FINAL REPORT

Downtown Study Framingham, MA

Submitted by:

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FRAMINGHAM DOWNTOWN STUDY
FINAL REPORT

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Prepared for: Town of Framingham

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1.0 BACKGROUND

1.1 Study Area Overview

The Framingham Downtown area is an important regional center for transportation services, commercial activities and government offices and services. The Study Area boundaries for Downtown Framingham are shown on **Figure 1-1**. The built environment reflects the historic nature of the Downtown through small parcels and two to four story brick commercial buildings with zero setbacks located along the main commercial corridor. Behind the main commercial corridor are residential neighborhoods and secondary commercial and civic spaces. These construction features create a dense building fabric that is consistent with traditional urban centers of that era.

The Downtown is located at the intersection of two regional vehicular transportation corridors, Route 126 and Route 135, with various secondary roads that connect Routes 126 and 135 to the surrounding neighborhoods. Additionally there are two rail services that run through the Downtown area, CSX and the MBTA. The Boston Mainline tracks which run parallel to Route 135 create a significant physical divide between the north and south areas of the Downtown. Downtown Framingham has an MBTA commuter rail station and there are three CSX rail yards located in close proximity to the Downtown. Traditionally, the rail lines were an economic resource that drove many of the local businesses and much of the regional economy. They now, however, provide less economic benefit to Downtown Framingham, while the several grade crossings compound the significant traffic congestion issues that persist in the study area.

Downtown Framingham has a high volume of pedestrian activity due to the presence of the MBTA commuter rail station on Waverly Street and the concentration of commercial and civic uses. The pedestrian environment is dominated by the character of the historic buildings that line the main commercial corridor. While the sidewalks and crosswalks throughout the planning area are in good overall condition, streetscape elements, such as decorative brick patterns and street trees, are inconsistently applied to the main streets throughout the Downtown. Also, there is little streetscape applied to the secondary streets in the Downtown area that run through residential neighborhoods and secondary commercial areas. Open space areas in the Downtown are limited to: Memorial Square, located in front of the Town Hall; the Downtown Common, located at the corner of Concord and Park Streets; and a “pocket park” at the southeast corner of Irving and Hollis Streets. While these open spaces are well designed with trees, benches, brick pavers and other streetscape elements for pedestrian enjoyment, they only account for a small amount of open/green space in an otherwise physically imposing urban environment.

Based on land use and urban design characteristics, Downtown Framingham has several subdistricts. These subdistricts include the Cultural Triangle, two historic districts, residential clusters and special character areas. The **Cultural Triangle** is the area north of Town Hall that includes such civic elements as the Town Hall, The Public Library, The Danforth Museum and the Police Department Headquarters. This area represents Framingham’s center of municipal and civic activity. The **Concord Square and Irving Square Historic Districts** are

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Figure 1-1
Study Area Boundaries

located on either side of Route 135 and attest to the quality of the historical architecture that is present throughout much of Downtown Framingham. The residential clusters within the planning area are primarily located to the east of Concord Street and to the south of the Hollis and Irving Street intersection. These residential clusters reveal the traditional growth and development patterns of the area and directly contribute to the downtown's vitality and success. Other subdistricts of special character include the **Dennison Triangle**, which features renovated industrial building converted to mixed-use, and the **Downtown Common area** which, with the combination of one of the only open green spaces in the Downtown and the Armenian Church of the Holy Translators, presents an important and distinct variation in the built environment.

According to the GIS Data received from the Assessor's Office, the Downtown Framingham Study Area has a land area of 126.83 acres and a total of 2,355,372 square feet of finished building area. Based on this set of information, the planning area has a **Floor Area Ratio** (F.A.R.) of **0.43**, which is consistent with traditional urban town centers. The predominant land uses in Downtown Framingham are commercial, governmental and residential. Commercial uses account for 41% of the finished building area, while residential uses account for 26% and government and charity uses account for 23% of the finished building area in the downtown. **Table 1-1** shows building use data in greater detail. This breakdown indicates a strong and balanced existing mixed-use downtown and reflects the area's commercial and civic traditions.

Table 1-1 - Existing Land Use Breakdown

Use Type	Finished Area	Land Area	Percentage
Mixed Use	215,063	8.19	9.13%
Residential	613,480	29.27	26.05%
Commercial	957,758	52.58	40.66%
Industrial	26,164	1.81	1.11%
Governmental/Charitable	542,907	34.25	23.05%
Other	0	0.73	0.00%
TOTAL	**2,355,372**	**126.83**	**100%**

1.2 Project History

The Route 126 (Concord Street) intersection with Route 135 (Waverley Street) has experienced significant delays for vehicles and pedestrians for decades. These delays cascade throughout much of the Downtown on a regular occurrence. While delays related directly to the intersection's operations are excessive, matters are further exacerbated by service interruptions created by the adjacent at-grade railroad crossing of Route 126, just to the north of Route 135. This bothersome condition has existed for over 100 years. In fact, reviews of previous reports indicate that the first study to examine solutions to this congestion was conducted in the year 1898, followed by an additional 35 to 40 reports since.

The most immediate report, prior to this study, was the 1997 Route 126 Corridor Study, prepared by Rizzo Associates. The recommendation from this 1997 report

was for a Route 126 underpass of Route 135 and the Rail Corridor. While this alternative has received some support in the past, many have since recognized that required depressed roadway sections on each side of Route 135 would create a physical barrier between the east and west sides of Concord Street, directly in the Downtown. This feature would likely result in negative impacts to the Downtown, both in terms of traffic movement, pedestrian mobility, as well as potential for redevelopment opportunities and economic growth.

The Town subsequently created a Downtown Rail Committee (DRC) in 2005, which was charged with assisting in the development of transportation improvements to address the Route 135/Route 126/at-grade rail crossing location. The DRC considered several alternatives and then selected four for further examination as part of this study (see the next section, DRC Alternatives).

The Phase 1 of this current study effort was a comprehensive evaluation of existing conditions. Findings were summarized in a three-volume report, dated March 2008. These volumes focused on transportation/traffic operations, urban design/land use conditions and market analysis, respectively. These Phase 1 reports served as the basis upon which findings and recommendations described in this report were developed.

The efforts of the Consultant Team were overseen by Steering Committee established by the Town and consisting of Town professionals, who provided guidance and direct participation in the process.

1.3 DRC Alternatives

The DRC is comprised of Town officials and interested residents and business owners who, through considerable time and energy, formed a range of transportation concepts for the Downtown. These ranged from bypass alignments to grade separations. These concepts were ranked by the DRC and were condensed to four to be assessed in this study. The total range of alternatives considered by the DRC is shown in **Figure 1-2**. The four selected for further assessment in this study are described below.

- Alternative 1: Grade Separation of Route 126 Under Route 135 and the Rail Tracks
- Alternative 2: Grade Separation of Route 135 Under Route 126
- Alternative 3: East Bypass – Loring Drive Alignment
- Alternative 4: Far East Bypass – New Alignment

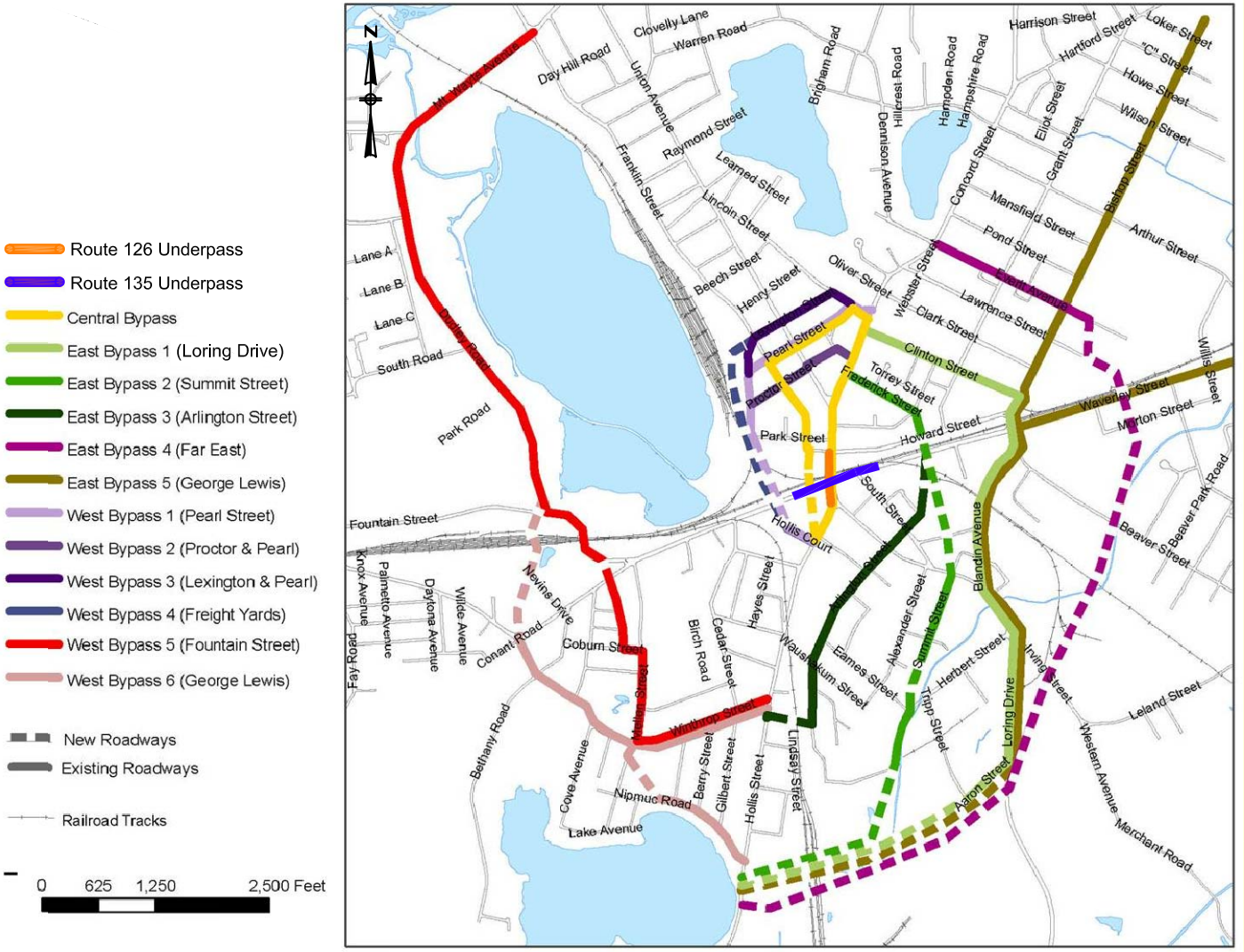

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Figure 1-2
DRC Alternatives

2.0 TRANSPORTATION ALTERNATIVES

This section presents the analysis of transportation alternatives within the Downtown study area.

2.1 Methodology

The assessment of the DRC's four selected alternatives followed a two tiered approach. First, the alternatives were screened and evaluated based on prevailing physical and environmental constraints. Alternatives passing the tier-one evaluation were then evaluated based for impacts to traffic operations.

2.2 Tier-One Evaluations - Physical and Environmental Constraints

Tier-one assessments included a review of physical and geometric constraints and potential environmental impacts such as impacts to wetland resource areas, park land, properties, and access issues.

Base plans for these assessments were compiled from the Town of Framingham's GIS database including edge of road, driveways, parking lots, pavement markings, parcel lines, storm drains, sanitary sewers and water lines. Plans also depicted existing contour lines at two foot increments. Field reviews were conducted to supplement the GIS data.

Where alternatives followed along existing roadways, assessments considered land use, turning radii, sight distance, existing railroad grade crossings, existing on-street parking, existing truck exclusions, and potential for construction of additional lanes.

Where alternatives would follow new alignments or where significant changes to existing roadway alignments would be required (as with the underpass options), the MassHighway Project Development and Design Guide (Guidebook) was used to establish approximate cross section widths. Exhibit 5.12 of the Guidebook provides widths for usable shoulders and Exhibit 5.14 provides travel lane widths for various classifications of roadways.

2.2.1 Alternative 1: Grade Separation of Route 126 Under Route 135 and the Rail Tracks

Route 135 and Route 126 are each classified as urban principal arterials. This alternative would provide a grade separated crossing at the intersection of Route 135 and Route 126. Route 126 would be depressed under Route 135 and the rail corridor. The depressed section of Route 126 would extend from approximately 550 feet north of Route 135 to approximately 450 feet south of Route 135. This alternative is presented in **Figure 2-1.**

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Figure 2-1
Alternative 1
Route 126 Under Route 135

The proposed cross section for a Route 126 Underpass would include two 11-foot travel lanes with four-foot shoulders to conform to the minimum requirements, shown in Exhibits 5-12 and 5-14 of the Guidebook for arterial roadways. In addition to the roadway, retaining walls would be required on both sides of the roadway. The remaining space within the cross section would be used for sidewalks and/or ramps connecting Route 126 with Route 135. Profiles for the underpass were developed using a minimum vertical clearance of 16.5 feet as shown in Exhibit 4-28 of the Guidebook, a maximum vertical grade of 6.00 percent, and a design speed of 35 miles per hour.

The cross section of Route 126 would be constrained by existing buildings on each side of the roadway between Howard Street and Route 135. The available distance from face-of-building to face-of-building is approximately 80 feet. The proposed cross section in this area would include a 30-foot pavement section; two three-foot thick retaining walls; two 16-foot, one-way, one-lane ramps; and two six-foot sidewalks at-grade on Route 126. The ramps would allow connections from Route 135 to northbound Route 126 and from southbound Route 126 to Route 135. This cross section requires the total available width of approximately 80 feet.

South of Route 135, the proposed depressed section would extend past the Irving Street intersection. South of Irving Street, the available cross section would be constrained to 64 feet by existing buildings on each side of Route 126. The proposed cross section in this area would include a 30-foot pavement section; two three-foot thick retaining walls; one 16-foot wide, one-way, one-lane northbound ramp connection to Route 135; and a minimum six-foot sidewalk on each side, for a total of 64 feet. Irving Street at the intersection with the northbound ramp would be restricted to right turns only.

A proposed bridge structure would carry both Route 135 and the Boston Mainline tracks over Route 126.

Construction of this alternative would be complicated by the need to place the Boston Mainline tracks on a new bridge structure over Route 126, while maintaining both commuter rail and freight service.

A summary of key issues associated with this alternative include:

- The grade separation would facilitate through traffic on Route 126 eliminating disruption by trains at Route 126.
- The required boat section for the underpass would extend beyond the Howard Street and Park Street intersections, north of Route 135, restricting access and egress from these roadways. The Irving Street approach to the ramp roadway would be restricted to right-turn only.
- Pedestrian connections across Route 126 would be impacted along Route 126. Pedestrian crossings of Route 126 would likely be limited to locations near Kendall Street, Route 135, and Gordon Street.
- On-street parking on Route 126 would be eliminated from Park Street to Gordon Street.

- One-lane ramp connections could be provided in three quadrants, allowing traffic to move from southbound Route 126 to Route 135, northbound Route 126 to Route 135 and Route 135 to northbound Route 126. Signalization of Route 135 at the ramps will likely be required to facilitate traffic operations.
- An Extension of Hollis Court would be required to allow an eastbound Route 135 connection to Route 126. Hollis Court Extension is discussed below in Section 2.2.1.1.
- Commuter rail and freight service would need to be maintained during construction, complicating bridge construction.
- Existing utilities on Route 126 and Route 135, including electric, gas, communications, water, and sewer would need to be addressed.
- Storm water issues at the low-point in the underpass would need to be addressed.

While physically feasible, depressing Route 126 under Route 135 presents significant constructability issues, would adversely impact the Downtown environment, and therefore appears undesirable.

2.2.1.1 Hollis Court Extension

An extension of Hollis Court would be required to allow the eastbound Route 135 connection to Route 126. This would extend Hollis Court on a new alignment from its existing terminus northerly, approximately 300 feet, to form a new T-intersection with Route 135. The new intersection would be opposite the existing driveway to the commuter rail parking lot, approximately 600 feet west of Route 126. The Hollis Court Extension would be required for Alterative 1 (Route 126 Underpass) and for Alternative 2 (Route 135 Underpass).

Hollis Court Extension would pass through an existing parking area and between two existing buildings (a plumbing supply store and an auto parts store) located at the northerly end of the existing Hollis Court. Several parking spaces on the easterly side of the plumbing supply store may have to be eliminated. Access to loading bays located on the east side of the plumbing supply store would have to be accommodated.

The Hollis Court Extension approaches to both Route 126 and Route 135 would require two lanes. These intersections would likely require signalization.

The existing pavement width on Hollis Court is approximately 27 feet, with a 35-foot right of way.

Two possible cross sections were evaluated to assess the potential impacts of a Hollis Court Extension:

- Four-lane section from Hollis Street to Route 135 with one six-foot sidewalk.
- Two-lane section with expansion to separate left-turn and right-turn lanes at each intersection. A six-foot sidewalk would be provided on one side.

The total section width of the four lane section would be approximately 58 feet (four 11-foot lanes, two 4-foot shoulders, and one six-foot sidewalk). If sidewalk is desired on each side, then the cross section of approximately 64 feet, and would require property takings.

Maintaining the approximate curb line along the northerly edge of Hollis Court would require a partial taking of the gas station/garage parcel on the southwest corner of the Hollis Street/Hollis Court intersection. The taking would impact an isolated pump bay and part of the main building, including apparent office space and one garage bay. Alternately, if the southerly curb line (adjacent to the gas station/garage) were to be maintained, then the two existing buildings on the northerly side would need to be acquired/demolished. With either scenario, the auto parts store just north of the existing terminus of Hollis Court would need to be acquired and demolished.

The two-lane cross section (with added turning lanes at Hollis Street and Route 135) would reduce the overall footprint of the proposed roadway. The overall section width at the intersection approaches would be approximately 47 feet (three 11-foot lanes, two 4-foot shoulders, and one six-foot sidewalk). The proposed cross section would still require some land acquisition from the existing gas station/garage to avoid impacts to the existing buildings in the northeast quadrant of the Hollis Street/Hollis Court intersection and to allow for truck turning movements from Hollis Street to Hollis Court. The proposed alignment would impact an existing isolated pump bay, and would be at the face of the existing building. It is likely that the auto parts building would be impacted.

The four-lane section is recommended, as it would provide additional roadway capacity and it would provide for storage of queued turning vehicles at each traffic signal.

A summary of key issues associated with a Hollis Court Extension include:

- The Hollis Court Extension would provide “missing ramp” connections for Alternatives 1 and 2, as well as provide increased connectivity between Route 135 and Route 126.
- Land acquisitions would be required to accommodate a widened cross section for Hollis Court. These would likely include acquisition and demolition of the existing auto parts store and partial acquisition and possible partial demolition of the existing gas station/garage.
- The existing corner radii at Hollis Court and Hollis Street are substandard for a WB-40 design vehicle. Improvements would be needed to accommodate truck turning movements.

- Consideration should be given to consolidating the driveway openings for the gas station on the south side of Hollis Court.

2.2.2 Alternative 2: Grade Separation of Route 135 Under Route 126

This alternative would provide a grade separated crossing at the intersection of Route 135 and Route 126. Route 135 would be depressed under Route 126, with Route 126 approximately maintaining its existing alignment. The depressed section of Route 135 would extend from approximately 500 feet west of Route 126 to approximately 480 feet east of Route 126. The westerly limit of the depressed section would begin immediately east of a potential Hollis Court Extension. The easterly limit of the depressed section would be approximately 125 feet west of the existing at-grade crossing of the Framingham Secondary track.

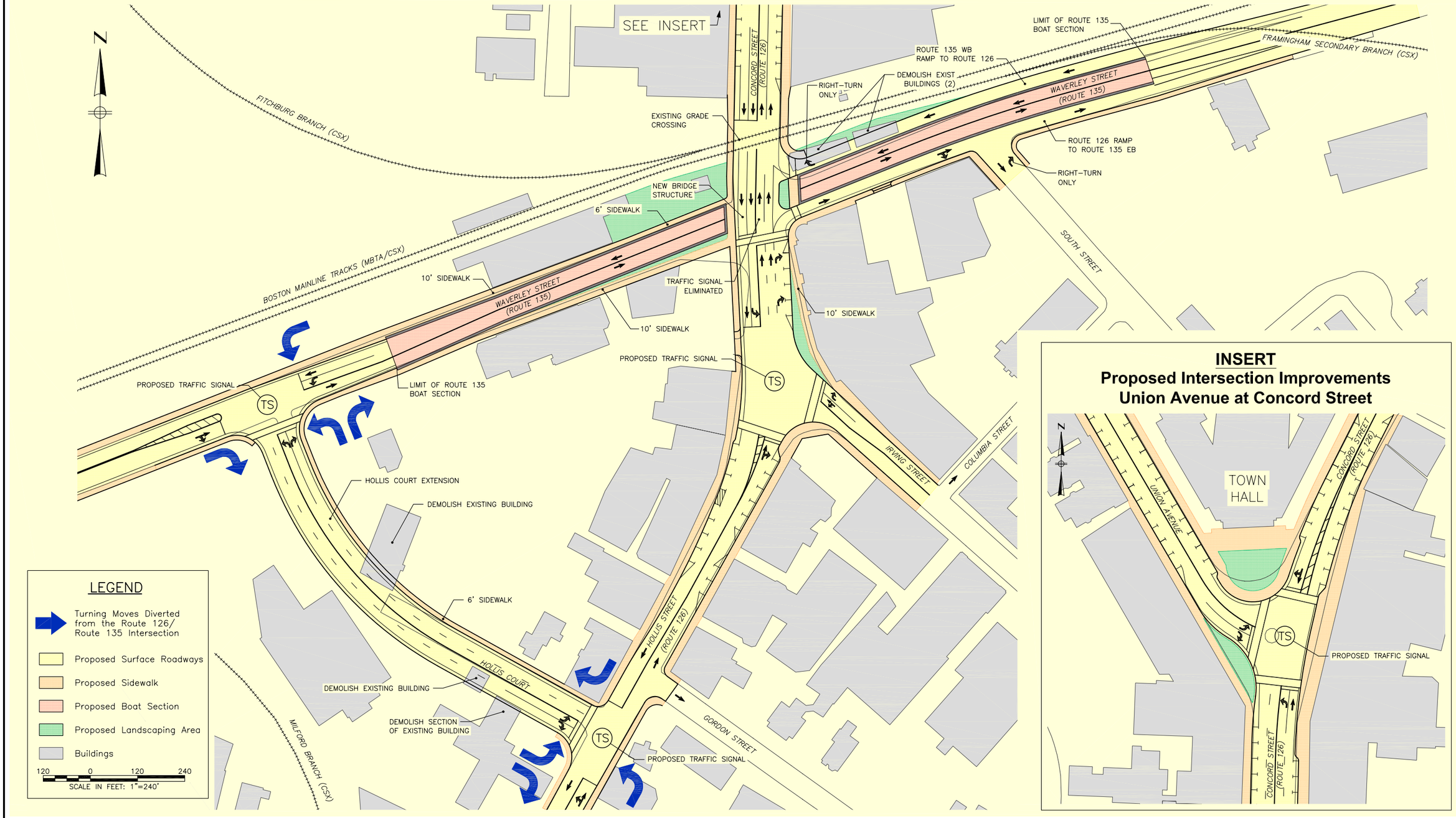
This alternative is presented in **Figure 2-2**.

The proposed cross section for a Route 135 Underpass would include two 11-foot travel lanes with 4-foot shoulders to conform to the minimum requirements shown in Exhibits 5-12 and 5-14 of the Guidebook. In addition to the roadway section, retaining walls would be required on both sides of the roadway. The remaining space within the section would be used for sidewalks and/or ramps connecting Route 135 with Route 126. Profiles for the underpass were developed using a minimum vertical clearance of 16.5 feet, as shown in Exhibit 4-28 of the Guidebook a maximum vertical grade of 5.27 percent, and a design speed of 35 miles per hour.

The available cross section would be constrained by existing buildings on both sides of the road west of the Route 126 intersection, including two buildings on the south side and the historic train station on the north side. The available distance from face-of-building to face-of-building is approximately 56 feet. Due to the existing constraints, the proposed cross section, west of the intersection, would be a 30-foot pavement section with two three-foot thick retaining walls and two 10-foot wide sidewalks at-grade on Route 135.

East of the intersection, three buildings on the south side of Route 135 directly abut the back of sidewalk. On the north side, two small buildings sit between Route 135 and the Boston Mainline tracks. The existing distance between the buildings is approximately 66 feet. In order to make a partial connection between Route 135 and Route 126, ramps were considered on Route 135, east of the intersection. These would consist of a 16-foot, one-way, one-lane ramp eastbound from Route 126 to Route 135 and a 16-foot, one-way one-lane ramp from westbound Route 135 to Route 126. The total cross section width would be approximately 74 feet, including three-foot thick retaining walls and a six-foot sidewalk on the south side. Provision of ramps to the east of the intersection would require acquisition and demolition of the two small buildings between Route 135 and the railroad corridor.

Ramp connections between Route 135 and Route 126 would be provided on the east side of the intersection. These ramps would operate as right-in and right-out movements. The eastbound on-ramp to Route 135 would



INSERT
Proposed Intersection Improvements
Union Avenue at Concord Street

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Figure 2-2
Alternative 2
Route 135 Under Route 126

extend past South Street creating a right in/right out restriction at South Street. Side streets beyond the immediate vicinity of the intersection would be used to provide connections from eastbound Route 135 to Route 126 and from Route 126 to westbound Route 135. This would include the extension of Hollis Court, as discussed above in **Section 2.2.1.1 - Hollis Court Extension**. New signals would likely be required at the Route 126/Hollis Court and Route 135/Hollis Court Extension intersections.

Other proposed improvements along Route 126 beyond the intersection are:

- Geometric improvements and new traffic signal at Route 126 and Irving Street
- Maintain existing traffic signals at Route 126 and Howard Street
- Geometric improvements and new traffic signal at Route 126 and Union Avenue.

A summary of key issues associated with the Route 135 Underpass alternative include:

- A grade separation would facilitate through traffic on Route 135.
- Pedestrian connections between Downtown sections, north and south of Route 135, would be enhanced.
- The existing at-grade crossing of the Boston Mainline track would remain on Route 126.
- A Hollis Court Extension would be required for connections from eastbound Route 135 to Route 126 and from Route 126 to westbound Route 135.
- Land acquisitions would be required to accommodate Hollis Court Extension. These would likely include acquisition and demolition of the existing auto parts store and acquisition and possible partial demolition of the existing gas station/garage.
- Land acquisitions would be required to accommodate ramps along Route 135 east of Route 126. These would likely include acquisition and demolition of the existing buildings located between Route 135 and the Boston Mainline tracks.
- Existing utilities on Route 135, including water and sewer, would need to be addressed.
- Storm water issues at the low-point in the underpass would need to be addressed.

The alternative of depressing Route 135 under Route 126 is feasible from a physical and geometric aspect. It will provide the benefit of uninterrupted traffic flow on Route 135, while enhancing pedestrian connections across the intersection. Direct ramp connections can be accommodated on the east side of the intersection.

Based on the physical feasibility of this alternative and the potential benefits to traffic flow and safety, this alternative warrants further development.

2.2.3 Alternative 3: East Bypass – Loring Drive Alignment

This would be a bypass alignment intended to allow through traffic on Route 126 to bypass the congested area in Downtown Framingham, without compromising access for local traffic to the Downtown. This alternative is shown in **Figure 2-3**.

From the west, the alignment would begin on Hollis Street (Route 126), in the vicinity of its intersection with the access drive to the CSX Automobile Facility adjacent to the CP rail yard. It would then head east crossing the yard tracks. The alignment would then enter a partially wooded area, crossing a stream and adjacent wetland, west of the General Motors (GM) parcel. It would then continue through the westerly end of the GM parcel parking lot and pass just north of an existing building. The alignment would then intersect Loring Drive, approximately opposite the drive to the MCI Framingham parking lot. The alignment would continue northerly on the existing Loring Drive alignment to Irving Street. From Irving Street it would run on Blandin Avenue to the Beaver Street intersection, where it would then cross Route 135 at an existing signalized intersection. The bypass would continue across the existing at-grade crossing of the Boston Mainline tracks to Bishop Street, turn left onto Everit Avenue, and connect to Route 126. The total distance of the East Bypass alignment would be approximately 10,500 feet, nearly 2,700 feet longer than the existing path along Route 126 alignment.

Three potential points on Hollis Street were considered to begin the bypass alignment, an extension of Bates Road, the CSX Automobile Facility, and an extension of Andrews Street. Both Bates Road and Andrews Street are residential roads. The CSX facility has a controlled access drive. A new roadway through the CSX facility would bisect the existing parking lot and would complicate controlled access, although the CSX facility is currently inactive.

A new alignment from Hollis Street would need to cross the existing CP Yard tracks. It is expected that a grade separated crossing would be required, either passing under the tracks or over the tracks.

The area between the rail yard and the General Motors property would likely involve crossing an existing stream and associated resource areas. The extent of the impacts to resource areas would need to be evaluated to determine the level of permitting required.

Acquisition of a portion of the GM parcel parking lot would be required to develop the bypass route up to its intersection with Loring Drive. Loring Drive, Irving Street, Blandin Avenue and Beaver Street are two-way, two-lane roads. Land use along this part of the bypass alignment is generally a mix of commercial and industrial land uses. There are existing traffic signals at the intersections of Irving Street/Blandin Avenue and Route 135/Beaver Street, and an existing at-grade crossing of the Framingham Secondary on Blandin Avenue. Geometrically, the alignment of Loring Drive, Irving Street, Blandin Avenue and Beaver Street could support a two-lane bypass. Improvements would likely be required at the intersection of Blandin Avenue/Beaver Street to accommodate increased northbound left turns and at the intersection of Irving Street/Blandin Avenue to accommodate increased southbound left turns.

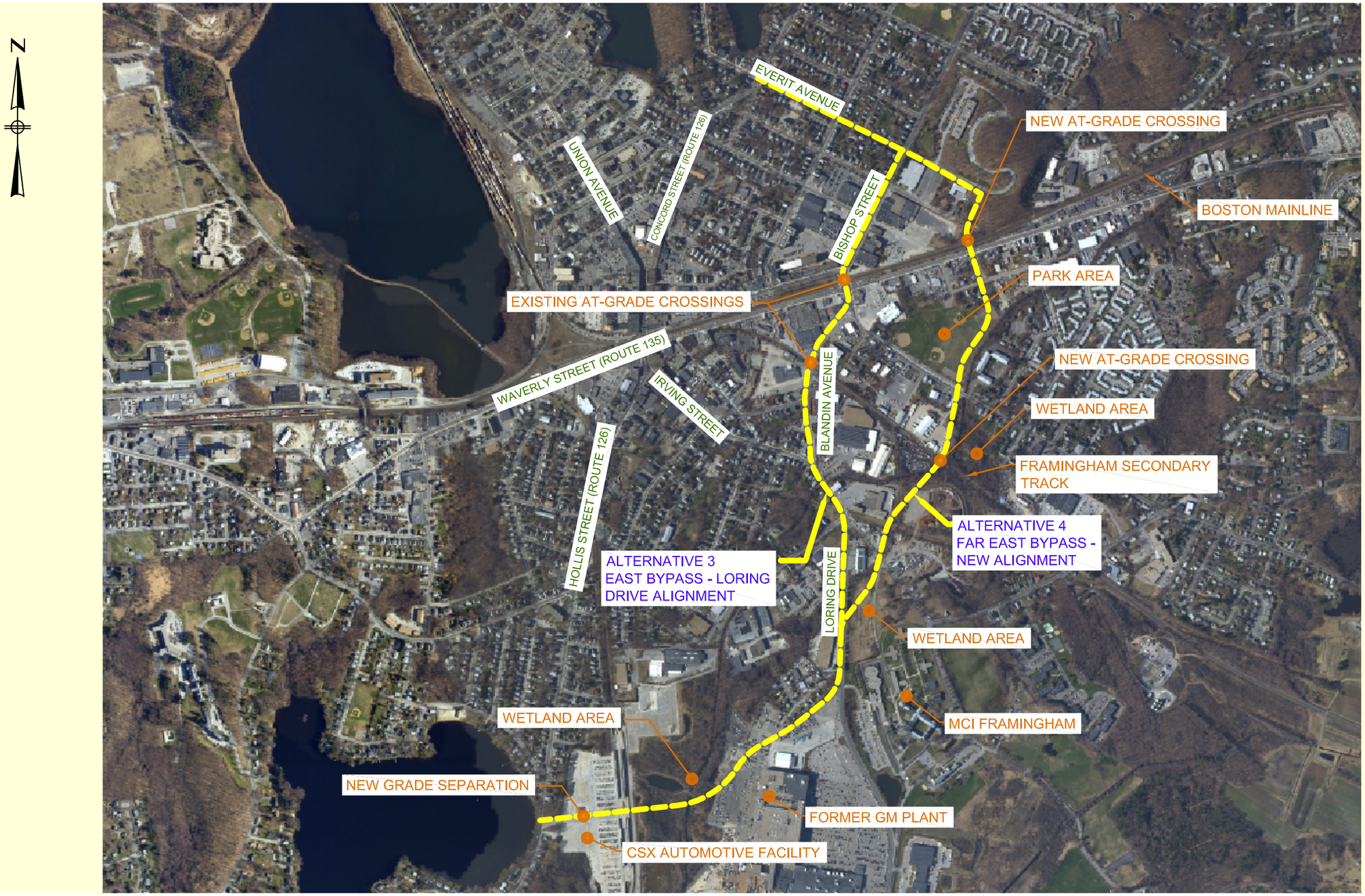

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Figure 2-3
Alternatives 3 and 4
East and Far East Bypasses

North of Route 135, Bishop Street is a two-lane, two-way road with a surrounding land use that is generally commercial/industrial. Everit Avenue is a residential street from its intersection with Bishop Street to Concord Street. There is a posted truck exclusion on both Bishop Street and Everit Avenue. The corner radii for traffic turning right from Everit Avenue to Concord Street may need to be improved to accommodate a WB-50 design vehicle. There appears to be sufficient right of way width to accomplish this.

A summary of the key issues associated with the Loring Drive Bypass alignment include:

- New signalized intersection at Hollis Street/Bypass Road.
- Impacts to existing neighborhood roadways (Bates Road or Andrews Road) or to the existing CSX Automobile Facility for a new alignment.
- Impacts/costs related to new grade-separated crossing of the CSX Automobile Facility tracks. Does not eliminate any at-grade crossings.
- Environmental resource area impacts along the alignment west of the GM parcel.
- Property acquisition for crossing through the GM parking lot and a new (signalized) intersection at Loring Drive.
- May need to modify Irving Street/Blandin Avenue intersection to accommodate increased southbound left turns.
- May need to modify Beaver Street/Blandin Avenue intersection to accommodate increased northbound left turns.
- May need to modify the existing grade crossing at the Framingham Secondary to include full gates/signals due to increased traffic volume.
- Complex intersection at Blandin Avenue/Beaver Street/Route 135/Howard Street/Bishop Street combined with at-grade crossing of the Boston Mainline tracks. Additionally Bishop Street has a posted truck exclusion.
- Connection to Concord Street (Route 126) via Everit Avenue would be through a residential neighborhood. Everit Avenue also has an existing truck exclusion.
- Additional traffic volume would be added to the existing Beaver Street/Blandin Avenue/Waverley Street/Howard Street/Bishop Street intersections, which could degrade already over capacity conditions.

The Loring Drive Bypass alignment would follow a partially new alignment, combined with, several existing streets. The alignment would be somewhat circuitous, requiring several turns to follow the bypass. In addition, it would have potential environmental impacts, such as, stream and wetland crossings; impacts to existing residential neighborhoods; land acquisitions; and would require a new grade separated crossing of the CSX Automobile Facility. The number of potentially negative impacts suggests that the Loring Drive Bypass alignment does not warrant further development.

2.2.4 Alternative 4: Far East Bypass – New Alignment

This would be bypass alignment intended to allow through traffic on Route 126 to bypass the congested area in Downtown Framingham without compromising access for local traffic. The bypass alternative generally follows a new alignment, south of Route 135 and connects with the existing roadway network north of Route 135. This alternative is also shown in **Figure 2-3**.

From the west, the alignment begins on Route 126 in the vicinity of its intersection with the access drive to the CSX Automobile Facility adjacent to the CP rail yard. It then heads east crossing the yard tracks. The alignment then enters a partially wooded area, crossing a stream and adjacent wetland west of the General Motors (GM) parcel. It then crosses through the westerly end of GM parcel parking lot and passes just north of an existing building and then intersects Loring Drive approximately opposite the drive to the MCI Framingham parking lot. To this point, this alternative runs on the same alignment as Alternative 3. The alignment then runs northerly on existing Loring Drive for approximately 700 feet, runs northeasterly on a new alignment for approximately 600 feet where it intersects Irving Street at approximately the location of the existing MCI Framingham access road. The bypass then crosses Irving Street and continues on a new alignment for approximately 1,800 feet crossing an existing stream and the Framingham Secondary tracks before intersecting Beaver Street. It continues on a new alignment across Beaver Street and through the southerly end of Dennison Park for approximately 1,100 feet to Morton Street, and then northerly on a new alignment for 250 feet to a new intersection at Route 135 and a new crossing of the Boston Mainline tracks. After crossing the tracks, the alignment would continue northerly on a new alignment for 500 feet to Clarks Hill, following the existing Clarks Hill alignment to Bishop Street and to Everit Avenue. It continues along the existing Everit Avenue alignment to Route 126. The total distance of the East Bypass alignment would be approximately 11,700 feet, nearly 3,900 feet longer than the existing Route 126 alignment.

This bypass alignment would follow the same route as the Loring Drive (Alternative 3) bypass alignment between Route 126 near the CSX Automobile Facility and Loring Drive. Accordingly, it would encounter the same issues regarding neighborhood impacts, and impacts to the CSX facility, as well as potential environmental issues associated with resource areas west of the GM parcel. As with the Loring Drive Bypass, acquisition of a portion of the GM parcel parking lot would be required to develop the bypass route to its intersection with Loring Drive.

Between Loring Drive and Waverley Street (Route 135) property acquisition would be required for approximately 3,700 feet of new roadway. Other potential impacts within this section include a stream crossing west of the Framingham Secondary track, a new crossing of the Framingham Secondary, acquisition of parkland in the Dennison Playground and potential impacts to businesses in the Morton Street area. The extent of the impacts to resource areas associated with the stream crossing would need to be evaluated to determine the level of permitting required. Coordination with the railroad would be required to determine whether a new at-grade crossing would be acceptable or whether a grade separated crossing would be required. The bypass alignment would

intersect Beaver Street near the southerly driveway for the Dennison Playground parking lot. The bypass would then cross Beaver Street and enter the playground. Acquisition of property within the Dennison Playground for a new street layout likely would involve Article 97 and possibly Section 4f parkland issues. Alternately, the alignment could follow Beaver Street northerly to Waverley Street (Route 135) and then follow the Loring Street Bypass alignment onto Bishop Street.

The crossing of Waverley Street (Route 135) and the two Boston Mainline tracks present a number of issues. An at-grade intersection would require a new traffic signal, as well as a new grade crossing of the Boston Mainline tracks. Given the existing, adjacent crossings at Concord Street (Route 126) and at Bishop Street, introducing a third at grade crossing would likely be problematic.

A grade separated crossing would also require additional right of way and could have significant grading impacts on the properties and businesses located between Waverley Street and Morton Street.

In addition to the Waverley Street crossing, new intersections would be created at Loring Drive, Irving Street and Beaver Street.

North of Waverley Street (Route 135) the bypass would connect with Clark Hills and turn westerly crossing Bishop Street onto Everit Avenue. As noted with Alternative 3, Everit Avenue is a residential Street with a posted truck exclusion.

A summary of the key issues associated with the New Alignment Bypass include:

- New signalized intersection at Hollis Road/ Bypass Road.
- Impacts to existing neighborhood roadways (Bates Road or Andrews Road) or to existing CSX Automobile Facility.
- Impacts/costs related to new grade separated crossing of the CSX Automobile Facility tracks.
- Environmental resource area impacts along the alignment west of the GM parcel.
- Property acquisition for crossing through the GM parking lot and a new (signalized) intersection at Loring Drive.
- Property acquisitions for the new alignment between Loring Drive and Irving Street, and a new intersection (signalized) at Irving Street and re-alignment of the MCI Framingham access road.
- Property acquisitions for the new alignment between Irving Street and Beaver Street, and a new (signalized) intersection at Beaver Street.
- A new stream crossing/resource area impacts on the new alignment between Irving Street and Beaver Street.
- A new crossing of the Framingham Secondary line. Does not eliminate any at-grade crossings.
- Property acquisitions for the new alignment through Dennison Park and extending to Waverly Street. Potential Article 97 and Section 4F park land issues.

- A new intersection at Waverley Street (Route 135) would likely require grade separation with associated right of way and grading impacts.
- Property acquisition for new alignment to Clarks Hill.
- Connection to Route 126 via Everit Avenue would be through a residential neighborhood. Everit Avenue also has an existing truck exclusion.

The New Alignment Bypass follows a new alignment connecting with Route 135 approximately 3,300 feet east of existing Route 126. The alignment has potential environmental impacts, parkland impacts, impacts to existing residential neighborhoods, and would require significant land acquisitions. In addition, new grade separated crossings would likely be required at the CSX Automobile Facility, the Route 135/Boston Mainline tracks and possibly at the Framingham Secondary tracks. The number of potentially negative impacts suggests that the New Alignment Bypass does not warrant further development.

2.3 Physical and Environmental Constraints Evaluation Summary

The alternatives included in this evaluation provide certain potential benefits to mitigating congestion within Downtown Framingham and, in particular, at the intersection of Route 135 and Route 126.

Additional considerations from an urban design perspective are:

- The location and length of depressed boat sections can have a significant impact on the urban design character, and the quality of the pedestrian environment along the traditional downtown commercial areas. These impacts need to be carefully assessed and evaluated as the planning for the future of the downtown continues.
- Change to the existing street alignments and frontages will affect the land use and urban design character of the adjacent properties.
- If land acquisition were contemplated as part of the process, the ability to compose new sites would affect the development potential of the resulting parcels.
- Alternative 1 would likely result in significant impacts to the urban design character and the quality of the pedestrian environment along Concord and Hollis Streets, due to the length of the proposed depressed boat section.
- Alternative 2 would minimize the negative impacts to the pedestrian-oriented retail uses and activities along Concord and Hollis Streets (particularly when compared to Alternative 1).
- The bypass alternatives, Alternatives 3 and 4, appear to have a number of issues related to negative environmental and neighborhood impacts that would preclude implementation of these alternatives.

2.3.1 Conclusion

Alternative 1 – The Grade Separation of Route 126 under Route 135 would facilitate north-south movements through the Downtown, but would

reduce local mobility within the Downtown. The required depressed boat sections would limit vehicular and pedestrian mobility on both sides of Route 135. The Downtown would be physically divided by the structure and would severely limit development opportunities, economic growth and chances to achieve an attractive Downtown atmosphere. **It is recommended that this alternative not be considered further.**

Alternatives 3 & 4 – The Bypass Alternatives present challenges related to physical constraints, property acquisition, environmental impacts and residential disruption, without improving traffic flow. Each of these routes would still require a signalized crossing of Route 135, either at the already-congested Dennison Crossing area, or at Clarks Hill to Everett Street, and an additional at-grade crossing of the CSX tracks. Further, each Bypass Alternative would connect north of Route 135 to a corridor with an existing truck exclusion. **Neither of these alternatives is recommended for further consideration.**

Alternative 2 – The Grade Separation of Route 135 under Route 126 would improve north-south movements through the Downtown, although not to the same degree as the Route 126 underpass because the at-grade rail crossing would still be in place. The Route 135 Underpass would, however, maintain local east-west mobility along Route 126 for vehicles and pedestrians. This alternative would also improve pedestrian connectivity between Downtown areas north and south of Route 135, while unlocking land parcels for development that could spur economic growth. Finally, right-of-way takings would be predominantly limited to non-residential areas. **This alternative is recommended for further transportation traffic evaluations.**

2.4 Tier Two Evaluations – Traffic Operations

Analysis of future traffic conditions first examined expected traffic flow conditions 20 years into the future without the transportation alternatives proposed by this Study. This is called the **No-Build Condition**. A level of traffic growth was accounted for in this analysis.

Another round of analysis was then done for the Future Condition, but with the proposed alternative included to represent the **Build Condition**.

The following thirteen intersections are included in the Study Area:

- Hollis Street at Irving Street (Route 126)
- Hollis/Concord Streets (Route 126) at Waverly Street (Route 135)
- Concord Street (Route 126) at Howard Street
- Concord Street (Route 126) at Union Avenue
- Concord Street (Route 126) at Lincoln Street
- Concord Street (Route 126) at Dennison Avenue/Everit Avenue
- Beaver Street at Blandin Avenue
- Bishop Street/Beaver Street at Waverly Street (Route 135)
- Bishop Street at Howard Street
- Bishop Street at Everit Avenue
- Waverly Street (Route 135) @ Cedar Street
- Hollis Street (Route 126) at Hollis Court
- Hollis Court Extension at Waverly Street (Route 135)

2.4.1 Traffic Volume Forecasts

The typical trend is for traffic volumes to grow over time. The two methods for forecasting future traffic volumes are: Background Traffic Growth, and New Land Use/Trip Generation.

2.4.1.1 Method 1 - Background Traffic Growth

A review of historic traffic volumes along Route 135 and Route 126 shows that traffic volumes have remained stable or even declined slightly at some locations in the Downtown over the past ten years. However, the potential exists (and the intent is) for development of vacant parcels or redevelopment of occupied parcels in the future within the study area. These land use changes will likely result in a greater number of vehicle trips in the future.

The Central Transportation Planning Staff (CTPS) has estimated a growth rate of **0.1%** per year in Downtown Framingham, to account for background growth and development. Accordingly, the background growth rate of **1%** was used for this method. This is viewed as a providing a conservative, planning level, estimate of background growth.

2.4.1.2 Method 2 - New Land Use / Trip Generation

Future traffic patterns within the Downtown area are dependant on the amount and nature of new developments, which may occur over the coming years. The potential development areas identified later in Section 3.4 - Identification of Key Properties, were used as the probable developments to occur within the Downtown. **Table 2-1** presents the developments and their associated land uses.

Table 2-1 - Land Use Data for Potential Developments

Development	Land Use		
	Residential (units)	Office (ft^2)	Commercial (ft^2)
Route 135 Triangle	178	53,000	27,000
CSX Triangle	0	240,000	0
North Yard	597	0	0
15 Blandin Avenue	84	0	0
121 Concord Street (The Arcade)	190	0	50,000
1 Grant Street (Dennison)	0	0	64,000
97 Franklin Street	29	0	0
TOTAL	**1,078**	**293,000**	**141,000**

Table 2-2 - Trip Generation Estimates for Potential Developments

Development	Land Use	AM Peak Hour Trips			PM Peak Hour Trips		
		Entering	Exiting	Total	Entering	Exiting	Total
Route 135 Triangle	**Residential**	14	68	82	64	32	96
	Office	99	14	113	23	115	138
	Commercial	43	28	71	130	135	265
	Total	156	110	266	217	282	499
CSX Triangle	**Residential**	0	0	0	0	0	0
	Office	333	45	378	59	289	348
	Commercial	0	0	0	0	0	0
	Total	333	45	378	59	289	348
North Yard	**Residential**	37	179	216	174	86	260
	Office	0	0	0	0	0	0
	Commercial	0	0	0	0	0	0
	Total	37	179	216	174	86	260
15 Blandin Avenue	**Residential**	8	37	45	35	17	52
	Office	0	0	0	0	0	0
	Commercial	0	0	0	0	0	0
	Total	8	37	45	35	17	52
121 Concord Street (The Arcade)	**Residential**	15	71	86	68	34	102
	Office	0	0	0	0	0	0
	Commercial	62	40	102	196	204	400
	Total	77	111	188	264	238	502
1 Grant Street (Dennison)	**Residential**	0	0	0	0	0	0
	Office	0	0	0	0	0	0
	Commercial	72	46	118	231	241	472
	Total	72	46	118	231	241	472
97 Franklin Street	**Residential**	3	16	19	15	7	22
	Office	0	0	0	0	0	0
	Commercial	0	0	0	0	0	0
	Total	3	16	19	15	7	22
TOTAL		**686**	**544**	**1,230**	**995**	**1,160**	**2,155**

2.4.1.3 Comparison of Traffic Volume Forecasting Methods

A cordon was drawn around the Downtown area to compare forecast results from the two methodologies. The number of trips entering and exiting the downtown cordon was estimated using the traffic volumes collected as a base for this study. Existing turning movement volumes are shown in **Figure 2-4** and the downtown cordon and the resulting volumes are shown in **Figure 2-5**.

Figure 2-4 shows that currently 4,312 trips enter and 4,407 trips exit the downtown area during the morning peak hour; and 5,364 trips enter and 5,809 trips exit the downtown area during the afternoon peak hour. These values are presented in **Table 2-3** and represent existing conditions. Using forecasting method one (1% per year, compounded annually for 20 years), gives the estimated number of total trips entering and exiting the cordon in the future. These values are also presented in **Table 2-3**. The future growth estimated by this method is 949 trips entering and 970 trips exiting during the morning peak hour, and 1,181 trips entering and 1,279 trips exiting during the afternoon peak hour. A summary of the estimated new trips determined by the two traffic forecasting methods is presented in **Table 2-4**.

Table 2-3 - Downtown Traffic Cordon Volumes

	Existing (2007)		Future* (2027)		Estimated Growth	
	AM	**PM**	**AM**	**PM**	**AM**	**PM**
Entering	4,312	5,364	5,261	6,545	949	1,181
Exiting	4,407	5,809	5,377	7,088	970	1,279

* Future volume based on Forecast Method 1 (1% per year for 20 years)

Table 2-4 - Summary of Traffic Forecasting Methods

	Total Trips Estimated				Percent Difference*	
	Background Traffic Growth Method		New Land-Use/Trip Generation Method			
	AM	**PM**	**AM**	**PM**	**AM**	**PM**
Entering	949	1,181	686	995	38%	19%
Exiting	970	1,279	544	1,160	78%	10%

* Background Traffic Growth Method vs. Land-Use/Trip Generation Method

The background traffic growth method has projected more trips entering and exiting the project study area during both peak periods. The Land-Use/Trip Generation method uses specific developments and specific trip generation rates as the basis for estimation. Other development opportunities in place of, or in addition to, these developments could also occur. For this reason, the more general and conservative background growth method was selected as the traffic forecasting method for this planning level study.

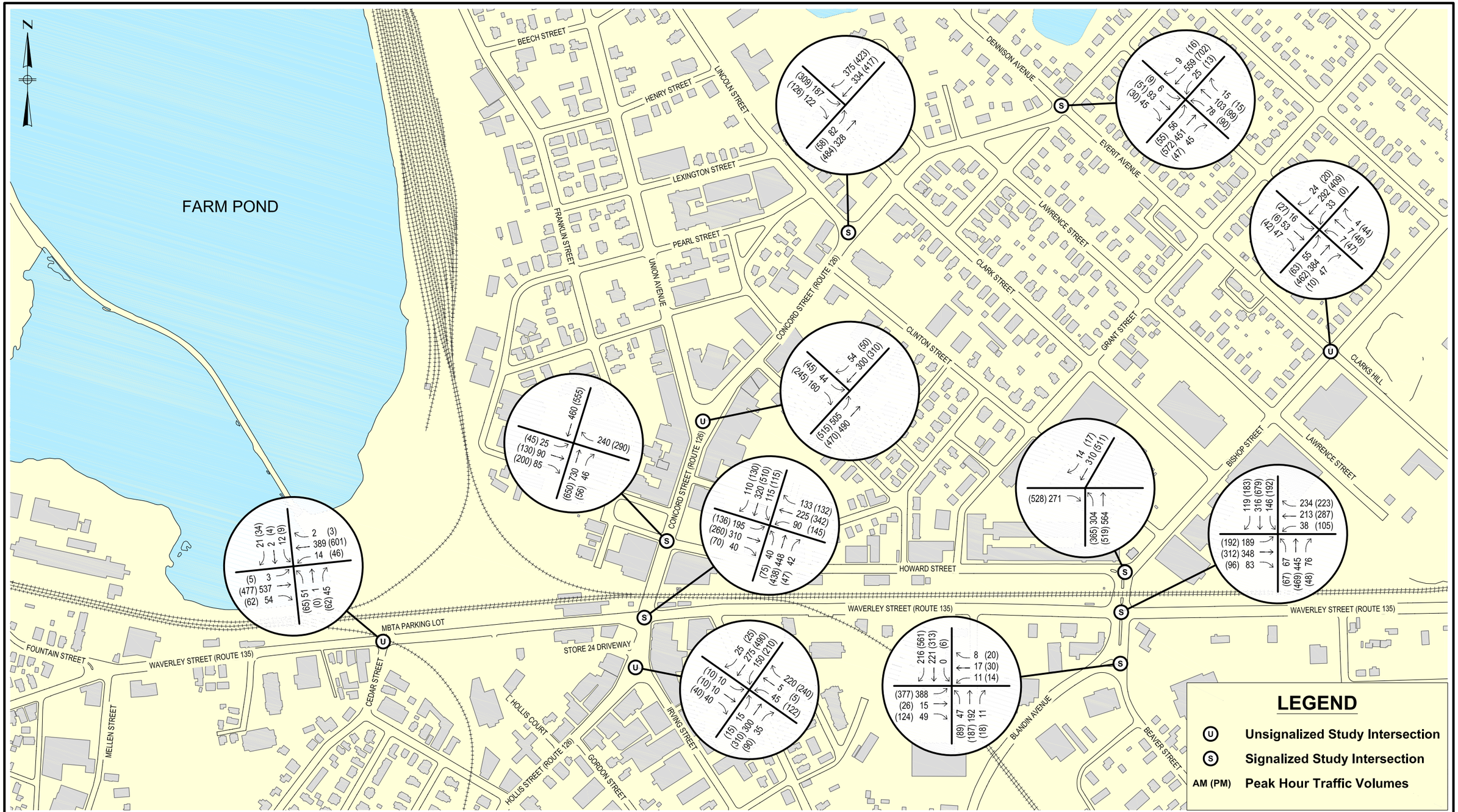

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Figure 2-4
Existing (2007)
Turning Movement Volumes

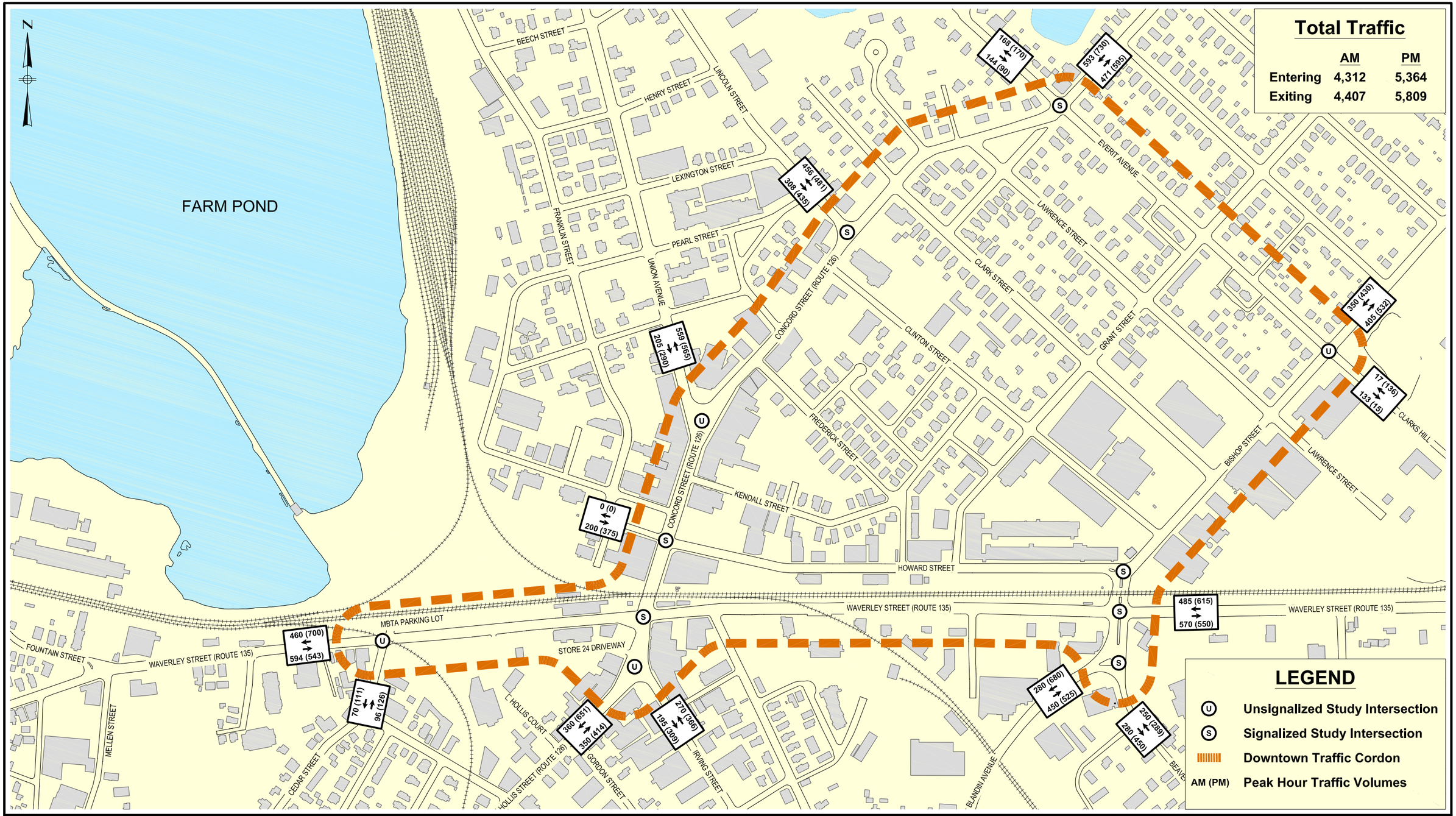

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Figure 2-5
Existing (2007)
Traffic Volume Cordon

2.4.2 Traffic Analysis Methodology

Intersection operations at the study intersections were evaluated using the SYNCHRO software package (Version 6, Build 614). This software package is based on methodologies contained in the 2000 Highway Capacity Manual. Traffic operations are defined by Level of Service (LOS), which is a qualitative measure that associates LOS with vehicle delays. The criteria for unsignalized intersections are different than for signalized intersections because drivers expect different performance levels from each type of intersection control. The relationship between LOS and delay is summarized in **Table 2-5**.

Table 2-5 - Vehicle Level of Service Criteria

LOS	Unsignalized Intersection Criteria Average Total Delay (Seconds per Vehicle)	Signalized Intersection Criteria Average Total Delay (Seconds per Vehicle)
A	< 10.0	< 10.0
B	10.1 to 15.0	10.1 to 20.0
C	15.1 to 25.0	20.1 to 35.0
D	25.1 to 35.0	35.1 to 55.0
E	35.1 to 50.0	55.1 to 80.0
F	> 50.0	> 80.0

Source: Highway Capacity Manual, Transportation Research Board; Washington, DC; 2000

2.4.3 Downtown Train Crossings

The initial rounds of analysis for the **Build** and **No Build Conditions** were completed without taking into account the effects of gate closures for train crossings. The Downtown is heavily affected by the at-grade rail crossings at Concord Street and Bishop Street, as well as the active Framingham Secondary Branch crossing of Route 135, east of Concord Street.

The following intersections would continue to be impacted by train crossings in the future:

- Hollis Street (Route 126) at Irving Street
- Hollis/Concord Streets (Route 126) at Waverley Street (Route 135)
- Concord Street (Route 126) at Howard Street
- Concord Street (route 126) at Union Avenue
- Bishop Street at Howard Street
- Bishop/Beaver Streets at Waverley Street (Route 135)
- Beaver Street at Blandin Avenue.

A 20 hour observation of train crossings (from 5:00 a.m. to 1:00 a.m.) of Concord Street was performed in November of 2007. This observation was made on a typical weekday to quantify the effects of gate closures for

train crossings. During this period, the gates were closed a total of 62 times for 41 commuter rail trains, 18 freight trains, two Amtrak passenger trains and one closure with no train. The total cumulative time of closure over the course of the 20 hours was 2 hours, and 30 minutes; approximately 12% of the 20-hour period. The gate closures during the peak hours are summarized in **Table 2-6**.

Table 2-6 - Gate Closure Summary

	Existing Conditions		Future Conditions	
	Morning Peak Hour	Afternoon Peak Hour	Morning Peak Hour	Afternoon Peak Hour
Commuter Train Crossings	4	4	8	8
Typical Duration of Closure (mm:ss)	2:03	1:45	2:03	1:45
Freight Train Crossings	1	2	1	2
Typical Duration of Closure (mm:ss)	4:19	1:20	4:19	1:20
Total Duration of Closure (mm:ss)	12:30	9:40	20:41	17:00
Typical Duration of Closure (mm:ss)	2:30	1:37	2:18	1:42

(mm:ss) = Minutes:Seconds

The gates were closed five times during the morning peak hour to allow four commuter trains and one freight train to cross for a total time of 12 minutes and 30 seconds or a typical closure of 2 minutes and 30 seconds. The typical duration of a commuter train closure during the morning peak hour was 2 minutes and 3 seconds; the typical closure was 4 minutes and 19 seconds for a freight train. **The total gate closure time of 12 minutes and 30 seconds effectively reduces the morning peak hour intersection capacity by approximately 21 percent.**

The gates closed six times during the afternoon peak hour to allow four commuter trains and two freight trains to cross. The gates closed for a total of 9 minutes and 40 seconds for a typical closure of 1 minute and 37 seconds. The typical duration of a commuter train closure during the afternoon peak hour was 1 minute and 45 seconds; the typical closure was 1 minute and 20 seconds for the freight trains. **The total gate closure time of 9 minutes and 40 seconds effectively reduces the afternoon peak hour intersection capacity by approximately 16 percent.**

The MBTA has announced intentions to double the level of commuter rail service to Worcester, which pass through and services Framingham as well. The number of freight trains crossing Concord and Bishop Streets would remain the same, but the number of commuter trains crossing would double by the year 2027. It is projected that the total train delay would increase by 8 minutes and 11 seconds to 20 minutes and 41 seconds during the morning peak hour and by 7 minutes and 20 seconds to 17 minutes during the afternoon peak hour. The **typical delay** would actually decrease by 12 seconds to 2 minutes and 18 seconds per closure during the morning peak hour and would increase by 5 seconds to 1 minute and 42 seconds during the afternoon peak hour. The **typical**

delay during the morning peak hour would decrease because the duration of a commuter train crossing is much shorter than the freight crossing during the morning peak hour. The opposite is true during the afternoon peak hour; the commuter trains require slightly more time to cross during the afternoon peak hour than the freight trains. **The total gate closure time of 20 minutes and 41 seconds during the future morning peak hour, and 17 minutes during the future afternoon peak hour, would result in an effective reduction in intersection capacity of 34 percent and 28 percent, respectively.**

The typical duration of gate closure due to a train crossing was incorporated into the traffic analysis model as a railroad preemption phase, which would occur during every signal cycle. This methodology models what would happen during the traffic signal cycles when a typical gate closure occurs. For purposes of this report, this will be referred to as a "typical analysis condition".

The analysis scenarios with no gate closures and with typical gate closures are both conditions that actually occur in the Downtown. That is, sometimes traffic flows with no interruption due to a train crossing and sometimes the gates are activated and vehicles are delayed.

A third analysis condition, which represents an average cycle during the peak hour was used. This condition accounts for the traffic signal cycles with no train activity, those with train crossings, and those where traffic congestion is dissipating from a closure. While this does not represent an actual condition during a cycle, it does provide a picture of the overall delays experienced by the traffic using the intersection over the course of the peak hour.

2.4.4 Future No-Build Traffic Analysis

The traffic volumes presented above in **Figure 2-6** were used to evaluate traffic operations in the future without the transportation improvement alternatives presented by this report. This provides a No-Build Condition for comparison to the Build Condition.

The analysis was performed for three basic scenarios to remain consistent with the Existing Conditions Report. The three scenarios are: No Train Crossing, Typical Train Crossing, and Average Train Crossing. The results of the 2027 No-Build traffic analysis are presented in **Table 2-7** through **Table 2-9** for the signalized intersections, **Table 2-10** for the unsignalized intersections, and in **Figure 2-7** and **Figure 2-8** for all study intersections.

2.4.4.1 Analysis Results - No Train Crossing

Morning Peak Hour

Level of Service would degrade from existing conditions at four **signalized** intersections during the morning peak hour.

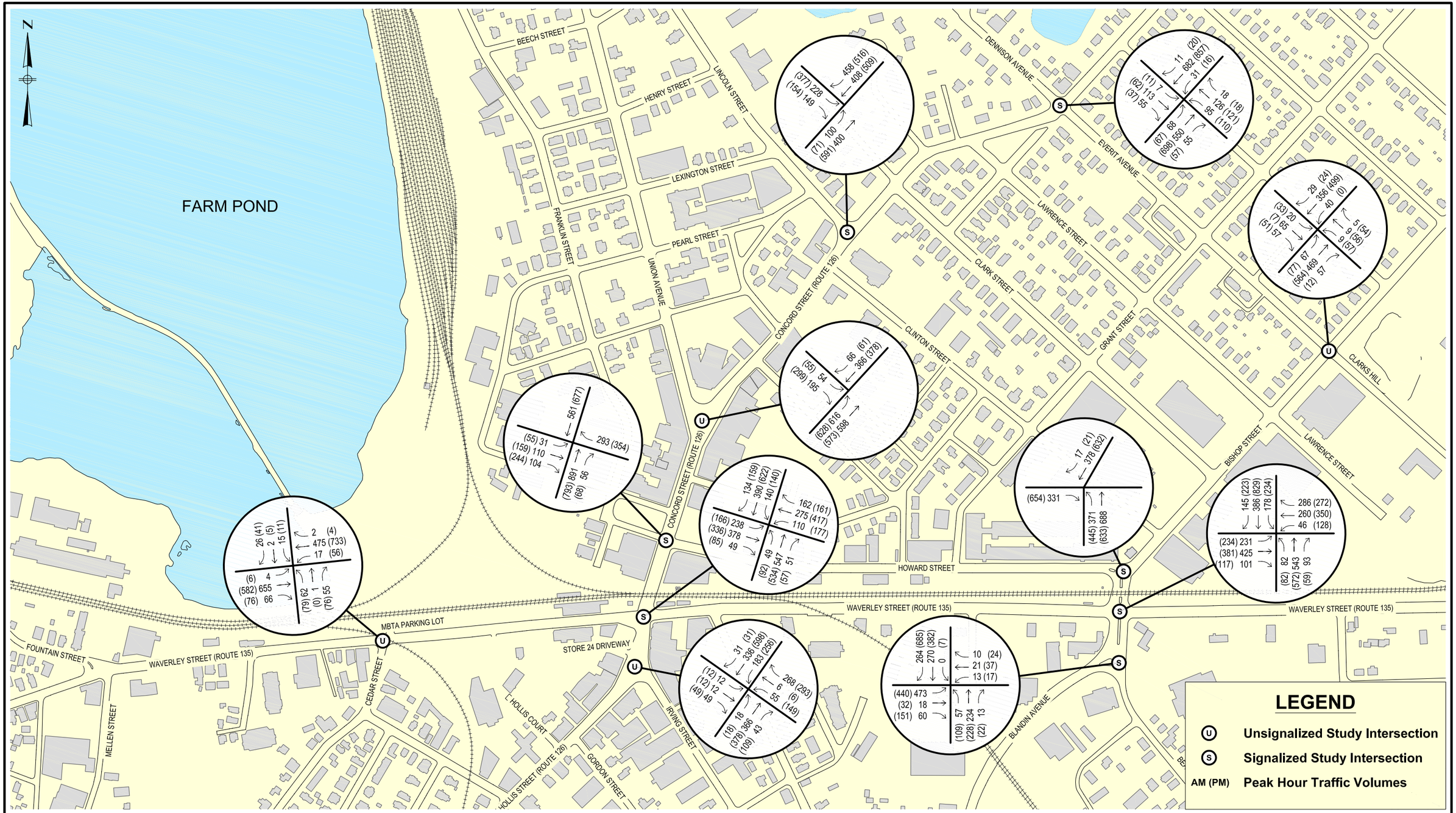

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Figure 2-6
Future No-Build (2027)
Turning Movement Volumes

Table 2-7 - Level of Service Analysis Results for Signalized Intersections (No Train Crossing)

	Morning Peak Hour						Afternoon Peak Hour					
	Existing		Future No-Build		Future Build		Existing		Future No-Build		Future Build	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1: Irving Street @ Hollis Street	-	-	-	-	B	18.9	-	-	-	-	C	24.8
2: Waverley Street @ Concord Street	D	42.0	F	87.0	-	-	D	51.0	F	114.1	-	-
3: Howard Street @ Concord Street	D	39.2	E	79.8	B	15.9	D	39.2	E	68.5	C	22.0
4: Union Avenue @ Concord Street	-	-	-	-	C	25.4	-	-	-	-	C	24.6
5: Lincoln Street @ Concord Street	B	15.6	B	17.7	B	17.7	C	21.8	C	30.6	C	30.6
6: Dennison Avenue @ Concord Street	D	39.9	F	95.7	F	95.7	D	36.2	F	81.2	F	81.2
7: Blandin Avenue @ Beaver Street	D	37.8	D	50.0	D	50.0	E	57.3	E	67.2	E	67.1
8: Waverley Street @ Bishop Street	C	34.1	D	36.6	D	36.5	D	41.8	D	49.0	D	49.0
9: Howard Street @ Bishop Street	C	22.7	C	20.1	C	20.1	C	28.0	C	28.5	C	28.5
12: Hollis Court @ Hollis Street	-	-	-	-	C	20.6	-	-	-	-	D	39.0
13: Waverley Street @ Hollis Court Extension	-	-	-	-	B	16.1	-	-	-	-	B	10.9

NOTES:

LOS - Level of Service

Delay - Average Vehicle Delay in Seconds

Table 2-8 - Level of Service Analysis Results for Signalized Intersections (Typical Train Crossing)

	Morning Peak Hour						Afternoon Peak Hour					
	Existing		Future No-Build		Future Build		Existing		Future No-Build		Future Build	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1: Irving Street @ Hollis Street	-	-	-	-	F	333.9	-	-	-	-	F	262.5
2: Waverley Street @ Concord Street	F	329.9	F	442.9	-	-	F	187.9	F	333.5	-	-
3: Howard Street @ Concord Street	F	310.6	F	440.3	E	77.1	F	120.0	F	223.8	C	27.2
4: Union Avenue @ Concord Street	-	-	-	-	F	125.5	-	-	-	-	F	107.3
7: Blandin Avenue @ Beaver Street	F	379.0	F	457.1	F	456.7	F	156.8	F	226.6	F	226.1
8: Waverley Street @ Bishop Street	F	148.1	F	164.2	F	164.3	F	92.3	F	145.2	F	145.3
9: Howard Street @ Bishop Street	F	131.9	F	157.0	F	157.0	F	253.1	F	344.5	F	344.5

NOTES:

LOS - Level of Service

Delay - Average Vehicle Delay in Seconds

Table 2-9 - Level of Service Analysis Results for Signalized Intersections (Average Train Crossing)

	Morning Peak Hour						Afternoon Peak Hour					
	Existing		Future No-Build		Future Build		Existing		Future No-Build		Future Build	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1: Irving Street @ Hollis Street	-	-	-	-	F	103.8	-	-	-	-	F	113.0
2: Waverley Street @ Concord Street	F	95.5	F	278.0	-	-	E	73.1	F	256.8	-	-
3: Howard Street @ Concord Street	F	87.1	F	257.5	C	28.8	D	54.5	F	170.2	B	19.1
4: Union Avenue @ Concord Street	-	-	-	-	D	46.4	-	-	-	-	D	46.4
7: Blandin Avenue @ Beaver Street	F	121.4	F	285.1	F	285.6	D	44.2	E	66.3	E	66.5
8: Waverley Street @ Bishop Street	D	42.8	F	85.5	F	85.7	E	76.8	E	76.1	E	76.1
9: Howard Street @ Bishop Street	C	29.6	D	46.8	D	46.8	C	28.0	C	33.8	C	33.8

NOTES:

LOS - Level of Service

Delay - Average Vehicle Delay in Seconds

Table 2-10 - Level of Service Analysis Results for Unsignalized Intersections

	Morning Peak Hour						Afternoon Peak Hour					
	Existing		Future No-Build		Future Build		Existing		Future No-Build		Future Build	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1: Irving Street @ Hollis Street												
2: Waverley Street @ Concord Street	C	20.1	E	44.5	-	-	D	26.1	F	56.0	-	-
3: Howard Street @ Concord Street	C	16.3	D	29.5	-	-	F	85.1	F	190.3	-	-
4: Union Avenue @ Concord Street	C	16.8	D	27.7	-	-	D	30.5	F	67.3	-	-
5: Lincoln Street @ Concord Street												
2: Waverley St & Concord St (Rte 126)												
Waverly Street Westbound Right	-	-	-	-	C	15.7	-	-	-	-	B	14.6
4: Union Avenue & Concord Street												
Concord Street Northbound	A	6.0	A	6.2	-	-	A	5.9	A	6.2	-	-
Concord Street Southbound	B	18.0	D	40.6	-	-	B	18.1	C	33.5	-	-
Union Avenue Southestbound	A	8.1	A	8.8	-	-	A	7.8	A	9.3	-	-
10: Everit Avenue & Bishop Street												
Bishop Street Northbound Left	A	1.5	A	1.8	A	1.8	A	1.7	A	2.1	A	2.1
Bishop Street Southbound Left	A	1.2	A	1.4	A	1.4	A	0.0	A	0.0	A	0.0
Everit Avenue Eastbound	D	34.0	F	105.1	F	105.1	E	36.9	F	192.3	F	192.3
Clarks Hill Westbound	D	29.9	F	65.9	F	65.9	F	79.5	F	345.6	F	345.6
11: Waverley Street & MBTA Driveway												
Cedar Street Northbound	E	36.9	F	148.0	F	102.6	F	233.8	F	1000+	F	837.7
MBTA Driveway Southbound	C	22.1	E	43.5	E	35.6	E	36.2	F	195.8	F	85.5
Waverley Street Eastbound Left	A	0.1	A	0.1	A	0.1	A	0.2	A	0.3	A	0.2
Waverley Street Westbound Left	A	0.5	A	0.6	A	0.6	A	1.3	A	1.8	A	1.8

NOTES:

LOS - Level of Service

Delay - Average Vehicle Delay in Seconds

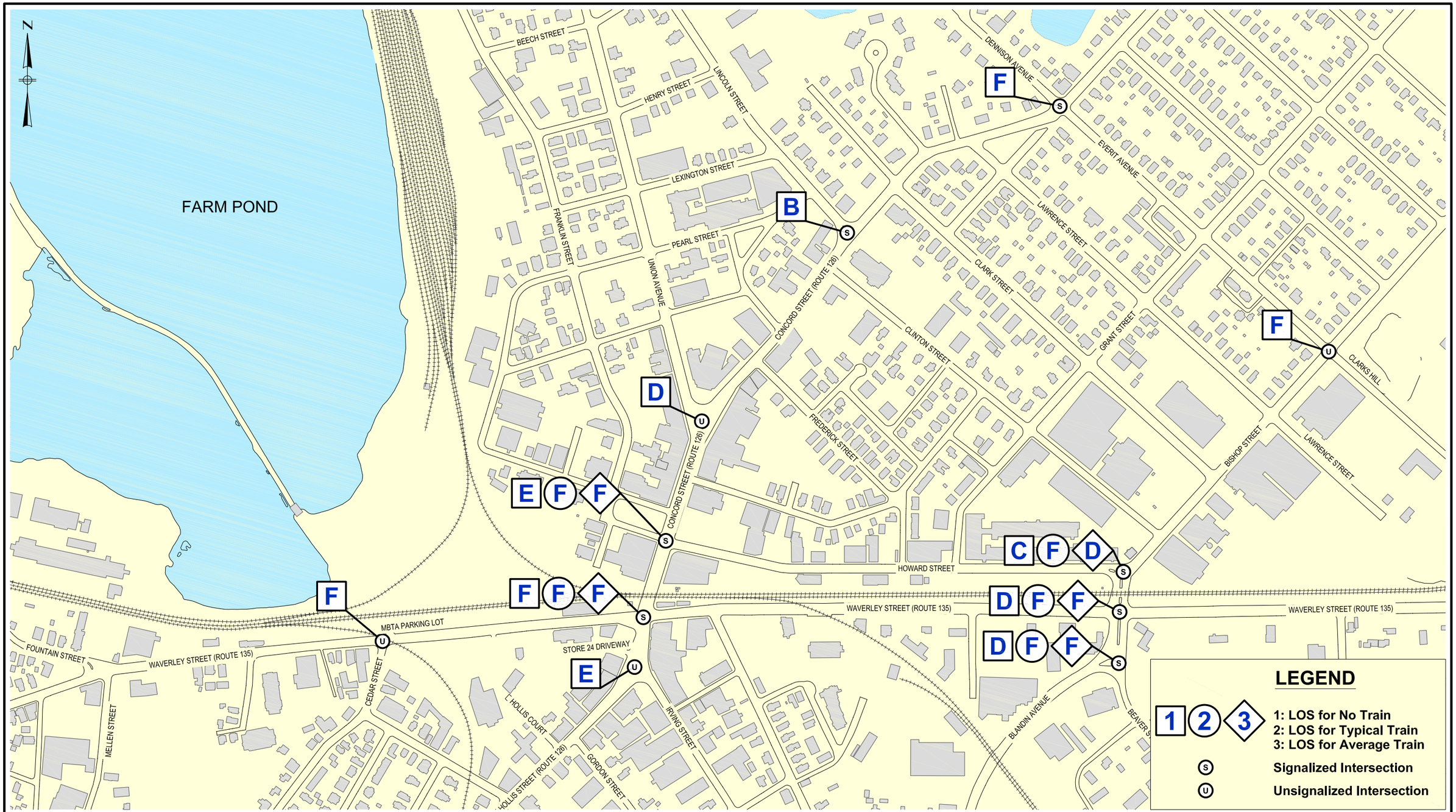

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Figure 2-7
Future No-Build (2027)
Morning Peak Hour
Level of Service Analysis Results

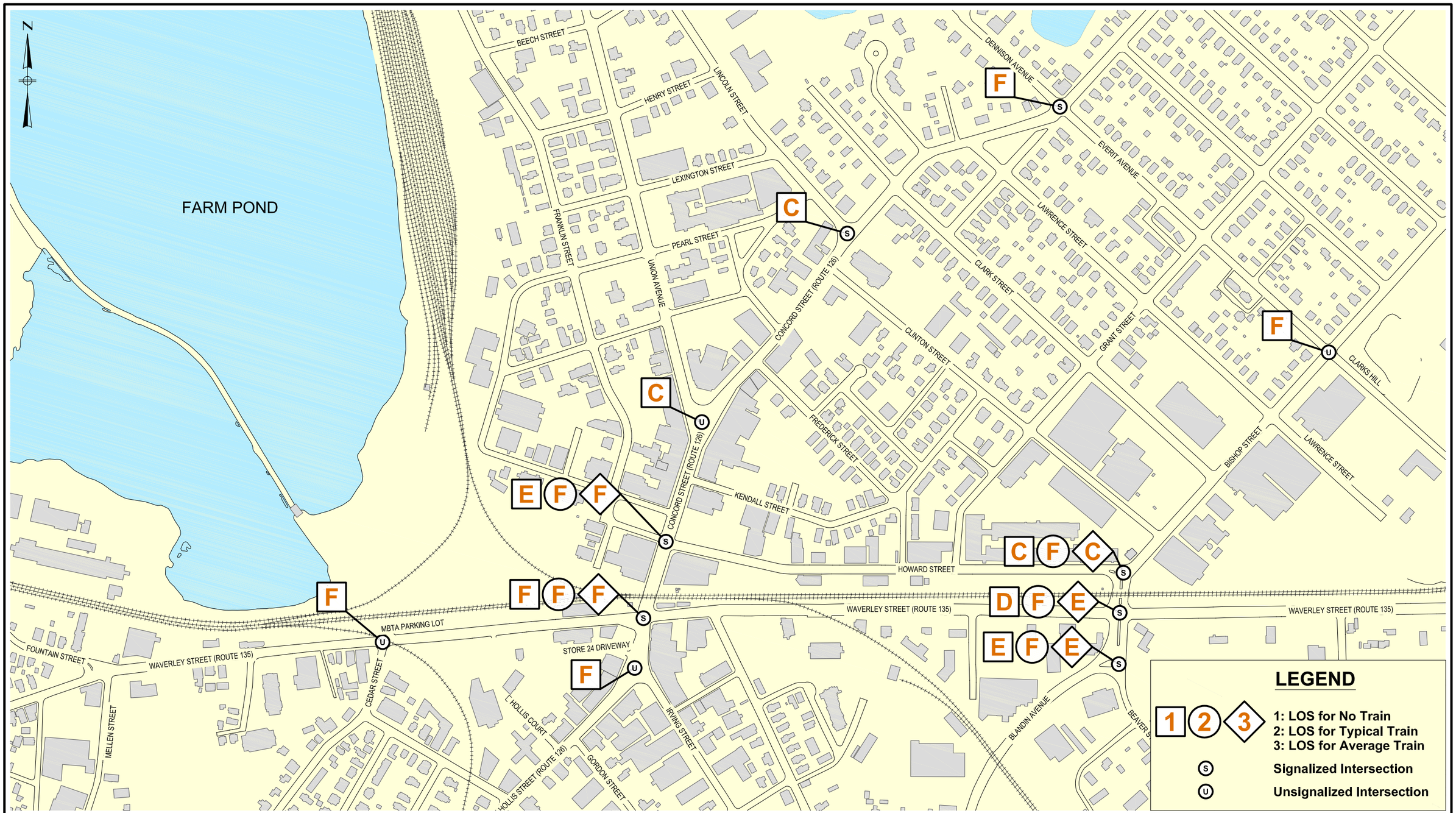

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Figure 2-8
Future No-Build (2027)
Afternoon Peak Hour
Level of Service Analysis Results

These intersections are:

- Waverley Street @ Concord Street (LOS D to LOS F)
- Howard Street @ Concord Street (LOS D to LOS E)
- Dennison Avenue @ Concord Street (LOS D to LOS F)
- Waverley Street @ Bishop Street (LOS C to LOS D)

Degradation at all four intersections is attributed to increased traffic volume from background growth. Average vehicle delay would increase at all other study area intersections, but the increases would not cause the Level of Service to change.

Level of service would degrade on left-turn and right-turn movements of all **unsignalized** intersections.

Afternoon Peak Hour

Three **signalized** intersections would see degradation in Level of Service from Existing Conditions during the afternoon peak hour. These intersections are:

- Waverley Street @ Concord Street (LOS D to LOS F)
- Howard Street @ Concord Street (LOS D to LOS E)
- Dennison Avenue @ Concord Street (LOS D to LOS F)

Degradation of Level of Service is again attributed to increased traffic volumes due to background growth. Average vehicle delay would increase at all other study area intersections, but the increases would not change Level of Service.

Traffic operations would degrade at all left-turn and right-turn movements at **unsignalized** intersections. If Level of Service is already at LOS F under Existing Conditions, these movements would remain at LOS F under Future No-Build Conditions, but delays would increase.

2.4.4.2 Analysis Results - Typical Train Crossings

Morning & Afternoon Peak Hour

As expected, the Level of Service of the intersections becomes significantly worse taking into account a typical train crossing. All study area intersections effected by train crossings would operate at LOS F under these conditions for both peak hours. It should be noted that during the railroad preemption phases some movements that do not conflict with the train are allowed to proceed. These movements typically experience an improvement in LOS due to this increased green time. The eastbound and westbound movements at the Howard Street intersection are examples of this.

2.4.4.3 Analysis Results - Average Train Crossings

Morning Peak Hour

Most intersections would operate at LOS F during the morning peak hour. The one exception is the Howard/Bishop Streets intersection, which would operate at LOS D. All intersections effected by train crossings would operate with less vehicle delay than under Typical Train Crossing conditions.

Afternoon Peak Hour

The two **signalized** intersections along Concord Street, which would be affected by train crossings, would operate at LOS F during the afternoon peak hour. The intersections of Blandin Avenue at Beaver Street and Waverley Street at Bishop Street would operate at LOS E, and the intersection of Howard Street at Bishop Street would operate at LOS C.

2.4.5 Future Build Traffic Analysis

The following section presents the traffic analysis results with Alternative 2: Grade Separation of Route 135 Under Route 126. This analysis used the future 2027 No-Build traffic volumes as a base. Turning movements to/from Route 135 at the Waverly Street at Concord Street intersection would be re-routed through the proposed network via the proposed Hollis Court Extension and its intersections with Route 135 and Route 126.

In addition to the Route 135 Underpass and Hollis Court Extension, the intersections of Hollis Street at Irving Street and Concord Street at Union Avenue have been analyzed as signalized intersections, as part of the Build Condition. The Hollis Court Extension intersections with Route 135 and Route 126 have also been analyzed as signalized intersections.

The Future Build turning movement volumes are presented below in **Figure 2-9**. Results for the Future Build analysis are contained above in **Table 2-7** through **Table 2-9** for signalized intersections and **Table 2-10** for unsignalized intersections. The results are also presented below in **Figures 2-10** and **2-11** for all intersections.

2.4.5.1 No Train Crossings

Morning & Afternoon Peak Hours

Only those intersections with significant geometric improvements as part of the Route 135 Underpass Alternative would experience changes in Level of Service and/or delay, including:

- Hollis Street at Irving Street (Route 126)
- Hollis/Concord Streets (Route 126) at Waverly Street (Route 135)
- Concord Street (Route 126) at Howard Street
- Concord Street (Route 126) at Union Avenue
- Hollis Street (Route 126) at Hollis Court
- Hollis Court Extension at Waverly Street (Route 135)

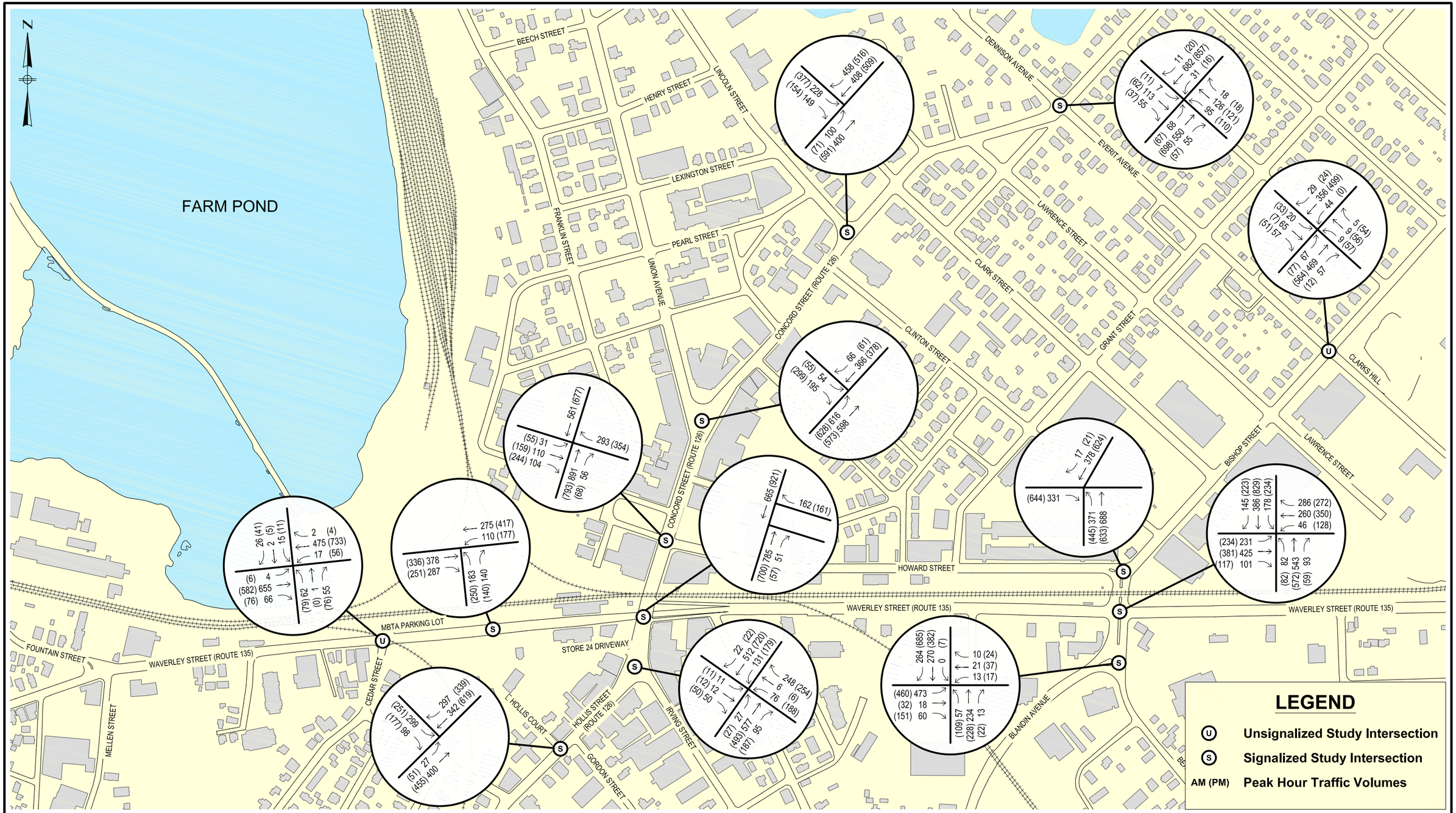

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Figure 2-9
Future Build (2027)
Turning Movement Volumes

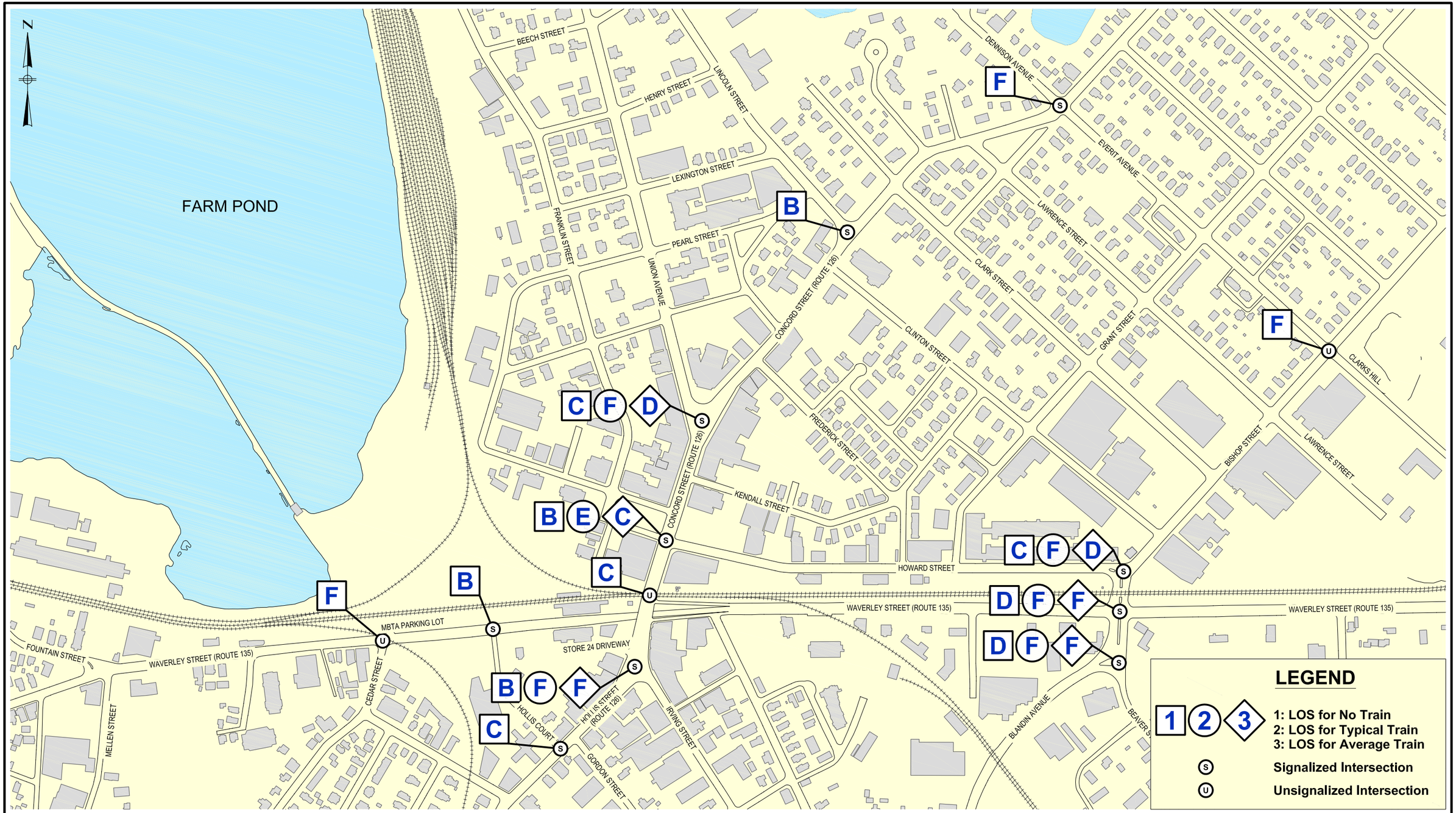

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Figure 2-10
Future Build (2027)
Morning Peak Hour
Level of Service Analysis Results

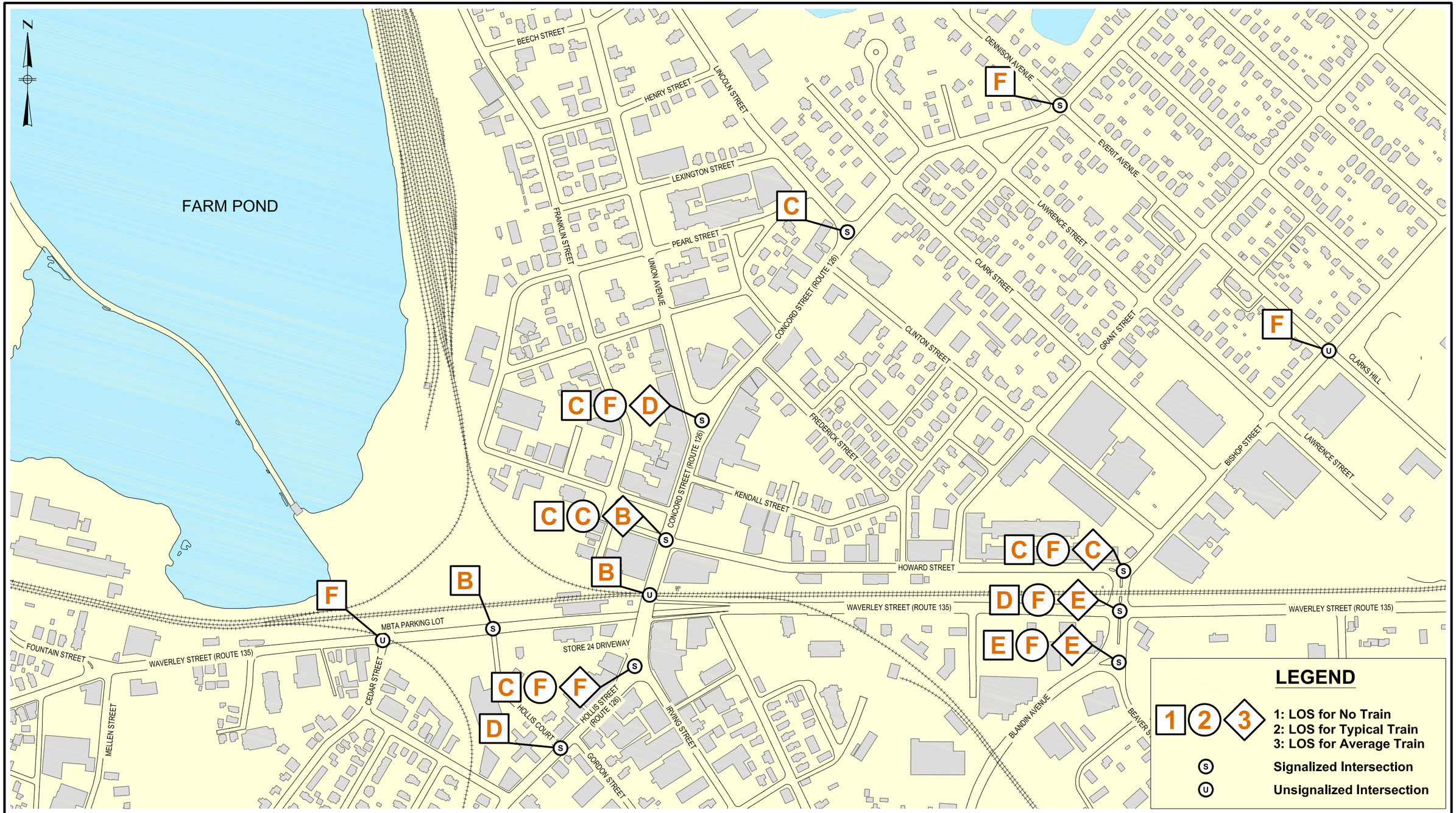

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Figure 2-11
Future Build (2027)
Afternoon Peak Hour
Level of Service Analysis Results

The proposed **signalized** intersection of Route 135 and Hollis Court Extension would operate at LOS B during peak hours. The proposed **signalized** intersection of Route 126 and Hollis Court would operate at LOS C and LOS D during the morning and afternoon peak hours, respectively.

The four **signalized** intersections within the immediate downtown area would all see significantly improved level of service from No-Build conditions during both peak hours. The newly signalized intersection of Hollis Street at Irving Street would operate at LOS B during the morning peak hour and LOS C during the afternoon peak hour.

The signalized intersection of Waverley Street at Concord Street would be eliminated by the Route 135 Underpass. The right-turn from the westbound Route 135 ramp to northbound Route 126 would remain under stop sign control. This right-turn movement would operate at LOS C during the morning peak hour and LOS B during the afternoon peak hour. Operations at the intersection of Howard and Concord Streets would improve from LOS E to LOS B during the morning peak hour and from LOS E to LOS C during the afternoon peak hour. The newly **signalized** intersection of Concord Street and Union Avenue would operate at LOS C during both peak hours.

2.4.5.2 Typical Train Crossings

Morning Peak Hour

Level of Service would remain unchanged from the No-Build Condition at most study area intersections during a typical train crossing in the morning peak hour. The intersection of Howard and Concord Streets would operate at an improved level of service during the morning peak hour (LOS F to LOS E). Overall, vehicle delay in the Build Condition would be reduced from the No-Build Condition along Concord Street during the morning peak hour because the Route 135/126 intersection would be removed.

Afternoon Peak Hour

Operations during the afternoon peak hour would generally be similar to the morning peak hour. The Level of Service, however, would improve further at the intersection of Howard and Concord Streets during the afternoon peak hour (LOS F to LOS C). Traffic operations along Concord and Waverley Streets would be greatly improved in the Build Condition because the delays caused by the signalized intersection of the two streets would be removed.

2.4.5.3 Average Train Crossings

Morning & Afternoon Peak Hours

The Level of Service would remain unchanged at the study area intersections outside of the immediate Downtown area during both peak hours. The intersection of Hollis and Irving Streets would operate at LOS F during the morning and afternoon peak hours (104 and 113 seconds of delay per vehicle, respectively). The intersection

of Howard and Concord Streets would improve from LOS F to LOS C during the morning peak hour and from LOS F to LOS B during the afternoon peak hour. The intersection of Concord Street and Union Avenue would operate at LOS D during both peak hours. Overall, traffic movement along Concord and Waverly Street would improve because the signalized intersection of these two streets would be removed by virtue of the grade separation.

2.4.6 Traffic Analysis Summary

The Route 135 Underpass Alternative creates significant improvements to traffic operations in the Downtown, with all of these intersections operating at LOS C or better without a train crossing. A summary of the traffic analysis results for the intersections in the Downtown is provided in **Table 2-11**.

Table 2-11 - Downtown Intersection Analysis Summary (No Train)

	Morning Peak Hour		Afternoon Peak Hour	
	Future No-Build LOS	Future Build LOS	Future No-Build LOS	Future Build LOS
1: Irving Street @ Hollis Street	D	B	F	C
2: Waverley Street @ Concord Street	F	C	F	B
3: Howard Street @ Concord Street	E	B	E	C
4: Union Avenue @ Concord Street	D	C	C	C

While not directly evident from the intersection analysis results, additional benefits will occur even with a train crossing. Under No-Build conditions, Route 126 would experience delays from two sources. The first would be from traffic operations at the intersection with Route 135. As Route 135 vehicles flow with a green traffic light, vehicles on Route 126 would have a red light, which would cause approaching traffic to experience delays and begin to queue. The second source of delay would be from traffic stoppage during train crossings. The combination of the two delays would result in serious congestion at the intersection.

The Route 135 Underpass would eliminate the intersection with Route 135, and therefore remove the first source of delay (from traffic operations), leaving only the second portion during train crossings. While train crossings would still result in delays, they would not be exacerbated by intersection congestion.

The Review of Traffic analysis of this study should be understood as a planning level assessment. A project of this scale must be assessed in a more rigorous environmental process and be vetted in the public process.

With a thorough understanding of the transportation conditions in Framingham comes the recognition that, while the Route 135 Underpass could bring significant benefits to the Downtown, more is needed. With nine at-grade rail crossings, the Town lacks sufficient uninterrupted north-

south connections. This condition results in serious delays across the Town for commuters, visitors and retail consumers. More important is the need for uninterrupted flow for emergency vehicles across the community.

2.5 Utility Evaluation

Most existing utilities within the Route 126 and Route 135 corridors through Downtown Framingham are located underground, including electric, gas, telephone, water, roadway storm drains, and sewer service. Some street lights through the downtown are powered by overhead power lines. This section will focus only on the underground utilities located along Route 126 between Hollis Court and Kendall Street and along Route 135 between Cedar Street and the Framingham Secondary track crossing, which is where excavation for the Route 126 or the Route 135 underpass would occur. **Figure 2-12** through **Figure 2-17** present the location of each utility.

Utility data have been compiled from multiple sources. Electric and gas line locations have been compiled from ground survey of manholes and value boxes, and from utility connection plans obtained from N-Star. Telephone connections have been compiled from ground survey of manhole locations. Information on water service, roadway storm drains, and sewer service was obtained from the Town of Framingham GIS database and ground survey information.

2.5.1 Utilities located along Route 126

Electric

An electric duct bank runs along the east side of Hollis Street south of Route 135. The duct bank then transitions to the west side of the roadway north of the Boston Mainline tracks. Numerous service connections are made to the buildings located along the street. Duct banks connect into the Route 126 line from Irving Street, Howard Street and Park Street.

Gas

A 6-inch gas line runs along the eastern side of Hollis Street to the intersection of Irving Street, where it connects to an 8-inch line running along Irving Street. This 8-inch line continues north along the east side of Concord Street through the Downtown. Connections of varying sizes are made to all intersecting side streets, and service connections are also made to buildings along Hollis and Concord Streets.

Telecommunications

Telecommunications duct banks are located along the west side of Hollis Street up to the intersection of Irving Street, where they connect to a duct bank traveling along the east side of Irving Street. The duct bank continues north along the east side of Concord Street through the Downtown.

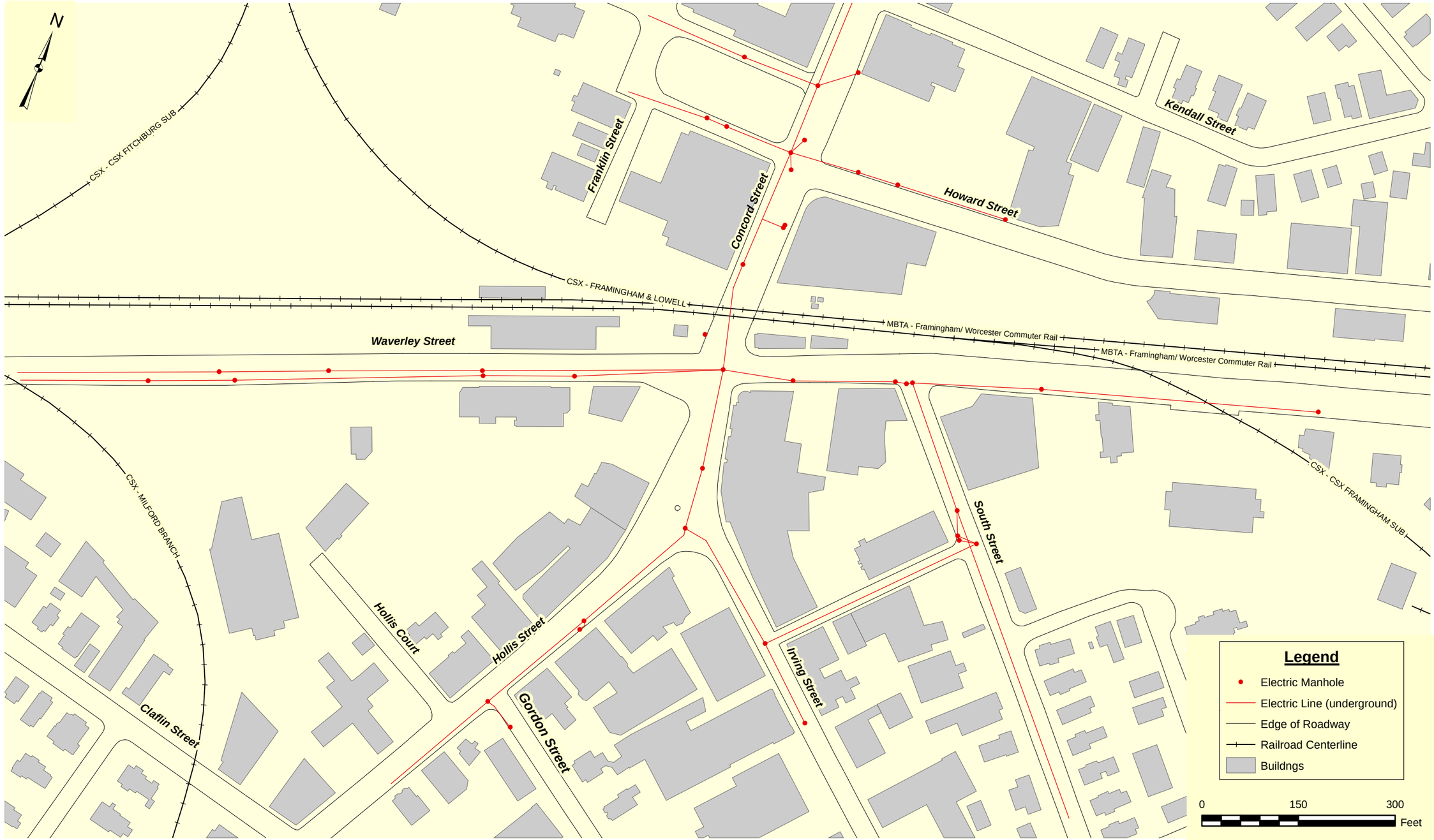

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Figure 2-12
Existing Underground Utilities
Electric

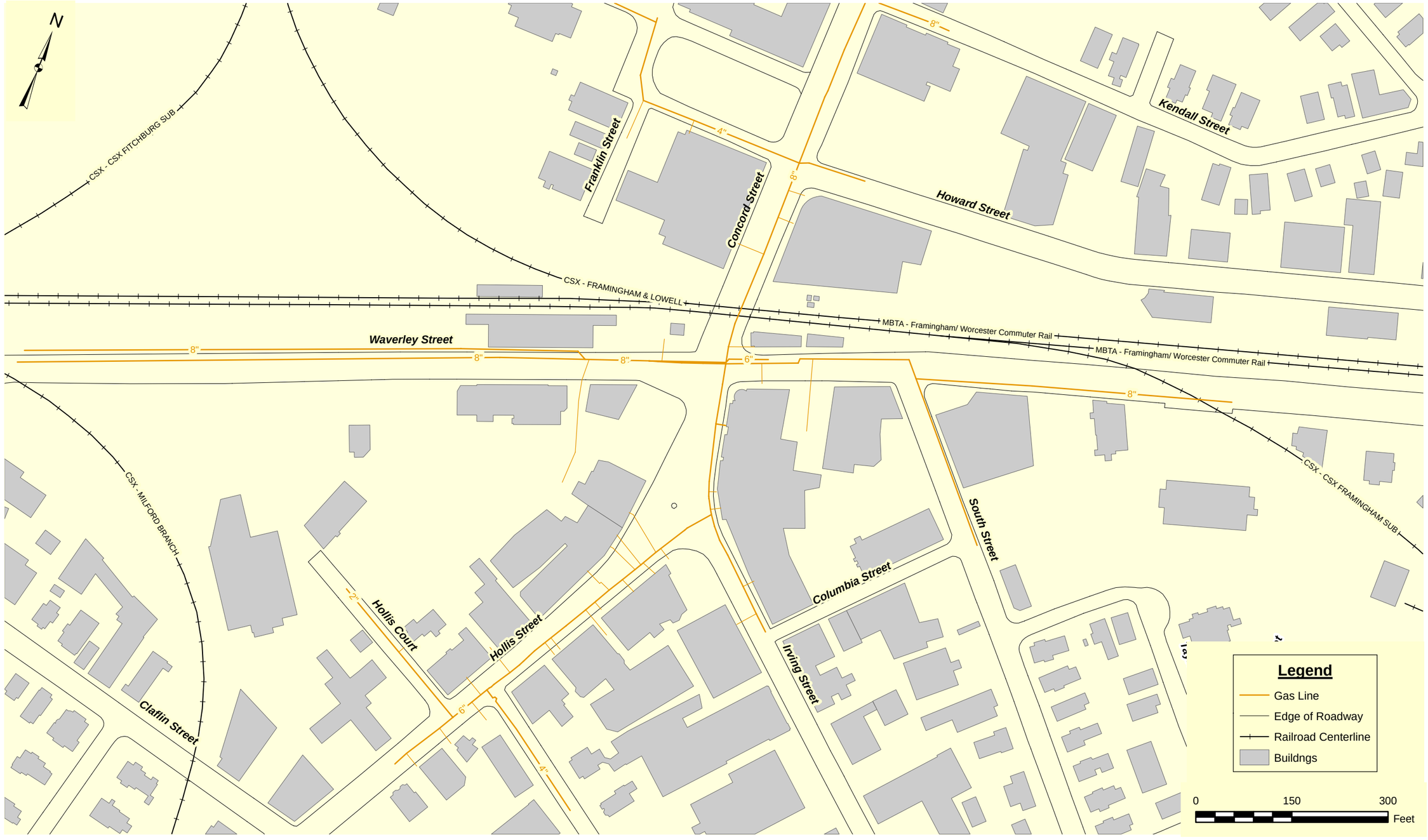

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Figure 2-13
Existing Underground Utilities
Gas

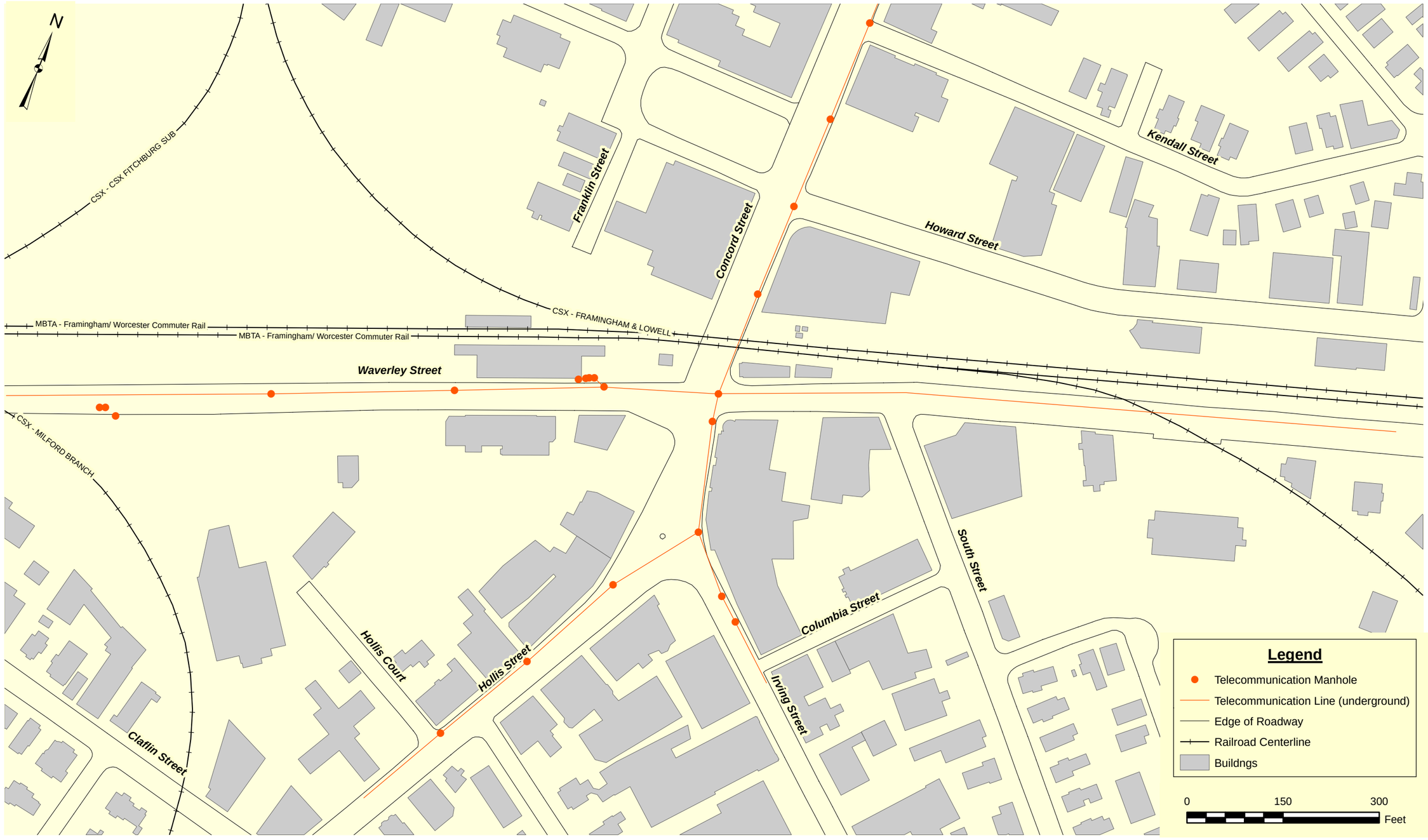

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Figure 2-14
Existing Underground Utilities
Telecommunication

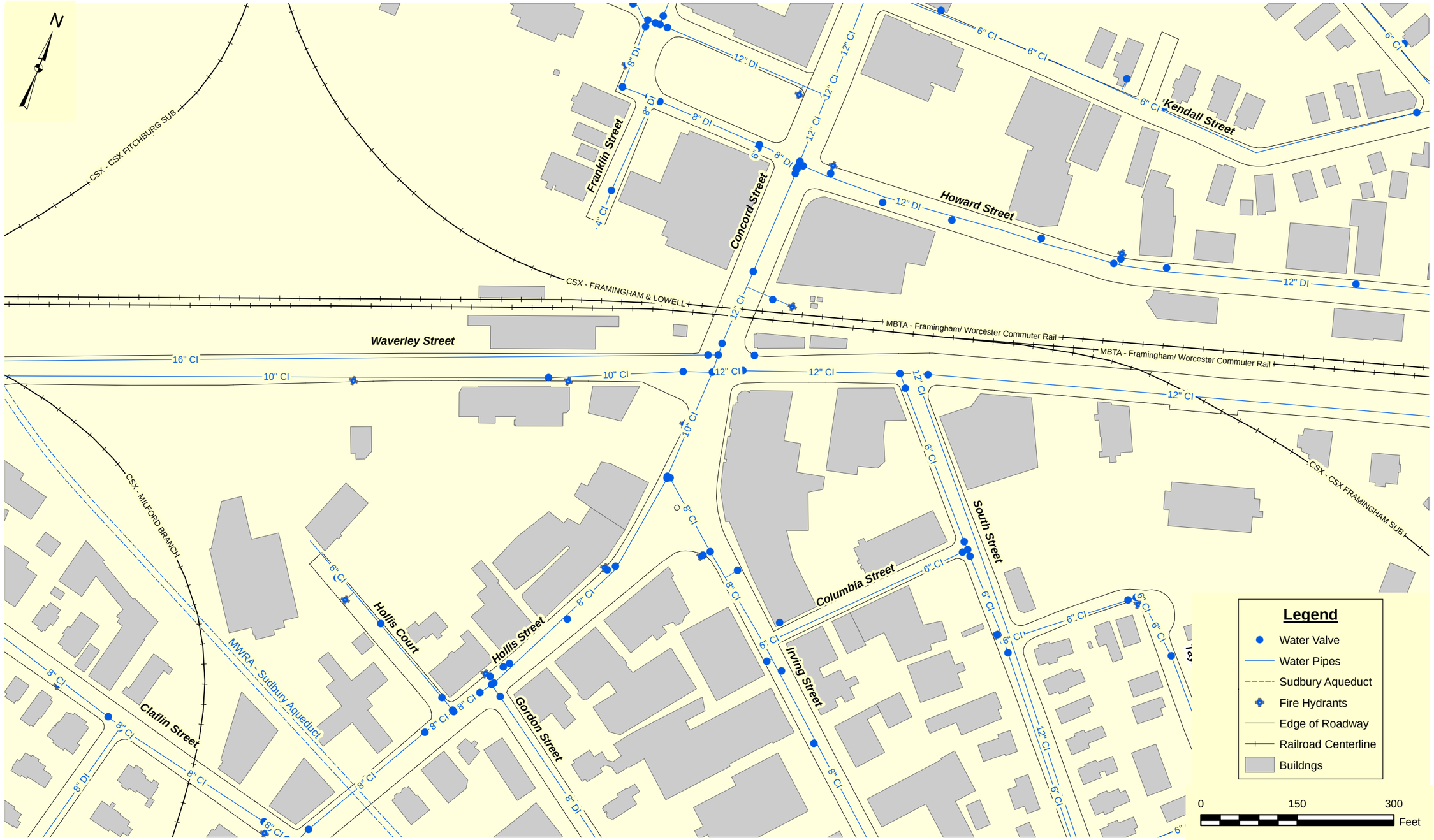

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Figure 2-15
Existing Underground Utilities
Water

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Figure 2-16
Existing Underground Utilities
Storm Drain

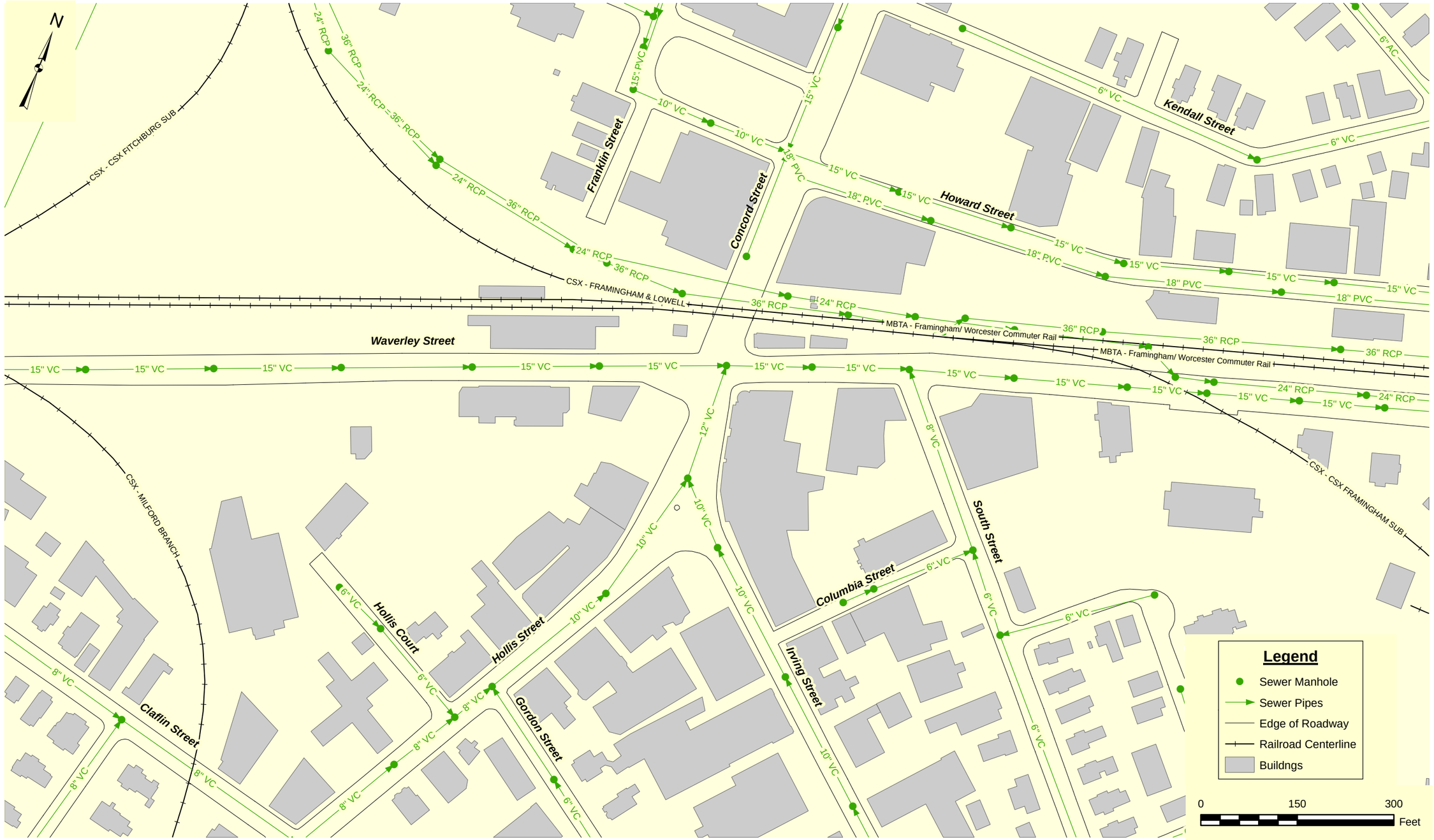

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Figure 2-17
Existing Underground Utilities
Sewer

Water

Water lines are located along the west side of Hollis Street and the center of Concord Street. Most lines in the area are cast iron, but the newer lines are ductile iron. An 8-inch line is provided between Hollis Court and Irving Street, a 10-inch line is provided between Irving and Waverley Streets, and a 12-inch pipe continues north along Concord Street. At Howard Street, an 8-inch line connects from the west, and a 12-inch line connects from the east. A 12-inch line runs west at Park Street, and a 6-inch line runs east at Kendall Street.

Storm Drain

The storm drain pipes located in the Route 126 corridor are for local drainage only, and no storm drain trunk lines pass through the area. Pipes range in size from 8 to 15 inches in diameter. Pipe runs are provided along each side of Route 126 north of Route 135. Storm water from the intersection of Route 126 and Route 135 is conveyed away to storm water systems located to the east of the intersection.

Sewer

Sewer service is located along the centerline of Hollis Street to the intersection with Route 135. Service for Irving Street connects into the Hollis Street service just south of Route 135. Pipes in this area are generally 8 to 12 inches in diameter and are constructed of vitrified clay. The sewer south of Route 135 flows north along Hollis and Irving Streets into a sewer trunk line which runs along the centerline of Route 135.

North of Route 135, local sewer service runs toward Howard Street and then east along Howard Street in one of two trunk lines (15-inch and 18-inch diameter) which cross Route 126. Pipe sizes range from 10 to 18 inches in diameter and are constructed of vitrified clay or PVC.

Two sewer interceptors (24-inch and 36-inch diameter) run from west to east across Route 126 just to the north of the Boston Mainline tracks. These pipes run parallel to the tracks in the area of the rail grade crossing. The 36-inch pipe continues to run parallel to the Boston Mainline tracks east of Route 126, while the 24-inch pipes skews south and continues along the north side of Route 135.

2.5.2 Utilities located along Route 135

Electric

Two parallel utility duct banks are located along the south side of Route 135. These duct banks merge at a utility vault located in the middle of the intersection of Route 135 and Route 126. A single duct bank continues east along the south side of Route 135. A connection is made from South Street, where an electric sub-station is located.

Gas

Two parallel 8-inch gas lines run along the north side of Route 135 west of Route 126, and connect to the 8-inch line on Route 126. East of Route 126 a single 8-inch line continues along the north side of Route 135 to the intersection with South Street, where it crosses to the south side of Route

135. A connection is made to South Street, and the line also continues east along the south side of Route 135.

Telecommunication

From the west, a telecommunication duct bank runs east along the north side of Route 135. Five telecommunication manholes are located at the southeast corner of the historic train station building. These appear to be access ways to a communications vault. The telecommunication line continues east along the north side of Route 135.

Water

From the west, a 16-inch supply line runs along the north side of Route 135 to the intersection with Route 126, where it intersects the 12-inch line running along Route 126. A 10-inch service line runs east along the south side of Route 135 to the intersection with Route 126. Local service connections and two fire hydrants are served from this line. A 12-inch service line runs along the south side of Route 135 east of Route 126. All pipes along Route 135 are cast iron.

Storm Drain

The storm drain pipes located in the Route 135 corridor are for local drainage only, and no storm drain trunk lines pass through the area. Pipes range in size from 8 to 18 inches in diameter. Pipe runs are provided along each side of Route 135 west of Route 126. Storm water from the intersection of Route 126 and Route 135 is conveyed away to storm water systems east of the intersection which discharges to Beaver Brook. Runoff from the section of Route 135 in front of the historic train station, including the historic train station parking area, flows west in runs along each side of Route 135 and connects to a drainage line that discharges to Farm Pond.

Sewer

A 15-inch trunk line is located along the centerline of Route 135. This trunk line accepts sewerage from sewer lines in the neighborhoods located to the south of Route 135, as well as local connections for the buildings on Route 135. The invert of this sewer line is located approximately 14 feet below the existing road surface.

2.6 Downtown Parking Analysis

A thorough understanding of the parking conditions in the Downtown Framingham Study Area can provide insight to how the area currently functions, as well as effective steps to affect change within the area. Ascertaining the available parking supply and utilization rates and analyzing these with the expected demand, as determined by the existing building square footage and uses, provides a unique understanding of the area's development capacity and appropriate strategies for a successful development scenario.

2.6.1 Calculation Methodology

Determining the existing parking supply in Downtown Framingham is integral to accurately understanding the area's true development potential and development limitations. Previous reports pertaining to this subject

were reviewed and independent research was conducted to determine the existing parking condition in the Downtown. In 1999, Rizzo Associates, Inc produced a detailed report, *Downtown Framingham Parking Evaluation*. Available GIS data, recent aerial photographs and site visits were used to confirm the conclusions reached in the Rizzo Report and to make determinations regarding parking availability in undocumented areas.

The independent research of this study was sensitive to the methodology and parameters of the Rizzo Report to ensure continuity between the two parking review efforts. Both on-street and off-street parking in the study area was surveyed.

The Rizzo Associates' parking evaluation study area does not exactly align with the area boundaries for this study. Accordingly, the analysis areas established in the Rizzo Associates' report were refined to align with the study area of this report and then new analysis areas were added to ensure that the parking conditions throughout entire study area were accounted for. **Figure 2-18** displays the eight updated analysis areas (A, B, C, D, E, F-1, F-2 and G) covering the entire study area. **Figure 2-18** also displays the total available parking spaces in each subarea.

From this analysis process, it has been determined that the total existing on-street and off-street parking spaces (public and private) available in the Downtown Study Area is **5,091. Figure 2-19** details the type of parking (on-street or off-street) that exists in each analysis area and records the adjustments and variations made to the Rizzo Report.

2.6.2 Calculations Implications: Industry Parking Ratios and Assessor's SF Data

In Downtown Framingham, like most environments, available parking is a limiting factor for building use and development. The downtown study area has 1,570,240 square feet of various non-residential uses based on data received from the Framingham Assessors' Office and 826 residential units based on information received from Claritas, Inc.

Determining the relationship between the existing parking supply and the existing uses is essential to determining the true development potential and limitations of the area. Using industry standard parking ratios from the Urban Land Institute and the Institute of Transportation Engineers, as well as past professional experience, it has been calculated that the square footage of uses and number of residential units in the downtown Study Area require approximately 5,111 parking spaces. This total includes a shared parking percentage of 10%. The parking ratio calculations are detailed in **Figure 2-20.**

The parking evaluation research reveals that there are 5,091 existing parking spaces in the downtown study area. Further examination of the Downtown parking inventory finds that of the 5,091 parking spaces, 609 parking spaces are dedicated for commuter uses. Therefore, the actual number of available parking spaces that support the Downtown Framingham Study Area uses is reduced to 4,482 or 629 fewer parking spaces than the volume of uses in the Downtown require.

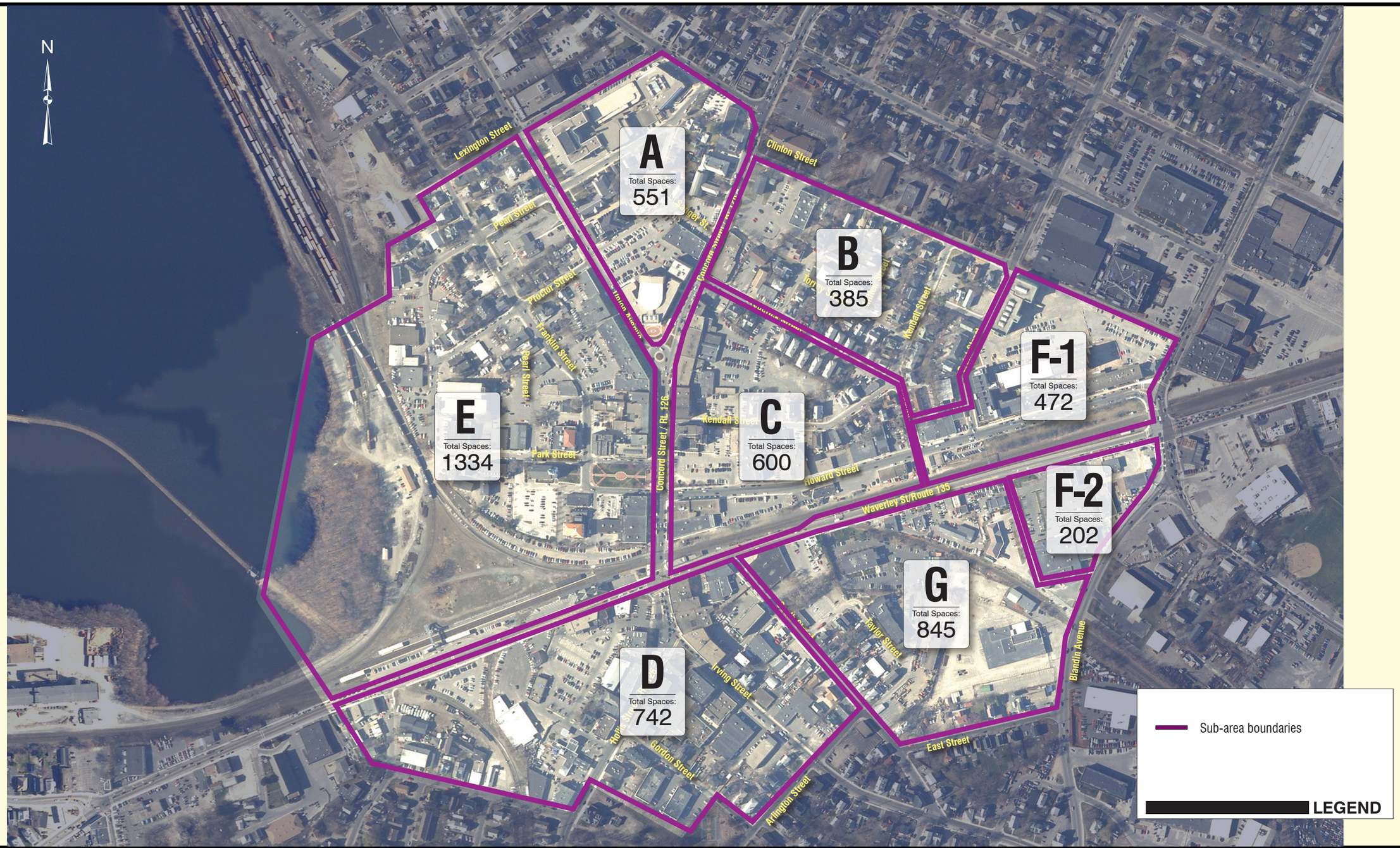

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Figure 2-18
Downtown Sub-Areas with Parking Counts

Downtown Framingham Parking Existing Conditions

Rizzo Associates

Area	On-Street Spaces	Off-Street Private	Off-Street Public	Off-Street Town	Off-Street Total	Total Spaces
A	125	137	0	249	386	511
B	311	265	0	0	265	576
C	141	185	274	0	459	600
D	205	295	163	0	458	663
E	171	492	619	0	1111	1282
F-1	84	928	0	0	928	1012
F-2	0	372	0	0	372	372
G						
Totals	1037	2674	1056	249	3979	5016

Cecil Adjustments

Area	On-Street Spaces	Adjustment	Off-Street Private	Adjustment	Off-Street Public	Adjustment	Off-Street Town	Adjustment	Off-Street Total	Total Spaces Unadjusted	Total Spaces Adjusted
A	125	0	137	0	0	0	249	0	386	511	511
B	311	-79	265	-112	0	0	0	0	265	576	385
C	141	0	185	0	274	0	0	0	459	600	600
D	205	0	295	79	163	0	0	0	458	663	742
E	171	21	492	31	619	0	0	0	1111	1282	1334
F-1	84	-4	928	-536	0	0	0	0	928	1012	472
F-2	0	0	372	-170	0	0	0	0	372	372	202
G	0	44	0	801	0		0				845
Totals	1037	-18	2674	93	1056		249		3979	5016	**5091**
		1019		2767		1056		249			5091
Dedicated Commuter Rail Parking											609
											4482

Dedicated Commuter Parking Lots		Source
Pearl St Garage	289	Framingham Town Website*
Waverly St Town Admin Lot	65	Framingham Town Website*
Hollis Court	89	Framingham Town Website*
MBTA lots	166	Based on MBTA website
	609	

* file:///G:/Framingham%20Downtown%2026035/Parking%20Evaluation/parking%20-%20Town%20of%20Framingham.htm

ADJUSTMENTS

Area A
None

Area B
On-Street Spaces: minus 79 - on-street spaces documented by Rizzo Associates along Clark Street, Concord St north of Clinton and Grant Street north of Clinton

Off-Street Private: minus 112 - off-street private spaces document by Rizzo Associates for St. Stephen's Church and Hall and Assembly of God Church (now Baptist Church of Philadelphia)

Area C
None

Area D
On-Street Spaces: no on-street spaces documented for Waverly Ct or Casey Ct (any documented spaces in this area would have been removed)

Off-Street Private: no off-street spaces documented for Waverly Ct or Casey Ct (any documented spaces in this area would have been removed)

Off-Street Private: addition 79 - off-street private spaces located along Gordon and Hollis Street, documented through GIS, aerial views, and site visits

Area E

On-Street Spaces: addition 21: east and west sides of Franklin Street between Pearl and Lexington Street

Off-Street Private: addition 31: private spaces located along Franklin Street and north side of Pearl Street between 56 and 84 Pearl Street

Area F-1

On-Street Spaces: minus 4 - on-street spaces documented by Rizzo Associates along Clark Street, between Grant and Bishop Streets

On-Street Spaces: addition 21 - east and west sides of Franklin Street between Pearl and Lexington Street

Off-Street Private: minus 858 - off-street private spaces document by Rizzo Associates located on Lawrence, Clark, Bishop Streets

Area F-2

Off-Street Private: minus 170 - off-street private spaces document by Rizzo Associates located on Waverly east of Blandin Avenue

Area G

On-Street Spaces: addition 44: east and west sides of South St and south side of Taylor St

Off-Street Private: addition 801 - private lots located off of Waverly, bland in, south and Taylor Streets

Area G calculation are based on GIS information, aerial observations, site visits and Phase 1 Research

USE TYPE	UNITS	SQUARE FOOT	PARKING RATIO	UNITS	PARKING REQUIREMENTS	PARKING DEMANDS
COMMERCIAL		348,863	348.863	SF	3.5	1221.02
RESIDENTIAL	826			UNITS	1.5	1239.00
HOTEL		14,252	14.252		1.65	23.52
SOCIAL SERVICES		123,714	123.714	SF	4	494.86
HEALTH SERVICES		13,601	13.601	SF	4	54.40
NURSING HOME		19,072	19.072	SF	1	19.07
RETAIL		435,560	435.56	SF	3.5	1524.46
GOVERNMENT		243,723	243.723	SF	3	731.17
CULTURAL		208,842	208.842	SF	1	208.84
INDUSTRIAL		149,213	149.213	SF	1	149.21
UTILITIES		13,400	13.4	SF	1	13.4
		1,570,240				5678.95
					SHARE USE %	0.10
					SHARED USE SPACES	567.90
					TOTAL DOWNTOWN PARKING DEMANDS	**5111.06**

METHODOLOGY

1. Use square footage is derived from data received from the Framingham Assessor's Office
2. Number of residential units was determined by Caritas information services
3. Parking ratios are based on the Cecil Group's assessment in coordination with ULI and ITE standard ratios
4. Shared parking percentage is based on the Cecil Group's assessment
5. All data use is exclusively in this project's Downtown Framingham study area

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Figure 2-20
Parking Demand Projections

2.6.3 Utilization Rates and Methodology

Based on a review of the parking ratio calculations and the existing parking evaluation, every parking space in the downtown Framingham study area should be occupied during peak times and an additional 629 vehicles should be seeking parking spaces. The utilization rates of the existing parking spaces in Downtown were measured to test this conclusion.

It was determined that the off-street parking utilization rate for the Downtown Framingham Study Area is approximately 49%. This determination was made based on a series of visual surveys of the 2008 orthoimage from MassGIS. The Downtown Framingham study area parking lots were categorized by size (large, medium and small) and five to eight lots of each category were selected for examination. Each parking lot selected was assigned a coefficient based on its relative size within its designated category and was then visually assessed to determine its utilization. The weighted average for each category was then calculated and then the average utilization for the entire sample was calculated. The parking utilization rate calculations are detailed in **Figure 2-21.**

A June, 2009 Town wide Parking Study conducted by BETA for the Town of Framingham focused on on-street parking. Portions of Union Street, Hollis Street/Hollis Court, Howard Street and Franklin Street were included in the study. While the sample size is limited, the utilization rates ranging from 46 percent to 82 percent are supported by visual observations.

The extremely low parking utilization rate for a parking supply that is less than what the existing building space should require, implies that significant portions of the Study Area buildings are either vacant or dramatically underutilized.

2.6.4 Analysis

The analysis of Downtown Framingham's existing available parking, utilization of the existing parking and the amount of parking required to support the existing building square footage provides critical insight into the needs of Downtown Framingham and guidance when formulating a development program and plan.

The analysis of these three elements indicates that the existing building square footage in Downtown Framingham is currently only 43% utilized. The Downtown area will require 12% additional parking (or 629 additional spaces) as building utilization approaches 100%. Increasing the parking resources for Downtown Framingham should be considered to prevent a severe parking shortage as utilization rates in Downtown Framingham rise. A comprehensive development strategy that includes revitalization of existing buildings, increased parking resources, as well as new development projects can be successful in Downtown Framingham, particularly given its unique transportation assets of Routes 135, 126 and MBTA commuter rail access.

Large lot				Medium Lot				Small Lot			
Approx Loc	**Util**	**CoE**	**Wutil**	**Approx Loc**	**Util**	**CoE**	**Wutil**	**Approx Loc**	**Util**	**CoE**	**Wutil**
57 Union Ave	100%	0.75	75%	55 Franklin St	95%	1	95%	228 Lincoln St	100%	0.85	85%
11 Hollis Ct	95%	0.8	76%	354 Waverley St	75%	0.85	64%	121 Lexington St	100%	1	100%
121 Concord	40%	1	40%	55 Concord St	67%	0.7	47%	Franklin & Pearl St	90%	0.65	59%
266 Waverly	30%	0.8	24%	205 Concord St	65%	0.85	55%	15 South St	80%	0.45	36%
15 Blandin	10%	1	10%	38 Park St	55%	0.9	50%	214 Concord St	65%	0.5	33%
				64 Franklin St	55%	0.95	52%	27 Gordon St	40%	0.65	26%
				97 Pearl St	30%	0.6	18%	2 Milton St	25%	0.9	23%
								264 Waverkt St	15%	0.7	11%
Avg Cat Util	45%				54%				46%		
Avg Overall Util	49%										

Methodology:

1. Categorize lots based on size (visual survey)
2. Pick 6-8 lots from each category as sample (1 largely utilized, 1 not very utilized, 1 largely under-utilized based on visual assessement)
3. Visually assess the utilization for each lot; lots are also assigned coefficient based on relative size within the category
4. Calculate the weighted average utilization for each category
5. Calculate the average utilization of the sample

NOTE:

Visual survey is based on the 2008 orthoimage from MassGIS, the image seems to be taken in during business hour

Adjacent parking lots are lump together if there is no visual separation between them.

Approximate location is the address of the parking lot or the group of parking lots

3.0 DEVELOPMENT PARCELS

3.1 Preliminary Downtown Framingham Building Program

A preliminary building program for Downtown Framingham was developed for the purposes of advancing the urban design and development strategies and testing the economic market observations. This preliminary building program was based upon workshops, economic development analyses and initial site assessments conducted during Phase 1. The building program projects a **50% increase** in building program square feet in Downtown Framingham over a twenty year period. **Figure 3-1** details the Building Program.

This preliminary building program was revisited during the process of constructing the Development Plan to incorporate the utilization analysis, the development potential associated with the CSX Corporation properties in the Downtown and an increased focus on transit oriented development opportunities. Together, these factors created significant influences on the building program potential in Downtown Framingham. The building program for the preferred urban design and development direction is detailed in **Section 4.6.**

3.2 Potential Rail Yard & Rail Alignment Changes

A significant factor in the revision of the preliminary building program for the Downtown is the emergence of potential development opportunities associated with the properties owned and controlled by CSX Corporation. CSX owns and operates the railroad lines and yards throughout most of the northeastern United States, including a significant quantity of infrastructure in the Town of Framingham. These include several rail lines and one rail yard, the North Yard, within the study area, as shown on **Figure 3-2**.

The CSX Corporation properties located within the study area occupy significant quantities of land and in central locations. The North Yard is located between Downtown Framingham and Farm Pond preventing access and creating a barrier between the Town center and a natural resource and asset. The CSX Triangle, the property located north of Route 135, south of Park Street and west of Franklin Street is undeveloped despite its extremely close proximity to the MBTA commuter rail station, Routes 135 and 126 and the central core of Downtown Framingham.

At the time of this report, the Commonwealth of Massachusetts and CSX Corporation are engaged in an ongoing evaluation of CSX properties and services in eastern Massachusetts. As part of those discussions, the CSX properties located in the Downtown, have arisen as potential development opportunities. Development of these locations would require the physical relocation and rail realignment of the existing infrastructure. If relocation and realignment can be accomplished, then substantial new development opportunities would be available to Downtown Framingham. At the time of this report, the Town of Framingham is actively supporting the Commonwealth of Massachusetts in its discussions and evaluations with CSX with the goal of enabling the relocation and realignment required to develop these key properties in Downtown Framingham.

Framingham Downtown Study
Preliminary Building Program Calculations

Use			Building Area Based on Res. Units/ Employment	Percent	New/ Proposed Building Area[1]	Estimated Total Building Area [2]	**Percent**	Square Feet/Unit or Employee	Units	Employment[3]	OPTIONS ASSUMING 50% GROWTH IN THE DOWNTOWN (STUDY AREA) Residential District	**Change/ Program 6/30/09**	Percent	Institutional/ Educational Center	**Change/ Program 6/30/09**	Percent	Mixed Use Multicultural Center	**Change/ Program 6/30/09**	Percent
Housing																			
	Low	ownership																	
		rental	552,000	22.0%		552,000	**21.0%**	800	690		552,300	300	**14.0%**	552,300	300	**14.0%**	552,300	300	**14.0%**
	Moderate	ownership	163,200	6.5%		163,200	**6.2%**	1200	136		394,500	231,300	**10.0%**	236,700	73,500	**6.0%**	394,500	231,300	**10.0%**
		rental			90,000	90,000	**3.4%**				394,500	304,500	**10.0%**	315,600	225,600	**8.0%**	394,500	304,500	**10.0%**
	High	ownership			102,000	102,000	**3.9%**				433,950	331,950	**11.0%**	236,700	134,700	**6.0%**	433,950	331,950	**11.0%**
		rental									157,800	157,800	**4.0%**	118,350	118,350	**3.0%**	157,800	157,800	**4.0%**
Subtotal housing	Residential		715,200	28.4%	192,000	896,324	**34.1%**		826		1,933,050	1,036,726	**49.0%**	1,459,650	563,326	**37.0%**	1,933,050	1,036,726	**49.0%**
	Mixed Use [4]																		
Commercial (Business services) [5]			516,800	20.6%	80,000	428,863	**16.3%**	400		1292	552,300	123,437	**14.0%**	591,750	162,887	**15.0%**	552,300	123,437	**14.0%**
Social Services[6]			144,250	5.7%		123,714	**4.7%**	125		1154	78,900	-44,814	**2.0%**	118,350	-5,364	**3.0%**	78,900	-44,814	**2.0%**
Health Services [7]			61,750	2.5%		32,673	**1.2%**	250		247	78,900	46,227	**2.0%**	157,800	125,127	**4.0%**	78,900	46,227	**2.0%**
Retail																			
	Restaurant		48,400	1.9%		17,204	**0.7%**	200		242	78,900	61,696	**2.0%**	59,175	41,971	**1.5%**	98,625	81,421	**2.5%**
	Automotive/gas stations		87,000	3.5%		95,060	**3.6%**	1000		87	39,450	-55,610	**1.0%**	59,175	-35,885	**1.5%**	39,450	-55,610	**1.0%**
	General retail		249,750	9.9%		418,356	**15.9%**	750		333	532,575	114,219	**13.5%**	552,300	133,944	**14.0%**	552,300	133,944	**14.0%**
Government and other Services [8]			354,400	14.1%		243,723	**9.3%**	400		886	256,425	12,702	**6.5%**	295,875	52,152	**7.5%**	256,425	12,702	**6.5%**
Cultural/Institutional [9]				0.0%		208,842	**7.9%**				256,425	47,583	**6.5%**	473,400	264,558	**12.0%**	236,700	27,858	**6.0%**
Light industrial/wholesale[10]			298,000	11.8%		149,213	**5.7%**	2000		149	59,175	-90,038	**1.5%**	59,175	-90,038	**1.5%**	78,900	-70,313	**2.0%**
Underutilized Space/ Other Use[11]			39,250	1.6%		13,400	**0.5%**	125		314	78,900	65,500	**2.0%**	118,350	104,950	**3.0%**	39,450	26,050	**1.0%**
Subtotals of Use Categories			2,514,800	100%	272,000	2,627,372	**100.0%**			4704			**100.0%**			**100.0%**			**100.0%**
Totals (Rounded)						**2,630,000**					**3,945,000**	2,343,478		**3,945,000**	1,870,078		**3,945,000**	2,343,478	
Total Land Area		167 acres																	

Residential units	864		469		864

NOTES:
(1) Includes recent and proposed development at Dennison Triangle
(2) Estimated total building area includes existing building area based on assessors data plus recent development (Dennison Triangle)
(3) From FXM economic and market analysis data (source: Claritas)
(4) Square footage identified in assessors data as mixed use is counted as part of residential, institutional (religious) and retail in the Assumed Building Area column
(5) Assessors data for commercial (business services) has been adjusted to include general office, banks and hotels; employment includes all services, except by health, educational and social services
(6) Assessors and employment data include non-profits and charitable organizations
(7) Assessors data for health services includes nursing home and medical office
(8) Includes public administration and educational services, including the public library
(9) Includes assessors data for religious and fraternal institutions plus the Danforth Museum
(10) Includes wholesale and manufacturing
(11) Assessors data includes electric substation; employment data includes transportation, utilities and construction

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Figure 3-1
Preliminary Downtown Building Program

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Figure 3-2
CSX Corporation Downtown Properties

Development on the two noted CSX properties represents a significant and unique opportunity for Downtown Framingham. The properties are large enough in size that they could support significant development and, due to the proximity of the MBTA commuter rail station, developments in this location can be transit oriented to reduce the negative impacts commonly incurred by large scale developments. However, despite the positive affects associated with transit oriented development on the CSX properties, it is unlikely that development in these locations alone will revitalize Downtown Framingham. Any development on the CSX properties needs to occur in concert with other redevelopment efforts dispersed throughout the Downtown area in order to realize full potential.

3.3 Observations of Key Opportunities in the Downtown

Determining a building program for Downtown Framingham based on occupancy rates of existing buildings and market analysis provides the parameters for development, but not the details of where and how development is likely and most appropriate to occur. A parcel by parcel examination was conducted to determine the locations most susceptible to and best suited for development. The general locations of the properties identified through this process are incorporated into the urban design and development directions adopted by this study. Once a preferred Urban Design/Development direction is identified, the location, context and size of each property that has been identified as a key development opportunity, can be assessed to determine the building program for each specific location and ultimately for all of Downtown Framingham.

3.4 Identification of Key Properties

Properties which contain development potential and represent urban design opportunities were identified through a parcel by parcel assessment based on information gathered and determinations made during the Phase 1 Susceptibility to Change Analysis, supplemental Assessor's Department research, current site usage, site observations, previous studies, and impacts of the considered Transportation Alternatives. In many parcels, opportunities for in-fill development (i.e., building and developing in vacant downtown areas) were identified. The properties, parcels and areas identified below are those which, due to a combination of factors based on this research process, are not only susceptible to development but could be redeveloped in a manner that would improve Downtown Framingham. **Figure 3-3** identifies the key properties, parcels and areas considered by this study.

This same process was used to identify properties and parcels, where retention was deemed to be critical to the success of urban design and development efforts in Downtown Framingham. Those properties are primarily the Town's cultural and civic institutions and the historical commercial buildings located along Concord Street. These buildings represent the core of the downtown urban fabric and should be maintained to preserve the context of the downtown area. **Figure 3-4** identifies the key properties, which should remain through preservation and restoration efforts.

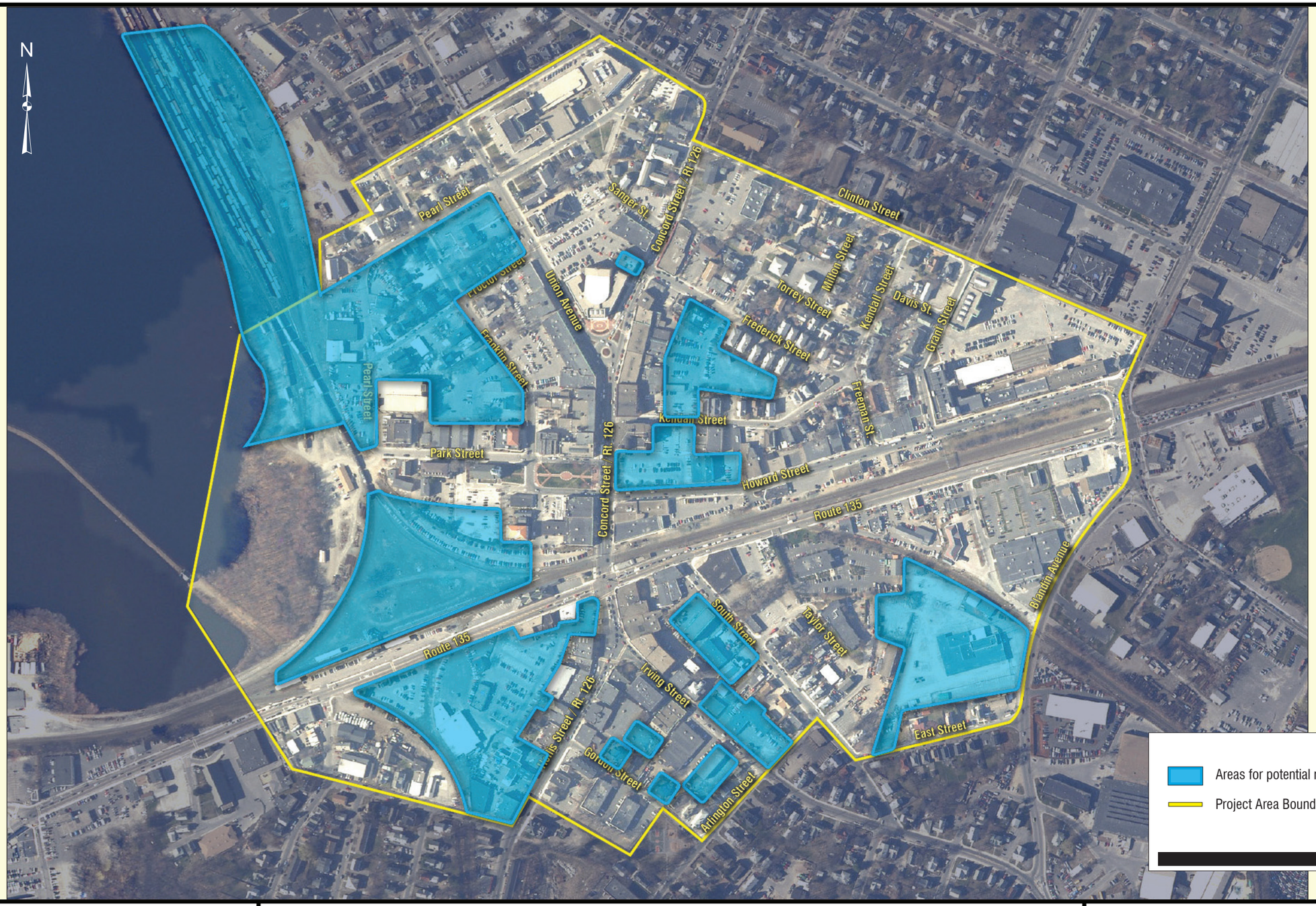

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Figure 3-3
Areas For Potential Redevelopment

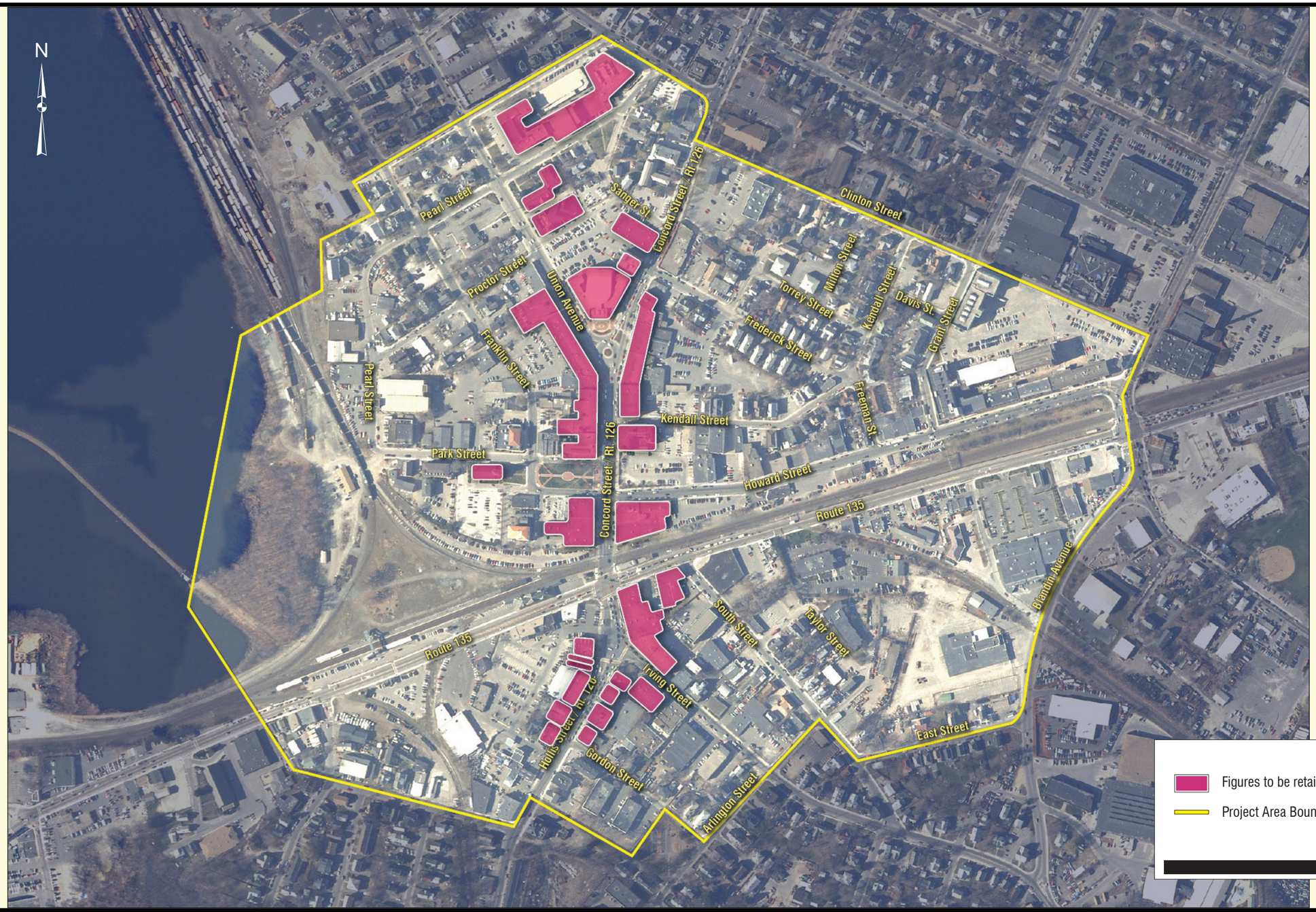

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Figure 3-4
Buildings To Be Retained

A list and description of the key properties, parcels and areas, which are susceptible to development follows:

- Hollis Court Triangle – The property is located south of Route 135, north of Claflin Street, west of Route 126 and east of Cedar Street, directly across Route 135 from the MBTA commuter rail station. This area's current primary use is surface parking. Surface parking lot is not the best utilization of this site, particularly given its extremely close proximity to the MBTA commuter rail station. If the Route 135 Underpass Transportation Alternative is constructed, then the surface parking lots and some of the surrounding buildings will be affected, creating more area for potential development opportunities. Due to its extremely close proximity to the MBTA commuter rail station, the most likely development option for this parcel is a residential/commercial mixed-use transit oriented development.
- Proctor/Franklin Street Intersection – This area includes the properties on all four corners of the Franklin Street and Proctor Street intersection. These properties currently contain various uses including parking lots, and residential and commercial businesses. The parcels in this area are currently underutilized and once revitalization in the Downtown area begins, these parcels would become even more underutilized and more susceptible to change and development, especially given their proximity to the MBTA Commuter Rail Station. These properties could be developed as a combination of institutional, residential and commercial uses. Not all parcels are envisioned to contain mixed use developments, but in combination a mix of uses could exist. These properties are the most likely location for institutional use integration into Downtown Framingham due to their proximity to both Massachusetts Bay Community College and Framingham Union Hospital.
- Arcade Development – The property is located directly behind the Arcade building on Concord Street and in between Fredrick and Kendall Streets. This area is currently used as surface parking to support the businesses in the Arcade building. There have been recent development proposals for this parcel, but none have come to fruition. This parcel could become a mixed use or residential development or the Arcade building is renovated and an independent parking structure is constructed in place of the existing surface parking.
- Concord/Howard Street Intersection – This property is located on the northwest corner of Concord and Howard Streets, directly across from the Town Green. The site is currently used as a series of surface parking lots, which for a property of this size and in this central and prominent location is not obtaining its fullest potential. This site could be utilized as a mixed-use or residential development.
- Blandin Avenue Development – This property is located west of Blandin Avenue, east of Taylor Street, north of East Street and south of Route 126. It is currently used for light industrial purposes. Residential use is the most likely development alternative, due to the site's proximity to established residential neighborhoods and uses located to the south and west. Additionally the site is currently owned by South Middlesex Non-Profit Housing Corporation, which develops affordable housing alternatives.

- South Street Infill – The properties that are susceptible to infill development on South Street are located on the west side, south of Route 135 and north of Arlington Street, but not fronting on Irving Street. The current uses located in this area included commercial, residential and surface parking. The parcels in this area are currently underutilized and once revitalization in the Downtown area begins these parcels would become even more underutilized and more susceptible to change and development, especially given their proximity to the MBTA Commuter Rail Station. These properties are most likely to become infill development that could include residential, mixed-use or independent structured parking.
- Irving Street Infill – The properties that are susceptible to infill development on Irving Street are the properties located on the north and west corners of the Irving Street and Arlington Street intersection and the interior properties of the block bordered by Irving, Hollis, Arlington and Gordon Streets. The current uses located in this area included commercial, residential and surface parking. The parcels in this area are currently underutilized and once revitalization in the downtown area begins these parcels will become even more underutilized and more susceptible to change and development, especially given their proximity to the MBTA Commuter Rail station. These properties are most likely to become infill residential or mixed-use development.
- CSX Triangle – This property is located north of Route 135, south of Park Street, west of Franklin Street and east of Farm Pond. The property is currently underutilized and cut off from the Downtown and from development opportunities by a single CSX rail line. The Commonwealth of Massachusetts is currently engaged in ongoing negotiations with CSX regarding a series of service and property issues. If, in conjunction with the Town of Framingham, the Commonwealth of Massachusetts can negotiate both the removal of this single rail line and the allowance of development on this property, then the likelihood of a commercial transit oriented development occurring at this location increases dramatically.
- North Yard – This property is located east of Farm Pond, west of Pearl and Franklin Streets, north of Park Street and south of Brewster Road. It is currently used as a CSX rail yard. For this site to change uses the existing rail yard would have to be relocated and the existing rail lines would have to be realigned and condensed to one line running north along Farm Pond. The potential for this site to change uses is connected with ongoing rail service and land use agreements between the Commonwealth of Massachusetts and CSX Corporation rail lines. The most likely development use for this property is new residential development, capitalizing on the views of along Farm Pond and remaining consistent with the residential neighborhoods located to the north of Downtown Framingham.

The assessment of these properties was used to guide the Urban Design and Development Directions, Building Program and Development Plan.

4.0 URBAN DESIGN AND DEVELOPMENT DIRECTIONS

Based upon assessments made through research, observations and consultations through the course of this study, **three urban design/ development directions** were formulated for the future development of the Downtown. The three urban design /development directions are residential, cultural and mixed-use. The strategy for each of these directions emphasizes certain uses, but not to exclude other elements completely. Each of these three urban design /development directions presents viable strategies to improve the Downtown.

4.1 Residential Urban Design and Development Direction

The Residential Urban Design and Development Direction represents specific opportunities for development and investment in new and existing residential areas of the Downtown. The Residential Urban Design and Development Direction emphasizes increased residential use as the key focus of the strategy to improve Downtown Framingham. **Figure 4-1** graphically portrays the key elements and strategies of the Residential Urban Design and Development Direction.

The **key elements** of this Residential Directional Strategy are:

- Increase new residential developments – encourage construction of new residential developments in Downtown Framingham providing variations in housing style, type and affordability
- Improve and strengthen the existing residential areas – utilize tools ranging from streetscape improvements to code enforcement in order improve the housing condition of the existing residential neighborhoods
- Maintain the existing commercial and civic mix of uses – renovate the historic buildings and preserve the mix of uses in the Downtown core to enhance the existing codependent relationship between the residential and commercial uses
- Capitalize on the existing mass transit station – encourage construction of new residential transit oriented developments in close proximity to the MBTA commuter rail station on Waverly Street

By employing a dual approach of improving the existing residential areas and developing new residential space the Residential Direction creates alternate market entry points, which broadens the potential market of prospective residents. Additionally, attracting different population segments will diversify the Downtown demographics, which will be important to supporting the existing diverse and varied commercial district.

The Residential Strategy would seek to maintain the existing commercial and civic uses, while increasing the residential component in the Downtown area. Increasing the volume of residential uses will benefit the various components of the area's commercial segment by expanding their adjacent customer base.

Transit oriented residential development remains an untapped opportunity in the Downtown. Few developments have capitalized on the MBTA commuter rail station on Waverly Street. There is little residential development within a ½ mile

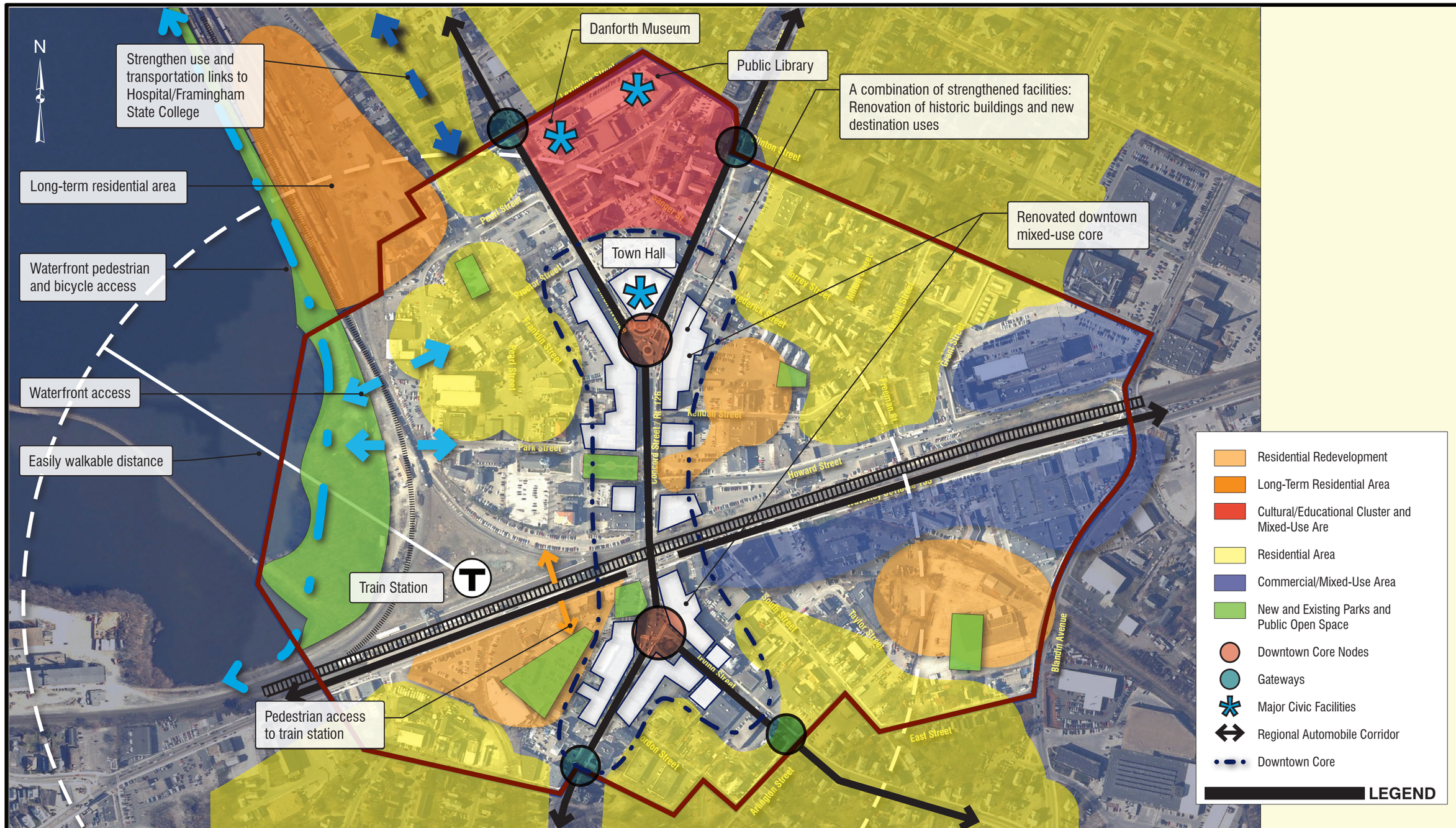

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Figure 4-1
Residential Alternative

radius of the MBTA station and virtually no residential development within a ¼ mile radius of the MBTA station. Locating residential development within a ½ mile of a transit station will lessen, but not eliminate, the traffic impacts a residential development will have on an area. The area surrounding the MBTA commuter rail station on Waverly Street is significantly underutilized and presents several excellent opportunities for strong residential transit oriented development.

The Residential Direction improves the Downtown by developing underutilized areas as residential uses and improving the existing residential neighborhoods. Increased residential population benefits the Downtown by providing a larger immediate market to support commercial uses and by increasing pedestrian activity. Access to public transit and an active Downtown setting are attractive amenities for developers and residents alike. **The Residential Urban Design /Development Direction would improve Downtown Framingham.**

4.2 Cultural Urban Design and Development Direction

The Cultural Urban Design/Development Direction presents specific opportunities for development and investment in new and existing cultural resources located in the Downtown. The key focus of the Cultural Direction is emphasizing an increase in cultural uses in the Downtown area, while maintaining the existing residential and traditional commercial mixed-uses. Cultural uses include educational, institutional, and artistic events and uses, such as Framingham State College, Massachusetts Bay Community College, Framingham Union Hospital, independent movie theaters, and art galleries. **Figure 4-2** graphically portrays the key elements and strategies of the Cultural Urban Design and Development Direction.

The **key elements** of the Cultural Directional Strategy are:

- Increase cultural, institutional and educational uses and activities – encourage new development of cultural centers and resources in the Downtown.
- Improve and strengthen existing cultural resources – invest in facility upgrades and program expansion for existing cultural resources to increase and solidify the amount of cultural activities in the Downtown.
- Improve and strengthen the existing residential areas – utilize tools ranging from streetscape improvements to code enforcement to improve the housing condition of the existing residential neighborhoods.
- Maintain existing commercial and civic mix of uses – renovate the historic buildings and preserve the mix of uses in the Downtown core to enhance the existing codependent relationship between the residential and commercial uses.

Numerous cultural resources exist within the Town of Framingham and the greater Framingham area. These resources could be approached and encouraged to consider an expansion or relocation of facilities and activities to the Downtown. Framingham Union Hospital and Massachusetts Bay Community College are both located directly north of the Downtown area. These are two examples of local

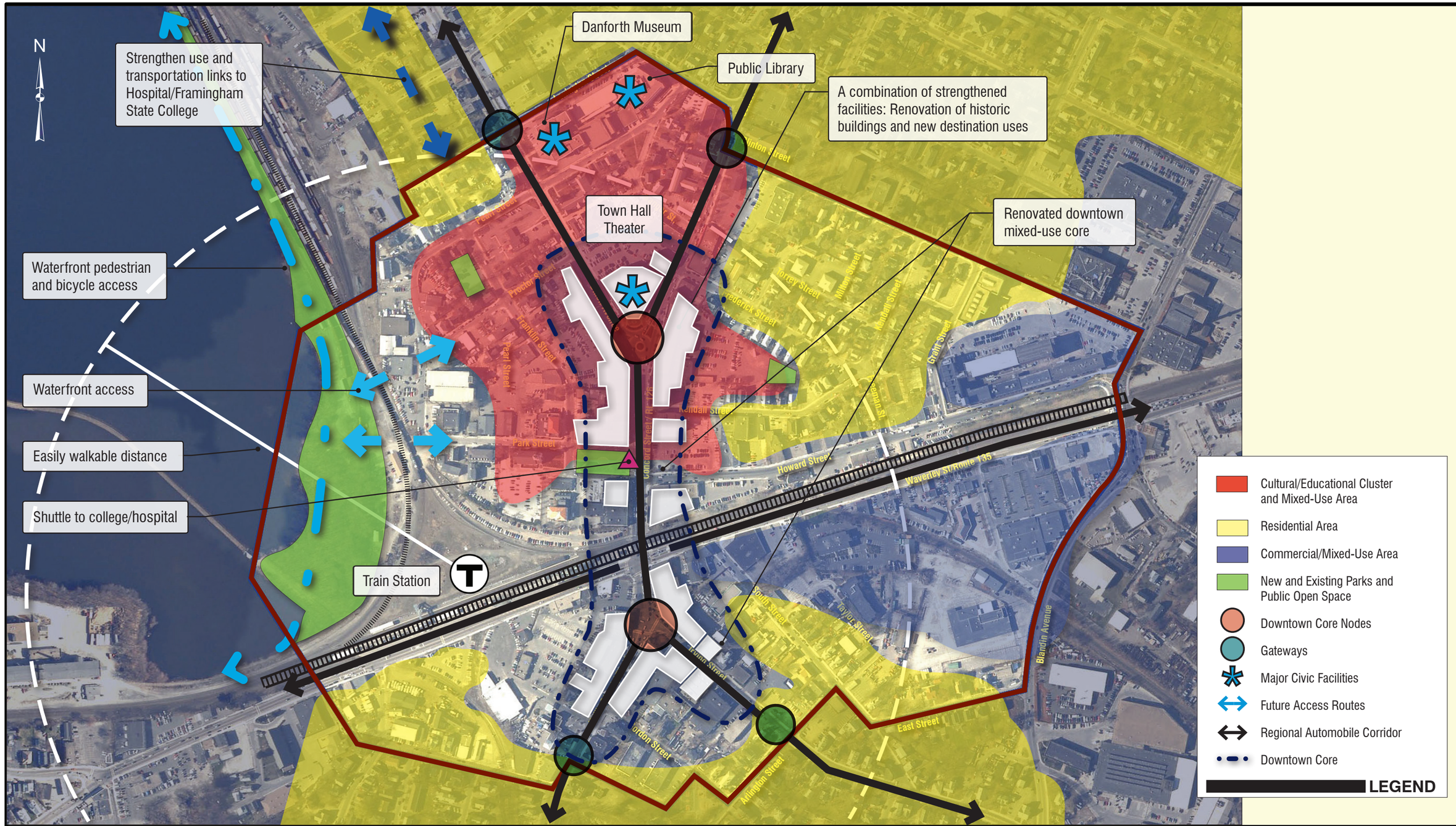

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Figure 4-2
Cultural/Educational Alternative

Institutions may consider investing in a Downtown Framingham location particularly to take advantage of the access provided by the MBTA commuter rail station. In addition to large institutions, opportunities for independent theaters and galleries should be investigated and encouraged to expand or relocate to Downtown Framingham.

Downtown Framingham already possesses a number of existing cultural resources, which include the Danforth Museum, Framingham Public Library and Nevins Hall within the Town Hall. Investing in these resources and increasing programs that use these resources would increase the cultural activity of the downtown area.

Cultural uses by their definition are destination uses. They host or present specific activities that are unique. Therefore, cultural uses should be expected to draw individuals to the Downtown area, which will increase potential customers and business for the existing commercial and mixed-uses areas in the Downtown core. Improving the edges and areas of the residential neighborhoods will enhance and solidify these areas as safe and welcoming for visitors to the cultural activities.

The Cultural Urban Design /Development Direction would improve the Downtown by developing underutilized areas and increasing activity throughout the Downtown area. By leveraging the valuable presence of the MBTA commuter rail station, the existing cluster of cultural resources, and the safe and welcoming feel of the area, Downtown Framingham could create an extremely viable destination for cultural activities. **Cultural uses which attract visitors that support local businesses and generate activity would have a positive impact on Downtown Framingham**.

4.3 Mixed-Use Urban Design and Development Direction

The Mixed-Use Urban Design and Development Direction represents specific opportunities for mixed-use developments and for a variety of developments and investments that contribute and enhance the existing mix of uses located in the Downtown. The Mixed-Use Direction emphasizes a range of new developments, which are appropriate for each specific location, but are balanced in a manner that is consistent with the existing mixed-use character of the Downtown. Increasing the volume and variety of the uses currently present in Downtown Framingham will increase the activity level throughout the area in a more efficient and effective manner, making Downtown Framingham a more desirable place to live, work and visit. **Figure 4-3** graphically portrays the key elements and strategies of the Mixed-Use Urban Design and Development Alternative.

The **key elements** of the Mixed-Use Directional Strategy are:

- Increase new commercial developments – encourage construction of new commercial developments in Downtown Framingham capitalizing on the proximity to mass transit and the regional highway system
- Increase new residential developments – encourage construction of new residential developments in Downtown Framingham providing variations in housing style, type and affordability

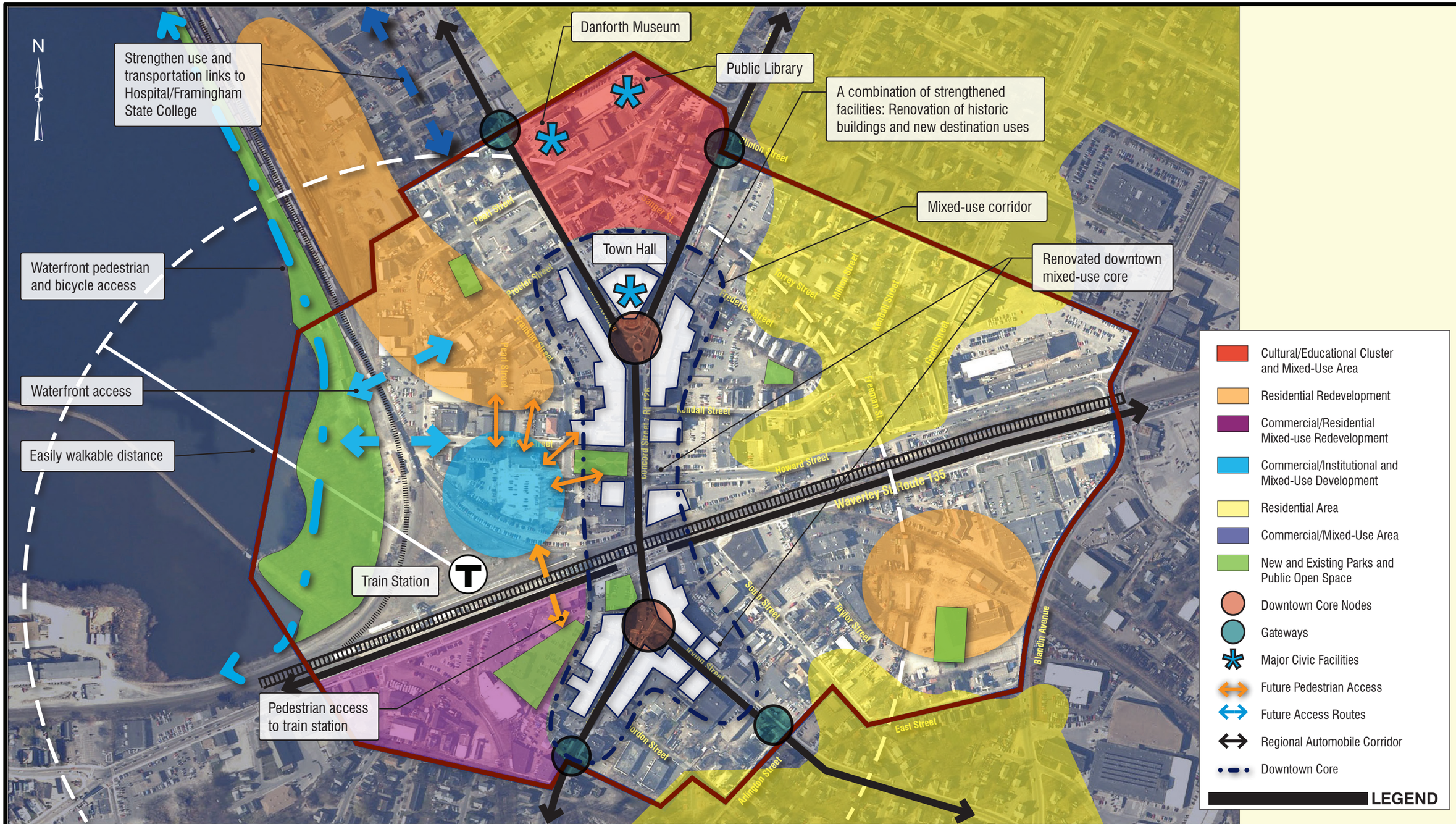

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Figure 4-3
Mixed-Use Alternative

- Increase new mixed-use developments – encourage construction of new mixed-use developments in Downtown Framingham featuring ground floor retail or commercial and upper levels of residential uses and capitalizing on the proximity to mass transit and the regional highway system
- Capitalize on existing mass transit station – encourage construction of new residential transit oriented developments in close proximity to the MBTA commuter rail station
- Maintain existing commercial and civic mix of uses – renovate the historic buildings and preserve the mix of uses in the Downtown core and enhance the existing codependent relationship between the residential and commercial uses
- Improve and strengthen the existing residential areas – utilize tools ranging from streetscape improvements to code enforcement to improve the housing condition of the existing residential neighborhoods

The use of each new development should be determined based on the most appropriate fit for the specific location, but the existing mixed-use character of Downtown Framingham should be maintained. In addition to seeking new development opportunities for a variety of uses, The Mixed-Use Urban Design /Development Direction includes preserving the downtown mixed-use core and improving the existing residential areas. Strengthening the existing mixed-use environment is critical to ensuring the success of additional and expanded mixed-use areas.

The Mixed-Use Urban Design and Development Direction improves the Downtown by developing underutilized areas and expanding the existing mixed-use character of the area to include new residential, new commercial and new mixed-use transit oriented development. A balanced mix of appropriate uses will efficiently maximize activity in Downtown Framingham creating a highly desirable place to live, work and visit.

4.4 Integrated Scenarios Matrix

The Consultant team evaluated the three urban design and development directions with the four transportation alternatives to determine the compatibility of each integrated scenario. Each of the twelve possible integrated scenarios was assessed to determine in what ways urban design and development directions and transportation alternatives conflicted or enhanced each other. This evaluation is detailed in an Assessment Matrix shown in **Figure 4-4**. The following four transportation alternatives included in the integrated scenario assessment were detailed in **Section 2.2** of this Report:

- Route 135 as the Underpass
- Route 126 as the Underpass
- East Bypass
- Far East Bypass

	135 AS UNDERPASS	126 AS UNDERPASS	EAST BYPASS	FAR EAST BYPASS
CULTURAL DIRECTION	INTEGRATION ASSESSMENT The 135 Underpass Transportation Alternative is highly compatible with the Cultural Urban Design and Development Direction. Not only will the 135 Transportation Alternative function in concert with the key initiatives of the Cultural Urban Design and Development Direction, but by increasing the TOD development opportunities along Hollis Ct this transportation alternative actually enhances the goals and objectives of the Cultural Urban Design and Development Direction.	INTEGRATION ASSESSMENT The 126 Underpass Transportation Alternative is not compatible with the Cultural Urban Design and Development Direction. This transportation alternative would require tunnel sections to be placed in front of storefronts throughout the downtown corridor, creating a significantly negative impact on both the pedestrian environment and the commercial viability of those locations. The Cultural Urban Design and Development Direction emphasized the strengthening of the downtown core mixed-use district.	INTEGRATION ASSESSMENT The East Bypass Transportation Alternative is compatible with the Cultural Urban Design and Development Direction. This transportation alternative would have little impact on the urban design or development initiatives, beyond a reduction of through traffic in the downtown area. All of the key initiatives of the Cultural Urban Design and Development Direction can be pursued in concert with the implementation of the East Bypass Transportation Alternative.	INTEGRATION ASSESSMENT The Far East Bypass Transportation Alternative is compatible with the Cultural Urban Design and Development Direction. This transportation alternative would have little impact on the urban design or development initiatives, beyond a reduction of through traffic in the downtown area. All of the key initiatives of the Cultural Urban Design and Development Direction can be pursued in concert with the implementation of the Far East Bypass Transportation Alternative.
	PROS • Increases the TOD development opportunities along Hollis Ct • Alleviates vehicular congestion in the downtown area by creating a grade separation with Route 126 • Enhances the goals and objectives of the Cultural Urban Design and Development Direction	PROS • Alleviates vehicular congestion in the downtown area by creating a grade separation with both the rail line and Route 135	PROS • Reduction in through traffic in the downtown area • Does not interfere with goals and objectives of the Cultural Urban Design and Development Direction	PROS • Reduction in through traffic in the downtown area • Does not interfere with goals and objectives of the Cultural Urban Design and Development Direction
	CONS	CONS • Severely detrimental to the commercial viability of the downtown area • Severely detrimental to the pedestrian environment of the downtown area • Infrastructure requirements directly conflict with the goals and objectives of the Cultural Urban Design and Development Direction	CONS • Does not enhance the goals and objectives of the Cultural Urban Design and Development Direction	CONS • Does not enhance the goals and objectives of the Cultural Urban Design and Development Direction

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Figure 4-4
Assessment Matrix

	135 AS UNDERPASS	126 AS UNDERPASS	EAST BYPASS	FAR EAST BYPASS
RESIDENTIAL DIRECTION	INTEGRATION ASSESSMENT The 135 Underpass Transportation Alternative is highly compatible with the Residential Urban Design and Development Direction. Not only will the 135 Transportation Alternative function in concert with the key initiatives of the Cultural Urban Design and Development Direction, but by increasing the TOD development opportunities along Hollis Ct this transportation alternative actually enhances the goals and objectives of the Residential Urban Design and Development Direction.	INTEGRATION ASSESSMENT The 126 Underpass Transportation Alternative is not compatible with the Residential Urban Design and Development Direction. This transportation alternative would require tunnel sections to be placed in front of storefronts throughout the downtown corridor, creating a significantly negative impact on both the pedestrian environment and the commercial viability of those locations. The Residential Urban Design and Development Direction emphasizes the strengthening of the downtown core mixed-use district through the renovation of historic buildings, creating new destinations and activity generators in the downtown core and increasing the residential uses.	INTEGRATION ASSESSMENT The East Bypass Transportation Alternative is compatible with the Residential Urban Design and Development Direction. This transportation alternative would have little impact on the urban design or development initiatives, beyond a reduction of through traffic in the downtown area. All of the key initiatives of the Residential Urban Design and Development Direction can be pursued in concert with the implementation of the East Bypass Transportation Alternative.	INTEGRATION ASSESSMENT The Far East Bypass Transportation Alternative is compatible with the Residential Urban Design and Development Direction. This transportation alternative would have little impact on the urban design or development initiatives, beyond a reduction of through traffic in the downtown area. All of the key initiatives of the Residential Urban Design and Development Direction can be pursued in concert with the implementation of the Far East Bypass Transportation Alternative.
	PROS • Increases the TOD development opportunities along Hollis Ct • Alleviates vehicular congestion in the downtown area by creating a grade separation with Route 126 • Enhances the goals and objectives of the Residential Urban Design and Development Direction	PROS • Alleviates vehicular congestion in the downtown area by creating a grade separation with both the rail line and Route 135	PROS • Reduction in through traffic in the downtown area • Does not interfere with goals and objectives of the Residential Urban Design and Development Direction	PROS • Reduction in through traffic in the downtown area • Does not interfere with goals and objectives of the Residential Urban Design and Development Direction
	CONS	CONS • Severely detrimental to the commercial viability of the downtown area • Severely detrimental to the pedestrian environment of the downtown area • Infrastructure requirements directly conflict with the goals and objectives of the Residential Urban Design and Development Direction	CONS • Does not enhance the goals and objectives of the Residential Urban Design and Development Direction	CONS • Does not enhance the goals and objectives of the Residential Urban Design and Development Direction

	135 AS UNDERPASS	126 AS UNDERPASS	EAST BYPASS	FAR EAST BYPASS
MIXED-USE DIRECTION	INTEGRATION ASSESSMENT The 135 Underpass Transportation Alternative is highly compatible with the Mixed-Use Urban Design and Development Direction. Not only will the 135 Transportation Alternative function in concert with the key initiatives of the Cultural Urban Design and Development Direction, but by increasing the TOD development opportunities along Hollis Ct this transportation alternative actually enhances the goals and objectives of the Mixed-Use Urban Design and Development Direction.	INTEGRATION ASSESSMENT The 126 Underpass Transportation Alternative is not compatible with the Mixed-Use Urban Design and Development Direction. This transportation alternative would require tunnel sections to be placed in front of storefronts throughout the downtown corridor, creating a significantly negative impact on both the pedestrian environment and the commercial viability of those locations. The Mixed-Use Urban Design and Development Direction emphasizes the strengthening of the downtown core mixed-use district through the renovation of buildings and increasing the volume of mixed-use space and activities.	INTEGRATION ASSESSMENT The East Bypass Transportation Alternative is compatible with the Mixed-Use Urban Design and Development Direction. This transportation alternative would have little impact on the urban design or development initiatives, beyond a reduction of through traffic in the downtown area. All of the key initiatives of the Mixed-Use Urban Design and Development Direction can be pursued in concert with the implementation of the East Bypass Transportation Alternative.	INTEGRATION ASSESSMENT The Far East Bypass Transportation Alternative is compatible with the Mixed-Use Urban Design and Development Direction. This transportation alternative would have little impact on the urban design or development initiatives, beyond a reduction of through traffic in the downtown area. All of the key initiatives of the Mixed-Use Urban Design and Development Direction can be pursued in concert with the implementation of the Far East Bypass Transportation Alternative.
	PROS • Increases the TOD development opportunities along Hollis Ct • Alleviates vehicular congestion in the downtown area by creating a grade separation with Route 126 • Enhances the goals and objectives of the Mixed-Use Urban Design and Development Direction	PROS • Alleviates vehicular congestion in the downtown area by creating a grade separation with both the rail line and Route 135	PROS • Reduction in through traffic in the downtown area • Does not interfere with goals and objectives of the Mixed-Use Urban Design and Development Direction	PROS • Reduction in through traffic in the downtown area • Does not interfere with goals and objectives of the Mixed-Use Urban Design and Development Direction
	CONS	CONS • Severely detrimental to the commercial viability of the downtown area • Severely detrimental to the pedestrian environment of the downtown area • Infrastructure requirements directly conflict with the goals and objectives of the Mixed-Use Urban Design and Development Direction	CONS • Does not enhance the goals and objectives of the Mixed-Use Urban Design and Development Direction	CONS • Does not enhance the goals and objectives of the Mixed-Use Urban Design and Development Direction

The three urban design and development directions included in the integrated scenario assessment were detailed earlier in Sections 4.1 through 4.3 of this Report. The three Directional Strategies are:

- Residential Urban Design and Development
- Cultural Urban Design and Development
- Mixed-Use Urban Design and Development

4.5 Findings

The assessment of the various possible integrated scenarios provided several insights into the compatibility concepts. The key findings reached as a result of the assessment are:

- The East Bypass Transportation Alternative and Far East Bypass Transportation Alternative are compatible with all three of the urban design and development scenarios. These transportation alternatives and the urban design and development directions do not conflict in any identified manner. The three urban design and development directions benefit from these two transportation alternatives by reducing through traffic in the Downtown. The East Bypass Transportation Alternative and Far East Bypass Transportation Alternative are compatible with all three of the urban design and development scenarios because they are largely independent of each other.
- Route 126 Underpass Transportation Alternative was found to not be compatible with any of the three urban design and development scenarios. This transportation alternative would require approximately 500 feet of depressed roadway on either side of Route 135 in front of storefronts throughout the downtown corridor, creating a significantly negative impact on both the pedestrian environment and the commercial viability of those locations. Each of the three urban design and development directions emphasize the strengthening and preservation of the mixed-use downtown core, this transportation alternative creates dramatic conflict with that goal.
- Route 135 Underpass Transportation Alternative is highly compatible with all three of the urban design and development alternatives. Not only does this transportation alternative not conflict with any of the goals and objectives for any of the three urban design and development directions, the Route 135 Underpass Transportation Alternative would help unlock a sizable and strategically located piece of land for development opportunities along Hollis Court.

Of the four transportation alternatives examined in this process the Route 135 Underpass Transportation Alternative is the preferred transportation alternative for all the urban design and developmental alternatives because of the development opportunities it creates. The development opportunities associated with the property located on Hollis Court are significant due to the size of the area, current underutilization, proximity to the MBTA commuter rail station, and the highly visible nature of its prominent setting on Route 135. The development of that property would likely be accelerated and expanded through the use of this transportation alternative.

Based on the conclusion of this analysis and feedback from the Steering Committee, a **Preferred Land Use Concept** was developed based the preferred

elements of the three urban design and development alternatives. The **Preferred Land Use Concept** is based on the Mixed-Use Alternative, but includes elements from each of the three urban design and development alternatives. The Preferred Land Use Concept features new residential developments and improvements to existing residential neighborhoods, preserving and renovating the historic Downtown core buildings, increased cultural and educational institutions, mixed-use and commercial transit oriented developments and improved pedestrian and open space network. The Preferred Land Use Concept is detailed in **Figure 4-5** and was used as the basis Development Plan and Model.

4.6 Planning: Preferred Urban Design and Development Summary

A Development Plan and Model was based on the Preferred Land Use Concept (the Mixed-Use Strategy), the preferred Transportation Alternative, the key property analysis, the utilization analysis and the preliminary building program. The Development Plan is attached in **Figure 4-6** and views of the model to demonstrate massing and context are shown in **Figures 4-7, 4-8, and 4-9**. The Development Plan represents Downtown Framingham at maximum potential build out, with an approximate 30 year timeline. The Development Plan includes development on the CSX properties and development opportunities associated with the Route 135 Underpass Transportation Alternative.

4.6.1 Development Plan Goals and Objectives

The Development Plan pursues the goals of the Mixed-Use Urban Design and Development Directional Strategy by maintaining and restoring the historical buildings that line the Downtown core, while capitalizing on infill development options located just beyond the Downtown core. New developments in the plan are spread throughout the Downtown area and not concentrated in a single location or project. Developing the Downtown through multiple projects enables widespread change and is more conducive to expanding the mixed-use environment that is already the foundation of Downtown Framingham. The development plan projects residential, commercial and mixed-use infill projects, mixed-use and commercial transit oriented developments, as well as both medium and high density residential developments. Additionally, the Development Plan includes increased parking resources to support the entire Downtown area, as well as increased open space areas.

The underutilization in Downtown Framingham is addressed through a three prong development approach.

- First the revitalization and renovation of the Downtown core buildings would improve the existing building stock and encourage greater demand and higher utilization of those buildings.
- Second, infill development throughout the Downtown area would reduce the number and volume of underutilized properties.
- Third, increasing the amount of transit oriented development in prominent locations along Route 135 will increase pedestrian activity throughout the Downtown area and act as a catalyst for additional development.

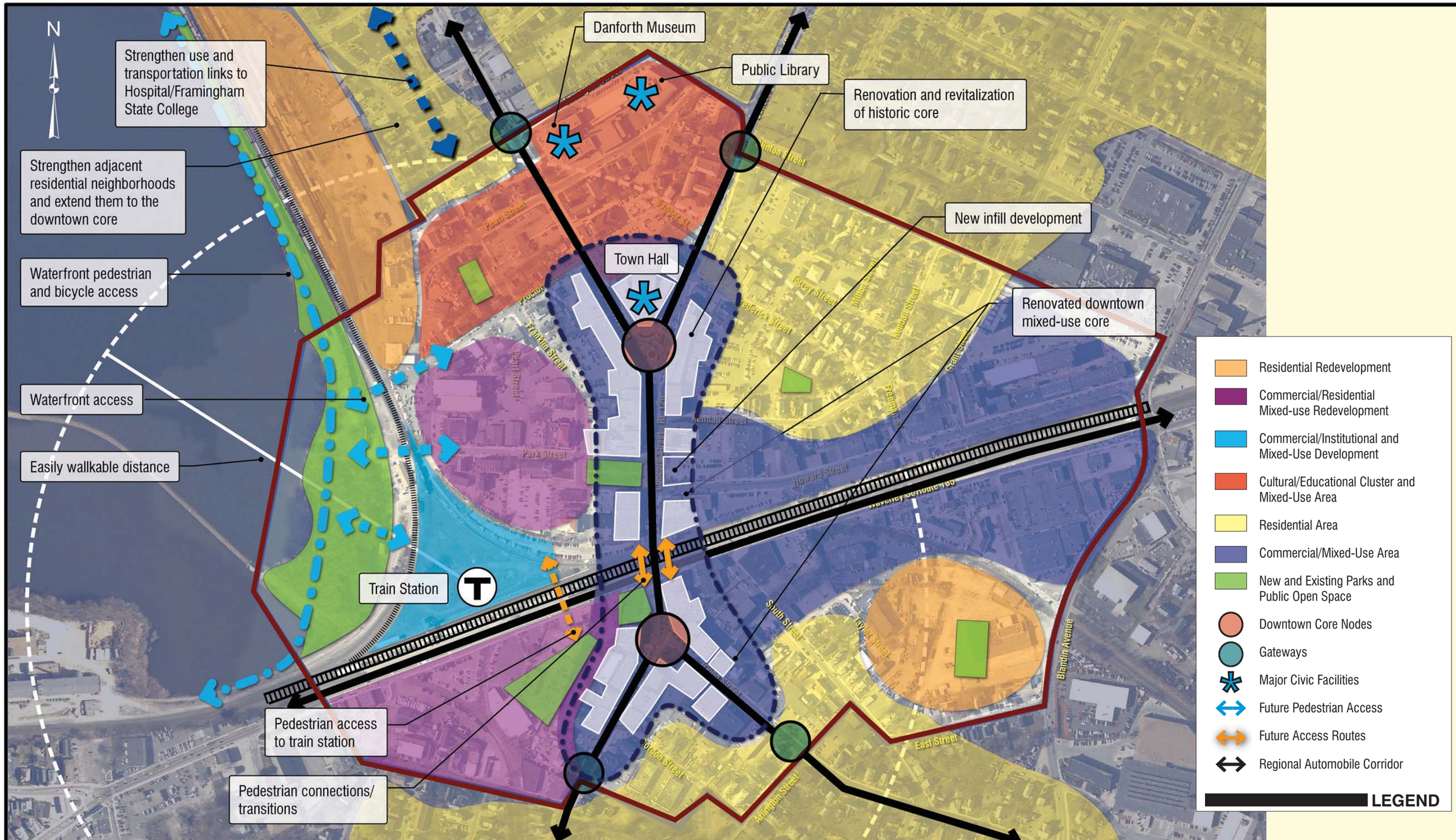

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Figure 4-5
Preferred Land Use Concept

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Figure 4-6
Development Plan

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Figure 4-7
Development Model View 1

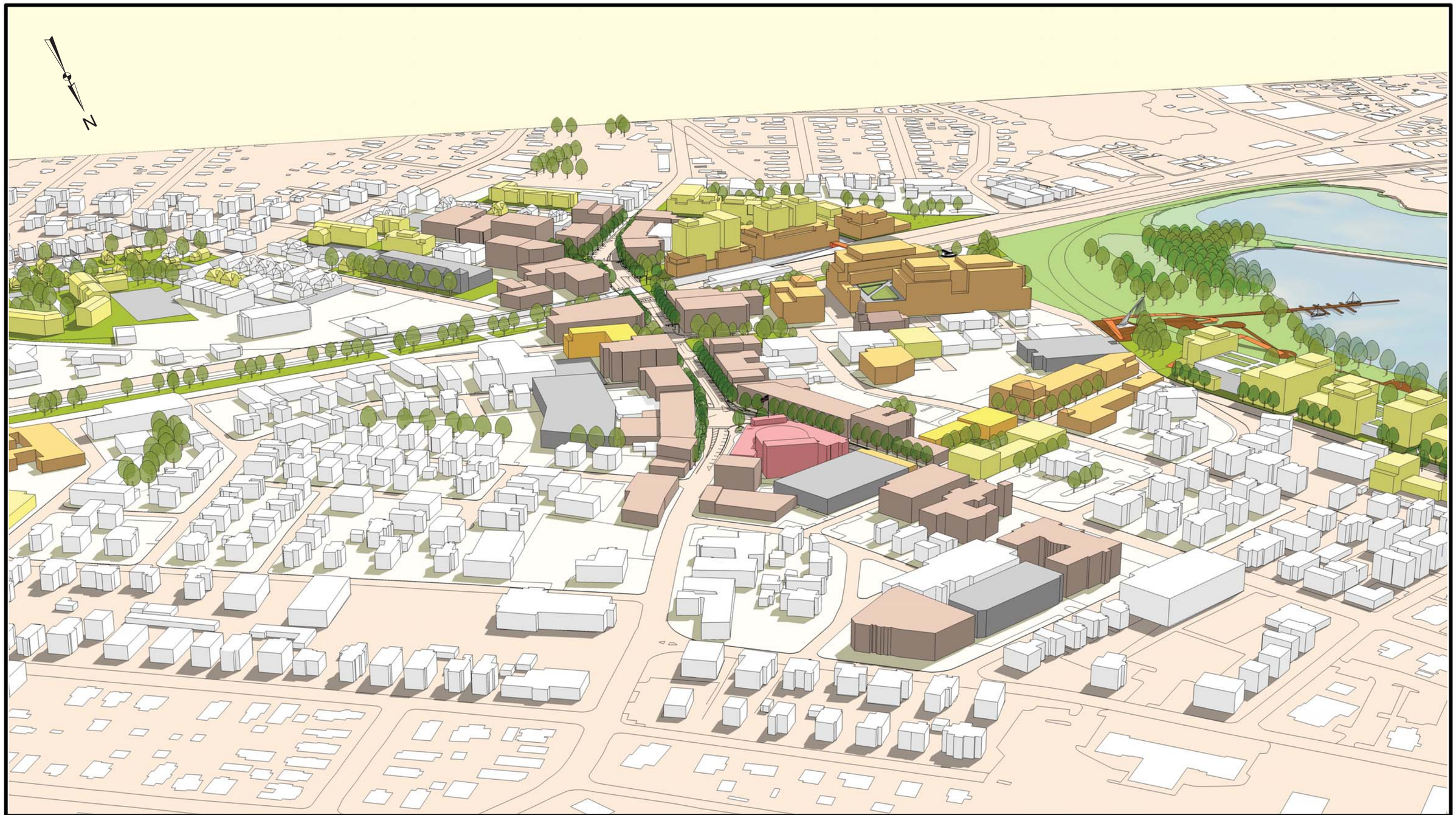

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Figure 4-8
Development Model View 2

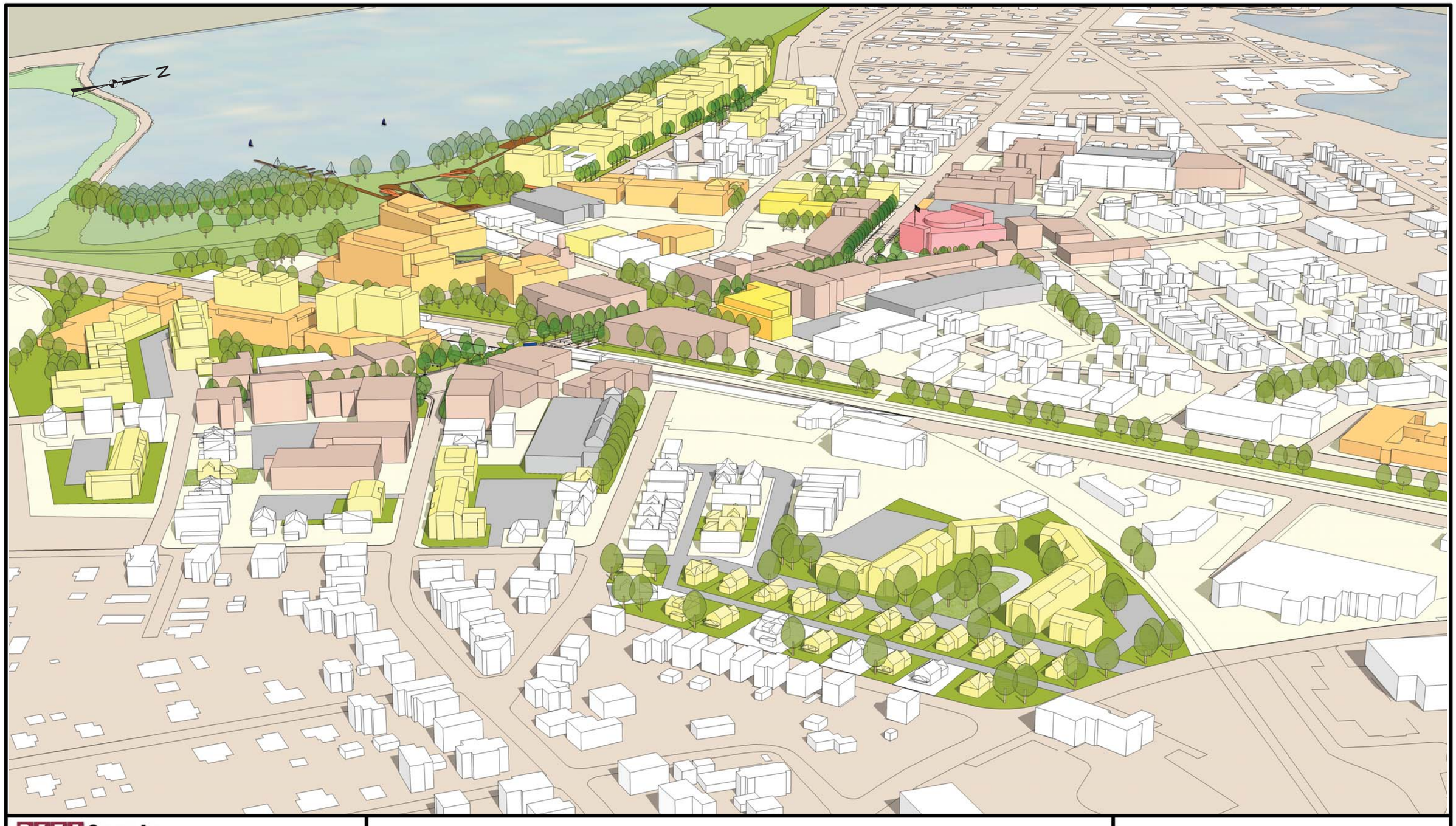

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Figure 4-9
Development Model View 3

4.6.2 Description of Key Development Parcels

A description of the Development Plan's projections for the key properties, parcels and areas susceptible to change as identified in Section 3.4 of this Report follows:

- Hollis Court Triangle – This property projects as a residential and commercial mixed-use transit oriented development, containing structured parking and featuring open green space within the development. The construction required for the Route 135 Underpass Transportation Alternative creates additional area for this development. **The projected building program for this development is approximately 80,000 SF of commercial space and 178 residential units.**
- Proctor/Franklin Street Intersection – These properties project to contain four new infill buildings. Two of the new infill buildings are commercial uses containing space that support the existing local institutions. One of these buildings is dedicated for residential use and the final building is projected as mixed-use with first floor commercial and residential units above. **Together these four developments project to contain approximately 166,132 SF of new development.**
- Arcade Development – The existing Arcade building, located on Concord Street, projects to be retained and renovated, which is consistent with efforts to preserve the traditional mixed-use downtown core. The parcel located directly behind the existing Arcade building projects as a **new parking structure, containing approximately 400 parking spaces.**
- Concord/Howard Street Intersection – This property projects to be utilized as a **residential and commercial mixed-use development containing approximately 73,310 SF.**
- Blandin Avenue Development – This property projects to become approximately **220 mixed income residential housing units.**
- South Street Infill – These properties project to become **structured parking supporting approximately 330 spaces.**
- Irving Street Infill – These properties project to become **30 units of infill residential housing.**
- CSX Triangle – This area project as **commercial transit oriented development totaling approximately 240,000 SF.**
- North Yard – The property projects as new residential development containing approximately **597 residential units**, capitalizing on the views of along Farm Pond, close proximity to Downtown Framingham and the MBTA commuter rail.

The specific development sites detailed above and graphically represented in the Development Plan and Model constitute approximately 1,800,000 SF of new construction building program, between 600,000 SF of commercial space and 1,000 new residential units. Due to the low utilization rates approximately 1,100,600 SF of additional program will be

absorbed within the existing Downtown building supply, which will increase the utilization of Downtown Framingham's existing buildings by approximately 47% raising the total utilization to approximately 90%.

The additional 1,100,600 SF of improved utilization of Downtown buildings increases the total building program growth to 2,900,000 SF. This revised building program incorporates the utilization analysis of Downtown Framingham, the development potential associated with the CSX properties in the Downtown area and an increased focus on transit oriented development opportunities. This revised building program represents an increase of 123% of the currently existing Downtown building program. The 2,900,000 SF of additional building program projects a nearly even divide between residential uses at 1,485,600 SF (1,238 units) or 51% of total additional building program and 1,415,000 SF of commercial, retail and institutional uses or 49% of total additional building program. **Figure 4-10** details the distribution of the building program between residential and commercial uses, as well as new construction and the increased utilization of existing buildings.

The Downtown Framingham building program was evolved and advanced through the utilization analysis performed for the Downtown area, the area's economic context, the addition of the CSX properties and an examination of Downtown Framingham's physical assets and resources. Key elements considered in the development of the Downtown Framingham building program are summarized below:

- Existing Mixed-Use – Downtown is a mixed-use town center, possessing residential, commercial and government uses. The existing mixed-use condition of the Downtown provides a strong base to expand uses as opposed to being required to introduce uses into the area.
- Underutilization –The existing building square footage in Downtown Framingham is currently only 43% utilized. The Downtown's underutilization presents an opportunity to quickly increase the area's building program without incurring the expense of new construction.
- Assets and Resources – Downtown is a multi-modal transportation center. Rail stations such as Downtown Framingham's can be the catalyst for significant and successful transit oriented developments.
- Economic Overview – Downtown is part of a successful local and regional economy. Economic market conditions indicate that strategic economic development in the Downtown can supported and successful.

Framingham Downtown Study
Development Plan Building Program Calculations
Long Term Build Out Projections

Use	Existing Building Area Based on Assesors Data (2009)	Percent	New Construction Building Program, Development Plan	Percent of New Construction Building Program	Percent Increase of Existing Building Area	Higher Utilization Building Program, Development Plan	Percent Increase of Higher Utilization Building Program	Percent Increase of Existing Building Area	Combined Building Program Increase of New Construction and Higher Utilization over Existing Building Area	Percent Increase of New Construction and Higher Utilization over Existing Building Area
Housing	704,324	29.9%	1,200,000	66.7%	170.4%	285,600	25.9%	40.5%	1,485,600	211%
Commercial (Business Services) [1]	348,863	14.8%	300,000	16.7%	86.0%	165,090	15.0%	47.3%	465,090	133%
Social Services[2]	123,714	5.3%								
Health Services [3]	32,673	1.4%	76,690	4.3%	234.7%	110,060	10.0%	336.9%	186,750	572%
Retail										
Restaurant	17,204	0.7%	40,000	2.2%	232.5%	55,586	5.1%	323.1%	95,586	556%
Automotive/gas stations	95,060	4.0%								
General retail	418,356	17.8%	80,000	4.4%	19.1%	220,120	20.0%	52.6%	300,120	72%
Government and other Services [4]	243,723	10.3%								
Cultural/Institutional [5]	208,842	8.9%	103,310	5.7%	49.5%	264,144	24.0%	126.5%	367,454	176%
Light industrial/wholesale[6]	149,213	6.3%								
Underutilized Space/ Other Use[7]	13,400	0.6%								
Total Build Out Scenario	**2,355,372**	**100%**	**1,800,000**	**100.0%**	**76%**	**1,100,600**	**100.0%**	**47%**	**2,900,600**	**123%**
Total Land Area 167 acres										

NOTES:
(1) Assessors data for commercial (business services) has been adjusted to include general office, banks and hotels; employment includes all services, except by health, educational and social services
(2) Assessors and employment data include non-profits and charitable organizations
(3) Assessors data for health services includes nursing home and medical office
(4) Includes public administration and educational services, including the public library
(5) Includes assessors data for religious and fraternal institutions plus the Danforth Museum
(6) Includes wholesale and manufacturing
(7) Assessors data includes electric substation; employment data includes transportation, utilities and construction

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Figure 4-10
Long Term Development Plan Building Program

5.0 THE NEXT STEPS / IMPLEMENTATION

5.1 Transportation

The goal of this study was to assess conditions in the Downtown and to evaluate the potential for four pre-selected alternatives to improve transportation, provide urban design/land use options, and develop opportunities for economic growth in the Downtown. While this document includes recommendations in these areas, this is the beginning of the process.

A project of this significance will require an Environmental Impact Report (EIR) or an Environmental Impact Statement (EIS). Either document will bring a new beginning to the process and will require a thorough review and a much more rigorous assessment of these recommendations, as well as to a new set of alternatives.

Transportation alternatives will include a No-Build condition, or an assessment of what can be expected if no significant improvements occur. The Route 135 Underpass is also a likely Build alternative. Several additional Build alternatives will also be considered, either as a stand-alone option, or as a supplement to another. Several other transportation improvements have nonetheless been discussed already, including:

- A rail grade separation East of Route 126, either under or over Route 135.
- A rail grade separation just west of Route 126, across Route 135 into the current North Rail Yard.

Either of these could provide a supplemental benefit to provide a much-needed direct, uninterrupted north-south link that is currently lacking in Framingham, and would build upon improvements at the Winter Street and Fountain Street bridges currently under MassHighway design.

5.2 Development and Urban Design

5.2.1 Leveraging Transportation Investments to Improve the Downtown

This planning process has been founded on the understanding that the future of the Downtown is directly linked to transportation and the improvements that must be made to reduce congestion, aid circulation, and overcome the negative impacts of the rail activity through and along the edges of the district. This section of the Report focuses on several particular methods that may be used to implement the redevelopment and urban design recommendations of the Downtown in a manner that will leverage the investment in the transportation infrastructure and create substantial economic and civic benefits.

Implementation methods would need to be consistent with the characteristics of the preferred transportation alternative - the grade separation of Route 135 below Concord Street. These methods would also need to be applicable to refinements in this alternative, other alternatives that may emerge, or additional circulation and roadway changes. The methods are intended to amplify the benefits of transportation infrastructure investment to create new opportunities for:

- Transit-oriented development
- Revitalization of existing properties
- Enhanced retail, restaurant and services district
- Amenities to create a more attractive and valuable Downtown
- Enhanced pedestrian and bicycle connectivity as an alternative to motor vehicle use
- Enhanced use of transit through increased commuter parking

In keeping with the scope and purposes of this study, however, the following discussion is not intended to be a complete description of all of the implementation tools and actions that will be required to accomplish the Town's vision for the Downtown. Many parallel actions will need to be undertaken to advance the Downtown improvement agendas, marshaled by the Town's leadership, staff and organizations. A complete list would include many other measures that are certainly necessary, but which are not directly related to the transportation network. These could include tools and programs such as marketing, code enforcement, housing rehabilitation, home ownership incentives, re-organization or relocation of some social programs, event programming, business support programs, and many others.

5.2.2 Using Publicly-Owned Land and Land Acquisition to Create Transit-Oriented Development

Downtown Framingham is currently subject to significant congestion due to the constrained roadway network that channels traffic through relatively narrow streets and compresses traffic at intersections adjacent to limited rail crossings. The roadway network skirts Farm Pond and discourages "cut through" traffic in nearby neighborhoods due to the configuration of the streets and the character of the uses that line them. In this context, substantial improvements, such as the Route 135 Underpass concept will require a combination of road widening and reconfiguration that will entail acquisition of additional right-of-way.

These actions would result in re-organized land parcels that should be used as an opportunity to create redevelopment opportunities, if careful consideration is placed on the relationship between the roadway improvements and the location, configuration and disposition of the properties that are affected. The following methods should be applied to the future detailed planning and evaluations of the roadway improvement proposals to generate additional economic and community benefits:

This land should be planned to create sites for consolidated commuter parking, new development that can augment the revitalization of the downtown. The new development patterns should be consistent with retaining the historic fabric and structures in the area to the greatest extent practical. This includes reinforcing a pattern of buildings that line the surface streets and create a valuable, traditional pattern of pedestrian-friendly sidewalks and retail environment. The parcelization patterns should also allow for the creation of new public open spaces and pedestrian networks that provide effective routes through the Downtown, across the rail alignment, and as a complement to new development.

- Parcelization – The roadway alignments and right-of-way acquisitions should be undertaken in a manner that results in parcelization of adjacent land areas that are well-proportioned and sized to support the physical requirements of efficient land use and redevelopment. For example, the land adjacent to the re-organized roadway associated with the Route 135 Alternative should not result in small, difficult to use parcels that cannot be easily adapted to new uses. To the contrary, this area of the Downtown is adjacent to the MBTA commuter rail station and should be considered as priority sites for transit-oriented development.

- Ownership and Disposition – The roadway improvements and property acquisition program should anticipate the implementation of transit-oriented development, parking and public open space improvements through methods that will result in a disposition process that will lead to productive ownership. For example, fractured ownership of small parcels of land that are remnants of roadway improvement projects can result in substantial difficulties in re-assembling land and allowing productive reinvestment through the sale or long term lease of assembled parcels. In contrast, the roadway planning should specify the methods that will be employed to ensure that land can be reassembled and brought to market, or made available for appropriate public use.

5.2.3 Establishing a Redevelopment Entity to Sponsor Transit-Oriented Redevelopment

The Town should consider establishing a special redevelopment entity responsible for initiating and conducting the redevelopment of land that is made available or re-organized as a result of roadway improvements such as those recommended in this report. The purpose of this entity would be to manage the redevelopment process such as: undertaking the site

preparation and directing the ultimate disposition; seeking and applying public funding, grants and special financing; assisting in the entitlement process and, marketing; and, operating public facilities and amenities that might be associated with redevelopment.

Various organizational and governance models have been successfully applied by other communities to accomplish similar redevelopment purposes. These include Redevelopment Authorities organized under M.G.L. Chapter 121B and community development corporations. The Town could undertake an evaluation of other communities and the methods that they have employed.

5.2.4 Undertaking Joint Development - CSX and MBTA Lands

There are several related redevelopment opportunities that could compliment and expand upon the transit-oriented redevelopment that could lead from the suggested roadway and circulation improvements. The existing configuration and operations of both CSX and the MBTA might be reorganized in the future to allow for productive redevelopment of land adjacent to and near the existing commuter rail station. Two separate opportunities that will require proactive consideration as part of the implementation process.

The CSX "triangle" is currently underutilized and is immediately adjacent to the MBTA rail station. This land is effectively inaccessible today because of the configuration of the connecting rail lines that link the CSX North Yard facility to the main east/west line. If the rail connections could be limited to the westernmost connecting line, then an area composed of MBTA and CSX ownership could become easily accessible and available for joint redevelopment.

The Town should engage relevant entities, agencies, and jurisdiction to establish the feasibility for this reorganization of land. There are useful precedents for implementation within the region that may be used as models.

Another major opportunity, depicted in the concept as transit-oriented development, is if the North Yard operations can successfully be relocated to another location and this area used for development. Although this land is largely outside of the Downtown study area, the redevelopment would significantly expand the existing Downtown boundaries and create opportunities for transit-oriented development that could be linked by pedestrian paths to the MBTA commuter station. Here again, the Town should initiate and pursue the discussions with relevant parties to establish feasibility and the specific mechanisms that would be associated with implementing this opportunity.

5.2.5 Establishing District Improvement Financing Mechanism

The Commonwealth has established an important new tool to provide infrastructure financing associated with desirable redevelopment. District Improvement Financing (DIF) relies upon the tax increment associated with private sector redevelopment and allocates a portion of that

increment towards funding of necessary infrastructure associated with that development. For example, the Town could create a DIF district engaging those areas of the Downtown that will be redeveloped. Tax revenue proceeds could be used to help finance shared parking facilities, street and roadway improvements, public open space, or other key elements associated with transit-oriented development.

5.2.6 Creating Additional Commuter Parking

A direct benefit of the reorganization of land near the existing commuter rail station would be the opportunity to create one or two efficient and convenient parking structures to contain commuter parking that is now scattered among surface lots. Associated with this concept should be the provision of a pedestrian bridge and/or pedestrian deck linking any parking structures south of Route 135 to the MBTA station.

5.2.7 Creating Additional Downtown Parking

Additional Downtown parking would be required to support both the revitalization of existing building and the development of new buildings on land made available and assembled as a result of circulation improvements. In order to create downtown density, this additional Downtown parking should be concentrated within parking structures. The implementation strategy for commuter parking should be physically combined with additional downtown parking spaces to promote efficient and cost effective construction, and to promote shared parking.

It is likely that the cost of structured parking will be greater than the market may be able to support. As a result, the funding and financing mechanisms will need to partially rely on public subsidy. These subsidies should be provided through federal or State grant sources, or District Improvement Financing (DIF) bonds.

5.2.8 Refining Zoning to Encourage Appropriate Development

The Town should reconsider the existing framework of zoning and project approval process for redevelopment sites in the Downtown, including those sites that may be unlocked through transportation and circulation changes. The Town should consider specific advantages that may be associated with adopting zoning that complies with the State enabling legislation under M.G.L. Chapter 40R. By adopting zoning that meets the public purposes in this legal framework, the Town would advance both its own interest and the interests of the Commonwealth in promoting transit oriented development. Chapter 40R zoning is designed to provide incentives for dense development consistent with the scale and character of Downtown Framingham as envisioned in the Preferred Urban Design and Development Alternative as described in this Report.

If the Town adopts a 40R zoning provision tailored to its specific needs and circumstances, future developers would be provided the clear and appropriate “as-of-right” guide for uses, bulk requirements, parking requirements, and other typical zoning provisions. The Town should also

adopt compulsory design standards to accompany 40R zoning, so that it has appropriate control over the urban design and architectural quality of the new development. Adoption of a 40R zoning district can also bring direct financial benefits to the Town in the form of grants and State funding.

5.2.9 Expanding Public Open Space and Open Space Connections

Framingham Downtown requires additional public open space and landscape amenities to make it more attractive for all of the uses that are planned for the future. The design of transportation improvements and redevelopment that is unlocked by these improvements should include new public open space and landscape amenities as an integral part of the mitigation program and as primary design elements. The open space and landscape improvements should be coordinated to extend connections to and from the transit station and open new routes to Farm Pond in the prospect of a waterfront park that could emerge over time.

5.2.10 Pedestrian/Bicycle Connection-Wayfinding Signage

The signage program associated with roadway changes should directly incorporate wayfinding signage that promotes orientation and the most convenient travel to and from the Downtown. This should include clear directions regarding major Downtown destinations (such as a shopping district, the Town Hall, the Danforth Museum) and parking facilities.

5.2.11 Creating Pedestrian and Streetscape Improvements

Circulation and roadway improvements should be designed to create high quality landscape and pedestrian connections. Funding for these improvements should be incorporated into the funding sources for the vehicular and roadway improvements projects.

5.2.12 Encouraging Bicycling

The Downtown should be a safe and convenient destination for bicyclists, particularly in light of the potential to provide bicycle connections to commuter rail service. Bicycle routes to and from the MBTA rail station should be provided from both the north and south approaches in conjunction with vehicular roadway and sidewalk improvements. Designated bicycle parking spaces should be created in visible and convenient locations on both the north and south sides of the existing rail alignment in conjunction with parking improvements. Funding for these improvements should be incorporated into the funding for the vehicular and roadway projects.

6.0 CONCLUSION

Of the four transportation alternatives selected for consideration by the DRC for this study effort, **Alternative 2 – Route 135 Under Route 126** appears to be the most practical and beneficial. This alternative provides significant improvements:

- To traffic operations at the Route 135 intersection with Route 126, and along the Route 126 Corridor in the Downtown.
- To north-south pedestrian/bicyclist connectivity between the north and south sectors of the Downtown by maintaining the existing 10 foot sidewalks, and creating relatively conflict fee walkways, and by maintaining east-west access by not introducing a physical barrier.
- To potential for Downtown urban design/economic expansion, again by not introducing a physical barrier.
- To accommodate additional development by increasing capacity on the Route 126 Corridor.
- By eliminating the portion of Route 126 delay attributed to intersection operations at the Route 135 intersection.

Alternative 1 – Route 126 Underpass also improves traffic flow and provides a rail grade separation. Sidewalks in the north-south direction, however, would be reduced to minimal width. In addition, a required depressed roadway section would create a physical barrier for east-west pedestrian/bicyclist mobility for a considerable distance along Route 126 north and south of Route 135, and would have severe negative impacts on the potential for urban design/economic expansion.

Alternative 3 - East Bypass/Loring Drive Alignment would not significantly improve operations in the Route 135/Route 126 corridors for vehicles, pedestrians or bicyclists. This alternative would result in significant environmental impacts, including wetlands encroachment, increased traffic at the existing Blandin Avenue and Bishop Street crossings, disruption to existing land uses, and potential neighborhood disruption. This alternative would generally not preclude the Preferred Urban Design and Development Direction (Mix-Use Strategy). It would, however, limit the overall success of this strategy by not providing the reorganized roadway improvements that could result in significant enhancements to the Downtown.

Alternative 4 - Far East Bypass/New Alignment also would not significantly improve operations in the Route 135/Route 126 corridors for vehicles, pedestrians or bicyclists. This alternative would also result in significant environmental impacts, including wetlands encroachment, two new grade crossings at the Framingham Secondary and the Boston Mainline. This alignment would also result in disruption to existing land uses, including neighborhood disruption and an existing park. As with Alternative 3, this alternative would generally not preclude the Preferred Urban Design and Development Direction (Mix-Use Strategy). It would, however, limit the overall success of this strategy

by not providing the reorganized roadway improvements that could result in significant enhancements to the Downtown.

The Implementation Strategies, discussed in Section 5, will be critical to the overall success in Downtown Framingham. These strategies include an environmental process, in which the preferred transportation alignment will be further tested, along with additional alternatives that either have already been mentioned or entirely new alternatives (some with recognition that an additional rail grade separation to provide uninterrupted north-south flow over the existing rail service would benefit the Town).

Several Development and Urban Design Implementation strategies are noted, including:

- Leveraging Transportation Investments to Improve the Downtown
- Opportunities and Methods to use Public land/Acquisitions for TOD
- Establishment of a Redevelopment Entity to Sponsor TOD
- CSX and MBTA Joint Development
- Establishment of a District Improvement Financing (DIF) Mechanism
- Additional Commuter Parking
- Refined Zoning
- Expanded Open Space
- Pedestrian/Bicycle Connections

Financing strategies for design and construction from State and Federal sources should begin now to maintain the momentum that has been created through efforts of the Town and supported by the State.

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In 2005 the Framingham Board of Selectman created the Downtown Railroad Crossing Task Force (DRC) to address traffic congestion in the downtown area. DRC Task Force members together with Town leaders and staff have been instrumental in bringing this report forward and we are grateful for their dedication and perseverance and commitment to improving Framingham's downtown.

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