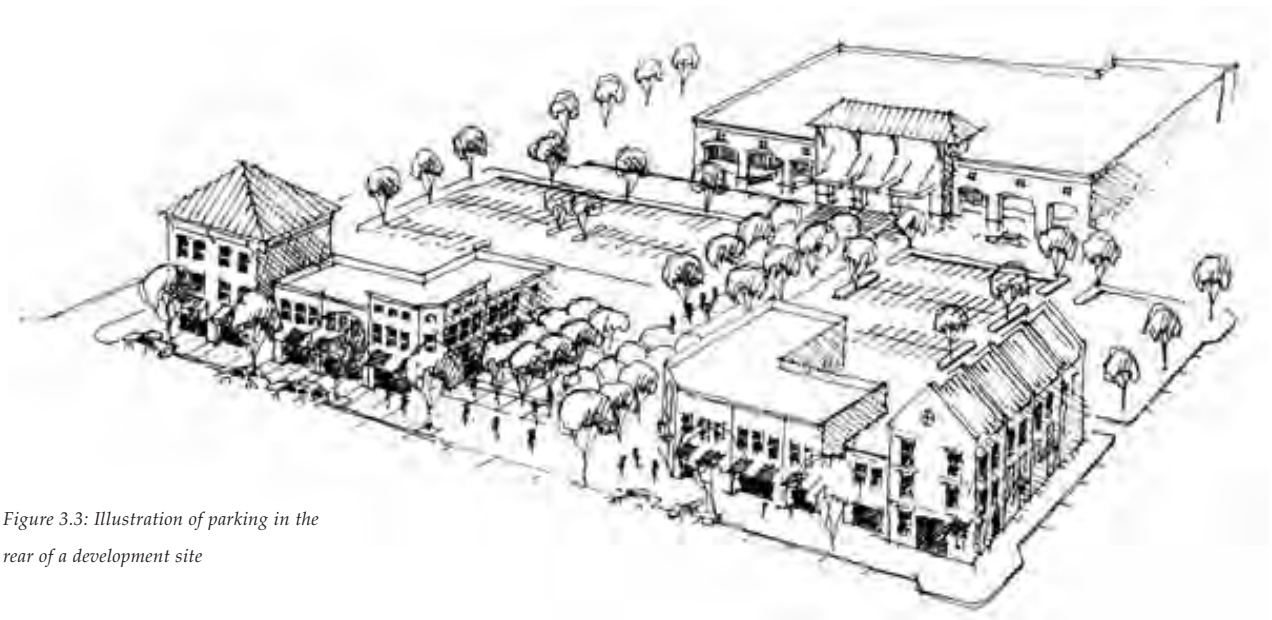

Figure 3.3: Illustration of parking in the rear of a development site

Side fences and landscaping should be removed to provide vehicular access between adjacent parking areas (whether in the front, side, or rear of lots). Curb cuts of adjacent developments may then be shared, and redundant or duplicate curb cuts removed. Parking lot access from adjacent side streets is another way to remove curb cuts and preserve sidewalk continuity along the corridor. Done throughout an entire block, the parking areas become a secondary access route.

This approach requires flexible parking regulations that allow each business to include the connected, neighboring parking supply when determining the effective number of spaces. As a result, the total number of parking spaces may be reduced, or conversely, a greater amount of development may be provided with the same parking supply.

It is unrealistic to think that front-yard parking will disappear entirely. Landscaping and low walls help improve the appearance of front parking areas. They help shield the view of parked cars and delineate the street and the sidewalk so that pedestrians have the comfort of walking in a "defined" space. In designated areas, parking lots should be bordered with edge treatments about two to three feet high. Appropriate landscaping includes low hedges, shrubs, flowers, and ornamental grasses. Lawns are acceptable when combined with taller elements, such as walls or plantings, so that parked cars are screened. Low walls, particularly made of dry-stacked or mortared stone, are recommended and, unlike landscaping, are equally effective in winter and summer. Several examples of New England-style dry stone walls are visible at retail and residential parcels along the Westport-North-Main corridor, often used as retaining walls for steeply sloping parcels. Split-rail fences, picket fences, and wrought iron fences are also acceptable provided they do not exceed about three feet in height.

Edge treatments on wide-frontage parcels should not exclude pedestrians who may wish to walk into the parcel at a different point than the driveway. If many pedestrians will be crossing the street to enter a parcel at one corner, for example, a break in the edge treatment and walkway into the property should be provided.

Figure 3.3 provides an example of a parking lot with the edge treatments recommended here. The streetscape experience for pedestrians is enhanced through the use of low hedging, quality sidewalk materials, and street furniture.

It is our recommendation that parking lot regulations be adopted for the corridor that limit the amount of curb cuts, require sites to provide connections to adjacent properties, and provide for appropriate landscaping and pedestrian-friendly design at the edges of lots. Detailed recommendations are provided below under "zoning recommendations." [2]

Benefits

Parking located at the front of a lot separates a building from street life, and creates an unsafe or unpleasant environment for pedestrians. In some areas, large front parking areas have partially eroded the pedestrian-friendly, built-to-the-street character. Requiring parking to be placed at the side or rear of buildings can resolve this problem and help to restore the character of areas, such as Main Street between Union and New Canaan avenues, that had a traditional, pedestrian-oriented environment. Even where parking is in the front yard, edge treatments along streets can dramatically improve the appearance of these areas and encourage pedestrian activity.

Curb cuts leading to off-street retail parking disrupt the sidewalk, slow the flow of traffic, and reduce the supply of valuable on-street parking. Curb cuts are particularly disruptive in areas with small lot sizes, where separate parking lots are closely-spaced. In a related vein, fences between parking areas of adjacent retailers make it inconvenient for customers to visit more than one store, and result in large, inefficient areas of parking because the spaces cannot be shared between adjacent uses that may have different peak demand periods. Therefore, restrictions on the number of curb cuts and connections between parking lots on adjoining sites can provide significant benefits for both pedestrian and vehicular movements.

Costs

Restrictions on the location of parking and the number of curb cuts can make it more difficult for people in vehicles to locate and access businesses. It can also be difficult to regulate shared parking lots, particularly where a reduction in the number of parking spaces is granted on the basis of shared parking. When uses change and parking demand increases, the originally approved number of parking spaces may be insufficient. For this reason, the City may wish to require that certain areas be set aside or "banked" for potential future expansion of parking should demand warrant it. This could take the form of a requirement that property owners be prepared to construct multi-level parking decks after the initial completion of the project if parking need outstrips the demand that was originally anticipated.

2. It must be recognized that the entire corridor, including all of Main, Westport and North avenues, is currently within the State highway system, and therefore the State, not the City, controls activities within the right of way. The City should pursue cooperation with the Connecticut Department of Transportation to implement these policies. The DOT is beginning to work closely with local communities to improve the appearance and functionality of highways through a protocol known as "context-sensitive design." In addition, the implementation of Village District zoning, described further in Section B.5 below, would give the City another means of controlling the look and feel of roadways.

3.4 Continuous Street Trees and Street Lamps

Description

In tandem with continuous sidewalks, street trees should be planted within the sidewalk right-of-way to provide shade and help frame the roadway, reducing its perceived scale. Along with cars parked on-street, trees improve pedestrian comfort by separating the sidewalk environment from traffic. Ideally, trees should be spaced at 30 to 40 foot intervals, and should be selected to create a canopy over the street when mature. The lower branches of street trees can be pruned so that retail business storefronts and signage are visible to pedestrians and drivers.

In segments 1, 2, 4, 5 and 6, it is recommended that street trees be placed in a continuous planting strip between the sidewalk and the street. Additional landscaping within this strip (such as small shrubs and flowering plants) can also significantly help improve the attractiveness of these portions of the corridor. Care must be taken, of course, to avoid obstructive plantings within motorist sight triangles at intersections and driveway connections. In Segment

Figure 3.4: Parking lot with edge treatment improving pedestrian experience

3, where significant pedestrian activity is expected, sidewalks should be constructed flush with the curb. Here, sidewalks should be designed of a porous material to ensure that roots are properly fed, with street trees placed in small tree pits at regular intervals within the sidewalk. Underground, root systems should be guided via the use of porous underground piping designed to direct the growth of tree roots away from infrastructure and to avoid buckling sidewalks and streets. These modern methods of street tree planting offer the potential for greater success in keeping trees alive with lower liability and maintenance costs.

Figure 3.5 illustrates how landscaping, including landscaped median strips, trees along the sides of a street and adequate sidewalks, can significantly improve the appearance of even a very busy and wide street. These principles should be incorporated into the redesign of the sections of Main, North and Westport avenues that are widened to accommodate traffic growth.

Street lamps should also be provided in Segment 3 and near bus stops in the other segments. Street lamps should be pedestrian-scaled, and cast light onto the sidewalk and on-street parking area. Lamps should be downcast and comply with dark sky standards. Pedestrian-scaled street lamps can be provided in coordination with taller, traditional street lamps which light the travel lanes for cars.

Other street furnishings that provide comfort and convenience for pedestrians, such as benches and trash receptacles, should also be provided in Segment 3, and in other segments near bus stops.

All of the improvements outlined above can be implemented by developers as properties are redeveloped, or through a Special Services District, as outlined below in Section 6.1. The zoning ordinance should be modified to require these improvements of developers, as described further below in Section 4.2 and Appendix A. As noted above, the full length of the corridor is currently maintained and controlled by the State; hence, State cooperation will be required for the placement of the improvements recommended here within the right-of-way; in addition, the adoption of Village District zoning regulations encompassing the roadways would give the City more control over the roadways and access to them.

Benefits

Trees provide shade and cool the air, mitigating against the “urban heat island effect,” whereby the large amount of pavement and other hard surfaces absorbs sunlight and increases the ambient surface temperature in cities. Trees also dramatically improve aesthetics and, when placed properly along a street, provide a more pleasant walking environment for pedestrians.

Costs

If trees are installed by developers as properties are redeveloped, it will take many years to provide a full row of

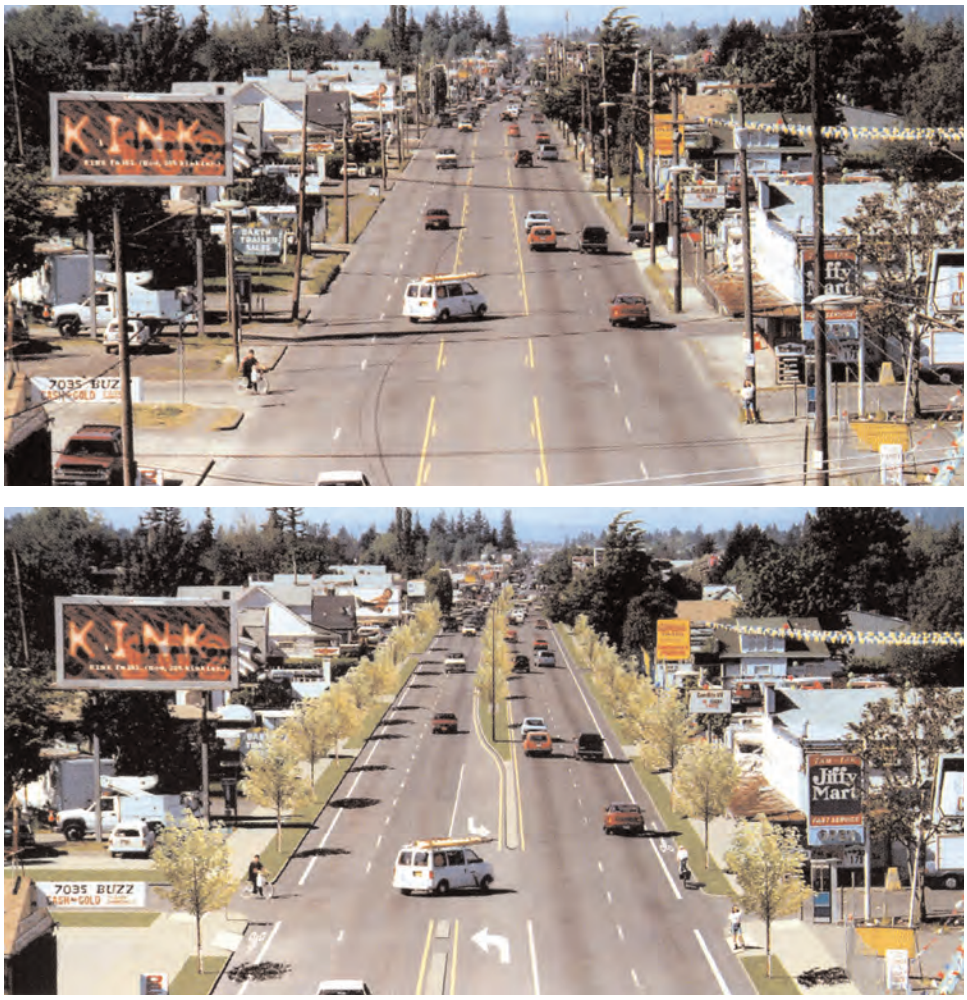

Figure 3.5: Landscaping and streetscaping improvements along a major traffic corridor (Top: before, below: after)

street trees along any given stretch of the corridor. The City or other agencies could install trees themselves in conjunction with utility projects; however, the City should also be aware that there is an ongoing maintenance cost associated with trees. It can be required that the property owner bear this cost; however, property owners often neglect the maintenance of trees, particularly if they feel that trees are limiting the visibility of their businesses. Volunteer organizations can also play an important role in street tree maintenance.

3.5 Utility undergrounding

Description

Overhead electrical and telephone wires and utility poles dominate the vista along the central and outer portions of the corridor. In the more central areas, street trees and buildings built to the street help camouflage and reduce the visual dominance of overhead wires, so that they are less of an aesthetic eyesore. In areas with a low-scale, spread-out environment, moving the utilities underground would be a great improvement. However, given the high cost of undergrounding, the middle segments of the corridor would be the most effective target. On the other hand, as is apparent in the central areas, the camouflaging benefit of street trees can be used to downplay overhead wires.

Utility undergrounding should be required of new developments throughout the corridor. In addition, a Special Services District could also implement utility undergrounding in targeted areas as part of a broader streetscape

overhaul. In particular, the stretch of Main Street between Union Avenue and New Canaan Avenue (Segment 3 on the corridor map) should be considered for such an overhaul. This stretch has the greatest potential for increased pedestrian activity and related economic revitalization.

Benefits

Utility undergrounding would provide a substantial aesthetic benefit to most of the corridor, although it may not be necessary in all areas (for example, where street trees camouflage the utility wires).

Costs

There is a large capital cost associated with utility undergrounding, such that it usually makes sense only for large projects, so it is unlikely that utilities could be placed underground in large stretches of the study area through redevelopment of existing properties. However, some municipalities have chosen to put utilities underground for entire corridors. Usually this is accomplished through grant monies and with the participation of nearby businesses. Along certain stretches of Main and/or Westport, this could be accomplished through the auspices of a Special Services District, described further in Section 6.1 below.

4 Land Development Procedure Recommendations

The following procedural changes are recommended for the City Code to implement the land use and urban design recommendations outlined above throughout the entire corridor and to give the City more control over the development process. In addition to the recommendations described in this section, this report includes a number of recommendations for each segment of the corridor which are intended to implement the land use changes described in Section 2. The zoning recommendations for specific segments are described in Appendix A.

4.1 Village District Zoning

Description

It is recommended that segments 3 and 4 within the corridor, both of which are recommended for rezoning to a new zoning district in Section 6 of this report, be designated as a Village District zone. This designation, permitted pursuant to Section 8-2j, Chapter 120, of the Connecticut General Statutes, allows municipalities to control "(1) the design and placement of buildings, (2) the maintenance of public views, (3) the design, paving materials and placement of public roadways, and (4) other elements that the [zoning] commission deems appropriate to maintain and protect the character of the village district." The designation would allow the City to exercise greater control over many aspects of development, if it so chose; however, the designation is recommended for the central portion of the Main corridor for two specific reasons: to exercise control within the right-of-way and to provide for architectural review. The proposed Village District would be a new, separate designation from the Village Districts that already exist in the City.

Benefits

There are two primary benefits associated with designating areas as Village Districts. First, it will give the City additional control, through the site plan approval process, over activity within the right-of-way of the state highways that make up the corridor. Second, the Village District designation would also provide a strong basis for implementing the façade and aesthetic regulations recommended above in Sections 4.2 and 4.3 and would allow for appropriate review of facades and building design by an expert in the field of architecture or planning.

Costs

Any additional regulation, particularly one adding additional levels of review, adds time and costs to the development process. These costs must be weighed against the benefits from improvements as properties are gradually redeveloped. It is because of these costs that we recommend that the City take a targeted approach, beginning with Segment 3, where State highway regulations are most likely to come in conflict with the goals of encouraging pedestrian activity by providing street furniture, street trees close to the street, etc. The powers granted to the City by the Village District regulations would directly address these conflicts.

4.2 Site Plan Review

Description

We recommend consideration of the following changes to Section 118-1451C, Standards for Site Plan Review.

- All developers should be required to install sidewalks, street trees and street furniture in the locations described in Section 3.4, above, and to place utilities underground. Specifically, in accordance with the urban design recommendations, sidewalks and street trees should be installed everywhere; street furniture should be required at high pedestrian traffic locations, including Main Street between Union Avenue and New Canaan Avenue, and at bus stops throughout the remainder of the Westport-North-Main corridor.
- Façade and edge treatment review should be incorporated as part of the site plan review process in the proposed Village Districts for new buildings and parking lots. For buildings, façade regulations should be developed in accordance with those described in Section 3.2 above. For parking lots, edge treatment regulations should be developed in accordance with those described in Section 3.3 above.
- The number of driveway connections should be limited to one per 75 feet of frontage. The width of driveway connections should be limited to 10 feet for a one-way driveway and 20 feet for a two-way driveway, with exceptions permitted for driveways that need to handle large trucks or are expected to have significant traffic volumes (as at a big-box retailer or supermarket).

Benefits

The recommended changes to site plan review will implement the urban design recommendations in Section 4 above.

Costs

As with Village District zoning, additional site plan review requirements will impose additional costs on developers. However, these costs must be weighed against the impacts that these developments have had on the City with regard to traffic, noise and density. Requiring additional levels of review and improvements to the public realm can be an acceptable tradeoff in return for the intensive uses that are permitted in much of the corridor.

5 Transportation Recommendations

5.1 Introduction

The transportation analysis contained in Appendix B of this report evaluated three scenarios: existing land use, proposed land use, and proposed land use excluding redevelopment of the Stop & Shop shopping center site at the northern end of the corridor. Traffic impacts from the new developments were projected, and intersection improvements were proposed to mitigate these imapcts. The capacity analysis results for the three improvement scenarios shown in Table 5.1 correspond to the schematic improvement figures contained in this report. Please note that although the goal of these improvements was to maintain an intersection-level LOS D, on many individual approaches, LOS E and F will persist during the weekday afternoon peak hour, a condition with which many well-developed urban areas have to contend.[3]

5.2 Description of Improvements

The schematic improvement figures for the three 2016 scenarios are contained in Appendix C of this report are described in Table 5.2. These proposed improvements are intended to address existing traffic deficiencies as well as impacts from new developments in the area, including those in the study corridor and from other parts of Norwalk. The recommended improvements cover six intersections, three of which can be incorporated in the Route 1 widening project, although with slightly different intersection lane arrangements than those proposed by ConnDOT and the City of Norwalk. The associated improvements to the traffic signals at these three intersections along Route 1 can be included in the phase II of the city-wide signal upgrade program. In the traffic analysis, it was assumed that the proposed widening of Route 1 (Cross Street and North Avenue) to four-lane cross sections will be completed by 2016. The other improvements proposed in this report will involve minor widening of Main Street/Avenue at three or four locations, depending on the scenarios.

Among the three 2016 scenarios, there are only minor differences in the recommended improvements required to maintain a minimum LOS D. The baseline conditions with existing zoning allow more traffic-intensive uses in the Westport Avenue (Route 1) corridor, thus requiring more improvements to the three intersections along Westport Avenue and North Avenue (Route 1): the intersection of Westport Avenue and County Street, the intersection of Westport Avenue and East Avenue, and the intersection of North Avenue and Main Street. The plan conditions with the redevelopment of the Stop & Shop site will result in slightly more traffic on Main Avenue, as compared with the

3. For an explanation of LOS (Level of Service), please see Appendix B.3.

Table 5.1: Intersection Capacity Analysis Summary

Location	*2005 Existing Conditions*			*2016 Baseline Conditions with Intersection Improvements*			*2016 Plan Conditions with IntersectionImprovements*			*2016 Plan Conditions Excluding Redevelopment of the Stop & Shop Site and Including Intersection Improvements*		
	PM Peak Hour			**PM Peak Hour**			**PM Peak Hour**			**PM Peak Hour**		
	v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS	v/c Ratio	Delay (sec)	LOS
Westport Ave. (Rt. 1) & Strawberry Hill Ave.	0.81	25.4	C	1.14	41.4	D	1.14	37.9	D	1.00	32.4	C
Westport Ave. (Rt. 1) & County St.	0.57	5.7	A	0.85	16.7	B	1.02	43.7	D	0.97	34.2	C
Westport Ave. (Rt. 1), Dry Hill Rd. & Stew Leonard's Driveway	0.87	16.7	B	0.95	18.6	B	0.87	14.6	B	0.83	14.5	B
Westport Ave. (Rt. 1) and East Ave.	1.16	63.9	**E**	0.98	36.5	D	1.09	48.1	D	0.97	38.7	D
Cross St. (Rt. 1) & Main St. (Rt. 123)	0.85	32.8	C	1.02	48.1	D	1.07	53.1	D	0.99	45.8	D
Main St. (Rt. 123) & Union Ave.	0.54	7.6	A	1.14	52.6	D	1.14	53.2	D	0.90	16.9	B
Main Ave. (Rt. 719), Main St. (Rt. 123) & New Canaan Ave. (Rt. 123)	1.12	37.6	D	1.00	34.6	C	1.05	38.0	D	0.87	23.2	C
Main Ave. (Rt. 719) & Ward St.	1.15	55.1	**E**	1.09	40.6	D	1.16	53.7	D	1.01	28.4	C
Main Ave. (Rt. 719) & Broad St.	0.78	7.6	A	1.15	41.1	D	1.01	10.0	B	0.99	15.9	B
Main Ave. (Rt. 719) & Perry Ave.	1.19	43.8	D	1.04	37.9	D	1.17	52.3	D	0.99	31.0	C

Note: LOS E or F is shown in bold and underlined.

2016 baseline conditions (existing zoning), resulting in a new northbound left-turn lane at the intersection of Main Avenue and Broad Street.

As proposed, the improvement options may involve right-of-way expansion and thus necessitate property taking from many lots along the study corridor. However, these recommendations should be treated as responses to worst-case traffic scenarios, which, realistically, may not be required or practical. First, all three development scenarios, which assumed the full buildout of the analyzed parcels and other major developments in Norwalk in 2016, may not materialize exactly as envisioned in this study because of regulatory, market and macro-economic factors. Second, the intersection improvement options presented here may not be practical because of funding and environmental constraints or their impacts on neighborhoods. As such, the improvement options, which are schematic in nature, are not to be interpreted as recommending the taking of specific properties shown in the figures.

In addition, detailed operational issues, such as access points for adjacent properties and lengths of turn lanes, etc., will need to be resolved in the design phases of these locations, assuming that they are to be improved.

Table 5.2: Proposed Schematic Improvements at Study Intersections

Intersection	Improvement Scenario		
	2016 Baseline Conditions	*2016 Plan Conditions Redevelopment of the Stop & Shop Site*	*2016 Plan Conditions, without*
Westport Avenue and Strawberry Hill Avenue	None	None	None
Westport Avenue and County Street •	• See Figure C.8; • Relocate Wolf Pit Avenue to opposite County Street, providing one southbound left-turn lane and one southbound through lane; • Re-stripe County Street as one left-turn lane and one through lane; • Add one eastbound left-turn lane on Westport Avenue.	• See Figure C.14; • Relocate Wolf Pit Avenue to opposite County Street, providing one southbound left-turn lane and one southbound through lane; • Re-stripe County Street as one left-turn lane and one through lane. and one through lane.	• See Figure C.20; • Relocate Wolf Pit Avenue to opposite County Street, providing one southbound left-turn lane and one southbound through lane; • Re-stripe County Street as one left-turn lane
Westport Avenue and East Avenue	• See Figure C.9; • Add one eastbound through lane and one westbound receiving lane to North Avenue; • Add one westbound left-turn lane and one westbound through lane to Westport Avenue; • Add one northbound through lane to East Avenue; • Add one northbound receiving lane on the northerly leg of East Avenue.	• See Figure C.15; • Add one eastbound through lane and one westbound receiving lane to North Avenue; • Add one westbound through lane to Westport Avenue; • Add one northbound through lane to East Avenue; • Add one northbound receiving lane on the northerly leg of East Avenue.	• See Figure C.21; • Add one eastbound through lane and one westbound receiving lane to North Avenue; • Add one westbound through lane to Westport Avenue; • Add one northbound through lane to East Avenue; • Add one northbound receiving lane on the northerly leg of East Avenue.
North Avenue (Route 1) and Main Street	• See Figure C.10; • Revise all four legs of the intersection to provide one left-turn lane, two through lanes, and two receiving lanes.	• See Figure C.16; • Revise the two legs of Route 1 to provide one left-turn lane, two through lanes, and two receiving lanes; • Add one receiving lane to the northerly leg of Main Street;	• See Figure C.22; • Revise the easterly leg of Route 1 to provide one westbound left-turn lane, two westbound through lanes, and one eastbound receiving lane; • Revise the westerly leg of Route 1 to provide one eastbound left-turn lane, one eastbound through lane, and two westbound receiving lanes; • Revise the southerly leg of Main Street to provide one northbound through lane, one northbound right-turn lane, and one southbound receiving lane.
Union Avenue and Main Street	None	None	None
New Canaan Avenue and Main Street	• See Figure C.11; • Add one eastbound left-turn lane on New Canaan Avenue.	• See Figure C.17; • Add one eastbound left-turn lane on New Canaan Avenue.	• See Figure C.23; • Add one eastbound left-turn lane on New Canaan Avenue.
Ward Street and Main Avenue	• See Figure C.12; • Add one southbound left-turn lane on Main Avenue.	• See Figure C.18; • Add one southbound left-turn lane on Main Avenue.	• See Figure C.24; • Add one southbound left-turn lane on Main Avenue.
Broad Street and Main Avenue	• None • Add one northbound left-turn lane on Main Avenue.	• See Figure C.18;	None
Perry Avenue and Main Avenue	• See Figure C.13; • Add one northbound left-turn lane on Main Avenue; • Add one eastbound left-turn lane on Perry Avenue.	• See Figure C.19; • Add one northbound left-turn lane on Main Avenue; • Add one eastbound left-turn lane on Perry Avenue.	• See Figure C.25; • Add one northbound left-turn lane on Main Avenue; • Add one eastbound left-turn lane on Perry Avenue.

5.3 Context-Sensitive Design

A pedestrian-friendly environment is essential to building a vibrant and livable Norwalk. The city already has many attractive streets that cater to the needs of pedestrians and street-level businesses. Such streets include segments of Washington Street and North Water Street, which represent a good balance between the needs of vehicular and pedestrian traffic through streetscape, crosswalks and traffic calming measures. In addition to providing a pleasant living and working environment, pedestrian facilities also have the potential to encourage walking, cut down the number of short vehicular trips, and reduce traffic congestion. The existing pedestrian facilities can be improved with the introduction of design features such as sidewalks, well-marked crosswalks, pedestrian signals, landscape and streetscapes. Although the benefits of most of these improvements cannot be quantitatively measured in vehicular operation, their contribution to a more livable and safe environment along the study corridor can be significant.

It is also important for any proposed roadway and intersection improvements to match the characters of their surrounding areas to create a better sense of place for visitors, whether on foot or in automobiles; the study corridor obviously has been lacking in this respect. To address this deficiency, we provide as follows context-sensitive design elements that can serve as general guidelines in future transportation improvements in the corridor. Most of these recommendations are not reflected in the improvement figures of this report for the reason that they are more location-specific and need to be carefully laid out in the design phases of roadway improvements.

- The roadways in the corridor will likely continue to serve as major arteries in Norwalk. To soften their vehicle-centric characters, a palette of improvement elements that aim to transform the corridor into attractive urban boulevards should be considered: planted medians, restrictions in curb cuts and turning movements to and from driveways, streetscape and landscape features, pedestrian amenities, curb extensions (bulb-outs), on-street parking, smaller curb radii, and human-scale building facades located closer to sidewalks.
- Preserve and enhance the residential character and pedestrian experience on Main Street between New Canaan Avenue and Cross Street.
- Provide special design treatments at key intersections and gateways along the corridor to enhance and reinforce the images of their respective surroundings: intersection of Park Street and Cross Street; intersection of East Avenue, Cross Street and Westport Avenue; intersection of Main Street and Cross Street; intersection of Main Street/Avenue and New Canaan Avenue; intersection of Main Avenue and Broad Street; and at the town line with Westport on Westport Avenue.
- Monitor the traffic patterns on Main Avenue after the Route 7/15 interchange project. If future volumes on Main Avenue are significantly lowered as a result of the traffic diversion to Route 7, the city should consider geometric changes, including street narrowing, on Main Avenue to match its surrounding developments and better serve pedestrian traffic.

5.4 Accidents

The traffic analysis report, included in Appendix I, indicates 12 intersections with high accident rates. A common characteristic among these high-accident intersections is the numerous driveways punctuating the street, particularly where there are high main-line traffic volumes. To ameliorate the accident patterns in these areas, we recommend that the number of driveways of future developments along Main Street/Avenue and Westport Avenue be limited, or that driveways should be provided on side streets that intersect with the main lines at signalized intersections. Wherever possible, left-turn exit movements from driveways should be prohibited by providing right-out-only exits from development sites on Main Street/Avenue and Westport Avenue.

6 Economic Development Initiatives

Within the Main Street/Avenue segments of the corridor, there are several parcels which are in need of redevelopment. Additionally, compared with the Westport Avenue segments of the corridor, the Main Street/Avenue segments are underperforming economically, with more marginal businesses. While the vibrant real estate market is likely to result in the redevelopment of some properties on its own, the Main Street/Avenue segments, particularly Segment 2, suffer from small parcels and its relative isolation from the rest of the City, being bounded on the east by a steep hillside and on the west by the Danbury branch, Merritt Creek, and the Route 7 freeway. Therefore, it is recommended that a series of economic development initiatives be considered for Main Street/Avenue. These are mapped on Figure 6.1 and include the creation of a Special Services District for part or all of the avenue, and the redevelopment of three large vacant underutilized sites in or near the corridor.

6.1 Creation of a Special Services District

Description

Along Main Street/Avenue—particularly in Segment 3, but possibly including Segments 1 and 2 and extending even farther north to incorporate the Merritt 7 complex—it is recommended that a Special Services District (SSD) be considered to implement the urban design improvements recommended in Section 2.4 above and to manage the future transition of the corridor as properties are converted to mixed-use residential and commercial uses from the current strip retail and auto-oriented character.

The creation of SSDs is authorized by State law in Chapter 105a of the Connecticut General Statutes. Such districts may be established by a municipality "to promote the economic and general welfare of its citizens and property owners through the preservation, enhancement, protection and development of the economic health of such municipality" (Sec. 7-339m). Special Services Districts, funded by a special assessment on the property owners within the district, have been utilized for many years throughout the state to assist with the revitalization and maintenance of business areas and to provide public improvements which enhance the economic value of those areas and meet municipal objectives. In order to be established, any proposed SSD must be approved in a referendum

by both the majority of tax-assessed property owners and the property owners holding the majority of the tax-assessed property in the proposed district. An SSD can also be divided into subdistricts with varying assessments for each subdistrict.

An SSD could also be considered for part or all of Westport Avenue. However, Segment 3 of Main Street is the first priority for the establishment of such a district because it is more pedestrian-oriented, has more businesses on smaller parcels close to the street and therefore would reap greater economic benefits from the marketing services, business coordination, and improvements to the public realm that an SSD would provide. Within Segment 3 in particular, the creation of an SSD could assist with the marketing of existing and new small businesses such as restaurants and specialty retail establishments. The close-grained land use framework relatively easy pedestrian connections between businesses in this segment lend themselves to a unified marketing and development approach for which SSDs are particularly suited.

Benefits

Figure 6.2 provides a visual example of the improvements an SSD can bring to a community.[4] Here, streetscape improvements were added to improve the pedestrian friendliness of this intersection. The SSD maintains plantings along the street and has assisted businesses with façade renovations. As a result, the area has begun to regenerate itself economically, with spontaneous redevelopment of nearby parcels into mixed-use projects with apartments above shops.

Costs

Businesses and property owners within the SSD must pay an additional assessment for the functioning of the SSD. Owners may reject the idea of an SSD because they do not want to share the costs of the improvements and services provided by the SSD or do not perceive that the improvements and services would benefit them. It is important to work closely with businesses in an area proposed for an SSD to determine their needs and whether an SSD could bring about a significant improvement to an area from a business perspective.

6.2 Redevelopment of Muller Avenue industrial property

Description

A large industrial property is situated north of Muller Avenue and west of the Danbury branch rail line. This property, which contains a historic brick mill building and several less significant industrial structures, has potential for redevelopment as a residential or mixed-use development. However, the real estate market analysis we conducted suggested that the private sector was unlikely to undertake the redevelopment of this property on its own within the 10-year time horizon specified for this study, owing to the property's poor access, likely cleanup issues, and currently active industrial uses. Therefore, further study of this parcel will be needed if the City wishes to promote redevelopment.

Should the City choose to encourage the redevelopment of this property for residential or mixed land uses, there are two possible courses of action. Either course of action will require additional study by the City. First, the City could create a package of zoning incentives designed to encourage redevelopment. The property is currently situated in the B-2 zone, which allows for residential and mixed use development; the City could increase the allowed dwelling unit density on the property, perhaps in return for the provision of moderate-income housing on-site or contributions in lieu thereof. However, the property would likely need upgraded access if it were redeveloped at a sig-

4. In this case, Maplewood, New Jersey, a municipality with very similar land use patterns and development characteristics to those found in the study area. In New Jersey, Special Services Districts are called Special Improvement Districts (SIDs), but the concept and functioning are essentially the same.

Figure 6.1: Economic Development

Figure 6.2: Illustration of effects of SSD on an existing corridor

nificant density to avoid overburdening the residential streets between Muller and New Canaan avenues, and also out of consideration for the already overloaded stretch of New Canaan Avenue between Route 7 and Main Street/Avenue. The City could consider requiring the developer to provide a new roadway connection to Main Avenue across the Danbury branch, which would have the advantage of linking the property to the Linco property on the east side of Main Avenue (also a "soft" site which could be redeveloped, as described further below). Should the City elect to pursue this approach, it is recommended that a detailed planning study be conducted to determine the appropriate number of dwelling units and mix of land uses and the traffic impacts thereof for this property. A second approach would be to designate the property as an urban renewal area; this would require significantly more City investment and involvement in the redevelopment process.

Benefits

Redevelopment of the Muller property would provide a unique living and/or working environment, promote historic preservation and help to revitalize a property that is currently underutilized. It could also help to stabilize and provide more identity for the adjoining residential neighborhood

Costs

A study of potential redevelopment options should fully assess the likely impacts of redevelopment of this property, particularly with regard to traffic and environmental impacts. Mitigating these impacts may require the acquisition or cooperation of surrounding properties, as described above with regard to a potential new roadway connection across the Danbury Branch to Main Avenue. In practice, this cooperation may be difficult to achieve.

6.3 Redevelopment of Other underutilized properties on Main Avenue

Description

The Main Avenue corridor contains two significant underutilized properties that could be redeveloped. These are the Linco property, a Superfund site located on the east side of Main Avenue in Segment 2, and the Board of Education property, also on the east side of Main Avenue, in Segment 1.

It is suggested that at this time, the City enact the land use changes recommended for Segment 2 and look to the private market to redevelop the Linco site, which has the advantages of good access and ample frontage on Main Avenue. If the Muller Avenue industrial property is redeveloped with a new access roadway to Main Avenue across the Danbury branch, that access road would likely terminate at the Linco site, potentially creating an opportunity to link redevelopment of the two sites. Therefore, it is recommended that the future of the Linco site be reconsidered at the time detailed plans are made for the Muller Avenue industrial property, as recommended above. The cost of the new access road could potentially be borne a single developer working on both sites, and potentially other sites in the surrounding area that could also be redeveloped. In addition, the City should assist any potential redeveloper of either site with the procurement of federal, state or other monies for the redevelopment of brownfield sites.

For the Board of Education property, it is proposed that the existing B-2 zoning remain in place, which allows for numerous development options. However, assuming the Board of Education chooses to vacate the site, the City's potential ownership of this parcel would give it a great deal of control in selecting a development plan. Development as a residential project, possibly including a small commercial component adjacent to Main Avenue, would be appropriate considering the size, configuration and surroundings of this site.

Benefits

The redevelopment of both the Linco and Board of Education properties could result in significant benefits for the surrounding corridor, particularly if the properties were redeveloped for residential purposes. If the land use recommendations for Segment 2 are implemented, developers would have a strong incentive to redevelop the Linco site for residential purposes.

Costs

Redevelopment of either property would need to be studied with regard to traffic and environmental impacts. In addition, an alternate site would need to be located for the Board of Education uses at its site in Main Avenue.

Appendix A: Zoning Recommendations

A map showing the proposed zoning designations of individual segments is provided in Figure A.1, Proposed Zoning. Because these changes are intended to flesh out the implemention the land use recommendations described in Section 2, above, the costs and benefits of each are not repeated here. The costs and benefits can be assumed to be the same as those described in Section 2.

Segment 1: Retain B-2 Zoning

The current Business 2 zone in Segment 1 should be retained to encourage highway-appropriate high density retail and office. As described in Section 2 above, this zoning designation will accommodate a significant proportion of the new retail development that would be likely to occur in the corridor.

As an alternative, to eliminate the possibility of a large retail development in this location, the B-2 zone requirements applicable here could be modified to limit the floor area ratio of development to approximately that occupied by the existing Stop & Shop shopping center.

Segment 2: Rezone to Limited Service Commercial/Residential

This segment should remain a service corridor intended to permit retail stores, auto repair and service, mixed-use development, and other compatible uses, but new retail development should be controlled in terms of both use and bulk in order to limit high traffic generating uses. Thus, a new Village District zone, descriptively named "Main Avenue Service," should be mapped. Permitted uses in this new zone will be the same as the existing Business 2 zone, with the following exceptions:

- Retail stores and personal and business service shops should be limited to a maximum gross floor area of 10,000 square feet. Residential uses, auto repair and service uses and industrial uses would not be subject to this limitation.
- Establishments with drive-up or drive-through service windows should be prohibited.
- All other bulk and height limitations remain as in the Business 2 zone, except that the current front setback regulations should be replaced with a choice of build-to lines. It is recommended that two build-to line options be provided. The first option would be for the building to be located at or within a few feet of the right-of-way line. This would preclude a front yard parking lot and place the building within easy reach of the sidewalk for

pedestrians. The second option would be designed to allow for a front yard parking lot with adequate space, and would require the building to be set back 70–80 feet from the street right-of-way line. The use of these two build-to lines will, over time, help to achieve a more unified look for the corridor as properties are redeveloped, and will help to ensure that adequate off-street parking is provided and that the pedestrian is respected.

Segment 3: Rezone to Pedestrian-Oriented Village District

It is envisioned that this area will become a pedestrian-oriented neighborhood center with a mix of uses and a pedestrian scale. A new "Main Street Neighborhood Center" Village District should be created here, with the same use restrictions applicable to Segment 2. However, automobile sales and service activities, including car dealers and gas stations, should be prohibited in Segment 3.

In addition, modified parking regulations are recommended for this portion of Main Street. Specifically, as described under "Urban Design Recommendations," above, provisions for shared and joint parking, off-site parking, and waivers of parking requirements should be added to the zoning ordinance for application in Segment 3. The intent is to maximize the use of existing and future parking spaces and to encourage the creative design of development projects. Parcel sizes in this area are too small for individual landowners to realistically provide all of the parking requirement on their parcels, and the multiplicity of driveways this would entail would be highly undesirable from a pedestrian and vehicular standpoint. Instead, the zoning ordinance should be modified to encourage the use of shared parking facilities.

Further, it is recommended that a build-to line at or near the sidewalk be adopted for new buildings in Segment 3, and that where parking lots immediately adjoin the street, low walls, fencing or hedging be provided to improve the pedestrian experience. The zoning ordinance should be amended to require these improvements when applicants seek site plan approval in this zone; in addition, a Special Services District could help to provide these improvements for existing properties that are not the subject of new zoning approvals.

As described, street furniture, sidewalks and street trees are particularly important for this stretch of Main Street. The zoning and site plan regulations should be amended to require that developers provide these amenities in a consistent manner using a unified design approach. Specifically, specifications for benches, street lamps, trash cans, sidewalks and street trees should be provided in the zoning code. Codifying a uniform set of standards will expedite approvals, reduce uncertainty for developers and provide for cheaper maintenance and replacement of these features over the long term.

In addition, it is recommended that a Special Services District, described in Section 6.1 above, be instituted to assist with the continued evolution of this segment for properties not subject to the development review process.

Segment 4: Rezone to New Residential/Limited Commercial Zone

A new zone should be mapped here to meet the goal of significantly restricting retail uses. This "North Avenue" zone would the current multiplicity of zones that apply to properties fronting on North Avenue and create one unified set of regulations. (The existing zones would continue for properties not fronting on North Avenue or Main Street.) Permitted uses and bulk standards for the North Avenue zone would be as follows:

- Allowed residential uses should be all those permitted in the D Residence Zone, with a maximum density of

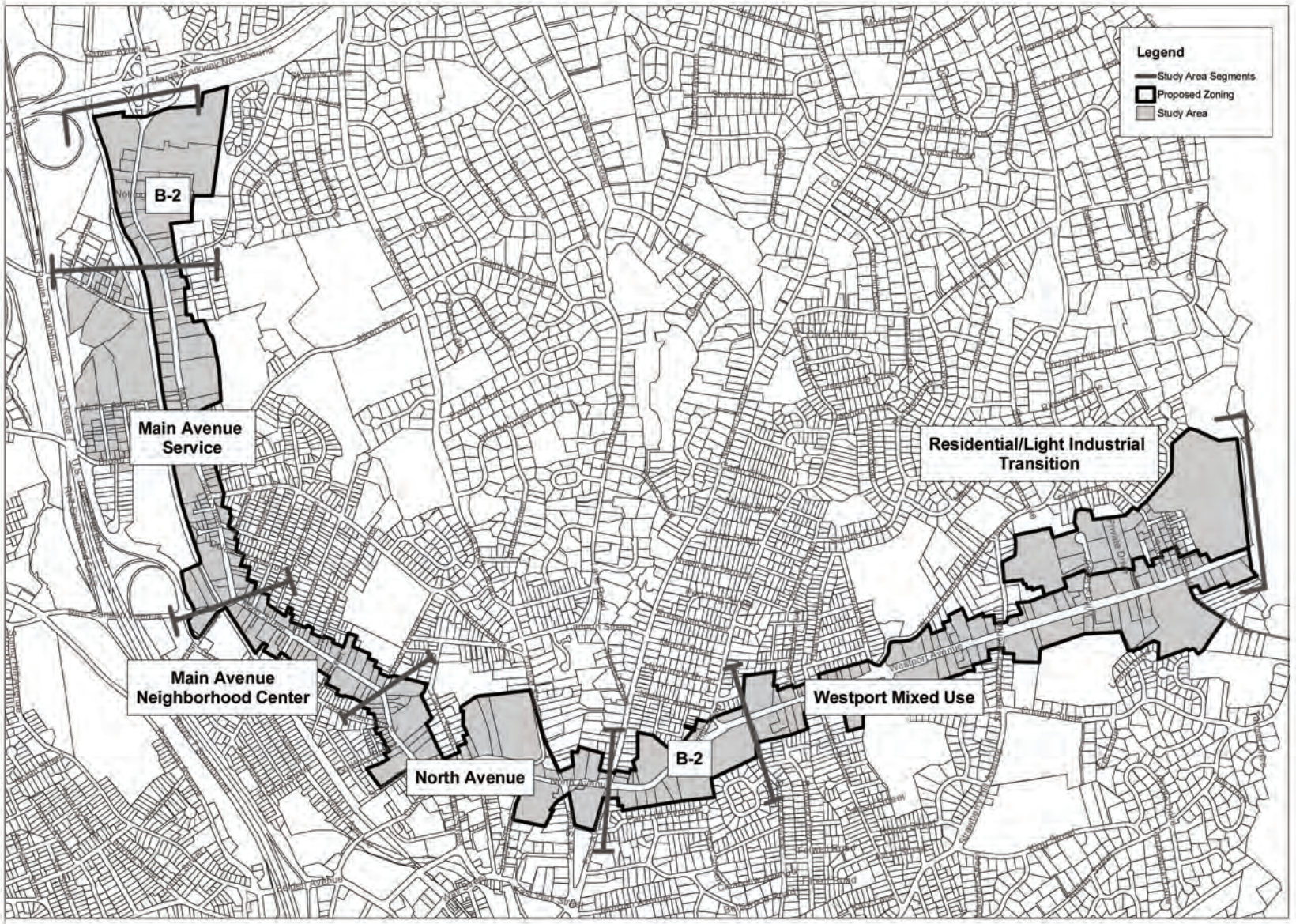

Figure A.1: Proposed Zoning

one unit for each 1,650 squre feet of lot area.

- The maximum nonresidential floor area ratio should be 0.5.
- All retail uses shall be limited to a maximum gross floor area of 5,000 square feet, with the exception of the following low-traffic generating retail uses:
  - Furniture and home furnishings stores as defined at NAICS (North American Industrial Classification System) 442
  - Antiques and similar stores

The same set of build-to lines recommended for Segment 2 should be adopted in Segment 4; specifically, these include a choice of a build-to line at or a few feet from the street right-of-way line, which does not allow for front yard parking, or a build-to line located 70–80 feet from the right-of-way line, which allows for a front yard parking lot. Because it is expected that North Avenue be widened in the future, which could involve the acquisition of additional right-of-way, the City may wish to set these build-to lines as distances from the projected new right-of-way line rather than the current right-of-way line so as to ensure that adequate room is available for sidewalks and landscaping following the widening.

As described above under "Land Use Recommendations," following the widening of North Avenue, the use restrictions recommended here could be reexamined to allow a broader range of nonresidential uses if traffic conditions are relieved significantly.

Segment 5: Retain B-2 Zoning

In this area, medium to large retail uses such as the existing Stew Leonard's and surrounding businesses are appropriate because of the good I-95 highway access via East Avenue. The current Business 2 zone should remain in place.

Segment 6: Split into Residential/Commercial and Residential/Industrial Zones

It is recommended that this segment be rezoned into two new zones, as follows, with new bulk and use controls:

- Create a "Westport Avenue Mixed Use" zone, to include lots fronting on Westport Avenue, in order to promote a mix of commercial office, retail, and residential uses:
  - Permitted uses should include all those permitted in the existing Business 2 zone; however, restrictions should be applied to limit the potential for big-box retail stores and to encourage mixed use projects.
  - Retail uses should be limited to the ground floor only.
  - Structured parking should be permitted only for mixed-use projects, in which case:
    - Structured parking should be prohibited on the ground level in the front portion of the building. All structured parking at ground level must be screened by an active retail or office storefront use.
    - "Active" uses include those uses that foster pedestrian activity, including small shops, restaurants, cafes, bookstores, and walk-in services such as beauty salons, dry cleaners, and retail-oriented opticians. Non-retail commercial services like medical and professional offices are not considered an "active" use.
  - Bulk restrictions would be the same as the existing Business 2 zone, with the modifications described under "Entire Corridor," above. Existing front yard setback regulations would be replaced by a choice of build-to lines as in Segments 2 and 4—either at or within a few feet of the street right-of-way line, or 70–80 feet from the right-of-way line, allowing for a shallow front yard parking lot with adequate room

for vehicular maneuvering and landscaping.

- Create a new "Residential/Light Industrial Transition" zone on the western end of the segment, between Strawberry Hill Avenue on the east and the City boundary on the west, and north of Westport Avenue to the southern boundary of the existing residential zone. This new zone would include those study area lots lacking frontage on Westport Avenue, including properties along Willard Road, the mobile home park, and Lois and Brookfield Streets, to promote a mix of multifamily and single family residences and light industrial and office uses.
  - Permitted uses should include:
    - All uses permitted in the D Residence Zone. (However, to mitigate against impacts on the existing low-density residential area to the rear, multifamily dwellings should be prohibited within 500 feet of a low-density residential zone).
    - Light industrial establishments, offices and low-traffic generating retail uses, such as antique stores and home furnishings stores. Auto service and repair establishments should be prohibited.
    - The existing mobile home park should be a permitted use.
  - Bulk limitations should be similar to those in the D Residence zone for residences and to the Business 2 zone for nonresidential uses.

Appendix B: Background Studies

B.1 Overview of Existing Conditions and Urban Design

Main Street/Avenue, North Avenue and Westport Avenue constitute an approximately 3.3-mile corridor through Norwalk. The middle of this corridor is located just north of Norwalk's historic downtown and the Town Green. The corridor consists of two portions of the major traditional east-west and north-south routes through Norwalk. Existing land uses in the corridor are provided in Figure B.1, and existing zoning is provided in Figure B.2.

Main Street/Avenue traditionally served as the road connecting the urban centers of Norwalk and Danbury. In the 20th century, it was partially replaced as a travel route by the parallel Route 7 freeway, which was never fully completed. As a result, for decades, the northern reaches of Main Avenue have served as the only connection between Route 7 northbound and CT-15 eastbound (Merritt Parkway), and from CT-15 westbound to Route 7 southbound.

Westport Avenue, designated as U.S. Route 1, is a segment of the original 17th-century Boston Post Road, a mail and later stagecoach route from New York City to Boston, and as such saw its first commercial growth centuries ago. However, the construction of I-95 to the south in the 1950's, with large, modern commercial development parcels, removed much of the Westport's traffic and reduced its desirability as a retail corridor, ending decades of development and redevelopment. Thus, much of the development along Westport, particularly closer to the center of town, retains a 1930's to 1950's character.

North Avenue, which connects Main Street with Westport Avenue, was also included in the study area to form a complete and unbroken corridor. It has seen relatively little commercial development compared with Main and Westport avenues, but has long been designated as part of U.S. Route 1 and is experiencing both traffic congestion and development pressure. The roadway will most likely be widened in the coming years.

Today, the Westport-North-Main corridor suffers from haphazard and unattractive site planning, bland commercial development, an excessively automobile-dominated character, and marginal and sometimes unsafe pedestrian facilities. Driving the length of the Corridor is a monotonous experience, relieved only occasionally by attractive buildings, leafy green canopies, and well-landscaped modern development. Intersections that in the past may have served as "focal points" with signature buildings and prominent businesses have been replaced gradually with gas stations, automobile service centers, or other low-intensity commercial or industrial development. Heavy and fast-

moving traffic levels in some stretches make it difficult to get one's bearings or make a turn into a retail parking lot. The rolling topography as well as the shallow and sloping lots in many areas make it difficult to attract high-quality modern retail development which tends to prefer large, level sites. The few large sites that exist pose their own problems, potentially attracting inappropriate, single-use, out-of-scale development with excessive parking and coverage. Pedestrians along the outer segments of the corridor—whether walking to or from work or shopping, or waiting for a bus—are faced with crumbling, narrow, or nonexistent sidewalks. Fast-moving traffic, frequent curb cuts, and cars turning into parking lots make walking unpleasant at best, and dangerous at worst.

To make sense of the 3.3-mile length of the Westport-North-Main corridor, this urban design assessment evaluates possible improvements by breaking the corridor into a series of more manageable "segments" and "nodes." These segments & nodes were identified on the basis of common physical features, development styles, and a consideration of the historical evolution and future potential of the corridor. The identified nodes represent intersections where landscaping or development intensification can help create focal points and gateways that help create a sense of movement and transition to break up the length of the corridor. The nodes and segments are not necessarily related; some segments have no nodes, while some have more than one. The following section evaluates the character of the corridor's six segments and a series of nodes along the corridor.

Segment 1: Highway Commercial

Located at the northern end of the study corridor, this outer segment of Main Avenue is adjacent to the Route 7 / CT-15 interchange. Parcel sizes are large, existing development is modern and well-maintained. The area is automobile-oriented, given its highway proximity. And, given the location at the outer edge of Norwalk, the level of pedestrian activity is minimal. There are several "soft" parcels which could be redeveloped in this segment, including the Stop & Shop, Linens & Things, the school sites owned by the Board of Education, and the auto-oriented gas and retail stores directly opposite.

Segment 2: Auto-Oriented

This middle segment of Main Avenue is auto-oriented, serving traffic from both Merritt Parkway and the office developments further north on Main, as well as traffic from the west, from both Broad Street and New Canaan Avenues. It is thought that this area will experience reduced traffic levels when the full highway interchange at Route 7 and Merritt Parkway (CT-15) is completed.

There are some new freestanding retail uses such as CVS and Dunkin Donuts. There are some residential uses in this area; they consist of scattered condominiums and a mixed-use building. There are several "soft" sites which could be redeveloped in this segment, including a historic mill west of Main between Perry and Broad, and, at 276 Main Avenue, an environmentally-contaminated Superfund site of a former electrical manufacturing plant.

Segment 3: Mixed-Use Main Street

The central portion of Main Street, between Union and New Canaan Avenues, appears to have an early 20th century pattern that was adapted over time to a 1950's shopping street sensibility, particularly on the west side, where small shopping centers with front parking lots predominate. The street remains pedestrian in scale, even with front parking areas, due to the on-street parking and sidewalks on both sides and the landscaped edges to many of the larger parking areas. On the east side of Main buildings are largely built right up to the sidewalk. Residential neighborhoods abut both sides of this corridor. Parcels sizes are shallow, and there are only a few small "soft" parcels in this segment.

Legend
Land Use
Green space
Single-family
Two-family
Multi-family
Retail
Auto-related
Office
Institutional
Industrial
Vacant Land
Parking
Mixed Use - Retail/MF
Mixed Use - Retail/Auto-related
Mixed Use - Retail/Office
Mixed Use - Retail/Industrial
Mixed Use - SF/Industrial
Mixed Use - Office/Industrial
Source: Connecticut DOT, ESRI
Map prepared by: Philips Preiss Shapiro Associates, Inc. Vollmer Associates LLP
0
500
1,000
Feet
NORTH
Figure B.1: Existing Land Use

Segment 4: Residential Transition

The most central segment of the corridor includes the portion of Main Street which turns west as it leaves downtown Norwalk, as well as North Avenue to the east. This segment is an extension of the downtown and extends from Union Avenue on the west to East Avenue / Newtown Avenue on the east. The eastern end is marked by public and institutional uses in lush, green, park-like settings, including the St. Paul's on the Green Episcopal Church and cemetery on the south side at 60 East Avenue, and the striking St. Philip Roman Catholic Church at 1 Father Conlin Place, just north of North Avenue. The roadway here is narrow and frequently shaded by mature street trees. Further to the west, a mix of housing, small retail shops, and office buildings flank Main Street. Sidewalks are fairly continuous in this green, tree-lined setting. There are only four small "soft" parcels, and the largest, across Knight Street from Lillian August, is currently proposed for retail development.

Segment 5: Convenience Commercial

Retail uses in this segment of Westport Avenue are dominated by the very popular Stew Leonard's market complex, the first location of the Stew Leonard's chain and a major attraction along the Corridor. Several other large retail uses exist along this segment, including Walgreens. Many parcels on both sides of Westport Avenue in this area are hemmed in by steep bluffs. A residential neighborhood to the north may be glimpsed through a lush, leafy gateway at Dry Hill Road. These topographic changes and vegetation help separate Westport Avenue development from adjacent neighborhoods. This segment enjoys direct access to I-95 to the south via East Avenue, and good connections to both the historic downtown and SoNo.

Segment 6: Post Road Retail

This segment is at the outer end of Westport Avenue. The topography levels out somewhat here and there is more potential for non-residential development to affect adjacent neighborhoods. There are some mixed-use residential-retail development is present nearer the western end of this segment, however. While parcel sizes are large at the very eastern end and support such large big-box uses including a multi-plex movie cinema and chain retailers, elsewhere small parcels make it difficult for retail uses to provide enough parking, and numerous curb cuts disrupt traffic flow. The lack of sidewalks and heavy traffic discourages a pedestrian from walking from one business to an adjacent one, and therefore the limited parking supply on these smaller parcels is not well used.

There are numerous "soft" parcels along Westport, including Fortunoff, various strip retailers, and auto-oriented businesses. North of Westport Avenue there is a hodgepodge of residential and industrial uses, including but not limited to a mobile home park, a small industrial area on Willard Road, and a Pepperidge Farm factory undergoing conversion to residential uses.

B.2 Real Estate Market Study

This analysis is intended to inform the corridor study of two suburban commercial arterials being conducted by Phillips Preiss Shapiro Associates, Inc. for the City of Norwalk in Fairfield County, Connecticut. The outcome of the study, a corridor plan that includes land use and transportation recommendations, is based in part on this real estate analysis.

Introduction and Background

The Main Street/Avenue corridor extends from just north of the City's historic downtown of Wall Avenue and Main Street to just south of a large edge city office and residential complex at the Merritt Parkway ("Merritt 7"). The south-

Legend
Existing Zoning
B
B1
B2
NB
CBDA
D
EVD
I1
Source: Connecticut DOT
ESRI
Map prepared by: Philips Preiss Shapiro Associates, Inc.
Vollmer Associates LLP
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NORTH
Figure B.2: Existing Zoning

ern section is residential in nature (including apartments, condominiums, and multi-family homes) with some older small commercial uses and several small restaurants and automobile repair shops. The northern section is lined with strip malls, automobile repair shops, and service uses as well as some larger "soft" sites including a historic mill. There are some new freestanding retail uses such as CVS and Dunkin Donuts. There are some residential uses in this area; they consist of scattered condominiums and a mixed-use building. The traffic volume on this northern section of Main Avenue may decrease in the future as an interchange expansion at Route 7 and Merritt Parkway will increase capacity on those highways.

The Westport Avenue corridor extends from East Avenue to the City's boundary with Westport, a very wealthy suburb. The corridor is four lanes wide and is designated as US Route 1. It has older strip malls, department stores, supermarkets, a multi-plex cinema, as well as scattered automobile repair shops and convenience retail. Notable retailers include Stew Leonards, Marshalls, Staples, and a Bed Bath and Beyond. There are some older industrial sites just off of the corridor, including the former Pepperidge Farm factory site which is being redeveloped for luxury condominiums. There are scattered residential units above shopping plazas and one multi-unit senior housing development.

Main Street and Westport Avenue are linked by North Avenue. It is hilly and only two lanes wide. There are several residential sites, a large church, the flagship store for Lillian August home furnishings, and at least one large soft site.

Single family homes border much of the entire study area to the north, south, and east. To the west of Main Avenue are an active railroad line and a small stream. There are no railroad stations in the study area.

Real Estate Analysis

Methodology

This real estate analysis relies mainly on published data from commercial brokerage firms (e.g. CBRE and Cushman Wakefield) and residential data and trends compiled mainly from the U.S. Census Bureau. Anecdotal research into the commercial and residential real estate market was also conducted via the internet, relying on websites of local Norwalk and Fairlfield County brokers, and on multiple listing service websites such as Realtor.com. Rents and vacancy rates in Norwalk are summarized in Table B.1, below. A site visit was also conducted during one weekday morning to assess site conditions, competing corridors, traffic patterns, and general trends. Finally, a soft-site analysis was prepared using GIS-mapping techniques to compare allowable build out with actual build out, and building valuation with land valuation. The soft site analysis was conducted separately. Its findings—indicating those sites that are undervalued and/or under-built, and thus developable from a zoning and/or market perspective—inform the conclusions of this analysis.

Commercial Uses

Commercial rents in Norwalk range from $20 per square foot (psf) to $30 psf. This accounts for a wide range of uses over a wide range of sites. For example, commercial offices in the revitalized SoNo neighborhood near the train station average nearer the $30 psf tier, but offices in the study area average nearer the $20 psf level. Rents for retail uses are very comparable. Data show that retail rents are roughly $30 psf on Westport Avenue and in the $25 psf range on Main Street/Avenue.

Comparatively, rents in the study area are less than other competing districts. On Connecticut Avenue in east

Norwalk small retail spaces interspersed amidst big-box tenants rent for average of $40 psf. Main Street in Westport, an "open air mall" with high-end shops and retailers in a walkable historic downtown setting, commands an astounding $100 to $200 psf.

Given the limitations on the study's data sources, it was difficult to estimate vacancy rates in the study area. However, published sources estimate a commercial vacancy rate of about ten percent. Searches for property available in the study area turned up only limited results, suggesting only a few vacancies, and the site visit confirmed that much of the study area's commercial space seems occupied.

Residential Uses

In Norwalk, and in all of Fairfield County, there is strong demand for residential development and very limited supply. The Census's 2004 American Community Survey estimates 884,600 people and 328,300 households in Fairfield County. With 345,000 housing units, the occupancy rate is about 95 percent. Vacancy for owner-occupied units is a very low one percent. Anecdotal internet searches show that for-sale homes remain on the market between one and two months. This seems to reflect a healthy, but not booming, market demand.

The Census estimates Fairfield County's 2004 median rent at $967 per month, and the median home value at $422,500. Within Norwalk, prices of for-sale units vary greatly. List prices for one- and two-bedroom condominiums, for example, may range from $150,000 to almost $400,000. Anecdotal internet searches revealed rents in the study area to be very healthy, ranging from about $900 to $1,600 per month. One bedroom units advertised in print and on the internet range from less than $900 to $1,400, but seem to average around $1,100. On the high end, a one-bedroom unit of 900 square feet in Sconset Commons on Westport Avenue rents for about $1,400 per month (or about $18 psf per year). Its amenities include a complete kitchen, washer/dryer, elevator, and a fully-equipped workout room.

Table B.1: Rents and Vacancy Rates in Norwalk

Use	Average Annual Rent	Vacancy Rate
Office	$20 - $30 per square foot	10%
Retail	$25 - $30 per square foot	Unknown
Residential		
	$18 per square foot for a 1BR unit	4%

Source: Phillips Preiss Shapiro Associates, Inc. 2006

The market for these types of apartments generally targets young professionals new to the area and move-up buyers priced out of other areas. Given the employment growth of Fairfield County and Norwalk, and the revitalization occurring in south Norwalk, there is no reason to suspect a downturn in this market segment.

Discussion

Fairfield County is an affluent and relatively built-out suburb of New York City. Commercial real estate development continues, and the market for new and existing commercial space is healthy, but there is less and less developable land available in the traditional corridors. For example, Target recently moved into downtown Stamford, in a location not altogether visible from I-95 or an arterial roadway—not Target's preferred location. Settling for this, rather than a Route 1 location, may reflect that retailers are willing to go almost anywhere to gain a foothold or expand in the local market.

Thus, in terms of demand, Norwalk would not have any problems finding interested retailers willing to consider difficult lots not typical to their needs. Sooner or later, and probably sooner, retailers big and small will seek devel-

opable land along high-traffic corridors such as Westport Avenue and Main Street/Avenue. A location near Stew Leonard's on Westport Avenue, a regional destination that generates intense traffic on weekends, would be greatly prized by national retailers.

Clearly the most immediate development pressures in the study area are originating from big-box retailers—new office development is projected to take place outside of the study area on Main Avenue north of Merritt Parkway and in SoNo and nearer I-95. In such a strong market, nearly any underutilized site, and certainly any unutilized site, in the study area can be considered a "soft site" and be reasonably targeted for development.

Important variables remain, however. First, are land costs in Norwalk reasonable enough to attract retailers? While this is subjective, of course, anecdotal research suggests a recent sale of land near the multi-plex on Westport Avenue was about three dollars per square foot. Second, are the lot depths large enough for large retail development? These uses generally require 100,000 square feet plus a 300-space parking field, but underutilized large and deep lots of this size in the study area are not common. Thus, if the land costs are prohibitive and sites are too constrained, big-boxes will shy away from Main and Westport Avenues. And finally, if the new Merritt/Route 7 interchange causes traffic on Main Avenue to decrease as expected, it may no longer be viewed as a prime retail location.

Projected Development

In the absence of any comprehensive plan or rezoning action, new development in the study corridor will be driven by the real estate market. Assuming that this is the case, our site and market analyses can be interpolated to ascertain a probable development pattern through 2015.

Three criteria were used to inform our decisions about which sites were both developable and likely to be developed:

1. Existing vacant land or buildings, and/or;
2. Soft sites: Sites that are both underbuilt and undervalued,[5] and/or;
3. Prime sites: Underbuilt sites that, because of their location and size, seem especially attractive to developers.

Projected uses were assigned based on the characteristics and location of the site, our knowledge of the local marketplace, and our professional judgment, as follows:

- Where lot sizes are large, or where several lots could be combined to form a large site, large format retail development is projected.
- Where lots are smaller, general convenience or comparison retail is projected.
- In cases where existing uses are viable but additional intensity could take place, an expansion or intensification of current use is projected. For example, a gasoline station could add convenience retail, or an existing big box store could provide for an additional use, like a bank, within the site boundary.
- Where sites are bordered by multi-family residential uses, or where sites are relatively isolated or buffered from the corridor, townhouse-type residential uses are projected.

Intensity of use was based on the reasonably achievable development that could occur based on the existing zon-

5. Note that in some cases our first-hand knowledge contradicts the soft site analysis data—some soft sites are full built or have existing viable businesses. Since redevelopment will not likely take place, these sites were not considered as soft.

Table B.2: Projected Development under Current Zoning (Part 1 of 2)

*FAR refers to reasonable achievable FAR. Maximum FAR is not considered reasonably achievable because parking requirements and lot coverage maximums constrain development.

SEGMENT	Soft Site No.	Address	Lot Area (sf)	Owner Name	Gross Bldng Area	Land Use	Comments	Zone	FAR*	Projected Use	Projected New Building Area (sf)	Net Change in Bldg Area (sf)	Possible New Residential Units
1	1	380 MAIN AV	398,967	HD-MAIN AVENUE LP	85968	Retail	SUPER MRK	B2	0.6	Large format retail	239,380	153,412	
		380 MAIN AV	311,713	HD-MAIN AVENUE LP	99600	Retail	RTL STORE		0.6	Large format retail	187,028	87,428	
	4	353 MAIN AV	67,511	NOREAST MANAGEMENT LLC	26606	Industrial	INDUSTRIAL	B2	0.4	Retail	27,004	398	
2	9	323 MAIN AV	17,593	BALASA JULIUS J	3062	Auto-related	AUTO SERVC		0.4	Retail	7,037	3,975	
	10	300 MAIN AV	18,878	ROUTE SEVEN REALTY LLC	4874	Auto-related	AUTO SERVC		0.4	Retail	7,551	2,677	
	11	280 MAIN AV	171,711	BANQUE ARABE ET INTERNATIONALE	77320	Industrial	INDUSTRIAL	B2	0.9	Residential	154,540	77,220	104
	12	272 MAIN AV	50,198	BANQUE ARABE ET INTERNATIONALE	19477	Industrial	INDUSTRIAL	B2	0.9	Residential	45,178	25,701	30
	17	4 NEW CANAAN AV	46,351	WATTS JOHN W	16287	Retail	PLAZA STRP	B2	0.4	Retail	18,540	2,253	
		12 NEW CANAAN AV	61,661	FIRST TAXING DISTRICT	9380	Institutional	LOW COM		0.4	Retail	24,664	15,284	
3	18	10 TINDALL ST	48,594	CNM LLC	10287	Auto-related	INDUSTRIAL	B1	0.5	Retail	24,297	14,010	
4	24	22 NORTH AV	55,993	THIRTY TWO-FORTY ONE KNIGHT ST	0		OUT BUILD.	11	1.0	Retail	55,993	55,993	
5	no sites												
6	27	149 WESTPORT AV	136,151	PRIME DEVELOPMENT GROUP LLC	25492	Retail	PLAZA STRP	B2	0.6	Retail	81,691	56,199	
	29	207 WESTPORT AV	12,172	SMITH DAVID R &	2232	Auto-related	GAS STA	B2	0.4	Retail	4,869	2,637	
	30	223 WESTPORT AV	16,358	SKLAR WILLIAM	3035	Vacant_Land	RTL STORE	B2	0.4	Retail	6,543	3,508	
	31	218 WESTPORT AV	16,763	CHANCE NORWALK REALTY LLC	4480	Auto-related	AUTO SERVC	B2	0.4	Retail	6,705	2,225	
	32	253 WESTPORT AV	12,753	ALJ ASSOCIATES LLC	5106	Retail	COMM BLOCK	B2	0.4	Retail	5,101	-5	
	33	280 WESTPORT AV	11,529	SMITH JAMES J	3832	Auto-related	AUTO SERVC	B2	0.4	Retail	4,612	780	
	34	314 WESTPORT AV	158,201	CHURCH JEANETTE M (38.5%) &	21100	Auto-related	RTL STORE	B2	0.6	Large format retail	94,921	73,821	
	35	323 WESTPORT AV	13,750	CUNNINGHAM JAMES R &	5038	Auto-related	AUTO SERVC	B2	0.4	Retail	5,500	462	
		315 WESTPORT AV	29,580	CUNNINGHAM JAMES ALBERT	2122	Retail	FAST FOOD		0.4	Retail	11,832	9,710	

SEGMENT	Soft Site No.	Address	Lot Area (sf)	Owner Name	Gross Bldng Area	Land Use	Comments	Zone	FAR*	Projected Use	Projected New Building Area (sf)	Net Change in Bldg Area (sf)	Possible New Residential Units
6 (cont.)	36	351 WESTPORT AV	54,264	MAGER JOHN J TRUSTEE &	14623	Retail	MOTEL	B2	0.4	Retail	21,706	7,083	
	37	152 WESTPORT AV	15,048	BFS RETAIL & COMMERCIAL OPERAT	4815	Auto-related	AUTO SERVC	B2	0.4	Retail	6,019	1,204	
		360 WESTPORT AV	19,055	J E R REALTY LLC	4912	Retail	MOTEL		0.4	Retail	7,622	2,710	
	38	406-410 WESTPORT AV	16,330	KAPLAN MURIEL	5700	Retail	PLAZA STRP	B2	0.6	Large format retail	9,798	4,098	
		384-404 WESTPORT AV	108,192	THREE HUNDRED NINETY WESTPORT	35585	Retail	SHOP CTR		0.6	Large format retail	64,915	29,330	
	39	391 WESTPORT AV	12,563	D'AMICO JOSEPHINE A TRUSTEE &	1952	Vacant_Land	GAS STA	B2	0.4	Retail	5,025	3,073	
	40	445 WESTPORT AV	21,114	CONLEY FAMILY LTD PTNRSHP	6691	Retail	RTL STORE	B2	0.6	Retail	12,668	5,977	
		437 WESTPORT AV	26,936	BRACKEN THOMAS J	10340	Retail	RTL STORE		0.6	Retail	16,162	5,822	
		445 WESTPORT AV	16,654	CONLEY FAMILY LTD PTNRSHP	4131	Auto-related	AUTO SERVC		0.6	Retail	9,992	5,861	
	41	WILLARD RD	44,208	SIX WILLARD ROAD LLC	4576	Industrial	TRUCK SERV	B2	0.4	Residential	17,683	13,107	27
	42	12 WILLARD RD	67,291	MINUTEMAN BROADCASTING INC	560	Office	COMM BLOCK	B2	0.4	Residential	26,917	26,357	41
	43	505 WESTPORT AV	116,286	RENZULLI ASSOCIATES MOBILE -	1294	Multi-family	RAISED RCH	B2	0.4	Retail	46,514	45,220	
	44	495 WESTPORT AV	60,392	RENZULLI ASSOCIATES RETAIL -	19248	Retail	RTL STORE	B2	0.4	Residential	24,157	4,909	37
	47	556 WESTPORT AV	31,386	JERRY'S HEIRS LLC	12654	Retail	RTL STORE	B2	0.4	Retail	12,555	-99	
	48	565 WESTPORT AV	17,312	MCCLINTOCK PARTNERS	2973	Office	COLONIAL	B2	0.4	Retail	6,925	3,952	
	49	578 WESTPORT AV	25,851	NSS BANK	7152	Retail	BANK	B2	0.4	Retail	10,340	3,188	
											TOTAL NET CHANGE:	749,481	239

Table B.2: Projected Development under Current Zoning (Part 2 of 2)

*FAR refers to reasonable achievable FAR. Maximum FAR is not considered reasonably achievable because parking requirements and lot coverage maximums constrain development.

Table B.3: Projected Development if Zoning Changes are Implemented (Part 1 of 2)

*FAR refers to reasonable achievable FAR. Maximum FAR is not considered reasonably achievable because parking requirements and lot coverage maximums constrain development.

SEGMENT	Soft Site No.	Address	Lot Area (sf)	Owner Name	Gross Bldng Area	Land Use	Comments	Zone	New Max. Retail Constraint	Lot Cov.	1st floor max	New Effective FAR*	Projected New Building Area (sf)	Net Change in Bldg Area (sf)	Projected Use (FAR < .25 = Res.)	Possible New Residential Units
1	1	380 MAIN AV	398,967	HD-MAIN AVENUE LP	85968	Retail	SUPER MRK	B2				0.9	359,070	273,102	Large format retail	0
		380 MAIN AV	311,713	HD-MAIN AVENUE LP	99600	Retail	RTL STORE					0.9	280,541	180,941	Large format retail	0
	4	353 MAIN AV	67,511	NOREAST MANAGEMENT LLC	26606	Industrial	INDUSTRIAL	B2				0.4	27,004	398	Retail	0
2	9	323 MAIN AV	17,593	BALASA JULIUS J	3062	Auto-related	AUTO SERVC		10,000			0.4	7,037	3,975	Retail	
	10	300 MAIN AV	18,878	ROUTE SEVEN REALTY LLC	4874	Auto-related	AUTO SERVC		10,000			0.4	7,551	2,677	Retail	
	11	280 MAIN AV	171,711	BANQUE ARABE ET INTERNATIONALE	77320	Industrial	INDUSTRIAL	B2	10,000			0.06			Residential	104
	12	272 MAIN AV	50,198	BANQUE ARABE ET INTERNATIONALE	19477	Industrial	INDUSTRIAL	B2	10,000			0.20			Residential	30
	17	4 NEW CANAAN AV	46,351	WATTS JOHN W	16287	Retail	PLAZA STRP	B2	10,000			0.22			Residential	28
		12 NEW CANAAN AV	61,661	FIRST TAXING DISTRICT	9380	Institutional	LOW COM		10,000			0.16			Residential	37
3	18	10 TINDALL ST	48,594	CNM LLC	10287	Auto-related	INDUSTRIAL	B1	10,000			0.21			Residential	29
4	24	22 NORTH AV	55,993	THIRTY TWO-FORTY ONE KNIGHT ST	0		OUT BUILD.	11	5,000			0.09			Residential	34
5	no sites															
6	27	149 WESTPORT AV	136,151	PRIME DEVELOPMENT GROUP LLC	25492	Retail	PLAZA STRP	B2	grnd. fl. only	0.8	108,921	0.4	54,461	28,969	Mixed Use	43
	29	207 WESTPORT AV	12,172	SMITH DAVID R &	2232	Auto-related	GAS STA	B2	grnd. fl. only	0.8	9,738	0.4	4,869	2,637	Retail	
	30	223 WESTPORT AV	16,358	SKLAR WILLIAM	3035	Vacant_Land	RTL STORE	B2	grnd. fl. only	0.8	13,086	0.4	6,543	3,508	Retail	
	31	218 WESTPORT AV	16,763	CHANCE NORWALK REALTY LLC	4480	Auto-related	AUTO SERVC	B2	grnd. fl. only	0.8	13,410	0.4	6,705	2,225	Retail	
	32	253 WESTPORT AV	12,753	ALJ ASSOCIATES LLC	5106	Retail	COMM BLOCK	B2	grnd. fl. only	0.8	10,202	0.4	5,101	-5	Retail	
	33	280 WESTPORT AV	11,529	SMITH JAMES J	3832	Auto-related	AUTO SERVC	B2	grnd. fl. only	0.8	9,223	0.4	4,612	780	Retail	
	34	314 WESTPORT AV	158,201	CHURCH JEANETTE M (38.5%) &	21100	Auto-related	RTL STORE	B2	grnd. fl. only	0.8	126,561	0.4	63,280	42,180	Mixed Use	49
	35	323 WESTPORT AV	13,750	CUNNINGHAM JAMES R &	5038	Auto-related	AUTO SERVC	B2	grnd. fl. only	0.8	11,000	0.4	5,500	462	Retail	
		315 WESTPORT AV	29,580	CUNNINGHAM JAMES ALBERT	2122	Retail	FAST FOOD		grnd. fl. only	0.8	23,664	0.4	11,832	9,710	Retail	
	36	351 WESTPORT AV	54,264	MAGER JOHN J TRUSTEE &	14623	Retail	MOTEL	B2	grnd. fl. only	0.8	43,412	0.4	21,706	7,083	Retail	

SEGMENT	Soft Site No.	Address	Lot Area (sf)	Owner Name	Gross Bldng Area	Land Use	Comments	Zone	New Max. Retail Constraint	Lot Cov.	1st floor max	New Effective FAR*	Projected New Building Area (sf)	Net Change in Bldg Area (sf)	Projected Use (FAR < .25 = Res.)	Possible New Residential Units
6 (cont.)	37	152 WESTPORT AV	15,048	BFS RETAIL & COMMERCIAL OPERAT	4815	Auto-related	AUTO SERVC	B2	grnd. fl. only	0.8	12,038	0.4	6,019	1,204	Retail	
		360 WESTPORT AV	19,055	J E R REALTY LLC	4912	Retail	MOTEL		grnd. fl. only	0.8	15,244	0.4	7,622	2,710	Retail	
	38	406-410 WESTPORT AV	16,330	KAPLAN MURIEL	5700	Retail	PLAZA STRP	B2	grnd. fl. only	0.8	13,064	0.4	6,532	832	Mixed Use	5
		384-404 WESTPORT AV	108,192	THREE HUNDRED NINETY WESTPORT	35585	Retail	SHOP CTR		grnd. fl. only	0.8	86,553	0.4	43,277	7,692	Mixed Use	34
	39	391 WESTPORT AV	12,563	D'AMICO JOSEPHINE A TRUSTEE &	1952	Vacant_Land	GAS STA	B2	grnd. fl. only	0.8	10,051	0.4	5,025	3,073	Retail	
	40	445 WESTPORT AV	21,114	CONLEY FAMILY LTD PTNRSHP	6691	Retail	RTL STORE	B2	grnd. fl. only	0.8	16,891	0.4	8,446	1,755	Mixed Use	7
		437 WESTPORT AV	26,936	BRACKEN THOMAS J	10340	Retail	RTL STORE		grnd. fl. only	0.8	21,549	0.4	10,774	434	Mixed Use	8
		445 WESTPORT AV	16,654	CONLEY FAMILY LTD PTNRSHP	4131	Auto-related	AUTO SERVC		grnd. fl. only	0.8	13,323	0.4	6,662	2,531	Mixed Use	5
	41	WILLARD RD	44,208	SIX WILLARD ROAD LLC	4576	Industrial	TRUCK SERV	B2	grnd. fl. only	0.8	35,366	0.4			Residential	27
	42	12 WILLARD RD	67,291	MINUTEMAN BROADCASTING INC	560	Office	COMM BLOCK	B2	grnd. fl. only	0.8	53,833	0.4			Residential	41
	43	505 WESTPORT AV	116,286	RENZULLI ASSOCIATES MOBILE -	1294	Multi-family	RAISED RCH	B2	grnd. fl. only	0.8	93,029	0.4			Residential	70
	44	495 WESTPORT AV	60,392	RENZULLI ASSOCIATES RETAIL -	19248	Retail	RTL STORE	B2	grnd. fl. only	0.8	48,313	0.4			Residential	37
	47	556 WESTPORT AV	31,386	JERRY'S HEIRS LLC	12654	Retail	RTL STORE	B2	grnd. fl. only	0.8	25,109	0.4	12,555	-99	Retail	
	48	565 WESTPORT AV	17,312	MCCLINTOCK PARTNERS	2973	Office	COLONIAL	B2	grnd. fl. only	0.8	13,849	0.4	6,925	3,952	Retail	
	49	578 WESTPORT AV	25,851	NSS BANK	7152	Retail	BANK	B2	grnd. fl. only	0.8	20,681	0.4	10,340	3,188	Retail	
													TOTAL NET CHANGE:	585,914		589

Table B.3: Projected Development if Zoning Changes are Implemented (Part 2 of 2)

*FAR refers to reasonable achievable FAR. Maximum FAR is not considered reasonably achievable because parking requirements and lot coverage maximums constrain development.

Figure B.3: Soft Sites

ing's floor-area and parking constraints.[6] In cases where retail is envisioned, intensity of uses is expressed in terms of the redeveloped building size. For residential, intensity is expressed as number of housing units (assuming minimum lot area per unit of 1,650 square feet).

Table B.2, below, illustrates a development pattern which we can reasonably expect to occur by 2015. Development site numbers are keyed to the accompanying map, Figure B.3.

The projections shows in Table B.2 are based on the existing zoning and real estate market trends. In total, a net of about one million square feet and over 200 housing units of new development could occur through 2016. All of the one million square feet of commercial space is projected for large-format or general retail uses. Significant new office development is not projected for the study area.

Table B.3, below, provides development projections for the development patterns recommended in this report. This table assumes that the zoning is changed to reflect the land use recommendations of Section 2 and the zoning recommendations of Appendix A.

Summaries of the tables B.2 and B.3 are provided in tables B.4 and B.5, respectively. Tables B.4 and B.5 illustrate that the plan scenario would reduce retail growth slightly while increasing the number of residential units by 350. Table B.6 shows the "plan" development scenario excluding the redevelopment of the Stop & Shop site. Here, the number of additional residential units is the same, but the amount of new retail development is decreased significantly, illustrating how the plan scenario concentrates new retail development at the Stop & Shop site.

Table B.4: Summary of Projected Development under Current Zoning

Type	Sq. ft.	Percentage
Large Format Retail	348,088	57.8%
Retail	254,099	42.2%
Mixed-Use Retail	0	0.0%
Total Net New Retail	**602,188**	**100.0%**
Total New Housing Units	**239**	

Table B.5: Summary of Projected Development if Zoning Changes are Implemented

Type	Sq. ft.	Percentage
Large Format Retail	454,043	77.5%
Retail	47,479	8.1%
Mixed-Use Retail	84,392	14.4%
Total Net New Retail	**585,914**	**100.0%**
Total New Housing Units	**589**	
Difference between Existing Zoning and this Scenario		
retail sf	-16,274	
housing units	+350	

Table B.6: Summary of Projected Development if Zoning Changes are Implemented Excluding Redevelopment of Stop & Shop Site

Type	Sq. ft.	Percentage
Large Format Retail	0	0.0%
Retail	47,479	36.0%
Mixed-Use Retail	84,392	64.0%
Total Net New Retail	**131,871**	**100.0%**
Total New Housing Units	**589**	
Difference between Existing Zoning and this Scenario		
retail sf	-470,317	
housing units	+350	

B.3 Transportation Analysis

Introduction

The traffic component of the study comprises four distinct efforts:

- Collect data and analyze existing conditions;
- Establish parameters used to determine the impacts of future developments;
- Analyze traffic operations with area zoning alternatives; and
- Produce and review a range of intersection improvement options.

Existing traffic operations in the study corridor were observed in the field as part of the study process during the afternoon peak traffic hour on weekdays in November 2005. In general, the locations that currently experience congestion during the weekday afternoon peak hour are concentrated along Main Avenue (Route 719) and at intersections where main arteries meet. The spillover of traffic among intersections on Main Avenue is evident during the afternoon peak hour. The other localized problem locations include individual approaches at intersections along North Avenue and Westport Avenue (Route 1) that experience long queuing and delays.

Among the signalized intersections in the study corridor, the City of Norwalk operates four signals on North Avenue (Route 1), from Main Street to East Avenue; the remainder of the traffic signals, including those along Westport Avenue and Main Street/Avenue are maintained by ConnDOT. Except for the intersection of Main Street and Union

6. For example, while the maximum FAR in a B-2 zone is 0.9, maximum lot coverage and on-site parking requirements limit achievable FAR to about 0.4 on all but the largest sites.

Avenue, all traffic signals in the corridor are coordinated to facilitate traffic movements between adjacent intersections. In the next few years, the City will replace its four traffic signal controllers on Main Avenue and the overall closed-loop traffic control system as part of the phase II of city-wide signal upgrade program.

Study Intersections And Traffic Count Program

The traffic component of this study covers some of the major intersections along the corridor:

- Main Avenue and Perry Avenue;
- Main Avenue and Broad Street;
- Main Avenue and Ward Street;
- Main Avenue, Main Street and New Canaan Avenue;
- Main Street and Union Avenue;
- Westport Avenue and Dry Hill Road;
- Westport Avenue, Wolf Pit Avenue and Lovatt Street;
- Westport Avenue and County Street; and
- Westport Avenue and Strawberry Hill Avenue.

As required in the project scope, intersection turning movement counts (TMC's) were collected at the above points in the study corridor in the weekday afternoon peak hour in November 2005. The traffic count program was intended to build a base traffic network that provides an overview of traffic patterns in the study area during the busiest hour of a typical week. The November 2005 traffic volumes were then adjusted using ConnDOT seasonal factors to reflect the busiest month of 2005. The resulting volumes were used in the analysis of the 2005 existing traffic condition. Also, the adjusted 2005 volumes form the basis for estimating the 2015 traffic volumes and required intersection improvements.

In addition to the intersections outlined in the traffic scope, geometric improvements were analyzed and recommended at two additional intersections because of their strategic importance in the corridor:

- Main Street and Route 1 (Cross Street and North Avenue); and
- East Avenue and Route 1 (North Avenue and Westport Avenue).

The analysis for these two intersections was based on volumes collected for a central Norwalk traffic study sponsored by the City. The proposed geometric improvements at these two locations were detailed in figures contained in this report; however, their level-of-service analysis was not included in the capacity analysis summary table.

Methodology/Criteria

Standard criteria were used to describe operating conditions; among these are volume-to-capacity (v/c) ratio, delay, level-of-service (LOS) and 95 percentile queue. Traffic operations were evaluated at each of the intersections under review. Traffic capacity was analyzed using the software Synchro 6, which was developed by Trafficware Corporation and is an analysis tool approved by ConnDOT. Information collected in the field and from the City and ConnDOT consisted of lane geometry, traffic volumes, peaking characteristics, signal timing and offsets, all of which were input into a Synchro traffic network. Results for a weekday afternoon peak hour (5pm-6pm) were generated for intersections and individual intersection movements.

Delay/Level-Of-Service

Level-of-Service (LOS) is a qualitative measure of traffic operations. It is based on a quantitative measure of average control delay per vehicle. At LOS A, traffic flows freely, and an average vehicular delay is less than 10 seconds. At LOS F, delay exceeds 80 seconds at signalized intersections and 50 seconds at unsignalized intersections, and traffic is generally slow-flowing or not flowing.

It should be noted that in an urban area it is often not practicable to aim for LOS C or better during the busiest (peak) hours. The cost of improving operations during the busiest hours is often not warranted or cannot be afforded. At LOS D, although the roadway system is below its maximum capability, traffic operates with limited congestion. Thus LOS D during the peak hours represents a reasonable traffic condition. On the other hand, LOS E and F operations should trigger the need to explore improvement options. Use of this guideline in the study recognizes that during the majority hours of the day roadways will have lower usage and therefore better LOS than those during peak hours.

Table B.7 LOS Criteria for Signalized Intersections

LOS	Control Delay per Vehicle (sec/veh)
A	<=10
B	10-20
C	20-35
D	35-55
E	55-80
F	>80

Source: HCM 2000

Table B.8 LOS Criteria for Unsignalized Intersections

LOS	Control Delay per Vehicle (sec/veh)
A	<=10
B	10-15
C	15-25
D	25-35
E	35-50
F	>50

Source: HCM 2000

Volume To Capacity Ratio

The volume to capacity ratio (v/c ratio) is a measure of the proportion of capacity that is utilized by demand. Note that a high v/c ratio can occur at intersections with favorable LOS. For example, if two successive signals are perfectly coordinated, a high volume of vehicles could be processed at the second intersection with little delay, thus operating at LOS A/B at that intersection. On the other hand, poorly coordinated signals could provide a poor LOS for an approach with a low v/c ratio.

A v/c ratio in the range of 0.9-0.95 is considered borderline between good and poor operating conditions. If the v/c ratio exceeds 1.0, vehicles are left unprocessed at every signal cycle, and significant queues can develop over several cycles.

Future Development

A number of future developments have been proposed or are under consideration in Norwalk, both in the study corridor and in other parts of the City. The types of proposed developments include office, multi-family residential, destination retail store, convenience retail shops and restaurants. In addition, several highway and traffic signal improvement projects have been planned in Norwalk, many of which either have funding as part of ongoing development projects, or are planned by ConnDOT and the City.

The 2016 traffic analysis contained in this study took into account new vehicle trips that will be generated by the potential development sites in the study corridor under existing zoning and the proposed zoning. Vehicle trips from other approved or planned developments in the City that are expected to contribute to the increase in the corridor traffic from 2005 to 2015 were also considered in our analysis. Except for the approved Pepperidge Farm, a 15.8-acre site that will add 235 luxury apartments and 33,000 square feet of new office space, most of these other development sites are outside the Westport-North-Main corridor:

- Wall Street Parcel 1;
- Wall Street Parcel 2a;
- Wall Street Parcel 2b;

- Wall Street Parcel 3;
- Wall Street Parcel 4;
- Avalon Bay Apartments;
- Norwalk Center;
- 95-7 (formerly Reed-Putnam parcels 1, 2 and 4);
- Maritime Yards;
- Webster Lot;
- Norwalk Company;
- Waterview East;
- Pepperidge Farm;
- Riverway;
- River Landing;
- River Watch;
- Norden Park;
- Glover Avenue Office Building;
- 901 Merritt; and
- Strawberry Hill Avenue Apartments.

The number of vehicles that will be generated by the 49 sites in the corridor and the other developments cited above in a weekday afternoon peak hour were estimated using the ITE Trip Generation trip rates.

Routing

Once the vehicle trips were estimated for the weekday afternoon peak hour, they were then routed onto the street network based on the location and access features of the developments. Data sources used during this process include area traffic counts by directions as well as population and employment information from the 2000 US Census.

Future Traffic Volumes

Future traffic volumes were determined by adding the existing volumes to the background growth estimates and the trips associated with known developments inside and outside the study corridor.

Traffic Impact studies for development projects normally use annual background growth rates of 1.5 to 2 percent of existing traffic. Since, however, this study examines an 11-year horizon with many of the potential projects already identified, a lesser background growth rate of 0.5 percent a year was used.

The combined site trips and the background traffic volumes were then assigned to the street system. The traffic analyses for year 2016 were performed based this traffic network.

Capacity Analysis

Synchro software was used to calculate v/c ratios, delays and levels of service (LOS) of the analyzed intersections in the study corridor. The results of these analyses are presented in Table 5.1 in Section 5 of this report. The table, titled Intersection Capacity Analysis Summary, covers four analysis scenarios:

- 2005 existing conditions;

- 2016 base conditions with intersection improvements;
- 2016 plan conditions with intersection improvements; and
- 2016 plan conditions excluding the redevelopment of the Stop & Shop site and including intersection improvements.

In Table 5.1, intersection levels of services E or F are highlighted to indicate locations operating in seriously congested or failing conditions. As discussed earlier, LOS D in peak hours represents reasonable operating conditions, and LOS E and LOS F should trigger the need to explore improvements. During the existing weekday afternoon peak hour, congestion, as indicated by LOS E or F, was identified at two intersections along the study corridor; although these congestions are mostly localized and are caused by one or two individual movements of the analyzed intersections.

To mitigate the traffic impacts from developments, intersection improvements were proposed. The capacity analysis results for the three improvement scenarios shown in Table 5.2 in Section 5 of this report correspond to the schematic improvement figures contained in this report.

Roundabout Analysis

The option of a roundabout for the intersection of Route 1 and Main Street has been recommended by city residents in the past. To evaluate its feasibility, we analyzed the operation of a one-lane roundabout using the HCS 2000 software, which follows to the method outlined in the 2000 Highway Capacity Manual by the Transportation Research Board. The roundabout analysis was based on the traffic volumes of the three 2016 scenarios. The results are summarized in Table B.9.

"Upper bound" and "lower bound" v/c ratios, or volume to capacity ratios, were provided in the table. The terms "upper bound" and "lower bound" refer to a range of capacities of roundabout, with the former representing the optimum performance conditions where the majority of drivers are familiar with roundabouts and speeds in roundabouts are relatively high, and the latter representing roundabouts in communities that are not familiar with their use and speeds are relatively low. In the three scenarios, even with the upper-bound capacities, v/c ratios are well over the generally acceptable v/c ratio of 1 or less, indicating significant delays to be experienced on all approaches to the roundabout.

The 2000 Highway Capacity Manual only provides the analysis process for one-lane roundabout because experience with multiple-lane roundabouts in the U.S. is insufficient to support an analysis procedure. However, the Manual does indicate that doubling the number of approach lane and the circulating roadway will yield less than twice the capacity provided by single-lane roundabouts. Therefore, based on the v/c ratios, a two-lane roundabout also does not seem to be a viable option for the intersection of Route 1 and Main Street, especially for traffic volumes of the first two scenarios that include the redevelopment of the Stop & Shop site.

In summary, from a traffic-capacity standpoint, roundabout does not seem to be a feasible option for the intersection of Route 1 and Main Street.

Accident Reports

Traffic accident records along the study corridor were researched using the 1998-2000 Traffic Accident Surveillance Report (TASR) and the most recent Traffic Accident Viewing System (TAVS) software, both of which were devel-

Table B.9 Roundabout Analysis

Capacity Computation for 2016 Baseline Conditions

	EB	WB	NB	SB
v/c Ratio				
Upper Bound	1.55	1.44	1.31	1.56
Lower Bound	1.99	1.81	1.78	1.96

Capacity Computation for 2016 Plan Conditions

_	EB	WB	NB	SB
v/c Ratio				
Upper Bound	1.55	1.37	1.33	1.54
Lower Bound	1.98	1.73	1.79	1.93

Capacity Computation for 2016 Plan Conditions Excluding the Redevelopment of the Stop & Shop Site

	EB	WB	NB	SB
v/c Ratio				
Upper Bound	1.30	1.16	1.09	1.29
Lower Bound	1.66	1.46	1.45	1.62

oped by the ConnDOT Bureau of Policy and Planning.

ConnDOT uses TASR to screen locations with abnormally high accident rates and include these locations in its Suggested List of Surveillance Study Sites (SLOSSS) for further study and consideration for improvements. To be included in SLOSSS, an intersection or a roadway segment must meet two criteria: 1) at least 15 accidents occurred in a three-year period; and 2) actual accident rate exceeds critical accident rate for similar locations in the state. Within the study corridor, the 1998-2000 TASR identifies the following locations with accident rates high enough to be included in SLOSSS:

- Route 1 (Cross Street and North Avenue) at Route 123 (Main Street);
- Route 1 (North Avenue and Westport Avenue) at Route 53 (East Avenue);
- Route 1 (Westport Avenue) between Vollmer Avenue and Willard, which includes the intersections of Route 1 with Wolf Pit Avenue, County Street and Strawberry Hill Avenue;
- Route 1 (Westport Avenue) between Willard Road and Lois Street;
- Route 719 (Main Avenue) at Route 123 (New Canaan Avenue and Main Street);
- Route 719 (Main Avenue) between Route 123 and Delaware Avenue;
- Route 719 (Main Avenue) between Ward Street and Broad Street; and
- Route 719 (Main Avenue) between Linden Street and Nottingham Place.

More recent accident data for the study corridor from 2002 through 2004 available from TAVS was also examined using the same TASR criteria. It was found that the eight locations listed above continued to exhibit high accident rates in 2002 through 2004. In addition, four more roadway segments and intersections were found to have high levels of accident rates during this recent three-year period:

- Route 1 (Westport Avenue), between George Avenue and Luffberry Avenue;
- Route 123 (Main Street), between Route 1 and School Street;
- Route 123 (Main Street) at Ohio Avenue; and
- Route 719 (Main Avenue) at Hudson Street and Van Tassell Court.

A common characteristic among the segments and intersections of Westport Avenue and Main Street/Avenue with high accident rates is large numbers of driveways and high main-line traffic volumes, which likely contributed to the relatively frequent accident occurrences. To ameliorate the accident patterns in the study corridor, we recommend

Table B.10: Metro North Operation at Merritt 7 Station

	Merritt 7 to GCT*	GCT* to Merritt 7	Merritt 7 to Stamford	Stamford to Merritt 7	Merritt 7 to Danbury	Danbury to Merritt 7
Travel Time (Minutes)	72 to 92	72 to 82	23 to 41	22 to 30	37 to 45	35 to 42
Daily Direct Trains	3	3	6	5	10	10
Daily Transfer Trains	7	7	4	5	0	0
Total Daily Trains	10	10	10	10	10	10
AM Peak (6-9 AM)** Trains	5	1	5	1	0	4
PM Peak (5-8 PM)** Trains	1	4	1	5	4	1

Source: Metro North Schedule
* GCT: Grand Central Terminal
** Time at origin station

that the number of driveways of future developments along Main Street/Avenue and Westport Avenue be limited or be provided on side streets that intersect with the main lines at signalized intersections; left-turn exit movements from driveways should be prohibited where appropriate by providing right-out-only exits from development sites on Main Street/Avenue and Westport Avenue.

Transit

The Norwalk Transit District operates a number of routes in the study corridor, with peak-hour headways ranging from 20 minutes to one hour. Although the bus routes serve a vital function to a segment of the population, private cars will continue to be the primary mode of transportation because of dispersed development patterns that are prevalent in the area. However, incremental improvements to the transit system should be implemented when opportunities exist, such as in the planning stages of major developments in the study corridor. For instance, it has been noted that buses in the corridor frequently experience delays simply because of difficulty merging into the through traffic from bus stops; the situation is even worse when buses have to exit a bus pull-off on a busy street. Such concerns can be addressed by incorporating transit needs in early planning stages of developments. In this case, a bus pull-off can be located on the far side of a traffic signal to ensure adequate gaps in traffic stream for merging; the construction of such bus pull-off can be achieved in conjunction with adjacent developments.

The Danbury Branch of Metro North commuter railway runs along the west side of the study corridor, with the Merritt 7 station located just north of the study corridor. Table B.10 shows the weekday train operations as of November 2005 between the Merritt 7 station and two main regional destinations: Stamford, Connecticut and the Grand Central Terminal in Manhattan. All transfers shown in the table occur at the South Norwalk Station. The service at the Merritt 7 station is geared towards people working in Stamford and New York City; it also provides a connection between the Merritt 7 office complexes and these two area destinations. The service is currently lightly used; a 2001 survey revealed that the total number of boardings from the Merritt 7 station to Grand Central Terminal is only around 100 on a typical weekday.

Connecticut Department of Transportation (ConnDOT) and its consultant are in the process of evaluating a range of infrastructure and service improvements aiming to reduce travel times on the Danbury Branch railway. The study covers improvements to the existing commuter rail line between Danbury and South Norwalk, and the feasibility of a service extension from Danbury to New Milford. The improvement options under consideration include track geometric improvements, addition of double tracking, and addition of passing sidings. It is envisioned that with improvements the maximum speed between South Norwalk and Danbury can increase from the current 50 mph to 60 or 70 mph. According to this ongoing ConnDOT study, improvements to the Danbury Line may result in reduced travel time and more frequent service and serve as an alternative to the Harlem Line for Connecticut commuters as well as reducing vehicular traffic on Route 7 and other north-south roadways in the area.

In the long term, further improvements to the rail line and inter-modal connections at stations within the boundary of Norwalk should be explored to encourage the use of the rail service and remove vehicular traffic from the Main Street/Avenue corridor. Some potential improvements that may benefit the study corridor include increasing rail service frequency, adding additional stations in areas of concentrated developments, and the possibility of providing light rail service that can share the rail bed with the Danbury Branch line.

Other Considerations

In practical terms, the congestion along the study corridor may not be as severe as projected in this report. This is due to the fact that vehicles will likely be constrained at entry points to major corridors. The goal of the analysis is to identify needed infrastructure improvements. For this reason, the analysis is conservative in ignoring the effects of network portal constraints.

In addition, the proposed geometric improvements were based on weekday afternoon peak hour volumes. Although these peak volumes represent the highest peak traffic conditions in a week, other peak hours with different directional distributions may call for slightly different intersection lane arrangements in order to achieve a minimum intersection LOS D. Therefore, the proposed schematic improvements described herein only indicate the magnitude of potential improvements required; the determination of exact future geometric improvements to the corridor will require analysis based on more complete traffic data.

Appendix C: Traffic Diagrams

The Traffic Diagrams on the following pages were prepared by Vollmer Associates.

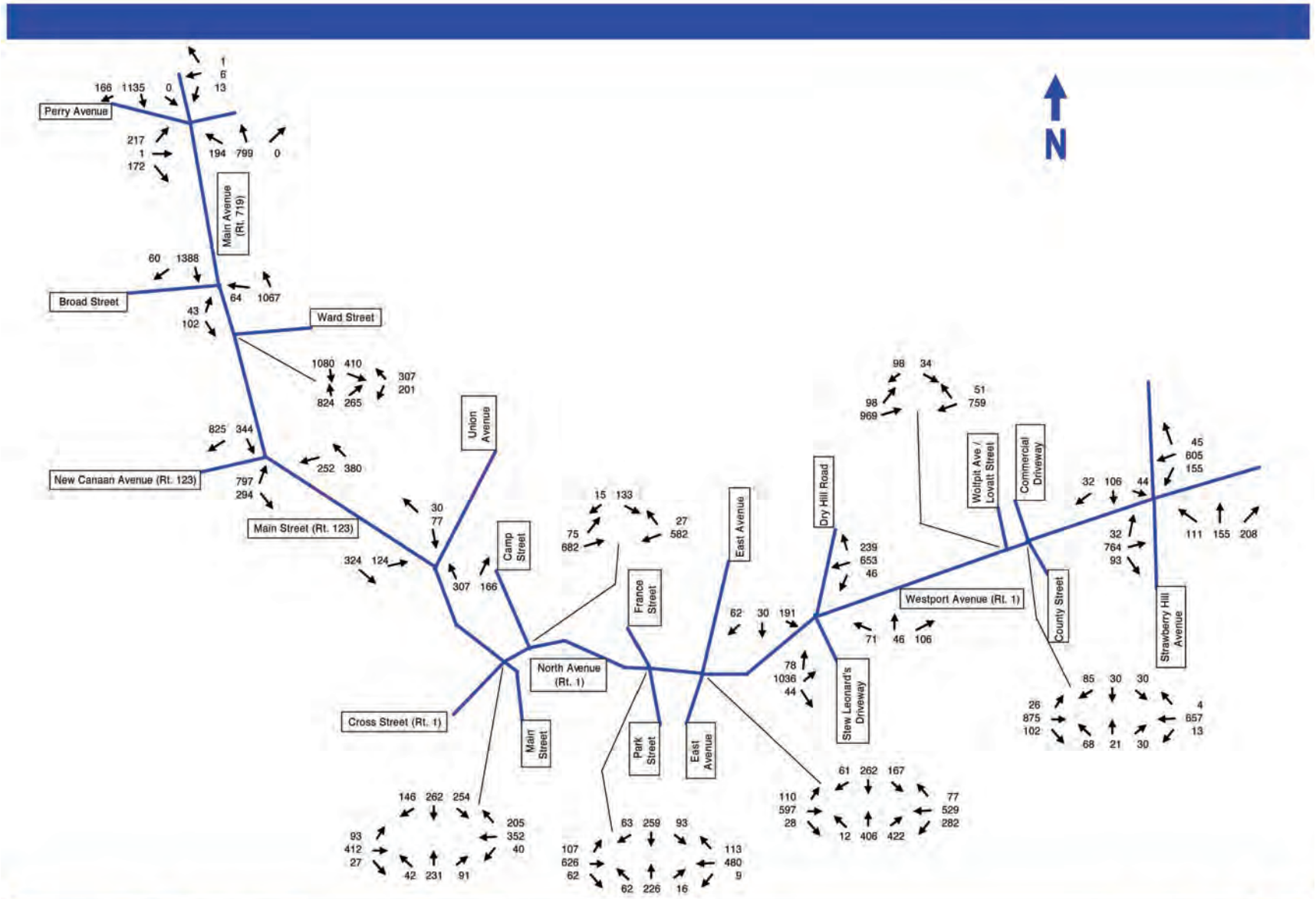

Figure C.1 Weekday Afternoon Peak Hour Volumes
2005 Existing Conditions

PPSA VOLLMER

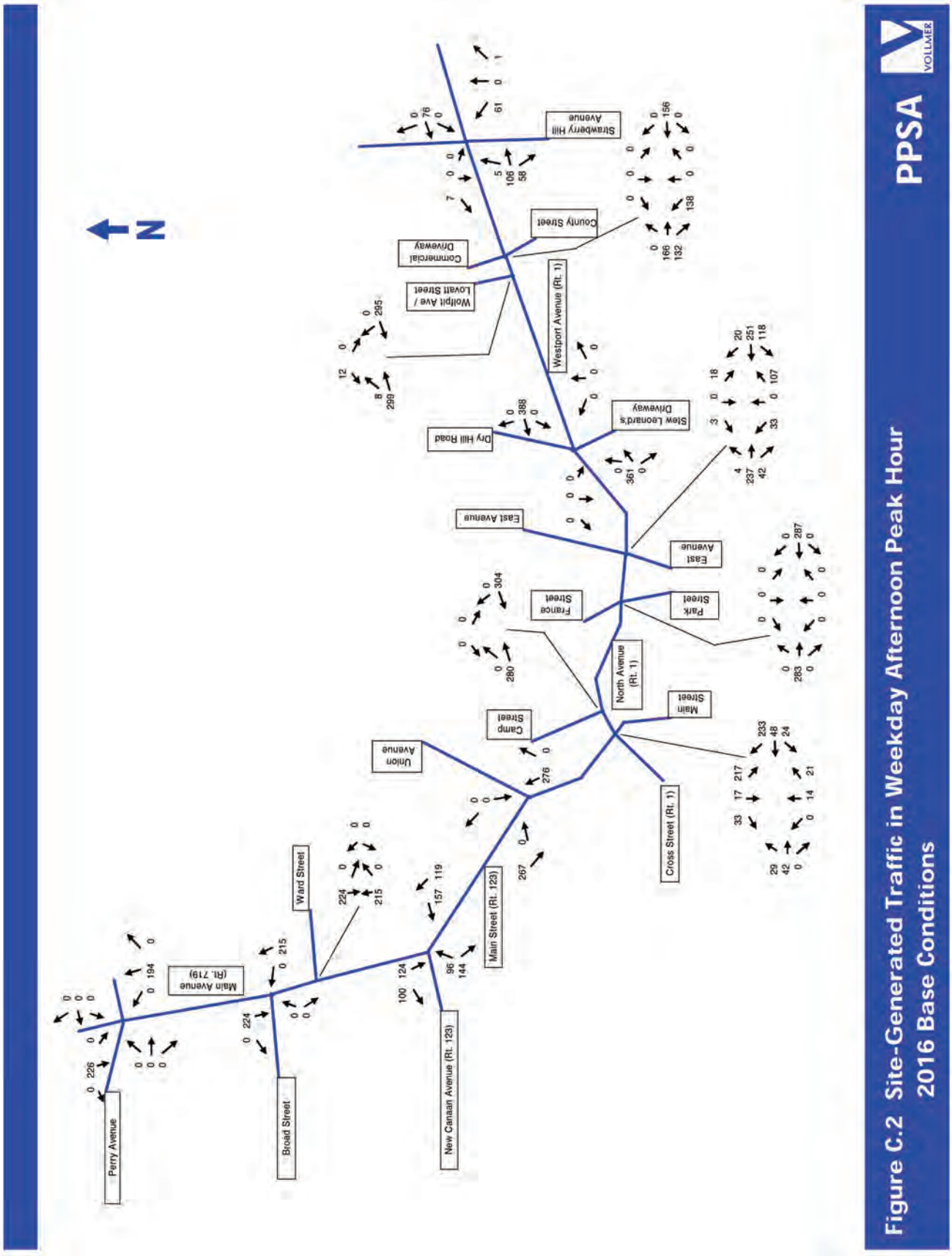

Figure C.2 Site-Generated Traffic in Weekday Afternoon Peak Hour
2016 Base Conditions

PPSA

VOLLMER

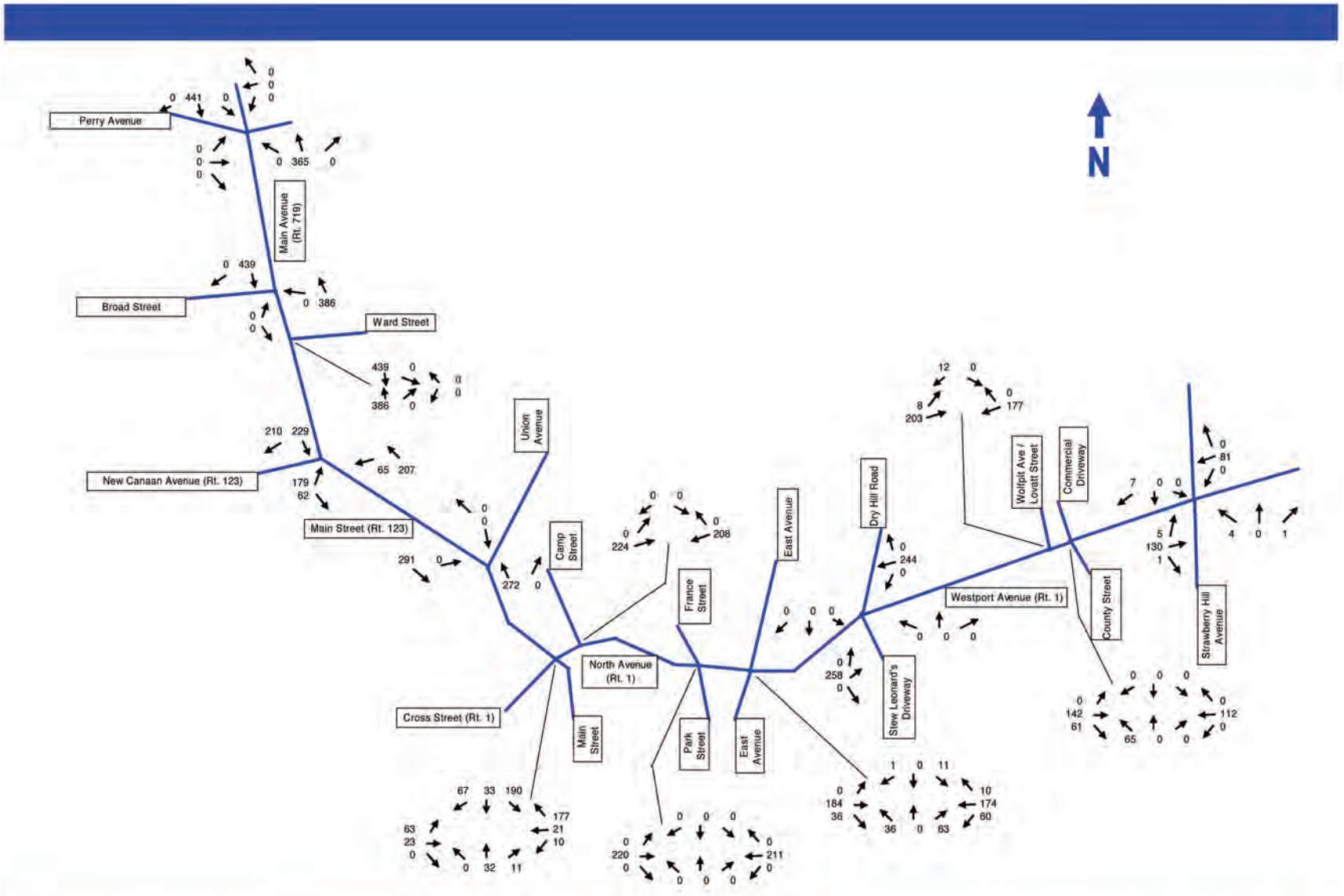

Figure C.3 Site-Generated Traffic in Weekday Afternoon Peak Hour
2016 Plan Conditions

PPSA VOLLMER

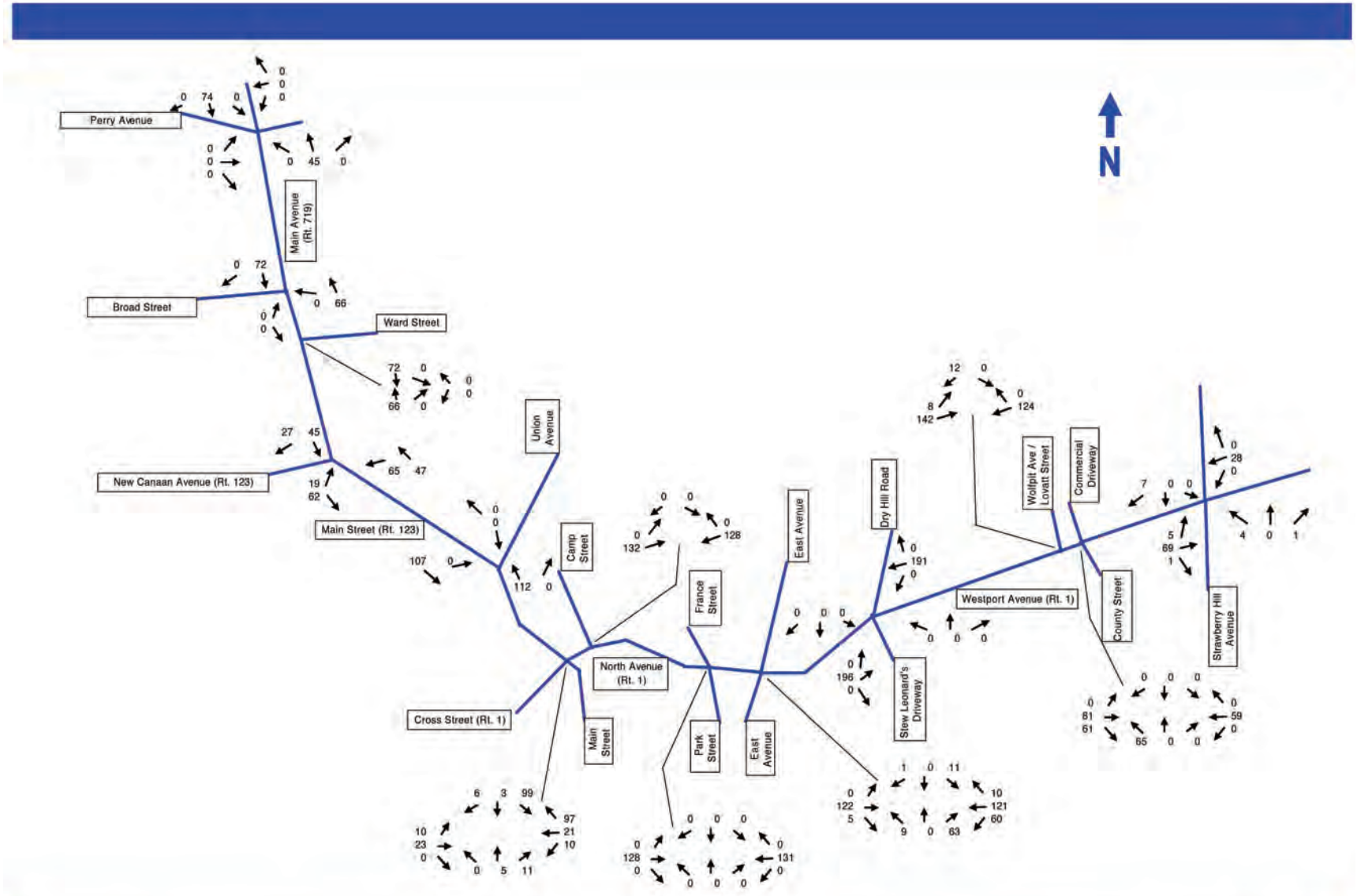

Figure C.4 Site-Generated Traffic in Weekday Afternoon Peak Hour
2016 Plan Conditions Excluding Redevelopment of Stop & Shop Site

PPSA VOLLMER

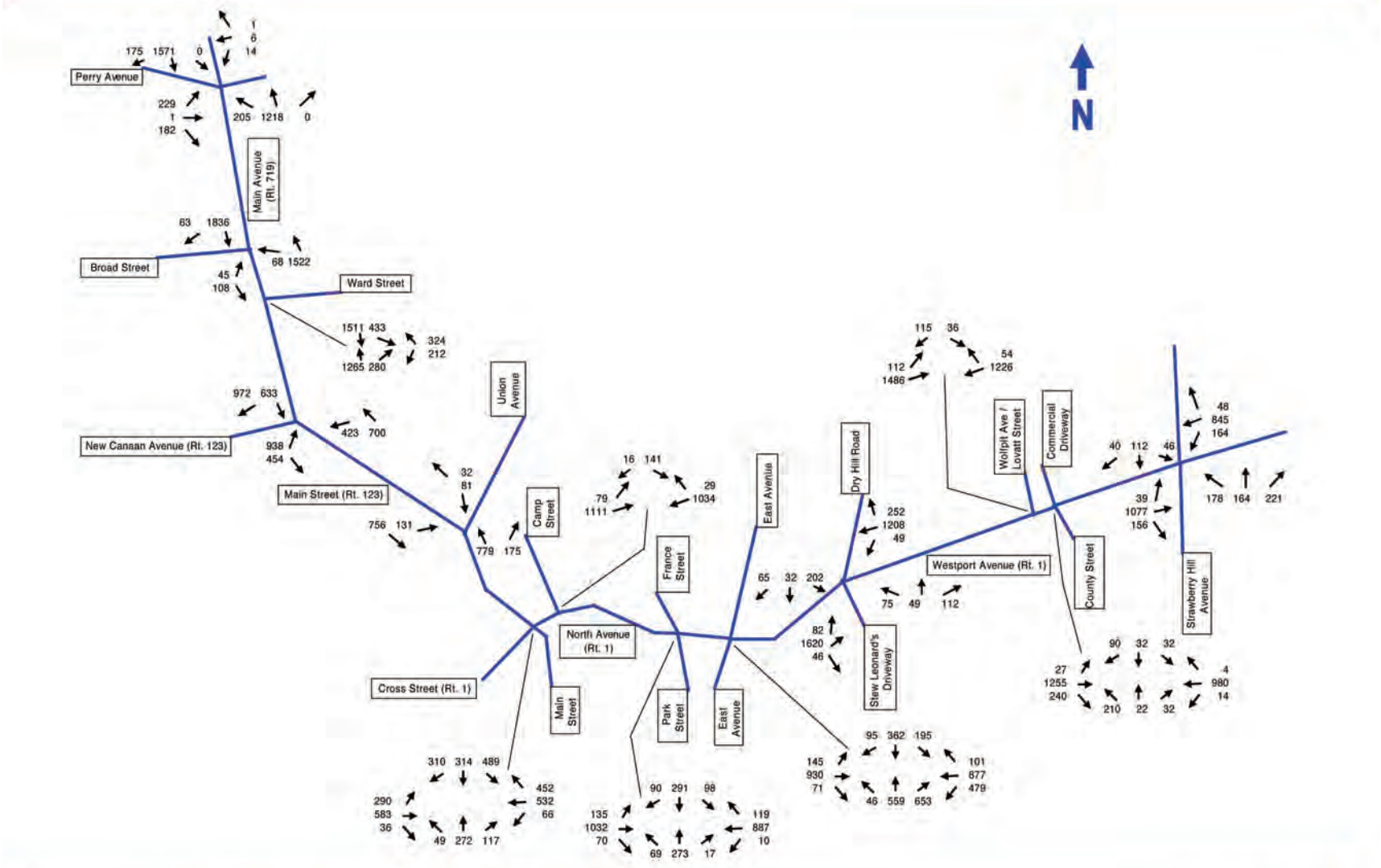

Figure C.5 Weekday Afternoon Peak Hour Volumes
2016 Baseline Conditions

PPSA VOLLMER

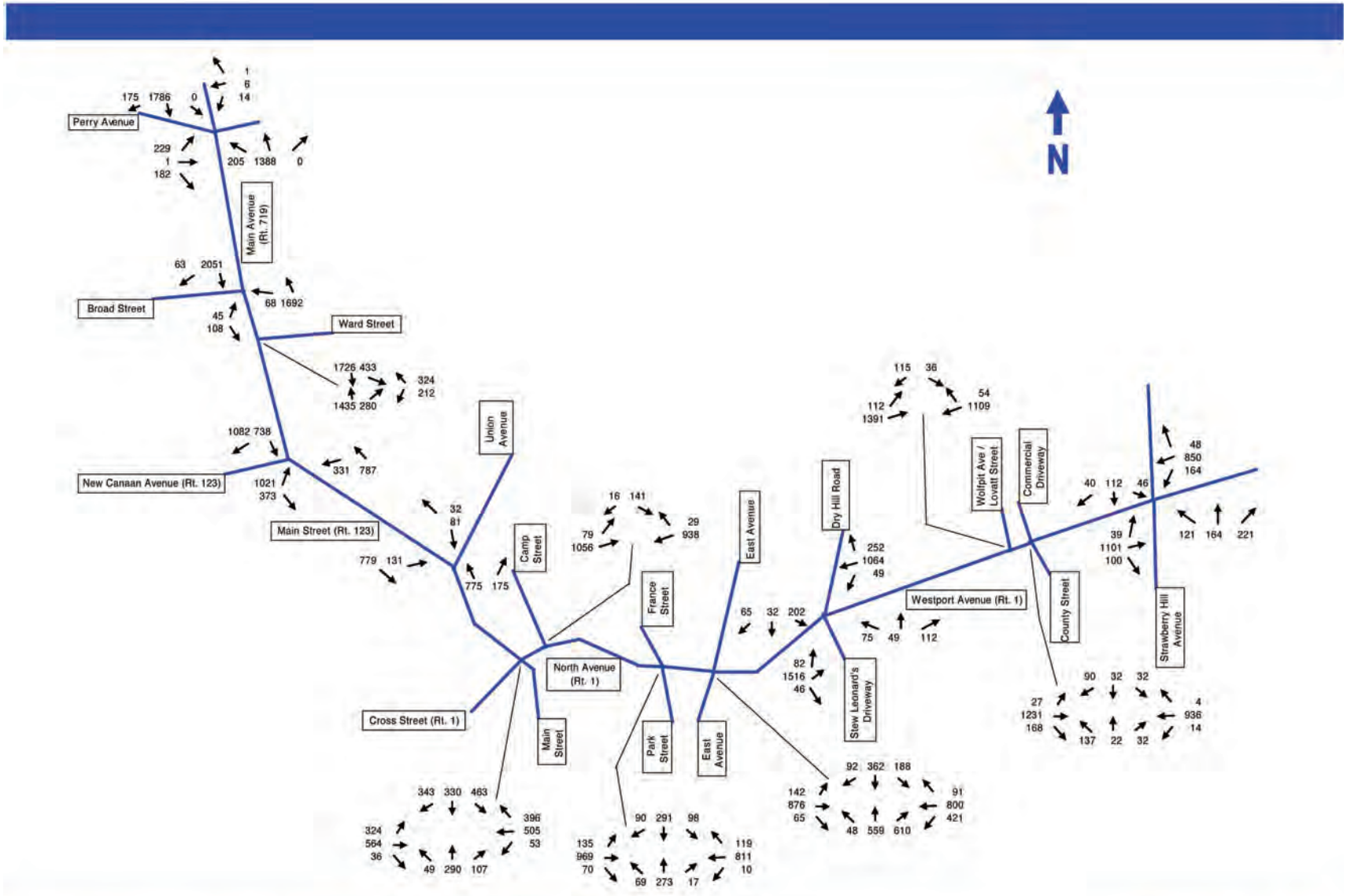

Figure C.6 Weekday Afternoon Peak Hour Volumes
2016 Plan Conditions

PPSA VOLLMER

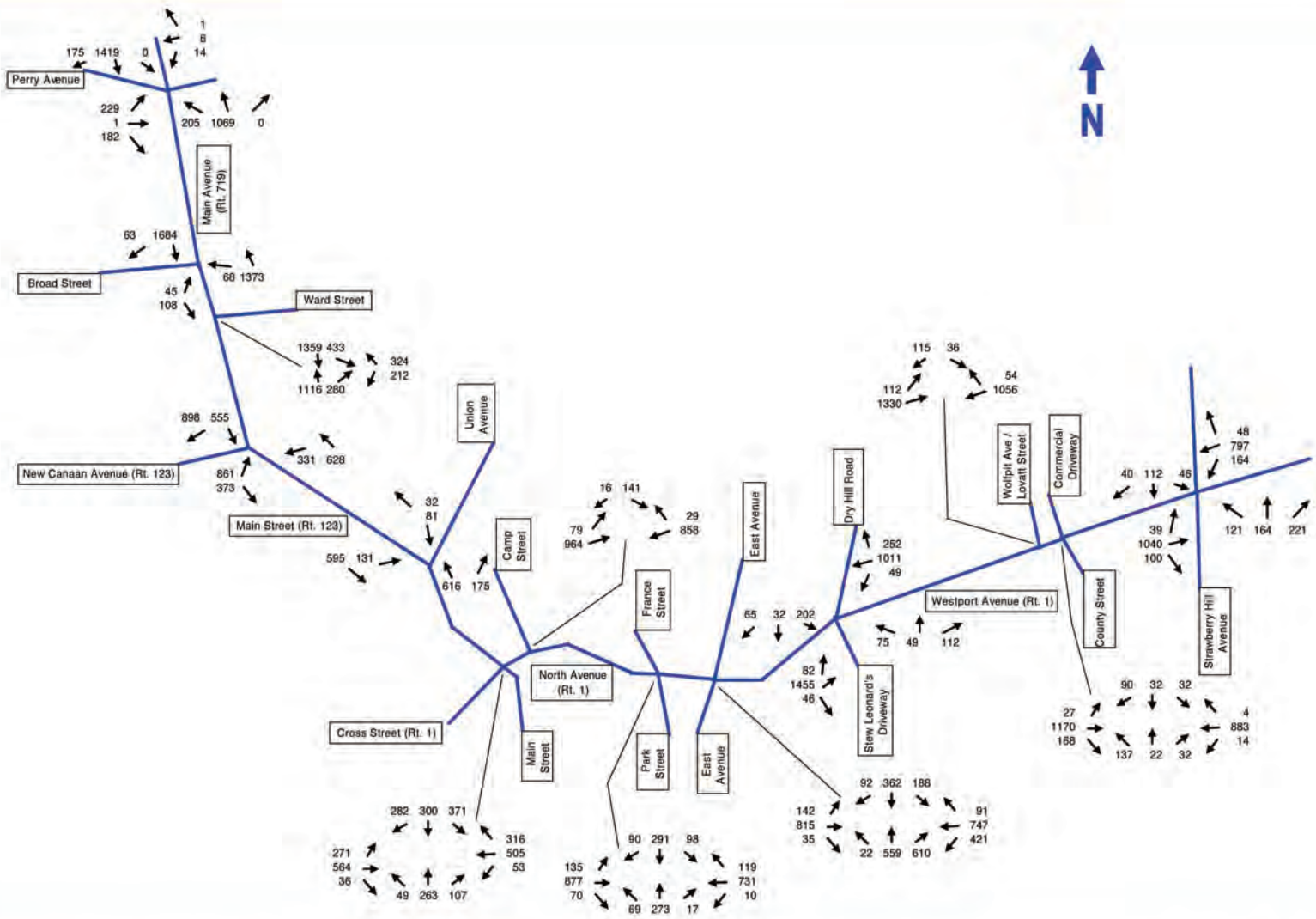

Figure C.7 Weekday Afternoon Peak Hour Volumes
2016 Plan Conditions Excluding Redevelopment of Stop & Shop Site

PPSA VOLLMER

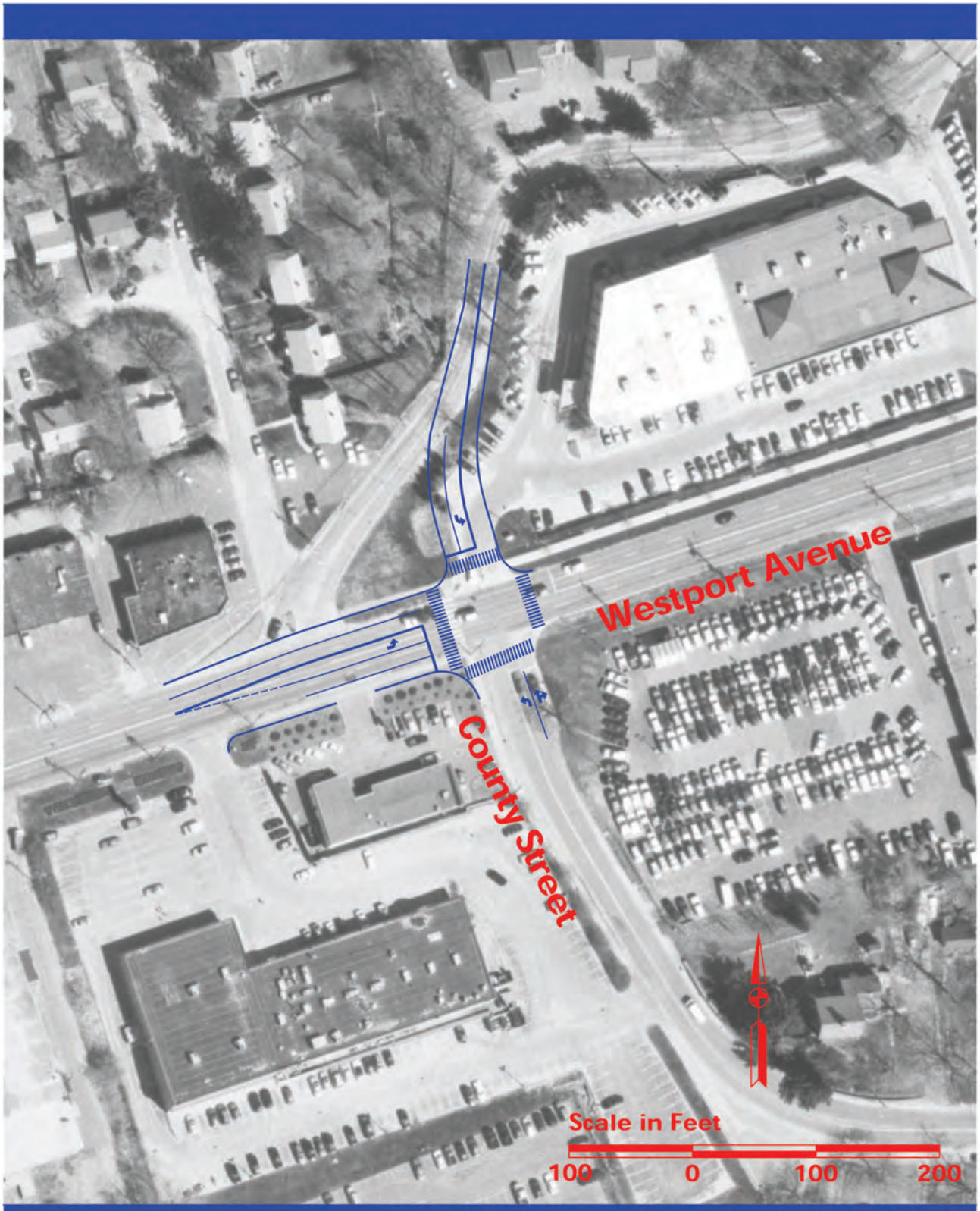

Figure C.8 Schematic Improvements at Westport Ave. and County St.
2016 Baseline Conditions

PPSA VOLLMER

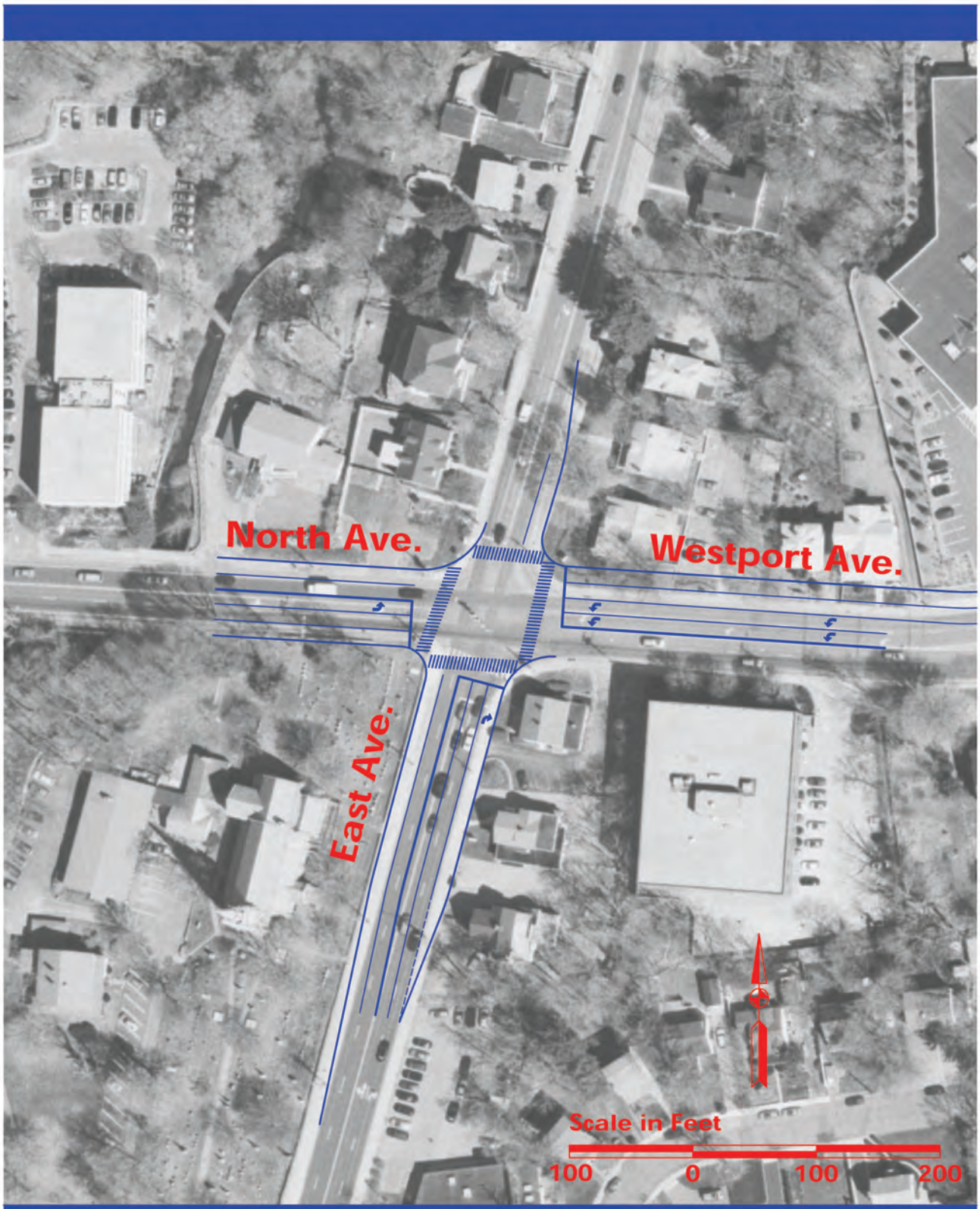

Figure C.9 Schematic Improvements at Westport Ave. and East Ave.
2016 Baseline Conditions

PPSA VOLLMER

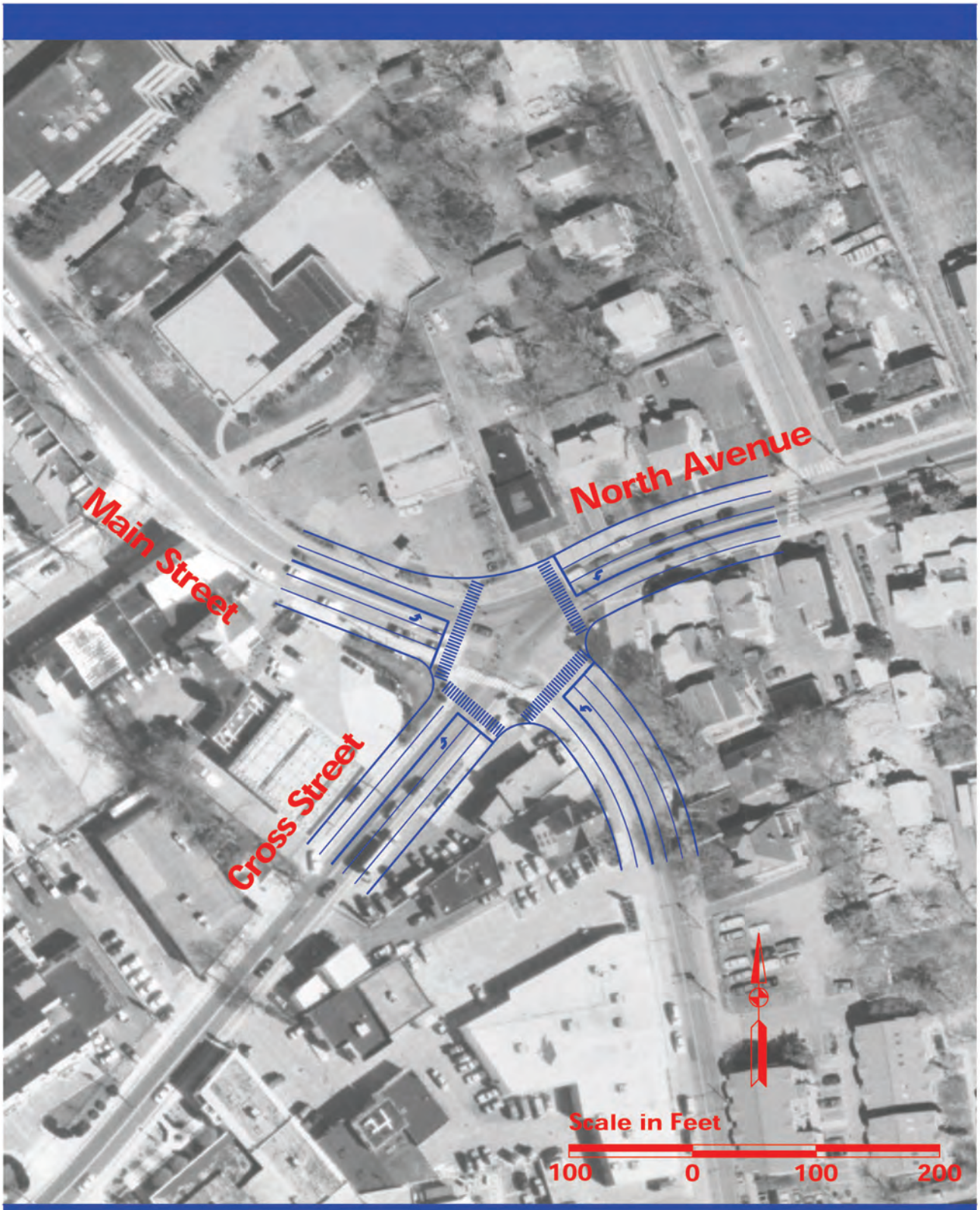

Figure C.10 Schematic Improvements at North Ave. and Main St.
2016 Baseline Conditions

PPSA VOLLMER

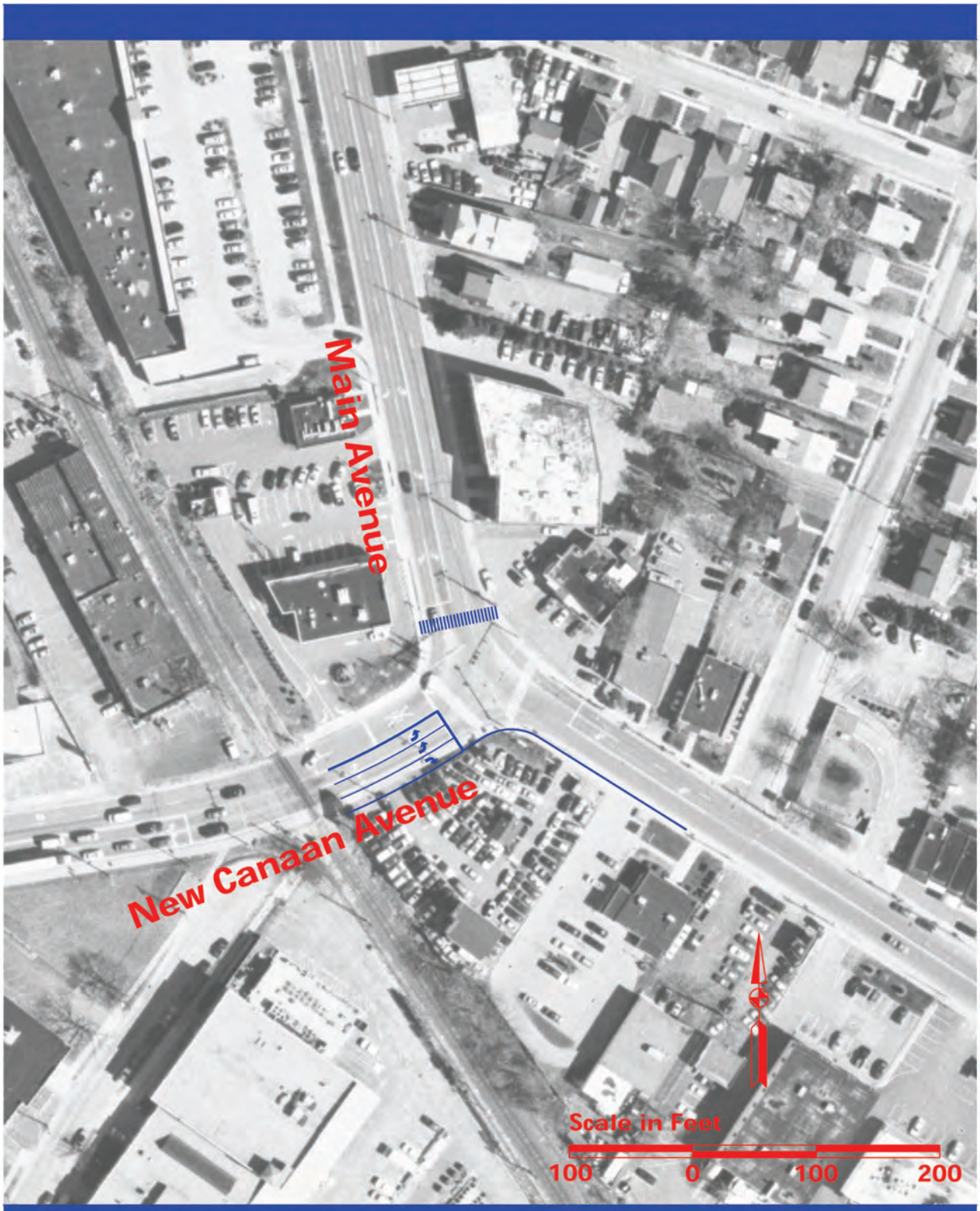

Figure C.11 Schematic Improvements at New Canaan Ave. and Main St.
2016 Baseline Conditions

PPSA VOLLMER

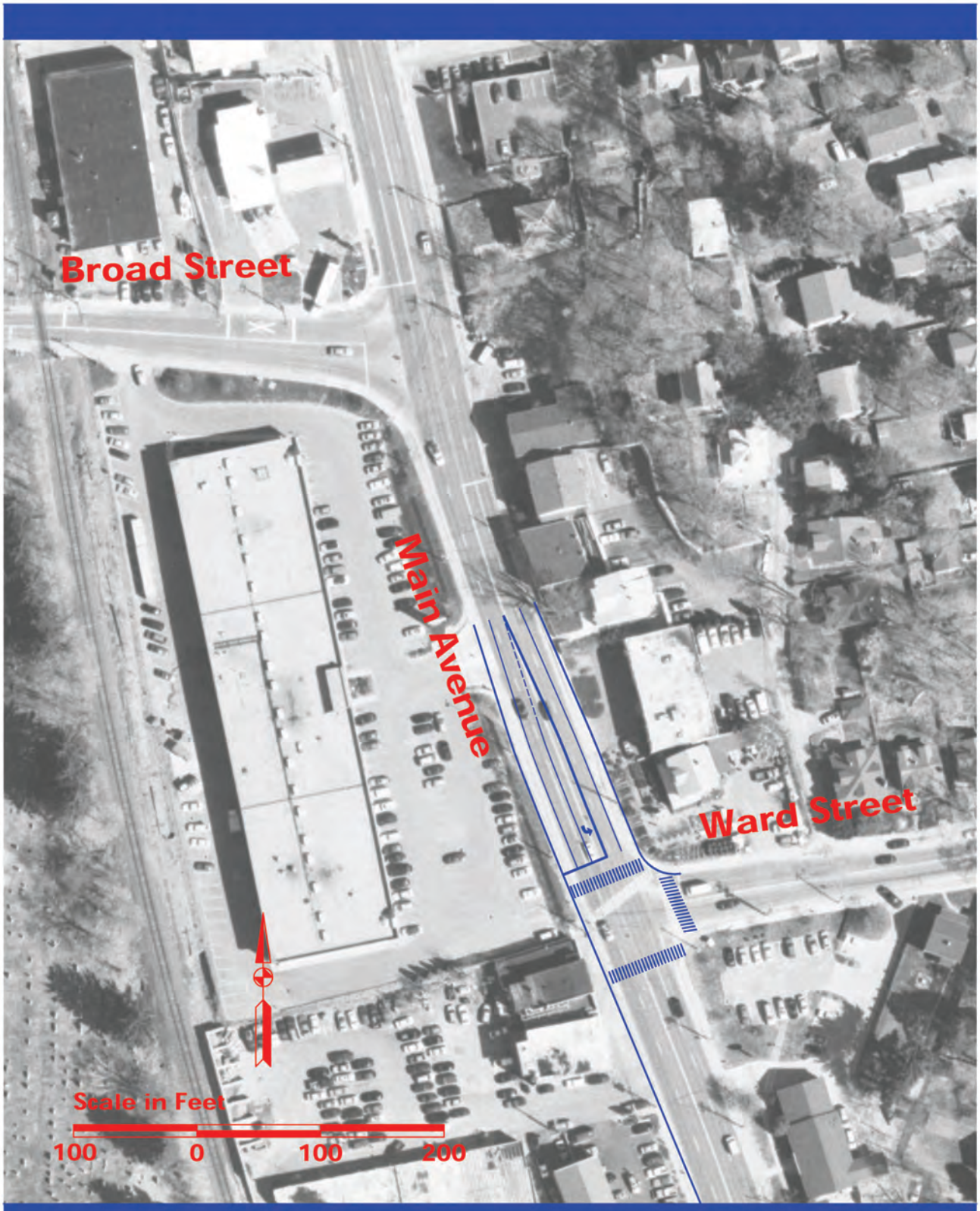

Figure C.12 Schematic Improvements at Ward St., Broad St. and Main Ave.
2016 Baseline Conditions

PPSA VOLLMER

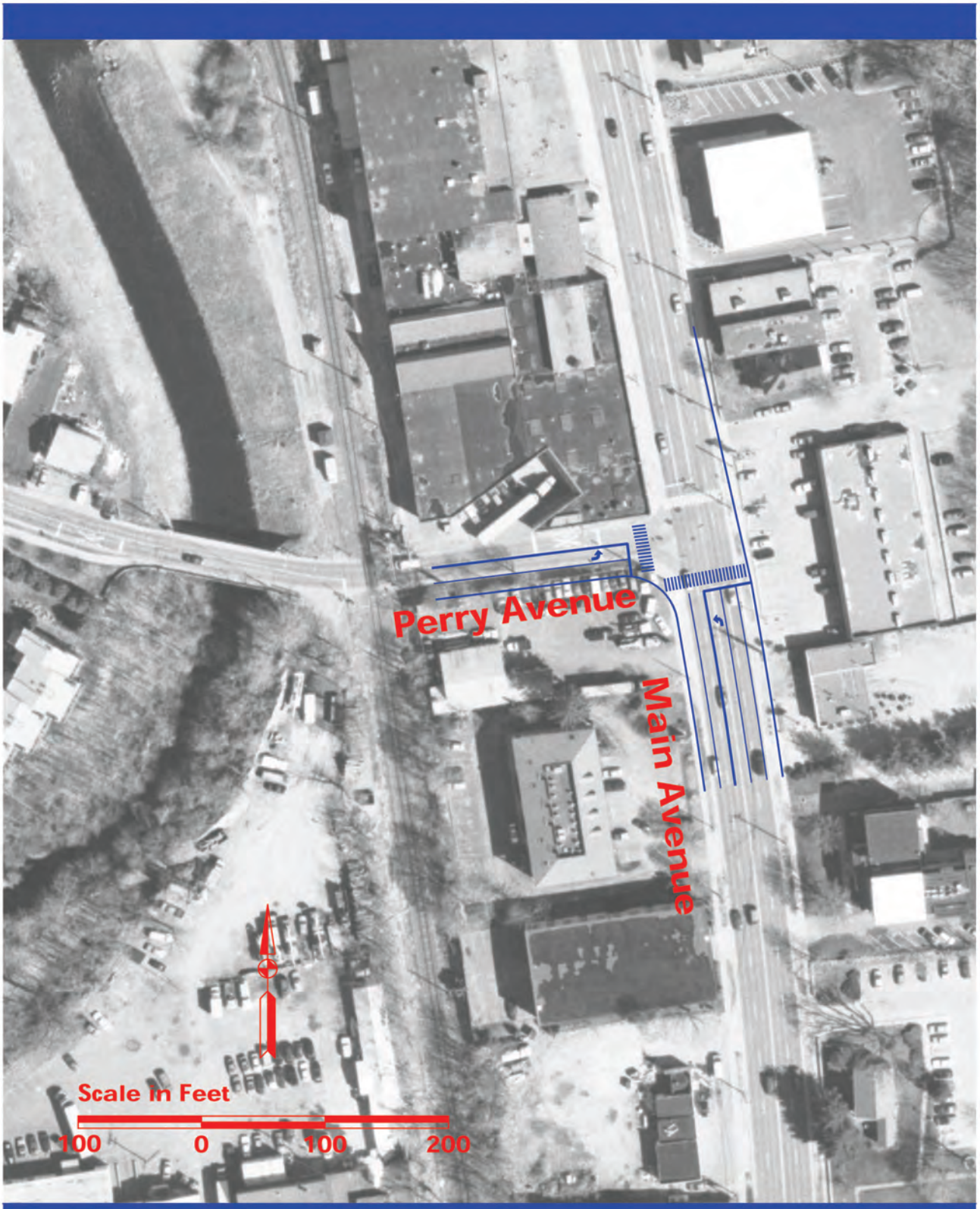

Figure C.13 Schematic Improvements at Perry Ave. and Main Ave.
2016 Baseline Conditions

PPSA VOLLMER

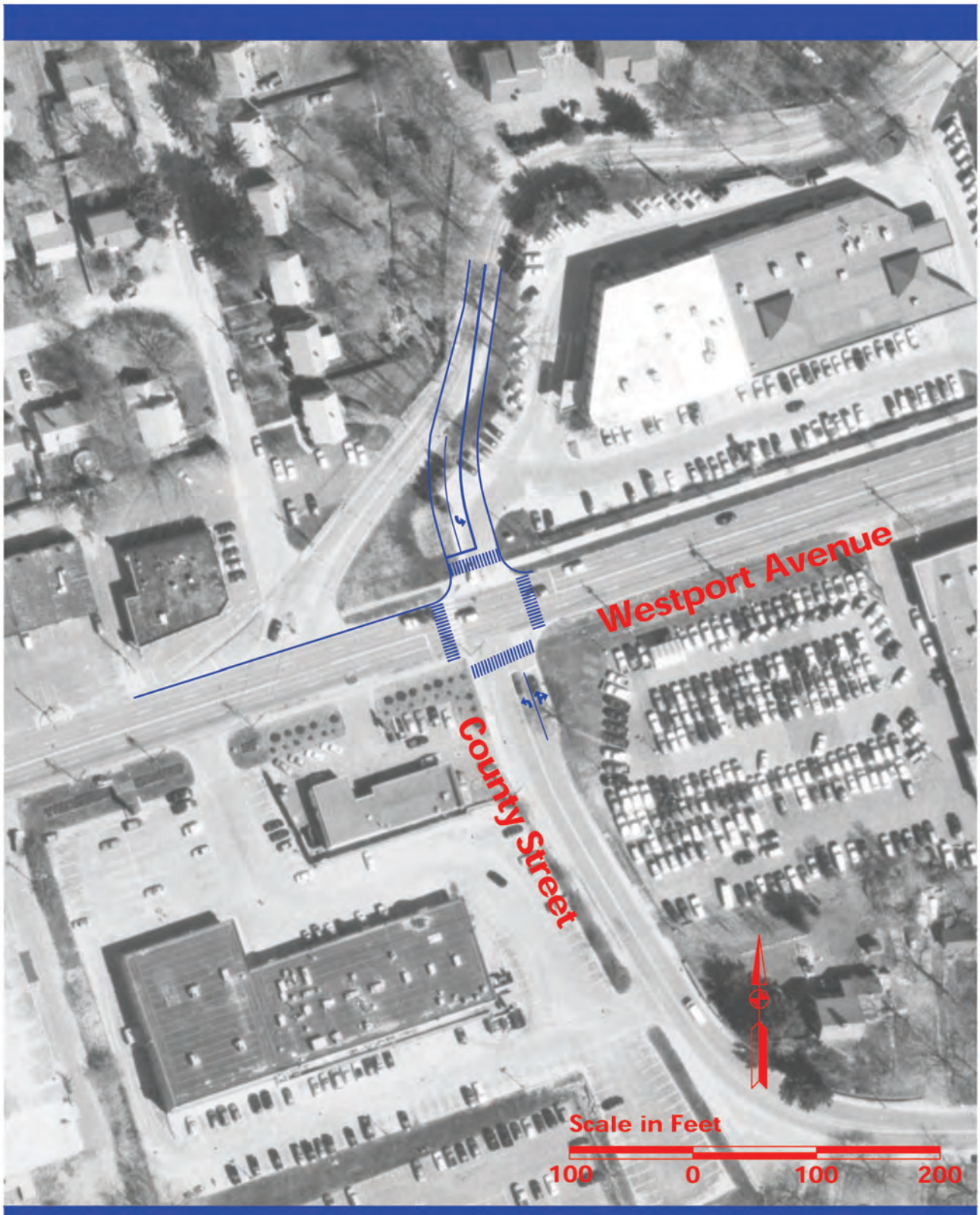

Figure C.14 Schematic Improvements at Westport Ave. and County St.
2016 Plan Conditions

PPSA VOLLMER

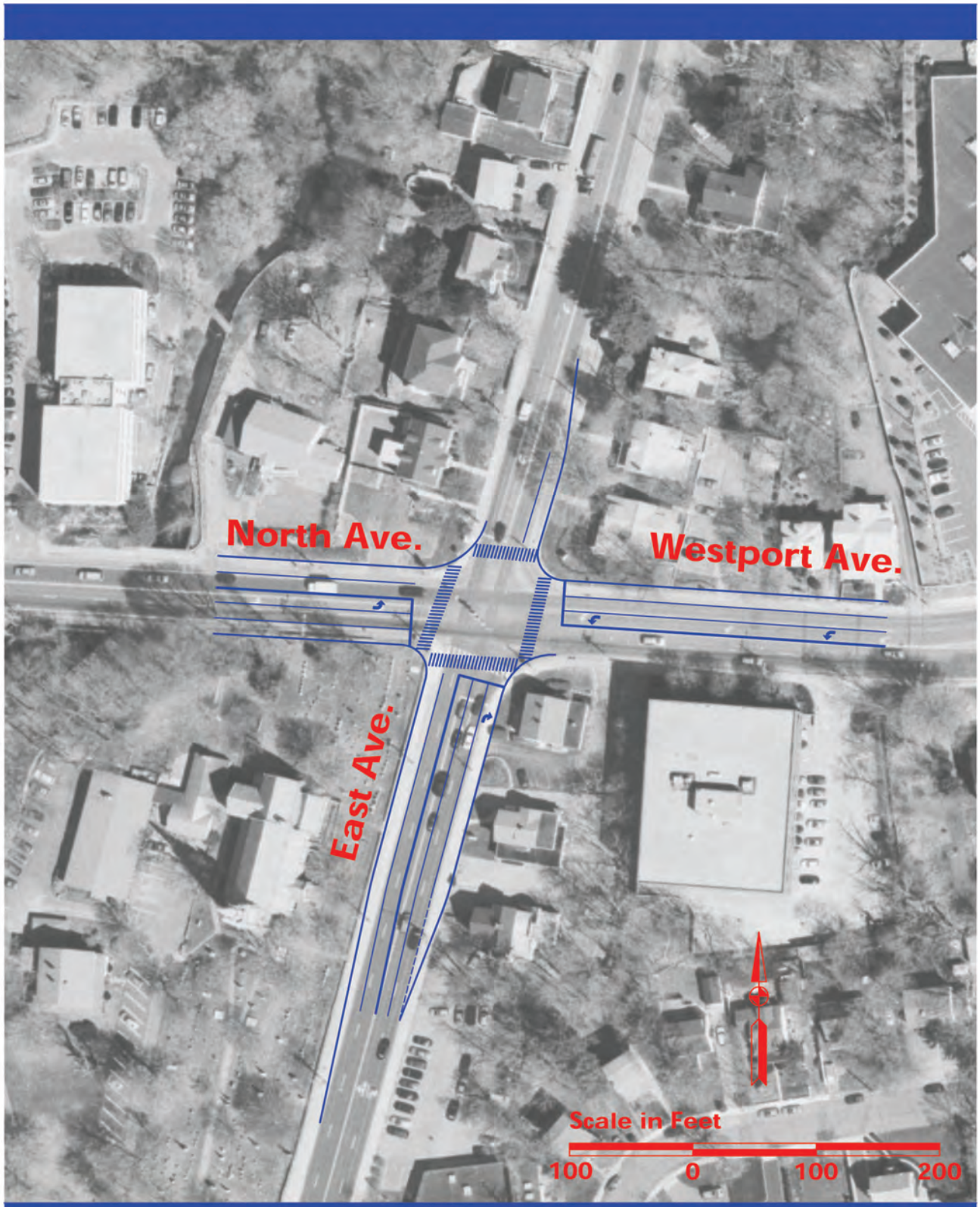

Figure C.15 Schematic Improvements at Westport Ave. and East Ave.
2016 Plan Conditions

PPSA VOLLMER

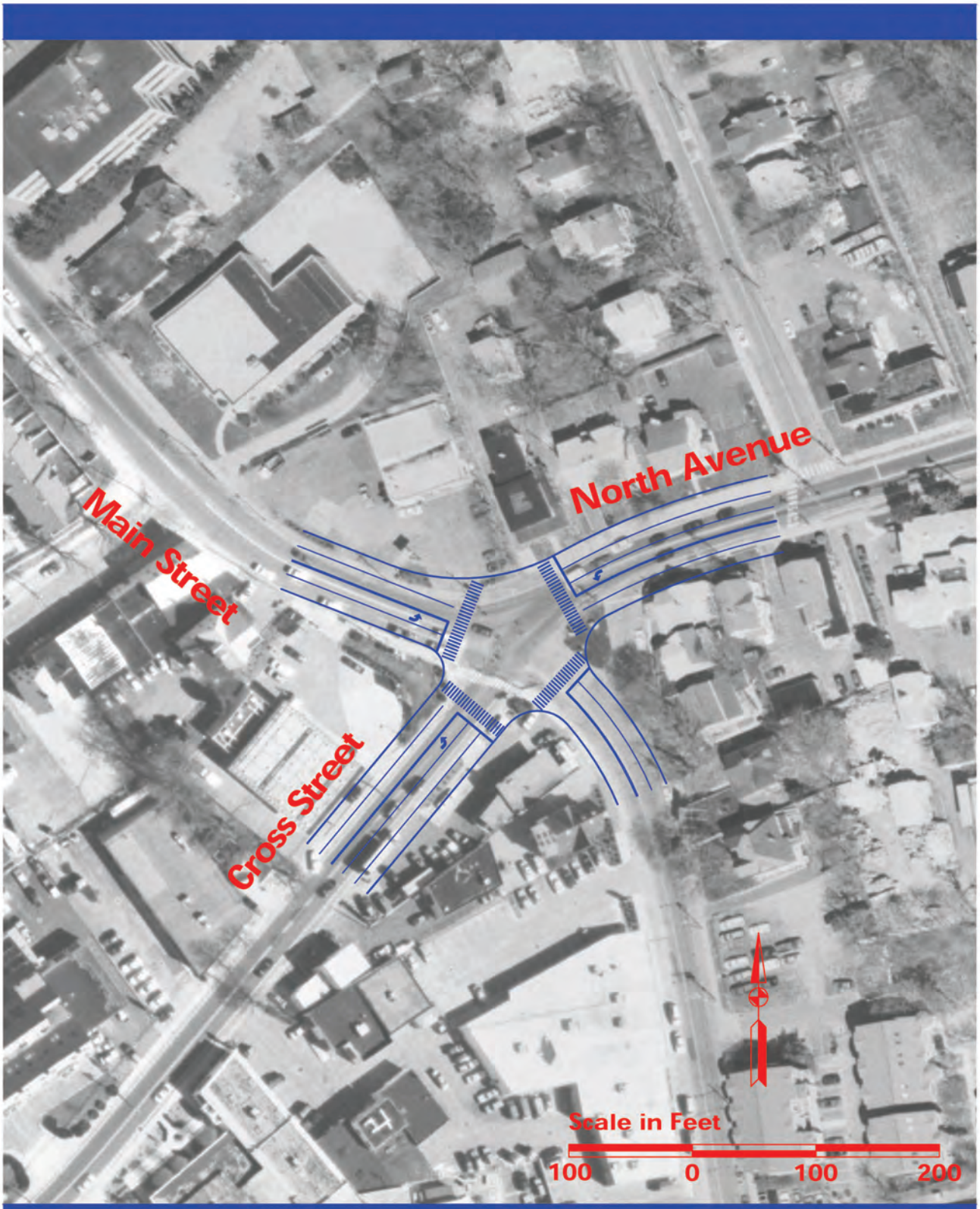

Figure C.16 Schematic Improvements at North Ave. and Main St.
2016 Plan Conditions

PPSA VOLLMER

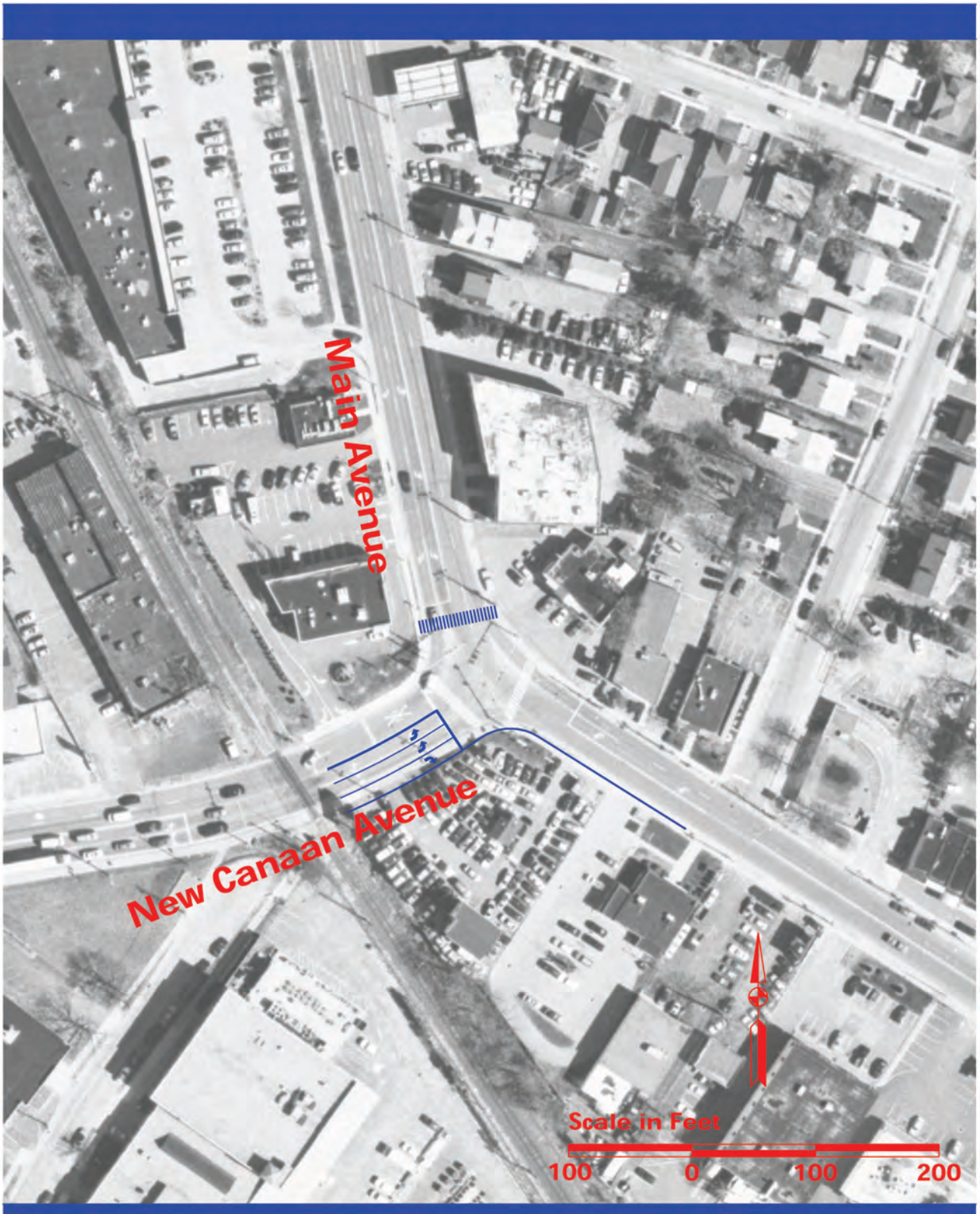

Figure C.17 Schematic Improvements at New Canaan Ave. and Main St.
2016 Plan Conditions

PPSA VOLLMER

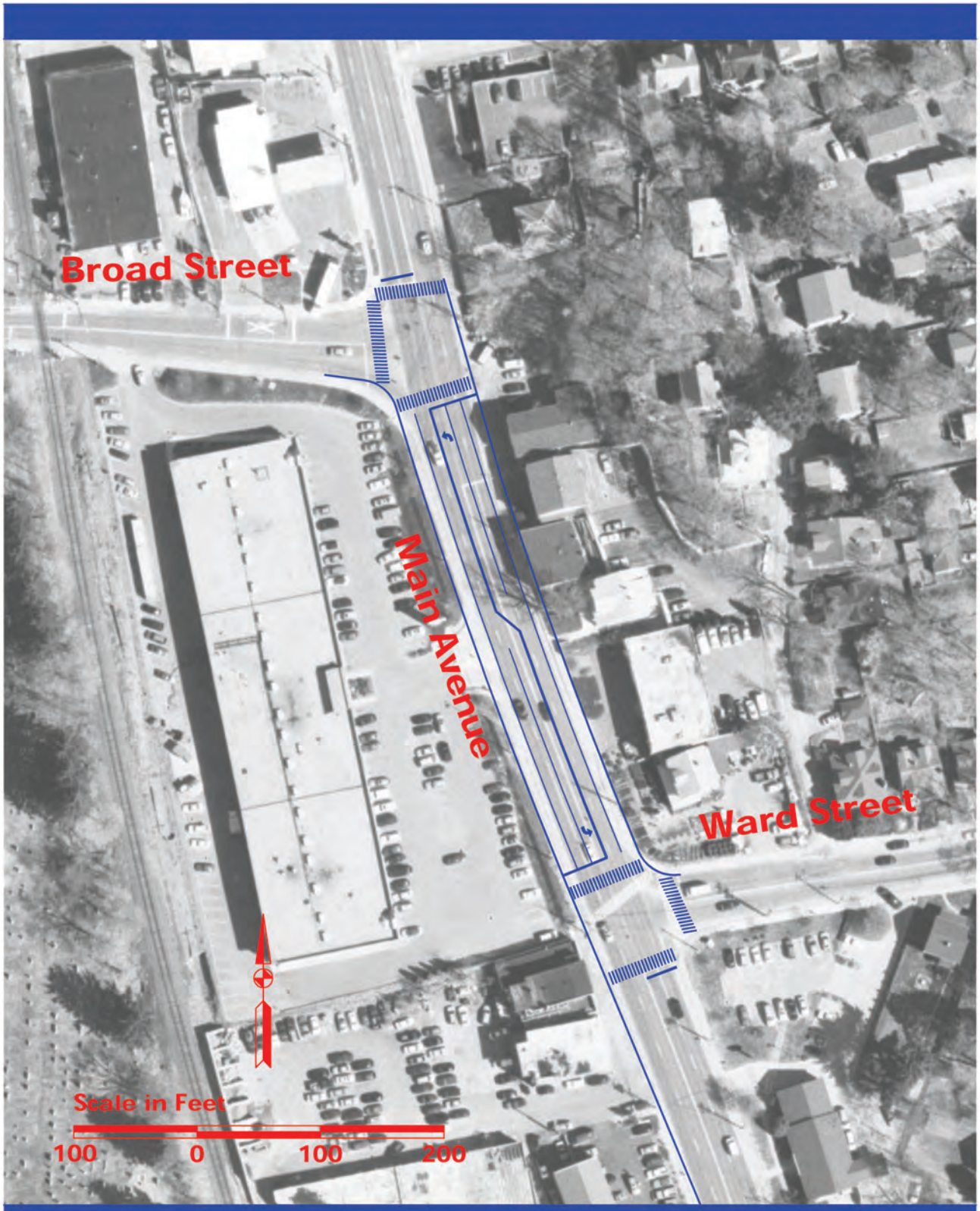

Figure C.18 Schematic Improvements at Ward St., Broad St. and Main Ave.
2016 Plan Conditions

PPSA VOLLMER

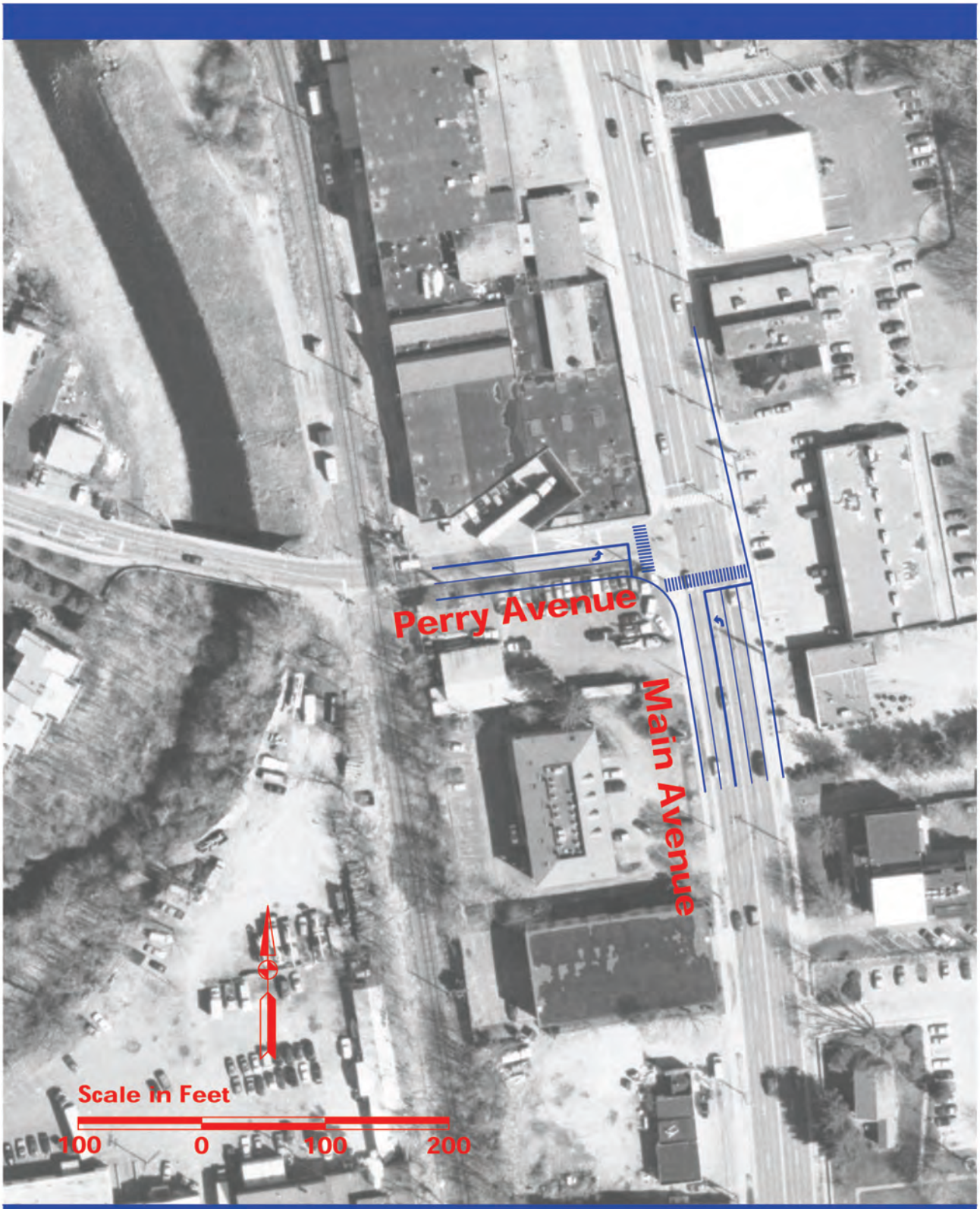

Figure C.19 Schematic Improvements at Perry Ave. and Main Ave.
2016 Plan Conditions

PPSA VOLLMER

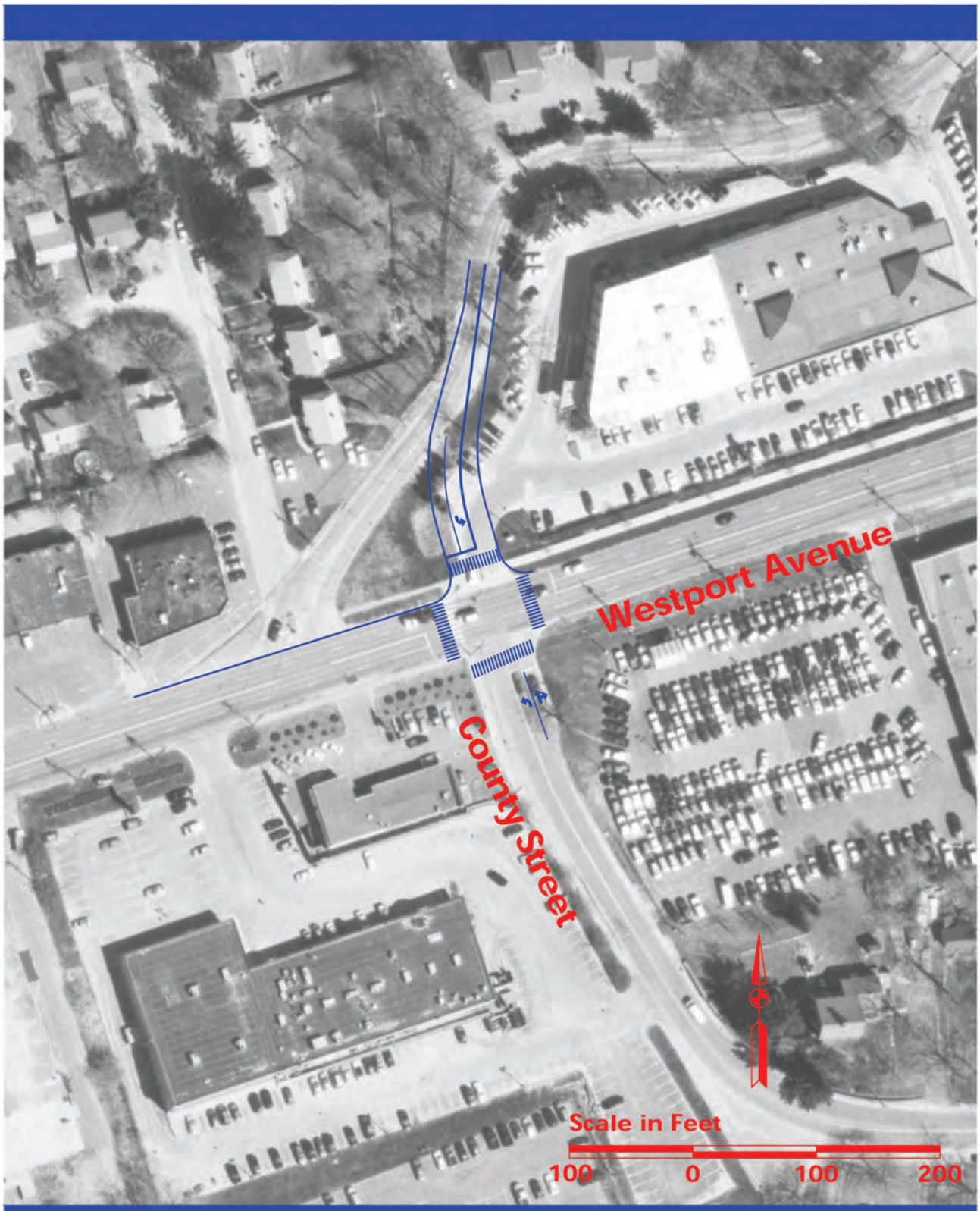

Figure C.20 Schematic Improvements at Westport Ave. and County St.
2016 Plan Conditions Excluding Redevelopment of Stop & Shop Site

PPSA VOLLMER

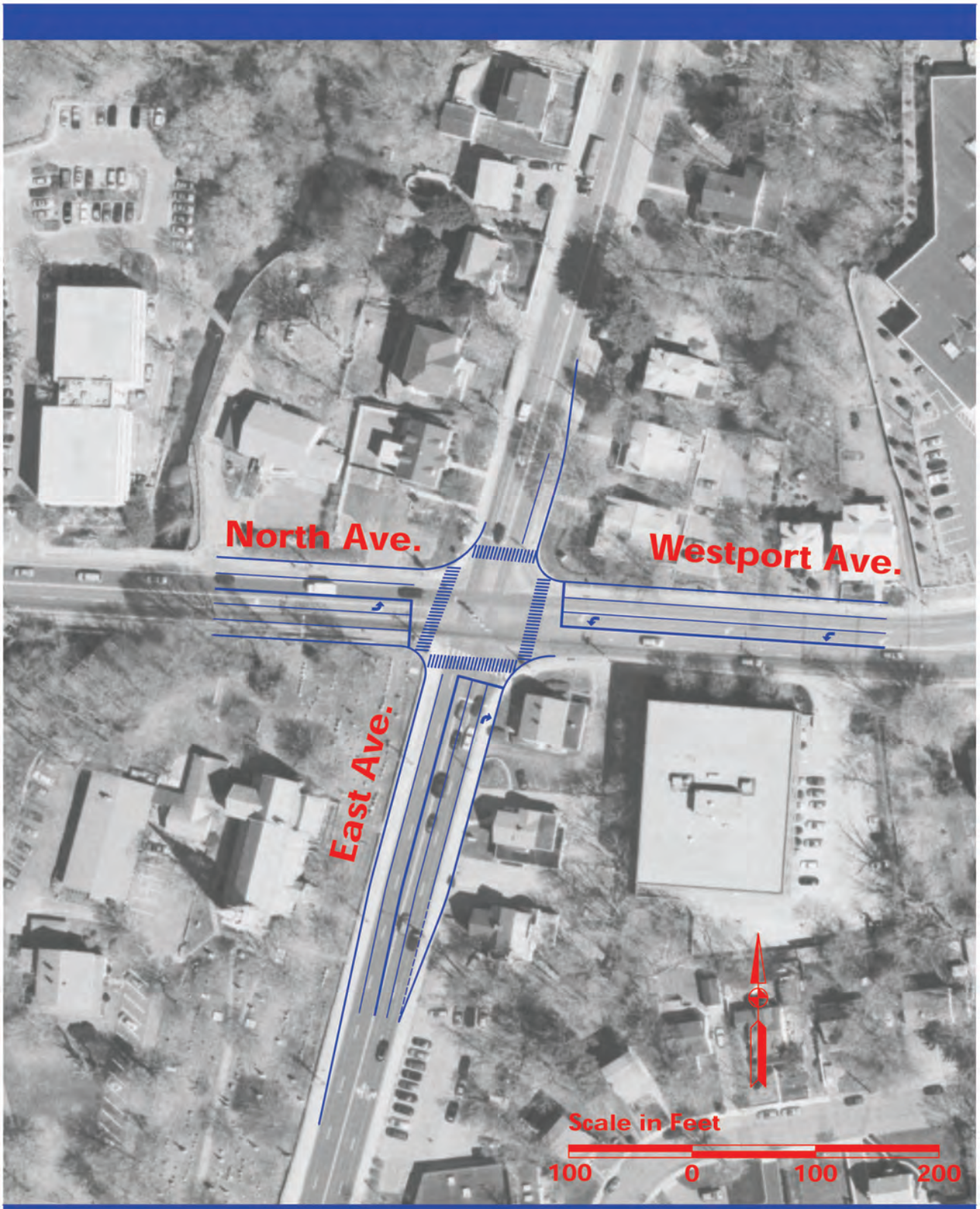

Figure C.21 Schematic Improvements at Westport Ave. and East Ave.
2016 Plan Conditions Excluding Redevelopment of Stop & Shop Site

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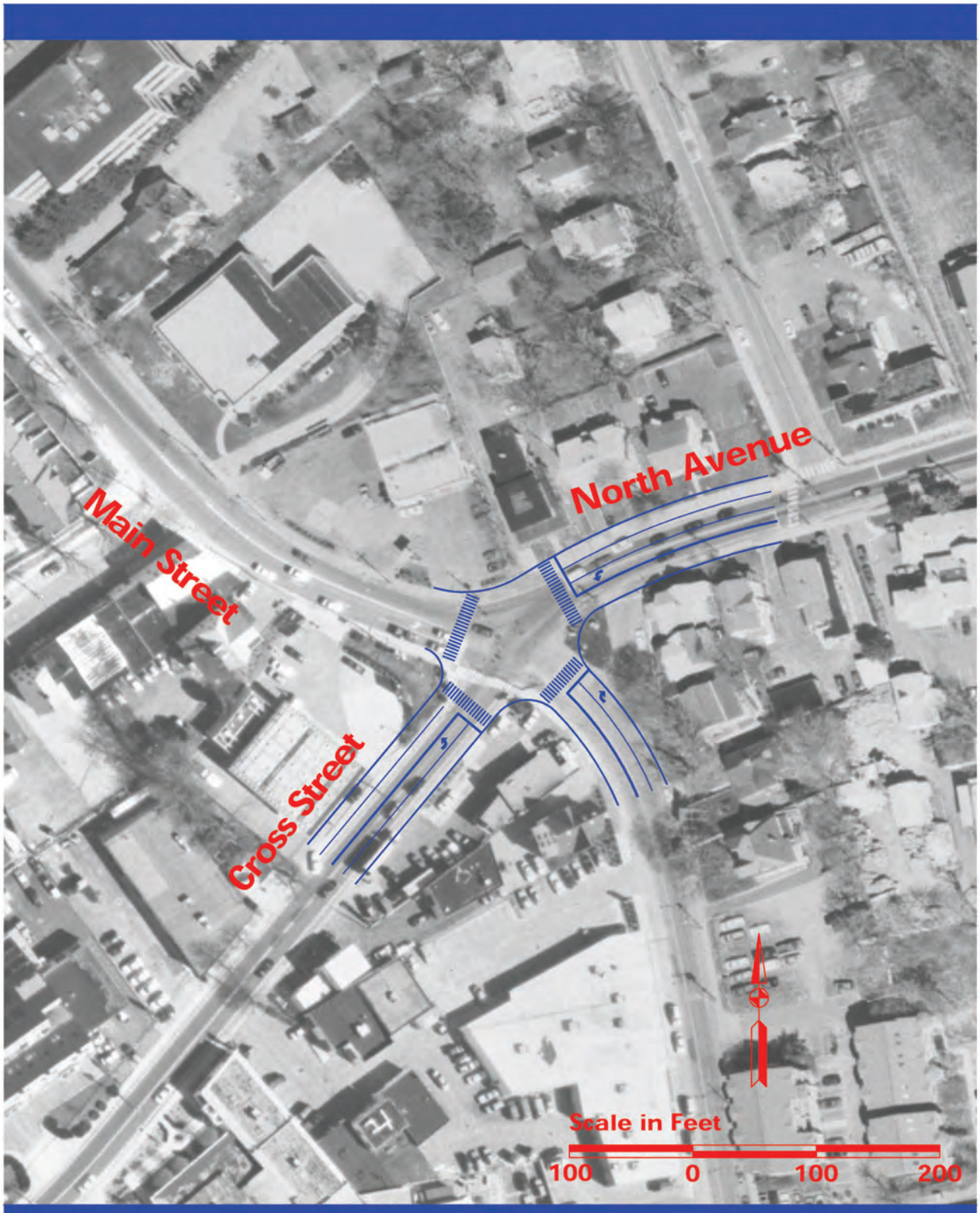

Figure C.22 Schematic Improvements at North Ave. and Main St.
2016 Plan Conditions Excluding Redevelopment of Stop & Shop Site

PPSA VOLLMER

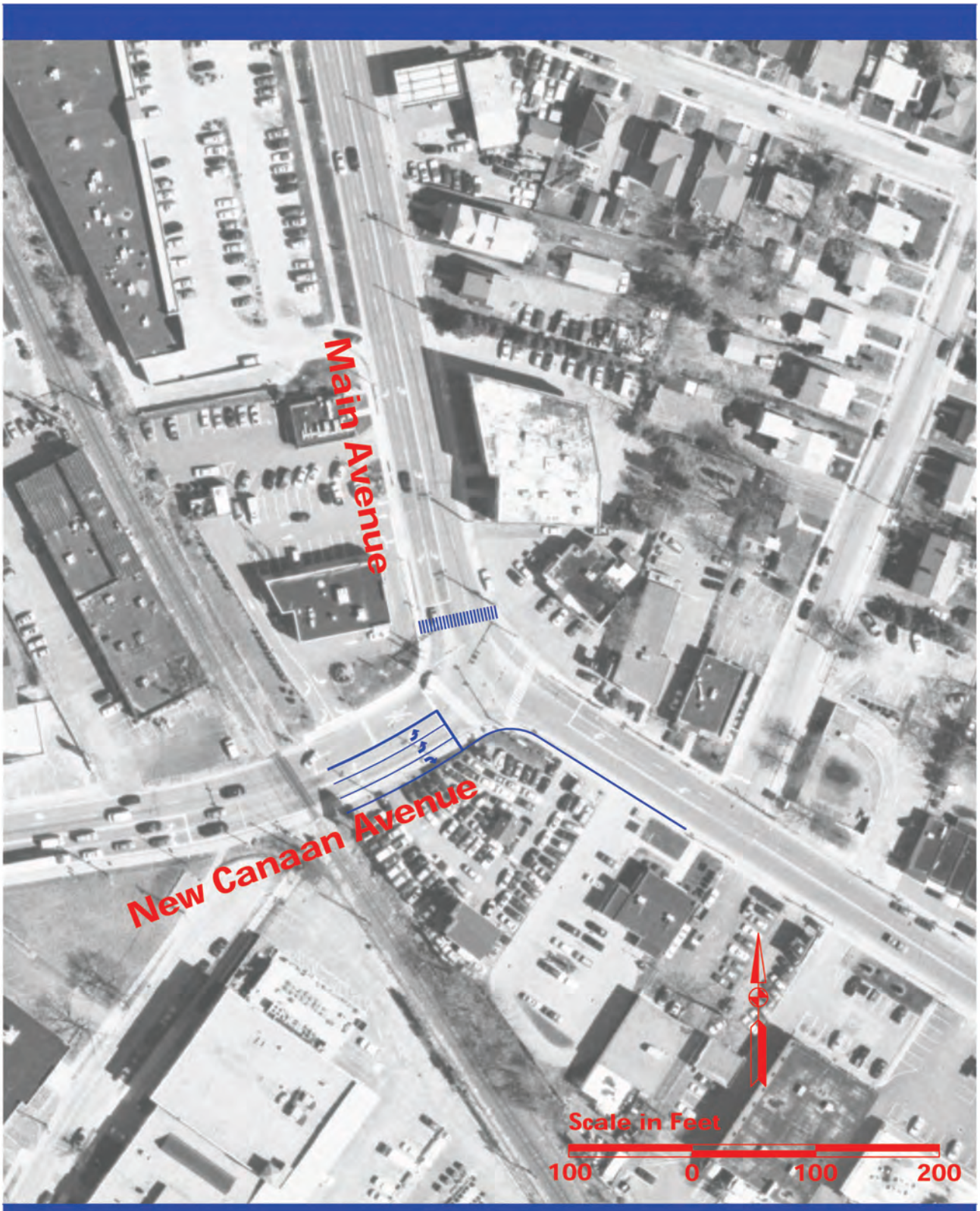

Figure C.23 Schematic Improvements at New Canaan Ave. and Main Ave.
2016 Plan Conditions Excluding Redevelopment of Stop & Shop Site

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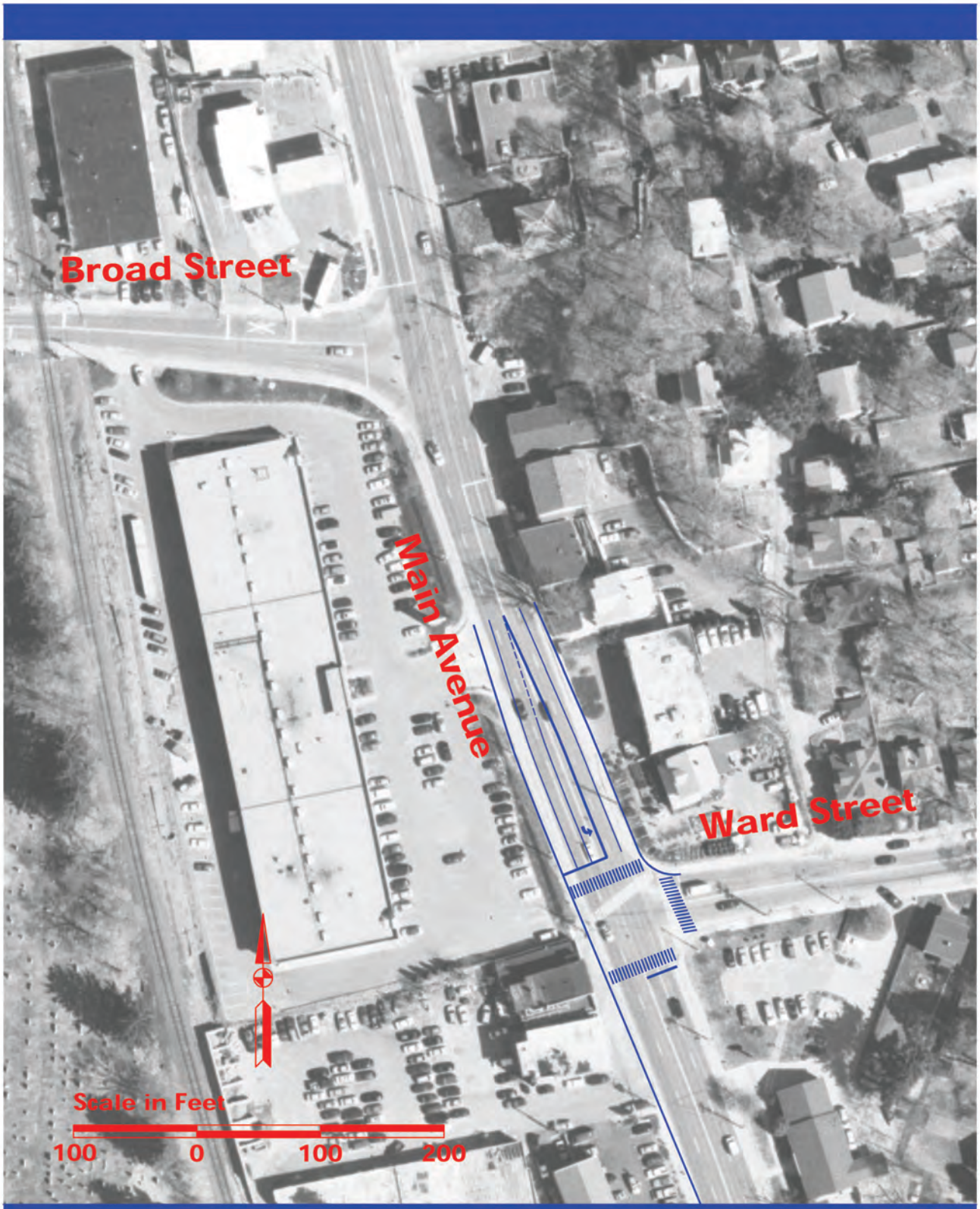

Figure C.24 Schematic Improvements at Ward St., Broad St. and Main Ave.
2016 Plan Conditions Excluding Redevelopment of Stop & Shop Site

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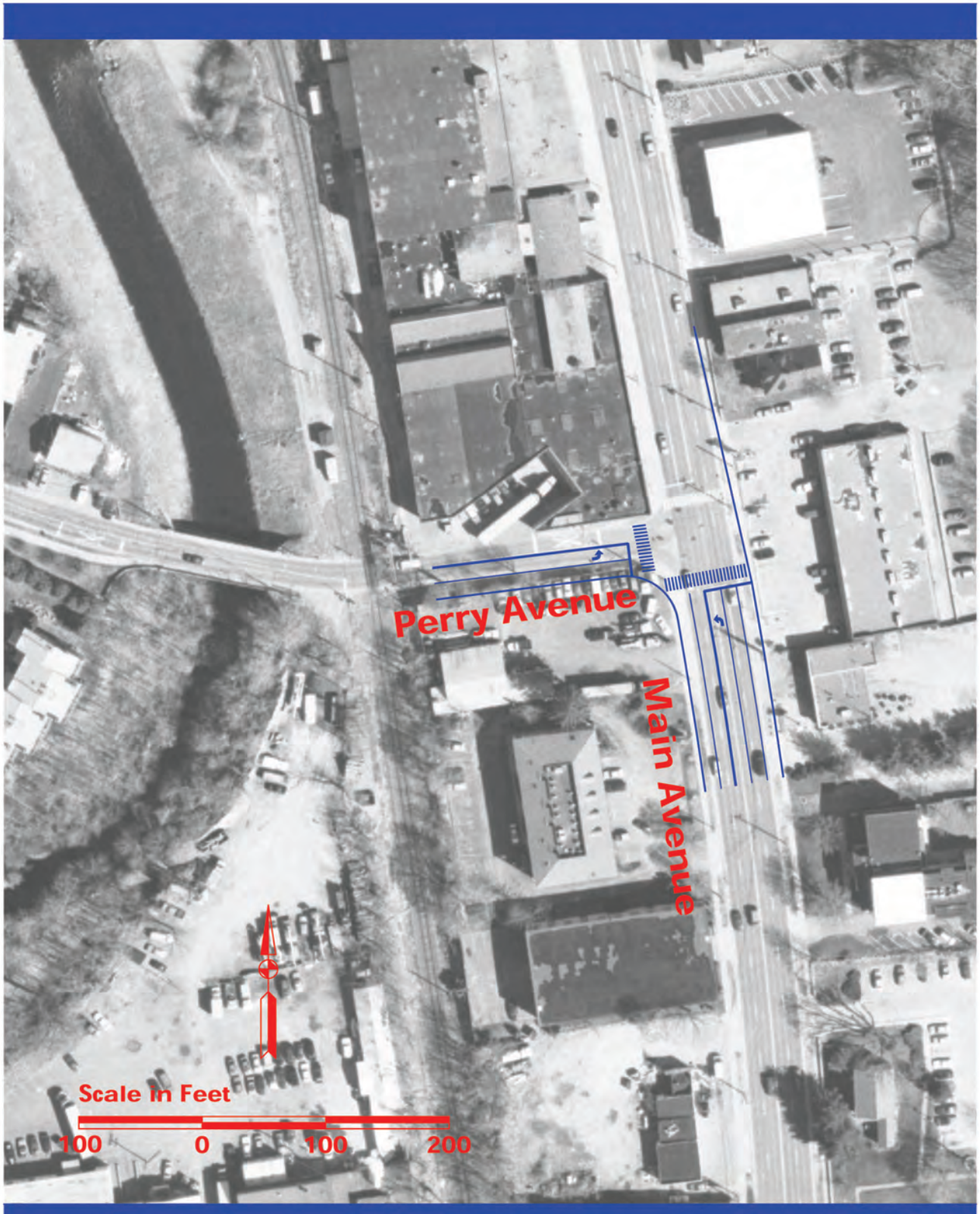

Figure C.25 Schematic Improvements at Perry Ave. and Main Ave.
2016 Plan Conditions Excluding Redevelopment of Stop & Shop Site

PPSA VOLLMER