Garden Street Safety Improvement Project

Option 3 Analysis
One-way Impacts

Analysis performed by TOOLE DESIGN

Layout Concepts – Option 3

One-way Impacts

To understand the impacts of making Garden Street one-way, we analyzed how people currently use the corridor.

- Gathered anonymized data from smartphones and navigation devices to provide insight on travel patterns and trends
- Data represents a portion of trips and is scaled with real traffic counts to quantify impacts
- Tells us the most common areas people go after traveling along Garden Street heading westbound
- Can help us anticipate where rerouted trips could go if Garden Street were one-way

Slight modifications have been made to the analysis since it was first shown; fewer trips are anticipated to use Concord Avenue than a previously presented.

Image: Map showing a selection of affected routes

Layout Concepts – Option 3

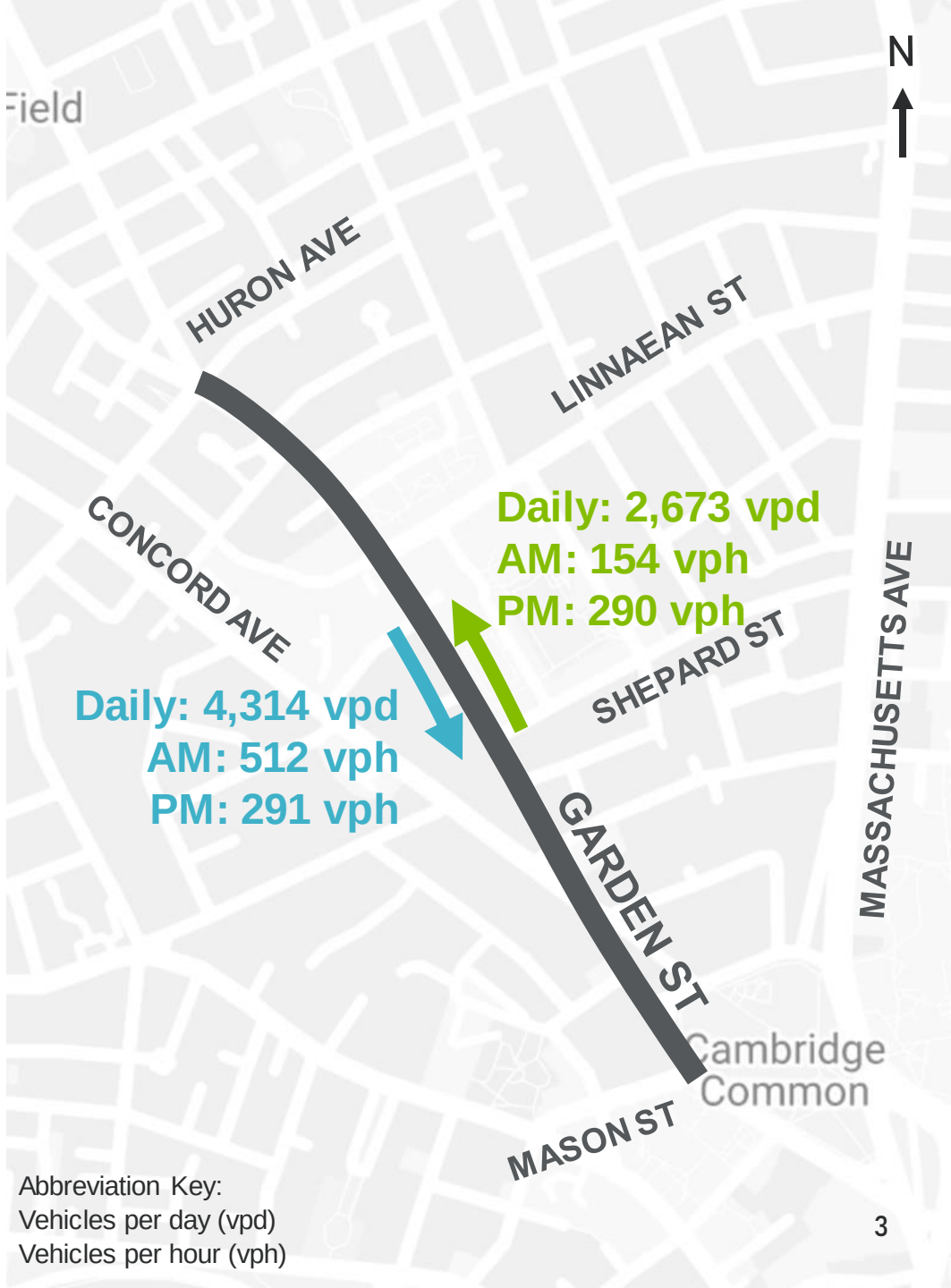
One-way Impacts

Traffic counts performed on Tuesday, June 14, 2022.

Approximately 7,000 vehicles per day use Garden Street in the project area.

- A significant percentage of vehicle traffic is headed eastbound, making westbound the preferred direction to reroute
- Peak hour trips represent the maximum number of vehicles per hour that would need to be rerouted

Garden Street Peak Hour Vehicle Traffic (vehicles per hour)		
	Westbound	Eastbound
Morning (8-9 A.M.)	154	512
Evening (4:30-5:30 P.M.)	290	291



Abbreviation Key:
Vehicles per day (vpd)
Vehicles per hour (vph)

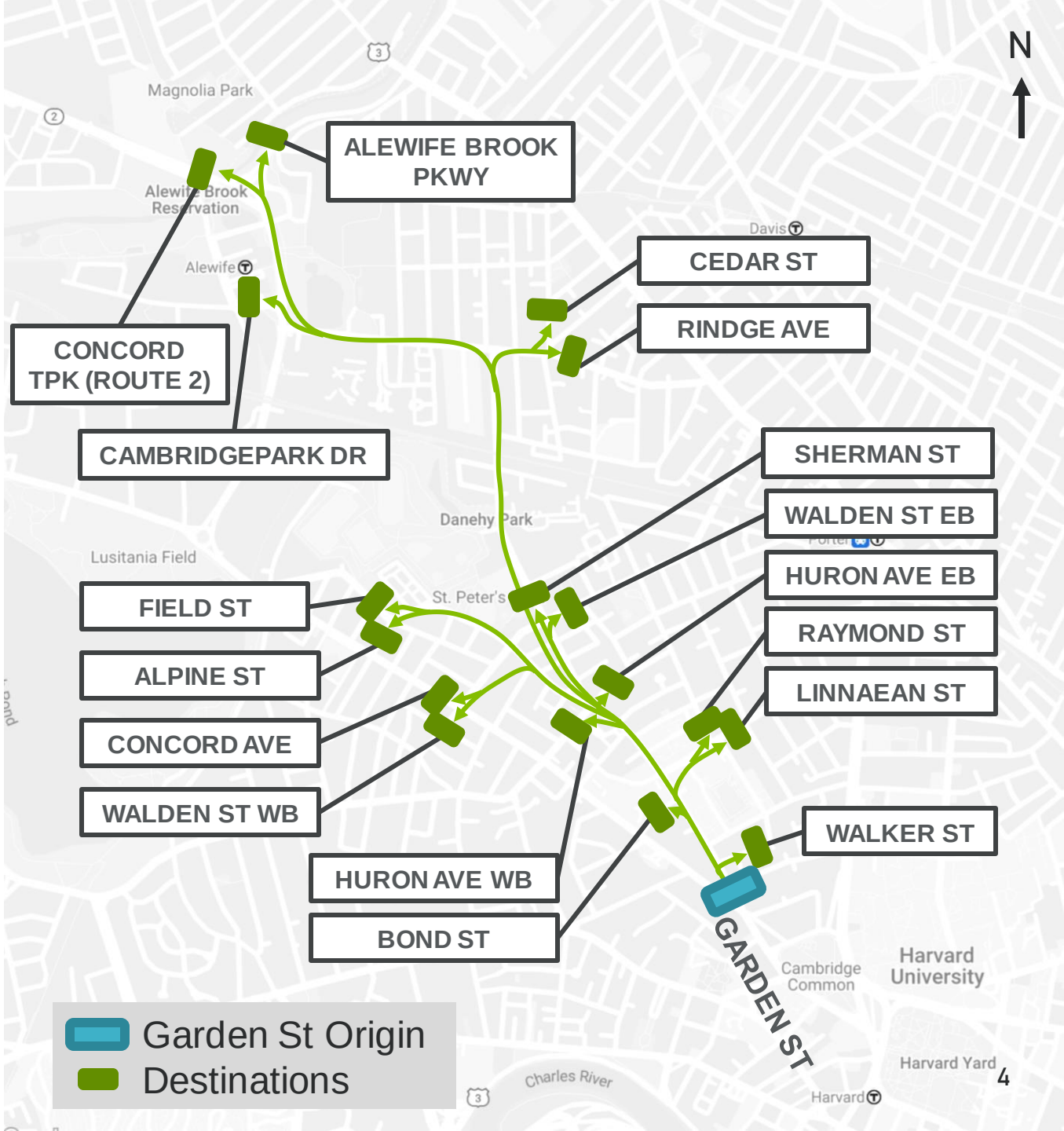
Layout Concepts – Option 3

One-way Impacts

Local Origin-Destination Study

Analysis tracked trips starting at Garden Street near Concord Avenue (blue box) and passing through the green destination boxes.

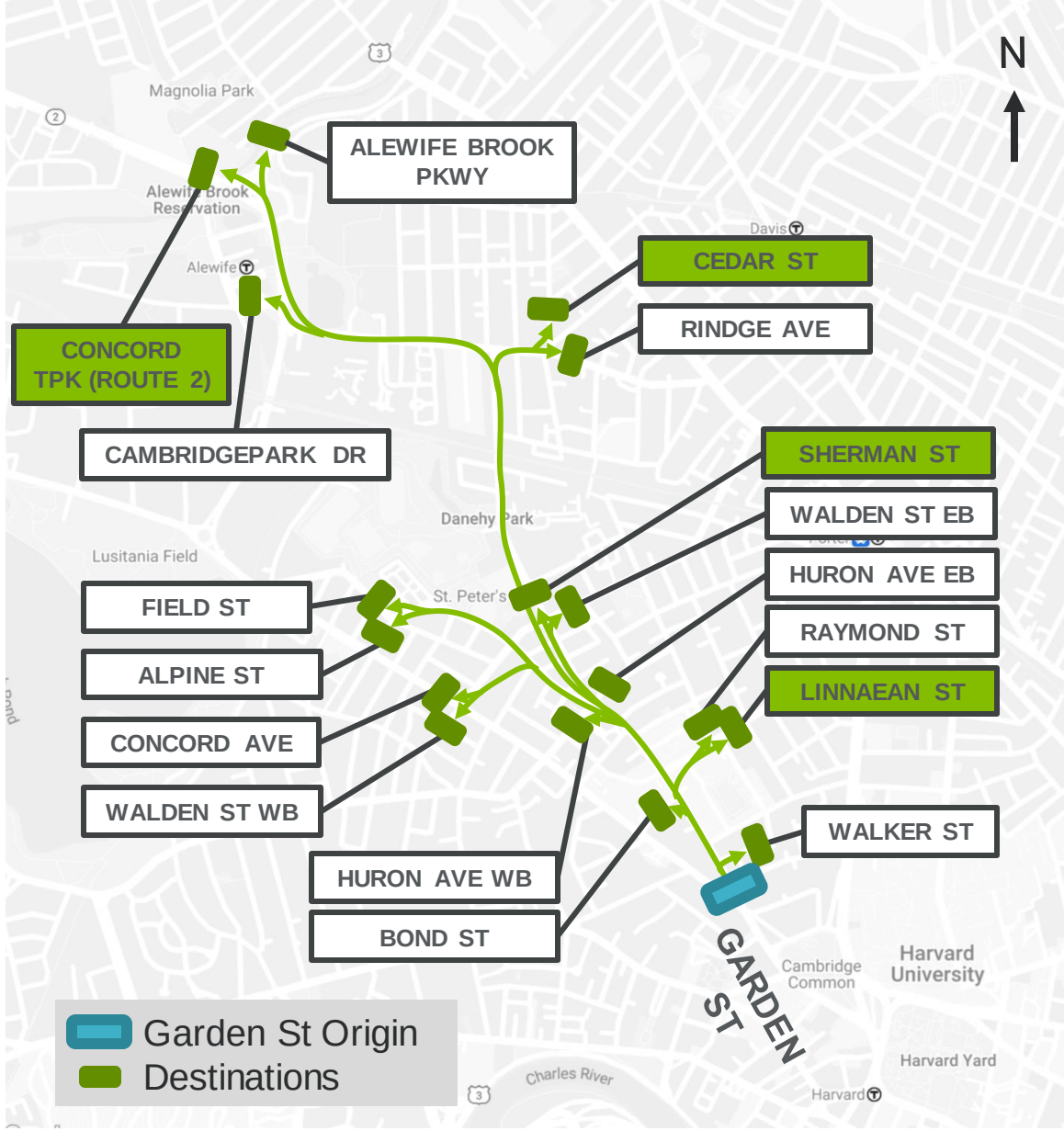
These trips can most easily take alternative routes westbound and are the easiest travel patterns to predict.



Layout Concepts – Option 3

One-way Impacts

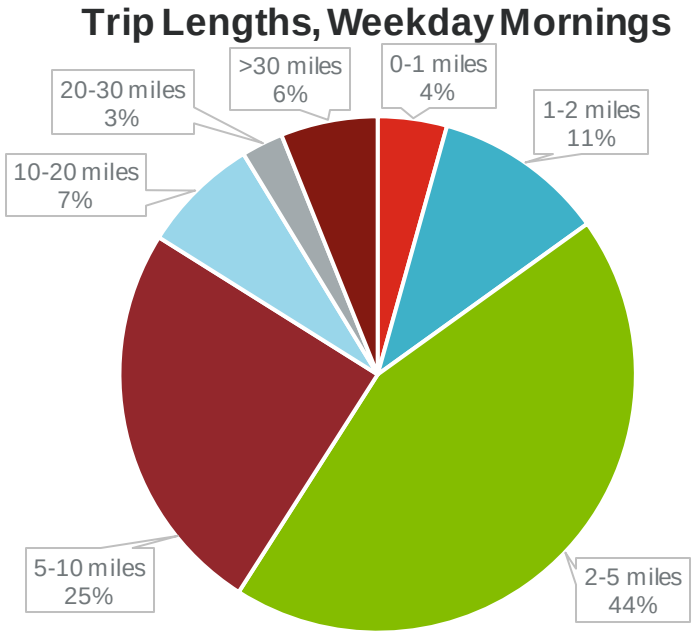
	Morning Peak Period (7-9 A.M.)		Evening Peak Period (4-6 P.M.)	
Destination	**% of WB Traffic**	**vph**	**% of WB Traffic**	**vph**
Alpine St	1%	1	3%	7
Alewife Brook Pkwy	0%	0	0%	0
Bond St	0%	0	1%	3
Cambridgepark Dr	1%	2	0%	1
Cedar St	**9%**	14	3%	9
Concord St	1%	2	3%	9
Field St	3%	5	4%	12
Huron Ave EB	0%	0	1%	4
Huron Ave WB	0%	0	0%	0
Linnaean St	**23%**	35	5%	14
Raymond St	5%	7	3%	10
Rindge Ave	4%	6	1%	3
Route 2	0%	0	**22%**	64
Sherman St	**35%**	54	**13%**	36
Walden St EB	0%	0	2%	7
Walden St WB	0%	0	0%	0
Walker St	3%	5	3%	8
Total (up to)	**85%**	**131**	**64%**	**186**

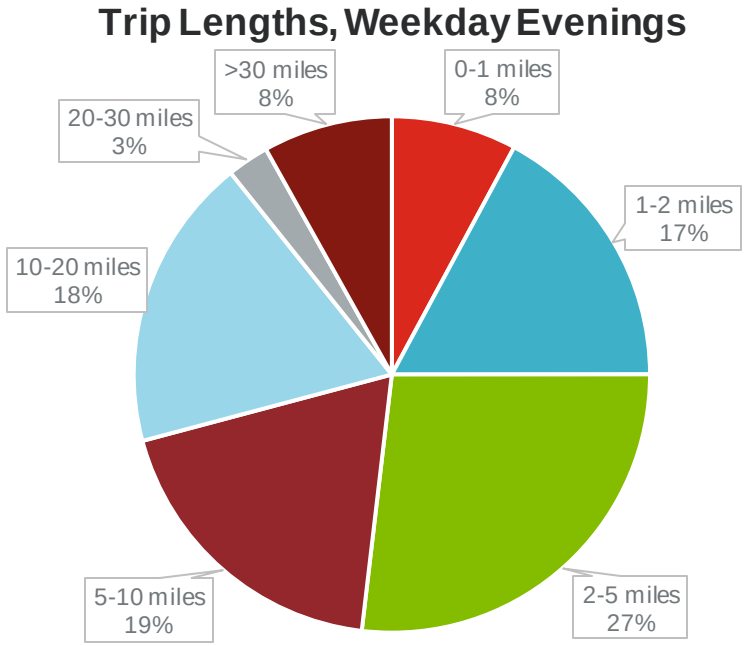


Trips passing through two destination gates may be double counted
Values represent the upper bound of WB Garden St traffic tracked in study

Layout Concepts – Option 3

One-way Impacts





Peak Period	Trips <5 miles in length	Trips <30 minutes in length
Morning (7-9 A.M.)	59%	33%
Evening (4-6 P.M.)	52%	34%

The majority of trips along Garden Street are short, less than 5 miles in length.

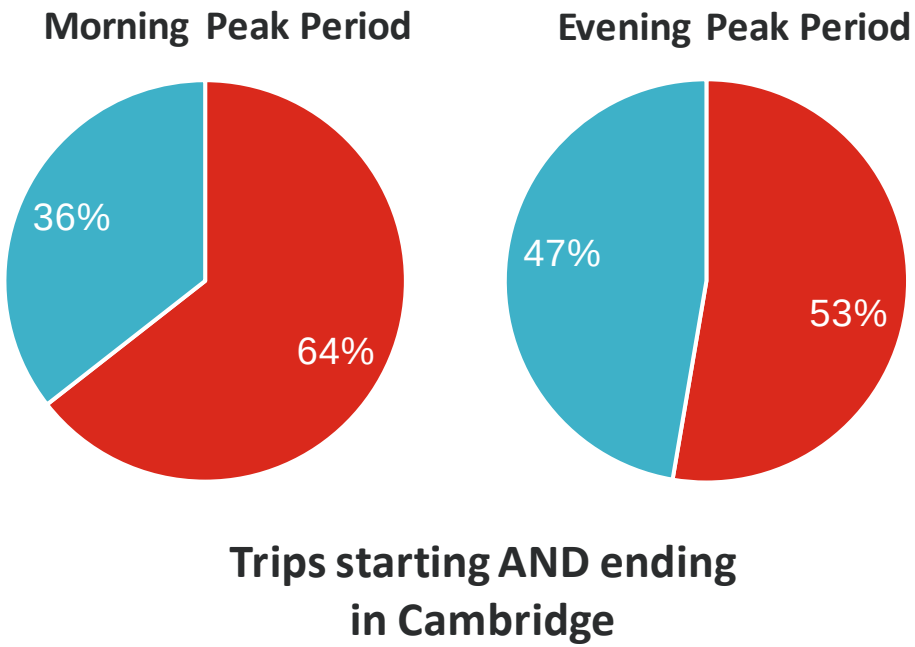
Layout Concepts – Option 3

One-way Impacts

Over half of the trips along Garden Street start and end in Cambridge

A higher proportion of morning trips than evening trips start and end in Cambridge

Metrics are consistent with typical trip lengths along Garden Street



Layout Concepts – Option 3

One-way Impacts

Concord Ave peak hour impacts

Morning: 10 vehicles per hour*
(<1 extra per min.)

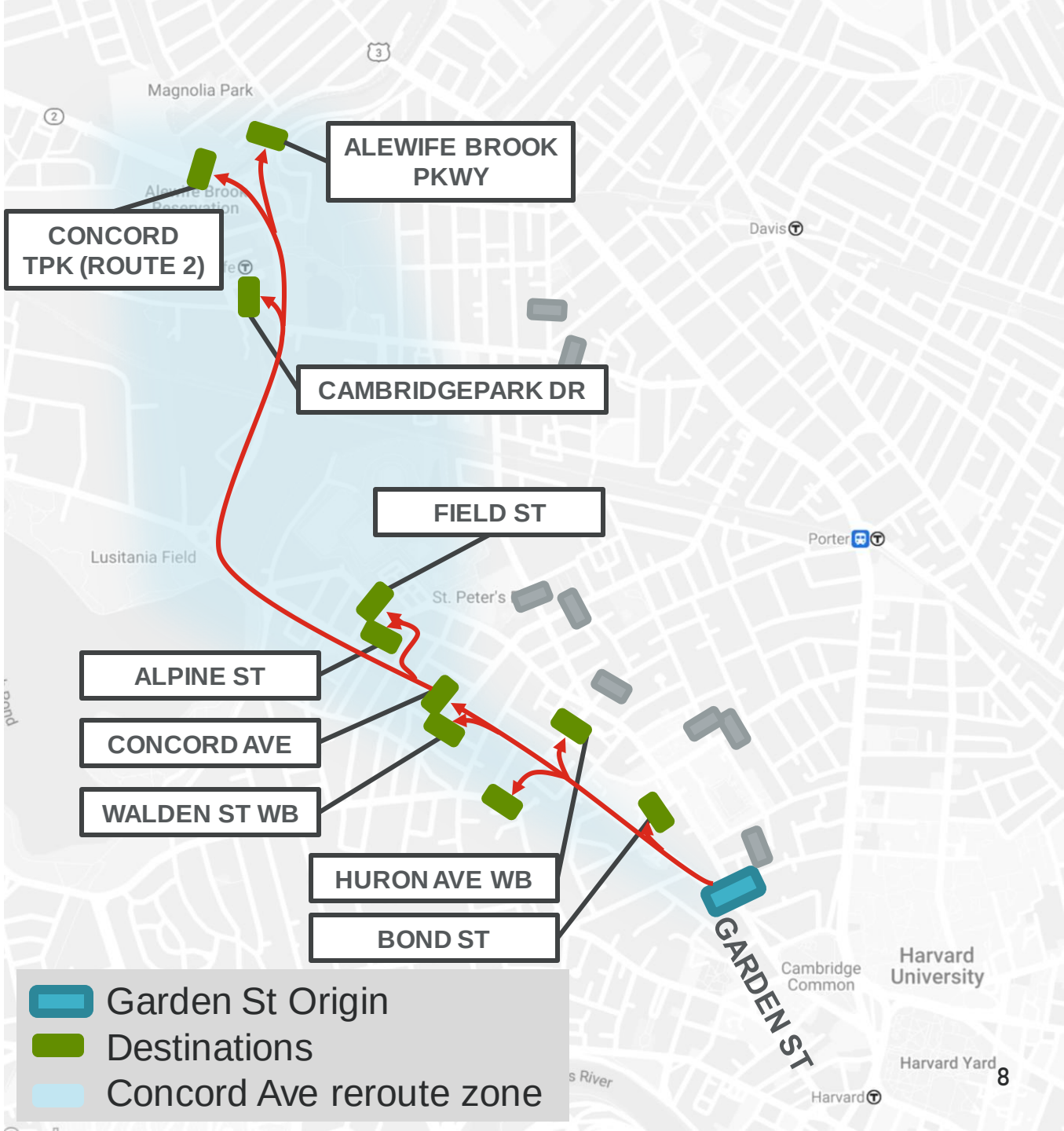
Evening: 95 vehicles per hour*
(1-2 extra per min.)

Peak hour trips represent the maximum number of vehicles per hour that would need to be rerouted.

Longer regional trips may avoid the Garden Street area altogether, decreasing these impacts

*Approximate values

Trips passing through two destination gates may be double counted
Values represent the upper bound of WB Garden St traffic tracked in study



Layout Concepts – Option 3

One-way Impacts

Massachusetts Ave peak hour impacts

Morning: 121 vehicles per hour*
(2 extra per min.)

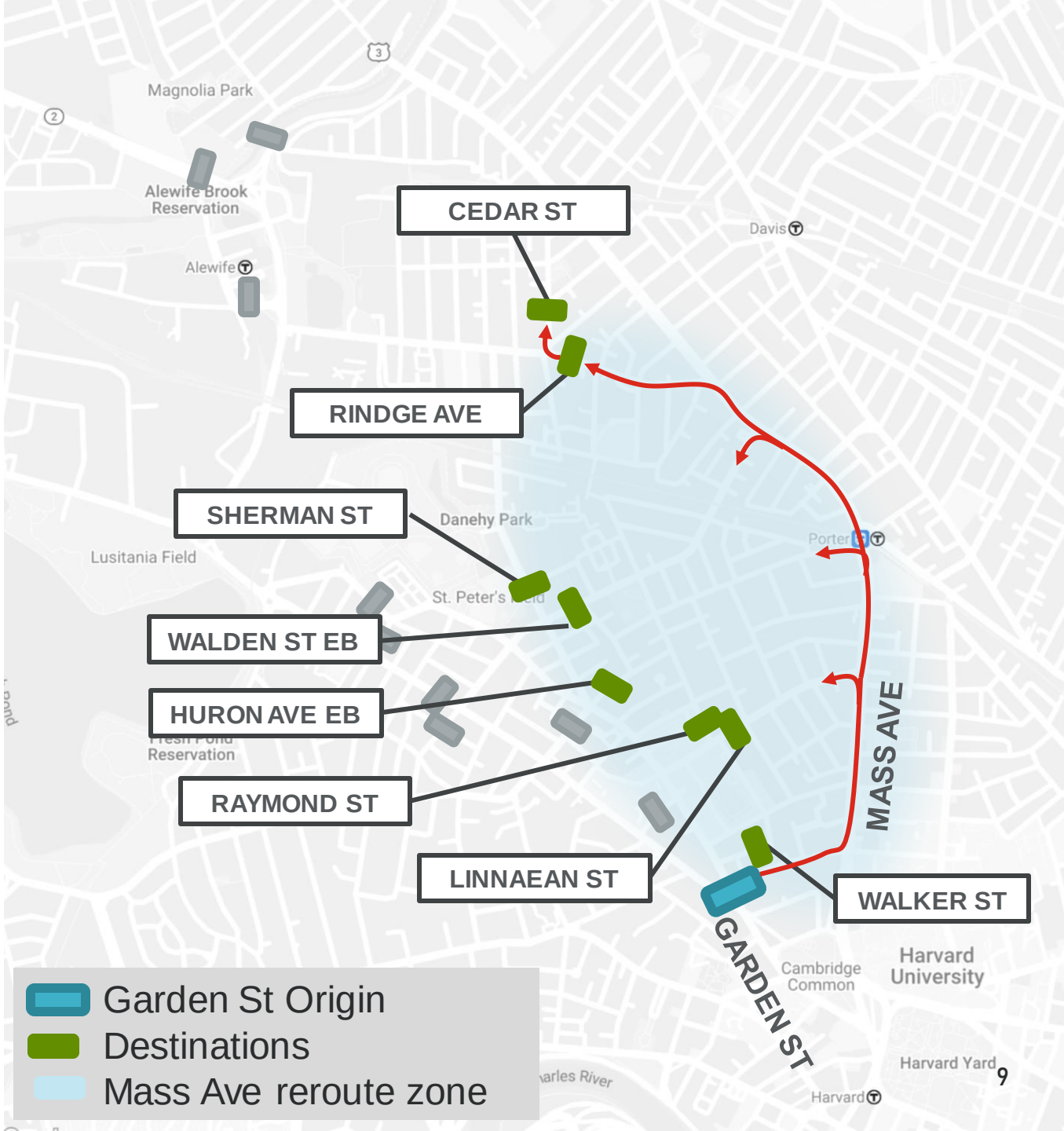
Evening: 91 vehicles per hour*
(1-2 extra per min.)

Peak hour trips represent the maximum number of vehicles per hour that would need to be rerouted.

Longer regional trips may avoid the Garden Street area altogether, decreasing these impacts

*Approximate values

Trips passing through two destination gates may be double counted
Values represent the upper bound of WB Garden St traffic tracked in study



Layout Concepts – Option 3

One-way Impacts

85% of morning peak trips and 64% of evening peak trips were to destinations outside the project area (passed through a green box).

Approx. 23 (A.M.) and 104 (P.M.) vehicle trips per hour did not match to outside destinations (green boxes) and are likely local trips on or along Garden Street. They could use the local street network to get to their destination.

Summary:

WB Garden Street Volume	A.M. Peak (vph)	P.M. Peak (vph)
Existing (from traffic count)	**154**	**290**
Rerouted along Concord Avenue	10	95
Rerouted along Massachusetts Avenue	121	91
Remaining local street network	23	104

vph = vehicles per hour

Longer regional trips may avoid the Garden Street area altogether, decreasing these impacts