



Adams Green

Quincy, Massachusetts

TECHNICAL MEMORANDUM 3

Prepared for
City of Quincy, Massachusetts

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in association with
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Introduction

This third and final memorandum for the Adams Green Project incorporates information from Howard/Stein-Hudson Associates' 2 earlier memos on transportation issues related to the project (the Memo #1 overview of Existing Conditions, issues, and opportunities associated with the creation of Adams Green, and Memo #2 comparing Existing Conditions with expected traffic conditions with the proposed Adams Green circulation changes in place), along with recommendations for mitigation and a suggested Action Plan based on these earlier analyses.

Background and Objectives

The City of Quincy has been pursuing a series of improvements and redevelopment opportunities to revitalize its downtown. Downtown Quincy has excellent transit access and adequate off-street parking—particularly south of Granite Street—but has long suffered from lack of direct vehicle connections to I-93 and Route 3. Construction of Burgin Parkway created a major north–south connection. The Concourse is now being constructed to provide an east–west connection between Granite Street and Route 3A.

At the present time, an ambitious downtown Master Plan of mixed-use development consisting of 540 ksf of retail space, 350 ksf of office space, 170 ksf of medical office space, a 30-ksf health care facility, 100 ksf of classroom space, a 6-screen movie theater, 60 ksf of restaurant space, and 1,400 residential units is envisioned for the area bounded by the MBTA Quincy Center station, Burgin Parkway, The Concourse, Chestnut Street, Temple Street, and Washington Street. At the northern end of this district, a major open space called Adams Green is planned in order to celebrate Quincy Town Hall, City Hall, United First Parish Church, and the historic burial ground; to calm traffic along Washington Street, Hancock Street, and Coddington Street; and to enhance pedestrian connections to the Quincy Center T station.

The preferred alternative for Adams Green will require the following circulation changes:

- Closure of Hancock Street between Washington Street and Temple Street;
- Washington Street between Hancock Street and Temple Street to become 2-way; and
- Temple Street between Washington Street and Hancock Street to become 2-way.

Because Hancock Street currently carries a high proportion of regional through-traffic, its discontinuance will require circulation changes and capacity enhancements to accommodate diverted traffic, including The Concourse and other improvements identified in past studies. The closure and other changes will also affect on-street parking and loading for several downtown blocks.

The purpose of the current study, conducted by Howard/Stein-Hudson Associates (HSH), was to develop an action plan for improvements to enable the closure of Hancock Street and the creation of Adams Green, including:

- Circulation changes;
- Intersection improvements;
- On-street parking;
- Bus rerouting;
- Loading accommodations for affected businesses, including City Hall; and
- Pedestrian accommodations.

Memo #1 for the project presented an overview of existing transportation conditions, issues, and opportunities associated with creation of Adams Green. Memo #2 compared these existing conditions and the expected traffic conditions with the proposed Adams Green circulation changes in place. Conditions were measured for several alternative cases, including:

- *Existing Conditions* without Adams Green;
- *Scenario 1:* Adams Green Build Conditions with existing levels of traffic (assuming no diversion of traffic to Burgin Parkway, Washington St., etc.);
- *Scenario 2:* Adams Green Mid-term Build Conditions for a 5- to 8-year development scenario (assuming about 20% of the Master Plan development will be completed and no diversion of traffic to Burgin Parkway, Washington St., etc.);
- *Scenario 3:* Adams Green Long-term Build Conditions for a development scenario including all estimated Master Plan downtown land use build-out (assumed to be at least 25 years away and no diversion of traffic to Burgin Parkway, Washington St., etc.); and
- *Scenario 4:* Adams Green Long-term Build Conditions with Re-distributed Traffic Volumes for a development scenario including all estimated Master Plan downtown land use build-out and the assumption that Burgin Parkway will absorb a percentage of the Hancock Street through-traffic.

The analysis methodology and analysis for each of these cases is presented in the sections below.

In addition to the above analysis, this third and final technical memorandum includes mitigation recommendations and an action plan for implementation.

Study Area and Methodology

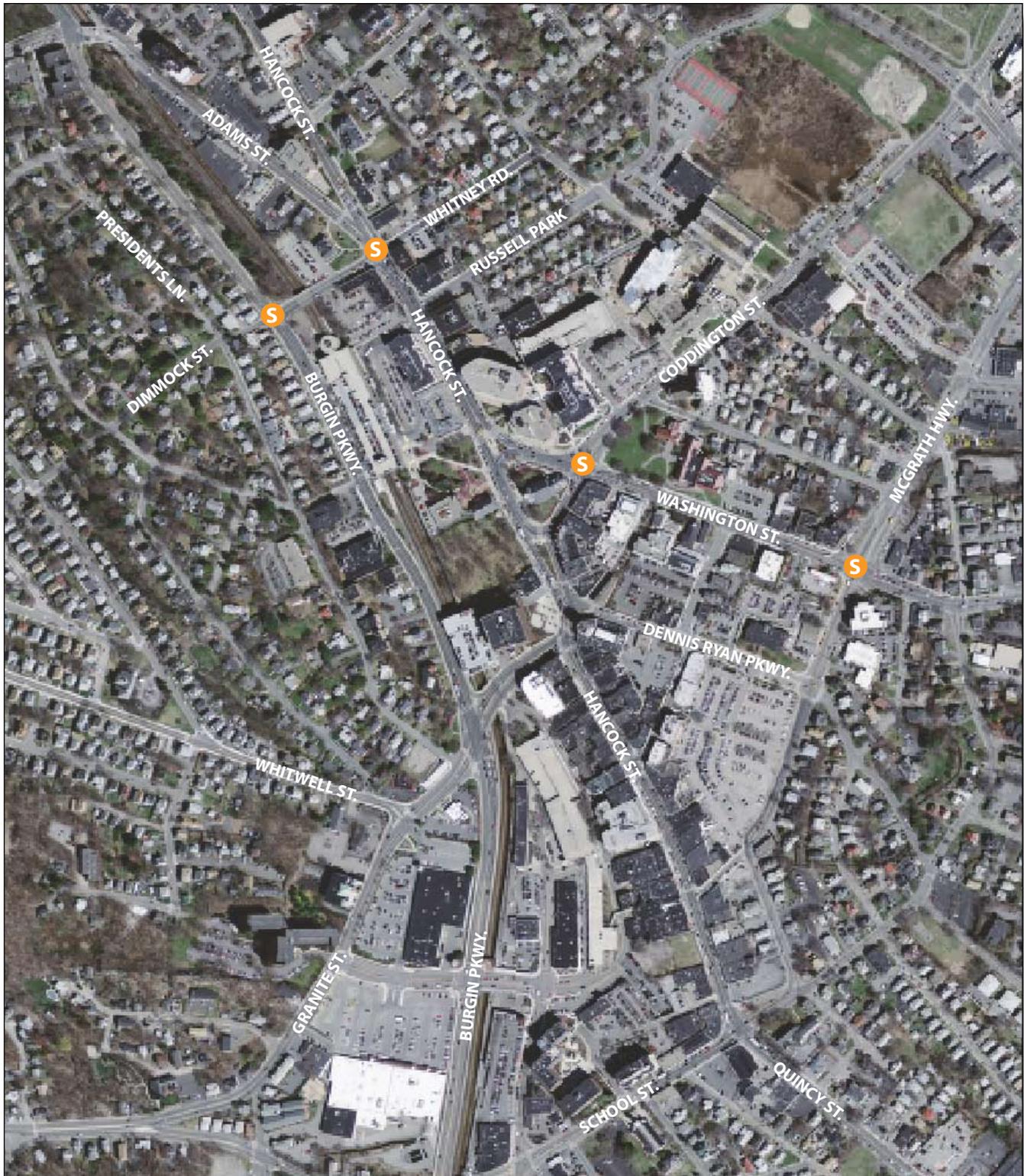
The study area, shown in **Figure 1**, includes the following intersections:

- Washington Street/Coddington Street/Temple Street;
- Dimmock Street/Adams Street/Hancock Street;
- Dimmock Street/Burgin Parkway; and
- Washington Street/McGrath Highway.

Synchro Analysis

To analyze intersection operations, HSH developed a Synchro model for the alternative conditions described above. Tables for each alternative summarize the operations for each of the study area intersections as reported in the Synchro model outputs.

Figure 1. Study Area Intersections



Not to scale.

Trip Generation

Trip generation for the Long-term Development Build-out Scenarios was taken directly from estimates contained in the July 23, 2008, memorandum from Vinod Kalikiri and Jason DeGray of Vanasse Hangen Brustlin (VHB) to James Horizny of Streetworks Development. The Long-term Development by land use included in **Table 1** is derived from Table 1 of the VHB study (Trip Generation Summary). These estimates take into account transit use, captive trips, and pass-by trips.

Table 1. Trip Generation Summary

Time Period	Movement	Existing				Proposed					Increase Total
		Retail	Office	Residential	Sub-total	Retail	Office	Residential	Other	Sub-total	
Weekday Daily	Total				28,055					46,426	18,370
Weekday a.m. Peak Hour	Enter	495	904	neg	1,399	375	1,919	71	237	1,873	474
	Exit	402	100	neg	503	260	179	396	99	933	431
	Total	897	1,004	neg	1,902	635	1,370	467	335	2,807	905
Weekday p.m. peak hour	Enter	1,056	146	neg	1,203	1,091	265	272	361	1,988	786
	Exit	922	860	neg	1,782	973	1,174	103	290	2,540	758
	Total	1,978	1,006	neg	2,985	2,065	1,439	374	651	4,529	1,543
Saturday Daily	Total				28,818					42,113	13,295
Saturday Mid-day Peak Hour	Enter	1,662	146	Neg	1,809	1,578	463	182	554	2,776	967
	Exit	1,351	135	neg	1,487	1,349	328	197	389	2,263	776
	Total	3,013	281	neg	3,295	2,927	791	378	943	5,039	1,744

On the assumption that the entire build-out would take place over at least 25 years, the Mid-term (5- to 8-year) Scenario was based on a factor of 20% of the Long-term Build-out, prorated equally to all the proposed land uses for estimation purposes. Because the Master Plan build-out represents the most specific development for Quincy Center, no overall growth factor was applied to existing volumes in addition to the Master Plan volumes.

Mid-term and Long-term Adams Green Build trip distribution for the proposed land uses was taken from Table 2 of the VHB memo, which does not recognize Burgin Parkway as a major bypass of Quincy Center in the future.

Long-term Build Conditions trip distribution was adjusted to allow for a percentage of vehicles on Hancock Street to be diverted to Burgin Parkway, an assumption that “the majority of (new development) traffic would be diverted to The Concourse” (per the VHB memo) and that improvements recommended in the VHB memo would be implemented.

Existing Conditions

Intersection Descriptions

Washington Street/Coddington Street/Temple Street is a 4-leg, signalized intersection with 3 approaches. The eastbound Temple Street approach consists of 4 travel lanes: 2 left-turn lanes, a through lane, and a right-turn lane. The westbound Coddington Street approach has 2 right-turn-only lanes. The northbound Washington Street approach includes a through lane and a shared through/right-turn lane. Parking is allowed on both sides of Washington Street to the south of the intersection and on the west side of Washington Street to the north of the intersection. Parking is also allowed on both sides of Coddington Street. Crosswalks and wheelchair ramps are provided across all sides of the intersection.

Dimmock Street/Adams Street/Hancock Street is a signalized intersection with 6 approaches. The eastbound Dimmock Street approach has a left-turn/through lane and a right-turn-only lane. The westbound Whitney Street approach has a single, general-use lane. The Hancock Street northbound approach consists of a left-turn lane, a bear-left lane to continue onto Adams Street, and a shared through/right-turn lane. The southbound Hancock Street approach includes a shared left-turn/through lane and a shared through/right-turn lane. The southeast-bound Adams Street approach consists of a shared left-turn/bear-right lane and a shared bear-right/right-turn lane. Johnson Avenue westbound approaches the intersection about 150 feet to the north of Whitney Road. Parking is allowed on both sides of Hancock Street to the south of the intersection. Crosswalks and wheelchair ramps are provided across all approaches. This location has an exclusive pedestrian phase that is actuated by pushbutton.

Dimmock Street/Burgin Parkway is a signalized intersection with 4 approaches. The Dimmock Street eastbound approach has a shared left-turn/through/right-turn lane. The Dimmock Street westbound approach consists of a left-turn lane and a shared through/right-turn lane. The Burgin Parkway northbound approach has 3 lanes that operate as a shared left-turn/through lane, a through lane, and a right-turn lane. The southbound approach operates as a shared left-turn/through lane and a shared through/right-turn lane. Parking is allowed on the south side of Dimmock Street to the west of the intersection. Crosswalks and wheelchair ramps are provided across all of the approaches.

Washington Street/McGrath Highway is a signalized intersection with 4 approaches. This intersection is currently under construction and being repaved as a part of The Concourse project. Once completed, the eastbound Washington Street approach will operate with a shared left-turn/through lane, a through lane, and a right-turn-only lane. The westbound Washington Street approach will retain its current lane usage: a shared left-turn/through lane and a shared through/right-turn lane. The northbound McGrath Highway approach will be constructed to have a left-turn lane, 2 through lanes, and a right-turn lane. The southbound approach will continue to have a shared left-turn/through lane and a through lane. Southbound vehicles wishing to turn right onto Washington Street are directed to use Wibold Street. Parking will not be allowed along any of the approaches. Crosswalks and wheelchair ramps will be provided across all of the approaches.

Traffic Volumes

Existing count data for Washington Street/Coddington Street/Temple Street and Dimmock Street/Adams Street/Hancock Street were taken from the current Synchro model provided by City of Quincy traffic engineer Jack Gillon. Count data for Dimmock Street/Burgin Parkway and Washington Street/McGrath Highway were provided by VHB and conducted in March 2009. Intersection turning movement volumes for the a.m. and p.m. peak hours at the 4 study area intersections are presented in **Figure 2** and **Figure 3**.

Figure 2. Existing Conditions Turning Movement Volumes, a.m. Peak Hour

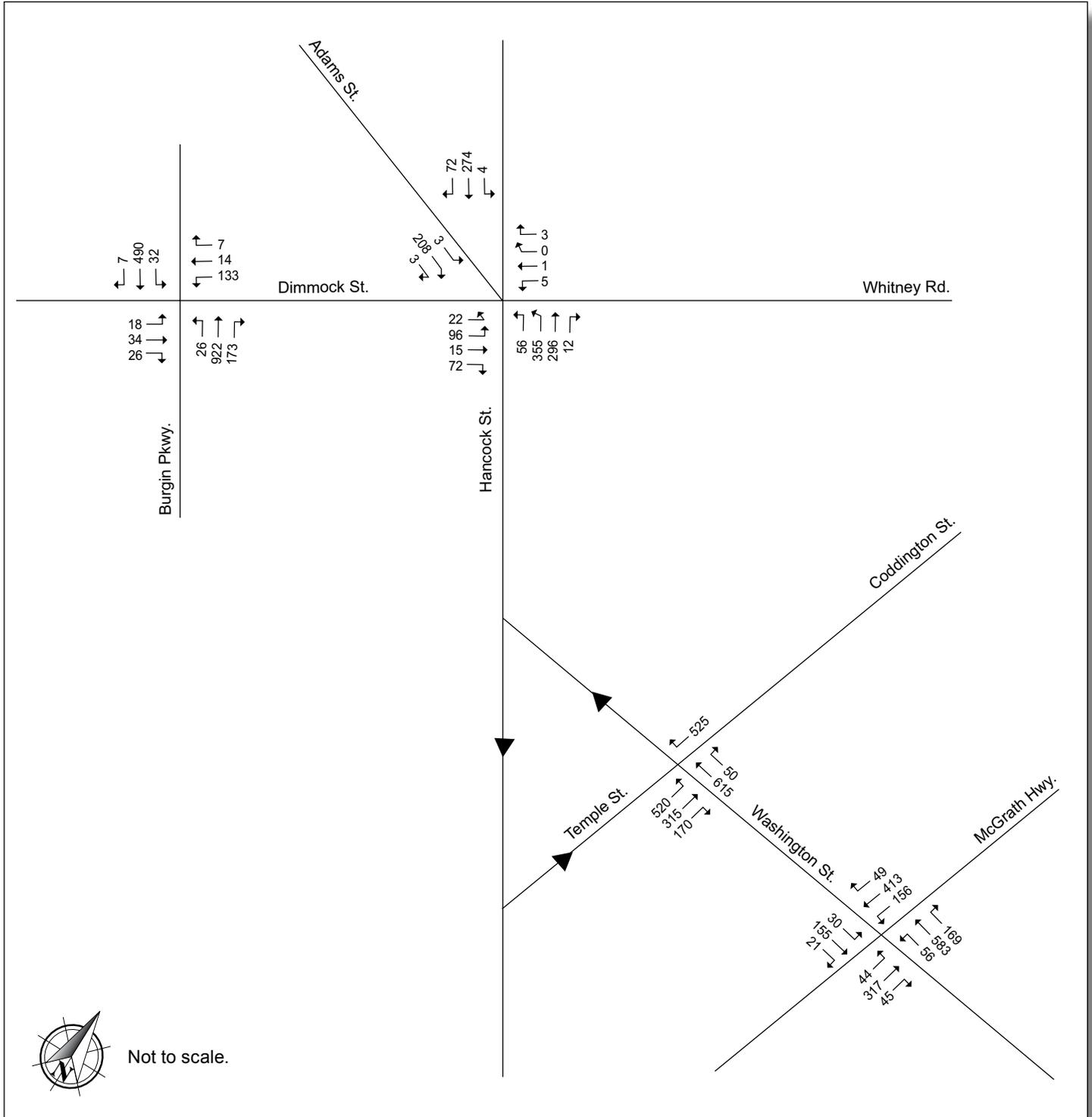
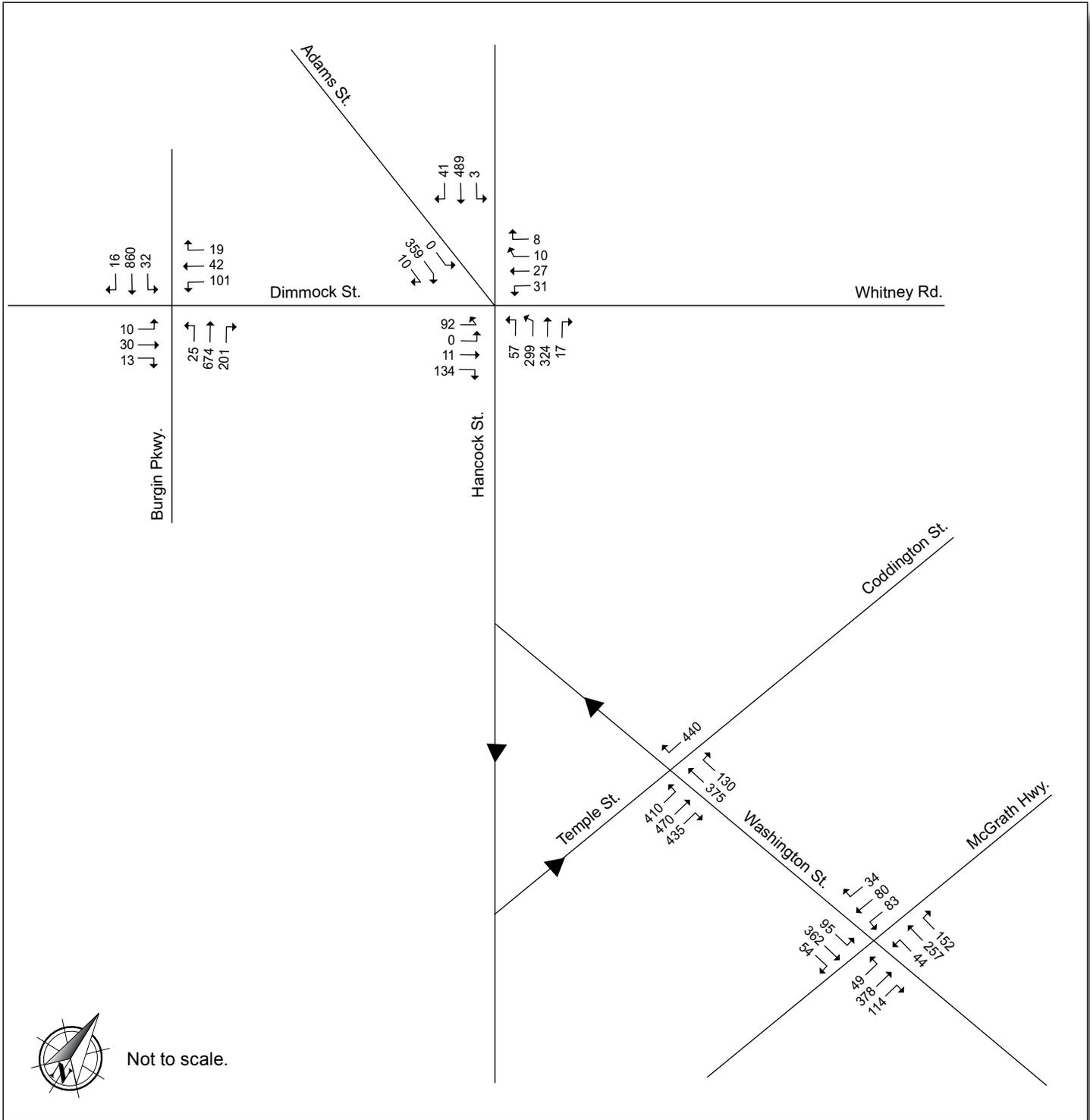


Figure 3. Existing Conditions Turning Movement Volumes, p.m. Peak Hour



Intersection Operations

Existing intersection operations are shown in **Table 2** and **Table 3**.

**Table 2. Existing Conditions Intersection Operations,
a.m. Peak Hour**

Intersection Approach	LOS	Delay (sec./veh.)	v/c Ratio	95% Queue Length (feet)
Washington Street/Coddington Street/ Temple Place	B	17.4		
Temple EB left left	B	12.8	0.39	122
Temple EB thru	B	11.7	0.28	139
Temple EB right	A	0.1	0.12	0
Coddington WB right right	A	5.7	0.30	92
Washington NB thru thru/right	D	374	0.79	239
Dimmock Street/Adams Street/ Hancock Street	C	26.6		
Dimmock EB left/thru	D	54.7	0.71	138
Dimmock EB right	D	37.3	0.33	80
Whitney WB left/thru/right	C	31.4	0.04	17
Hancock NB left	B	16.8	0.13	42
Hancock NB bear left	D	38.8	0.78	#332
Hancock NB thru/right	A	3.7	0.29	31
Hancock SB left/thru thru/right	C	24.9	0.35	132
Adams SEB left/bear right	B	19.0	0.19	80
Adams SEB bear right/right	C	27.7	0.27	105
Dimmock Street/Burgin Parkway	A	9.8		
Dimmock EB left/thru/right	B	19.8	0.28	55
Dimmock WB left	D	37.4	0.61	108
Dimmock WB thru/right	C	23.4	0.08	26
Burgin NB left/thru thru	A	7.9	0.44	248
Burgin NB right	A	2.1	0.16	32
Burgin SB left/thru thru/right	A	6.6	0.27	125
Washington Street/McGrath Highway	C	21.1		
Washington EB left/thru thru	B	19.1	0.25	58
Washington EB right	A	7.9	0.05	15
Washington WB left/thru thru/right	C	34.6	0.89	#280
McGrath NB left/thru thru	B	15.8	0.32	96
McGrath NB right	A	5.2	0.07	19
McGrath SB left	A	8.5	0.30	58
McGrath SB thru thru	A	7.5	0.22	66

= 95th percentile volume exceeds capacity. Queue may be longer. Queue shown is the maximum after 2 cycles.

**Table 3. Existing Conditions Intersection Operations,
p.m. Peak Hour**

Intersection Approach	LOS	Delay (sec./veh.)	v/c Ratio	95% Queue Length (feet)
Washington Street/Coddington Street/ Temple Place	B	11.0		
Temple EB left left	A	0.5	0.19	3
Temple EB thru	A	4.6	0.38	107
Temple EB right	A	0.5	0.30	0
Coddington WB right right	A	1.3	0.22	26
Washington NB thru thru/right	D	43.0	0.79	205
Dimmock Street/Adams Street/ Hancock Street	D	48.5		
Dimmock EB left/thru	E	58.9	0.65	124
Dimmock EB right	E	58.1	0.69	152
Whitney WB left/thru/right	D	44.9	0.41	94
Hancock NB left	C	25.9	0.12	75
Hancock NB bear left	B	18.3	0.37	265
Hancock NB thru/right	E	63.4	0.86	#366
Hancock SB left/thru thru/right	D	42.4	0.75	238
Adams SEB left/bear right	E	63.4	0.79	#240
Adams SEB bear right/right	E	68.0	0.83	#261
Johnson SWB left/right	D	45.2	0.05	15
Dimmock Street/Burgin Parkway	A	8.7		
Dimmock EB left/thru/right	C	22.1	0.22	44
Dimmock WB left	C	33.6	0.48	84
Dimmock WB thru/right	C	27.7	0.25	56
Burgin NB left/thru thru	A	6.3	0.32	166
Burgin NB right	A	1.9	0.18	33
Burgin SB left/thru thru/right	A	7.1	0.42	233
Washington Street/McGrath Highway	B	17.7		
Washington EB left/thru thru	C	31.6	0.76	143
Washington EB right	A	6.2	0.13	23
Washington WB left/thru thru/right	B	18.6	0.58	105
McGrath NB left/thru thru	B	12.8	0.29	108
McGrath NB right	A	3.5	0.15	29
McGrath SB left	A	6.9	0.17	34
McGrath SB thru thru	A	4.5	0.06	17

= 95th percentile volume exceeds capacity. Queue may be longer. Queue shown is the maximum after 2 cycles.

As shown, a.m. peak-hour operations are very good—LOS A, B, and C—at all study area intersections. In the p.m. peak hour, however, the Dimmock Street/Adams Street/Hancock Street intersection operates at overall LOS D, but several turning movements operate at LOS E, due to the size of the intersection and the number of phases needed to operate safely. The distance needed to cross the intersection in the north- and southbound directions is over 250 feet. This distance requires long clearances that result in lost time during each cycle. While Johnson Avenue has an approach at Dimmock Street/Adams Street/Hancock Street, vehicles did not appear to use this street during the peak hours based on several field observations and traffic data counts. The Synchro models provided by Mr. Gillon shows that the Johnson Avenue phase is only activated during the evening peak period. To be conservative, a few vehicles were modeled on Johnson Avenue during the evening peak hour even though the counts showed a volume of zero.

Parking

On-street Parking

Within the Quincy Center area, on-street metered parking is provided along both sides of Hancock Street, Washington Street, and Coddington Street. These convenient, short-term, on-street parking spaces are in high demand, especially in front of City Hall. Parking turnover at these parking spaces is relatively high.

Off-street Parking

Many off-street parking lots and garages, charging \$7 per day and up, are provided in the Quincy Center area. A large parking garage is located at the Quincy Center T Station, with access and egress from Burgin Parkway. Adjacent to the Quincy Center T Station is a surface lot with spaces reserved for City Hall employees during the work day. Access and egress for this lot are located on Hancock Street. Several other parking lots for businesses, residences, and retail are located with access and egress from Dimmock Street, Hancock Street, Washington Street, Coddington Street, and Chestnut Street.

Pedestrian Accommodations

The existing pedestrian facilities in and around the proposed project site are generally in good condition. Sidewalks are provided on both sides of the street for all corridors within the study area. Crosswalks and wheelchair ramps are provided at all signalized intersections and at some mid-block locations. The signalized locations are also equipped with audible “WALK” phases. The majority of pedestrian activity in the area centers on the Quincy Center T Station and the Adams Green area. The Quincy Center T Station services the Red Line, the Greenbush Commuter Rail Line, and the Old Colony Commuter Rail Line. The station is also a hub for multiple MBTA bus routes. Quincy High School, also located on Coddington Street just east of the Project site, generates heavy student traffic at Hancock Street/ Washington Street before and after school hours.

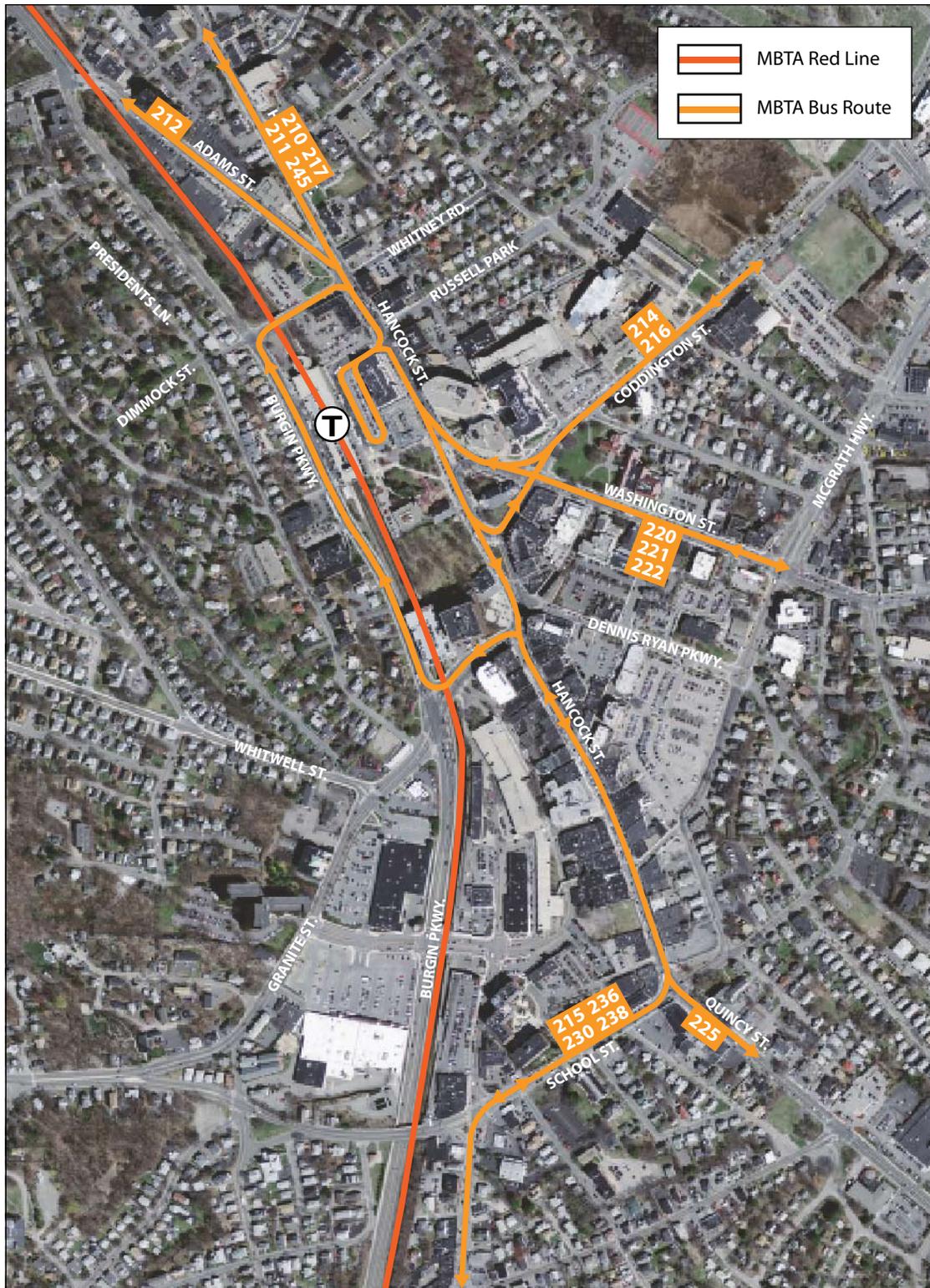
Bus Routes

As mentioned above, Quincy Center acts a hub for many bus routes: #210, #211, #212, #214, #215, #216, #217, #220, #221, #222, #225, #230, #236, #238, and #245. **Figure 4** shows the bus routes within the study area.

On-street and Off-street Loading

Currently, the majority of City Hall loading activities occurs on Hancock Street in front of the City Hall building, normally resulting in double parking. Periodically, paper deliveries and such are handled in the rear of City Hall. Loading for some businesses to the north of City Hall take place in the MBTA lot. Loading activity also occurs along Washington Street at the post office and along Temple Street and Hancock Street for various local businesses.

Figure 4. Existing Bus Routes



Scenario 1: Adams Green Build Conditions (Existing Volumes)

This Build Conditions scenario re-routes vehicles around the future Adams Green site with the proposed traffic circulation. However, the volumes in this scenario use the existing volumes and do not account for any future growth or development.

Rerouted Traffic Volumes

In order to re-route traffic around the proposed Adams Green, HSH conducted an abbreviated origin–destination study during the morning and evening peak periods. Vehicles on the Washington Street and Coddington Street approaches at Washington Street/Coddington Street/Temple Street were counted on May 26, 2010 for a 15-minute period during each peak hour. Volumes from each approach were broken down to track whether the vehicles continued to head north on Hancock Street or turned at Hancock Street/Washington Street to head south on Hancock Street. This allowed the study team to determine distribution percentages and more appropriately re-route volumes around Adams Green. The observed origin–destination patterns are shown in **Table 4**. Counts were also taken on June 2, 2010, resulting in the same percentage values.

Table 4. Observed Origin–Destination Patterns

From	To	# Vehicles	% of Total
<i>Morning (8:15–8:30 a.m.)</i>			
Coddington Street	Hancock Street NB	38	32%
	Hancock Street SB	80	68%
Washington Street	Hancock Street NB	99	77%
	Hancock Street SB	29	23%
<i>Evening (5:10–5:25 p.m.)</i>			
Coddington Street	Hancock Street NB	36	28%
	Hancock Street SB	94	72%
Washington Street	Hancock Street NB	76	77%
	Hancock Street SB	23	23%

The eastbound left turns from Temple Street will not be re-routed since the current circulation already requires northbound vehicles go around Adams Green in this manner.

The existing volumes as re-routed due to the creation of Adams Green are shown in **Figure 5** and **Figure 6**.

Washington Street/Coddington Street/Temple Street Modifications

With construction of the proposed site and re-routing of traffic volumes, Washington Street/Coddington Street/Temple Street will be modified to accommodate 2-way traffic flow on Washington Street and Temple Street. Under all of the Build Conditions, the eastbound Temple Street approach will consist of a left-turn lane and a shared through/right-turn lane. The Coddington Street westbound approach will have a through lane and a right-turn only lane. The Washington Street northbound approach will include a through lane and a shared through/right-turn lane. The southbound approach will consist of a through lane and a right-turn-only lane.

Figure 5. Scenario 1 (Build Conditions) Turning Movement Volumes, a.m. Peak Hour

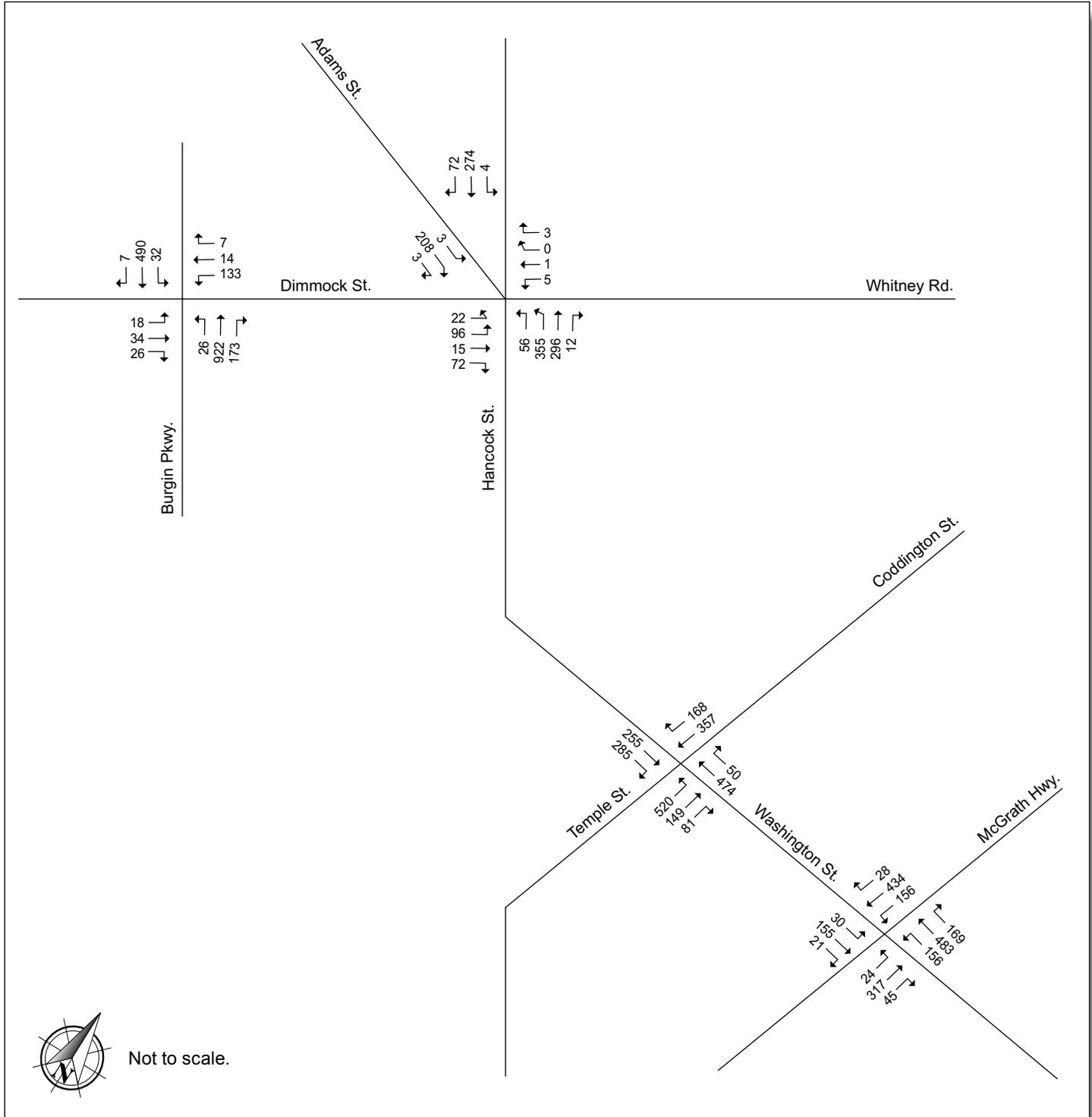
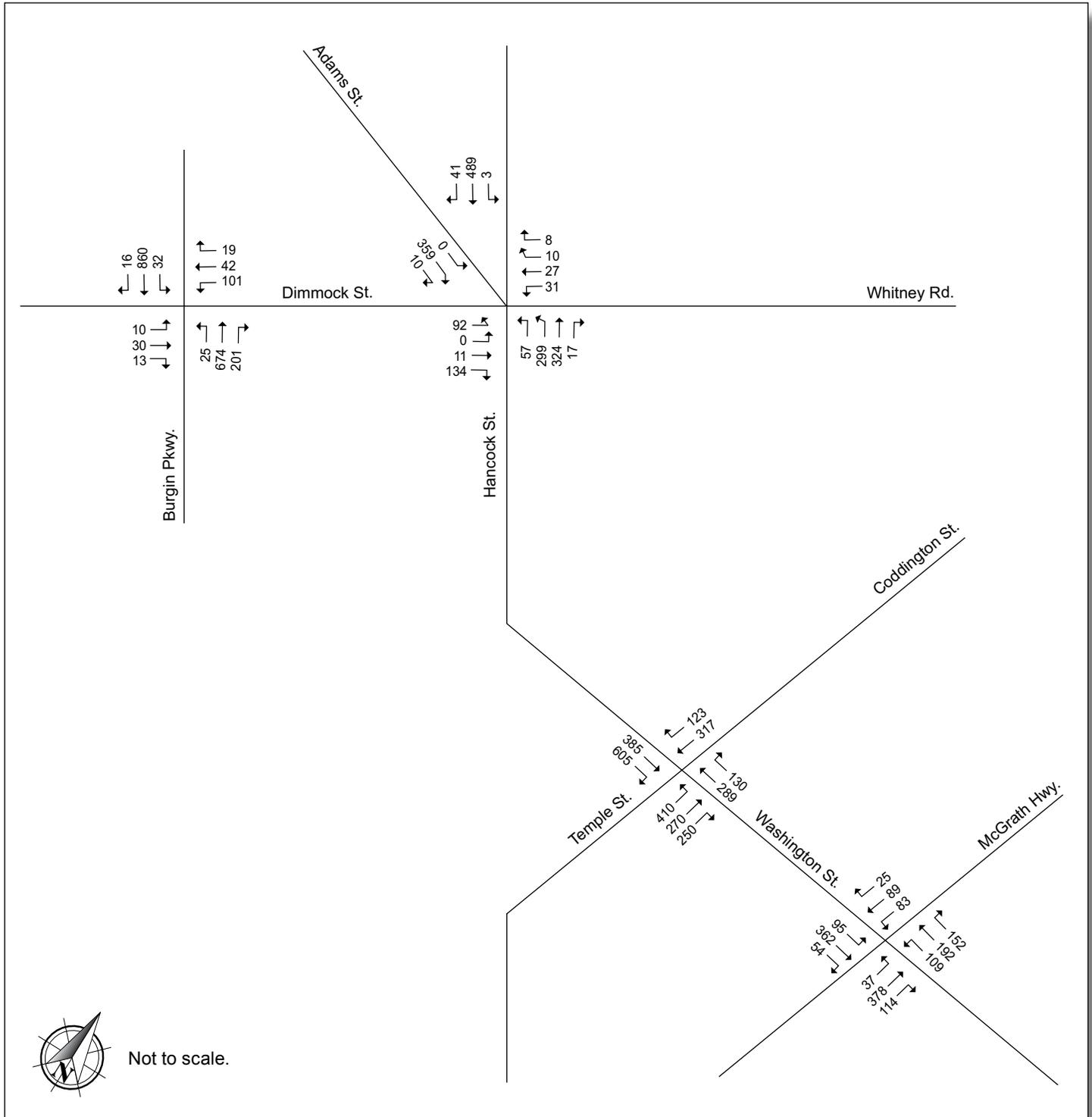


Figure 6. Scenario 1 (Build Conditions) Turning Movement Volumes, p.m. Peak Hour



Intersection Operations

Intersection operations using the rerouted Adams Green existing volumes are shown in **Table 5** and **Table 6**.

Table 5. Scenario 1 (Build Conditions) Intersection Operations, a.m. Peak Hour

Intersection Approach	LOS	Delay (sec./veh.)	v/c Ratio	95% Queue Length (feet)
Washington Street/Coddington Street/ Temple Place	D	38.4		
Temple EB left	D	49.6	0.96	#566
Temple EB thru/right	B	15.0	0.41	m126
Coddington WB thru	E	79.8	0.99	#403
Coddington WB right	B	13.2	0.42	81
Washington NB thru	D	42.6	0.86	368
Washington NB thru/right	A	5.9	0.10	23
Washington SB thru	C	26.9	0.46	120
Washington SB right	A	8.3	0.43	556
Dimmock Street/Adams Street/ Hancock Street	C	28.2		
Dimmock EB left/thru	D	54.7	0.71	138
Dimmock EB right	D	37.3	0.33	80
Whitney WB left/thru/right	C	31.4	0.04	17
Hancock NB left	B	12.0	0.13	36
Hancock NB bear left	D	43.2	0.84	#294
Hancock NB thru/right	A	7.8	0.29	97
Hancock SB left/thru thru/right	C	23.9	0.33	132
Adams SEB left/bear right	B	19.6	0.20	80
Adams SEB bear right/right	C	28.7	0.29	104
Dimmock Street/Burgin Parkway	A	9.8		
Dimmock EB left/thru/right	B	19.8	0.28	55
Dimmock WB left	D	37.4	0.61	108
Dimmock WB thru/right	C	23.4	0.08	26
Burgin NB left/thru thru	A	7.9	0.44	248
Burgin NB right	A	2.1	0.16	32
Burgin SB left/thru thru/right	A	6.6	0.27	125
Washington Street/McGrath Highway	C	24.2		
Washington EB left/thru thru	B	18.9	0.25	58
Washington EB right	A	7.9	0.04	15
Washington WB left/thru thru/right	D	42.6	0.94	#302
McGrath NB left	B	14.8	0.07	22
McGrath NB thru thru	B	15.2	0.25	82
McGrath NB right	A	5.2	0.08	19
McGrath SB left	A	8.5	0.29	58
McGrath SB thru thru	A	7.8	0.23	70

= 95th percentile volume exceeds capacity. Queue may be longer. Queue shown is the maximum after 2 cycles.

Table 6. Scenario 1 (Build Conditions) Intersection Operations, p.m. Peak Hour

Intersection Approach	LOS	Delay (sec./veh.)	v/c Ratio	95% Queue Length (feet)
Washington Street/Coddington Street/ Temple Place	C	30.3		
Temple EB left	B	19.6	0.65	m#429
Temple EB thru/right	C	23.1	0.82	m#569
Coddington WB thru	D	53.6	0.83	297
Coddington WB right	A	6.9	0.29	44
Washington NB thru	D	36.8	0.62	224
Washington NB thru/right	A	5.3	0.27	38
Washington SB thru	D	54.8	0.83	218
Washington SB right	C	22.8	0.75	352
Dimmock Street/Adams Street/ Hancock Street	D	48.5		
Dimmock EB left/thru	E	58.9	0.65	124
Dimmock EB right	E	58.1	0.69	152
Whitney WB left/thru/right	D	44.9	0.41	94
Hancock NB left	C	33.7	0.12	80
Hancock NB bear left	B	10.1	0.37	145
Hancock NB thru/right	E	69.0	0.87	#377
Hancock SB left/thru thru/right	D	42.8	0.76	238
Adams SEB left/bear right	E	63.4	0.79	#240
Adams SEB bear right/right	E	68.0	0.83	#261
Johnson SWB left/right	D	45.2	0.05	15
Dimmock Street/Burgin Parkway	A	8.7		
Dimmock EB left/thru/right	C	22.1	0.22	44
Dimmock WB left	C	33.6	0.48	84
Dimmock WB thru/right	C	27.7	0.25	56
Burgin NB left/thru thru	A	6.3	0.32	166
Burgin NB right	A	1.9	0.18	33
Burgin SB left/thru thru/right	A	7.1	0.42	233
Washington Street/McGrath Highway	B	19.1		
Washington EB left/thru thru	C	31.6	0.76	143
Washington EB right	A	6.2	0.13	23
Washington WB left/thru thru/right	C	22.9	0.72	115
McGrath NB left	B	12.8	0.06	29
McGrath NB thru thru	B	12.3	0.23	94
McGrath NB right	A	3.5	0.15	29
McGrath SB left	A	6.8	0.16	34
McGrath SB thru thru	A	6.0	0.04	17

= 95th percentile volume exceeds capacity. Queue may be longer. Queue shown is the maximum after 2 cycles.

As shown in the tables, operations in the a.m. peak hour are generally still acceptable under the Re-routed Condition, with only the westbound Coddington Street through volumes at the Washington Street/Coddington Street/Temple Place intersection falling to LOS E. This is due to the new phasing that will need to be implemented in the Build Conditions. In the p.m. peak hour, the Dimmock Street/Adams Street/Hancock Street intersection continues to operate at LOS D, with several approaches continuing to operate at LOS E. In general, the circulation change can be accommodated under existing volumes with only minor increases in delay.

Scenario 2: Adams Green Mid-term Build Conditions

Mid-term Build Traffic Volumes

As stated above, the Mid-term Build Conditions (estimated 5- to 8-year build-out) add 20% of the full-build volumes predicted for the Master Plan mixed-use development to the study area intersections. No background growth factors were used in this analysis, since the Master Plan targets development most specifically for downtown Quincy. Trip generation and trip distribution were taken from the prior VHB study. This distribution assumes that trips will not take advantage of The Concourse once it is open. Mid-term Build Conditions volumes are shown in **Figure 7** and **Figure 8**.

Figure 7. Scenario 2 (Mid-term Build Conditions) Turning Movement Volumes, a.m. Peak Hour

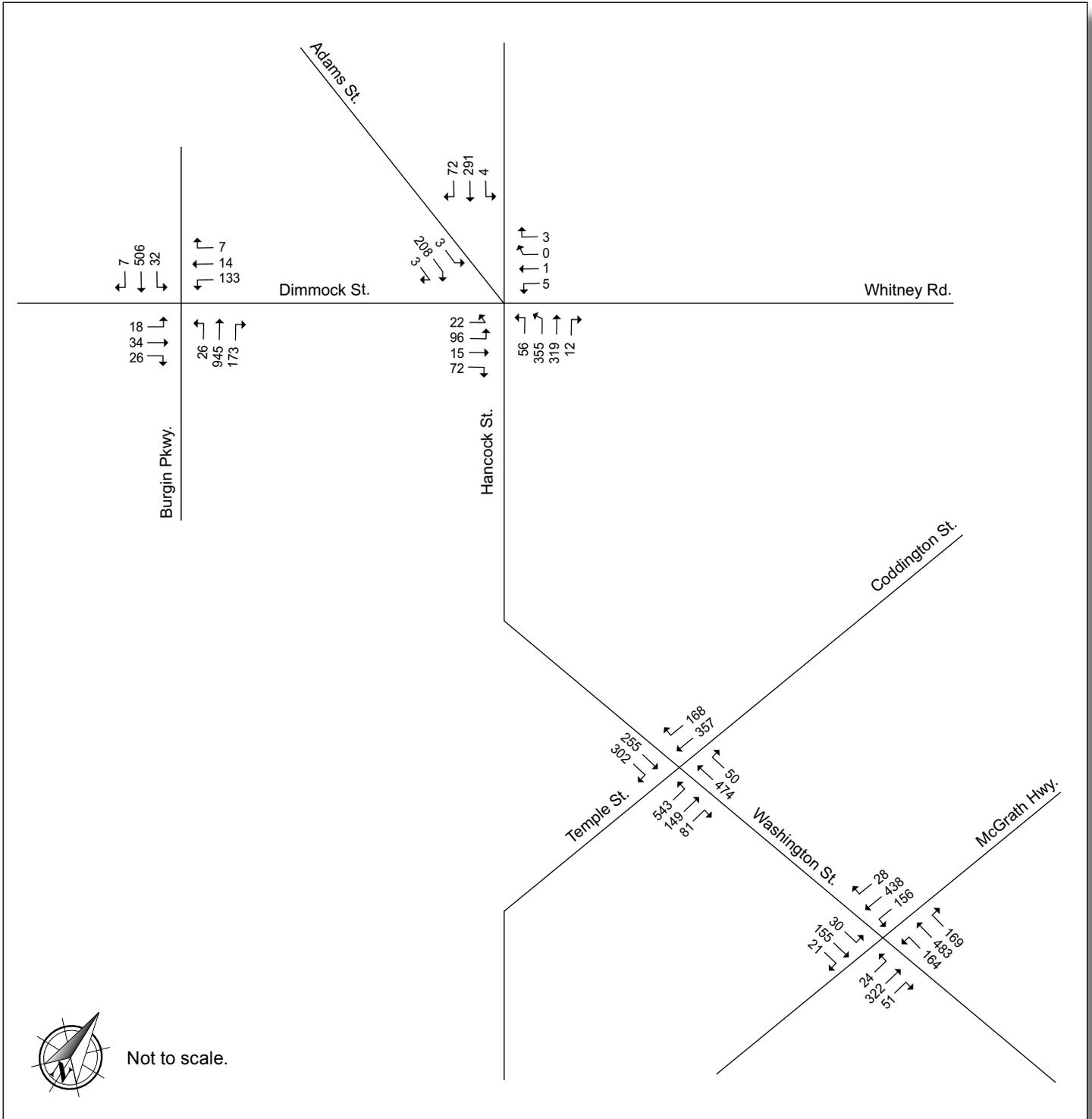
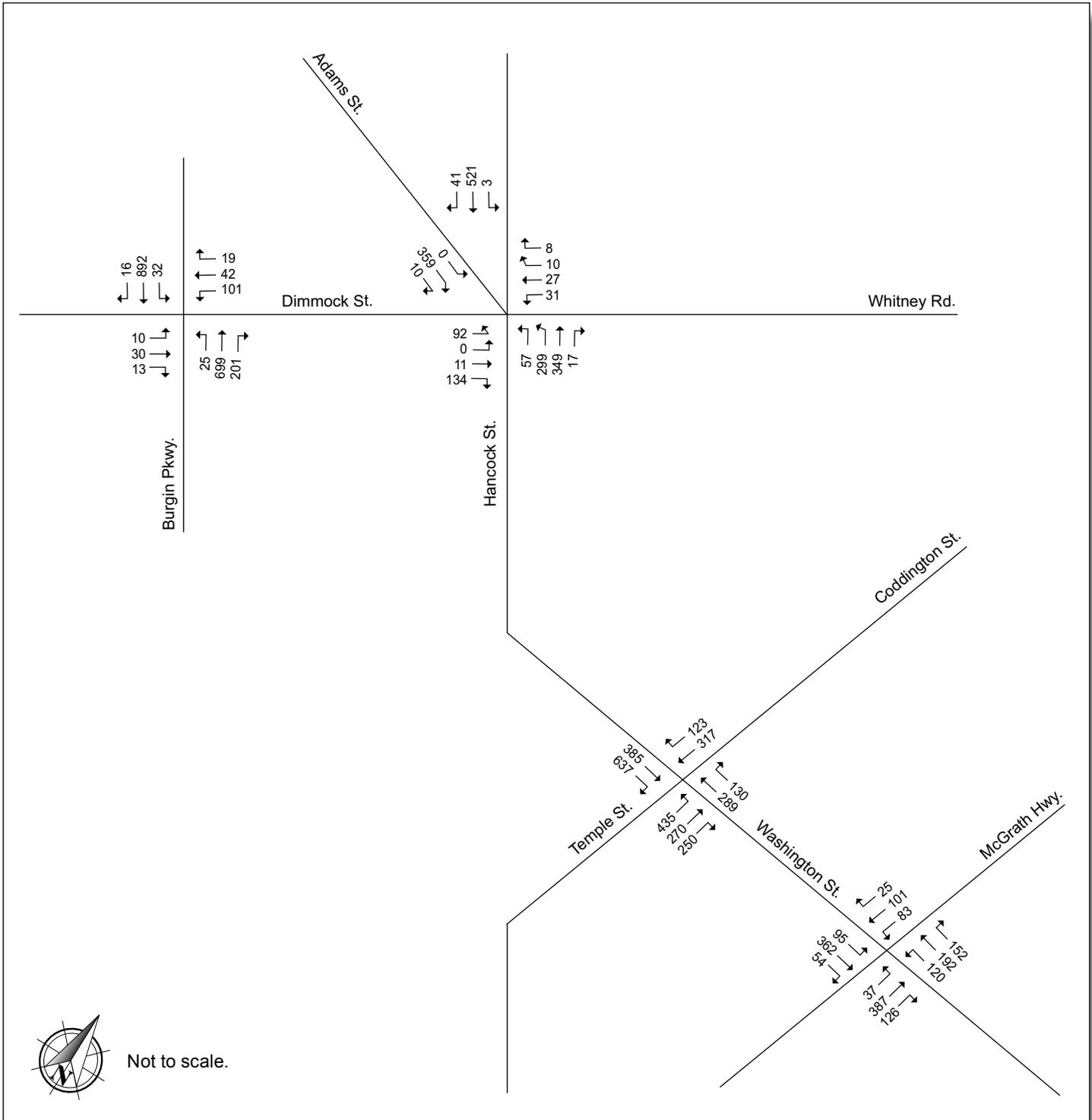


Figure 8. Scenario 2 (Mid-term Build Conditions) Turning Movement Volumes, p.m. Peak Hour



Intersection Operations

Intersection operations for Mid-term Build Conditions are presented in **Table 7** and **Table 8**.

Table 7. Scenario 2 (Mid-term Build Conditions) Intersection Operations, a.m. Peak Hour

Intersection Approach	LOS	Delay (sec./veh.)	v/c Ratio	95% Queue Length (feet)
Washington Street/Coddington Street/ Temple Place	D	40.5		
Temple EB left	E	55.9	0.99	#600
Temple EB thru/right	B	14.9	0.41	m129
Coddington WB thru	E	79.8	0.99	#403
Coddington WB right	B	13.9	0.42	84
Washington NB thru	D	44.2	0.87	368
Washington NB thru/right	A	5.9	0.10	23
Washington SB thru	C	27.9	0.47	124
Washington SB right	B	11.5	0.49	100
Dimmock Street/Adams Street/ Hancock Street	C	27.8		
Dimmock EB left/thru	D	54.7	0.71	138
Dimmock EB right	D	37.3	0.33	80
Whitney WB left/thru/right	C	31.4	0.04	17
Hancock NB left	B	12.2	0.13	35
Hancock NB bear left	D	43.1	0.84	#292
Hancock NB thru/right	A	7.8	0.32	102
Hancock SB left/thru thru/right	C	24.1	0.35	137
Adams SEB left/bear right	B	19.6	0.20	80
Adams SEB bear right/right	C	28.7	0.29	104
Dimmock Street/Burgin Parkway	A	9.8		
Dimmock EB left/thru/right	B	19.8	0.28	55
Dimmock WB left	D	37.4	0.61	108
Dimmock WB thru/right	C	23.4	0.08	26
Burgin NB left/thru thru	A	8.0	0.45	257
Burgin NB right	A	2.1	0.16	32
Burgin SB left/thru thru/right	A	6.7	0.28	130
Washington Street/McGrath Highway	C	25.0		
Washington EB left/thru thru	B	18.9	0.25	58
Washington EB right	A	7.9	0.04	15
Washington WB left/thru thru/right	D	44.7	0.95	#307
McGrath NB left	B	14.8	0.07	22
McGrath NB thru thru	B	15.2	0.25	83
McGrath NB right	A	5.0	0.08	20
McGrath SB left	A	8.5	0.29	58
McGrath SB thru thru	A	7.8	0.24	71

= 95th percentile volume exceeds capacity. Queue may be longer. Queue shown is the maximum after 2 cycles.

Table 8. Scenario 2 (Mid-term Build Conditions) Intersection Operations, p.m. Peak Hour

Intersection Approach	LOS	Delay (sec./veh.)	v/c Ratio	95% Queue Length (feet)
Washington Street/Coddington Street/ Temple Place	C	30.6		
Temple EB left	C	21.9	0.70	m#482
Temple EB thru/right	C	24.6	0.82	m#577
Coddington WB thru	D	53.1	0.83	292
Coddington WB right	A	6.8	0.29	43
Washington NB thru	D	36.3	0.61	224
Washington NB thru/right	A	5.3	0.26	38
Washington SB thru	D	54.2	0.82	223
Washington SB right	C	23.2	0.77	#370
Dimmock Street/Adams Street/ Hancock Street	D	49.7		
Dimmock EB left/thru	E	58.9	0.65	124
Dimmock EB right	E	58.1	0.69	152
Whitney WB left/thru/right	D	44.9	0.41	94
Hancock NB left	C	34.6	0.13	80
Hancock NB bear left	B	10.3	0.37	140
Hancock NB thru/right	E	73.3	0.91	#420
Hancock SB left/thru thru/right	D	43.3	0.78	253
Adams SEB left/bear right	E	63.4	0.79	#240
Adams SEB bear right/right	E	68.0	0.83	#261
Johnson SWB left/right	D	45.2	0.05	15
Dimmock Street/Burgin Parkway	A	8.7		
Dimmock EB left/thru/right	C	22.1	0.22	44
Dimmock WB left	C	33.6	0.48	84
Dimmock WB thru/right	C	27.7	0.25	56
Burgin NB left/thru thru	A	6.4	0.34	173
Burgin NB right	A	1.9	0.18	33
Burgin SB left/thru thru/right	A	7.2	0.43	243
Washington Street/McGrath Highway	B	19.5		
Washington EB left/thru thru	C	31.8	0.76	144
Washington EB right	A	6.2	0.13	23
Washington WB left/thru thru/right	C	25.2	0.76	123
McGrath NB left	B	12.8	0.06	29
McGrath NB thru thru	B	12.4	0.24	96
McGrath NB right	A	3.4	0.16	31
McGrath SB left	A	6.9	0.16	34
McGrath SB thru thru	A	6.0	0.05	20

= 95th percentile volume exceeds capacity. Queue may be longer. Queue shown is the maximum after 2 cycles.

As shown in the tables, the addition of the 20% Master Plan traffic causes no major changes in operation from the Re-routed Scenario with Existing Volumes. Again, this is a good indication that creation of Adams Green will be able to handle volumes reasonably expected within the next 5 to 8 years.

Required Mitigation

The mitigation proposed under Scenario 1 (the Adams Green Build Conditions) will be in place. No further mitigation is required for the Mid-term Conditions impacts. Under Mid-term Conditions, change to the overall operations at the study area intersections is minimal. The added volumes from Project developments are not high enough to significantly impact the network. Therefore, further analysis with re-distributed volumes to Burgin Parkway at the Mid-term level is not necessary.

Parking Impacts

On-street

With the closing of a section of Hancock Street, the on-street parking spaces between Washington Street and Temple Street will be removed. Some on-street spaces, however, will be added to Temple Street. Spaces will also be added along Adams Green, since Hancock Street will be closed off. While some on-street parking is removed and relocated, pedestrians utilizing these spaces will not have to cross the street to access City Hall. The proposed plan shows a loss of about 10 on-street parking spaces from the existing layout.

Off-street

Access to and egress from the existing parking lots and parking garages are not expected to be disturbed directly by the proposed Project. However, the queuing along Hancock Street northbound at Dimmock Street/Adams Street/Hancock Street, which already reaches beyond the driveway at the Quincy Center Station during peak hours, will become longer with added development in the Mid-term Conditions. Future plans have been discussed to signalize this driveway on Hancock Street near Russell Park. With effective coordination, the traffic signals can be timed so as not to block the entrance/exit of the station.

Bus Route Impacts

Due to the circulation changes around Adams Green, bus routes that depart south out of Quincy Center T Station will be affected by the proposed Project. Routes that travel along Hancock Street and Washington Street will be re-routed around the site, just as all other vehicles will be re-routed. For the routes along Coddington Street, a few options can be considered. While left turns from Washington Street onto Coddington Street are prohibited to vehicle traffic, buses can be allowed to make this move, since their volume numbers are relatively small. Another option is to re-route the Coddington Street buses down Washington Street and then back up Newcomb Street to meet at the first stop at the Quincy YMCA.

Pedestrian Impacts

One of the goals of the Project is to attract more pedestrian activity to Adams Green by enhancing pedestrian accommodations and creating safer crossings. Several aspects of the design spotlight these ideals:

- New, wider sidewalks around the park create a more comfortable area for pedestrians to walk;
- The reduced roadway and intersection widths shorten pedestrian exposure to vehicle traffic;
- The introduction of new landscaped medians will encourage slower vehicle speeds and provide a more comfortable refuge for pedestrians; and
- Removal of the rotary configuration will provide safer and more identifiable crossings.

Loading Impacts

With the closing of Hancock Street, loading for City Hall will take place off-street in the rear of the building. The possibilities of providing a bridge across the rail tracks with access and egress to Burgin Parkway have been discussed.

Loading for businesses on Hancock Street to the north of Adams Green typically occurs off-street in the rear of the buildings. Currently, loading activity also occurs along Temple Street for the adjacent businesses. Vehicles currently park in front of the on-street spaces along Temple Street, which is where the Temple Street right-turn lane begins. Future loading for these businesses will have to be addressed, with the possibility of assigning specific times for the loading and non-loading activities.

Scenario 3: Adams Green Long-term Build Conditions

Long-term Build Conditions Traffic Volumes

As stated above, the Long-term Build Conditions add all of the full-build volumes predicted for Master Plan mixed-use development to the study area intersections. This “worst-case” scenario analysis uses the same trip distribution as the Mid-term Build Conditions analysis. These volumes *do not* take into account redistribution to The Concourse and Burgin Parkway. Long-term Build Conditions volumes are shown in **Figure 9** and **Figure 10**.

Long-term Impacts

Impacts to parking, bus routes, and pedestrian in the Long-term Build Conditions scenario are the same as those in the Mid-term Build Conditions scenario.

Figure 9. Scenario 3 (Long-term Build Conditions) Turning Movement Volumes, a.m. Peak Hour

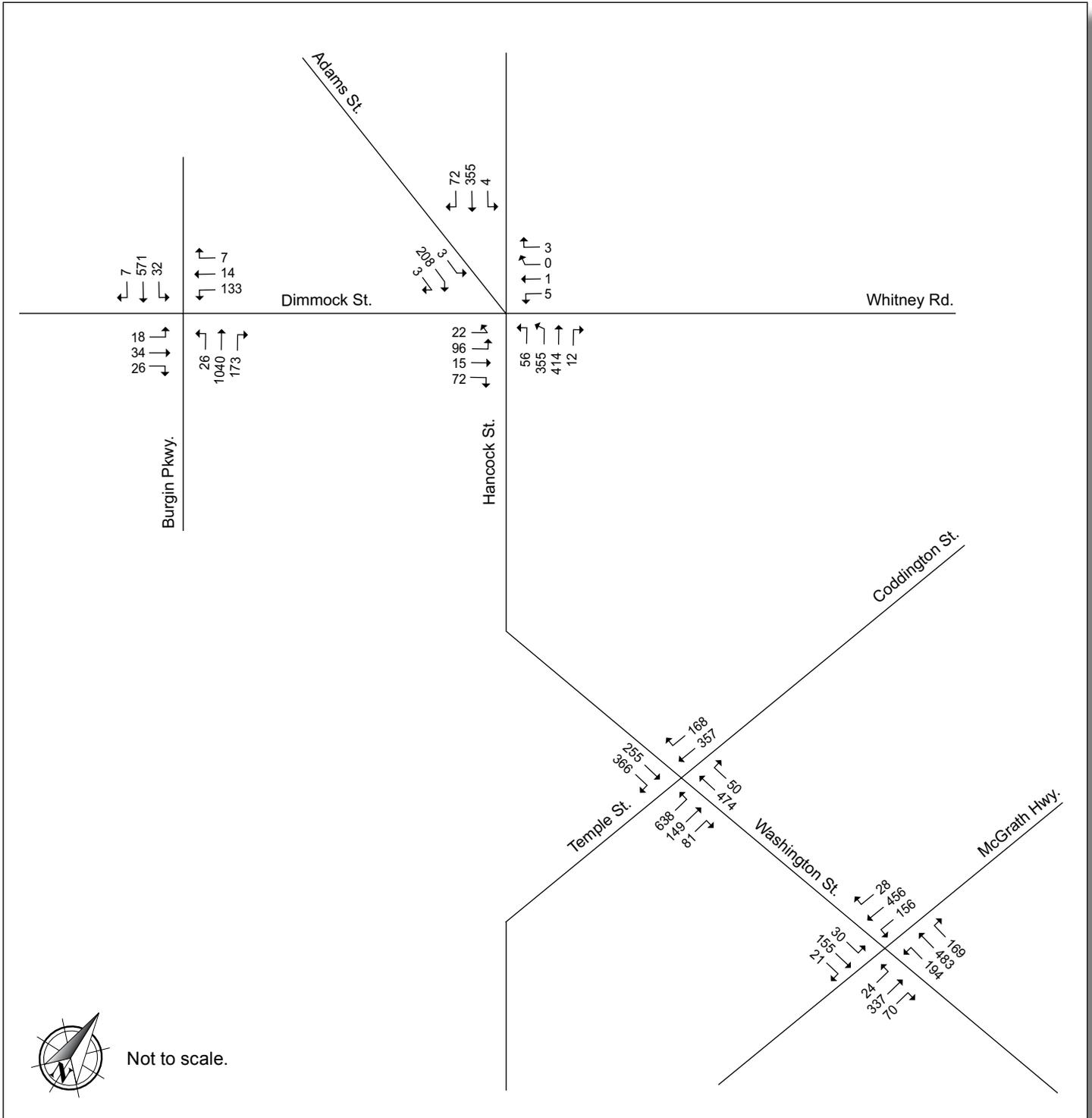
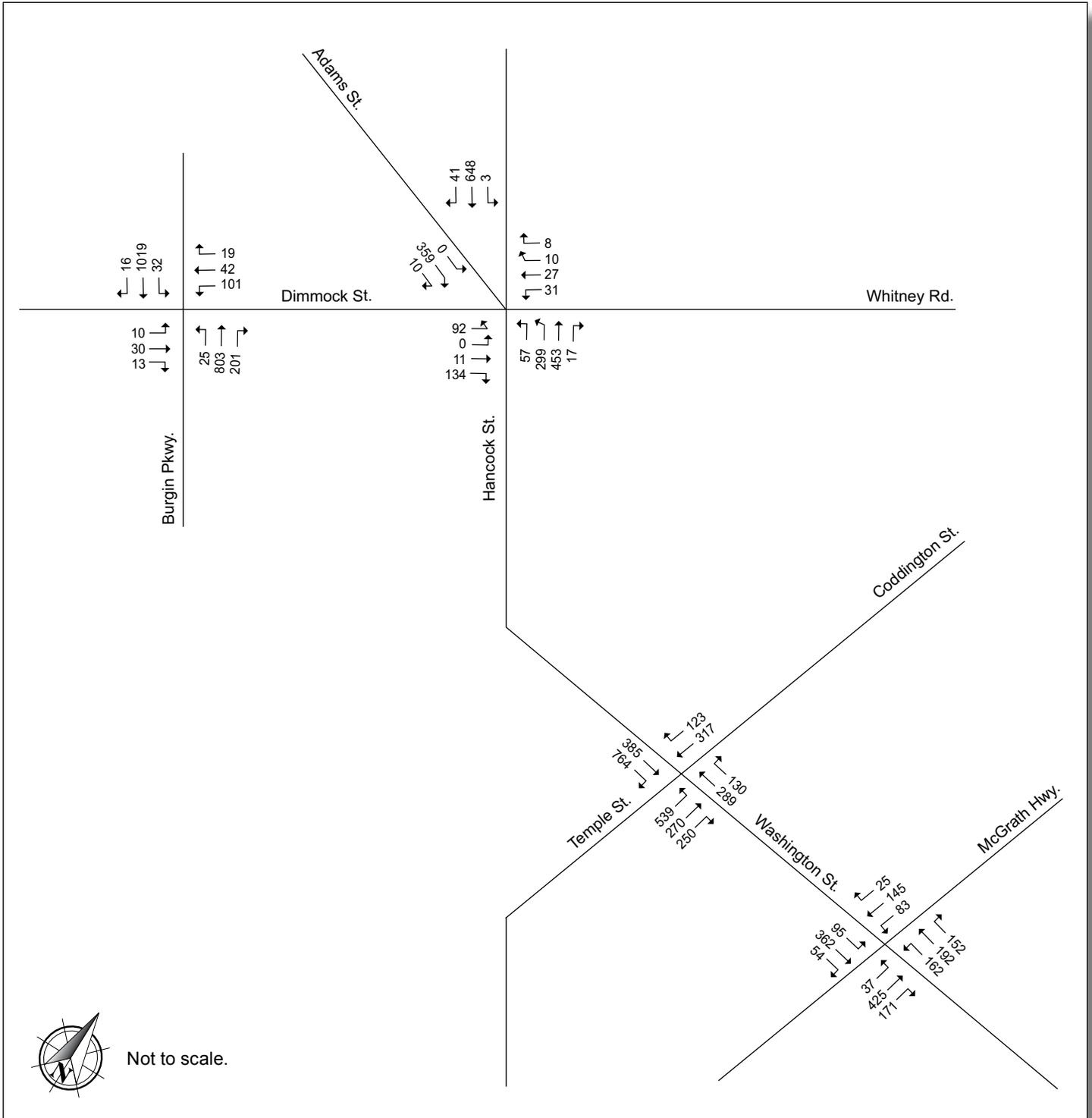


Figure 10. Scenario 3 (Long-term Build Conditions) Turning Movement Volumes, p.m. Peak Hour



Intersection Operations

Intersection operations for full Master Plan build-out are summarized in **Table 9** and **Table 10**.

Table 9. Scenario 3 (Long-term Build Conditions) Intersection Operations, a.m. Peak Hour

Intersection Approach	LOS	Delay (sec./veh.)	v/c Ratio	95% Queue Length (feet)
Washington Street/Coddington Street/ Temple Place	D	54.9		
Temple EB left	F	>80.0	>1.0	#715
Temple EB thru/right	B	13.8	0.39	m131
Coddington WB thru	F	>80.0	>1.0	#428
Coddington WB right	B	16.8	0.46	93
Washington NB thru	D	41.1	0.84	368
Washington NB thru/right	A	5.8	0.10	23
Washington SB thru	C	29.6	0.45	132
Washington SB right	B	12.4	0.54	127
Dimmock Street/Adams Street/ Hancock Street	C	27.2		
Dimmock EB left/thru	D	54.7	0.71	138
Dimmock EB right	D	37.3	0.33	80
Whitney WB left/thru/right	C	31.4	0.04	17
Hancock NB left	B	13.8	0.13	37
Hancock NB bear left	D	44.0	0.83	#293
Hancock NB thru/right	A	8.3	0.41	123
Hancock SB left/thru thru/right	C	25.0	0.41	162
Adams SEB left/bear right	B	19.4	0.20	80
Adams SEB bear right/right	C	28.5	0.29	104
Dimmock Street/Burgin Parkway	B	10.0		
Dimmock EB left/thru/right	B	19.8	0.28	55
Dimmock WB left	D	37.4	0.61	108
Dimmock WB thru/right	C	23.4	0.08	26
Burgin NB left/thru thru	A	8.6	0.49	295
Burgin NB right	A	2.1	0.16	32
Burgin SB left/thru thru/right	A	7.1	0.32	151
Washington Street/McGrath Highway	C	25.7		
Washington EB left/thru thru	B	18.0	0.24	56
Washington EB right	A	7.5	0.04	14
Washington WB left/thru thru/right	D	46.0	0.97	#320
McGrath NB left	B	15.6	0.08	23
McGrath NB thru thru	B	16.1	0.27	89
McGrath NB right	A	4.8	0.12	24
McGrath SB left	A	9.1	0.30	61
McGrath SB thru thru	A	8.4	0.25	77

= 95th percentile volume exceeds capacity. Queue may be longer. Queue shown is the maximum after 2 cycles.

Table 10. Scenario 3 (Long-term Build Conditions) Intersection Operations, p.m. Peak Hour

Intersection Approach	LOS	Delay (sec./veh.)	v/c Ratio	95% Queue Length (feet)
Washington Street/Coddington Street/ Temple Place	C	34.5		
Temple EB left	C	31.9	0.87	m#661
Temple EB thru/right	C	26.0	0.83	m#590
Coddington WB thru	D	53.1	0.83	292
Coddington WB right	A	6.8	0.29	43
Washington NB thru	D	35.8	0.61	224
Washington NB thru/right	A	5.2	0.26	38
Washington SB thru	D	54.3	0.81	240
Washington SB right	C	33.2	0.90	#536
Dimmock Street/Adams Street/ Hancock Street	E	73.6		
Dimmock EB left/thru	E	58.9	0.65	124
Dimmock EB right	E	58.1	0.69	152
Whitney WB left/thru/right	D	44.9	0.41	94
Hancock NB left	D	36.7	0.13	80
Hancock NB bear left	B	10.4	0.39	138
Hancock NB thru/right	F	>80.0	>1.0	#593
Hancock SB left/thru thru/right	F	>80.0	>1.0	#398
Adams SEB left/bear right	E	63.4	0.79	#240
Adams SEB bear right/right	E	68.0	0.83	#261
Johnson SWB left/right	D	45.2	0.05	15
Dimmock Street/Burgin Parkway	A	9.1		
Dimmock EB left/thru/right	C	22.1	0.22	44
Dimmock WB left	C	33.6	0.48	84
Dimmock WB thru/right	C	27.7	0.25	56
Burgin NB left/thru thru	A	7.0	0.40	211
Burgin NB right	A	1.9	0.18	33
Burgin SB left/thru thru/right	A	8.0	0.49	295
Washington Street/McGrath Highway	C	20.8		
Washington EB left/thru thru	C	31.3	0.76	145
Washington EB right	A	6.1	0.13	23
Washington WB left/thru thru/right	C	32.3	0.84	147
McGrath NB left	B	13.2	0.07	29
McGrath NB thru thru	B	12.9	0.27	106
McGrath NB right	A	3.2	0.21	35
McGrath SB left	A	7.2	0.17	34
McGrath SB thru thru	A	6.2	0.07	26

= 95th percentile volume exceeds capacity. Queue may be longer. Queue shown is the maximum after 2 cycles.

As shown above, full Long-term Build-out would reduce overall LOS to unacceptable LOS at only 1 intersection: Dimmock Street/Adams Street/Hancock Street. In this case, several of the individual turning movements fall to LOS F, reflecting the large increase in volume traveling through this intersection under full Build Conditions. On Temple Place, the queue is shown to extend past the signal at Granite Avenue. This indicates that Washington Street/Coddington Street/Temple Place cannot handle the heavy volumes added by the master plan. Added trips will need to be re-distributed as discussed in the following section.

Scenario 4: Adams Green Long-term Build Conditions with Re-distributed Traffic Volumes

Long-term Build Conditions Re-distributed Traffic Volumes

As stated above, volumes for the Long-term Build Conditions were re-distributed, assuming that The Concourse would absorb most Master Plan traffic and that the recommended improvements at key intersections would be in place.

During the a.m. peak period, an estimated 55% of Hancock Street southbound vehicle traffic uses Hancock Street as a through street with no destination within Quincy Center; about 32% uses Hancock Street as a through street in the northbound direction. During the p.m. peak period, about 65% of southbound traffic and about 48% of northbound traffic can be classified as through traffic. It can thus be expected that these percentages will be diverted to Burgin Parkway in the future, since it will provide a more direct route with less local traffic. However, in order to provide a conservative analysis, the following lower diverted volumes were used for Scenario 4.

In the *southbound* direction, the number of vehicles that can be re-distributed from Hancock Street to Burgin Parkway is restricted by the delay for the Dimmock Street westbound left-turn movement at Dimmock Street/Burgin Parkway. During the a.m. peak hour, up to 90 vehicles, which make up about 25% of the Hancock Street southbound through-traffic, can be added to the Dimmock Street westbound left turn while still maintaining at least an LOS D for that movement. During the p.m. peak hour, up to 150 vehicles, which make up about 20% of the Hancock Street southbound traffic, can be added while still maintaining an acceptable LOS.

In the *northbound* direction, the operations at Washington Street/Coddington Street/Temple Street are highly dependent on the number of vehicles making the Temple Street eastbound left turn. For this analysis, traffic making this movement is considered to be the Hancock Street northbound through volumes. Due to the already high volumes making this move under Existing Conditions, the intersection cannot handle all of the full build-out traffic during the a.m. peak hour. With the opening of The Concourse, it can be assumed that heavy delays on Temple Street will cause a portion of the northbound traffic to shift to Burgin Parkway. In order to achieve acceptable operations (LOS D or better for all approaches) at Washington Street/Coddington Street/Temple Street under full Build Conditions, 25% of the Hancock Street northbound through volumes would need to be re-distributed to Burgin Parkway during the a.m. peak hour—whether or not Adams Green is implemented. Traffic will need to be diverted to provide a functional network. During the p.m. peak hour, intersection operations are acceptable at Washington Street/Coddington Street/Temple Street; northbound volumes will not need to find an alternate route. Re-distributed volumes can be found in **Figure 11** and **Figure 12**.

Figure 11. Scenario 4 (Long-term Build Conditions with Re-distributed Traffic Volumes) Turning Movement Volumes, a.m. Peak Hour

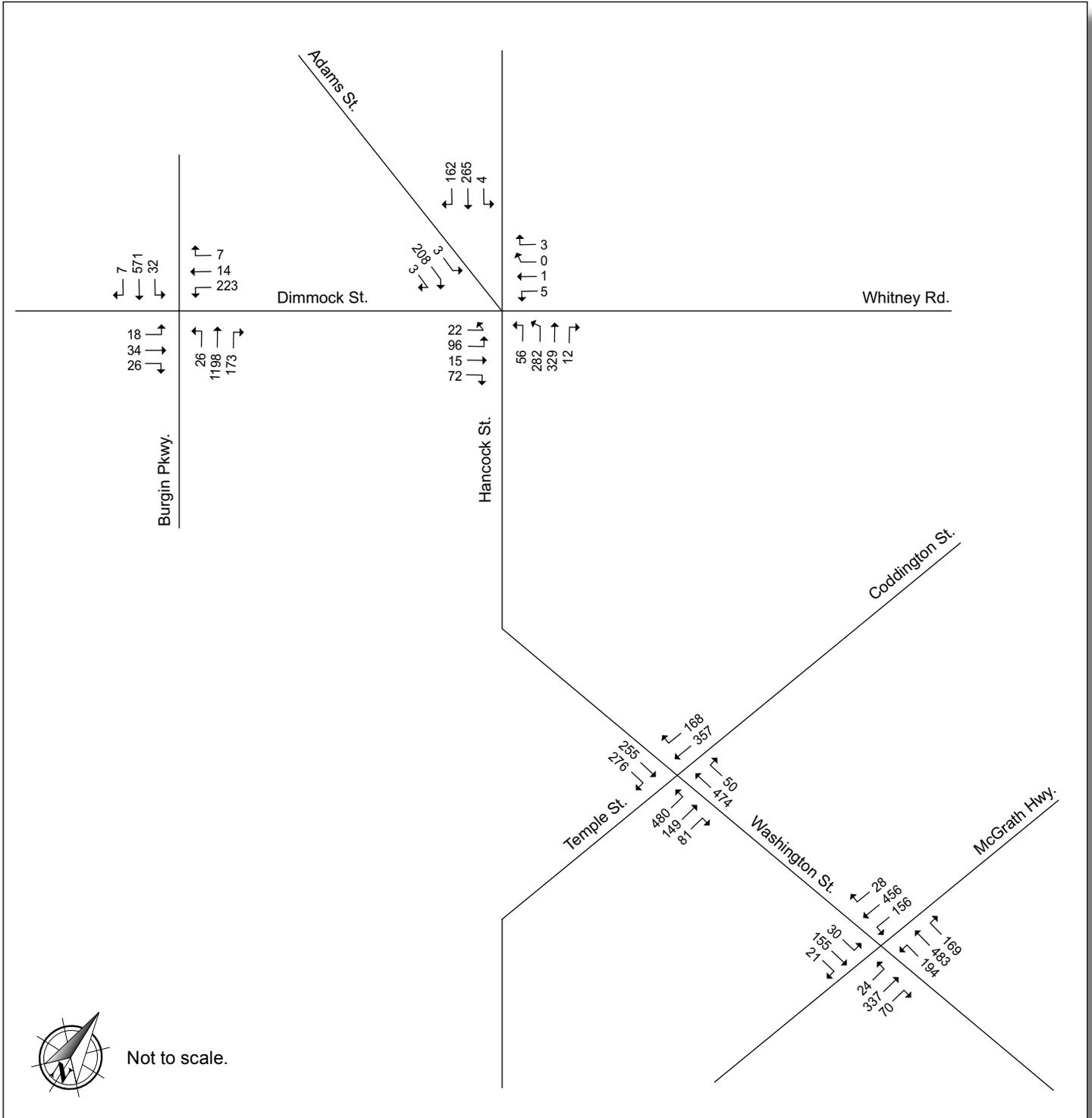
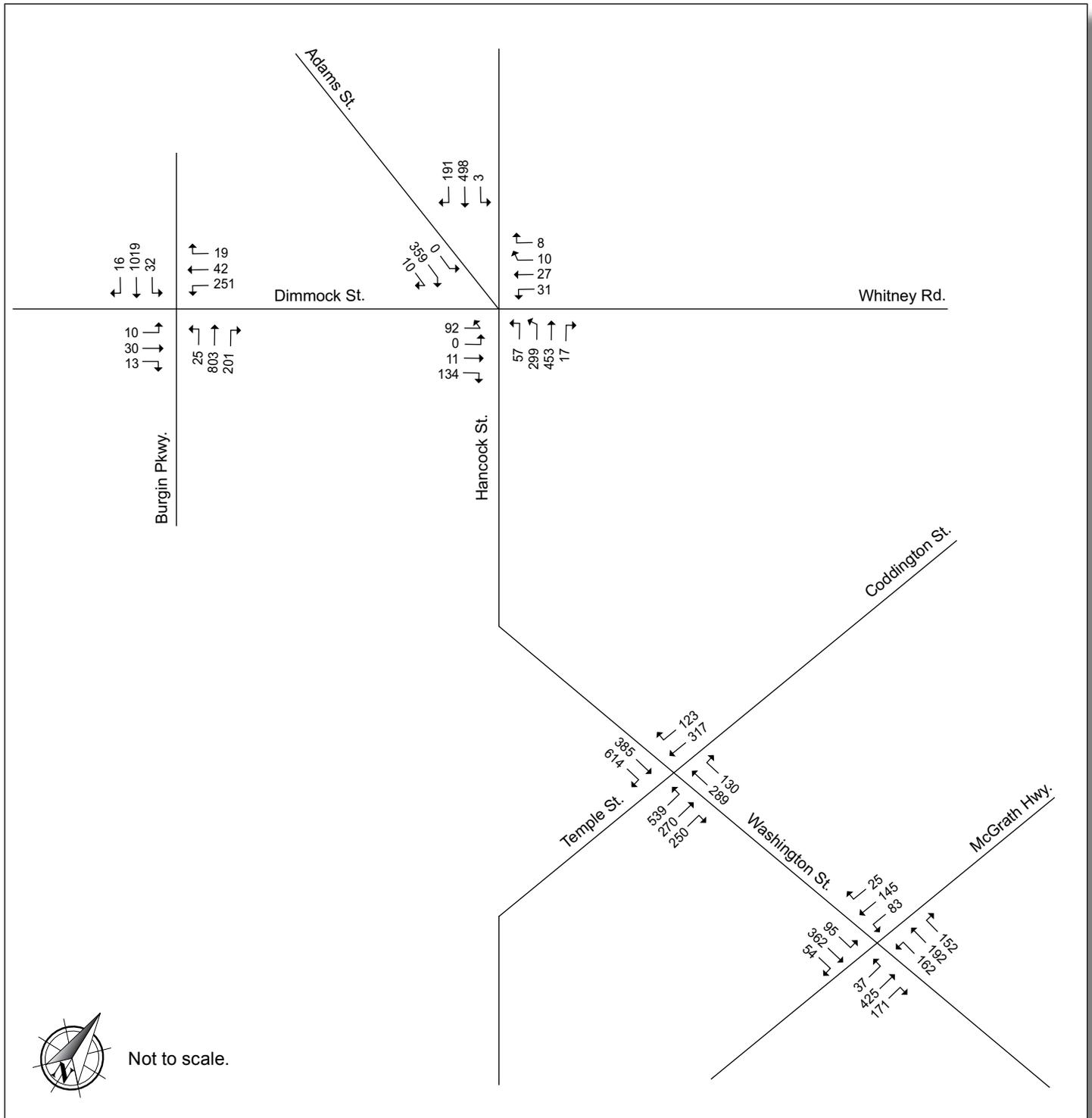


Figure 12. Scenario 4 (Long-term Build Conditions with Re-distributed Traffic Volumes) Turning Movement Volumes, p.m. Peak Hour



Intersection Operations

Intersection operations for full Master Plan build-out are summarized in **Table 11** and **Table 12**.

Table 11. Scenario 4 (Long-term Build Conditions with Re-distributed Traffic Volumes) Intersection Operations, a.m. Peak Hour

Intersection Approach	LOS	Delay (sec./veh.)	v/c Ratio	95% Queue Length (feet)
Washington Street/Coddington Street/ Temple Place	C	34.9		
Temple EB left	D	51.9	0.95	#565
Temple EB thru/right	B	18.7	0.44	M158
Coddington WB thru	D	54.9	0.88	#354
Coddington WB right	B	12.0	0.39	78
Washington NB thru	B	43.9	0.87	368
Washington NB thru/right	A	5.8	0.10	23
Washington SB thru	C	22.4	0.47	118
Washington SB right	A	8.2	0.46	81
Dimmock Street/Adams Street/ Hancock Street	C	25.9		
Dimmock EB left/thru	D	54.7	0.71	138
Dimmock EB right	D	37.3	0.33	80
Whitney WB left/thru/right	C	31.4	0.04	17
Hancock NB left	B	12.5	0.14	32
Hancock NB bear left	D	37.9	0.76	194
Hancock NB thru/right	A	7.9	0.33	114
Hancock SB left/thru thru/right	C	23.0	0.38	163
Adams SEB left/bear right	C	21.3	0.22	80
Adams SEB bear right/right	C	31.1	0.33	104
Dimmock Street/Burgin Parkway	B	14.7		
Dimmock EB left/thru/right	B	18.5	0.23	55
Dimmock WB left	D	53.9	0.84	#213
Dimmock WB thru/right	C	22.6	0.06	26
Burgin NB left/thru thru	B	12.0	0.63	#411
Burgin NB right	A	2.2	0.17	32
Burgin SB left/thru thru/right	A	8.6	0.40	156
Washington Street/McGrath Highway	C	25.7		
Washington EB left/thru thru	B	18.0	0.24	56
Washington EB right	A	7.5	0.04	14
Washington WB left/thru thru/right	D	46.0	0.97	#320
McGrath NB left	B	15.6	0.08	23
McGrath NB thru thru	B	16.1	0.27	89
McGrath NB right	A	4.8	0.12	24
McGrath SB left	A	9.1	0.30	61
McGrath SB thru thru	A	8.4	0.25	77

= 95th percentile volume exceeds capacity. Queue may be longer. Queue shown is the maximum after 2 cycles.

Table 12. Scenario 4 (Long-term Build Conditions with Re-distributed Traffic Volumes) Intersection Operations, p.m. Peak Hour

Intersection Approach	LOS	Delay (sec./veh.)	v/c Ratio	95% Queue Length (feet)
Washington Street/Coddington Street/ Temple Place	C	31.8		
Temple EB left	C	32.8	0.88	m#661
Temple EB thru/right	C	26.6	0.83	m#590
Coddington WB thru	D	53.1	0.83	292
Coddington WB right	A	6.8	0.29	43
Washington NB thru	D	35.4	0.60	224
Washington NB thru/right	A	5.2	0.26	38
Washington SB thru	D	51.0	0.80	219
Washington SB right	C	21.3	0.75	356
Dimmock Street/Adams Street/ Hancock Street	E	77.4		
Dimmock EB left/thru	E	58.9	0.65	124
Dimmock EB right	E	58.1	0.69	152
Whitney WB left/thru/right	D	44.9	0.41	94
Hancock NB left	D	37.0	0.13	80
Hancock NB bear left	B	10.4	0.39	138
Hancock NB thru/right	F	>80.0	>1.0	#593
Hancock SB left/thru thru/right	F	>80.0	>1.0	#406
Adams SEB left/bear right	E	63.4	0.79	#240
Adams SEB bear right/right	E	68.0	0.83	#261
Johnson SWB left/right	D	45.2	0.05	15
Dimmock Street/Burgin Parkway	B	14.3		
Dimmock EB left/thru/right	B	19.4	0.16	44
Dimmock WB left	D	53.7	0.86	#234
Dimmock WB thru/right	C	24.0	0.18	55
Burgin NB left/thru thru	A	9.1	0.46	215
Burgin NB right	A	2.1	0.20	34
Burgin SB left/thru thru/right	B	10.6	0.57	302
Washington Street/McGrath Highway	C	20.8		
Washington EB left/thru thru	C	31.3	0.76	145
Washington EB right	A	6.1	0.13	23
Washington WB left/thru thru/right	C	32.3	0.84	147
McGrath NB left	B	13.2	0.07	29
McGrath NB thru thru	B	12.9	0.27	106
McGrath NB right	A	3.2	0.21	35
McGrath SB left	A	7.2	0.17	34
McGrath SB thru thru	A	6.2	0.07	26

= 95th percentile volume exceeds capacity. Queue may be longer. Queue shown is the maximum after 2 cycles.

As shown in the tables, all intersections operate at LOS D or better under the re-distribution assumptions, with the continued exception of Dimmock Street/Adams Street/Hancock Street in the p.m. peak hour. This is due to the number of phases in the cycle, the long clearance distances, and the high volumes at this intersection. While the added delay is not caused by the implementation of Adams Green, operations can be improved by reducing some of the complexities of this intersection. Possible measures include:

- ***Eliminating some movements.*** This includes either restricting turning movements or eliminating an approach all together.
- ***Redistributing some volumes.*** With the delays at this intersection, many vehicles may find ways to move to Burgin Parkway before Dimmock Street (e.g., Furnace Brook Parkway and Newport Avenue).

Because one of the goals of the Adams Green Project is to discourage through-traffic on Hancock Street., these assumptions for redistribution are considered reasonable. With the opening of The Concourse, through-traffic will be diverted to Burgin Parkway and the Southern Artery to take advantage of reduced travel times. The re-distribution of volumes in this scenario displays a minimum-diversion case that would still allow acceptable operations around Adams Green. In fact, completion of all phases of The Concourse may encourage even higher diverted volumes.

Summary of Impacts

Table 13 and **Table 14** compare level of service for all of the analysis scenarios for the a.m. and p.m. peak hours, respectively.

Table 13. Summary of Level of Service for Analysis Scenarios, a.m. Peak Hour

Intersection Approach	Scenario 1 (Build)	Scenario 2 (Mid-term)	Scenario 3 (Long-term)	Scenario 4 (Long-term Re-distributed)
Washington Street/Coddington Street/ Temple Place	D	D	D	C
Temple EB left	D	E	F	D
Temple EB thru/right	B	B	B	B
Coddington WB thru	E	E	F	D
Coddington WB right	B	B	B	B
Washington NB thru	D	D	D	B
Washington NB thru/right	A	A	A	A
Washington SB thru	C	C	C	C
Washington SB right	A	B	B	A
Dimmock Street/Adams Street/ Hancock Street	C	C	C	C
Dimmock EB left/thru	D	D	D	D
Dimmock EB right	D	D	D	D
Whitney WB left/thru/right	C	C	C	C
Hancock NB left	B	B	B	B
Hancock NB bear left	D	D	D	D
Hancock NB thru/right	A	A	A	A
Hancock SB left/thru thru/right	C	C	C	C
Adams SEB left/bear right	B	B	B	C
Adams SEB bear right/right	C	C	C	C
Dimmock Street/Burgin Parkway	A	A	B	B
Dimmock EB left/thru/right	B	B	B	B
Dimmock WB left	D	D	D	D
Dimmock WB thru/right	C	C	C	C
Burgin NB left/thru thru	A	A	A	B
Burgin NB right	A	A	A	A
Burgin SB left/thru thru/right	A	A	A	A
Washington Street/McGrath Highway	C	C	C	C
Washington EB left/thru thru	B	B	B	B
Washington EB right	A	A	A	A
Washington WB left/thru thru/right	D	D	D	D
McGrath NB left	B	B	B	B
McGrath NB thru thru	B	B	B	B
McGrath NB right	A	A	A	A
McGrath SB left	A	A	A	A
McGrath SB thru thru	A	A	A	A

Table 14. Summary of Level of Service for Analysis Scenarios, p.m. Peak Hour

Intersection Approach	Scenario 1 (Build)	Scenario 2 (Mid-term)	Scenario 3 (Long-term)	Scenario 4 (Long-term Re-distributed)
Washington Street/Coddington Street/ Temple Place	C	C	C	C
Temple EB left	B	C	C	C
Temple EB thru/right	C	C	C	C
Coddington WB thru	D	D	D	D
Coddington WB right	A	A	A	A
Washington NB thru	D	D	D	D
Washington NB thru/right	A	A	A	A
Washington SB thru	D	D	D	D
Washington SB right	C	C	C	C
Dimmock Street/Adams Street/ Hancock Street	D	D	E	E
Dimmock EB left/thru	E	E	E	E
Dimmock EB right	E	E	E	E
Whitney WB left/thru/right	D	D	D	D
Hancock NB left	C	C	D	D
Hancock NB bear left	B	B	B	B
Hancock NB thru/right	E	E	F	F
Hancock SB left/thru thru/right	D	D	F	F
Adams SEB left/bear right	E	E	E	E
Adams SEB bear right/right	E	E	E	E
Johnson SWB left/right	D	D	D	D
Dimmock Street/Burgin Parkway	A	A	A	B
Dimmock EB left/thru/right	C	C	C	B
Dimmock WB left	C	C	C	D
Dimmock WB thru/right	C	C	C	C
Burgin NB left/thru thru	A	A	A	A
Burgin NB right	A	A	A	A
Burgin SB left/thru thru/right	A	A	A	B
Washington Street/McGrath Highway	B	B	C	C
Washington EB left/thru thru	C	C	C	C
Washington EB right	A	A	A	A
Washington WB left/thru thru/right	C	C	C	C
McGrath NB left	B	B	B	B
McGrath NB thru thru	B	B	B	B
McGrath NB right	A	A	A	A
McGrath SB left	A	A	A	A
McGrath SB thru thru	A	A	A	A

Recommendations and Action Plan

Based on the analysis of the existing transportation conditions and the projected conditions inherent in the four potential Build scenarios, it is apparent that the change in circulation around the proposed Adams Green will result in a functional traffic operation. The proposed design involves the closing of Hancock Street between Washington Street and Temple Street. The existing 1-way streets around the United First Parish Church create a roundabout-like circulation pattern. With the closing of Hancock Street and the conversion of Washington Street and Temple Street to 2-way streets, traffic circulation will be much more obvious to drivers, and pedestrian crossing points will be simpler. A plan view of Adams Green is provided in the **Appendix**.

Roadway Modifications

Hancock Street

Hancock Street will be closed between Washington Street and Temple Street. This 1-way section of road is currently 4 lanes wide, with parking on both sides of the street, and has excess capacity. This section of Hancock Street will be converted into park space for the Adams Green area. A mountable walkway will be provided along the former Hancock Street to allow emergency vehicles and/or a parade route to pass through.

Washington Street

Washington Street between Hancock Street and Coddington Street/Temple Street is currently 1-way. The lane configuration in this section consists of 2 northbound through lanes and 2 northbound left-turn lanes. With the closure of Hancock Street, the left-turn lanes are no longer needed. The proposed design will configure the roadway as 2 northbound lanes and 2 southbound lanes. In order to keep vehicle speeds low and promote pedestrian safety and activity in the area, a landscaped median will be installed between the 2 directions of traffic. This improvement will also create a boulevard ambiance and encourage slower speeds due to the reduced pavement width and introduction of trees to limit sight distance.

Temple Street

Temple Street, also a 1-way road, has a 4-lane cross-section. It currently consists of 2 left-turn lanes, a through lane, and a right-turn lane. The proposed design will narrow the street to 3 lanes and provide on-street parking adjacent to the proposed Adams Green. The eastern section of Temple Street will be configured as 2 lanes in the eastbound direction and 1 lane in the westbound direction. Near the mid-section of the street, a crosswalk will be provided and the roadway width will narrow to 1 lane in each direction. Toward Granite Street, the street will widen again to 3 lanes, with 1 lane in the eastbound direction and 2 lanes in the westbound direction.

Intersection Modifications

Hancock Street/Washington Street

With the removal of 1 leg of this intersection, vehicle conflicts will be minimal or non-existent. However, due to the heavy pedestrian volumes at this crossing, HSH recommends that the signalization at this intersection be retained. This signal will be pushbutton-actuated.

Washington Street/Coddington Street/Temple Street

As part of the implementation of Adams Green, Washington Street/Coddington Street/Temple Street will be modified to accommodate the new traffic flow. Left turns will only be permitted from Temple Street to Washington Street. The eastbound Temple Street approach will consist of a left-turn lane and a shared through/right-turn lane. The Coddington Street westbound approach will comprise a through lane and a right-turn only lane. The Washington Street northbound approach will consist of a through lane and a

shared through/right-turn lane, and the southbound approach of a through lane and a right-turn-only lane. The phasing at this intersection will be updated. A diagram of the proposed phasing is shown in the **Appendix**.

Hancock Street/Granite Street/Chestnut Street

New curb extensions and landscaping are proposed at this intersection. While these are minor changes, the existing equipment will need to be relocated or new equipment set in the proper locations.

Other Possible Improvements

Dimmock Street/Adams Street/Hancock Street

While the added future delay at this intersection is not caused by the proposed Adams Green project, some improvements can be made if the Master Plan is fully built-out. Converting Dimmock Street and/or Whitney Road to 1-way streets with traffic flowing away from the intersection will reduce the number of approaches. This conversion could also reduce the number of phases needed to operate this intersection efficiently and safely.

Cost Estimate

Adams Green Roadway, Sidewalk and Traffic Control Estimate

The infrastructure improvements needed to implement the overall plan include traffic signal system reconstruction, roadway improvements, drainage work, landscape enhancements and overall traffic management during construction. A preliminary cost estimate for major items has been prepared and is attached in the **Appendix**.

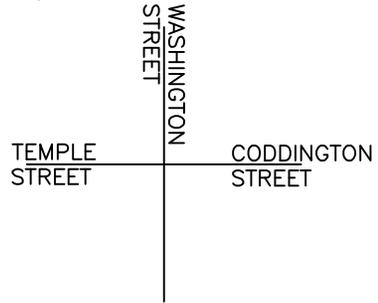
The cost is estimated at \$5.9 million which includes details, a 20% contingency for minor items, and design fees. The cost estimate is based on the recent MassDOT Canvass of Bids. This cost only includes the infrastructure improvements within the public roadways. The cost associated with the construction of Adams Green is not included.

A \$150,000 cost for upgrading the signal equipment at Dimmock Street/Adams Street/Hancock Street and Dimmock Street/Burgin Parkway has been included in the estimate.

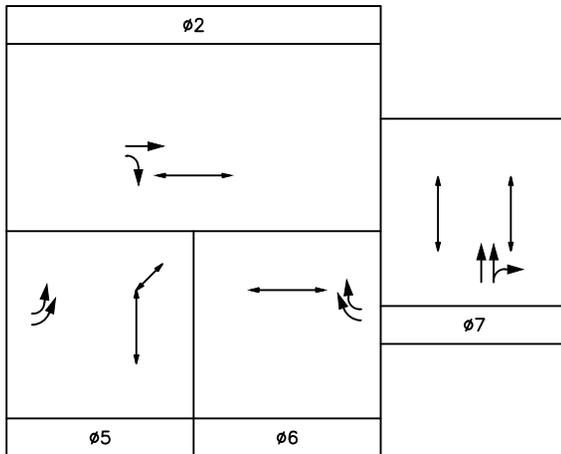
Phasing of Improvements and Maintenance of Traffic during Construction

While the exact phasing and staging of construction will be determined as the design develops, maintaining traffic operations through all stages is extremely important. Since implementation of Adams Green will involve reorganization of the traffic circulation, Hancock Street needs to remain open for as long as possible during construction. Geometric improvements to Washington Street and Temple Street and the new traffic signal equipment at Washington Street/Coddington Street/Temple Street should be complete before the closure of Hancock Street takes place. Once this is complete, the majority of the traffic improvements for the new circulation will be in place. At that point, Hancock Street can be closed permanently. The construction of the Adams Green park space will be the last portion completed.

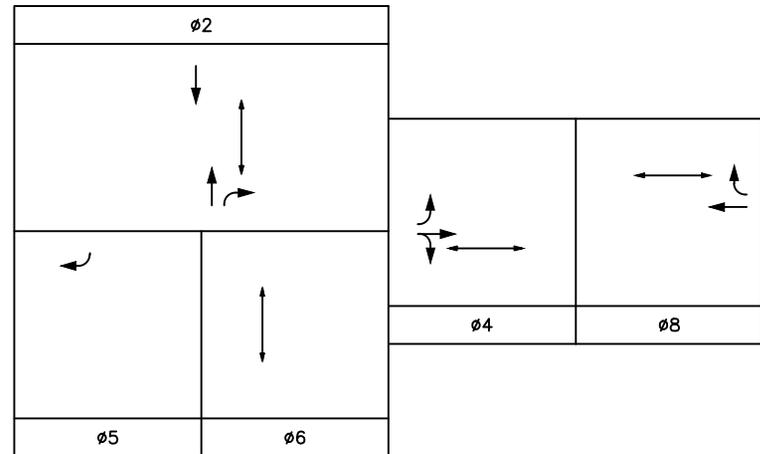
Appendix



EXISTING CONDITIONS PHASING



BUILD CONDITIONS PHASING



Washington Street/
Coddington Street/
Temple Street
Phasing Diagram



Thomas Crane
Public Library

United
First
Parish-
Church

Adams
Building

Granite Trust
Building

Munroe
Building

Old
City
Hall

Hancock
Cemetery

City
Hall

MBTA
Station/Parking
Garage



Adams Green, Quincy, Massachusetts

Prepared for City of Quincy Planning and Community Development Office

Prepared by Halvorson Design Partnership, Inc. and Howard-Stein Hudson Associates, Inc.

Schematic Design Cost Estimate

Revised 22 July 2010

Item #s	Roadway, Streetscape and Signalization	Quantity	Unit	Unit Cost	Streetscape Subtotal
	Gravel Borrow	2700	CY	\$35.00	\$94,500.00
	Catch Basin - Municipal Standard	25	EA	\$4,000.00	\$100,000.00
	Manhole - Municipal Standard	12	EA	\$3,000.00	\$36,000.00
	Frame and Grate (or Cover) - Municipal Standard	37	EA	\$600.00	\$22,200.00
	12 inch RCP	500	FT	\$75.00	\$37,500.00
	18 inch RCP	2000	FT	\$75.00	\$150,000.00
	Hot Mix Asphalt	3200	TON	\$125.00	\$400,000.00
	Granite Curb Type VA4 Straight	3200	FT	\$35.00	\$112,000.00
	Granite Curb Type VA4 Curved	900	FT	\$40.00	\$36,000.00
	Brick Sidewalk - Driveways - Ramps	6900	SY	\$175.00	\$1,207,500.00
	4 inch Electrical Conduit type NM - Plastic - NEMA	1700	EA	\$61.00	\$103,700.00
	Traffic Signal Reconstruction Location #1 (Washington St Ped)	1	LS	\$100,000.00	\$100,000.00
	Traffic Signal Reconstruction Location #2 (Washington/Coddington/Temple)	1	LS	\$200,000.00	\$200,000.00
	Traffic Signal Reconstruction Location #3 (Temple/Chestnut/Hancock)	1	LS	\$300,000.00	\$300,000.00
	Traffic Signal Reconstruction Location #4 (Adams/Dimmock/ Hancock)	1	LS	\$100,000.00	\$100,000.00
	Traffic Signal Reconstruction Location #5 (Burgin Parkway/Dimmock)	1	LS	\$50,000.00	\$50,000.00
	Temporary Traffic Control during Construction	1	LS	\$65,000.00	\$65,000.00
	Imprinted Thermoplastic Pavement Pattern	2700	SF	\$20.00	\$54,000.00
	Pavement Marking and Signage	1	LS	\$25,000.00	\$25,000.00
	Trees in Median	20	EA	\$1,500.00	\$30,000.00
	Trees in Sidewalk	40	EA	\$1,500.00	\$60,000.00
	Granite Planter Curb at Raised Median	750	LF	\$75.00	\$56,250.00
	Granite Planter Curb in Streetscape Areas	1050	LF	\$75.00	\$78,750.00
	Planting Soil in Median Planters	145	CY	\$45.00	\$6,525.00
	Planting Soil in Streetscape Planters	40	CY	\$45.00	\$1,800.00
	Reset Street Lighting - Ex Fixture and Light / New Base, Pullbox Wiring and Condi	20	EA	\$3,000.00	\$60,000.00
<hr/>					
	<i>Subtotal</i>				\$3,486,725.00
	<i>Traffic Police (11%)</i>				\$383,539.75
	<i>General Conditions (10%)</i>				\$387,026.48
	<i>Subtotal</i>				\$4,257,291.23
	<i>Contingency - Excavation / Environmental (20%)</i>				\$851,458.25
<hr/>					
	Roadway and Streetscape Construction Cost Estimate Subtotal				\$5,108,749.47
	Roadway and Streetscape Estimated Design Fees Subtotal (15%)				\$766,312.42
<hr/>					
	Roadway and Streetscape Design Fees and Construction Cost Estimate Total				\$5,875,061.89

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