Boston Properties

Prudential Center
800 Boylston Street
Suite 1900
Boston, MA 02199

August 12th, 2024

Ms. Swaathi Joseph
Cambridge Community Development Department
344 Broadway
Cambridge, MA 02139

Re: 290 Binney Street – Bulk Gas Tank Farm and East Service Drive Circulation Pattern Design Update

Dear Ms. Joseph,

BXP is submitting a Design Update for the 290 Binney Street project showing modifications to the circulation pattern of East Service Drive between Broadway and Binney Street, and the finalized design of the external bulk gas tank farm along the eastern façade of the building. These Design Updates have been reviewed and approved with CDD and City of Cambridge department staff.

Background

The Planning Board approved the Special Permit #315 Amendment #2 for the Mixed-Use Development: Kendall Square (MXD) in December 2021. The Special Permit authorized 800,000 square feet of new commercial development, which included plans for two 250-foot commercial buildings along Binney Street: 290 Binney and 250 Binney. Amendment #2 also approved the construction of a subterranean Eversource substation, a residential building at 121 Broadway, and a public plaza above the substation.

290 Binney, a 420,607 SF commercial building, underwent subsequent design reviews and received its building permit in January 2024. The building is currently under construction and is scheduled for completion in Spring 2026. The residential building at 121 Broadway and the Eversource substation are also under construction.

East Service Drive Change to Two-Way

250 and 290 Binney were originally designed with a connected underground garage featuring two exits, allowing vehicles to exit north via Binney Street or south via Broadway Street. However, due to changes in the occupancy duration of the existing building on the 250 Binney site, the new buildings will no longer

be constructed concurrently and the garages were re-designed to be separated. This change forces cars exiting 290 Binney traveling north to take a longer, indirect route: south via the East Service Drive, right onto Broadway, and then north via the West Service Drive to reach Binney Street. This route not only creates an inconvenient detour for drivers but more importantly creates traffic conflicts through what will become a heavily trafficked pedestrian and cyclist path.

The proposed Design Update introduces a two-way section in the northern portion of the East Service Drive, allowing cars exiting 290 Binney to travel directly north, resulting in a safer and more efficient experience for everyone.

Tank Farm

During the original Planning Board approval phase of the Special Permit amendment, CDD Staff commented in their Design Review memo dated April 14, 2022 in item 7 under the Continuing Review section that BXP was to provide further design development of "locations of compactors and tank storage areas" as part of ongoing staff design review. Because of the science specific requirements for bulk lab gas storage at facilities like 290 Binney, BXP required input from a client before providing a realistic design for review.

Having received this client feedback, BXP's Design Update locates these tanks along the building's eastern façade, away from pedestrian traffic. The proposed tank arrangement has been compressed to minimize its footprint as much as possible while meeting the clearance regulations, and has been architecturally screened in a manner consistent with the building's design.

Please do not hesitate to contact me with any questions at kevans@bxp.com.

Sincerely,

Keir Evans
Vice President - Development
BXP

2-WAY DRIVE AISLE & BULK STORAGE YARD (290 BINNEY)

Cambridge, Massachusetts

Design Review Submission
Issued: August 6, 2024

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OWNER
BOSTON PROPERTIES

DESIGN ARCHITECT
PICKARD CHILTON

ARCHITECT OF RECORD
STANTEC

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VHB

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LEMON BROOKE

1. SPECIAL PERMIT MODIFICATION
SITE ACCESS / CIRCULATION PLAN

To: Adam Shulman
Traffic, Parking, and Transportation
Department, City of Cambridge

344 Broadway

Cambridge, MA 02139

Date: July 23, 2024

Project #: 12959.09

From: Sean Manning PE

Re: KSURP Infill Development Concept Plan
Proposed Site Circulation Modification – August 2024
TIS Update Memo

Overview

Boston Properties has retained VHB to prepare a technical memorandum that evaluates a proposed design update to the approved site circulation plan for the East Service Drive, between the 250 and 290 Binney Street buildings for the Kendall Square Urban Renewal Plan (KSURP) Infill Development Plan Project. This proposed circulation update reflects a recent change in building design in which the 250 and 290 Binney garages are constructed and operate as two separate structures without the ability to enter via one ramp and exit via the other, and vice-versa. In the approved plan, the integrated garage and ramp system provided the opportunity for exiting motorists to efficiently choose their exit ramp depending on their intended route to leave Kendall Square (i.e. via Broadway or Binney Street). The ability to connect the two garages was lost because these two buildings are no longer being built concurrently, and there is no feasible way to connect them below an operational East Service Drive. Consequently, these are now separate garages and the ability to provide exiting motorists with alternate egress ramp choices has been eliminated.

Figure 1 provides an illustration and summary of the 2021 Previously Approved Access/Circulation Plan.

The Currently Proposed Modified Access/Circulation Plan contemplates a limited two-way segment of the East Service Drive from Binney Street to the 290 Binney Street Garage ramp. The purpose of this design update, again, is to maintain the most efficient internal site vehicle movements for those motorists that seek to egress back to Binney Street. Without this change, the approved site plan would require motorists to now exit towards Broadway and recirculate back onto the West Service Drive to get back to Binney Street.

Key Findings

The Currently Proposed Modified Access/Circulation Plan, has the following attributes:

- Modest modification to provide limited two-way flow between 290 and Binney Street
- Limited internal service drive conflicts expected due to:
    - Unidirectional nature of inbound and outbound vehicle traffic (i.e. mostly inbound during AM and outbound during PM)
    - Low loading/service activity in the afternoon
- Provides more efficient egress for those motorists egressing to Binney Street
- The proposed curb cut width for East Service Drive at Binney Street will not change
- 60 and 150 vehicle conflicts removed (during the morning and evening peak hours, respectively) with existing pedestrian and bicycle infrastructure at three intersection locations (Binney Street at West Service Drive, Broadway at West Service Drive, and Broadway at East Service Drive)
- 60 and 150 vehicle conflicts added (during the morning and evening peak hours, respectively) with existing pedestrian and bicycle infrastructure at one intersection location (Binney Street at East Service Drive)
- During the evening peak hour, southbound queues at the intersection of Broadway at East Service Drive are reduce by approximately 400 ft (16 cars)
- The Currently Proposed Modified Access/Circulation Plan introduces negligible queues during the evening peak hour, northbound at the intersection of Binney Street at East Service Drive (~25 ft = 1 car)

Special Permit Volumes and Circulation

Based on the traffic volumes and analysis and peak period traffic volumes summarized in the Traffic Impact Study (TIS) that was certified on August 6, 2021, many of the exiting Site trips would be required to take a circuitous path by exiting the East Service Drive south onto Broadway, using the West Service Drive to proceed north, and making a right turn to continue eastbound on Binney Street (**Figure 1**). The level of trip making anticipated to make this unwanted circuitous movement is 60 trips during the morning peak hour and 150 trips during the evening peak hour. This circulation pattern would require these motorists to travel through the following three (3) intersections to access Binney Street in the eastbound direction:

〉 (1) Broadway at East Service Drive;
〉 (2) Broadway at West Service Drive;
〉 (3) Binney Street at West Service Drive

This circulation would result in a number of operational and safety deficiencies, including having these vehicles unnecessarily cross three pedestrian crosswalks and conflict with cyclists on adjacent separated bicycle lanes three times to reach their desired point of egress. The additional traffic circulation would increase conflicts with any pedestrian or bicycle activity along the West Service Drive. These motorists would also have to briefly turn into and out of northbound traffic on Broadway. During weekday commuter peak hours, this circulation pattern is likely to increase vehicle delay for Site traffic and for

general Kendall Square and MXD District traffic utilizing Broadway, Binney Street, and surrounding streets in the neighborhood.

Currently Proposed Volumes and Circulation

With the Currently Proposed Modified Access/Circulation Plan design update in place, the approximately 60 and 150 exiting trips, during the morning and evening peak hours, respectively, can avoid the circuitous path to Binney Street via Broadway and the West Service Drive, as depicted in **Figure 1**. Instead, these motorists would be allowed to exit directly onto Binney Street. This change would eliminate the need for Site traffic along the Public Plaza, to cross pedestrian crosswalks and separated bicycle facilities along Broadway, or to weave in and out of Broadway to get to the West Service Drive (see **Figure 2**).

Updated figures from the 2021 Updated Certified TIS are presented in the Appendix. This includes the following Figures: 1.a.1, 1.a.2, 2.d.2, 2.d.3, 4.c.3, 4.c.4, 4.e.1, and 4.e.2.

Vehicular Capacity Analysis

Synchro 11 software was used to determine the vehicle level of service (VLOS) for the 4 study area intersections which were impacted by the shift in vehicle trips associated with the proposed design update. The LOS results are based on the 2000 Highway Capacity Manual.

Results for the intersections for the morning and evening peak hours are shown in **Tables 1 and 2**, respectively. The tables compare to those previously approved in the 2021 TIS.

Table 1 Intersection LOS – Morning Peak Hour

		2016 Updated Build Condition[1]				2016 Updated (2024 Rev. Site Access) Build Condition					2021 Updated Future Condition[1]				2021 Updated (2024 Rev. Site Access) Future Condition				
Intersection	Approach	V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (feet)	Difference In Delay	V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	Difference In Delay
Binney Street at West Service Drive	West Service Drive NB	0.18	10.1	B	17	0.11	9.6	A	9	-0.5	0.18	10.0	A	16	0.11	9.6	A	9	-0.4
Binney Street at East Service Drive	Binney Street WB Left	0.26	10.6	B	26	0.24	10.2	B	24	-0.4	0.30	11.8	B	31	0.28	11.2	B	29	-0.6
	East Service Drive NB	No NB movement in 2021 Updated Certified TIS				0.09	10.2	B	7	+10.2	No NB movement in 2021 Updated Certified TIS				0.08	10.1	B	7	+10.1

		2016 Updated Build Condition[1]				2016 Updated (2024 Rev. Site Access) Build Condition					2021 Updated Future Condition[1]				2021 Updated (2024 Rev. Site Access) Future Condition				
Intersection	Approach	V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (feet)	Difference In Delay	V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	Difference In Delay
Broadway at West Service Drive	Broadway WB Thru/Right	0.26	0.0	A	0	0.22	0	A	0	0	0.27	0.0	A	0	0.23	0.0	A	0	0
Broadway at East Service Drive	East Service Drive SB	0.63	27.7	D	106	0.48	21.4	C	62	-6.3	0.67	31.3	D	119	0.51	23.3	C	69	-8

[1] Results are based on 2021 Updated Certified TIS
V/C Ratio – Volume to Capacity Ratio
Delay – Average delay expressed in seconds per vehicle.
VLOS – Vehicular level of service

Table 2 Intersection LOS – Evening Peak Hour

Intersection	Approach	2016 Updated Build Condition[1]				2016 Updated (2024 Rev. Site Access) Build Condition				Difference In Delay	2021 Updated Future Condition[1]				2021 Updated (2024 Rev. Site Access) Future Condition				Difference In Delay
		V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (feet)		V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	
Binney Street at West Service Drive	West Service Drive NB	0.53	14.0	B	79	0.33	11.5	B	37	-2.5	0.52	13.5	B	76	0.33	11.2	B	36	-2.3
Binney Street at East Service Drive	Binney Street WB Left	0.09	11.7	B	7	0.08	10.6	B	6	-1.1	0.15	17.0	C	13	0.10	12.1	B	8	-4.9
	East Service Drive NB	No NB movement in 2021 Updated Certified TIS				0.26	12.6	B	25	+12.6	No NB movement in 2021 Updated Certified TIS				0.25	12.5	B	25	+12.5

Intersection	Approach	2016 Updated Build Condition[1]				2016 Updated (2024 Rev. Site Access) Build Condition				Difference In Delay	2021 Updated Future Condition[1]				2021 Updated (2024 Rev. Site Access) Future Condition				Difference In Delay
		V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (feet)		V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	
Broadway at West Service Drive	Broadway WB Thru/Right	0.24	0.0	A	0	0.20	0.0	A	0	0	0.26	0.0	A	0	0.26	0.0	A	0	0
Broadway at East Service Drive	East Service Drive SB	1.21	143.3	F	520	0.83	43.2	E	199	-100.1	1.44	240.6	F	685	1.00	80.1	F	290	-160.5

[1] Results are based on 2021 Updated Certified TIS
V/C Ratio – Volume to Capacity Ratio
Delay – Average delay expressed in seconds per vehicle.
VLOS – Vehicular level of service

Loading Dock Management

The 2021 Previously Approved Access/Circulation Plan simplified traffic circulation along the East Service Drive by permitting only one-way southbound traffic adjacent to the 250 and 290 Binney loading docks. The proposed change in circulation would allow two-way vehicle travel alongside these loading areas. However, VHB anticipates that most loading activity will be completed in the morning, at a time that does not align with commuter traffic peak hours. Therefore, during the weekday evening peak hour (when exiting Site traffic will be at its peak) vehicle conflicts with the loading area will be minimal. Furthermore, the unidirectional nature of entering and exiting vehicle traffic (i.e. mostly inbound during the morning and outbound during the evening) will result in limited conflicts between Site traffic and loading activity. Additionally, Boston Properties plans to have a loading dock manager to facilitate safe and efficient loading operations.

Currently Proposed Curb Cut Width

The proposed curb cut for East Service Drive at Binney Street will not change with the currently proposed circulation. The width of the curb cut measured at the property line is as follows:

- Existing Condition = ~35 feet
- Special Permit = ~30 feet
- Currently Proposed = ~30 feet

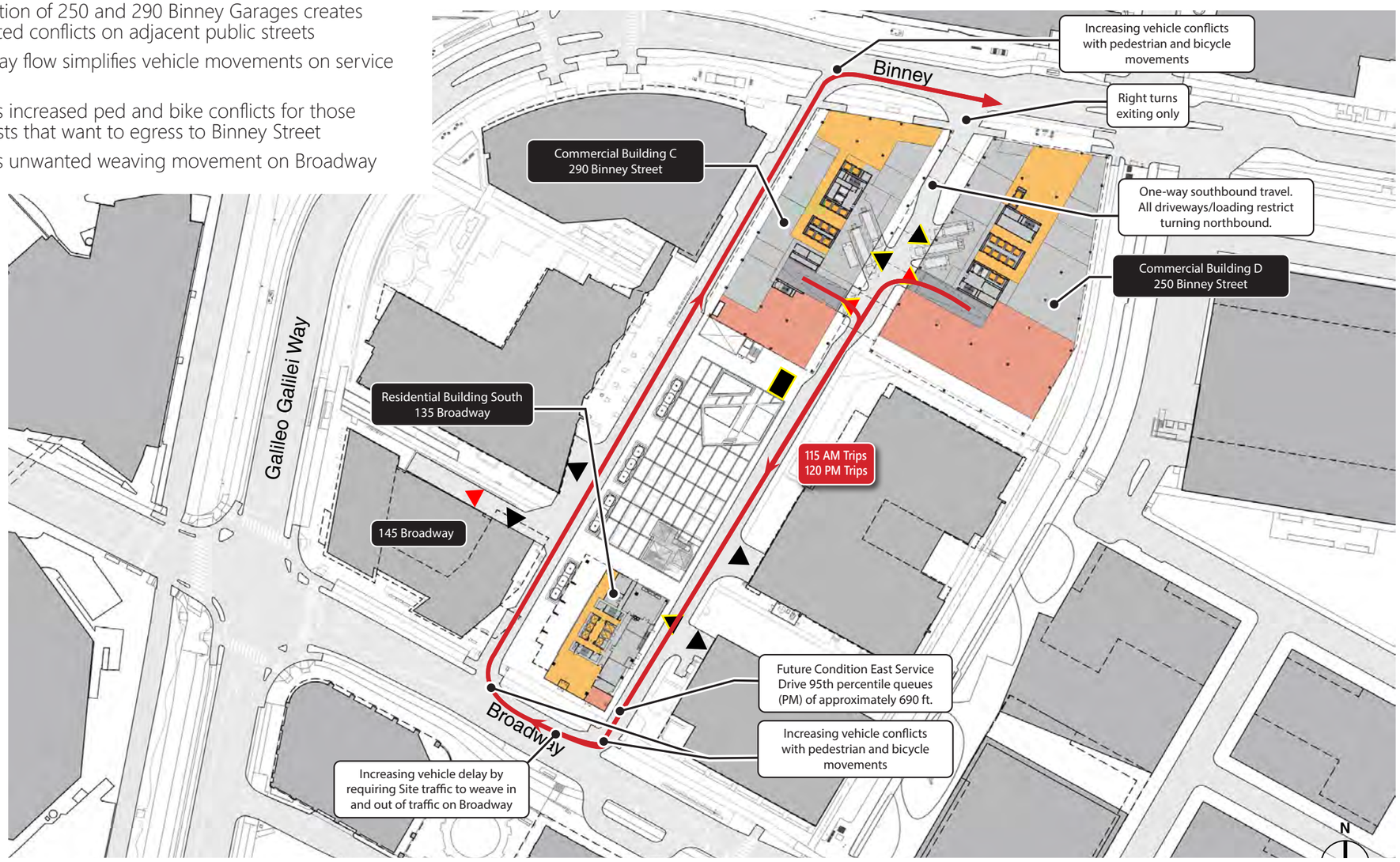
Conclusion

We believe that this proposed circulation design update is a safer and more efficient solution as compared to the previous site plan, given the requirement to construct separate parking garages for 250 and 290 Binney. We also believe that, due to the timing of loading activity and loading dock management, the loading areas along the East Service Drive will not be adversely impacted by this change, as the expected traffic destined to Binney Street will occur during the evening, when loading and service activity tends to be minimal. We ask for your input and guidance in connection with our request to modify the approved access and circulation plan.

Thank you – and of course please reach out with any questions that you may have.

1.2 PREVIOUS - APPROVED ACCESS/CIRCULATION PLAN (1 WAY)

- Separation of 250 and 290 Binney Garages creates unwanted conflicts on adjacent public streets
- One-way flow simplifies vehicle movements on service drives
- Creates increased ped and bike conflicts for those motorists that want to egress to Binney Street
- Creates unwanted weaving movement on Broadway



Project Parking Entrance
Project Loading Dock
Project Service Area
Exiting Vehicle route destined eastbound on Binney Street

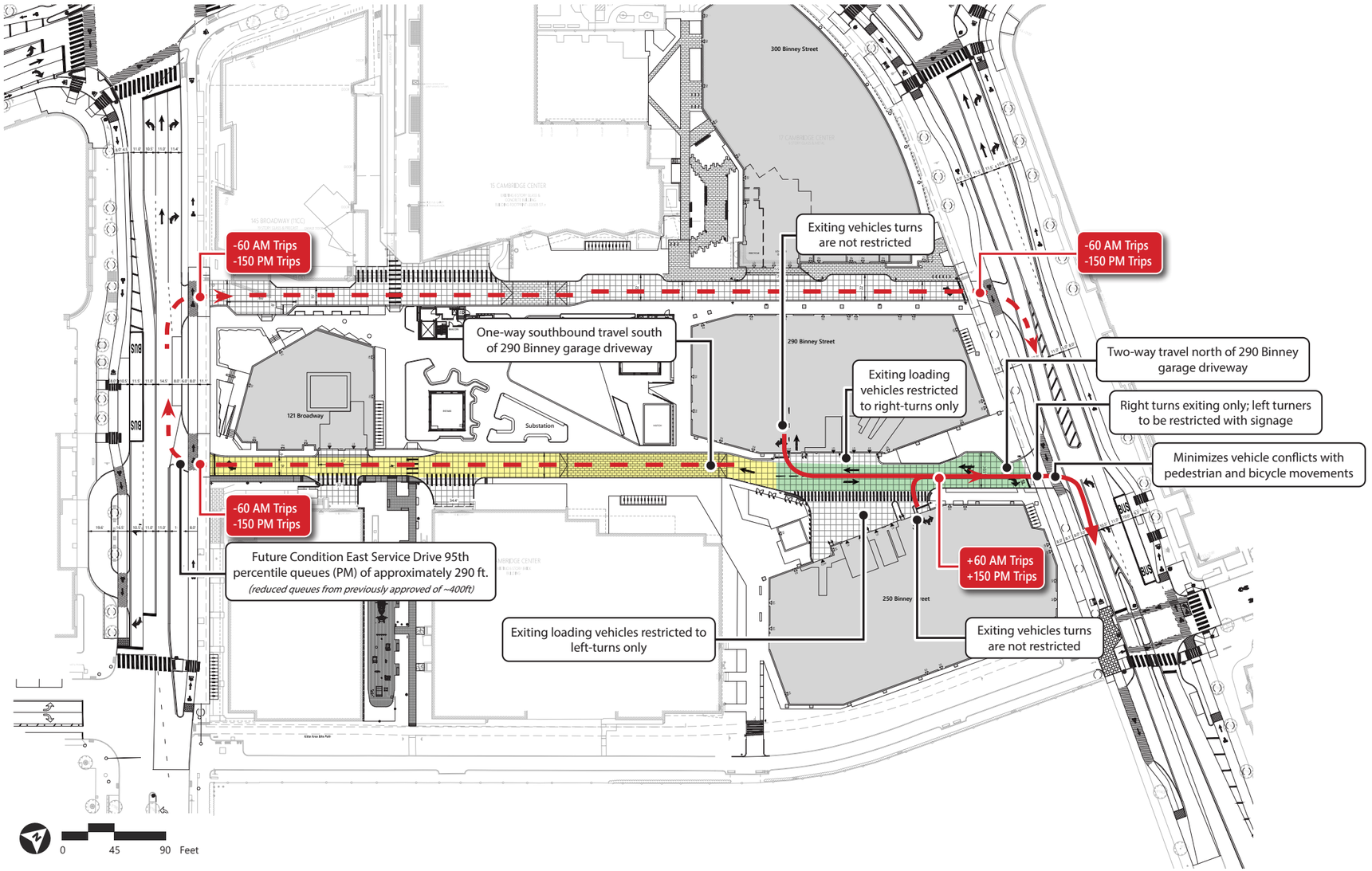
Existing Parking Entrance
Existing Loading Dock

All service and loading will be conducted within the Project site, asscessed from existing service drives between Broadway and Binney Street.

Figure 1: 2021 Previously Approved Access/ Circulation Plan

1.3 PROPOSED - MODIFIED ACCESS/CIRCULATION PLAN (2 WAY)

SITE PLAN



- Exiting Vehicle route destined eastbound on Binney Street
- Eliminated movement to eastbound Binney Street
- One-way Circulation
- Two-way Circulation

Figure 2: Currently Proposed Modified Access/Circulation Plan

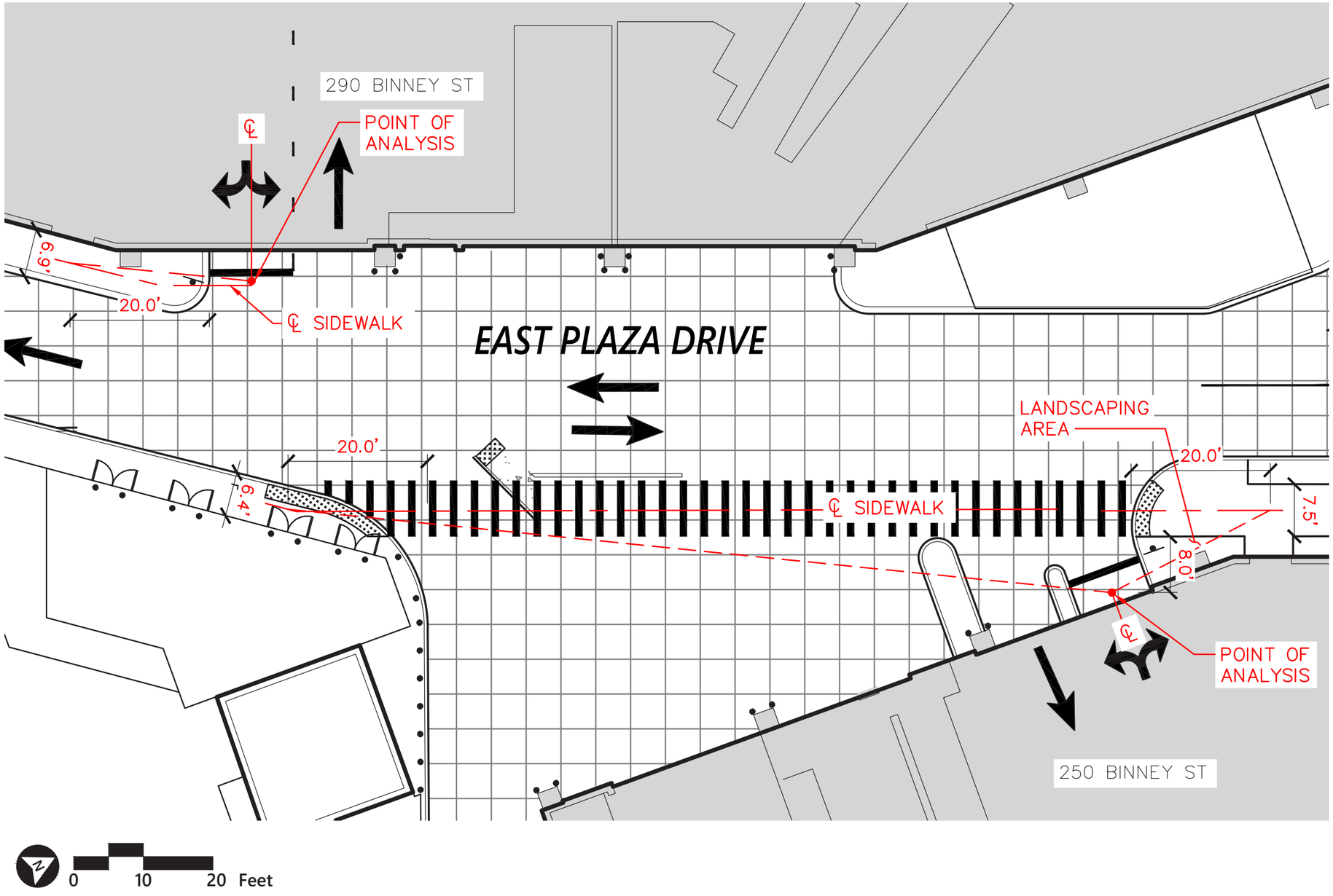
1.4 SIGHT LINE DIAGRAMS

FIGURE 1

Figure 1: 290 and 250 Binney St Parking Garage - Sight Lines

Boston Properties MXD Project | Cambridge, MA

5/10/2024



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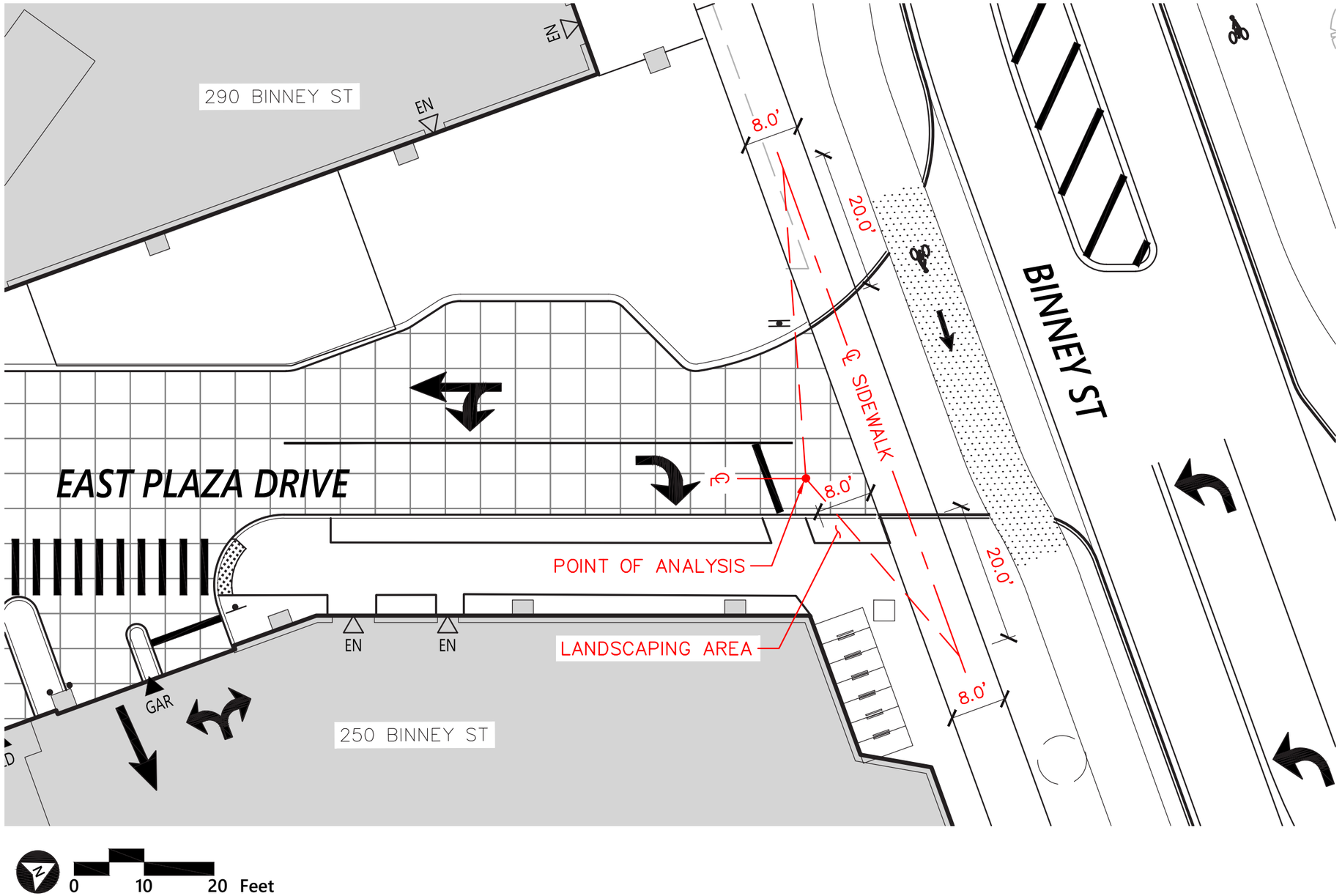
1.4 SIGHT LINE DIAGRAMS

FIGURE 2

Figure 2: East Plaza Drive at Binney St - Sight Lines

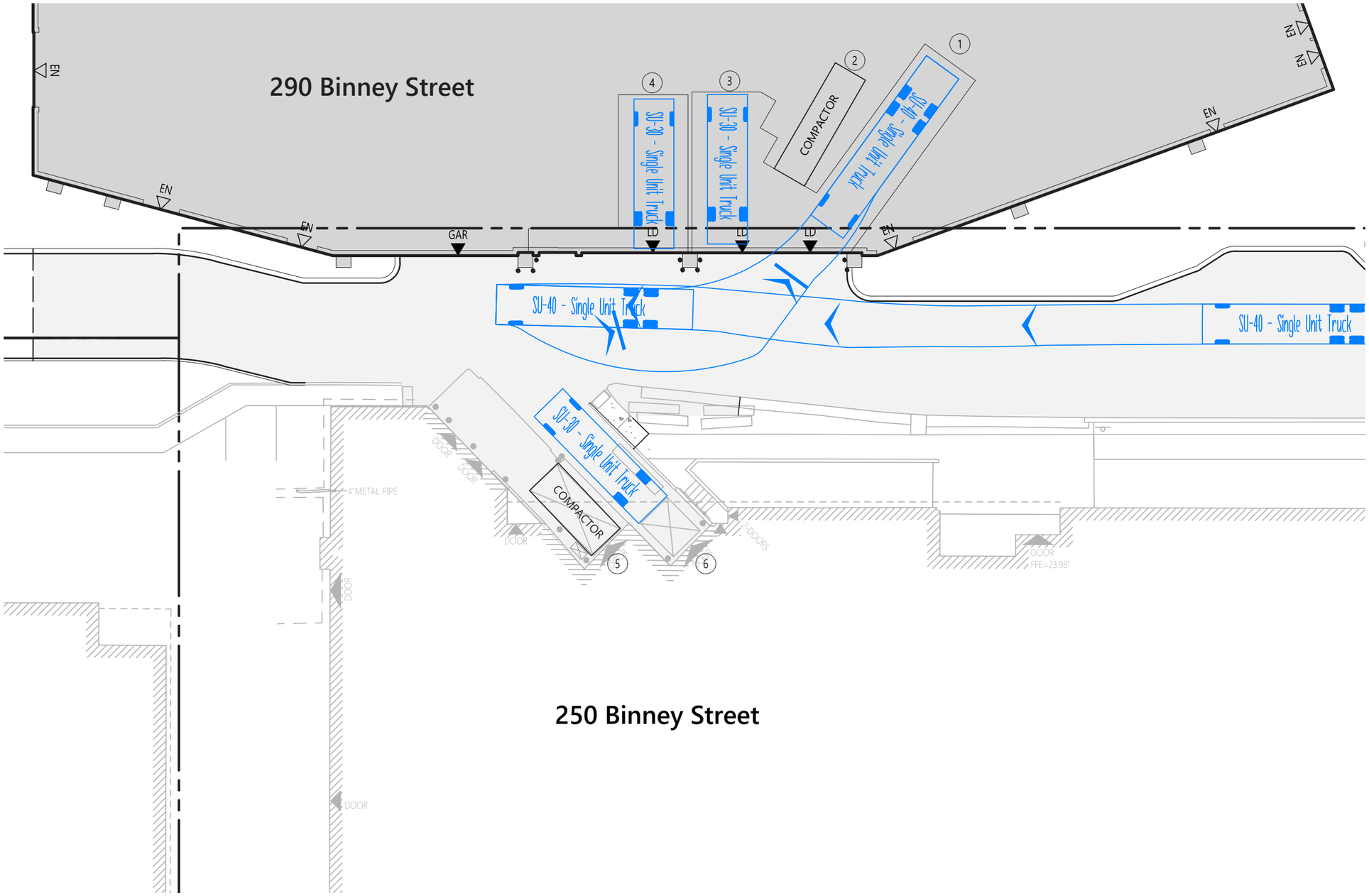
Boston Properties MXD Project | Cambridge, MA

5/10/2024



1.5 290 BINNEY ST - INTERIM BUILD TRUCK TURNS

1.5.1 BAY 1: SU-40



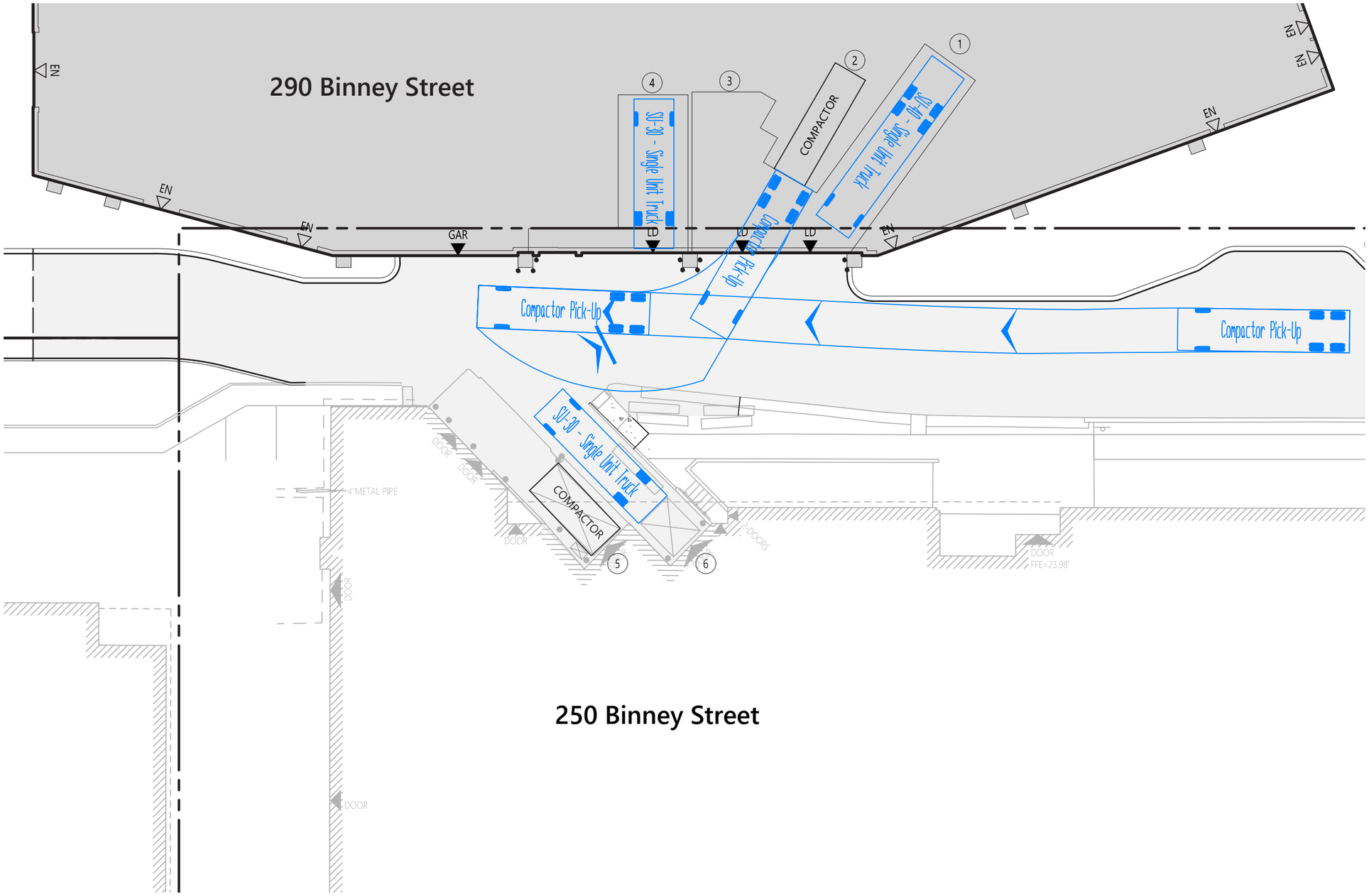
0 10 20 40 Feet

290 Binney Street
Interim Loading Dock Access

Bay 1 - SU-40

1.5 290 BINNEY ST - INTERIM BUILD TRUCK TURNS

1.5.2 BAY 2: TRASH

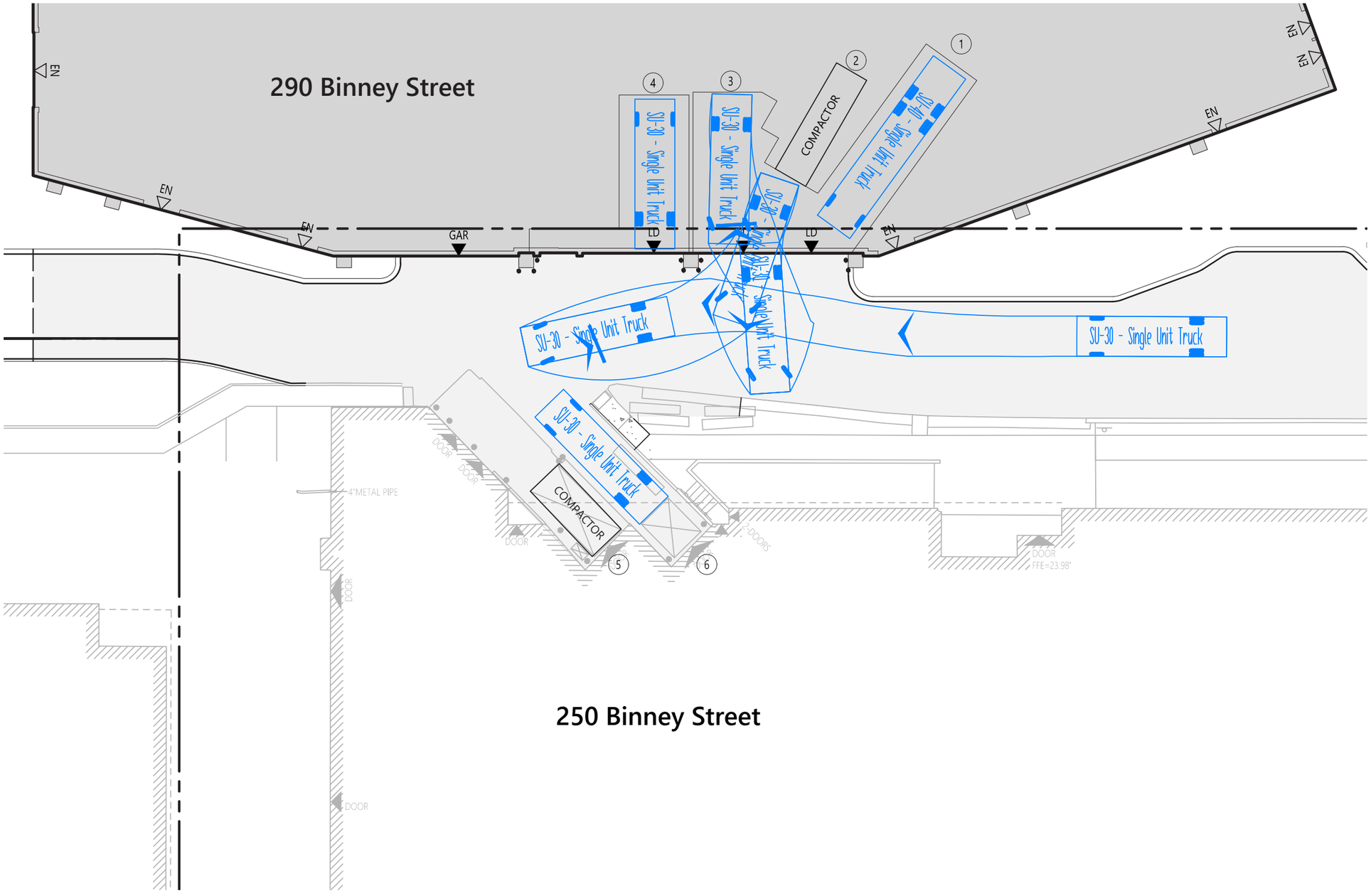


290 Binney Street
Interim Loading Dock Access

Bay 2 - Trash

1.5 290 BINNEY ST - INTERIM BUILD TRUCK TURNS

1.5.3 BAY 3: SU-30

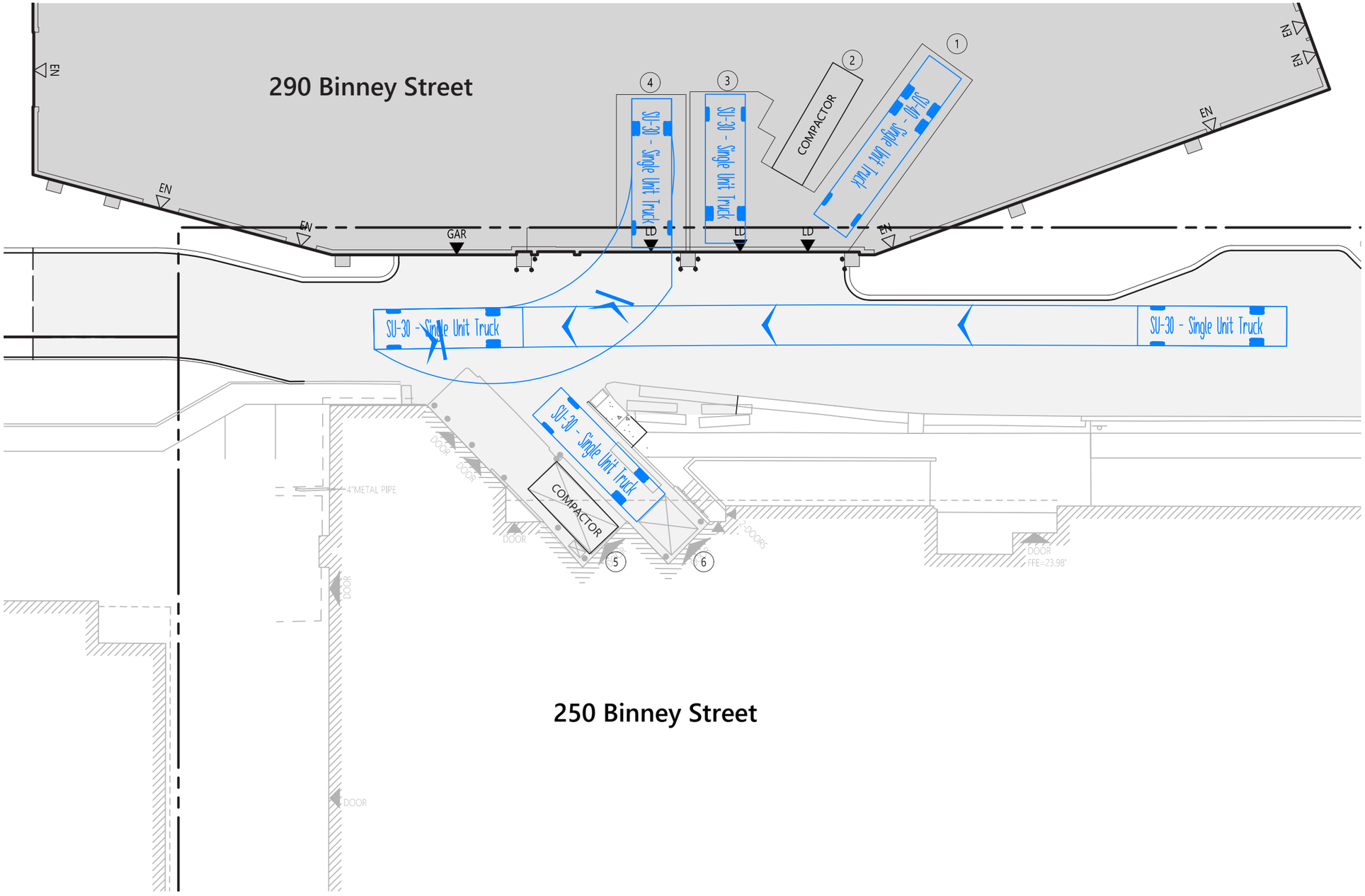


290 Binney Street
Interim Loading Dock Access

Bay 3 - SU-30

1.5 290 BINNEY ST - INTERIM BUILD TRUCK TURNS

1.5.4 BAY 4: SU-30

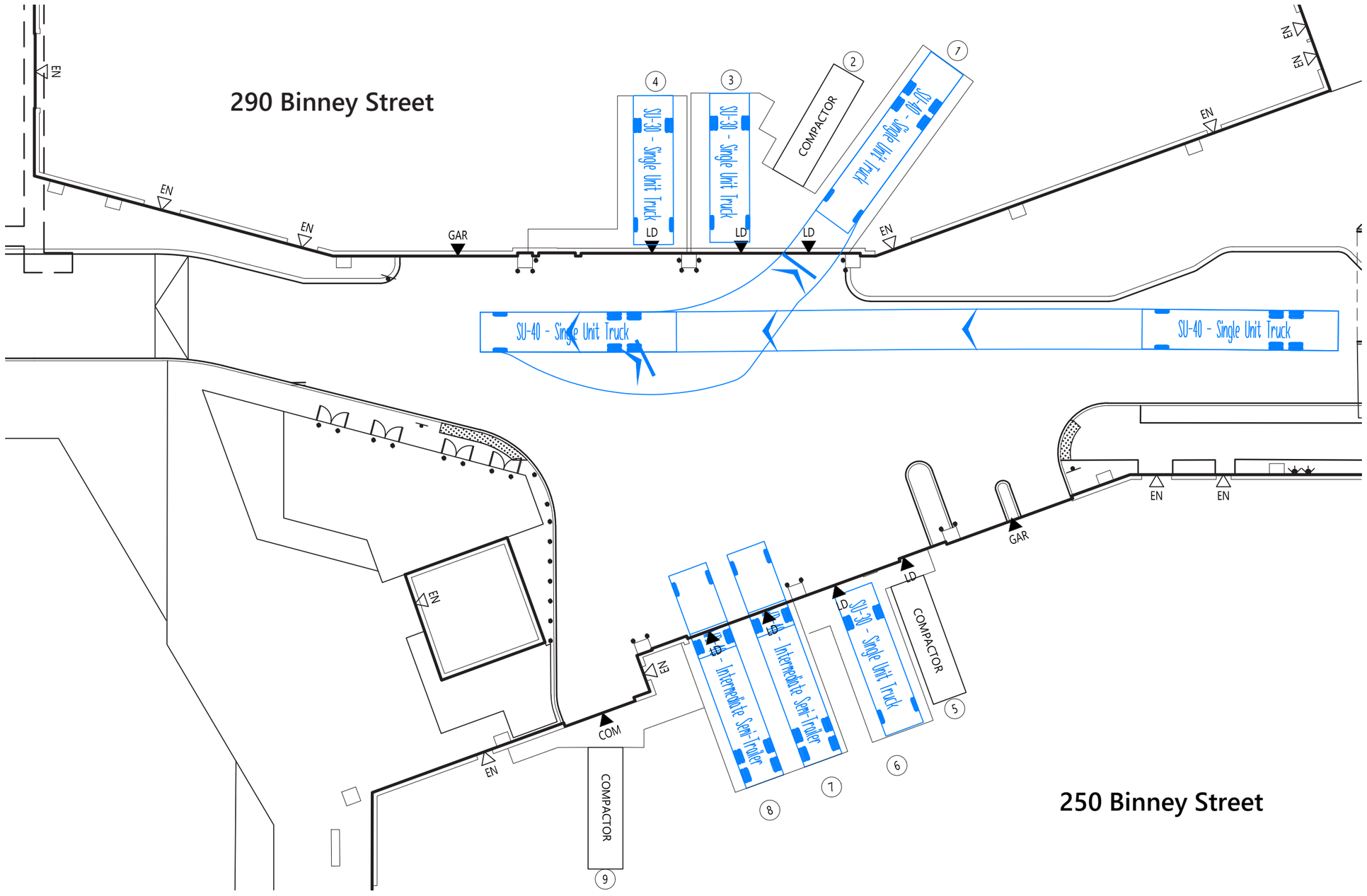


290 Binney Street
Interim Loading Dock Access

Bay 4 - SU-30

1.6 290 BINNEY ST - FULL BUILD TRUCK TURNS

1.6.1 BAY 1: SU-40

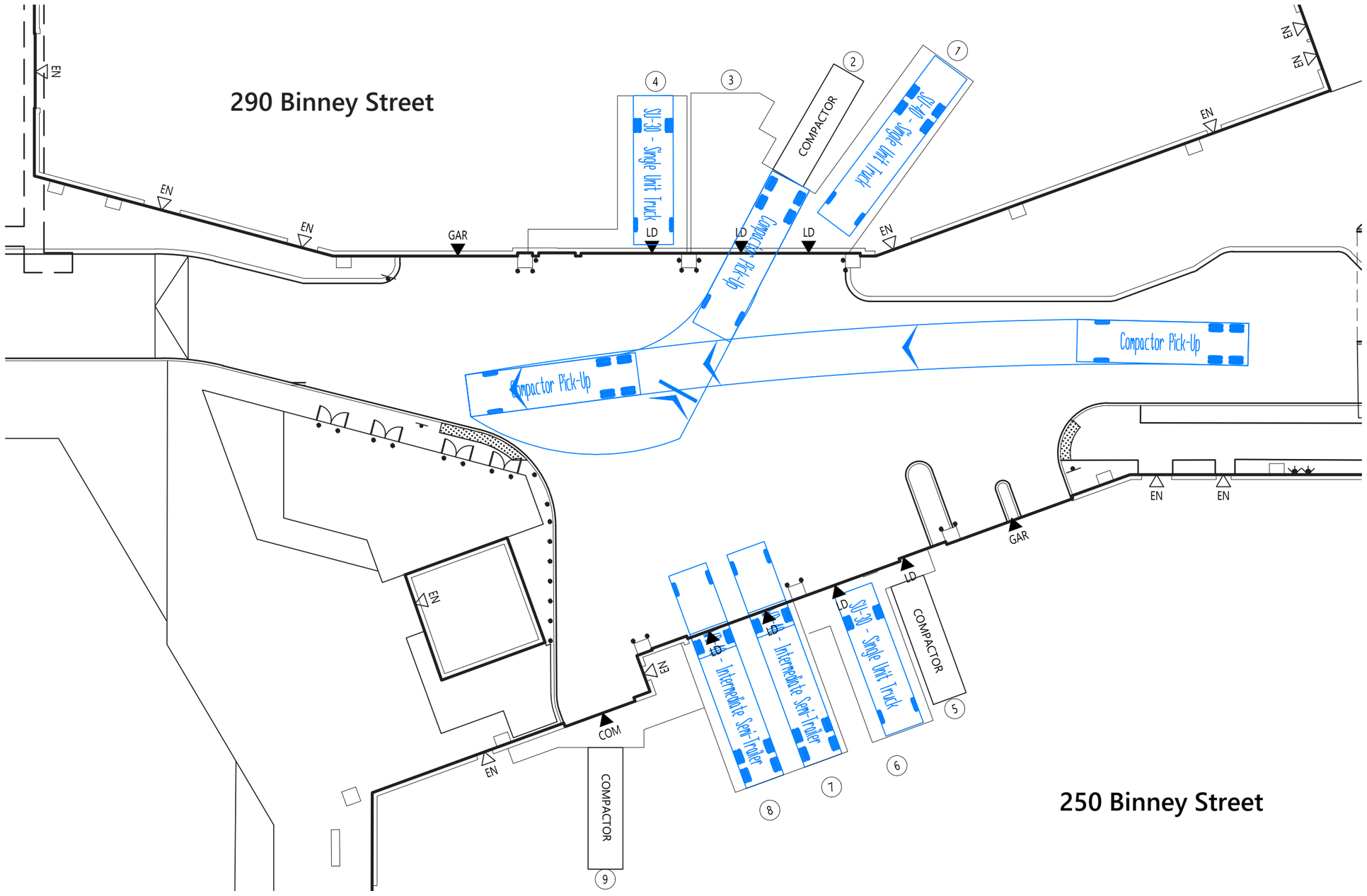


290 Binney Street
Loading Dock Access

Bay 1 - SU-40

1.6 290 BINNEY ST - FULL BUILD TRUCK TURNS

1.6.2 BAY 2: TRASH

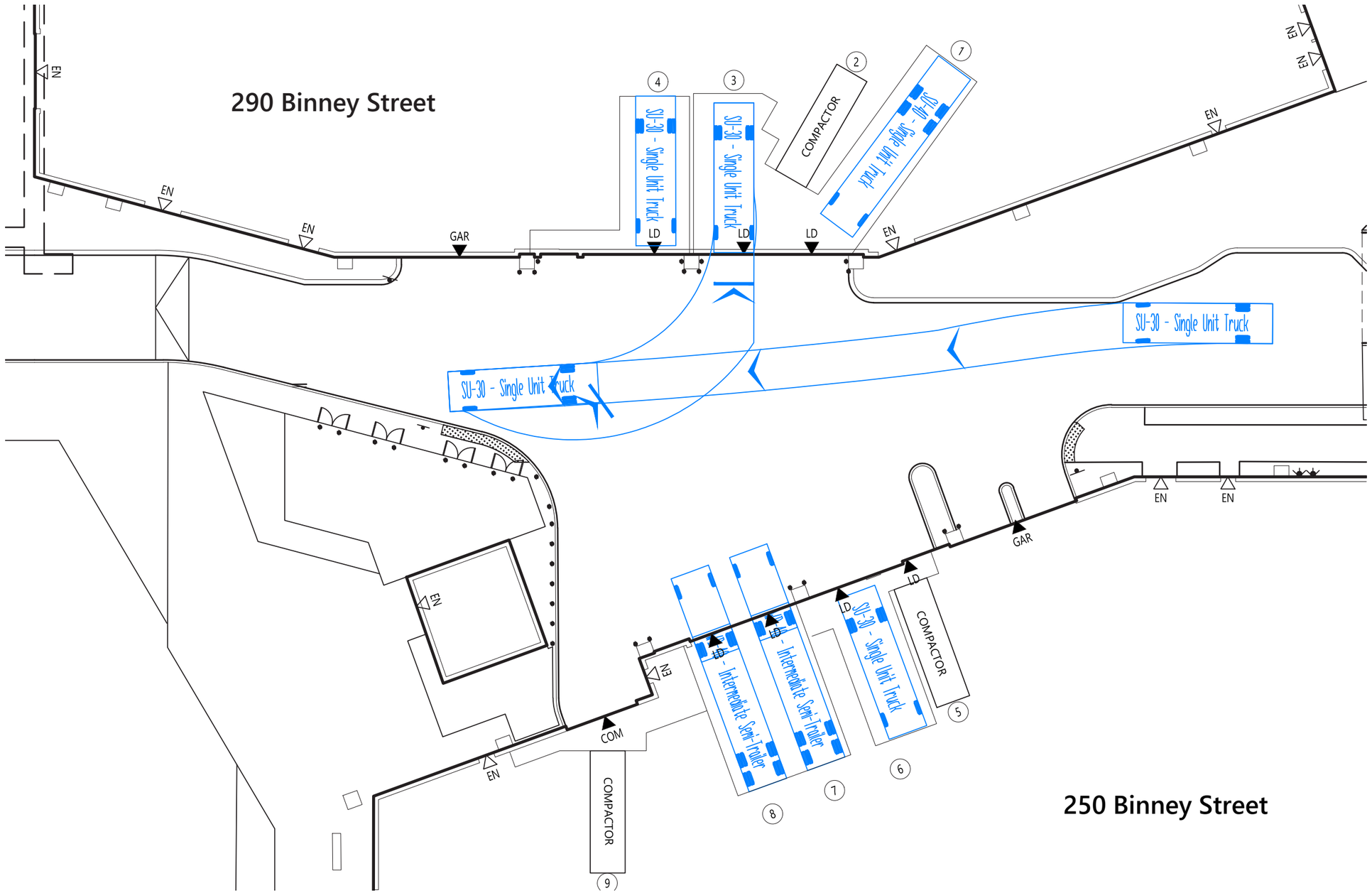


290 Binney Street
Loading Dock Access

Bay 2 - Trash

1.6 290 BINNEY ST - FULL BUILD TRUCK TURNS

1.6.3 BAY 3: SU-30

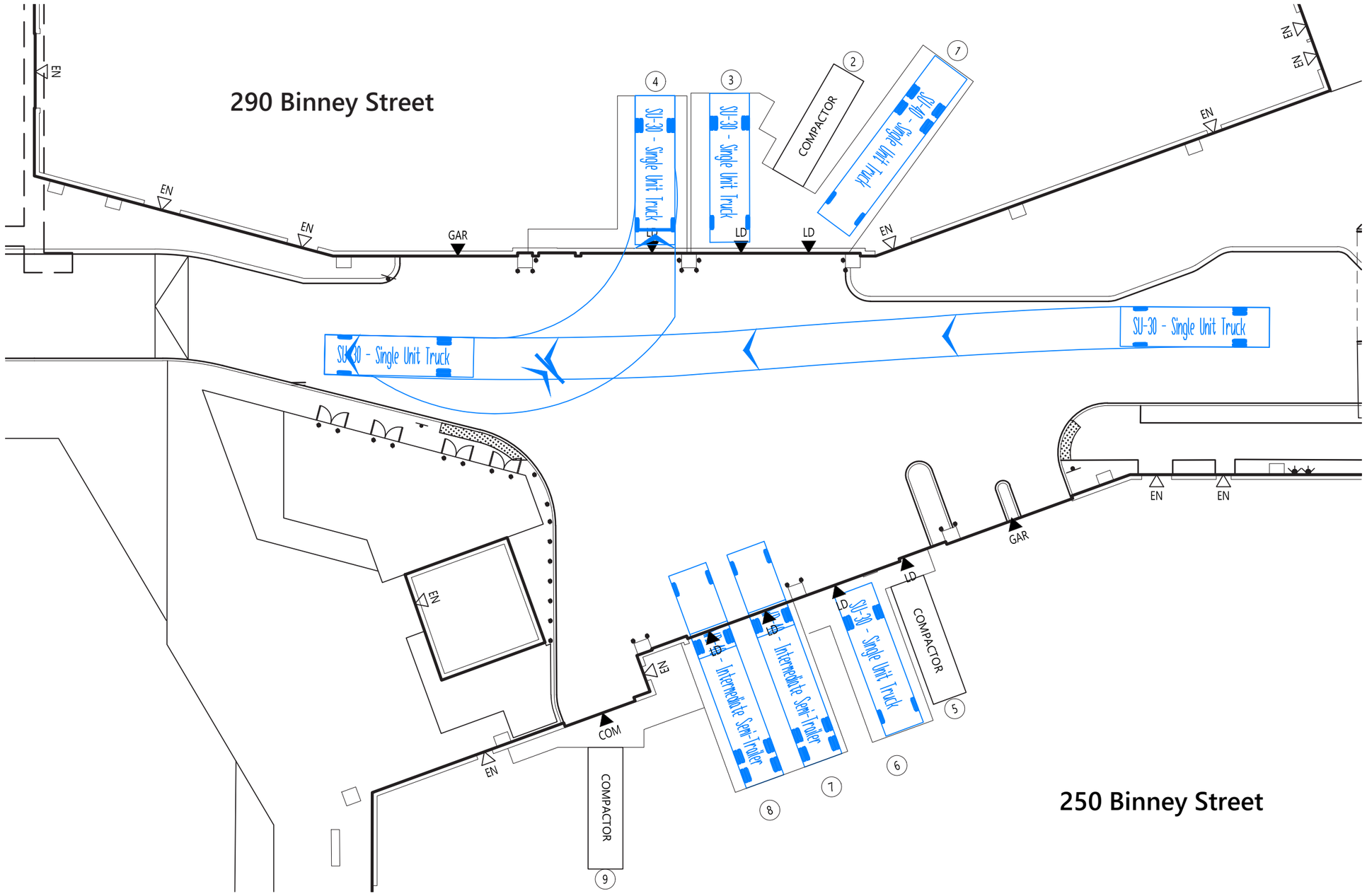


290 Binney Street
Loading Dock Access

Bay 3 - SU-30

1.6 290 BINNEY ST - FULL BUILD TRUCK TURNS

1.6.4 BAY 4: SU-40

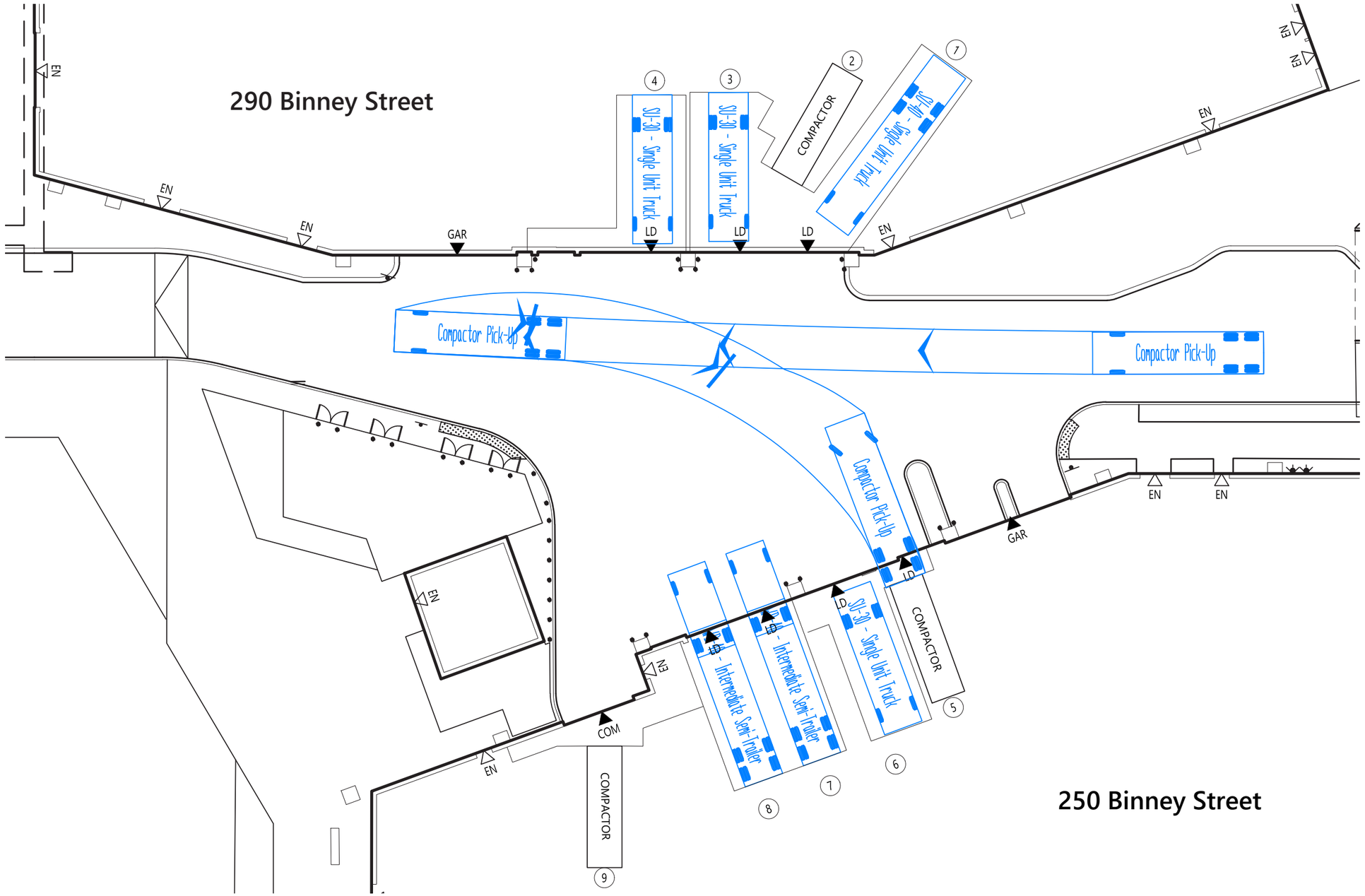


290 Binney Street
Loading Dock Access

Bay 4 - SU-30

1.6 290 BINNEY ST - FULL BUILD TRUCK TURNS

1.6.5 BAY 5: TRASH



250 Binney Street
Loading Dock Access

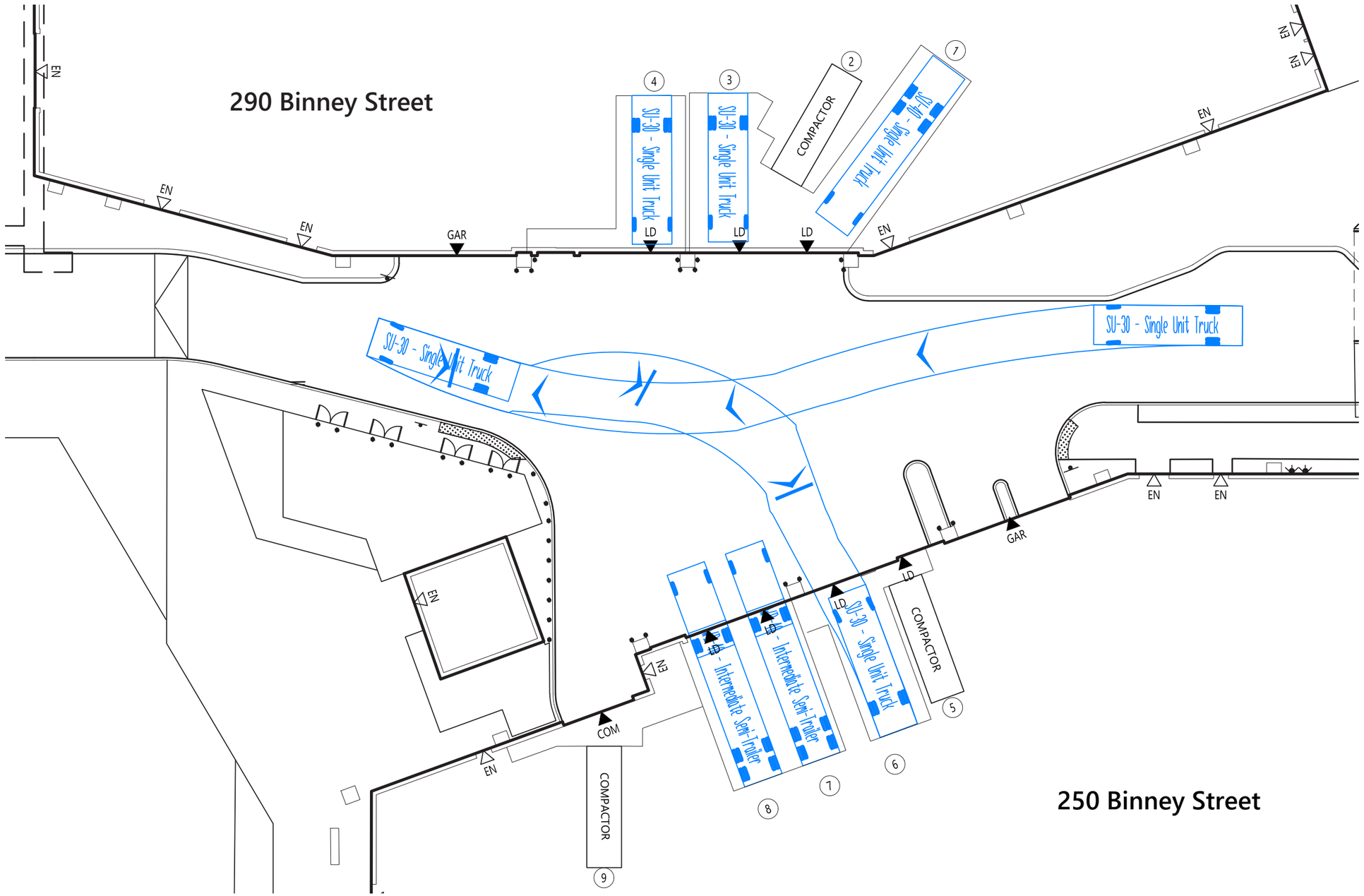
Bay 5 - Trash

DRIVE AISLE & TANK FARM AT 250/290 BINNEY

REVIEW SUBMISSION AUGUST 06, 2024

1.6 290 BINNEY ST - FULL BUILD TRUCK TURNS

1.6.6 BAY 6: SU-30

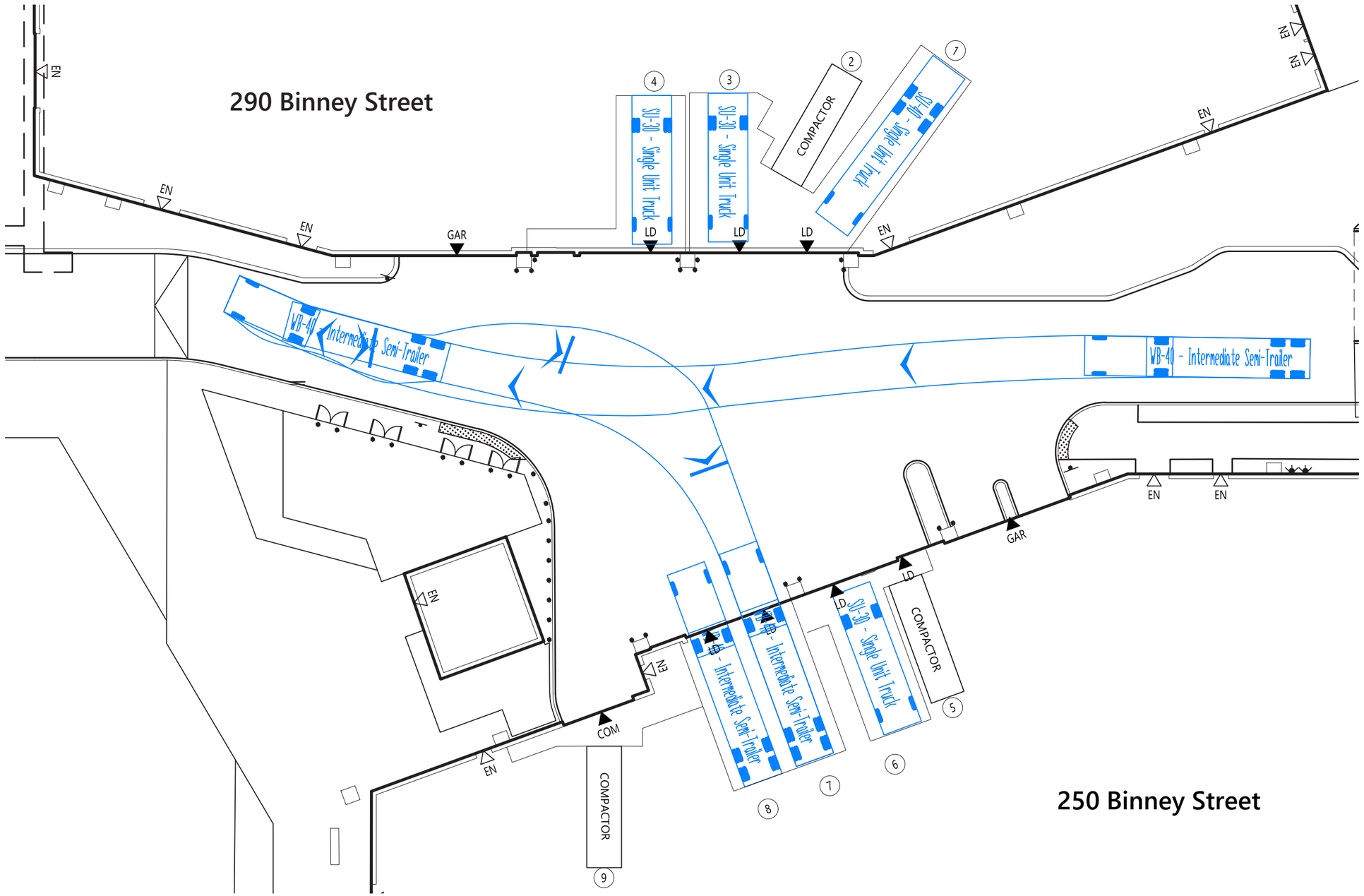


250 Binney Street
Loading Dock Access

Bay 6 - SU-30

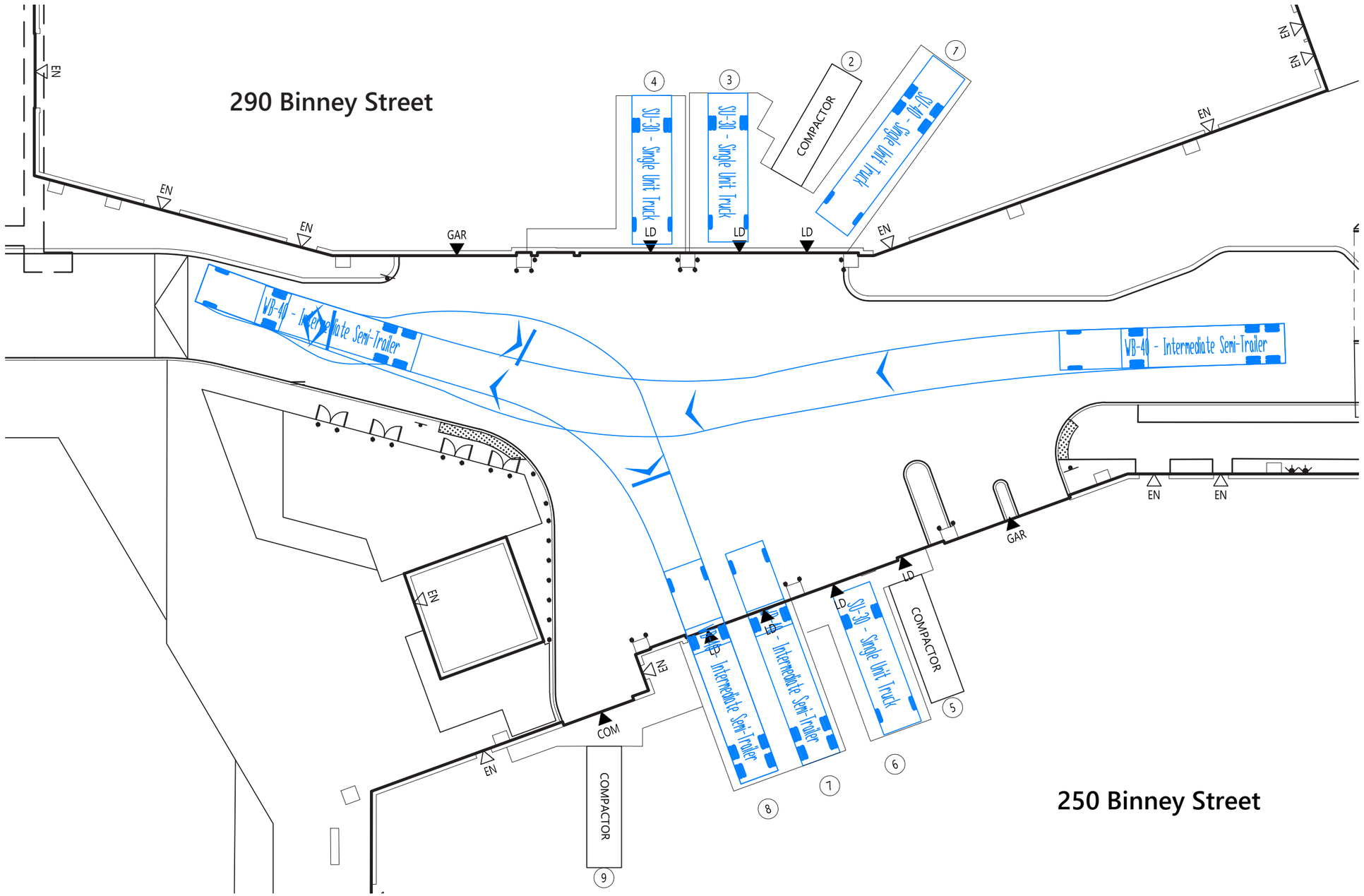
1.6 290 BINNEY ST - FULL BUILD TRUCK TURNS

1.6.7 BAY 7: SU-40



1.6 290 BINNEY ST - FULL BUILD TRUCK TURNS

1.6.8 BAY 8: SU-40

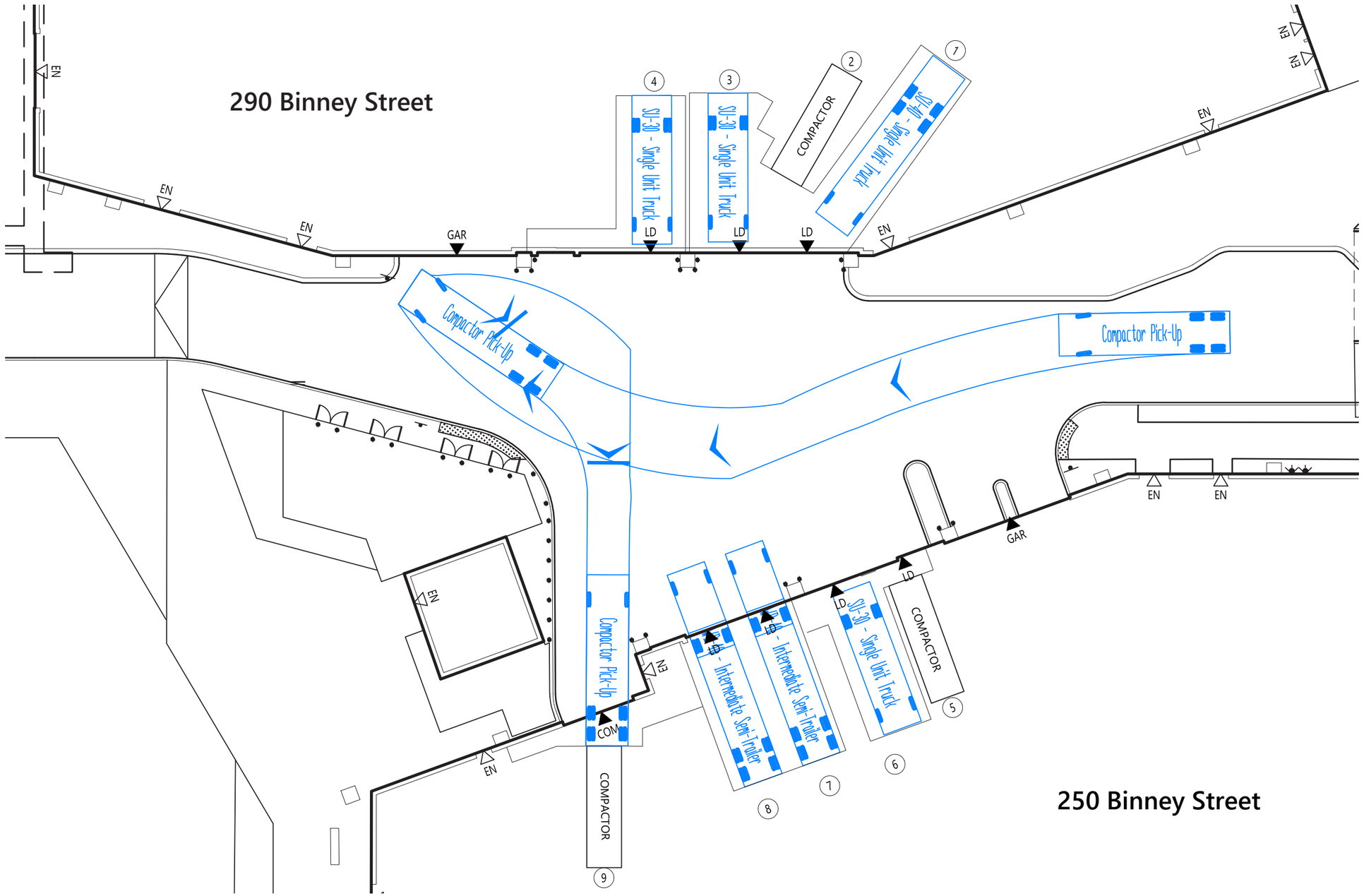


250 Binney Street
Loading Dock Access

Bay 8 - SU-40

1.6 290 BINNEY ST - FULL BUILD TRUCK TURNS

1.6.9 BAY 9: TRASH



Bay 9 - Trash

250 Binney Street
Loading Dock Access

1.7 UPDATED 2021 TIS FIGURES

1.7.1 FIGURE 1.A.1

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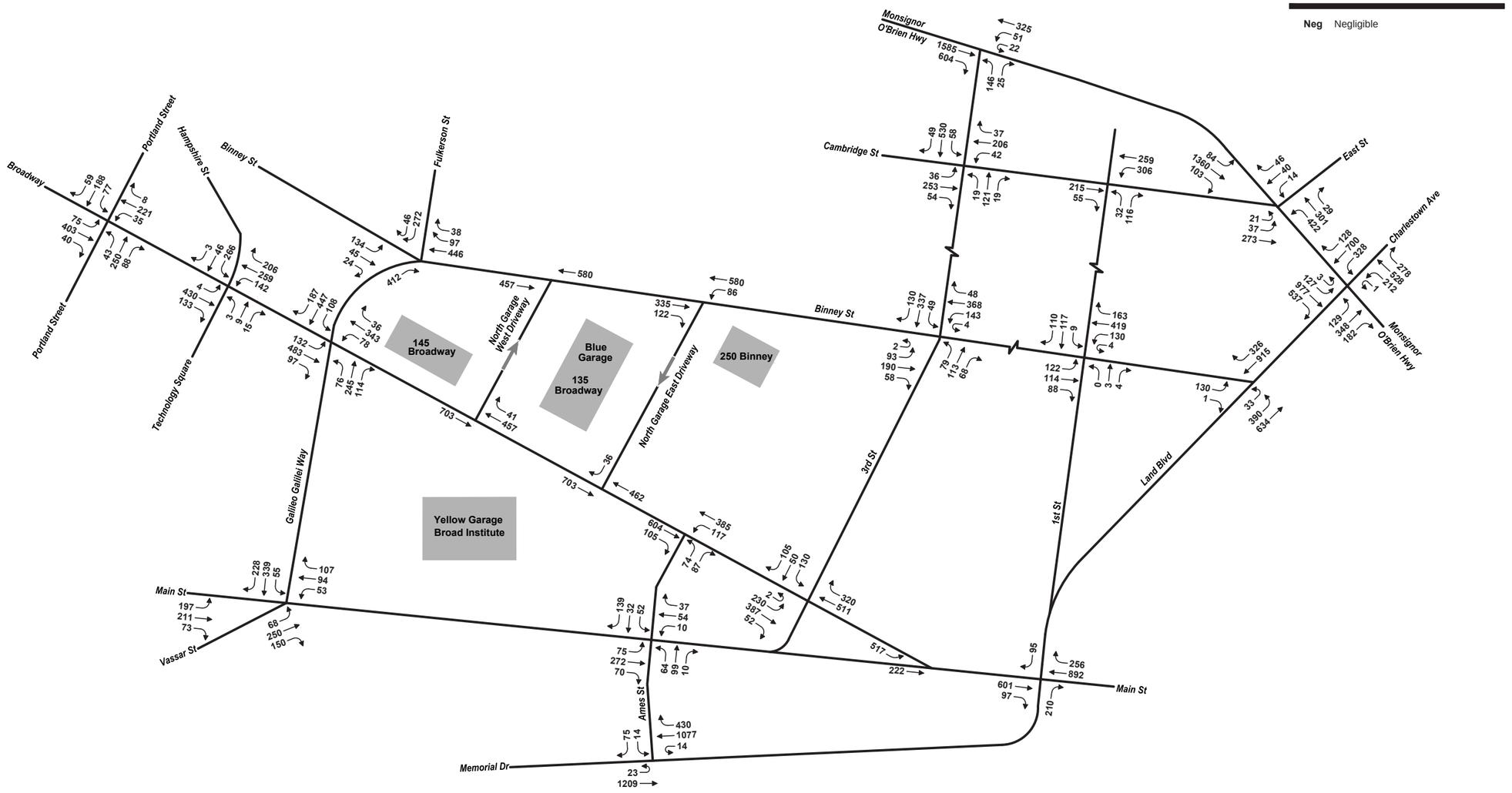

Note:
Volumes from May 22, 2013 counts presented in the MIT Kendall Square TIS. Vehicle volumes were grown by 0.5 percent per year for three years to estimate the 2016 theoretical existing conditions volumes.

Figure 1.a.1
2016 Theoretical Existing Condition Vehicle Volumes
Morning Peak Hour
Kendall Square Urban Renewal Project Amendment No. 10
Cambridge, Ma

1.7 UPDATED 2021 TIS FIGURES

1.7.2 FIGURE 1.A.2

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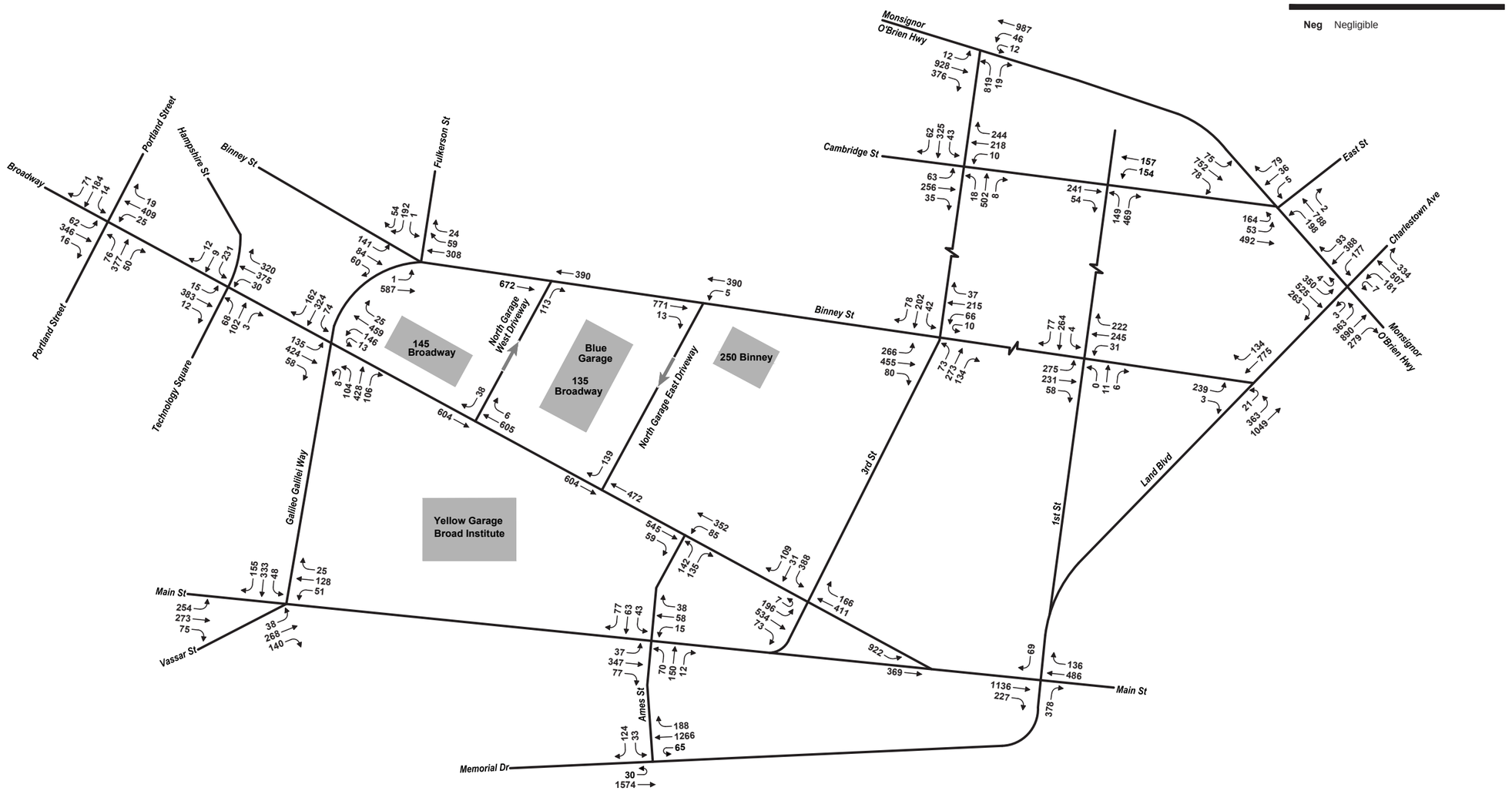

Note:
Volumes from May 22, 2013 counts presented in the MIT Kendall Square TIS. Vehicle volumes were grown by 0.5 percent per year for three years to estimate the 2016 theoretical existing conditions volumes.

Figure 1.a.2
2016 Theoretical Existing Condition Vehicle Volumes
Evening Peak Hour
Kendall Square Urban Renewal Project Amendment No. 10
Cambridge, Ma

1.7 UPDATED 2021 TIS FIGURES

1.7.3 FIGURE 2.D.2

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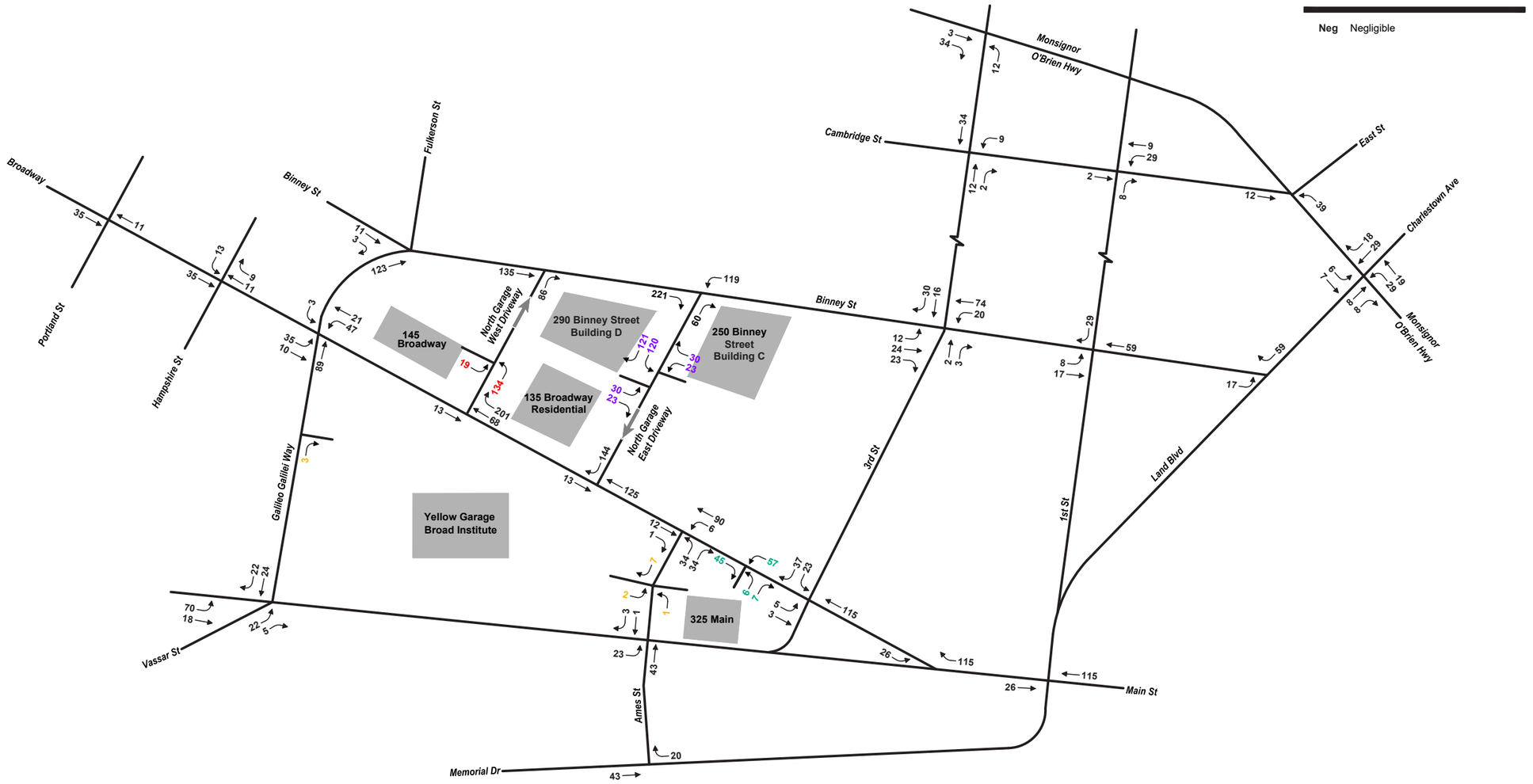

Not to Scale

*Updated in July 2024 - Graphics are an update to the previous graphics located in the August 4, 2021 TIS Update

Project Generated Trips
Morning Peak Hour
Kendall Square Urban Renewal Project Amendment No. 11
Cambridge, MA

Figure 2.d.2

1.7 UPDATED 2021 TIS FIGURES

1.7.4 FIGURE 2.D.3

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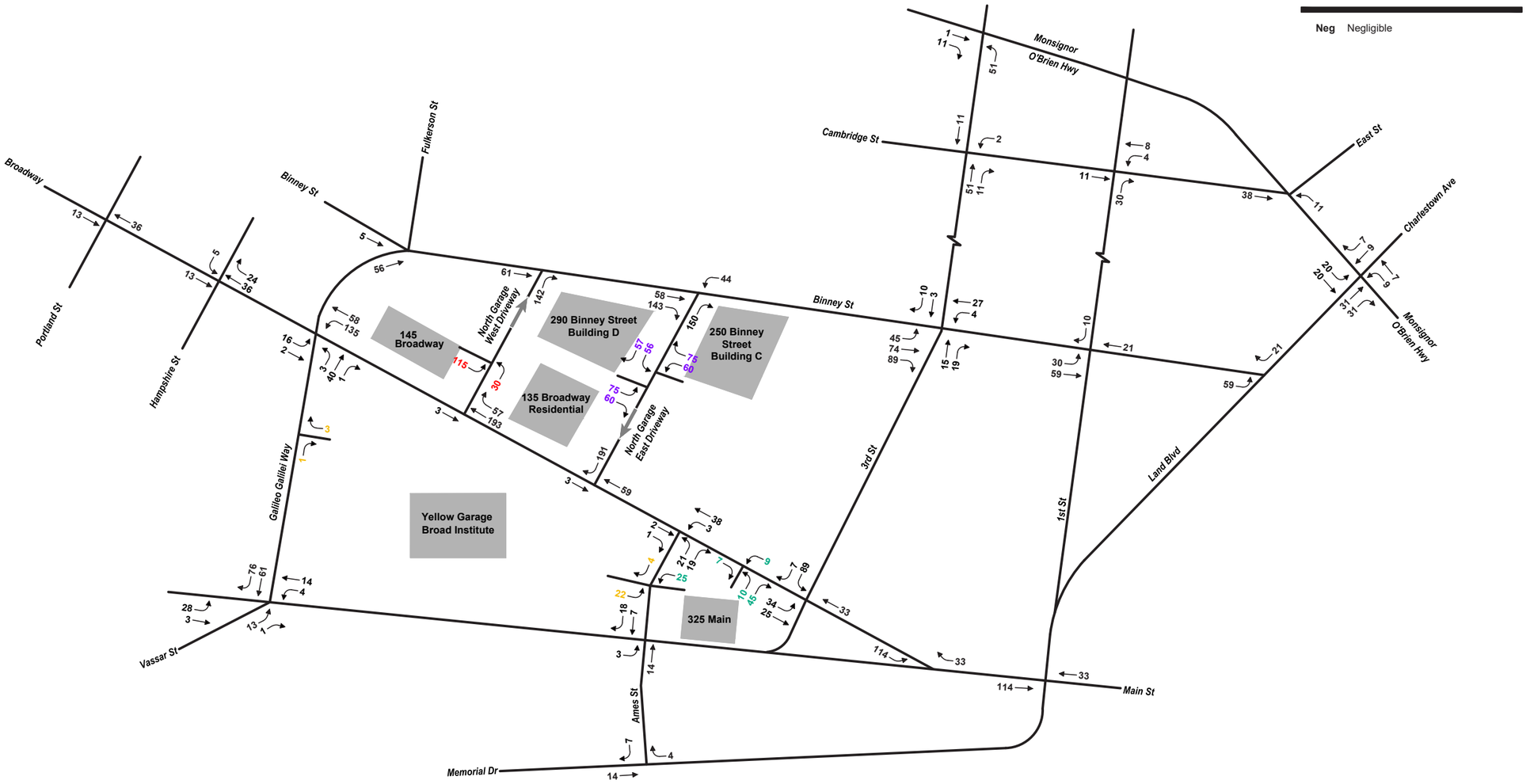

Not to Scale

*Updated in July 2024 - Graphics are an update to the previous graphics located in the August 4, 2021 TIS Update

Project Generated Trips
Evening Peak Hour
Kendall Square Urban Renewal Project Amendment No. 11
Cambridge, MA

Figure 2.d.3

1.7 UPDATED 2021 TIS FIGURES

1.7.5 FIGURE 4.C.3

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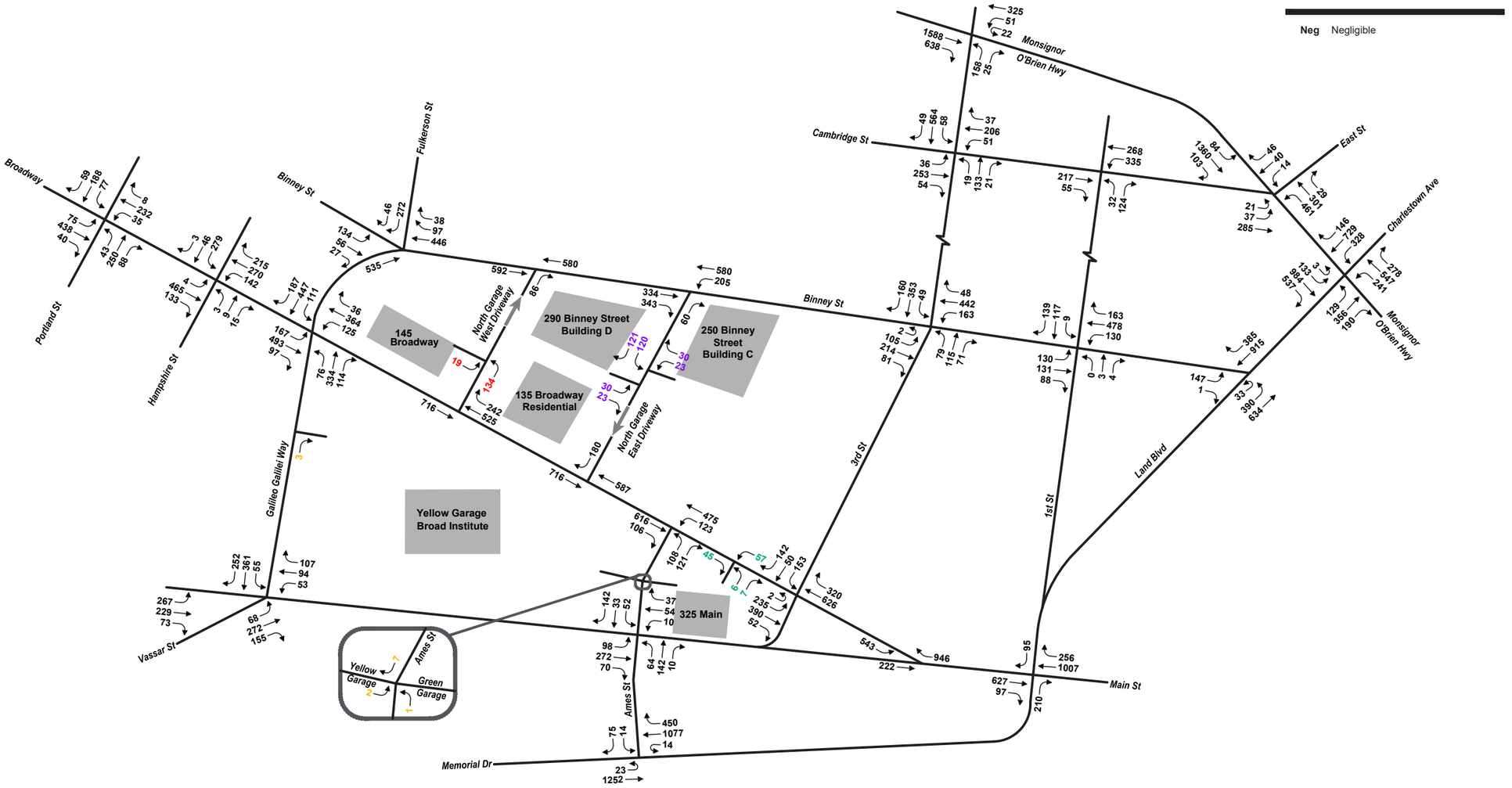

Not to Scale

*Updated in July 2024 - Graphics are an update to the previous graphics located in the August 4, 2021 TIS Update

2016 Updated Build Vehicle Volumes **Figure 4.c.3**
Morning Peak Hour
Kendall Square Urban Renewal Project Amendment No. 11
Cambridge, MA

1.7 UPDATED 2021 TIS FIGURES

1.7.6 FIGURE 4.C.4

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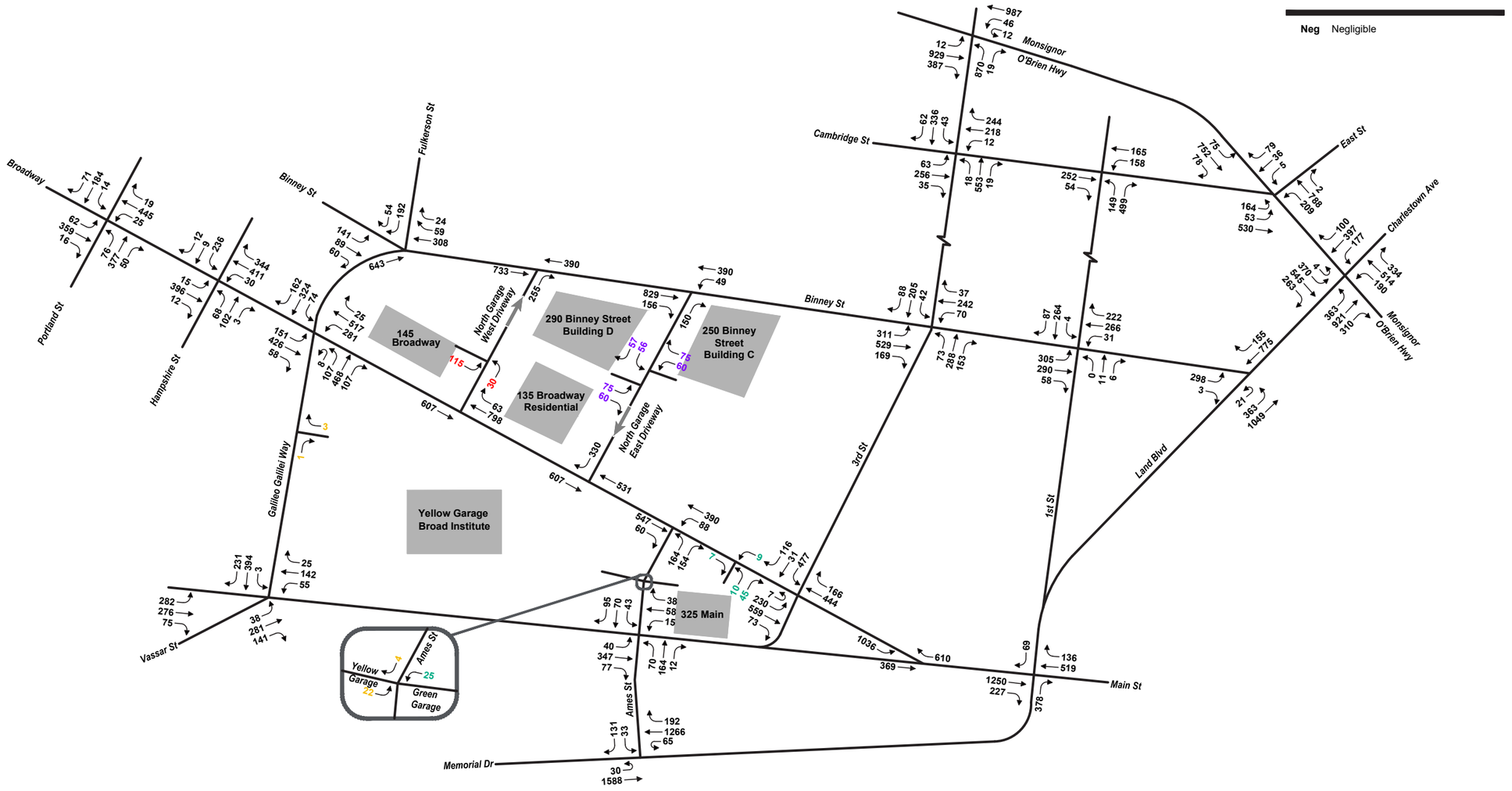

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*Updated in July 2024 - Graphics are an update to the previous graphics located in the August 4, 2021 TIS Update

2016 Updated Build Vehicle Volumes **Figure 4.c.4**
Evening Peak Hour
Kendall Square Urban Renewal Project Amendment No. 11
Cambridge, MA

1.7 UPDATED 2021 TIS FIGURES

1.7.7 FIGURE 4.E.1

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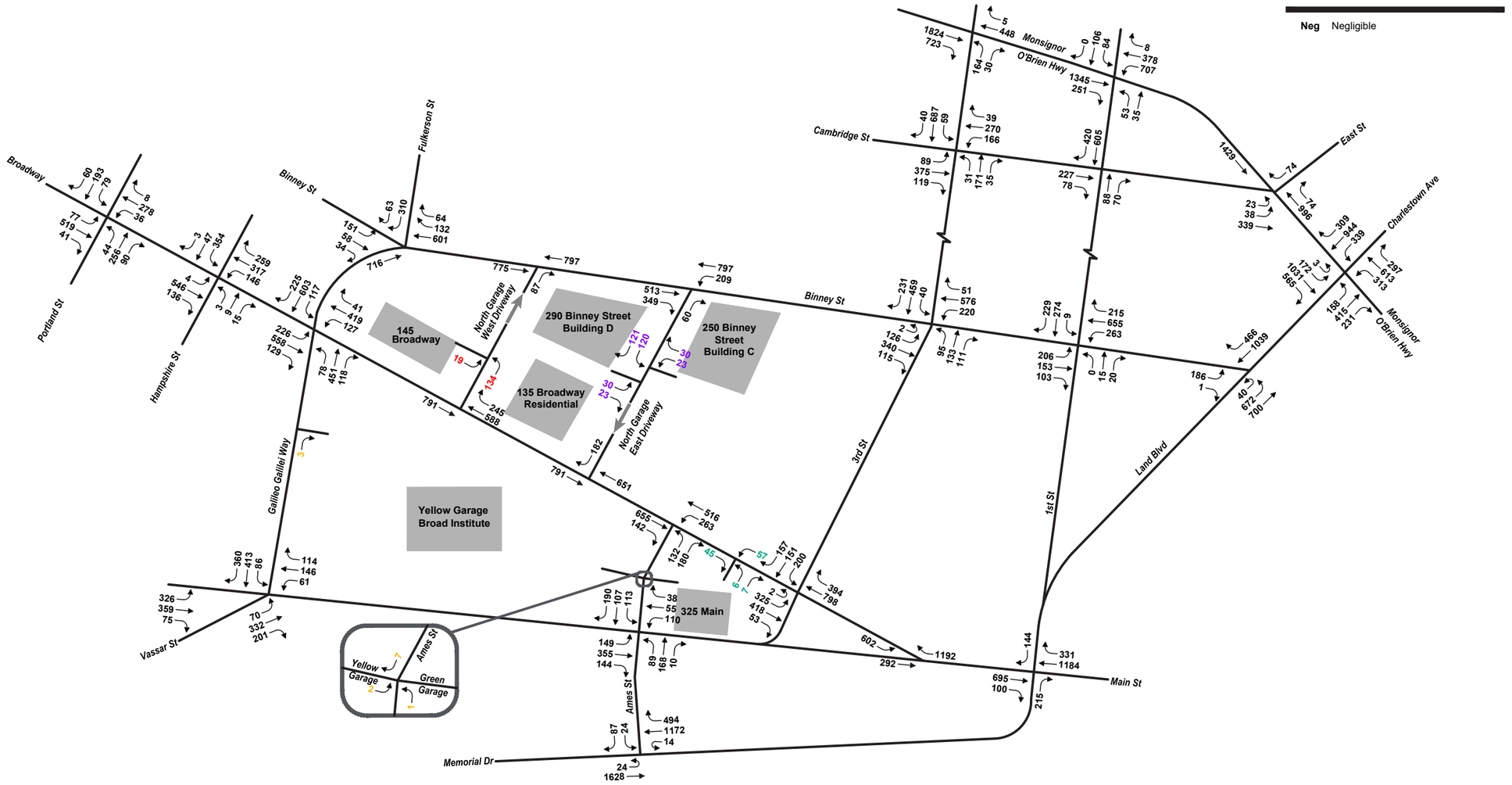

*Updated in July 2024 - Graphics are an update to the previous graphics located in the August 4, 2021 TIS Update

2021 Updated Future Vehicle Volumes **Figure 4.e.1**
Morning Peak Hour
Kendall Square Urban Renewal Project Amendment No. 11
Cambridge, MA

1.7 UPDATED 2021 TIS FIGURES

1.7.8 FIGURE 4.E.2

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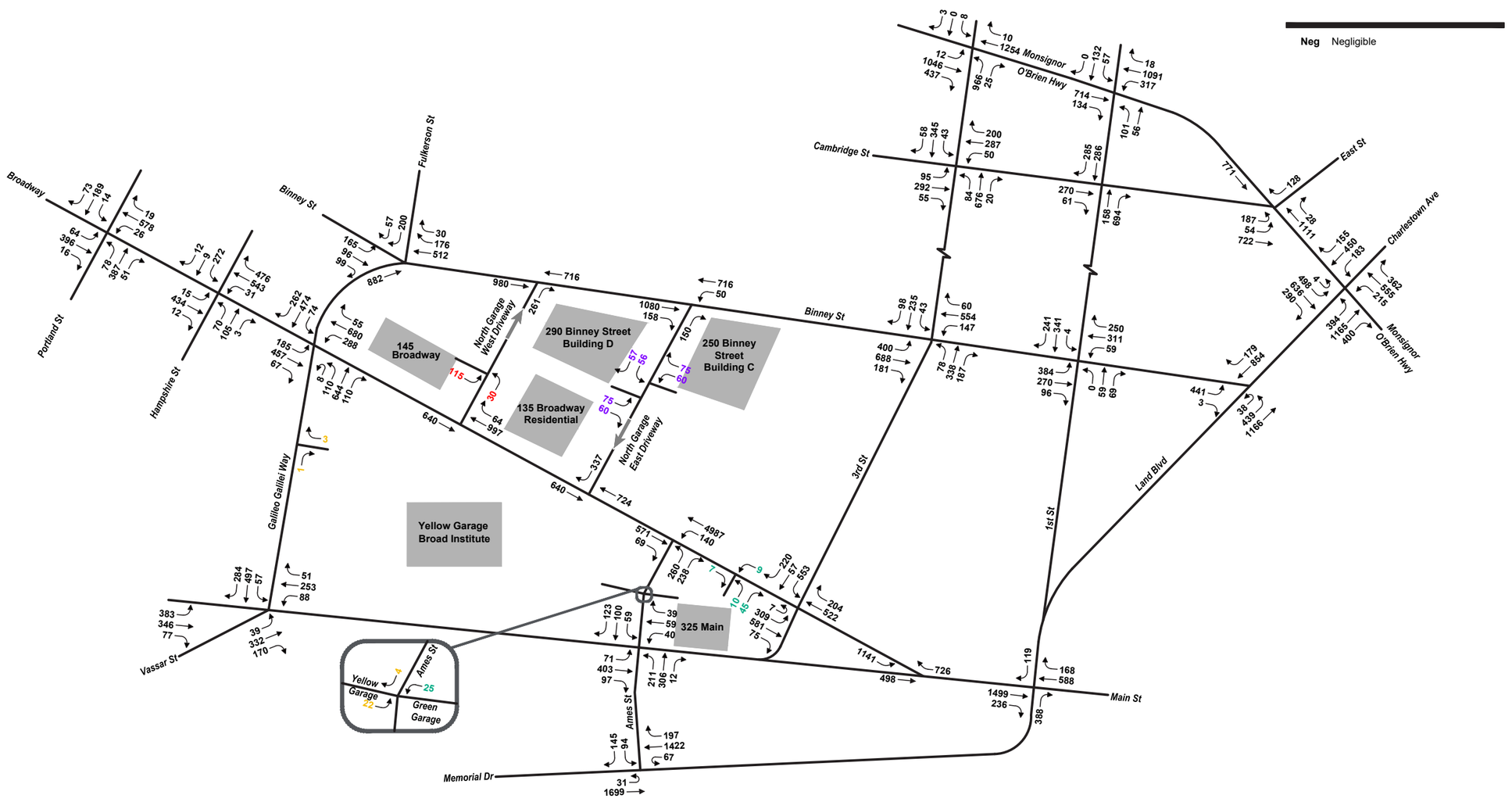


Not to Scale

*Updated in July 2024 - Graphics are an update to the previous graphics located in the August 4, 2021 TIS Update

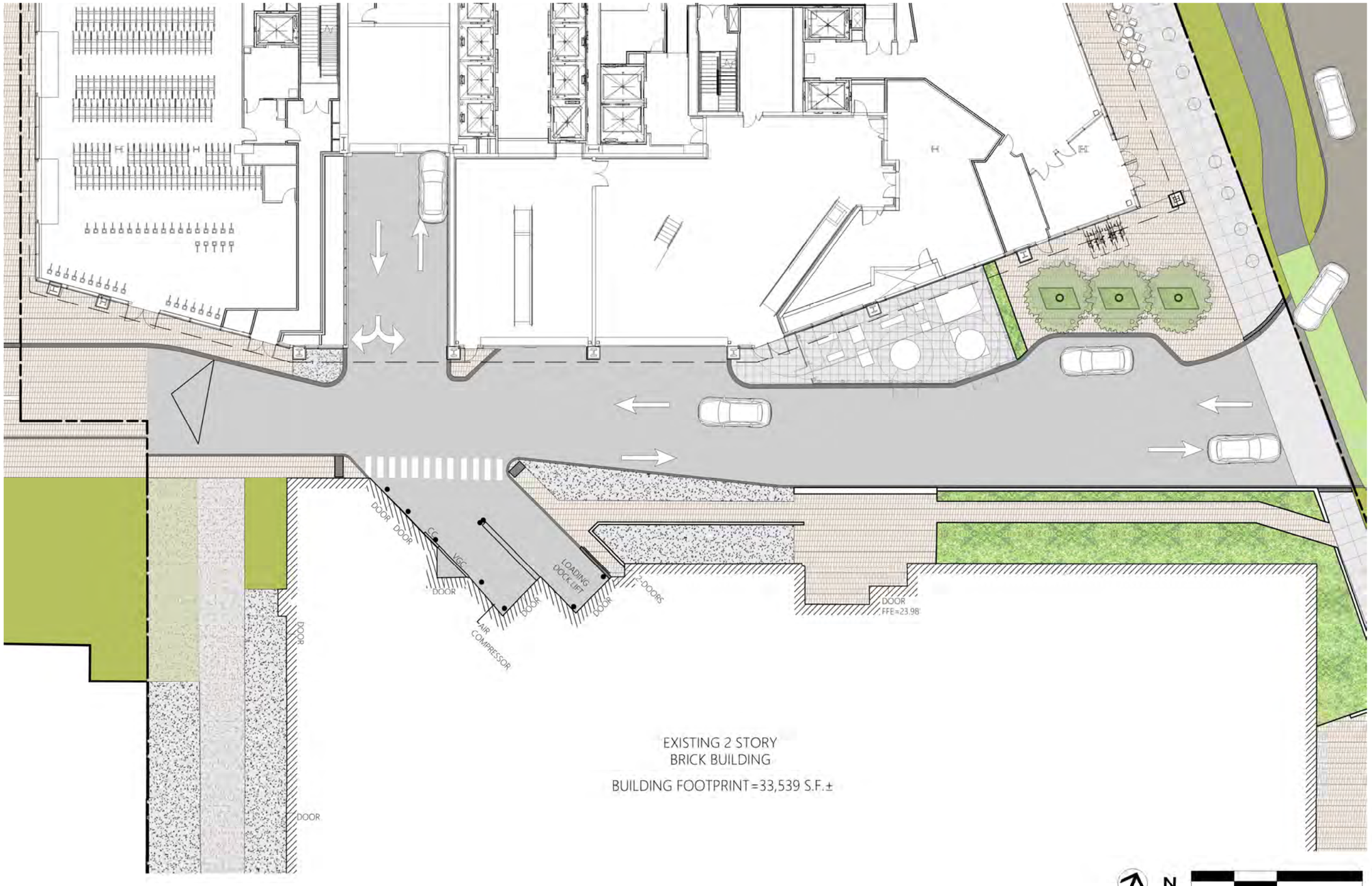
2021 Updated Future Vehicle Volumes **Figure 4.e.2**
Evening Peak Hour
Kendall Square Urban Renewal Project Amendment No. 11
Cambridge, MA

2. 290 BINNEY - EXTERIOR TENANT BULK GAS STORAGE TANK FARM

LOW SCREEN

2 EXTERIOR TENANT BULK GAS STORAGE TANK FARM

2.1 EXISTING 250 BINNEY, NEW 290 BINNEY, TWO WAY TRAFFIC (SITE PLAN)



NEW 250 binney, EX 290 binney with two way traffic 1/20th scale

2 EXTERIOR TENANT BULK GAS STORAGE TANK FARM

2.2 EXISTING 250 BINNEY, NEW 290 BINNEY, TWO WAY TRAFFIC (3D VIEW) - LOW SCREEN

*REFER TO PLAN ON PAGE 2.1 FOR MOST ACCURATE REPRESENTATION OF CONTEXT AND LAYOUT OF THIS OPTION

DRIVE AISLE & TANK FARM AT 250/290 BINNEY

REVIEW SUBMISSION AUGUST 06, 2024

LEMON BROOKE vhb Stantec PICKARD CHILTON bxp

2 EXTERIOR TENANT BULK GAS STORAGE TANK FARM

2.3 NEW 250 BINNEY, NEW 290 BINNEY, TWO WAY TRAFFIC (SITE PLAN)

NEW 250 binney, NEW 290 binney with two way traffic 1/20th scale

2 EXTERIOR TENANT BULK GAS STORAGE TANK FARM

2.4 NEW 250 BINNEY, NEW 290 BINNEY, TWO WAY TRAFFIC (3D VIEW) - LOW SCREEN

*REFER TO PLAN ON PAGE 2.3 FOR MOST ACCURATE REPRESENTATION OF CONTEXT AND LAYOUT OF THIS OPTION

To: Adam Shulman
Traffic, Parking, and Transportation
Department, City of Cambridge

344 Broadway

Cambridge, MA 02139

Date: July 23, 2024

Project #: 12959.09

From: Sean Manning PE

Re: KSURP Infill Development Concept Plan
Proposed Site Circulation Modification – August 2024
TIS Update Memo

Overview

Boston Properties has retained VHB to prepare a technical memorandum that evaluates a proposed design update to the approved site circulation plan for the East Service Drive, between the 250 and 290 Binney Street buildings for the Kendall Square Urban Renewal Plan (KSURP) Infill Development Plan Project. This proposed circulation update reflects a recent change in building design in which the 250 and 290 Binney garages are constructed and operate as two separate structures without the ability to enter via one ramp and exit via the other, and vice-versa. In the approved plan, the integrated garage and ramp system provided the opportunity for exiting motorists to efficiently choose their exit ramp depending on their intended route to leave Kendall Square (i.e. via Broadway or Binney Street). The ability to connect the two garages was lost because these two buildings are no longer being built concurrently, and there is no feasible way to connect them below an operational East Service Drive. Consequently, these are now separate garages and the ability to provide exiting motorists with alternate egress ramp choices has been eliminated.

Figure 1 provides an illustration and summary of the 2021 Previously Approved Access/Circulation Plan.

The Currently Proposed Modified Access/Circulation Plan contemplates a limited two-way segment of the East Service Drive from Binney Street to the 290 Binney Street Garage ramp. The purpose of this design update, again, is to maintain the most efficient internal site vehicle movements for those motorists that seek to egress back to Binney Street. Without this change, the approved site plan would require motorists to now exit towards Broadway and recirculate back onto the West Service Drive to get back to Binney Street.

Key Findings

The Currently Proposed Modified Access/Circulation Plan, has the following attributes:

- Modest modification to provide limited two-way flow between 290 and Binney Street
- Limited internal service drive conflicts expected due to:
    - Unidirectional nature of inbound and outbound vehicle traffic (i.e. mostly inbound during AM and outbound during PM)
    - Low loading/service activity in the afternoon
- Provides more efficient egress for those motorists egressing to Binney Street
- The proposed curb cut width for East Service Drive at Binney Street will not change
- 60 and 150 vehicle conflicts removed (during the morning and evening peak hours, respectively) with existing pedestrian and bicycle infrastructure at three intersection locations (Binney Street at West Service Drive, Broadway at West Service Drive, and Broadway at East Service Drive)
- 60 and 150 vehicle conflicts added (during the morning and evening peak hours, respectively) with existing pedestrian and bicycle infrastructure at one intersection location (Binney Street at East Service Drive)
- During the evening peak hour, southbound queues at the intersection of Broadway at East Service Drive are reduce by approximately 400 ft (16 cars)
- The Currently Proposed Modified Access/Circulation Plan introduces negligible queues during the evening peak hour, northbound at the intersection of Binney Street at East Service Drive (~25 ft = 1 car)

Special Permit Volumes and Circulation

Based on the traffic volumes and analysis and peak period traffic volumes summarized in the Traffic Impact Study (TIS) that was certified on August 6, 2021, many of the exiting Site trips would be required to take a circuitous path by exiting the East Service Drive south onto Broadway, using the West Service Drive to proceed north, and making a right turn to continue eastbound on Binney Street (**Figure 1**). The level of trip making anticipated to make this unwanted circuitous movement is 60 trips during the morning peak hour and 150 trips during the evening peak hour. This circulation pattern would require these motorists to travel through the following three (3) intersections to access Binney Street in the eastbound direction:

〉 (1) Broadway at East Service Drive;
〉 (2) Broadway at West Service Drive;
〉 (3) Binney Street at West Service Drive

This circulation would result in a number of operational and safety deficiencies, including having these vehicles unnecessarily cross three pedestrian crosswalks and conflict with cyclists on adjacent separated bicycle lanes three times to reach their desired point of egress. The additional traffic circulation would increase conflicts with any pedestrian or bicycle activity along the West Service Drive. These motorists would also have to briefly turn into and out of northbound traffic on Broadway. During weekday commuter peak hours, this circulation pattern is likely to increase vehicle delay for Site traffic and for

general Kendall Square and MXD District traffic utilizing Broadway, Binney Street, and surrounding streets in the neighborhood.

Currently Proposed Volumes and Circulation

With the Currently Proposed Modified Access/Circulation Plan design update in place, the approximately 60 and 150 exiting trips, during the morning and evening peak hours, respectively, can avoid the circuitous path to Binney Street via Broadway and the West Service Drive, as depicted in **Figure 1**. Instead, these motorists would be allowed to exit directly onto Binney Street. This change would eliminate the need for Site traffic along the Public Plaza, to cross pedestrian crosswalks and separated bicycle facilities along Broadway, or to weave in and out of Broadway to get to the West Service Drive (see **Figure 2**).

Updated figures from the 2021 Updated Certified TIS are presented in the Appendix. This includes the following Figures: 1.a.1, 1.a.2, 2.d.2, 2.d.3, 4.c.3, 4.c.4, 4.e.1, and 4.e.2.

Vehicular Capacity Analysis

Synchro 11 software was used to determine the vehicle level of service (VLOS) for the 4 study area intersections which were impacted by the shift in vehicle trips associated with the proposed design update. The LOS results are based on the 2000 Highway Capacity Manual.

Results for the intersections for the morning and evening peak hours are shown in **Tables 1 and 2**, respectively. The tables compare to those previously approved in the 2021 TIS.

Table 1 Intersection LOS – Morning Peak Hour

Intersection	Approach	2016 Updated Build Condition[1]				2016 Updated (2024 Rev. Site Access) Build Condition					2021 Updated Future Condition[1]				2021 Updated (2024 Rev. Site Access) Future Condition				
		V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (feet)	Difference In Delay	V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	Difference In Delay
Binney Street at West Service Drive	West Service Drive NB	0.18	10.1	B	17	0.11	9.6	A	9	-0.5	0.18	10.0	A	16	0.11	9.6	A	9	-0.4
Binney Street at East Service Drive	Binney Street WB Left	0.26	10.6	B	26	0.24	10.2	B	24	-0.4	0.30	11.8	B	31	0.28	11.2	B	29	-0.6
	East Service Drive NB	No NB movement in 2021 Updated Certified TIS				0.09	10.2	B	7	+10.2	No NB movement in 2021 Updated Certified TIS				0.08	10.1	B	7	+10.1

Intersection	Approach	2016 Updated Build Condition[1]				2016 Updated (2024 Rev. Site Access) Build Condition				Difference In Delay	2021 Updated Future Condition[1]				2021 Updated (2024 Rev. Site Access) Future Condition				Difference In Delay
		V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (feet)		V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	
Broadway at West Service Drive	Broadway WB Thru/Right	0.26	0.0	A	0	0.22	0	A	0	0	0.27	0.0	A	0	0.23	0.0	A	0	0
Broadway at East Service Drive	East Service Drive SB	0.63	27.7	D	106	0.48	21.4	C	62	-6.3	0.67	31.3	D	119	0.51	23.3	C	69	-8

[1] Results are based on 2021 Updated Certified TIS
V/C Ratio – Volume to Capacity Ratio
Delay – Average delay expressed in seconds per vehicle.
VLOS – Vehicular level of service

Table 2 Intersection LOS – Evening Peak Hour

Intersection	Approach	2016 Updated Build Condition[1]				2016 Updated (2024 Rev. Site Access) Build Condition					2021 Updated Future Condition[1]				2021 Updated (2024 Rev. Site Access) Future Condition				
		V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (feet)	Difference In Delay	V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	Difference In Delay
Binney Street at West Service Drive	West Service Drive NB	0.53	14.0	B	79	0.33	11.5	B	37	-2.5	0.52	13.5	B	76	0.33	11.2	B	36	-2.3
Binney Street at East Service Drive	Binney Street WB Left	0.09	11.7	B	7	0.08	10.6	B	6	-1.1	0.15	17.0	C	13	0.10	12.1	B	8	-4.9
	East Service Drive NB	No NB movement in 2021 Updated Certified TIS				0.26	12.6	B	25	+12.6	No NB movement in 2021 Updated Certified TIS				0.25	12.5	B	25	+12.5

Intersection	Approach	2016 Updated Build Condition[1]				2016 Updated (2024 Rev. Site Access) Build Condition				Difference In Delay	2021 Updated Future Condition[1]				2021 Updated (2024 Rev. Site Access) Future Condition				Difference In Delay
		V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (feet)		V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	V/C Ratio	Delay	VLOS	95th %tile Queue (ft)	
Broadway at West Service Drive	Broadway WB Thru/Right	0.24	0.0	A	0	0.20	0.0	A	0	0	0.26	0.0	A	0	0.26	0.0	A	0	0
Broadway at East Service Drive	East Service Drive SB	1.21	143.3	F	520	0.83	43.2	E	199	-100.1	1.44	240.6	F	685	1.00	80.1	F	290	-160.5

[1] Results are based on 2021 Updated Certified TIS
V/C Ratio – Volume to Capacity Ratio
Delay – Average delay expressed in seconds per vehicle.
VLOS – Vehicular level of service

Loading Dock Management

The 2021 Previously Approved Access/Circulation Plan simplified traffic circulation along the East Service Drive by permitting only one-way southbound traffic adjacent to the 250 and 290 Binney loading docks. The proposed change in circulation would allow two-way vehicle travel alongside these loading areas. However, VHB anticipates that most loading activity will be completed in the morning, at a time that does not align with commuter traffic peak hours. Therefore, during the weekday evening peak hour (when exiting Site traffic will be at its peak) vehicle conflicts with the loading area will be minimal. Furthermore, the unidirectional nature of entering and exiting vehicle traffic (i.e. mostly inbound during the morning and outbound during the evening) will result in limited conflicts between Site traffic and loading activity. Additionally, Boston Properties plans to have a loading dock manager to facilitate safe and efficient loading operations.

Currently Proposed Curb Cut Width

The proposed curb cut for East Service Drive at Binney Street will not change with the currently proposed circulation. The width of the curb cut measured at the property line is as follows:

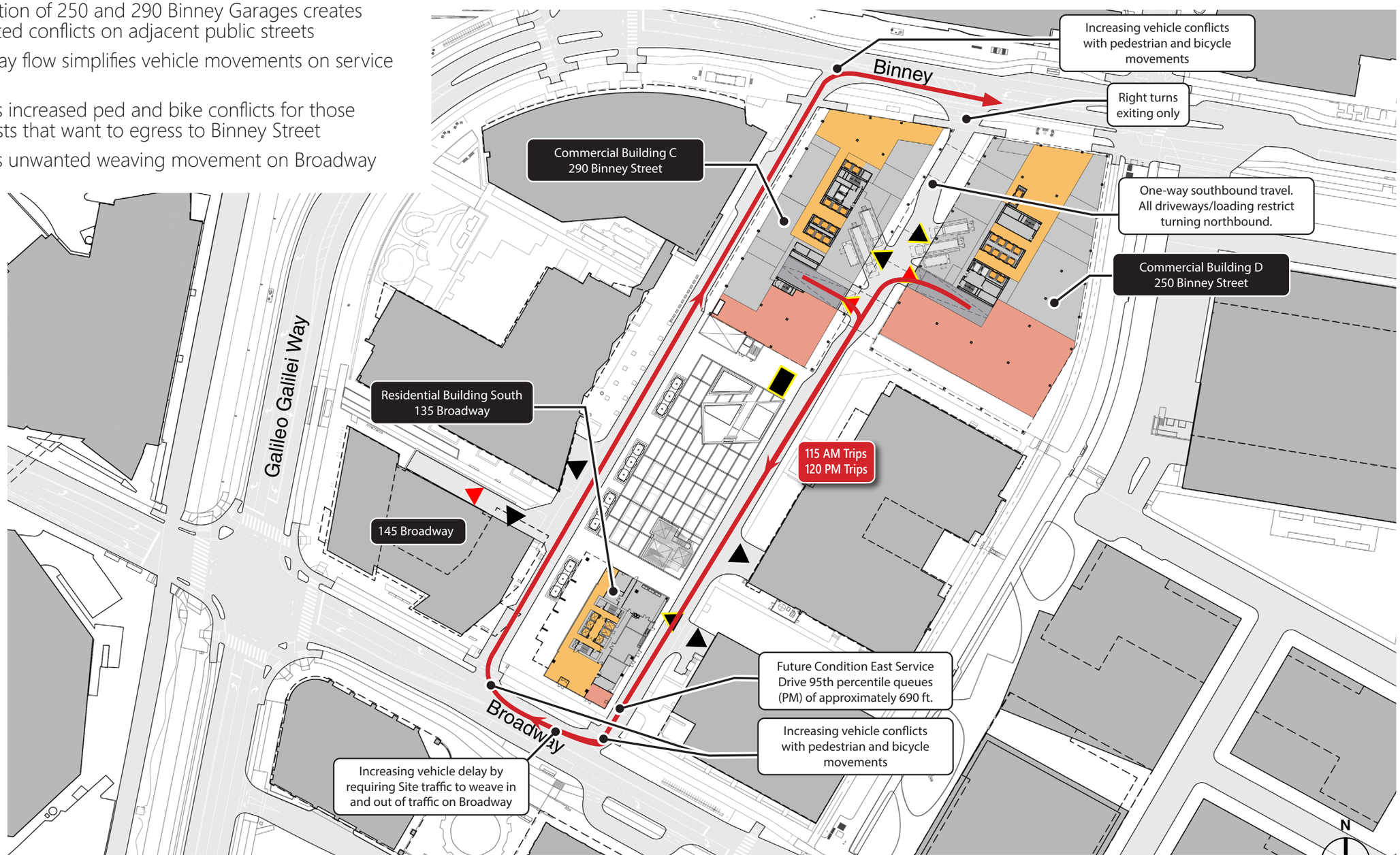
- Existing Condition = ~35 feet
- Special Permit = ~30 feet
- Currently Proposed = ~30 feet

Conclusion

We believe that this proposed circulation design update is a safer and more efficient solution as compared to the previous site plan, given the requirement to construct separate parking garages for 250 and 290 Binney. We also believe that, due to the timing of loading activity and loading dock management, the loading areas along the East Service Drive will not be adversely impacted by this change, as the expected traffic destined to Binney Street will occur during the evening, when loading and service activity tends to be minimal. We ask for your input and guidance in connection with our request to modify the approved access and circulation plan.

Thank you – and of course please reach out with any questions that you may have.

- Separation of 250 and 290 Binney Garages creates unwanted conflicts on adjacent public streets
- One-way flow simplifies vehicle movements on service drives
- Creates increased ped and bike conflicts for those motorists that want to egress to Binney Street
- Creates unwanted weaving movement on Broadway

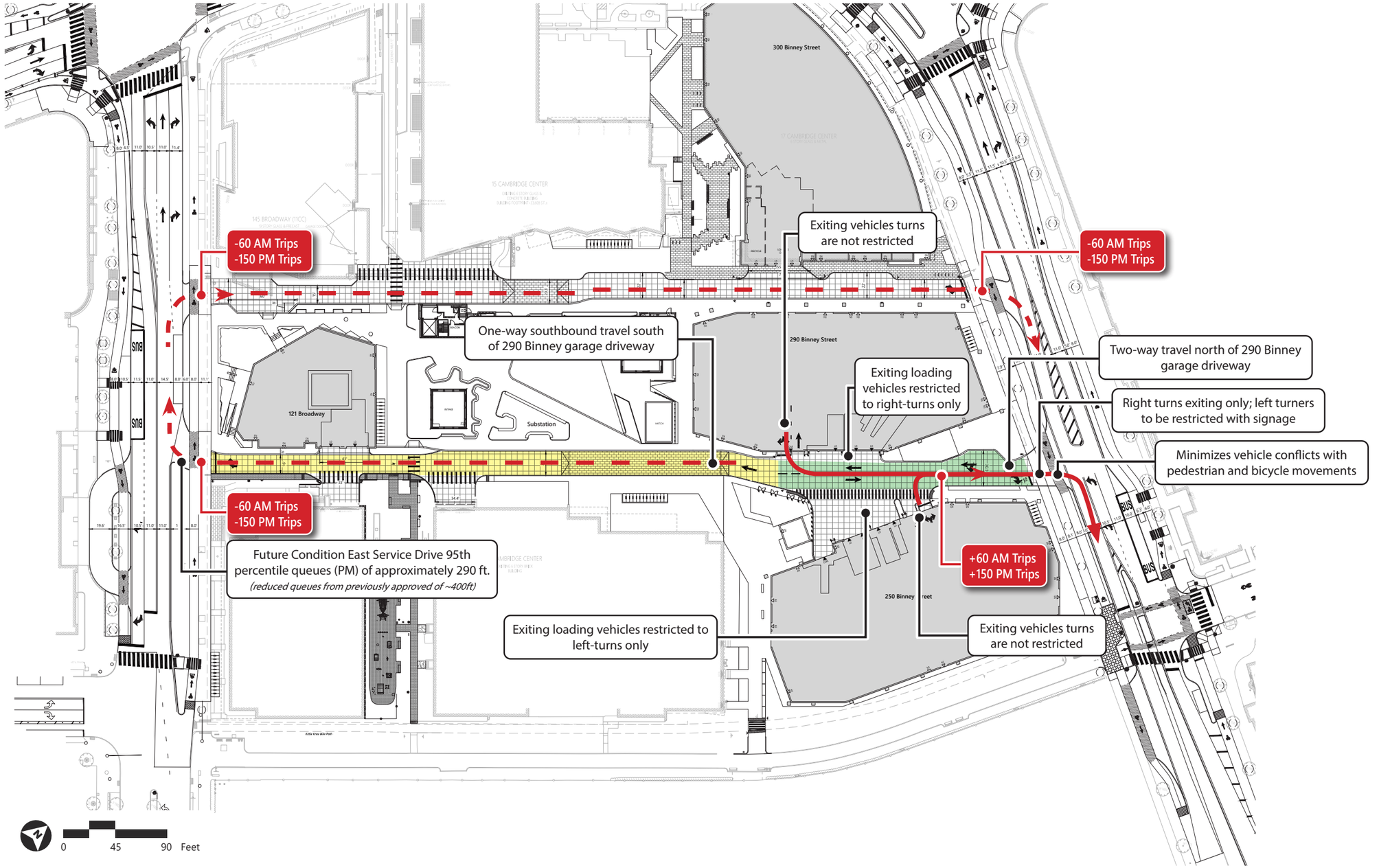


Project Parking Entrance
Project Loading Dock
Project Service Area
Exiting Vehicle route destined eastbound on Binney Street

Existing Parking Entrance
Existing Loading Dock

All service and loading will be conducted within the Project site, asscessed from existing service drives between Broadway and Binney Street.

Figure 1: 2021 Previously Approved Access/ Circulation Plan



Exiting Vehicle route destined eastbound on Binney Street

Eliminated movement to eastbound Binney Street

One-way Circulation

Two-way Circulation

Figure 2: Currently Proposed Modified Access/Circulation Plan

APPENDIX

- Updated 2021 TIS Figures

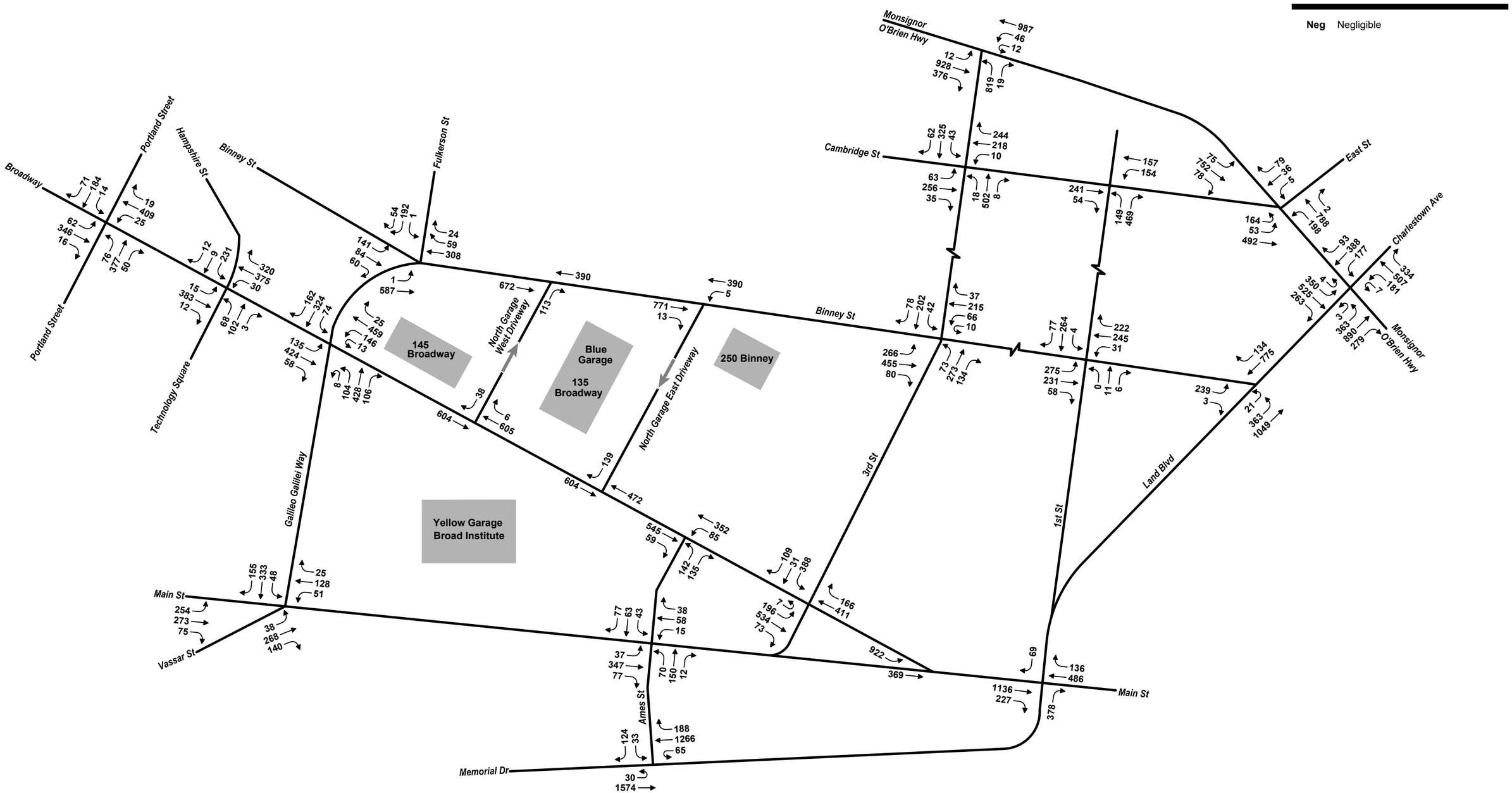
Neg Negligible

Not to Scale

Note:
Volumes from May 22, 2013 counts presented in the MIT Kendall Square TIS. Vehicle volumes were grown by 0.5 percent per year for three years to estimate the 2016 theoretical existing conditions volumes.

Figure 1.a.1

2016 Theoretical Existing Condition Vehicle Volumes
Morning Peak Hour
Kendall Square Urban Renewal Project Amendment No. 10
Cambridge, Ma



Note:
Volumes from May 22, 2013 counts presented in the MIT Kendall Square TIS. Vehicle volumes were grown by 0.5 percent per year for three years to estimate the 2016 theoretical existing conditions volumes.

Figure 1.a.2
2016 Theoretical Existing Condition Vehicle Volumes
Evening Peak Hour
Kendall Square Urban Renewal Project Amendment No. 10
Cambridge, Ma

Not to Scale

*Updated in July 2024 - Graphics are an update to the previous graphics located in the August 4, 2021 TIS Update

Project Generated Trips
Morning Peak Hour
Kendall Square Urban Renewal Project Amendment No. 11
Cambridge, MA

Figure 2.d.2

Not to Scale

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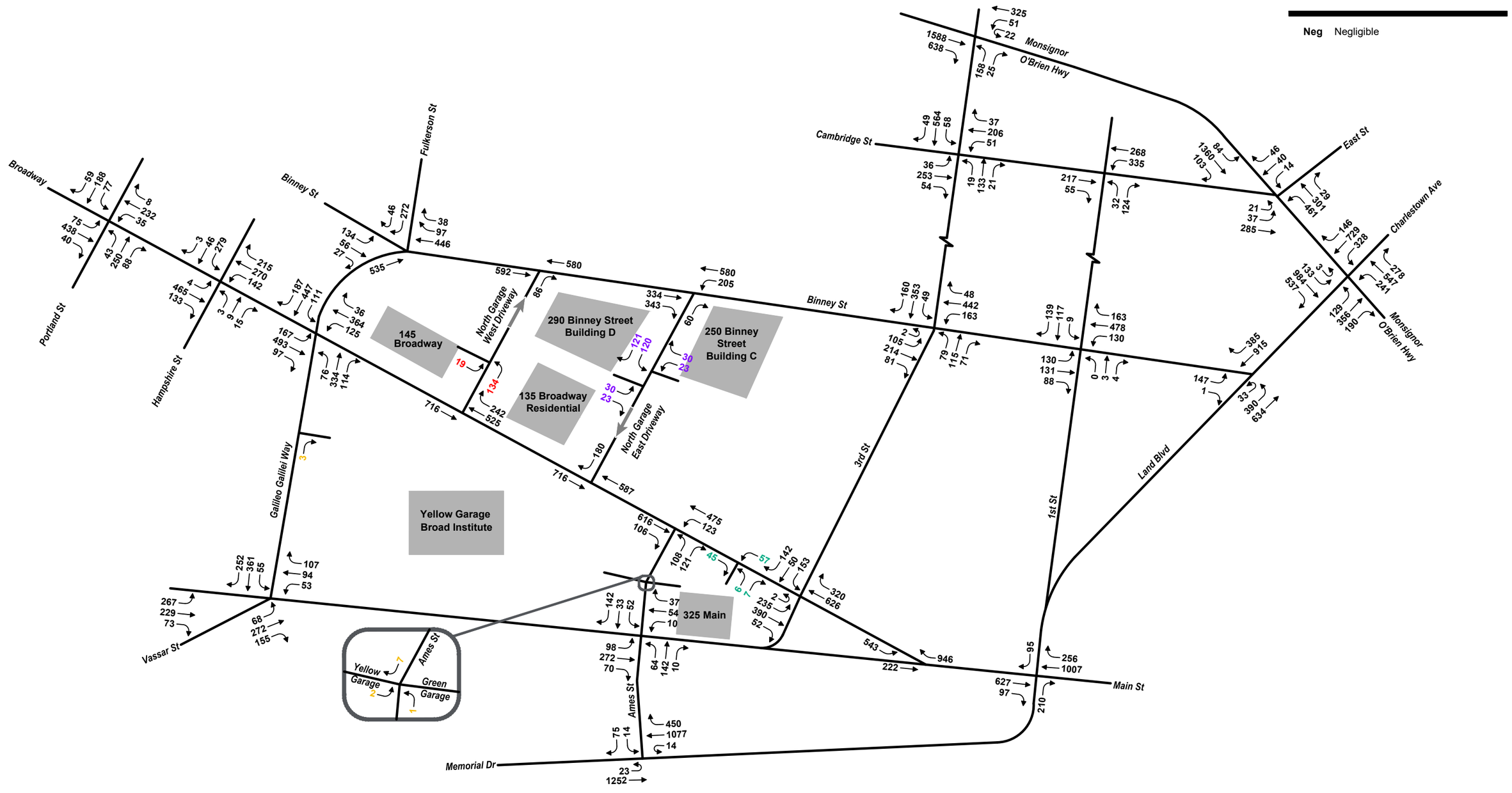
Project Generated Trips
Evening Peak Hour
Kendall Square Urban Renewal Project Amendment No. 11
Cambridge, MA

Figure 2.d.3



Not to Scale

*Updated in July 2024 - Graphics are an update to the previous graphics located in the August 4, 2021 TIS Update

2016 Updated Build Vehicle Volumes **Figure 4.c.3**
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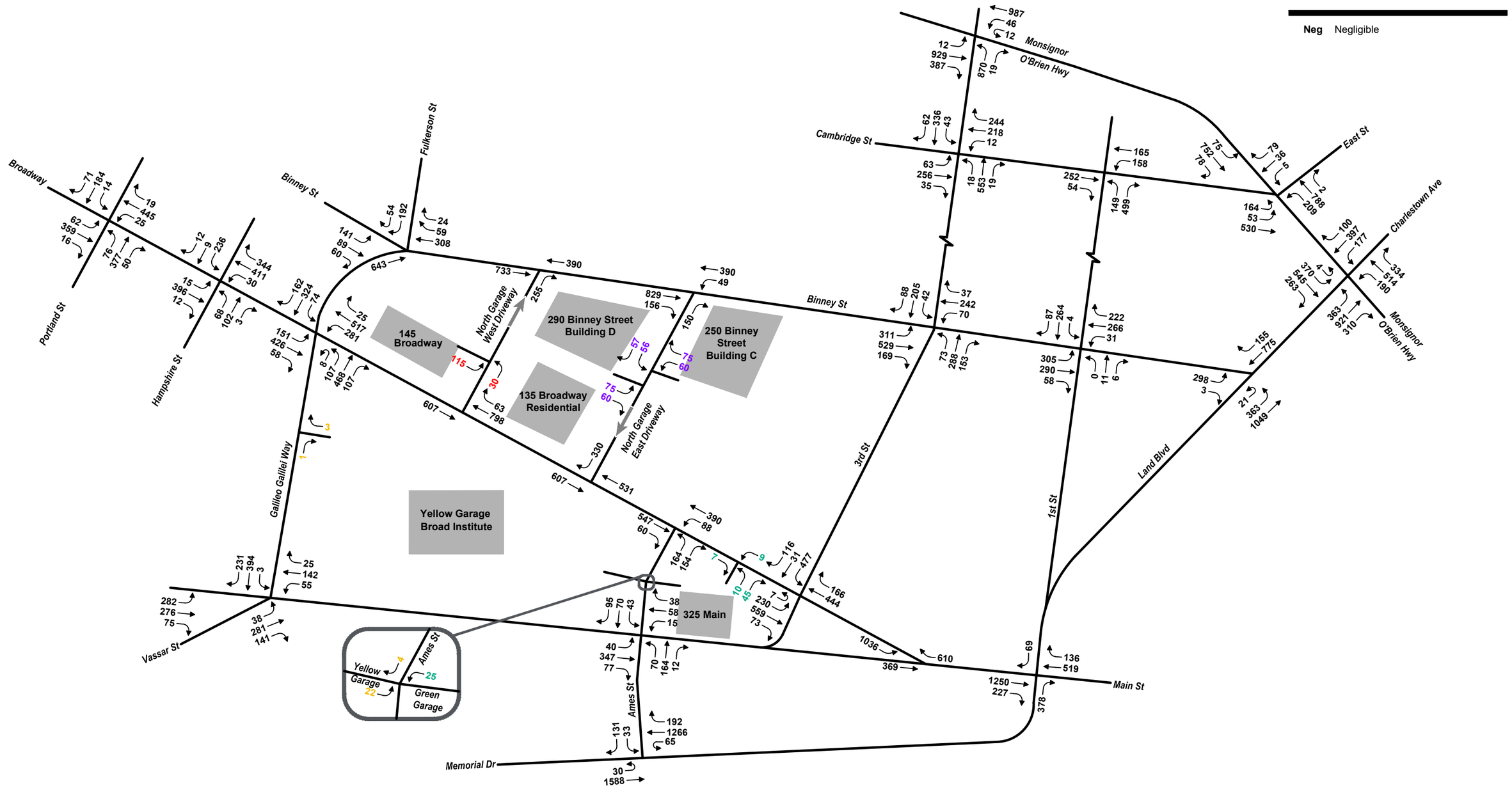
Kendall Square Urban Renewal Project Amendment No. 11
Cambridge, MA



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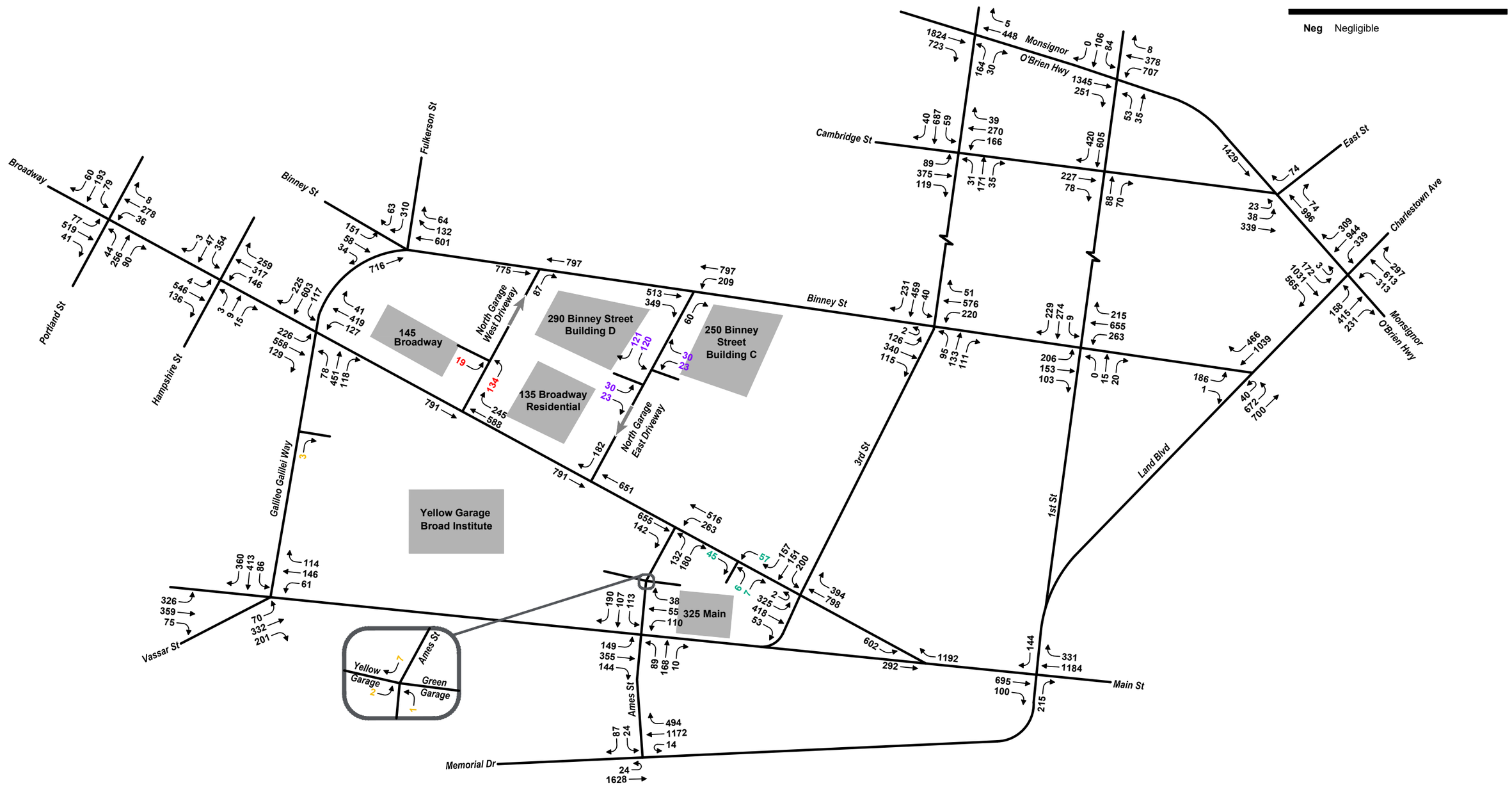
*Updated in July 2024 - Graphics are an update to the previous graphics located in the August 4, 2021 TIS Update

2016 Updated Build Vehicle Volumes **Figure 4.c.4**
Evening Peak Hour
Kendall Square Urban Renewal Project Amendment No. 11
Cambridge, MA



Not to Scale

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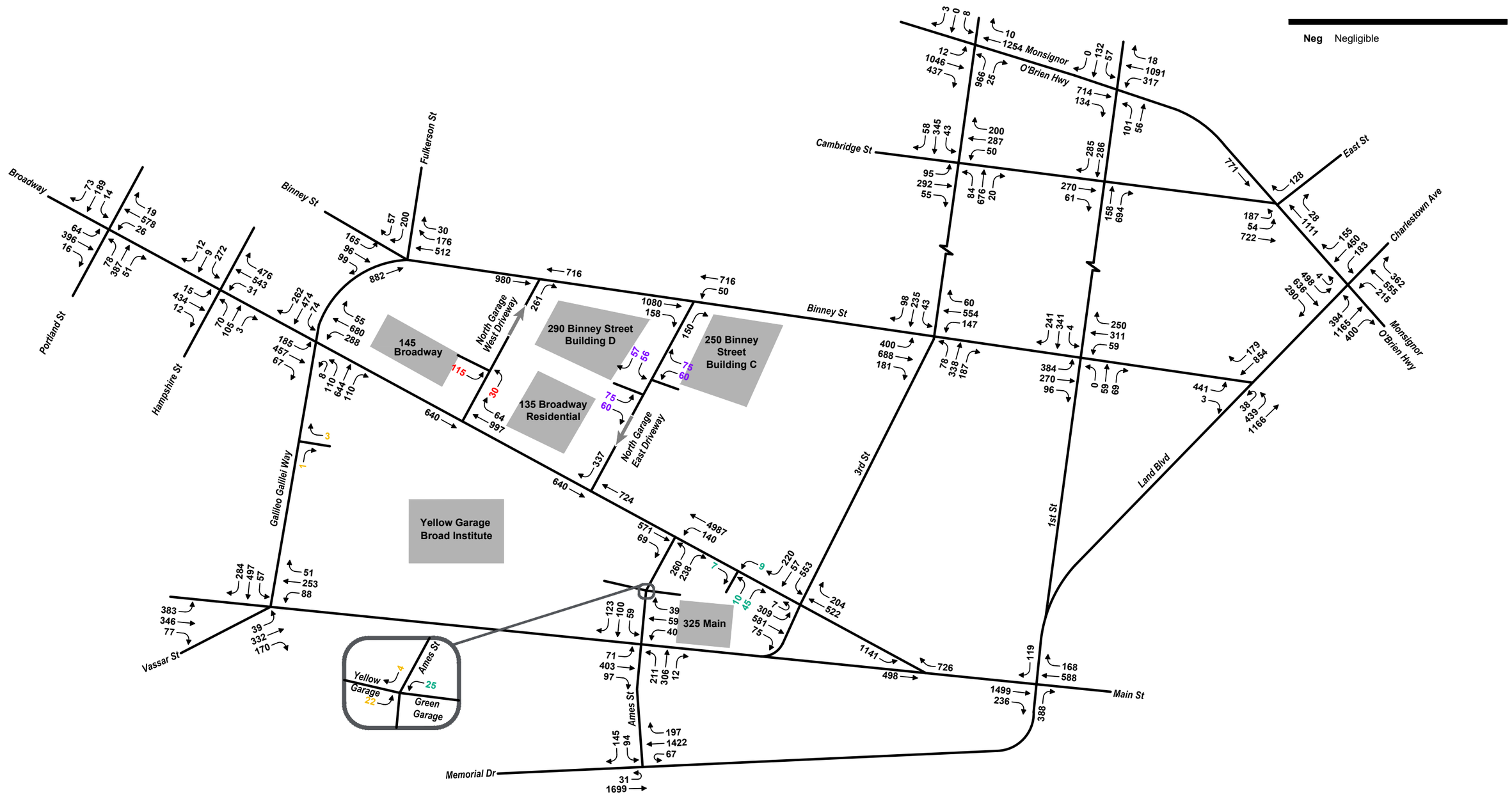
2021 Updated Future Vehicle Volumes **Figure 4.e.1**
Morning Peak Hour
Kendall Square Urban Renewal Project Amendment No. 11
Cambridge, MA



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2021 Updated Future Vehicle Volumes **Figure 4.e.2**
Evening Peak Hour
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Cambridge, MA