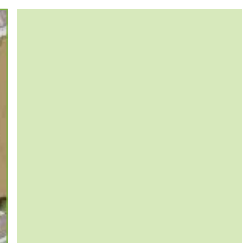
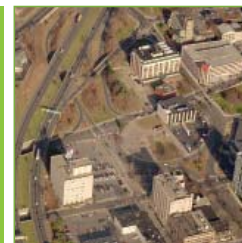


Feasibility and Concept Plan for the Realignment of

Lafayette Circle

bridgeport, ct



prepared for:



prepared by:



November 5, 2013

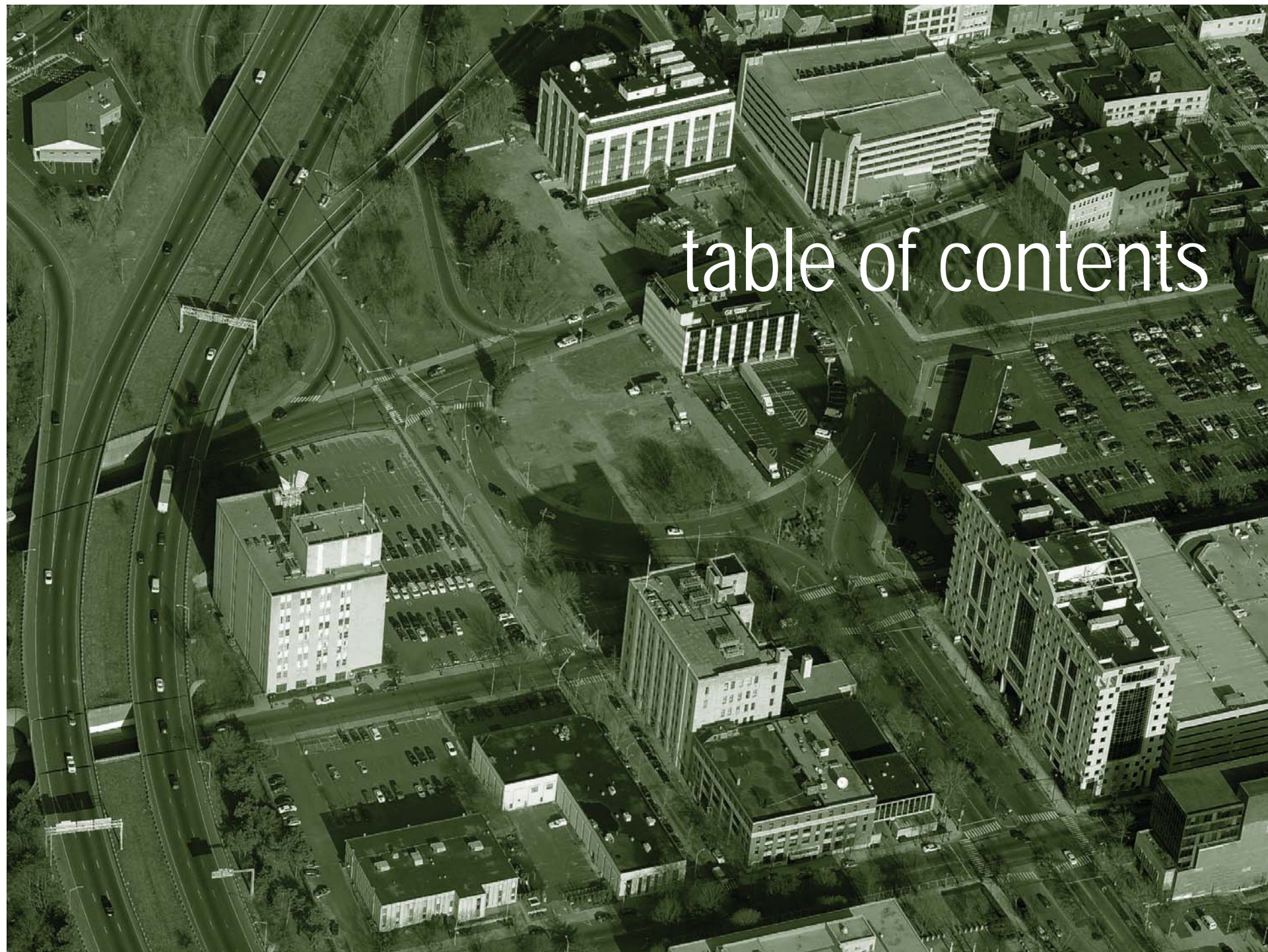


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Acknowledgements

This Feasibility and Concept Plan for the Realignment of Lafayette Circle was prepared for the Greater Bridgeport Regional Council—Brian T. Bidolli, Executive Director and Mark C. Nielsen, Senior Transportation Planner—in cooperation with the State of Connecticut Department of Transportation. We acknowledge the participation of the City of Bridgeport—Bill Finch, Mayor and David Kooris, Director, Office of Planning & Economic Development.

We also acknowledge the host of neighborhood stakeholders who participated in our information session and provided valuable input toward the development of our concept alternatives.

Funding assistance for the performance of this study was provided by the United States Department of Transportation and the Federal Highway Administration.

Executive Summary

The 2006 Downtown Plan for the City of Bridgeport revealed a new plan for the north end of Lafayette Boulevard. The existing boulevard, south of John Street contains sidewalks, street trees, parking lanes, two travel lanes in each direction and a landscaped median – an asset to Downtown. However, to the north of John Street, this boulevard gives way to a disjointed traffic circle with compromised vehicular and pedestrian circulation, a lack of aesthetic and streetscape amenities, and vacant land.

This Plan commenced to delve deeper into the vision cast in the 2006 Plan and to determine the feasibility of realigning Lafayette Circle into a traditional boulevard or, in modern vernacular, a complete street. To do so, the Greater Bridgeport Regional Council, the City of Bridgeport and Stantec conducted a number of key tasks including an analysis of current traffic patterns and vehicle volumes, pedestrian circulation and safety, level-of-service analysis, parcel configuration and development potential, streetscape composition, opportunities for green infrastructure, and the inclusion of on-road bicycle facilities.

To perform this study, we engaged key stakeholders including adjacent property owners. We shared a series of concepts focused on realigning the circle as a traditional boulevard. The selected scheme connecting the terminus of the existing boulevard with the egress ramps of Route 8/25 at Fairfield Avenue was the clear favorite amongst stakeholders.

With consensus from local constituents, the project team initiated detailed analysis and review with the State of Connecticut Department of Transportation. This was a critical step in the delivery of this Feasibility Plan since Fairfield Avenue and the egress and access ramps for Route 8/25 are State facilities. Traffic volumes, existing and projected, were documented and analyzed as well as trip generation and modal splits. The analysis was quite detailed for this schematic level of study and the outcome was positive. The preferred roadway alignment presented here is endorsed by the Department of Transportation – this is a key step in realizing the realignment of Lafayette Circle, a new urban boulevard and an aesthetically and economically attractive extensive to the City's downtown core.

Implementation of the Plan will achieve multiple benefits including:

- Clear, intuitive and safer traffic flow
- More efficient traffic flow
- Safer and more attractive pedestrian circulation
- Reduced pavement and more green space
- More desirable development parcels
- On-street parking
- Wider and continuous sidewalks
- On-road bicycle lanes
- Provision for bus rapid transit and link to the Route 8/25 corridor
- Cannon Street enhancements
- A new civic open space

The benefits are numerous yet many steps are necessary to achieve all aspects of the plan. Implementation will require negotiation with private property owners and/or right-of-way acquisition to establish the boulevard, utility relocations, further and more detailed design phases and, of course, funding. However, the vital signs are good as many recognize the need for and value of the realignment.

We cannot describe the benefits of the boulevard scheme without reference to place-making. Achieving the boulevard scheme will further ongoing economic development initiatives in downtown, encourage adaptive reuse of vacant and underutilized property, and support the rising resident population in downtown. In short, transforming this streetscape will create a more desirable place where people want to be. Such measures including investment in Connecticut's cities are critical to the economic resurgence of the State.

I Introduction

a. Background

Lafayette Circle is a gateway to downtown Bridgeport yet significantly underutilized. The land within the circle is occupied by a small office building, and the majority of the site is vacant or paved. The parcel to the east of the circle is redeveloped. To the west, there are additional parking and the former SNET building (that is mostly vacant). The land to the south of the circle is fully occupied by RBS on the east side of Lafayette Boulevard and the Connecticut Post on the west side.

The existing configuration of the circle constrains the redevelopment potential of the vacant sites. Elimination of the circle and realignment and extension of Lafayette Boulevard directly to Fairfield Avenue will make the area more attractive and marketable to prospective developers. The City Plan of Conservation and Development (POCD), Downtown Master Plan and the BGreen 2020 plan all recommend, or at least support, the elimination of Lafayette Circle and realignment of Lafayette Boulevard to foster and realize economic revitalization of the northwest corner of downtown. The concept is identified as a critical project in the City's efforts to revitalize downtown.

The City of Bridgeport has embarked on efforts to redevelop and revitalize Downtown. In recent years, redevelopment has occurred with the conversion of the old Read's Department store into loft-type apartments and the City Trust bank building and Lafayette Medical building into market rate apartments. Other redevelopment projects have included the rehabilitation of the old Barnum Arcade to small retail stores and the construction of a new apartment building with first floor retail (Bijou Square) at the corner of Lafayette Circle and Fairfield Avenue. Additional redevelopment is occurring at the north end of nearby Broad Street, and a new grocery store recently opened within the downtown "tear drop".

The City's Plan of Conservation and Development and companion Downtown Master Plan recommend rebranding and reimagining the downtown area as a livable, transit oriented district. To implement that recommendation, the City has rewritten its zoning regulations to designate the downtown area as a Downtown Village District (DVD).

Key elements of the DVD zoning include first floor retail and economic redevelopment compatible with an urban core. Bridgeport has also recently completed a sustainability plan referred to as BGreen 2020: A Sustainability Plan for Bridgeport, Connecticut. It is aimed at reducing the City's carbon footprint, promoting the downtown area as a transit oriented district, and encouraging a new resident population within the City's most urban core.

Lafayette Circle was built in the 1960s as part of an urban renewal project that included the construction of a downtown shopping center (Lafayette Plaza), a federal building and courthouse, and a hotel. Lafayette Boulevard was built as a median-divided roadway and as the main arterial through the renewal area. It extends from I-95 to John Street. From John Street to the north, the boulevard is reconfigured as a half-circle that begins on Fairfield Avenue at the southbound off-ramp from the Route 8/25 connector and loops around a small commercial parcel before rejoining Fairfield Avenue at Lafayette Square. One-way operation is provided in the direction from Route 8/25 to Lafayette Square. Two to four travel lanes are provided. Courtland Street diverges from Lafayette Circle on the west side arc and provides a direct connection to John Street and State Street.

From a traffic operations perspective, the proposed project will enhance movement to and from the Route 8/25 connector and improve access to the downtown area from the expressway. The direct connection to the expressway will divert some trips from the Main Street corridor to the Lafayette Boulevard corridor, thereby improving traffic operations and pedestrian safety along the more commercially viable Main Street corridor.

b. Purpose of Study

The concept of realigning Lafayette Circle is consistent with the City's POCD and overall economic redevelopment strategy. The City of Bridgeport has applied for federal assistance under the Surface Transportation Program: Bridgeport-Stamford Urban Area account (STPB) to conduct

a planning and feasibility study for the realignment of Lafayette Circle. The intent of this study is to assess traffic impacts, prepare mapping, identify infrastructure impacts, coordinate the realignment concept with area businesses and the State of Connecticut Department of Transportation, prepare a preliminary opinion of probable construction cost, and set forth a true complete street that functions as an extension of Lafayette Boulevard and an economic catalyst for downtown.

c. Scope of Work

This study followed a multi-task planning work program directed by the Greater Bridgeport Regional Council and the City of Bridgeport. The work program consisted of the following primary tasks:

Established a Study Advisory Committee

A study advisory committee was formed to direct the study and set goals and objectives, identify issues, evaluate alternatives and establish priorities. The Committee was comprised of representatives from the City of Bridgeport's Office of Planning and Economic Development, the Office of Public Facilities and the GBRC. Downtown business and property owners and planning, engineering and traffic personnel from the State of Connecticut Department of Transportation participated in information and design review sessions during preparation of the plan.

Data Collection and Acquisition

Stantec collected and acquired data needed to analyze existing conditions and determine general travel characteristics in the vicinity of Lafayette Circle. The data collected or obtained either through field surveys or from existing data files included:

- Average Daily Traffic (ADTs) volumes – Lafayette Boulevard, Lafayette Square, Lafayette Circle, Fairfield Avenue, John Street and Courtland Street;
- Turning movement counts at several intersections – Fairfield Avenue at Lafayette Circle and Lafayette Square, Fairfield Avenue at Lafayette Circle, Courtland Street and Route 8/25 ramps, John Street at Lafayette Boulevard and Lafayette Circle and Main Street at Fairfield Avenue; Main Street at John Street and Main Street at State Street;

- Road geometry and widths;
- Traffic signal permit plans (from the Connecticut Department of Transportation);
- Accident experience along Fairfield Avenue from Broad Street to west Avenue, John Street from Broad Street to West Avenue, Lafayette Circle and Courtland Street;
- Pedestrian features and facilities (crosswalks, pedestrian actuated signals and sidewalks);
- Land use survey, including location of access and egress points to commercial properties;
- On-street parking patterns;
- Utility data;
- Local fixed-route bus operations, including bus stop and shelter locations; and
- A list of state and local projects that are planned or proposed for the area.

Property Research

Stantec and the project committee researched property records of potential affected parcels.

Property and Topographical Survey Mapping

Our team compiled topographic and utility data into a suitable base map to facilitate this study.

Traffic Operations and Safety Assessment

The data collected in previous tasks was tabulated, summarized and manipulated to identify base conditions and existing traffic operations for analysis and assessment. Our analyses included intersection level of service calculations, determination of roadway capacity, traffic signal timing and phasing optimization, vehicular and pedestrian safety issues, and operating speeds and delay. Conflict points were determined for commercial driveways. Future (build year) traffic volumes, patterns and operating conditions were calculated and compared with based year metrics.

Develop Realignment Scenarios

Based on the results of our traffic and safety assessment, possible scenarios for realigning Lafayette Circle were developed. This task included a review of the Bridgeport Plan of Conservation and Development, Downtown Master Plan and BGreen 2020 Plan as well as input from the downtown business and property owners. Traffic flows were developed based on the realignment scenario, and intersection levels of service were determined.

State of Connecticut Department of Transportation (CTDOT) Concurrence

Realigning Lafayette Circle necessitated concept approval by the CTDOT due to the direct proximity of Lafayette Boulevard to State roads at Fairfield Avenue and Route 8/25. The recommended plan presented herein has gained support from CTDOT following review of multiple alternatives and preferred plan modifications.

Prepare Preliminary Concept Plan and Study Report

Stantec prepared a schematic plan for the proposed realignment of Lafayette Circle that meets the project design objectives. The concept plan includes:

- Layout of the preferred alignment,
- Typical roadway cross sections;
- Illustration of the new intersections;
- Estimated property acquisition and right-of-way; and
- Opinion of probable construction costs.



Photo Location Plan

Lafayette Circle...Today

Photo 1:
Intersection of Lafayette Square, Harrison Street and Fairfield Avenue



Photo 2:
View west on Fairfield Avenue toward Harrison Street and Lafayette Circle



Photo 3:
View south from the Route 8/25 access ramp toward
Fairfield Avenue and Lafayette Circle



Lafayette Circle...Today

Photo 4:
View north on Courtland Street toward Fairfield Avenue
and the Route 8/25 egress and access ramps



Photo 5:
View east toward inner lot at Lafayette Circle from Courtland Street



Photo 6:
View southeast from Courtland Street and Lafayette Circle weave
toward John Street and northern connection to Lafayette Boulevard



Lafayette Circle...Today

Photo 7:
View north on Lafayette Boulevard toward Lafayette Circle



Photo 8:
View west on Cannon Street toward Lafayette Circle



Photo 9:
View north toward Harrison Street from the
west end of Cannon Street at Lafayette Circle



Existing Conditions

a. Streetscape

The study area is void of pedestrian amenities, scale and a desirable downtown character. Adjacent streets such as Fairfield Avenue and Lafayette Boulevard to the immediate west and south of the study area do provide the desirable scale and amenities. The reconfiguration of Lafayette Circle as a continuation of the Lafayette Boulevard presents the opportunity to expand the downtown street grid and the perceived City center radiating from Broad Street and State Streets. The existing streetscape lacks street trees, sidewalks and crosswalks, and is compromised by wide expanses of asphalt pavement, weaving lanes and driveway and excessive roadway interruptions. New development and underutilized properties define the street edge in the study area. To a great extent, undeveloped lots present voids and lack of streetscape definition, storefronts, pedestrian activity, color, light and scale to the sidewalk and roadway environment – all desirable features of a vibrant downtown.

b. Road System

Downtown Circulation

Lafayette Circle is situated within the City of Bridgeport's "teardrop", an area including the City's downtown core, local and regional rail and bus transit to the east, Golden Hill City center to the north and Housatonic Community College to the south just to name a few civic, transportation and educational amenities. The teardrop shape is outlined by the Pequonnock River to the east, Interstate Route 95 (I-95) to the south and State Routes 8 and 25 to the west and north. Also notable is the presence of the Webster Arena and Bluefish Ballpark located immediately south of I-95. See location map Figure 1.

The teardrop area is served by a street grid with principal north-south streets: Lafayette Boulevard, Broad Street, Main Street, and Water Street. Principal east-west streets include State Street (State Route 130) which is a one-way eastbound, John Street, and Fairfield Avenue

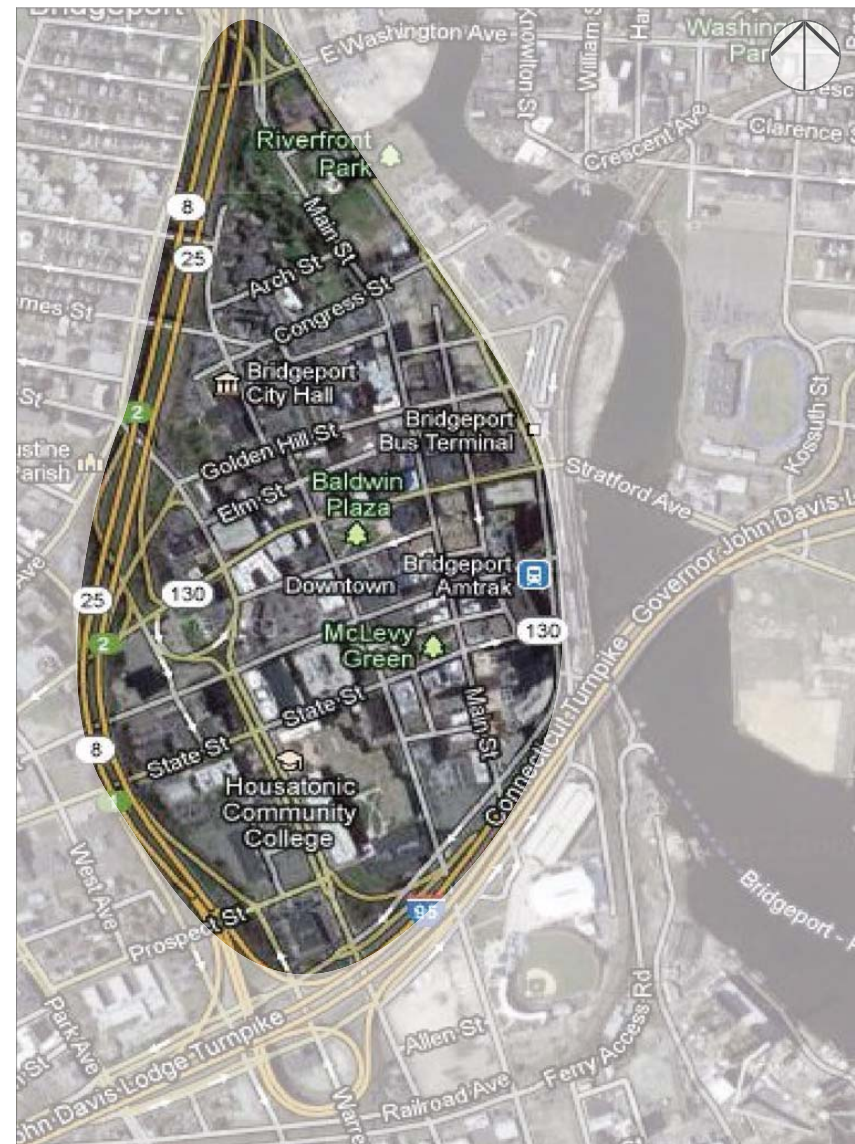


Figure 1: Bridgeport "Teardrop" Area

(State Route 700) which operates as a one-way street west-bound in the study area.

Lafayette Circle is a modified rotary with traffic flow in a traditional counter-clockwise flow. Lafayette Boulevard essentially terminates at John Street where it then continues north through Lafayette Circle then terminating to the north at two traffic signal-controlled intersections at Fairfield Avenue. Northbound traffic on the circle is distributed onto Fairfield Avenue east and west and onto Lafayette Square to the north. Southbound traffic on the circle sources from Fairfield Avenue westbound and Routes 8 and 25 southbound Exit 3 at a signalized intersection. Cannon Street intersects Lafayette Circle under stop control on the east side; on the west side of the Circle, Courtland Street weaves with the circle as traffic heads southbound toward John Street at a signal-controlled intersection. South of the circulating Lafayette Circle roadway, at-grade exiting and entering ramp-like roadways connect and intersect with John Street and Lafayette Boulevard at a signalized intersection.

Cannon Street operates for two longer blocks. Between Main Street and Broad Street, Cannon Street is one way westbound; and between Broad Street and Lafayette Boulevard, Cannon Street is a two way street. Main Street is a two way street with traffic signal control at State Street, John Street, and Fairfield Street. Main Street extends south of I-95 and north of State Routes 8/25.

Lafayette Circle is a compromised assemblage of roads, odd intersections, excessive pavement and weaves. While Lafayette Circle provides direct access to and egress from State Routes 8 and 25, the inter-connection between downtown thoroughfares and these critical state routes lacks clarity furthering driver confusion.

Study Area Roadways, Sidewalks, and Parking

The primary study area includes Lafayette Circle and Lafayette Boulevard and its intersections with John Street and State Street to the south and the Fairfield Avenue intersection with Lafayette Circle, Lafayette Square and the State Route 8/25 ramps to the north. The secondary

project area includes intersections between the primary study area and downtown and in particular Main Street between State Street and Fairfield Avenue. The following relates to the primary project area shown in Figure 2.

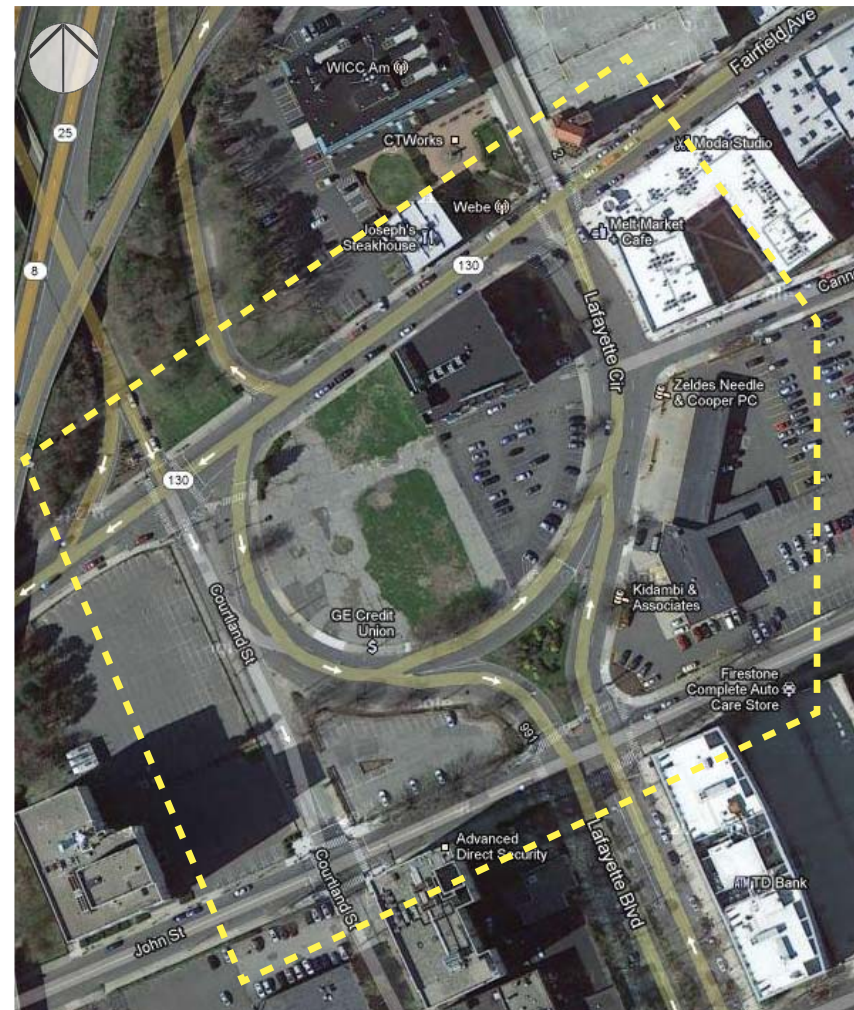


Figure 2: Lafayette Circle Study Area

Lafayette Circle operates with two to four lanes as a one way circular roadway with sidewalks on both sides. Left turns onto the circle from Fairfield Avenue at the signalized SR 8/25 ramp intersection are accommodated by one lane, then two lanes upstream of a merge from Courtland Street and four lanes downstream of the merge. Two lanes split from the circle to the John Street intersection; beyond this split two lanes continue to the merge with two lanes from northbound Lafayette Boulevard. One of these four lanes effectively terminates at Cannon Street while the other three continue to the Fairfield Avenue and Lafayette Square signalized intersection. Of these three, two turn left onto Fairfield Avenue westbound where there is access to the northbound SR 8/25 ramp. Parking is prohibited around the circle.

Lafayette Boulevard includes sidewalks on both sides and generally operates with two through-lanes in each direction with turning lanes at intersections as follows:

- At John Street a separate left turn lane is provided for northbound and southbound traffic on Lafayette Boulevard, while John Street operates with a single lane serving through, right turning, and left turning vehicles in both directions. There are crosswalks on all four sides of the intersection as there are sidewalks on both sides of John Street. Curbside parking on John Street is prohibited in the vicinity of the Lafayette Boulevard.
- Between John Street and State Street, the median divided Lafayette Boulevard provides two through lanes in both directions and sidewalks on the building sides. Right side curbside parking is generally allowed in both directions.
- At State Street the southbound median side lane on Lafayette Boulevard is marked as a left turn lane and there is one through lane; on the northbound approach the right side curb lane is marked as a right turn lane in addition to the two through lanes. Crosswalks are provided on all four sides of the intersection.
- State Street operates one way eastbound with two through lanes with sidewalks on both sides and with scattered curbside parking on both sides.

- At Fairfield Avenue the northbound Lafayette Circle approach includes three lanes including two left turn lanes and one lane for through movements onto Lafayette Square along with right turns onto Fairfield Avenue. The Lafayette Square approach consists of a single lane to serve left and right turns movements and a single egress lane; parking is prohibited along Lafayette Square. The Fairfield Avenue approach is similarly served by a single shared lane for through and right turns. Parking is allowed on the north and south sides of Fairfield Avenue to the east of the intersection. Sidewalks are provided on both sides of these three roadways and there are crosswalks on all four sides of the intersection.

Fairfield Avenue operates as a two way street east of Lafayette Boulevard. West of the Lafayette Square intersection, Lafayette Square operates one way eastbound with two through lanes and parking on both sides of the roadway as far west as the State Route 8/25 northbound on ramp. Fairfield Avenue continues as two wide lanes to the signalized intersection with the State Route 8/25 southbound off ramp. The southbound off ramp approach also includes two lanes for through movements onto Lafayette Circle with no parking or pedestrian provisions along the ramp. Pedestrian crosswalks are present on four sides of this intersection.

Local and Regional Rail Access

With I-95 four blocks to the south and State Routes 8/25 to the immediate north, Bridgeport's downtown has very good regional highway access. The Bridgeport Railroad Station is located on Water Street just south of John Street. Rail service is provided from the Bridgeport Railroad station by Metro-North Railroad on the New Haven Line, Connecticut Commuter Rail on the Shoreline East, and Amtrak on the Northeast Regional and Acela Express services. Amtrak and Metro-North rail runs east-west south of the I-95 corridor. This is important to note in understanding the importance of this study and its relationship to rail transit. In short, the City of Bridgeport is ripe for new development including residential and associated service retail and commercial. The reconfiguration of Lafayette Circle to a traditional Boulevard alignment greatly enhances the appeal of vacant properties now situated within the Study area. This

underutilized land and its proximity to local and regional transit present extraordinary opportunities for downtown investment.

An added benefit, Greater Bridgeport Transit's Bus Terminal is located on Water Street just north of Fairfield Avenue and three blocks east of Lafayette Circle. Bridgeport buses serve the Railroad Station from neighborhoods throughout Bridgeport and through neighboring towns of Stratford, Trumbull and Fairfield as well as points further north toward New Haven and south toward Norwalk.

c. Traffic Operations and Safety Assessment

Traffic Volumes

Existing traffic operations were observed multiple times during the study. Initially, morning and evening two-hour peak period turning movements counts (TMC) were conducted at fifteen locations and daily counts were conducted at four locations within the immediate area of Lafayette Circle and throughout the adjacent downtown area. These counts were performed during the second week of October 2012. The TMC locations are:

- Fairfield Avenue at Lafayette Circle and Lafayette Square;
- Fairfield Avenue at State Route 8/25 On Ramp;
- Fairfield Avenue at Lafayette Circle;
- Courtland Street at State Route 8/25;
- Courtland Street at Lafayette Circle;
- Courtland Street at John Street;
- John Street at Lafayette Boulevard and Lafayette Circle;
- Lafayette Circle at Lafayette Boulevard;
- Lafayette Circle at Cannon Street;
- John Street at Broad Street;
- Main Street at Fairfield Avenue;

- Main Street at John Street;
- Main Street at Cannon Street;
- Main Street at State Street;
- Lafayette Boulevard at State Street.

The machine counters proving daily traffic volume recording were located at:

- Lafayette Square between Elm Street and Fairfield Avenue;
- Lafayette Circle between Fairfield Avenue and Cannon Street;
- Courtland Street between Lafayette Circle and John Street;
- Cannon Street between Lafayette Circle and Broad Street.

Existing morning and evening peak hour traffic volumes are shown on Figures 3 & 4.

Traffic Control and Pedestrian Accommodation

All above described project area roadways include sidewalks. All of the existing traffic signals in the primary project area operate with exclusive pedestrian phases when there are no pedestrian vehicular conflicts allowed during the phase when pedestrians are crossing. These pedestrian phases are push button actuated from all four corners and typically all traffic stops no matter which direction a pedestrian may be crossing. Some of the existing pedestrian crossing times do not meet the current requirements of the Manual on Uniform Traffic Control Devices (MUTCD).

At Lafayette Square, the traffic signal operates with two alternating detector actuated vehicular phases and pedestrians are accommodated with a push button actuated exclusive pedestrian phase. There is sufficient time to cross Fairfield Avenue and Lafayette Square but insufficient for crossing completely across Lafayette Boulevard.

At the SR 8/25, the traffic signal also operates with two alternating vehicular phases with the SR 8/25 approach detected and Fairfield Avenue

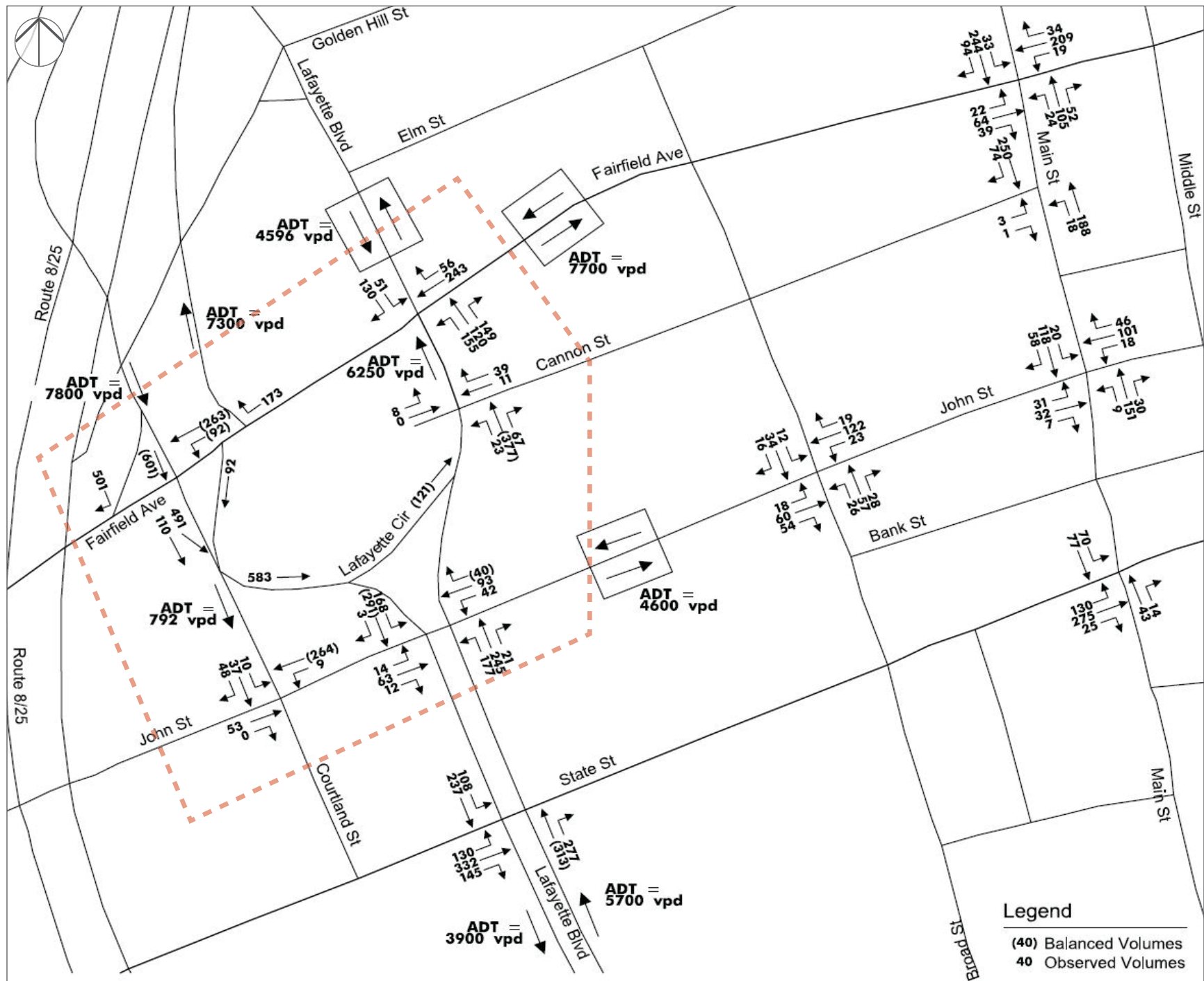


Figure 3: 2012 Existing AM Peak Hour (Balanced)

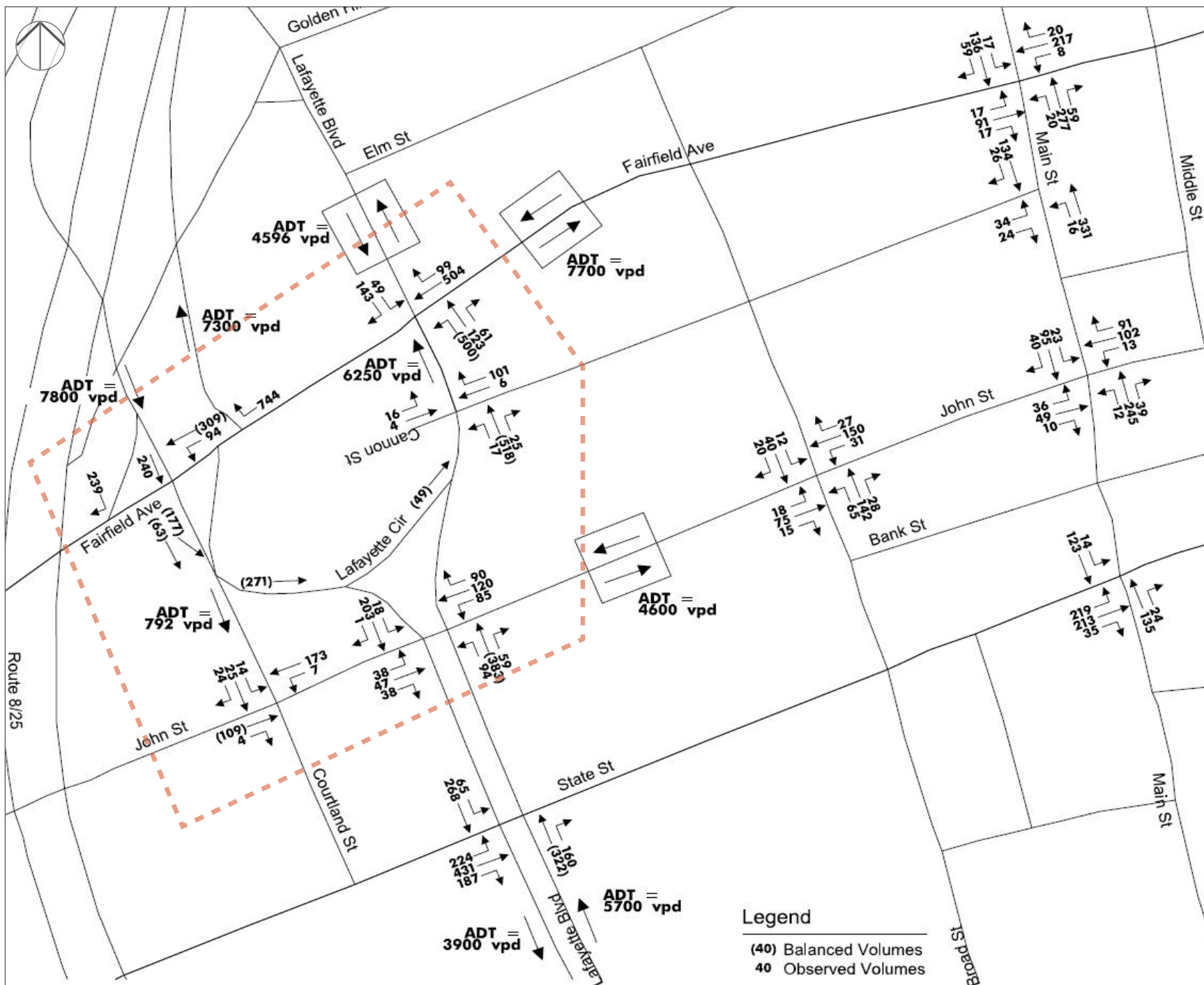


Figure 4: Existing 2012 PM Peak Hour (Balanced)

recalled. Pedestrians are served by pedestrian phasing that allows both vehicles to enter and pedestrians to cross simultaneously but without pedestrian-vehicular conflict. Pedestrian crossing the ramp occurs without push button actuation as the crossing is not affected by the through traffic on Fairfield Avenue. A separate pedestrian phase to cross Fairfield Avenue is push button actuated and at the same time traffic from the off-ramp enters the intersection destined for Lafayette Circle and therefore does not conflict with crossing pedestrians.

At the Lafayette Boulevard and John Street intersection traffic signal phasing includes three basic vehicular phases including a phase serving only northbound and southbound left turns. These turns are also served under a yield to oncoming traffic condition when through and right turning traffic on Lafayette Boulevard are served. All John Street traffic is served by one phase. Upon pedestrian push-button actuation on any corner an exclusive pedestrian phase enables pedestrians to cross in any of four crosswalks. The programmed time for this crossing is based on the time to cross only to the Lafayette Boulevard median.

At the Lafayette Boulevard and State Street intersection the existing vehicular phasing is simply two vehicular phases without a separate phase for southbound left turns from Lafayette Boulevard. Pedestrians are accommodated with a push button actuated exclusive pedestrian phase with time to cross State Street or only to the Lafayette Boulevard median.

Existing Levels of Service

Level of Service Analysis

To assess the quality of traffic flow and establish a baseline comparison for the operation of an alternative configuration of Lafayette Circle, intersection capacity was analyzed under existing morning and evening peak hour volume conditions. Capacity analysis provides an indication of how well roadway facilities serve the travel demands placed on them.

Synchro, a software package developed by Trafficware utilizes the evaluation criteria of the Highway Capacity Manual developed by the Transportation Research Board Federal Highway Administration, was used to analyze the intersections.

Level of service (LOS) is the term used to describe the different operating conditions that occur on a given roadway segment or intersection under various traffic conditions. It is a qualitative measure of the effects of a number of factors including roadway geometry, speed, travel delay, freedom to maneuver, and safety. Six levels of service are defined from each type of facility. Each level of service is given a letter designation from A to F, with LOS A representing the best operating conditions and LOS F representing the worst.

Level of service (LOS) at intersections is measured in terms of average control delay. For signalized intersections and all-way STOP-controlled intersections, the analysis considers the operation of all traffic entering the intersection. An overall intersection LOS is calculated as are LOS for each intersection approach and where served by a separate lane, LOS is calculated for each movement. For two-way STOP-controlled intersections where side street traffic must stop and wait for gaps in main street traffic, the analysis assumes that through traffic on the main street is not influenced by the traffic on the side street. For two-way STOP controlled intersections, LOS is calculated for the main street left turn and the side street approaches but no overall intersection LOS is defined. Table 1 presents the LOS criteria for signalized and unsignalized intersections as defined by the Highway Capacity Manual.

In addition to LOS, intersection operation can be evaluated on the basis of the ratio of the demand or the expected traffic volume and the theoretical capacity of the intersection, approach or movement. In this way, when the v/c ratio exceeds 1.0, the theoretical capacity is exceeded.

LEVEL OF SERVICE	UNSIGNALIZED INTERSECTIONS (Two-way STOP Controlled)	SIGNALIZED INTERSECTIONS
	Control Delay (seconds/vehicle)	
A	< 10.0	< 10.0
B	> 10.0 and < 15.0	> 10.0 and < 20.0
C	> 15.0 and < 25.0	> 20.0 and < 35.0
D	> 25.0 and < 35.0	> 35.0 and < 55.0
E	> 35.0 and < 50.0	> 55.0 and < 80.0
F	> 50.0	> 80.0

Table 1: Standard Ranges of Delay for each Level of Service Designation

Intersection Analysis

Table 2 presents the existing volume and roadway conditions analysis of the four intersections in the primary project area. With the exception of the Lafayette Circle/ Fairfield Avenue and Lafayette Square intersection, all four intersections are operating at acceptable overall levels of service under existing conditions. During the existing evening peak hour, the Lafayette Circle/Fairfield Avenue/Lafayette Square intersection operates at LOS F with a v/c ratio of 0.85 which indicates that retiming or reallocating the traffic signal green time alone would not improve this intersection because overall it is operating at capacity.

Peak Hour Condition	Lafayette Circle / Fairfield Ave / Lafayette Sq		Lafayette Circle / Fairfield Ave / SR 8 & 25		Lafayette Boulevard / John Street		Lafayette Boulevard / State Street	
	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c
2012 Existing AM	C	0.51	C	0.36	C	0.42	B	0.41
2012 Existing PM	F	0.85	B	0.21	F	0.46	B	0.48

Table 2: Existing Volume and Roadway Condition Analysis

Crash History

Based on crash report data received from the Bridgeport Police Department records for the period including 2010 through August 2012, multiple crashes occurred on some of the project roadways in the study area.

- On Fairfield Avenue
 - Twelve (12) crashes between Lafayette Circle and Broad Street
 - Three (3) west of Lafayette Circle
- On John Street
 - Four (4) west of State Route 8/25
- On Lafayette Circle
 - Eight (8) south of Cannon Street
 - Four (4) south of Fairfield Avenue
- On State Street
 - Two (2) east of Courtland Street
 - Three (3) west of Courtland Street

Of these crashes the twelve crashes on Lafayette Circle relate to the proposed alternative configuration of the circle. In particular the crashes at Cannon Street relate specifically to the operation of the circle where vehicles weave on the circle and other vehicles attempt to enter the circle from the private driveway opposite Cannon Street and from Cannon Street.

Greater Bridgeport Transit

Greater Bridgeport Transit (GBT) operates buses through the project area via the Bridgeport Transportation Center bus terminal. Seven bus routes operate on State Street eastbound and on some portion of John St. westbound. One other north-south route operates on Main St. and Water St. Figure 5 shows the Bridgeport Regional Transit bus routes in the project area. A bus route summary is provided in Table 3. For this study, accommodation for future bus rapid transit was considered whereby Lafayette Boulevard may provide direct access to State Routes 8/25 and I-95. The reconfiguration of the roadway and roadway section should accommodate efficient bus service and passenger stops.



Figure 5: Bridgeport Regional Transit Bus Routes in the Project Area

GBT Bus Route#	ROADWAY ROUTE			ROUTE NAME	Peak Freq. (Min)
	State Street	John Street	Main Street		
1	✓	✓			
3	✓	✓		Downtown -Westfield Trumbull Mall via Madison Ave	30
4	✓	✓		Downtown -Westfield Trumbull Mall via Park Ave	30
5	✓	✓		Downtown – Black Rock	30
7	✓	✓		Downtown – Carlton Hospital	60
8			✓		
9	✓	✓		Seaside Park to Trumbull Corp Park via Downtown	30
17	✓			Downtown - Success Park via North Avenue	30
CL	✓	✓			

Table 3: Bus Route Summary

d. Utilities

The utilities summary provided herein is based on record utility drawings and survey documents. No field verification of these utilities has been conducted. The discussion of utilities is critical to fully understand potential disruptions in service and cost implications of removals and relocations in association with any roadway geometry and right-of-way modifications. Existing utilities known to traverse the study area include:

Lafayette Circle Right-Of-Way

Water -

A 12" water main is located on the eastern half of the circle, south of Cannon Street, connecting the Lafayette Boulevard main to the 10" main at the extension of Cannon Street. North of Cannon Street, an 8" main connects to the 6" main on Fairfield Avenue.

Gas -

There is no gas service within the Lafayette Circle.

Sanitary Sewer -

There are no dedicated sanitary sewers within the Lafayette Circle study area.

Storm Drainage -

Storm drainage flows southerly around each side of the circle, connecting to the combined sewer on John Street.

Electric -

There is no electric service within the Lafayette Circle right-of-way except for feeds to area street lighting.

Telephone -

There is no telephone service within the Lafayette circle right-of-way.

Cannon Street

Water Main -

A 10" water main is located within Cannon Street and extends along the former alignment toward Courtland Street and Fairfield Avenue intersection. The line connects with the 6" and 8" on Courtland Street as well as the 8" and 12" in Lafayette Circle. Utility record drawings reference a utility easement along the former Cannon Street which crosses the full width of the Circle.

Gas -

A 4" steel main is located in Courtland Street and extends 60' past the intersection with Lafayette Circle.

Sanitary Sewer -

There is a 10" combined sewer in Cannon Street which flows eastward. It extends into the former Cannon Street right of way and terminates near Courtland Street.

Storm Drainage -

Drainage on Cannon Street connects to the combined sewer within the roadway right-of-way.

Courtland Street

Water -

An 8" main on the east side of street connects to 20" and 6" mains on Fairfield Avenue. A 6" down the center of the roadway stubs at Fairfield Avenue but connects to a 10" main across from the former Cannon Street Extension and connects to an 8" line via the 10" from Cannon Street. A 6" main connects to a 6" main heading west on John Street on the north side of street. An 8" main connects to a 12" main on John Street.

Gas -

There is an 8" gas main along the east side of the street connecting to an 8" line in Fairfield Avenue and the 8" line in John Street.

Sanitary Sewer -

There are no sanitary sewers within Courtland Street.

Storm Drainage -

Storm drainage is terminated near the intersection of Fairfield Avenue. The storm flows southerly where it connects to the combined sewer in John Street.

Fairfield Avenue

Water -

A 20" main runs east-west, on the south-side of the street. It connects to an 8" line down Lafayette Circle and an 8" line up Harrison Street and a 6" line down the center of the street. The 20" main becomes 24" near the Route 8 ramp.

Gas -

A 12" cast iron service exists on the north side of the street, connecting to an 8" cast iron service on Harrison Street and a 4" steel service south on Lafayette Street to Cannon Street. The 12" service shifts to south side of Fairfield Avenue west of Courtland Street.

Sanitary Sewer -

There is a 20" combined sewer on the south side of the street. This sewer increases in size to 30" east of the intersection with Harrison Street. The sewer flows westerly.

Storm Drainage -

Storm drainage is connected to the combined sewer at John Street.

John Street

Water -

A 12" main exists on the north side of the street. The 12" main continues on the north side and an 8" line begins at Lafayette Circle and then runs on the south side of street. The 12" main connects to a 12" main going north on Lafayette Circle.

Gas -

An 8" gas service exists on the north side of the street. A 6" high pressure plastic service runs on the south side of the street up to Lafayette Boulevard then heads south. There is no 6" high pressure service west of Lafayette Boulevard.

Sanitary Sewer -

There is a combined sanitary sewer on John Street located in the center of the street. It begins as an 18" west of the intersection with Courtland Street and increases in size to 24", to 42", and then to 48" at the intersection with Lafayette Boulevard.

Storm Drainage -

Storm drainage on John Street is connected to the combined sewer.

e. Zoning and Development

The proposed plan for Lafayette Circle creates three new parcels for future development. The parcels are combinations of existing privately-owned land and areas from the proposed de-mapped streets. The three new parcels all lie within the City of Bridgeport's DVD–Blvd Zoning District. The goals of the zoning district are to create compact mixed-use development including office, institutional uses, and supporting retail and residential uses. The zoning district limits the size and massing of the buildings. Building fronts must be located within close proximity to the street. Building facades must step back ten feet in the 35-65 foot height range. The floor areas of the buildings are required to reduce in size as the buildings increase in height. Buildings are allowed up to 20 stories in height with certain restrictions.

Under the DVD-Blvd Zoning, the combined development potential of the three parcels may be roughly 750,000 gsf of mixed-use, including office, institutional, residential, and retail. Given the goals of the DVD-BLVD zoning, the mix of uses is estimated to be weighted heavily toward office or institutional uses at approximately 70% of the overall development. The actual development on the sites could be substantially less depending on market demand.

Structured parking to support the development may be located mostly above grade, and is accommodated within the zoning restrictions. An estimated parking ratio of 2.5 spaces per 1000 gsf may be required depending on the nature of the uses and the tenants. Office uses tend to demand relatively high parking ratios. Approximately 1850 parking spaces, required by the potential development, would be accommodated in an additional 600,000 sf of structured parking on the three parcels

An analysis of existing zoning regulations was conducted to determine a by-right build out scenario for the study area. The build out was used to determine trip generation and parking needs to facilitate a detailed

traffic analysis. The analysis also informed our site massing diagrams in order to prepare an overall streetscape and development concept plan for the study area.

f. Property Ownership

The reconfiguration of Lafayette Circle into a traditional boulevard alignment requires modification to public right-of-way and property lines of privately owned parcels. Table 4 identifies the parcels and their respective acres that may be impacted are included to illustrate these impacts and approximate land areas impacted. The City of Bridgeport will lead the effort for coordinating right-of-way needs and impacts with property owners. Section V includes illustrative diagrams of current parcels and potential impacts and modified configurations of these parcels based on the recommended Lafayette circle realignment.

PARCEL NO.	ADDRESS	OWNER	PARCEL SIZE
923-28	430 John Street	Southern New England Telephone	1.65 ac
926-12A	380 John Street	Southern New England Telephone	0.42 ac
927-05	1 Lafayette Circle	Forstone One, LLC	0.88 ac
927-02A	377 Fairfield Avenue	Forstone One, LLC	0.46 ac
926-14A	300 John Street	BFS Retail & Commercial	1.02 ac

Table 4: Parcel Owners

Lafayette Circle Realignment Scenarios

Three (3) concept plans were initially prepared to illustrate potential re-configuration alternatives. These options were reviewed with the City of Bridgeport, the Greater Bridgeport Regional Council, the State of Connecticut Department of Transportation and local stakeholders and property owners. The three alternatives are as follows:

ALTERNATIVE A (see Figure 6)

Boulevard Extension: Direct Route 8/25 Connection

As proposed in the City of Bridgeport Downtown Plan, this alternative includes elimination of Lafayette Circle and the extension of Lafayette Boulevard at John Street northward toward the access and exit ramps of State Routes 8 and 25. Ultimately, this scheme was developed further and is the basis of this study.

ALTERNATIVE B (see Figure 7)

Boulevard Extension: Direct Harrison Street Connection

Similar to Alternative A, this option includes the extension of Lafayette Boulevard toward Fairfield Avenue except that the Boulevard extension is rotated to the east so that it aligns with Harrison Street, east of the Route 8 and 25 access and egress ramps. Due to traffic issues and access and egress to Routes 8 and 25, this scheme was not considered further.

ALTERNATIVE C (see Figure 8)

Modified Circle Alignment

A modified circle scheme was prepared that essentially included two roadway extensions northward from the intersection of Lafayette Boulevard and John Street. This scheme was considered too great a compromise to the desired Boulevard alignment and based on initial analysis presented higher levels of traffic congestion at key intersections at peak hours.



Figure 6: ALTERNATIVE A



Figure 7: ALTERNATIVE B



Figure 8: ALTERNATIVE C

IV Lafayette Boulevard Preferred Realignment Scenario

a. Preferred Boulevard Alignment

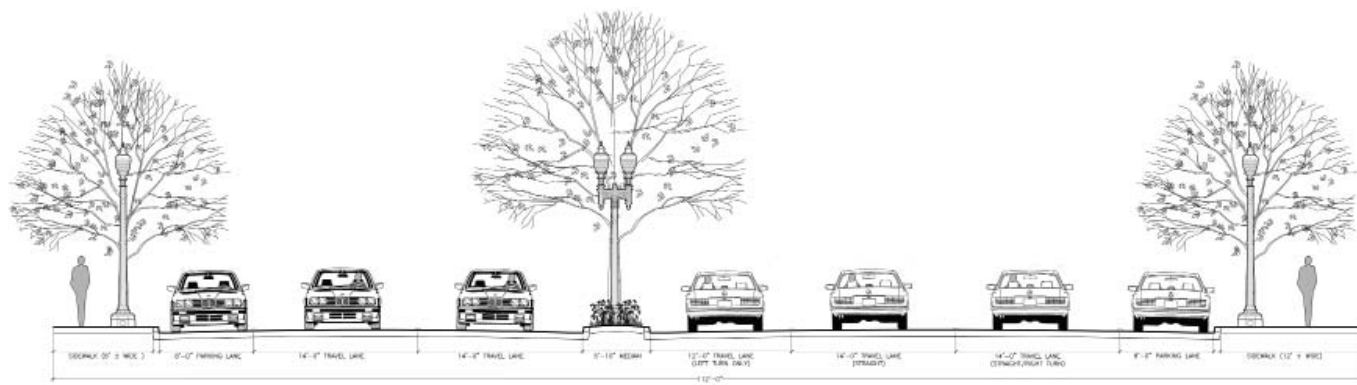
The Preferred Boulevard Alignment, Figure 9, accomplishes the primary goals of this study. These include:

- Simplification of traffic patterns and elimination of existing geometric deficiencies.
- Eliminating weaving patterns, reducing conflict points and improving safety.
- Provision for enhanced pedestrian circulation with more intuitive patterns and shorter crosswalks.
- Provision for expanded and more inviting sidewalks with amenities, street trees and parcel access.
- A center landscaped median for further aesthetic enhancements, pedestrian refuge in crosswalks, gateway treatment and signage and a subsurface location for a stormwater infiltration system to decrease stormwater run-off to combined sewers.
- Roadway section and curb-side amenities to accommodate bus rapid transit on Lafayette Boulevard with direct access to Route 8 and 25 and I-95.
- More desirable parcel configurations and sidewalk frontage for new development.
- Reduction in impervious surface.
- Opportunity for development of a new civic green space within Bridgeport's downtown.
- Simplification of utility corridors and sewer separation within the study area.

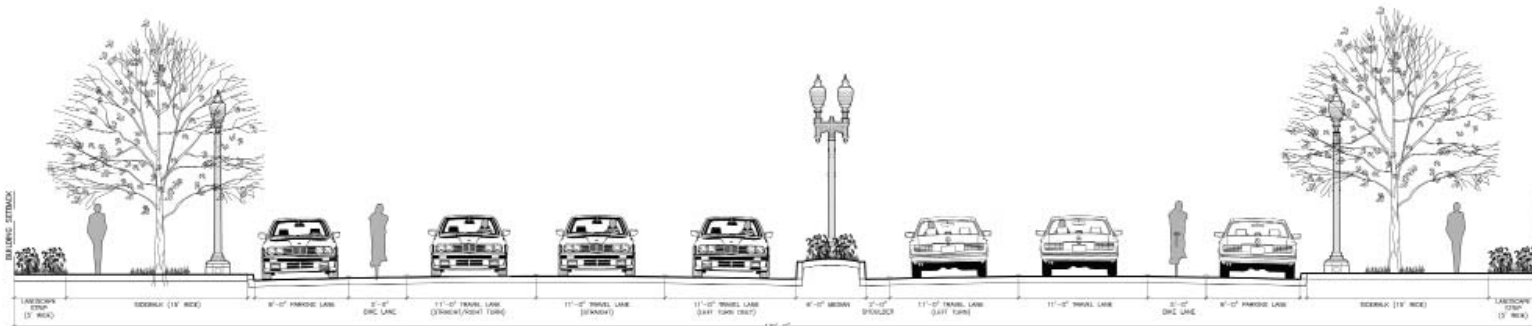
See Typical Sections Figures 10 & 11 and Conceptual Renderings Figures 12 through 15.



Figure 9: Preferred Boulevard Alignment
(See following pages for section/elevations)



TYPICAL SECTION AT EXISTING LAFAYETTE BOULEVARD (SECTION A-A)

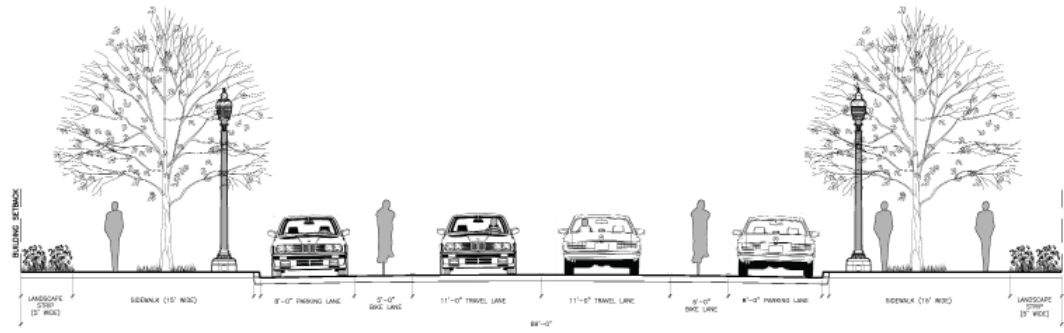


PROPOSED TYPICAL SECTION - CONTINUATION OF LAFAYETTE BOULEVARD (SECTION B-B)

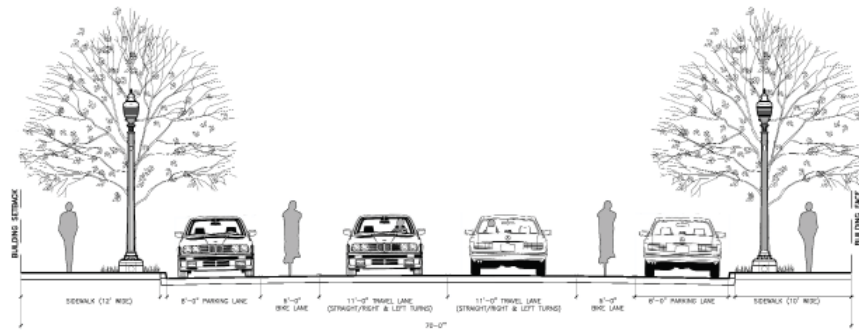


PROPOSED TYPICAL SECTION - CONTINUATION OF LAFAYETTE BOULEVARD (SECTION C-C)

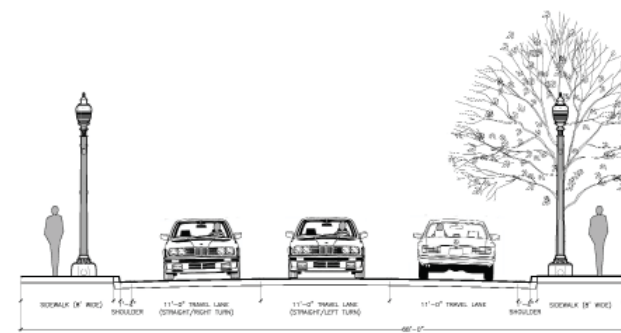
Figure 10: Typical Sections - 1



PROPOSED TYPICAL SECTION - CONTINUATION OF CANNON STREET (SECTION D-D)



PROPOSED TYPICAL SECTION AT HARRISON STREET EXTENSION WITH BIKE LANE (SECTION E-E)



PROPOSED TYPICAL SECTION AT FAIRFIELD AVENUE (SECTION F-F)

Figure 11: Typical Sections - 2



Figure 12: Conceptual Rendering -
Overall view of Lafayette Boulevard view north



Figure 13: Conceptual Rendering -
Lafayette Boulevard & Cannon Street Extension intersection view east



Figure 14: Conceptual Rendering -
Lafayette Boulevard & Fairfield Avenue intersection view south east



Figure 15: Conceptual Rendering -
View of Lafayette Boulevard view north

b. Road Geometry of Affected Intersections

The realignment of Lafayette Circle effectively as an extension of Lafayette Boulevard principally affects three intersections. These are Lafayette Circle at Lafayette Square and Fairfield Avenue; Lafayette Circle at Fairfield Avenue and State Route 8/25; and Lafayette Boulevard at John Street. Also affected operationally but not geometrically is the Lafayette Boulevard and State Street intersection.

Where Lafayette Circle presently intersects with Fairfield Avenue and Lafayette Square, the realignment of Lafayette Boulevard will not have a direct connection to this intersection as it will be located one block to the east. The intersection will continue to serve as a connection to Golden Hill and will serve as a connection to/from the two development parcels east of the realigned Lafayette Boulevard. The Lafayette Circle approach is replaced by the extension of Lafayette Square across Fairfield Avenue to Cannon Street which itself is extended west to the realigned Lafayette Boulevard.

State Route 8/25 presently intersects with the Lafayette Circle entry roadway and Fairfield Avenue. The State Route 8/25 southbound off-ramp is directly opposite Lafayette Circle and the State Route 8/25 northbound on-ramp is presently located off Fairfield Avenue just upstream of the intersection. The realignment introduces a Lafayette Boulevard two lane approach aligned with the relocated State Route 8/25 on ramp; the southbound egress onto the Circle is replaced with two lanes of the median divided Boulevard; the southbound State Route 8/25 off-ramp is expanded to provide a separate left turn lane and two through lanes. On Fairfield Avenue westbound, a two lane approach is planned. From the left-most of these through lanes, left turns will also be accommodated, and from the right-most, right turns would be served. A Fairfield

Avenue eastbound approach is planned to accommodate the access/egress from the Fairfield Avenue frontage of the development parcel west of Lafayette Boulevard; this eastbound approach would consist of a single lane to serve all movements. From the existing State Route 8/25 southbound off ramp right turn lane, Fairfield Avenue would be one way westbound.

At the John Street intersection, no changes are planned for the Lafayette Boulevard approach lane configurations where separate left turn lanes are complemented by two through lanes on both approaches. John Street approaches will be upgraded to separate left turn lanes and a through/right lane on both approaches within a three lane cross-section.

c. Pedestrian, Bicycle, and Bus Accommodation

On all of the new roadways and three reconfigured intersections, pedestrian, bicycle and bus accommodations are included. Pedestrians will have complete access with sidewalks along both sides of the extended Lafayette Boulevard, Cannon Street Extension, and Lafayette Square Extension and bicycle lanes are provided on both sides of these streets. Presently, all bus routes in the vicinity operate eastbound on State Street and westbound on John Street. The extension of Lafayette Boulevard offers potential for alternate or augmented inbound and outbound routings.

Pedestrians are further accommodated at the reconfigured intersections. Crosswalks are provided across all approaches; curb extensions are provided to shorten the required crossing distance across the median divided boulevard and across Cannon Street Extension and Lafayette Square extended. At signalized intersections pedestrian phasing is provided within the traffic signal operation.

d. Preferred Realignment Traffic Operations

2014 Build No Development Traffic Volumes

Existing traffic volumes were redistributed onto the planned reconfiguration of Lafayette Circle as an extended Lafayette Boulevard and the changed circulation pattern was analyzed with respect to Levels of Service at each of the primary intersections. Traffic volume growth between the 2012 observations and 2014 is minimal and therefore not specifically included in the analysis due to adjacent or local development is included. Essentially these 2014 Build – No Development Traffic volumes are the observed existing AM and PM traffic volumes using the new roadway network as shown in Table 5 and Figures 16 and 17.

Peak Hour Condition	Fairfield Ave / Lafayette Sq / Lafayette Sq Extended		Lafayette Boulevard / Fairfield Ave / SR 8 & 25		Lafayette Boulevard / John Street		Lafayette Boulevard / State Street	
	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c
AM Peak Hour	B	0.44	C	0.65	C	0.51	B	0.45
PM Peak Hour	C	0.58	B	0.56	C	0.50	B	0.54

Table 5: 2014 Build - No Development LOS Analysis Results

2034 Build - No Development Traffic Volumes

Redistributed existing traffic volumes onto the planned reconfiguration of the roadway network in the vicinity of Lafayette Circle were projected to reflect 12 percent growth by the year 2034. No adjacent land development is included in this 2034 Build - No Development scenario represented in Figures 18 & 19 for the AM peak hour and PM peak hour respectively.

The traffic volume Levels of Service at each of the primary intersections for the AM and PM peak hours are presented in Table 6.

2034 Build – No Development	Fairfield Ave / Lafayette Sq / Lafayette Sq Extended		Lafayette Boulevard / Fairfield Ave / SR 8 & 25		Lafayette Boulevard / John Street		Lafayette Boulevard / State Street	
	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c
AM Peak Hour	B	0.49	C	0.74	C	0.54	B	0.50
PM Peak Hour	B	0.64	B	0.60	D	0.54	B	0.60

Table 6: 2034 Build - No Development LOS Analysis Results

e. Parcel Creation/Development

One of the objectives of reconfiguring Lafayette Boulevard is the creation of development parcels which enable the highest and best use of this area of Bridgeport. Shrinking the circle and the accompanying adjacent land area dedicated for transportation can increase developable land area. Recognizing the most efficient roadway network that serves the adjacent land and the local and regional traffic demands and combining contiguous parcels with opportunity to access the planned new configuration serve to create a balance between transportation and land development. See Existing Parcels Figure 20 and Property Transfers Figure 21.

Three potential development parcels have been created in the process of reconfiguring Lafayette Circle into a more efficient form. These parcels have the advantage of adjacent regional highway access and the advantages of available alternate access via transit as well as walk/bicycle options of the City.

These three parcels have been examined for their development potential with respect to Bridgeport's city zoning. One parcel lies west of the extended Lafayette Boulevard and two on the east side. That parcel on the east could be accessed from Fairfield Avenue and on John Street as well as along the boulevard. A driveway on the boulevard would need to operate as right turn in and/or out; and U-turn provisions may also be needed due to the Boulevard median. This parcel has been labeled Parcel A.

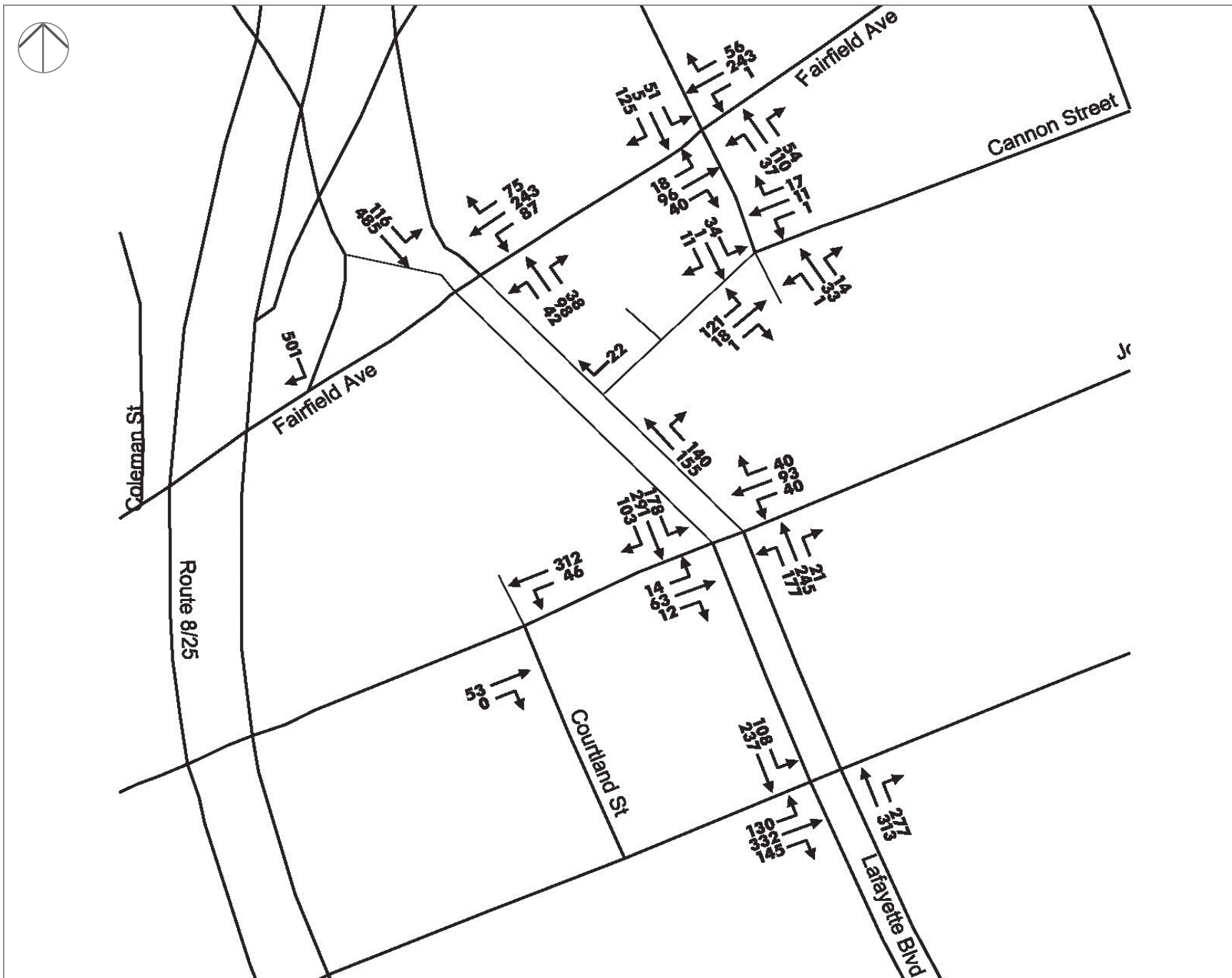


Figure 16: 2014 Background (New Geometry - No Development) AM Peak Hour

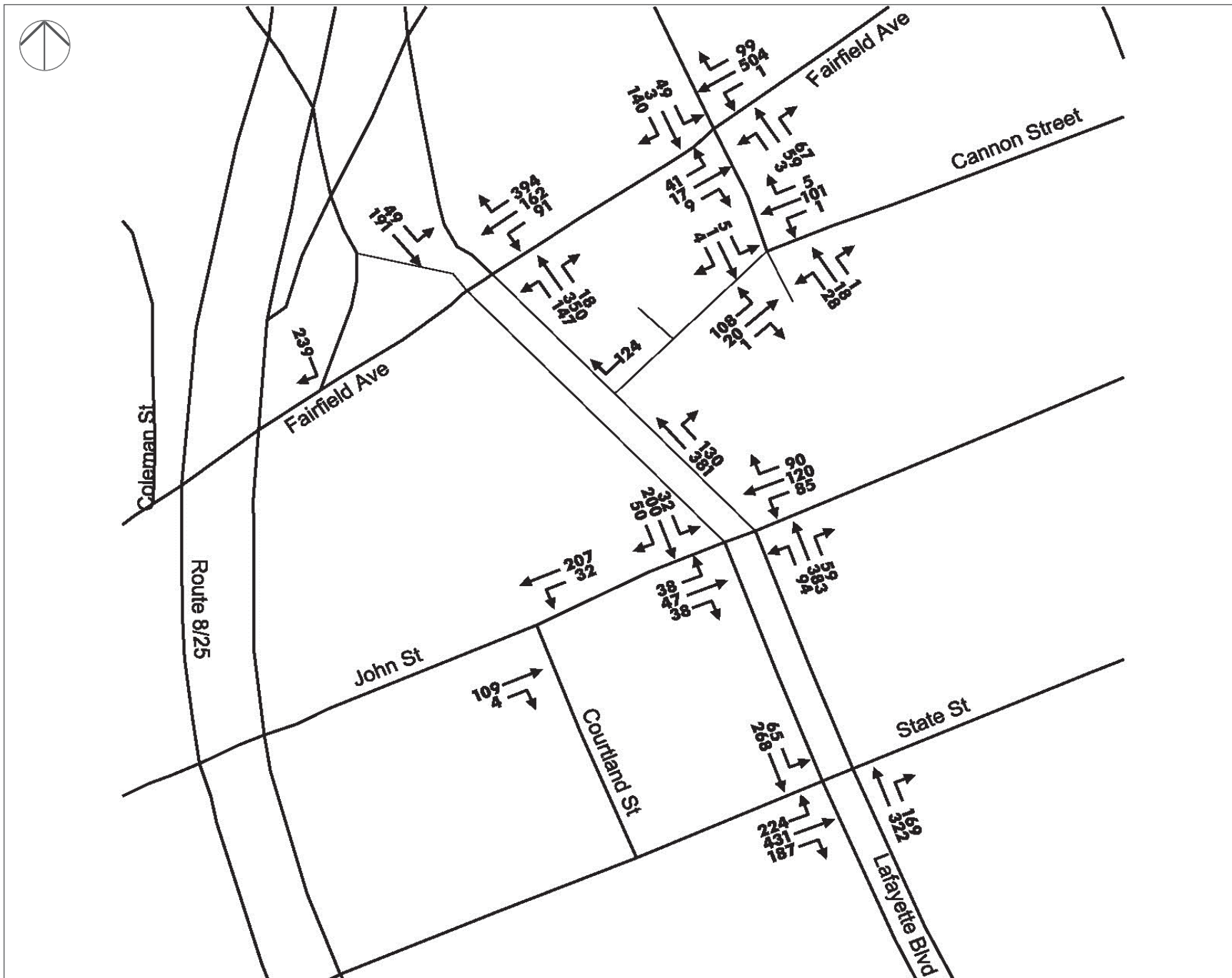


Figure 17: 2014 Background (New Geometry - No Development) PM Peak Hour

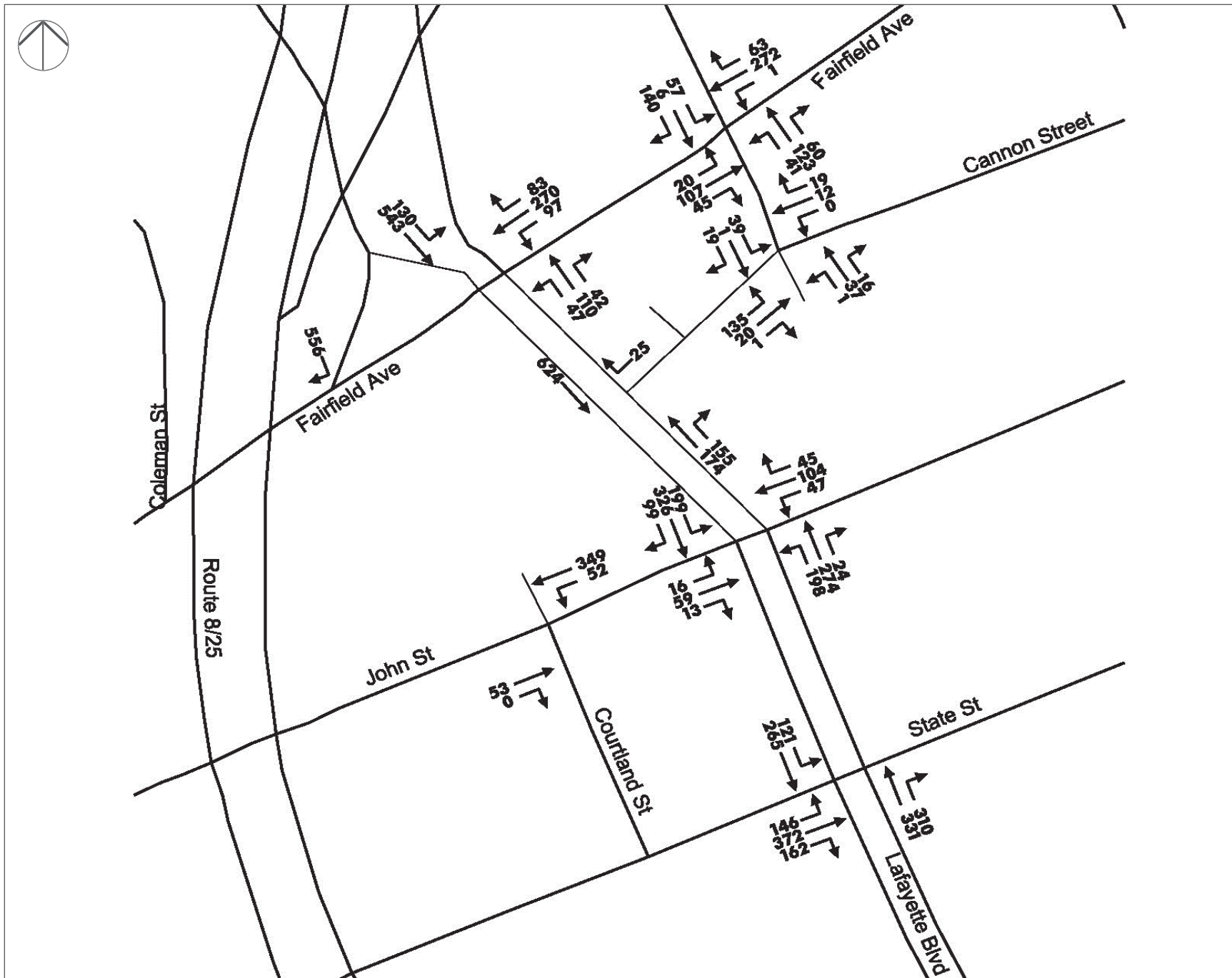


Figure 18: 2034 Background (New Geometry - No Development) AM Peak Hour

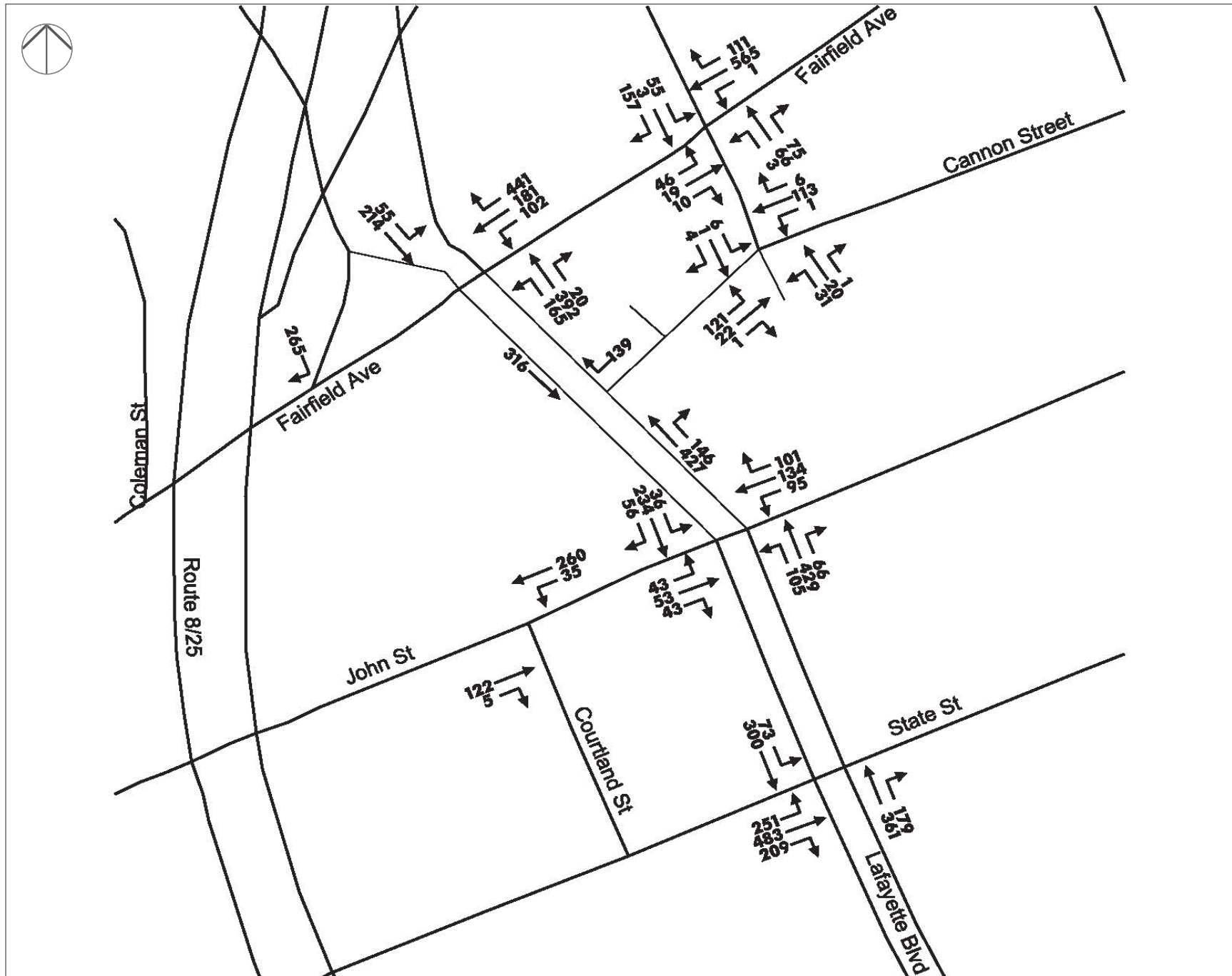


Figure 19: 2034 Background (New Geometry - No Development) PM Peak Hour



Figure 20: Existing Parcels

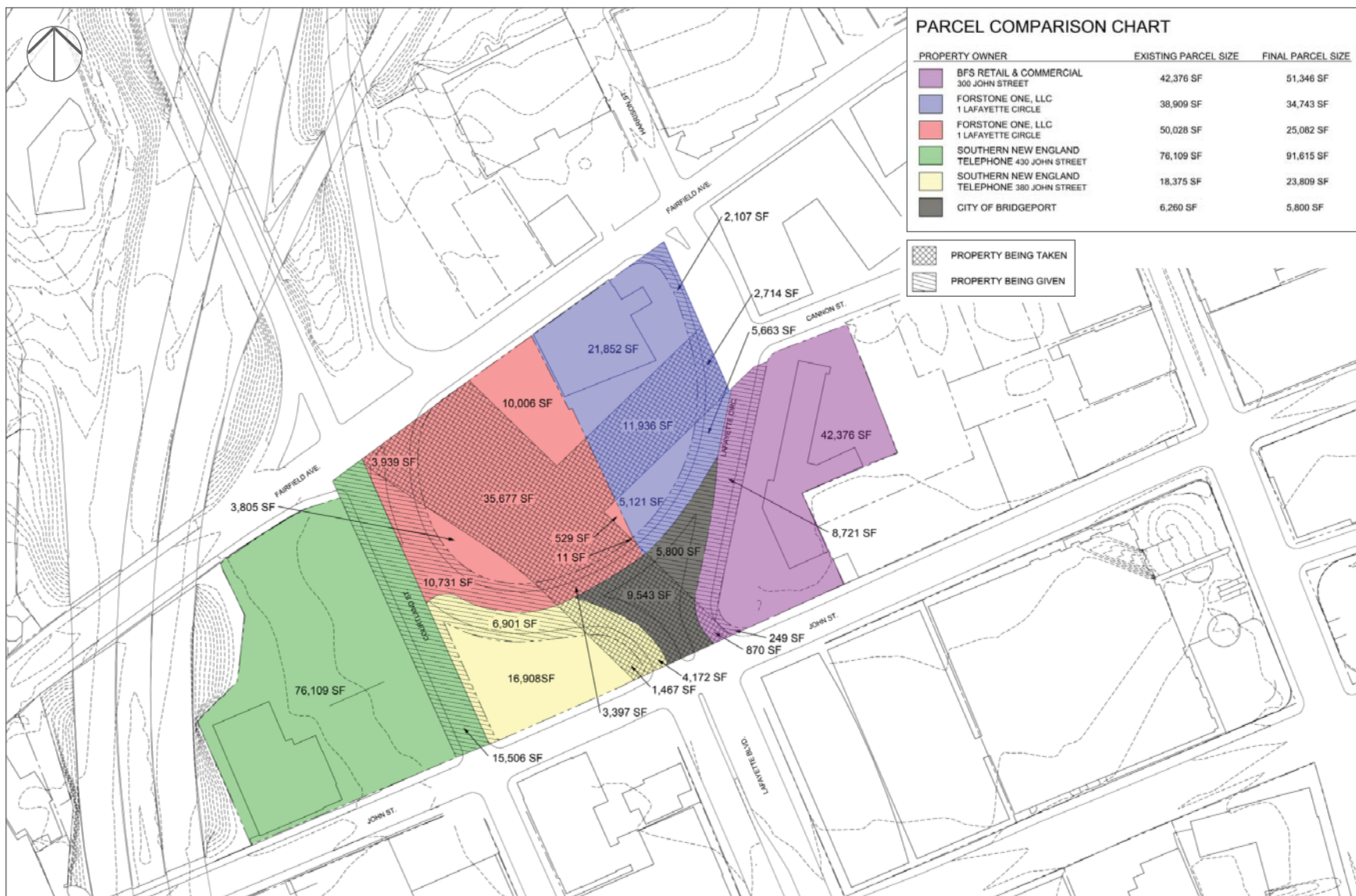


Figure 21: Property Transfers

The two parcels west of Lafayette Boulevard would both have frontage on Cannon Street Extension. That parcel north of Cannon Street Extension is Parcel B. Parcel B would have frontage on Fairfield Avenue and Lafayette Square extended but for this study a single access is planned on Cannon Street Extension to minimize the added traffic impacts on those other roadways. That parcel south of Cannon Street Extension is Parcel C. Access is best located on the north side as the fourth leg of the Cannon Street/Cannon Street Extension and Lafayette Square extended intersection. Parcel C also has frontage along John Street where a second full access driveway is planned. These were previously shown in Figure 9.

f. Potential Parcel Trip Generation

Future development of the adjacent parcels is likely to be some combination of office, residential and retail uses. Generally retail might be expected on the ground floor, about 6 percent of the multi-story buildings and overall it is estimated that 70 percent will be developed as office space and the remainder 24 percent is expected to be developed for residential use. Table 7 presents the assumed parcel size and assumed use. As shown in the table, there is office, residential, and retail use on two of the parcels but Parcel B is assumed to include only office and retail development.

PARCEL	SIZE		OFFICE		RESIDENTIAL		RETAIL	
	(KSF)	%	(KSF)	%	(KSF)	%	(KSF)	%
A	284	37	166	31	98	53	20	45
B	144	19	134	25	0	0	10	22
C	336	44	235	44	86	47	15	33
Total	764	100	535	100	184	100	45	100

Table 7: Assume Parcel Size and Use

The estimate of the vehicle trips generated by these parcels accounts for a range of specific land uses under each of these three basic types, office, residential and retail. These various land use types have been drawn from the Institute of Transportation Engineers' publication Trip Generation which is a compilation of trip generation data.

Other factors included in the vehicle trip generation estimate are:

- Internal trips – which relate to trips to/from one use to another in the same building or area;
- Passby Trips – which relate to retail trips that are already on the adjacent roadway turning on impulse but not adding to the new trips.
- Mode Split – which includes other forms of transportation as are available in Bridgeport including transit, bus, walk, bicycle, and carpooling.

Detailed assumptions relating to each of these trip generation factors are included in the appendix; however their importance for this feasibility study is that they demonstrate some recognition of the available transportation options. The estimate of trips is not based on an actual development proposal but rather a build out scenario according to zoning. And the accuracy of the build out with respect to actual floor areas is not as important as the overall estimate of trips. This estimate is 854 new vehicle trips during the morning peak hour and 902 new vehicle trips during the evening.

Referring again to the ITE trip generation rates, the mode split, internal trips and passby trip assumptions made result in fewer trips than what would be estimated if the ITE Trip generation rates were used. Overall office trip estimates of vehicle trips are 72 percent of the ITE rates; residential trips are 31 percent of the ITE rates, and retail estimates are 23 percent of ITE rates.

g. New Trip Distribution

New vehicle trips to and from the reconfigured Lafayette Circle generated by the resultant development parcels are expected to generally follow existing arrival and departure patterns. In general State Route 8/25 is expected to be a principal route to/from the area, as is Lafayette Boulevard with connections to Interstate-95 to the south, and Fairfield Avenue to/from the east. The full distribution of the estimated new trip generation is represented in Table 8. It is expected that 30 percent of the new vehicle trips will be entering and exiting from the nearby State Route 8/25 Southbound off-ramp and Northbound on-ramp. About half that much is expected to arrive and depart on Lafayette Boulevard south of State Street and similarly on Fairfield Avenue exiting to the west and entering from the east. Lower percentages are expected on State Street, John Street, Lafayette Square, and Cannon Street. This distribution is reflected in the New Development Generated traffic volumes exhibited in Figures 22 and 23.

New development traffic volumes have been added to the 2034 Build – No Development traffic volumes to estimate the 2034 Build traffic volumes. The 2034 Build AM and PM peak hour traffic volume networks for the four primary intersections are illustrated on Figures 22 and 23.

ACCESS/EGRESS ROUTE	ENTERING	EXITING
State Route 8/25 Southbound Off-ramp	30	0
State Route 8/25 Northbound On-ramp	0	30
Lafayette Boulevard	17	15
State Street (West of Lafayette Blvd)	12	0
State Street (East of Lafayette Blvd)	0	5
John Street (West of Lafayette Blvd)	4	4
John Street (East of Lafayette Blvd)	10	10
Cannon Street	2	2
Fairfield Avenue (West Of Lafayette Blvd)	0	16
Fairfield Avenue (East of Lafayette Blvd)	17	10
Lafayette Square	8	8
Total	100	100

Table 8: Estimated New Trip Generation Distribution

h. Traffic Operations

Traffic operations analysis were conducted for the 2034 Build conditions as represented on Figures 24 and 25 with the exception of the traffic volumes exiting the Parcel A driveway on Fairfield Avenue. As directed by ConnDOT this driveway will not provide egress from Parcel A. Consequently, there will be no eastbound approach volumes on Fairfield Avenue as all shown traffic volumes originated from this driveway.

Four intersections in the primary project area will be influenced by the New Development traffic volumes. Essentially the lane requirements do not change at these intersections. Traffic signal timing will change and with the increased peak hour traffic demands of the new development the intersection Level of Service will change. The 2034 Build AM and PM peak hour levels of service at these intersections is presented in Table 9. As indicated by this summary of the capacity analysis results, under the 2034 Build conditions the three intersections replacing Lafayette Circle and a fourth intersection immediately to the south are all expected to operate at acceptable Levels of Service.

2034 Build	Fairfield Ave / Lafayette Sq / Lafayette Sq Extended		Lafayette Boulevard / Fairfield Ave / SR 8 & 25		Lafayette Boulevard / John Street		Lafayette Boulevard / State Street	
	LOS	v/c	LOS	v/c	LOS	v/c	LOS	v/c
AM Peak Hour	B	0.61	D	0.88	C	0.78	B	0.60
PM Peak Hour	C	0.73	C	0.76	D	0.68	B	0.66

Table 9: 2034 Build AM and PM Peak Hour Levels of Service

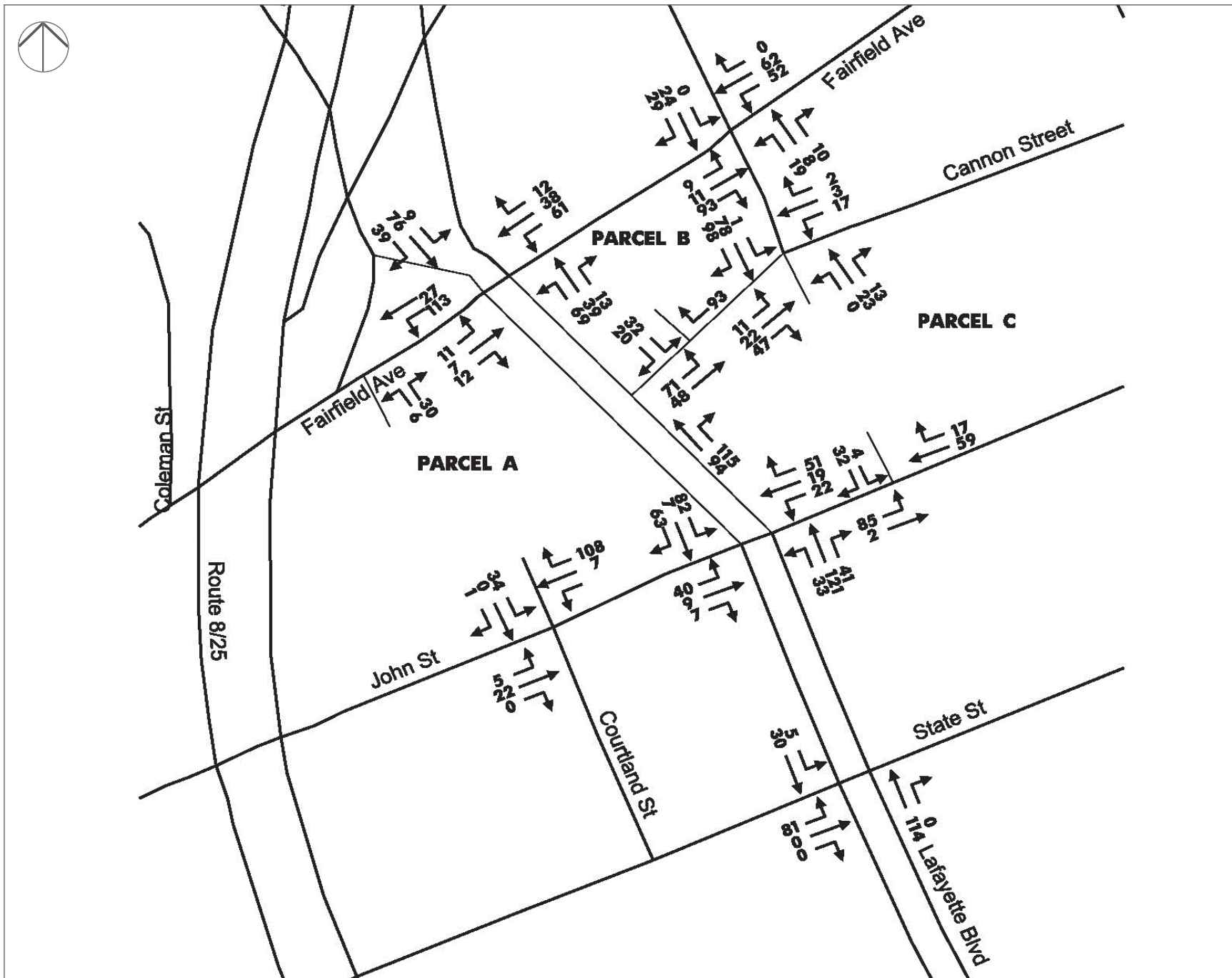
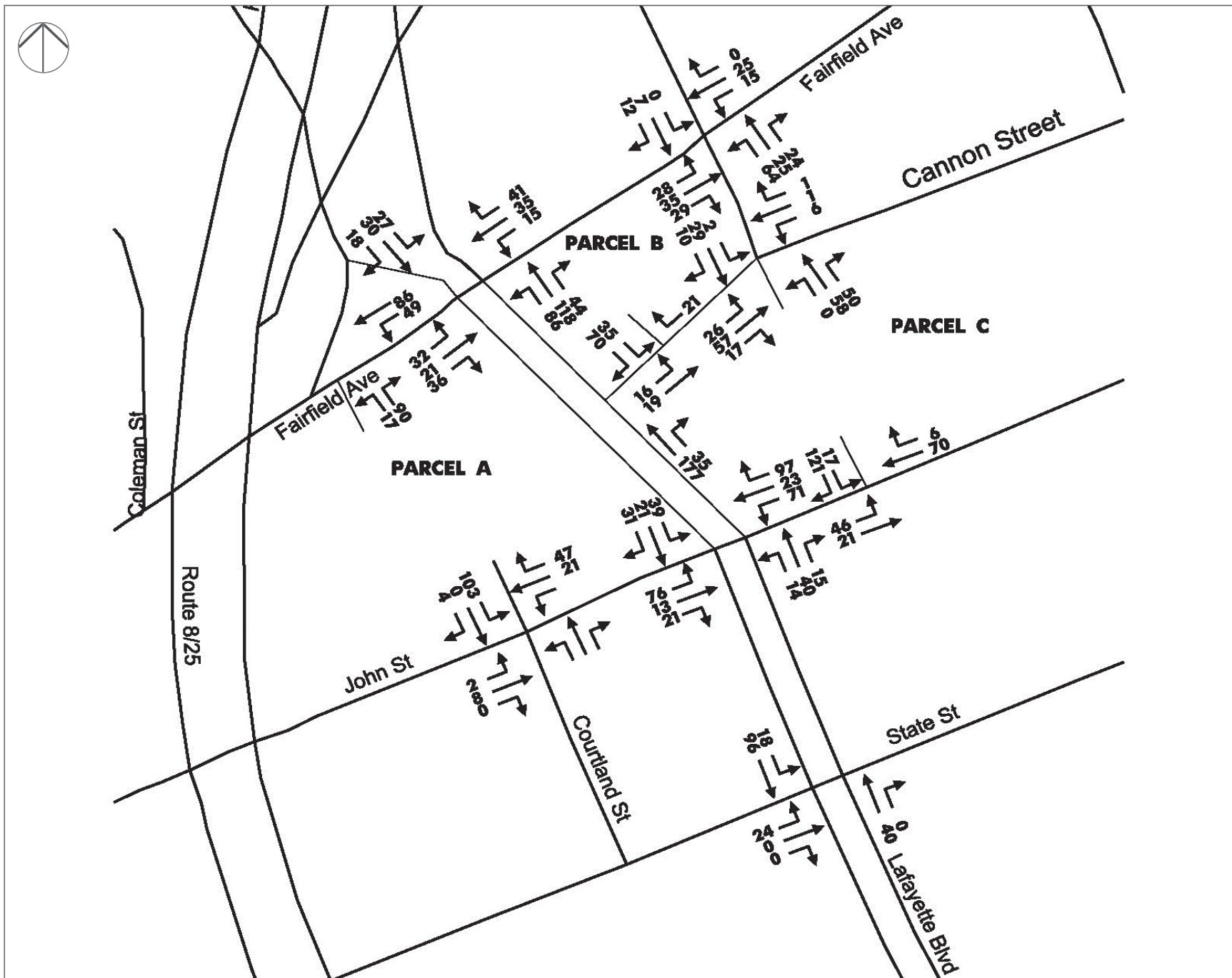


Figure 22: Site Generated Traffic Volumes (For New Development) AM Peak Hour



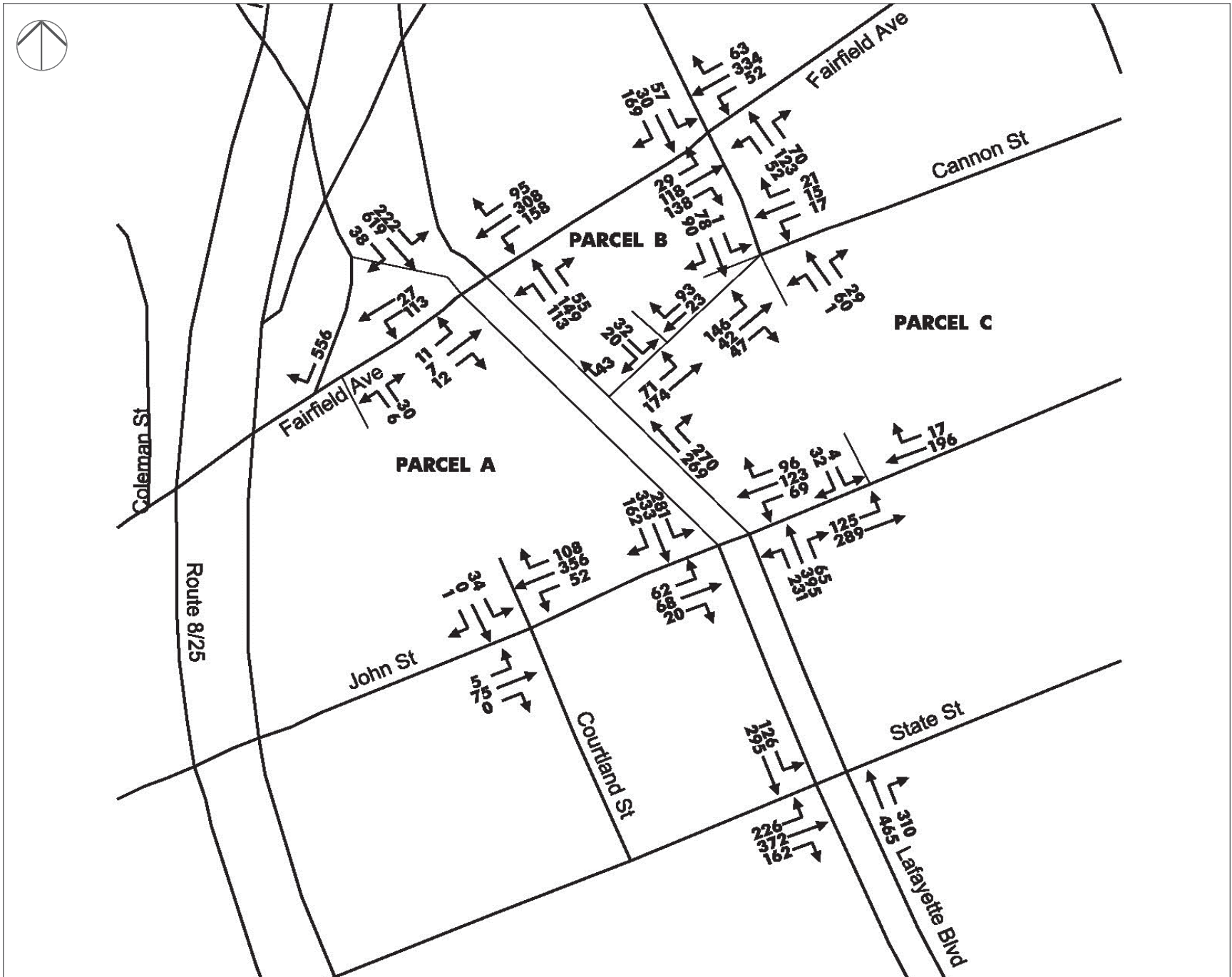


Figure 24: 2034 Build (New Geometry with Development) AM Peak Hour

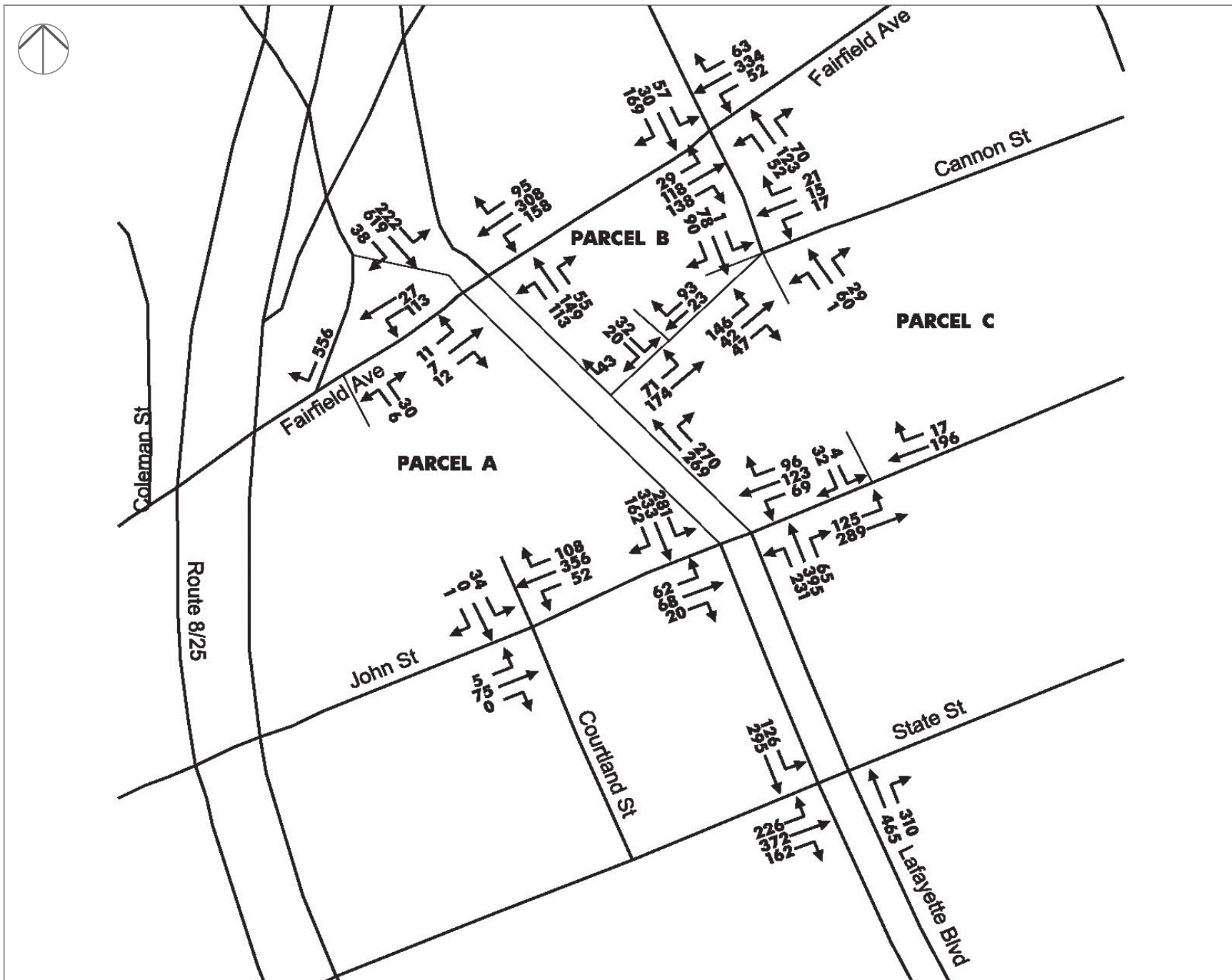


Figure 25: 2034 Build (New Geometry with Development) PM Peak Hour

i. Opinion of Probable Construction Cost

The realignment of Lafayette Circle will require a host of improvements to achieve the circulation, transit, pedestrian and streetscape enhancements envisioned in this plan. The extents of the improvements are represented in the following opinion of probable cost including a budgetary line item for right-of-way acquisition. This cost projection is intended to represent full implementation with appropriate contingency items appropriate for this level of study and planning. See Table 10.

FEASIBILITY AND CONCEPT PLAN FOR THE REALIGNMENT OF LAFAYETTE CIRCLE PROBABLE CONSTRUCTION COST				
Item	Est. Quant.	Unit	Unit Price	Total
Pavement; Overlay <1,000TON/\$165; 1,000-5,000/\$138;>5000/\$110	1,600	TON	\$138.00	\$220,800
Pavement; Milling 0" -4"/\$7.50	9,100	SY	\$7.50	\$68,300
Pavement; Mainline (Refer to PCU's Unit Costs for Pvm. Structures)	61,000	SF	\$12.00	\$732,000
Drainage; Total Pavement Area "All New" [Suburban \$4.00 - CBD \$5.00]	61,000	SF	\$5.00	\$305,000
Drainage; Total Pavement Area "Upgrade" [\$2.00]	9,100	SF	\$2.00	\$18,200
Curbing; Granite [\$45]	7,300	LF	\$45.00	\$328,500
Earth Exv. [<500CY/\$48; 500-2500CY/\$33; 2500-5000CY/\$25; >5000CY/\$20]	2,100	CY	\$33.00	\$69,300
Rock Exv. [<500CY/\$138; 500-2500CY/\$108; 2500-5000/\$82 >5000/\$58]	100	CY	\$82.00	\$8,200
Concrete Sidewalk [\$18.00]	53,000	SF	\$18.00	\$954,000
Bituminous Driveway [\$40/res;\$50/commercial]	200	SY	\$50.00	\$10,000
Turf Establishment [\$5.00]	5,400	SY	\$5.00	\$27,000
Furnishing & Placing Topsoil [\$8.00]	5,400	SY	\$8.00	\$43,200
Sedimentation Control [\$4-\$6]	1,800	LF	\$5.00	\$9,000
Stormwater Retention System (below grade chambers)	4,000	CF	\$10.00	\$40,000
Traffic Signals; New [\$150,000]	4.0	EA.	\$150,000	\$600,000
Pedestrian Lighting	40.0	EA.	\$5,000	\$200,000
Decorative Railing	200.0	LF	\$90	\$18,000
Street Trees	80.0	EA.	\$1,100	\$88,000
Contract Items			SUBTOTAL	\$3,739,500
Clearing and Grubbing Roadway (2%)	2%			\$74,800
M & P of Traffic (3%)	3%			\$112,200
Trafficperson (State or municipal at \$75.00/hr)	1,100		\$75.00	\$82,500
Mobilization (7.5%)	8%			\$280,500
Construction Staking (1%)	1%			\$37,400
Misc. Items (0-20% : shelters, streetscape amenities	20%			\$747,900
Inflation Factor (4% per year)	12%			\$448,700
CONSTRUCTION TOTALS				\$5,520,000
CONTINGENCIES [< \$50,000,000/10%] [> \$50,000,000/7%]	10%			\$552,000
INCIDENTALS [< \$1million/25%] [\$1-5 million/21%] [\$5-10 million/15%]	12%			\$662,000
UTILITIES (including sewer separation within study area)				\$760,000
DESIGN / ENGINEERING AND ENVIRONMENTAL (say 10% of above)				\$749,400
RIGHTS OF WAY (Allowance only; to be confirmed by the City of Bridgeport)				\$1,000,000
RAILROAD FORCE ACCOUNT				NA
TOTAL ESTIMATED COST				\$9,243,400

Table 10: Probable Construction Cost

j. Implementation Strategy

The intent of this study was to determine whether or not the realignment of Lafayette Circle and extension of Lafayette Boulevard is feasible from a traffic operations perspective. The City views the area as a prime economic redevelopment zone, and the realignment of the roadways as a necessary first step in rationalizing the land parcels and making the area more attractive to redevelopment. The findings of the study indicate that the elimination of the circle and realigning and extending Lafayette Boulevard to directly connect with Fairfield Avenue and the Route 8/25 ramps satisfy the purpose and needs of the project and will greatly enhance the economic viability of the zone, while also improving traffic flow and enhancing pedestrian connections and safety.

The likely cost of the project is significant and will require assistance from the US Department of Transportation, Federal Highway Administration, and the Connecticut Department of Transportation. The project will include not only the realignment and reconstruction of road elements, but also relocation of utilities and separation of combined sewer systems within the project area. Acquisition of private property will be required to accommodate the road improvements.

To facilitate implementation, it is recommended that federal aid funding available under the Surface Transportation Program: Urban be allocated to the project. This program provides 80% of the project costs from federal funds and limits local contribution to 10%. The feasibility study has completed the scope determination phase and the design phase is ready for initiation. The City has started discussions with affected property owners and working on the right-of-way acquisition plan. Based on timely completion of these phases, it is anticipated that the construction of the project will likely proceed in June 2015.

V Real Estate Analysis

As part of this study, an initial analysis was prepared to estimate the potential acquisition costs for the portions of two (2) properties within Lafayette Circle that would likely need to be acquired by the City of Bridgeport in order to realign Lafayette Circle and extend Cannon Street as proposed. The second portion of this analysis addresses how the property values of the impacted properties will be enhanced after the streets and boulevard have been reconfigured.

In order to reconfigure Lafayette Circle and to extend Cannon Street, portions of the 2 parcels comprising Lafayette Circle will need to be acquired to accommodate the new street grid. Since Cannon Street and Lafayette Boulevard would bisect the 2 parcels, additional land areas will be separated and combined with neighboring parcels. The Land Transfer Summaries, included here illustrate how the land areas will be redistributed among the affected properties after reconfiguration is completed.

While formal appraisals will ultimately be required to determine the compensation that the property owner will be paid as a result of the acquiring of these land areas, for planning purposes we are using the completed or pending sales transactions of comparable properties in the Bridgeport marketplace. The 3 properties are located at 323 Fairfield Avenue, 2101 Commerce Drive and 3369/3375 Fairfield Avenue and are summarized below.

323 Fairfield Avenue is across the street from Lafayette Circle and is zoned as DVD Core, which is similar to the DVD Boulevard zoning of the 2 parcels in the circle. After 323 Fairfield Avenue was purchased in 2007 it was redeveloped into a mixed use residential and retail complex. This property was sold in 2007 for approximately \$51.00 per square foot. The property located at 2101 Commerce Drive was sold in May 2012 and is currently being redeveloped as a self-storage facility. The prop-

erty will also feature a retail pad site. It is located on western edge of Bridgeport near the Fairfield town line and is adjacent to Interstate 95. The recorded sales price was approximately \$29.00 per square foot.

The third property that is included in this analysis consists of 2 parcels located at 3369 and 3375 Fairfield Avenue. It is zoned for office/retail use and is currently being redeveloped as a garden center. The property is located in the Black Rock section of Bridgeport and is also near the Fairfield town line. Although construction is close to completion, records indicate that the sale is still pending and the sales price is approximately \$35.00 per square foot.

Despite the fact that 323 Fairfield Avenue was sold several years ago, it is the most comparable property to the land area within Lafayette Circle. In addition to being located across the street from the Lafayette Circle properties, it shares the Downtown Village District zoning, which encourages a high density land use. It is therefore highly likely that Lafayette Circle parcels will be developed in a similar fashion to 323 Fairfield Avenue; a mixed use complex, with either residential or office space over grade-level retail space. Both parcels may use the garage at 300 Fairfield Avenue for parking and benefit as a result of the close proximity to train service, other forms of public transportation and downtown amenities. Accordingly, we believe that the per-square-foot land value of the properties within the circle should be closer to the sales price of 323 Fairfield Avenue than the 2 other comparable properties used in this analysis. For planning purposes we believe that a price range of \$45.00 to \$50.00 per square foot should be budgeted to acquire portions of the 2 parcels in Lafayette Circle. See Summary of Transactions of Comparable Properties Table 11.

As reflected in the Land Transfer Summaries provided, the loss of land areas for the 2 properties within the circle will be 15,520 square feet for the blue-shaded parcel and 37,028 square feet for the red shaded parcel. See Final Parcels Figure 26. Therefore, the estimated acquisition costs for the land in blue shaded parcel range from approximately



Figure 26: Final Parcels

PARCEL PROPERTY ADDRESS	PARCEL SQUARE FOOTAGE	ZONING	TRANSACTION DATE	SALE PRICE	PRICE PER SQUARE FOOT
323 Fairfield Avenue	39,204	DVD Core	4/13/2007	\$2,000,000.00	\$51.02
2101 Commerce Drive	68,825	IL	5/29/2012	\$1,975,000.00	\$28.70
3369/3375 Fairfield Ave	18,731	OR	Pending	\$650,000.00	\$34.70

Table 11: Summary of Transactions of Comparable Properties

\$700,000 to \$775,000 and from \$1,650,000 to \$1,850,000 for the red-shaded parcel.

After Lafayette Boulevard has been realigned, Cannon Street extended and a portion of Courtland Street eliminated as a vehicle route, the newly configured land parcels will be more conducive for development and better integrated into the downtown community. The new street configuration will have several positive impacts on the reconfigured properties as well as the neighboring properties that are not directly impacted by the anticipated land transfers. These impacts are as follows:

Improved Traffic Flow

In addition to improving vehicular access to and from Routes 8 and 25, the new street configuration will substantially improve local traffic conditions and reduce peak hour traffic congestion. The additional street parking spaces created will also benefit grade level retail uses.

Improved Pedestrian Traffic

In its current state, Lafayette Circle is an obstacle for pedestrians traveling from north to south and from east to west. The new street layout will create direct paths and eliminate these hindrances. Moreover, the extension of Cannon Street will better integrate properties on the western side of Lafayette Boulevard into the downtown community.

Improved Land Parcel Configuration

The three land areas that will be created as a result of the street configuration will be more conducive for redevelopment activities. The piece remaining in what was previously Lafayette Circle will better be suited for mixed use development. The additional street frontage and metered parking will enhance grade level retail spaces. Although the parcel will be smaller, it will still allow upper level floor plates that can accommodate residential or office uses. The additional land area created south of Cannon Street could ultimately be combined with 300 John Street thereby enhancing the plot value and creating a viable redevelopment site. A similar scenario exists for the properties west of Lafayette Circle. The land areas could be combined into 1 large piece or 2 smaller parcels. It is assumed that northern property line of the AT&T property at 380 John Street would be reconfigured into a straight line as a result of a land swap. Consequently, 380 John Street could be developed on a stand-alone basis which cannot be done given the parcel's current configuration.

Creation of Additional Redevelopment Land

There will be more land area available for redevelopment in the downtown area after the street reconfiguration is completed. As shown in the Land Transfer Summary, there will be roughly 16,000 to 17,000 square feet gained as a result of the circle realignment.

The proposed realignment will vastly improve the study area. The streetscape, road configuration, parking strategy and potential building massing will create a safer, more inviting and attractive environment for downtown Bridgeport as envisioned in the Downtown Plan in 2008. The reconfiguration of Lafayette Circle as a traditional boulevard will enhance property values and attract new development and further the quality of life for both a new generation of residents, long-standing residents and a growing business community.

APPENDIX

Traffic Data

Lafayette Circle Development Program and Trip Generation Assumptions						
Land Use Type	ITE LUC	Variable	Avg Size	Daily	AM ph	PM ph
		KSF			trip rate	trip rate
o Office						
▪ General	710	KSF	200	11.03	1.56	1.49
▪ Government	733	KSF	100	27.92	2.21	2.85
▪ Research and Development	760	KSF	300	8.11	1.22	1.07
Representative Office Rates				15.68	1.66	1.8
Shaded Land Uses Included						
o Residential						
▪ Apartment	220	DW (1KSF)		6.65	0.51	0.62
▪ Condominium	230	DW (1KSF)		5.81	0.44	0.52
Representative Residential Rates				6.23	0.48	0.57
Shaded Land Uses Included						
o Institutional						
▪ Junior / Community College	540	KSF	500	27.49	2.99	2.54
▪ Day Care Center	565	KSF	4	74.06	12.18	12.34
Representative Institutional Rates						
Shaded Land Uses Included						
o Retail						
▪ Convenience Market	851	KSF	3	737.99	67.03	52.41
▪ Pharmacy / Drugstore	880	KSF	10	90.06	2.94	8.4
▪ Specialty	826	KSF		44.32	NA	2.71
o Services						
▪ Walk-in Bank	911	KSF	5	NA	NA	12.13
▪ Copy Shop	920	KSF	4	NA	2.78	7.41
▪ Quality Restaurant	931	KSF	9	89.95	0.81	7.49
▪ Fast Food Restaurant	934	KSF	4	496.12	45.42	32.65
▪ Coffee / Donut Store	938	KSF	0.1	1800	303.33	75.00
▪ High Turnover Restaurant	932	KSF	6	127.15	10.81	9.85
Representative Retail/ Services Rates**				18.08		17.06
Shaded Land Uses Included						

** Weighted avg of Avg Size x trip rate

Development Uses by Parcel				
	Parcel 1	Parcel 2	Parcel 3	Total
	284 KSF	144 KSF	336 KSF	764 KSF
Office	166	134	235	535 70%
Residential	98	0	86	184 24%
Institutional	0	0	0	
Retail/ Services*	20	10	15	45 6%

* First Floor

NOTE: Trip Rates from ITE TRIP Generation 9th Edition

	Directional Split/ ITE Trips*			
	AM		PM	
	In	Out	In	Out
Office	88	12	17	83
	89	11	31	69
	83	17	15	85
	AVG. 87%	13%	21%	79%
ITE Trips	773	115	202	761
Residential	17	83	67	33
	20	80	65	35
	AVG. 19%	81%	66%	34%
	ITE Trips 17	72	69	36
Retail / Services	Directional Split			
	AM		PM	
	In	Out	In	Out
	50	50	51	49
	65	35	49	51
	75	25	44	56
	54	46	53	47
	55	45	60	40
	AVG. 60%	40%	51%	49%
ITE Trips	488	325	392	376

Total ITE Trips	1278	512	663	1173
(peak hour)	AM 1790	PM 1836		

* No modal Split adjustments

Assumed Mode Split Percentage Assumptions by Land Use									
	Carpool (2nd pass)	Transit	Walk	Tele - Commute	Internal Trips	Auto	Passby %	Resultant Auto	
Office	5	15	5	0	3	72	0	72%	
Residential	0	15	10	5	39	31	0	31%	
Retail / Services	0	5	58	0	7	30	25%	23%	

Lafayette Development Auto Trips by Parcel											
		Parcel 1			Parcel 2			Parcel 3			Total
		In	Out	Total	In	Out	Total	In	Out	Total	Total
Office	AM	173	26	198	139	21	160	244	37	281	556
	PM	45	170	215	36	137	174	64	241	305	146
Residential	AM	3	12	15	0	0	0	2	10	13	5
	PM	11	6	17	0	0	0	10	5	15	21
Retail/ Services*	AM	50	33	83	25	17	42	37	25	62	112
	PM	40	38	78	24	16	39	30	29	59	94
All	AM	225	71	296	164	37	202	284	72	356	674
	PM	97	214	311	60	153	213	104	275	379	261

STANTEC 1/9/13

Lafayette Circle Traffic Data

