



Groton

Mobility Study



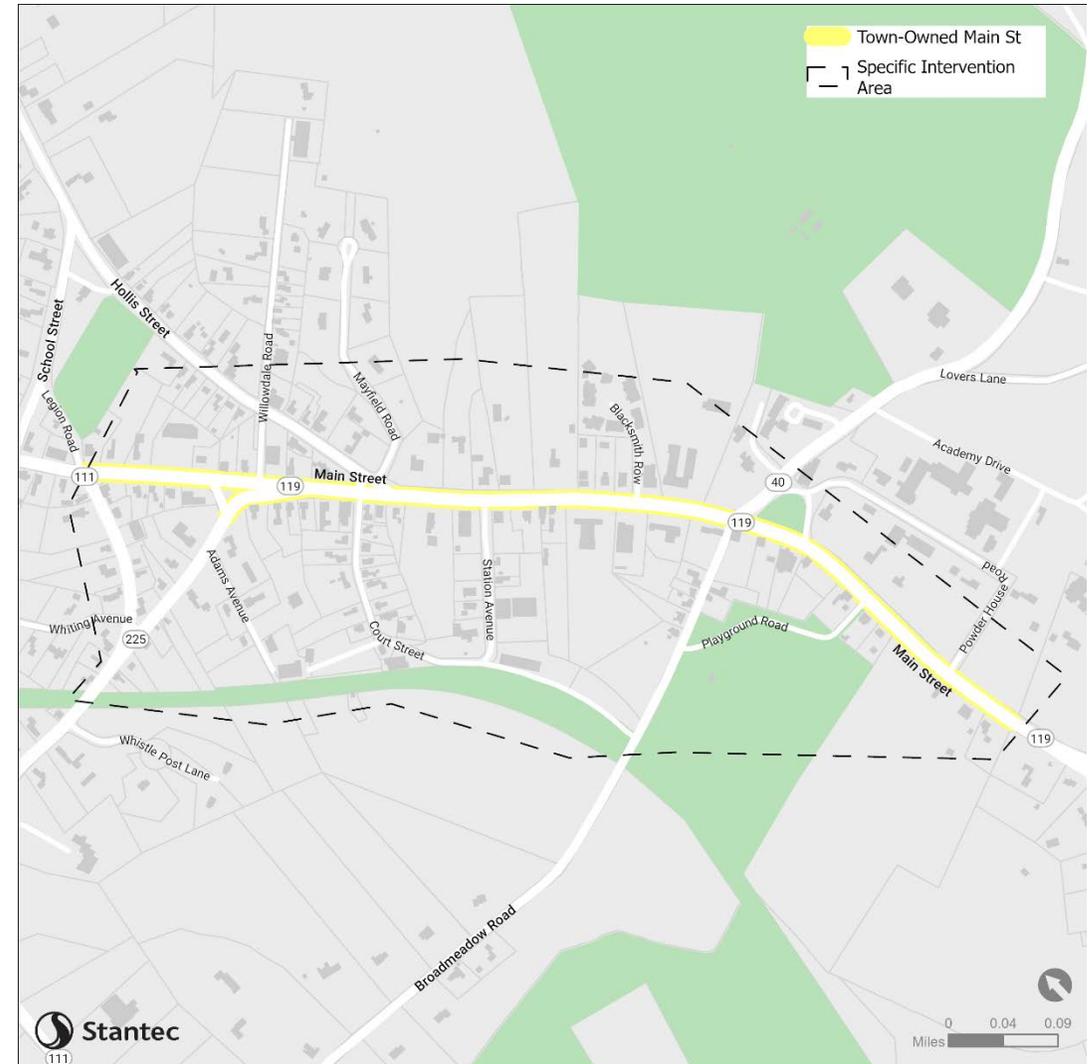


Project Scope

Groton Mobility Study

The Groton Mobility Study sought to provide several potential mobility solutions for Main Street and its surrounding area, concentrated in and around the Town-owned section of the street from Old Ayer Road in the south to Legion Road/Elm Street in the north. The Study was broken into five distinct tasks:

1. **Project Initiation** – define study area and goals
2. **Travel Flow Evaluation** – baseline conditions assessment
3. **Best Practice Solutions and Development** – generate potential mobility solutions
4. **Evaluation Matrix** – evaluate solutions
5. **Cost Estimate and Implementation** – mapping and timeline





Project Goals

Groton Mobility Study

- Identify **current problems** in Groton's transportation network and infrastructure
- Improve the **safety** and **connectivity** of Groton's transportation network and infrastructure through best-practice solutions
- Increase Groton's **sustainability** by supporting alternatives to vehicle travel like walking, cycling, and public transit
- Improve the **resiliency** of Groton's infrastructure, especially against climate change
- Support **sustainable growth** that preserves Groton's character while encouraging local businesses and residents



Retail Leakage Study
Groton Massachusetts
January 2024

PLANNING COMMISSION



Walkability Report

2024



Town of Groton
Master Plan
Final Draft Report

November 2024



Project Engagement

Groton Mobility Study

Focus group discussions were held with representatives of various Town departments and Downtown merchants on March 21, 2025. Feedback from these sessions highlighted:

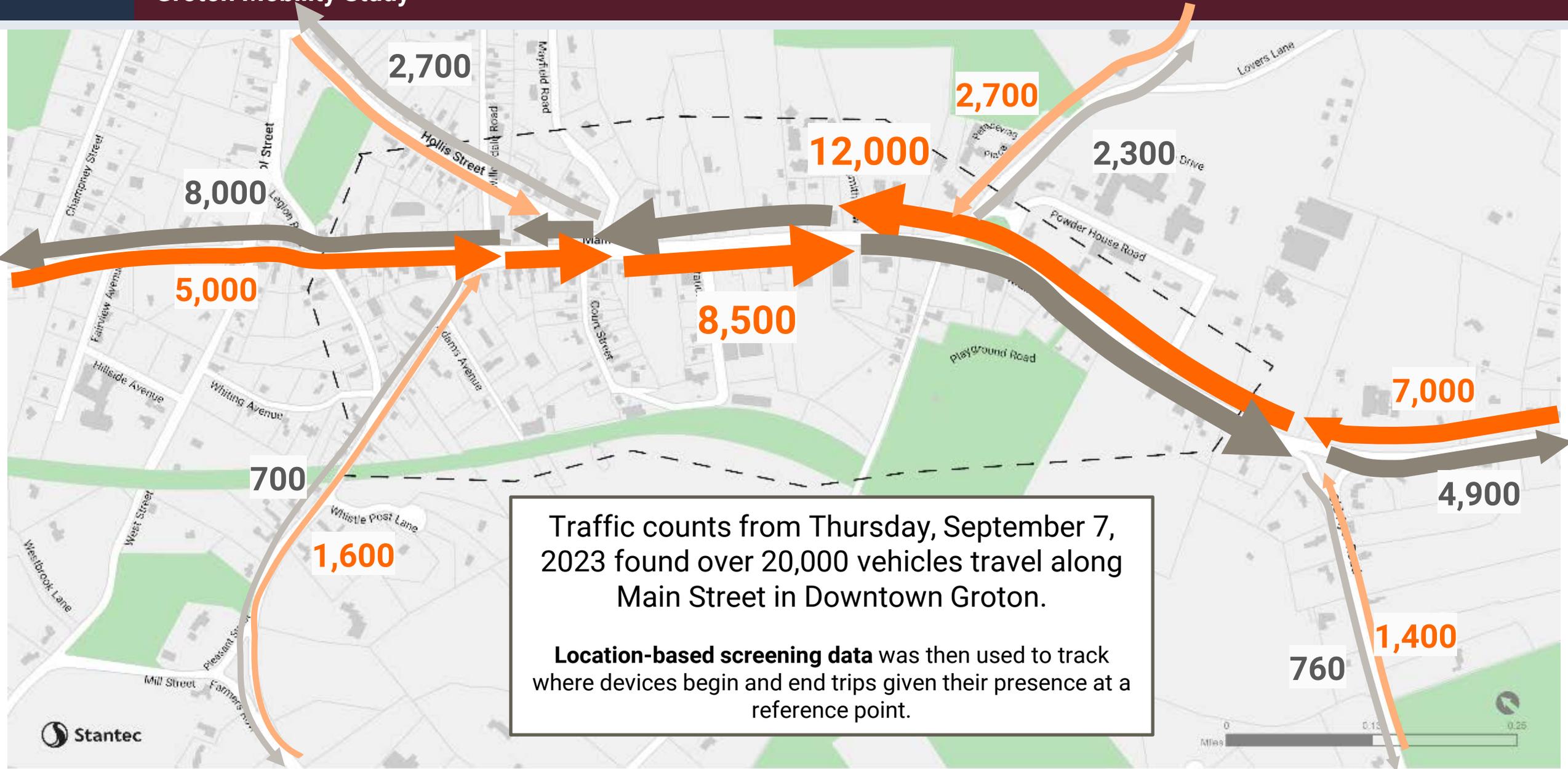
- Main Street acts as a cut-through to Rt. 495 for nearby towns
- There is a perception of heavy truck traffic and speeding on Main Street
- Failure to yield to pedestrians is a primary concern of the Police Department
- The presence of school children elevates the need for pedestrian safety
- Lowell Street is a particularly challenging side street to access Main Street from
- Motorists have difficulty turning left or right out of curb cuts
- There is little off-street parking; customers often don't know where to park their vehicles

Further engagement was conducted at a July 9, 2025 meeting with select Town committees to overview the Study's findings.



Daily Flow Data

Groton Mobility Study



Traffic counts from Thursday, September 7, 2023 found over 20,000 vehicles travel along Main Street in Downtown Groton.

Location-based screening data was then used to track where devices begin and end trips given their presence at a reference point.



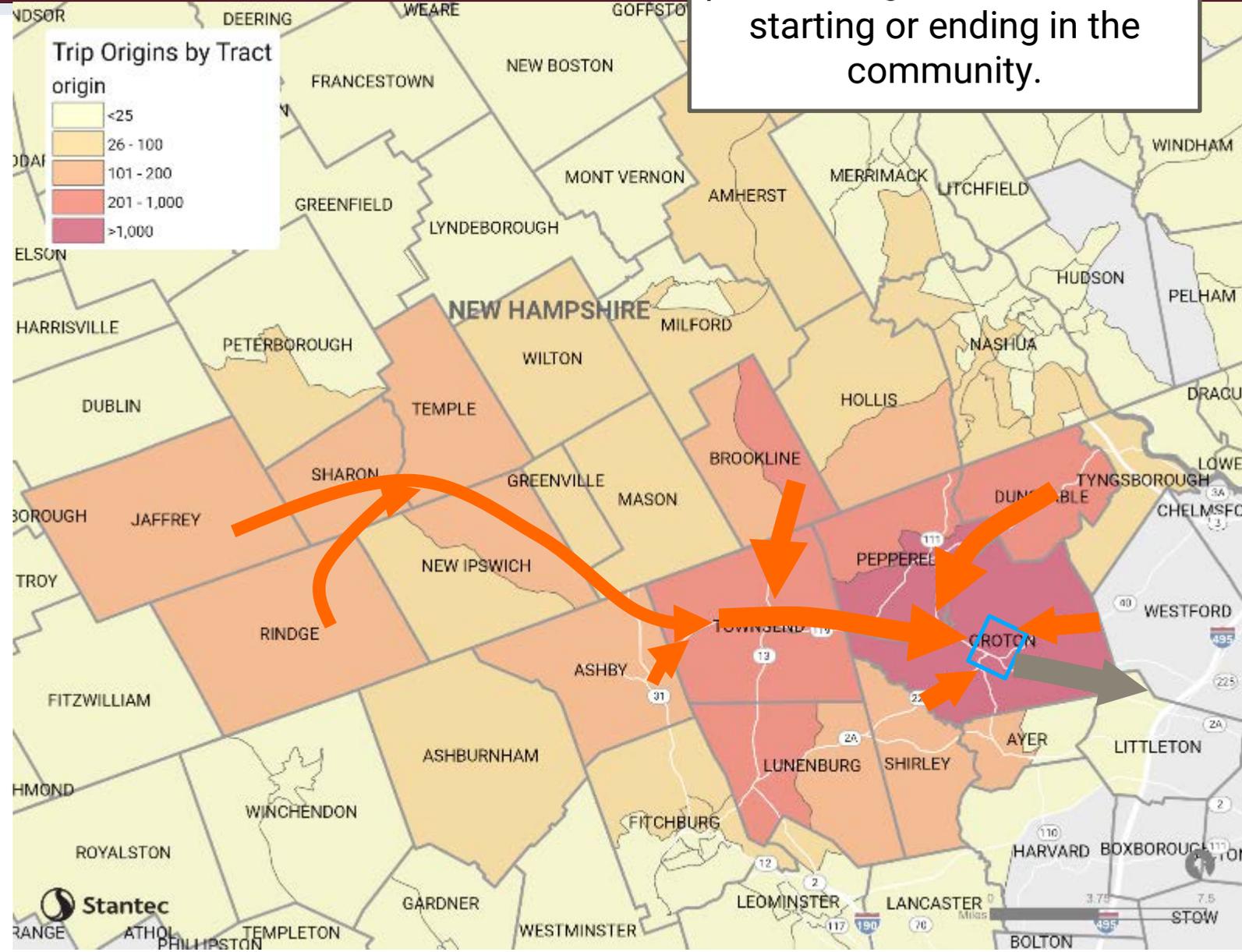
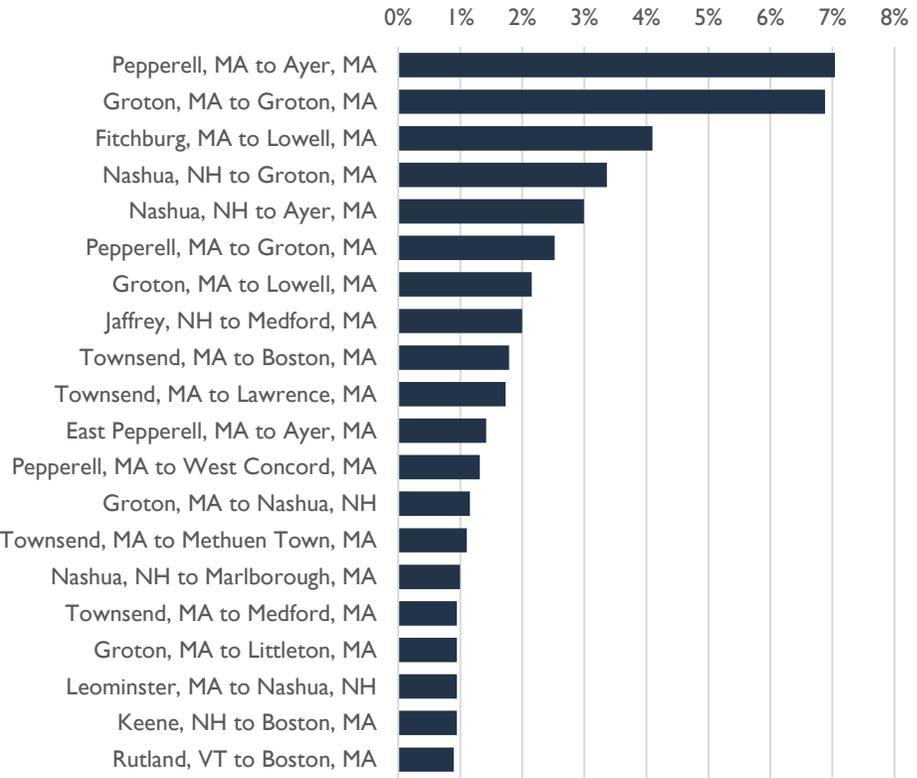
LBS Data: Groton Center Southbound

Groton Mobility Study

60% of southbound trips pass through Groton, without starting or ending in the community.

Where do the cars heading **south** on Main Street come from?

Top 20 Origin-Destination Pairs by Percentage of Total Trips, Main St Southbound





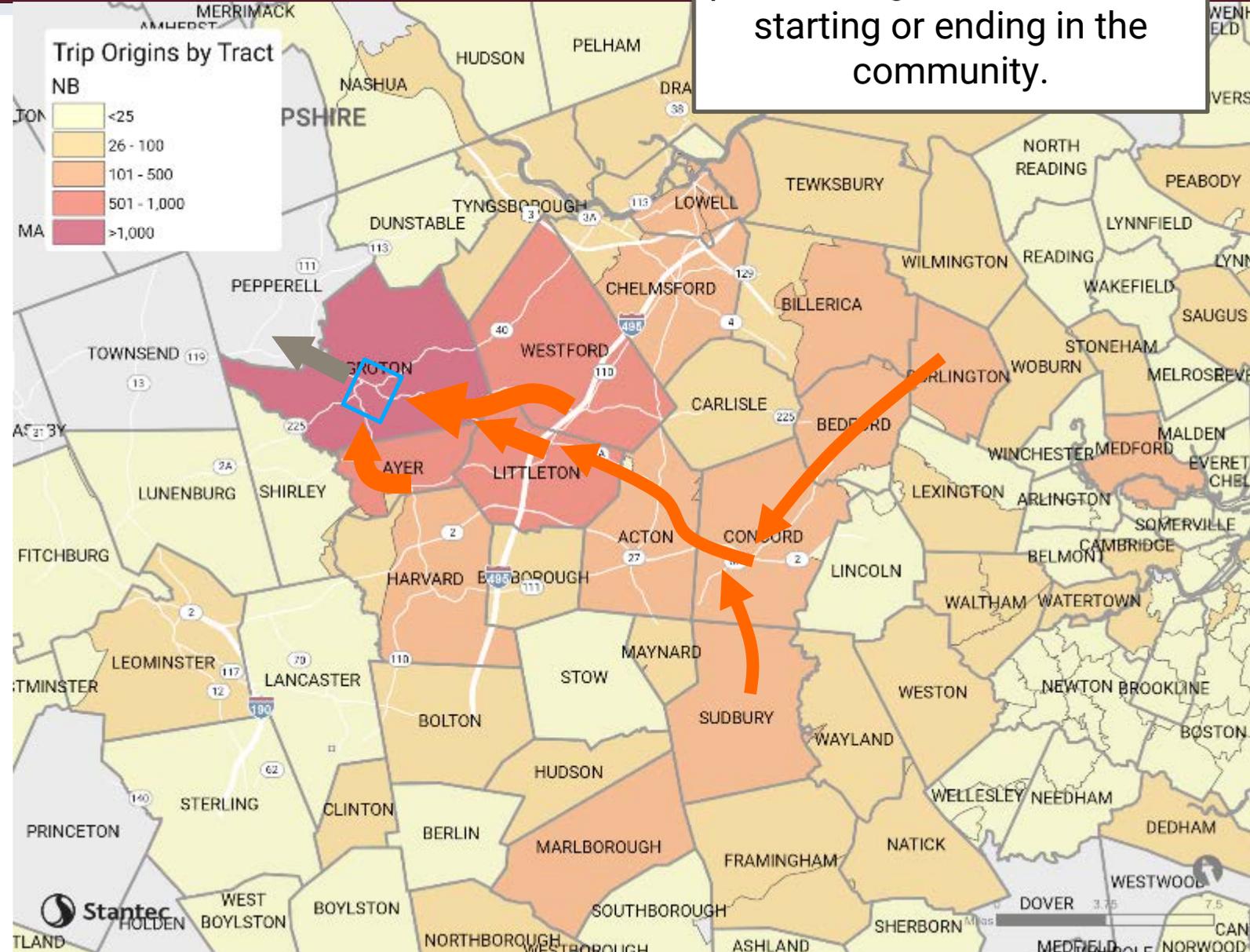
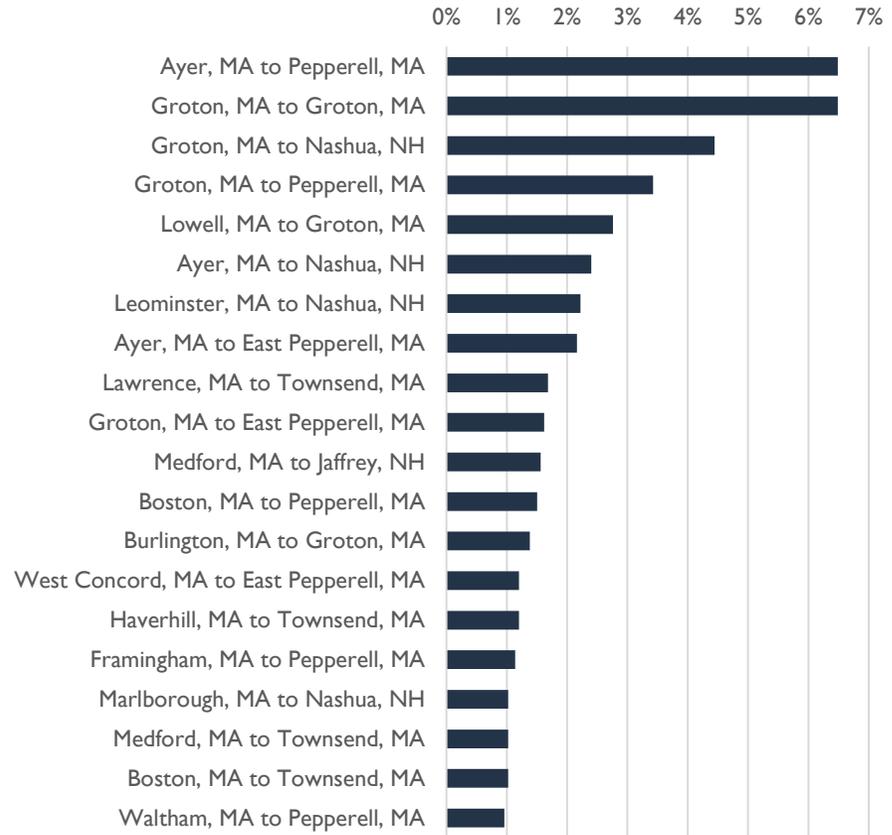
LBS Data: Groton Center Northbound

Groton Mobility Study

56% of northbound trips pass through Groton, without starting or ending in the community.

Where do the cars heading north on Main Street come from?

Top 20 Origin-Destination Pairs by Percent of Total Trips, Main St Northbound





Lane Widths

Groton Mobility Study

Lane widths above 10-feet encourage speeding. 12-foot lanes, observed along much of Main Street, are appropriate for 45mph+ arterials per MassDOT.

The absence of lined parking spaces often creates the appearance of wider travel lanes.

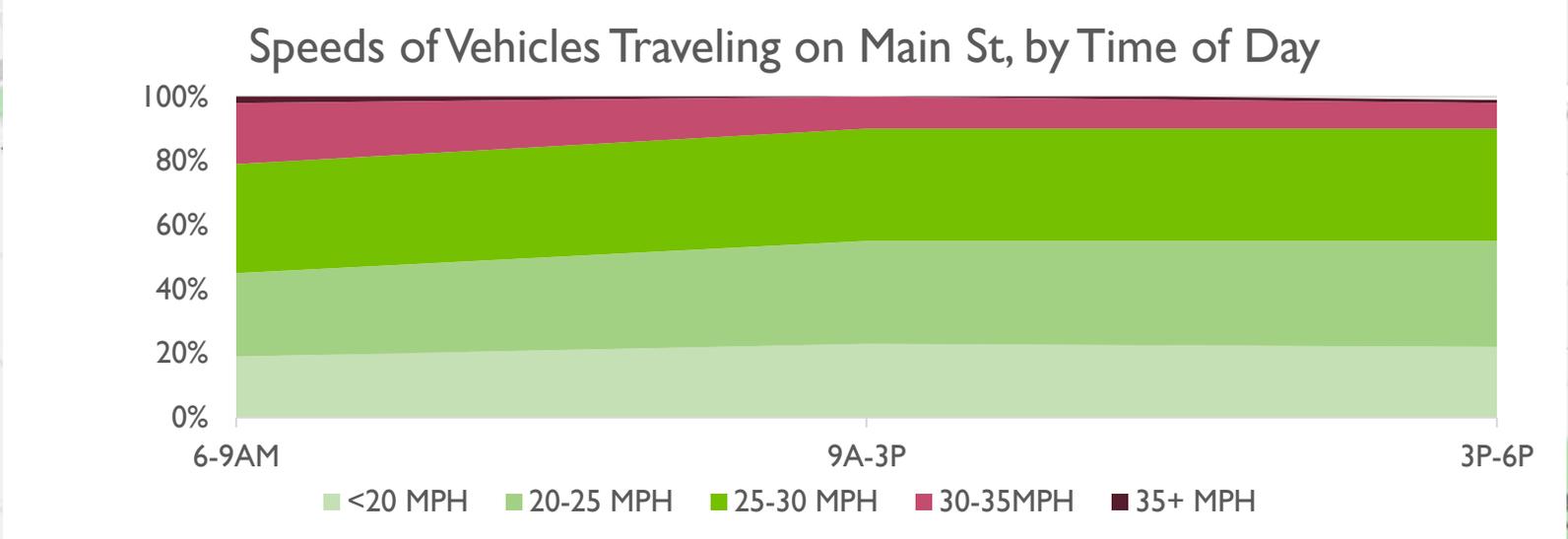




Crashes and Speed

Groton Mobility Study

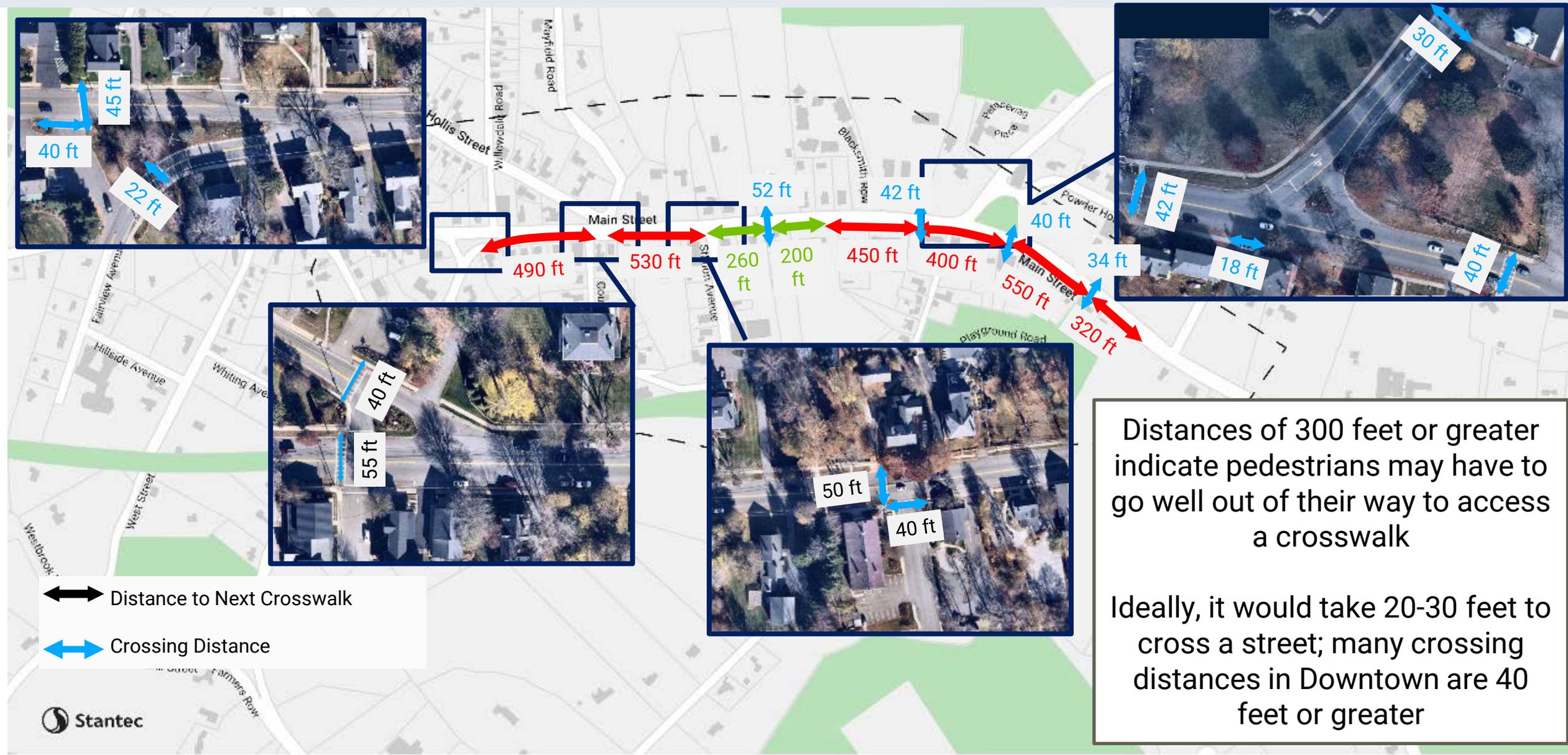
50-60% of vehicles travel faster than 25 mph





Pedestrian Conditions

Groton Mobility Study





Curb Cuts along Main Street

Groton Mobility Study

Frequent and especially long curb cuts reduce pedestrian comfort & safety
Pedestrian exposure distance exceeds 40' in many instances (driveways ideally should not exceed 24')





Sample of Challenges – Multimodal Travel

Groton Mobility Study



Excessive distances between crossings



Absence of crosswalks



Outdated infrastructure



Presence of heavy vehicles



Excessive curb cuts (MRPC)



Wide travel lanes encouraging speeding





Multimodal Travel – Potential Targeted Solutions

Groton Mobility Study

Lane Width Reduction

Figure 15: Downtown C Street with Traffic Diversion: Existing Design (left) vs. Proposed Design (right)



Figure 16: Bike Lanes at Yosemite Ave Between Lyons St & Mace St: Existing Design (left) vs. Proposed Design (right)



Figure 12: S.R. 10 (U.S. 90) Monticello, Jefferson County; FDOT Lane Repurposing Guidebook, 2020

1 S-7 SR 10 (US 90) Existing Typical Section

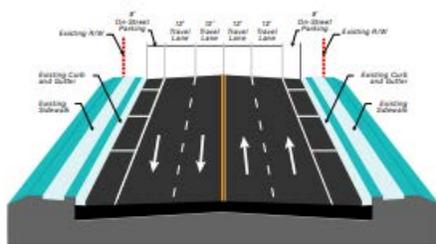
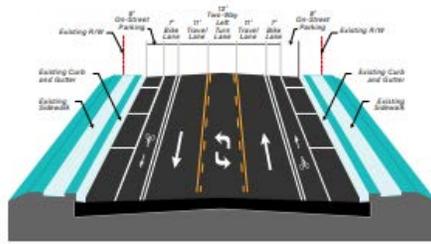
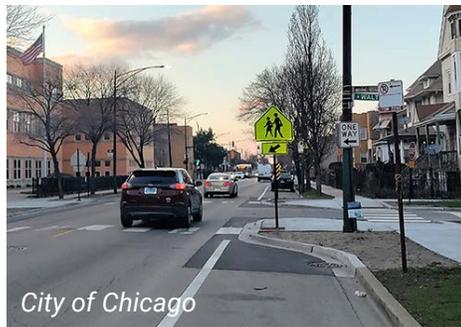


FIGURE 5-8 SR 10 (US 90) Proposed Typical Section



Source: SR 10 (US 90) Lane Elimination Request FFD 439729-1

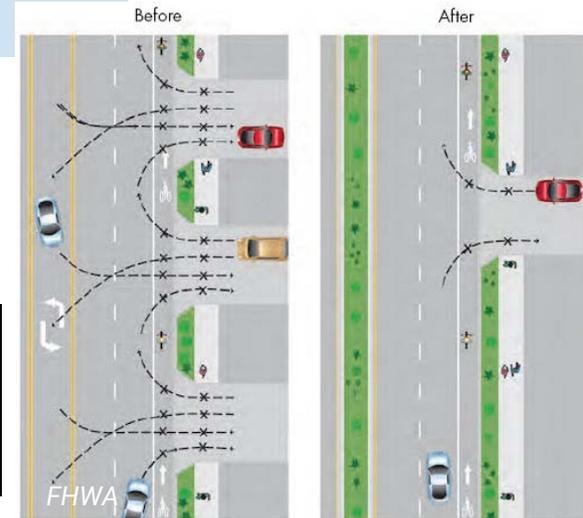
Bumpouts



High Visibility Crosswalks



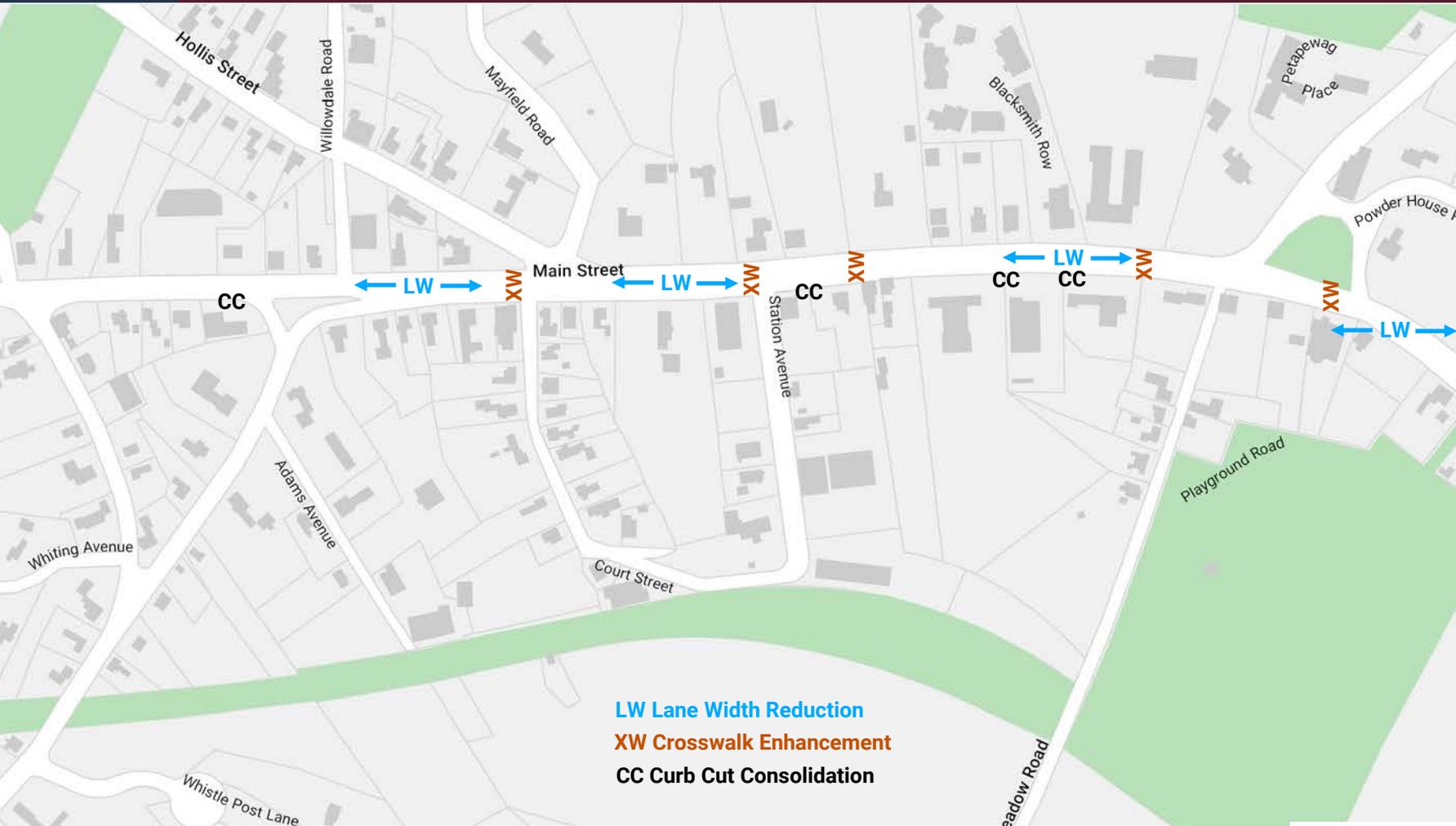
Curb Cut Narrowing/Consolidation





Multimodal Travel – Evaluation

Groton Mobility Study



	Lane Widths	Bump-outs	X-Walk Visibility	Curb Cuts
Bike Comfort	+1	0	0	+1
Coordination	-1	0	0	-2
Cost	+2	+1	+1	-1
Local Access	0	+1	+1	0
Ped Comfort	+1	+2	+2	+2
Safety	+2	+2	+2	+1
Side Street Queues	0	0	0	0
Traffic Volumes	0	0	0	0
Vehicle Travel Time	N/A	0	0	0
Wayfinding	0	0	0	0

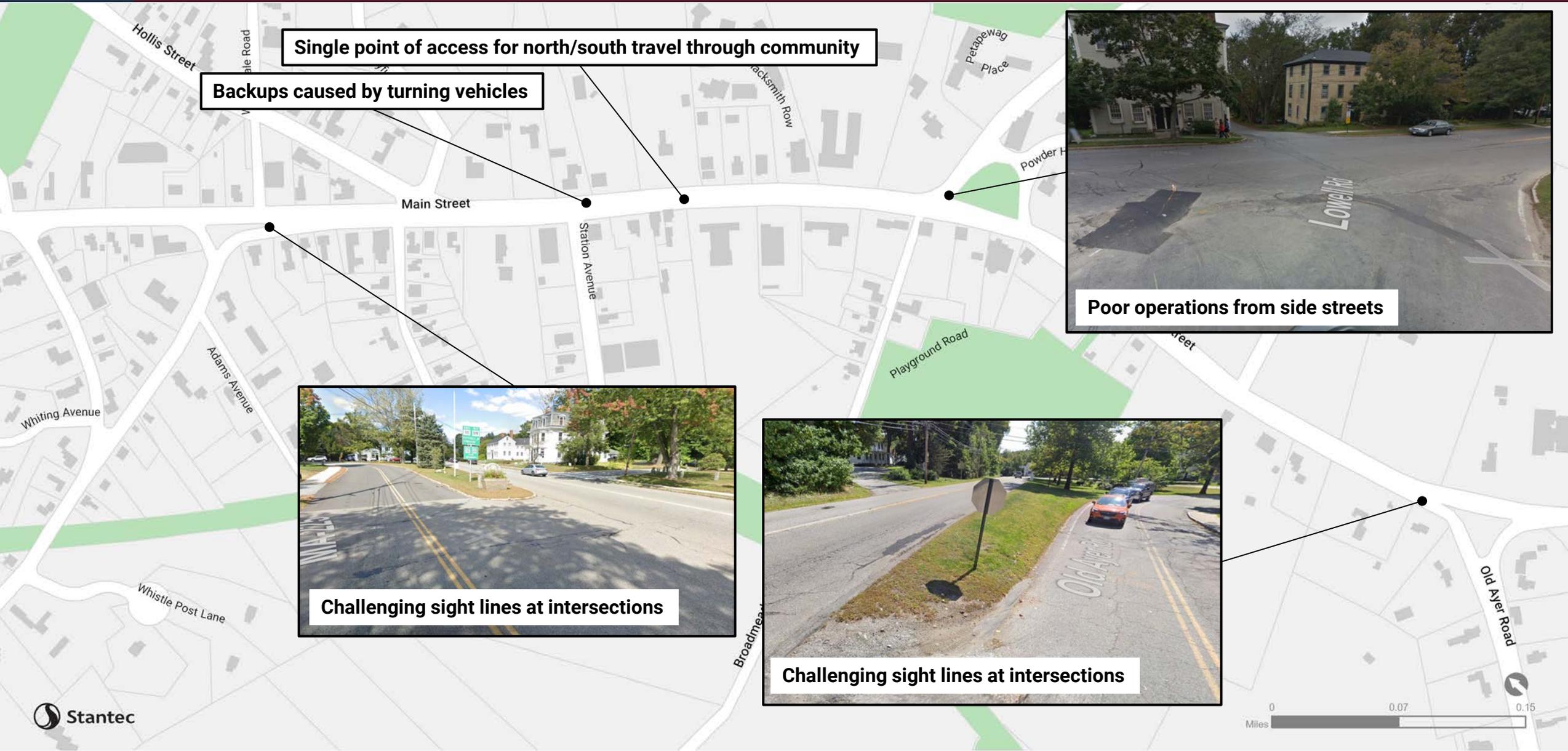
Other potential ideas – new crosswalks, raised crosswalks, crossing islands, on-street parking delineation, new signage, bike lanes

-2	-1	0	+1	+2
Detrimental / Costly		Legend	Advantageous / Inexpensive	



Sample of Challenges – Vehicle Throughput

Groton Mobility Study



Single point of access for north/south travel through community

Backups caused by turning vehicles



Poor operations from side streets



Challenging sight lines at intersections



Challenging sight lines at intersections



Vehicle Throughput – Potential Targeted Solutions

Groton Mobility Study

Intersection STOP Control



Santa Maria Times



Bike Portland

Roundabouts



Stan Jones



Research Gate



Geometric Improvements

Turn Pockets



Stantec

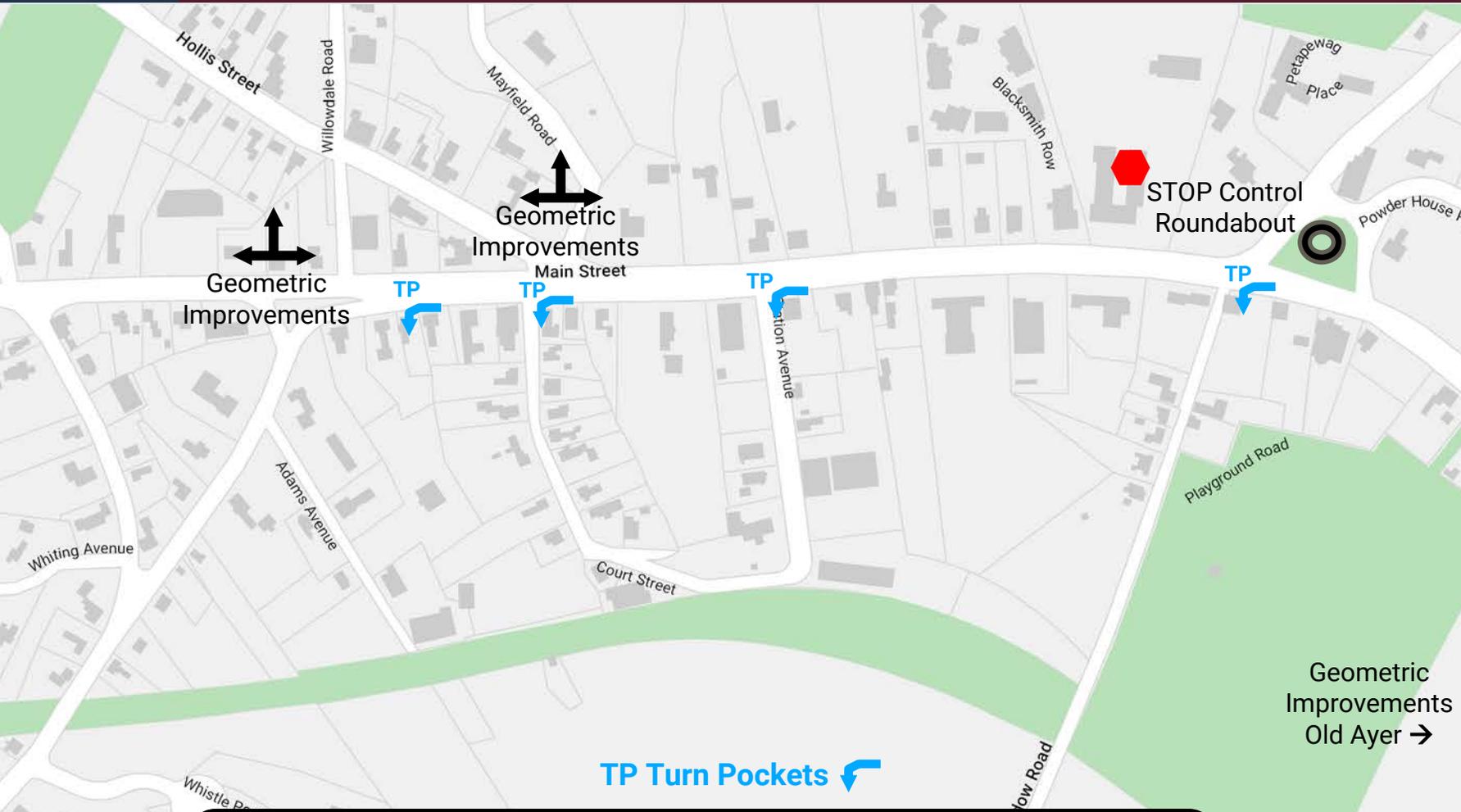


Road Safety Toolkit



Vehicle Throughput – Evaluation

Groton Mobility Study



	STOP Control	Roundabouts	Turn Pockets	Geom. Imprvs
Bike Comfort	+1	+1	+1	+1
Coordination	0	-1	-1	-2
Cost	0	-1	+2	-2
Local Access	0	0	+1	0
Ped Comfort	+1	0	0	+1
Safety	+1	+2	+1	+1
Side Street Queues	+1	+1	0	+1
Traffic Volumes	-1	0	0	0
Vehicle Travel Time	-1	-1	0	0
Wayfinding	0	0	0	0

Other potential ideas – traffic signals

-2 -1 0 +1 +2
 Detrimental / Costly Legend Advantageous / Inexpensive



Sample of Challenges – Economic Vitality

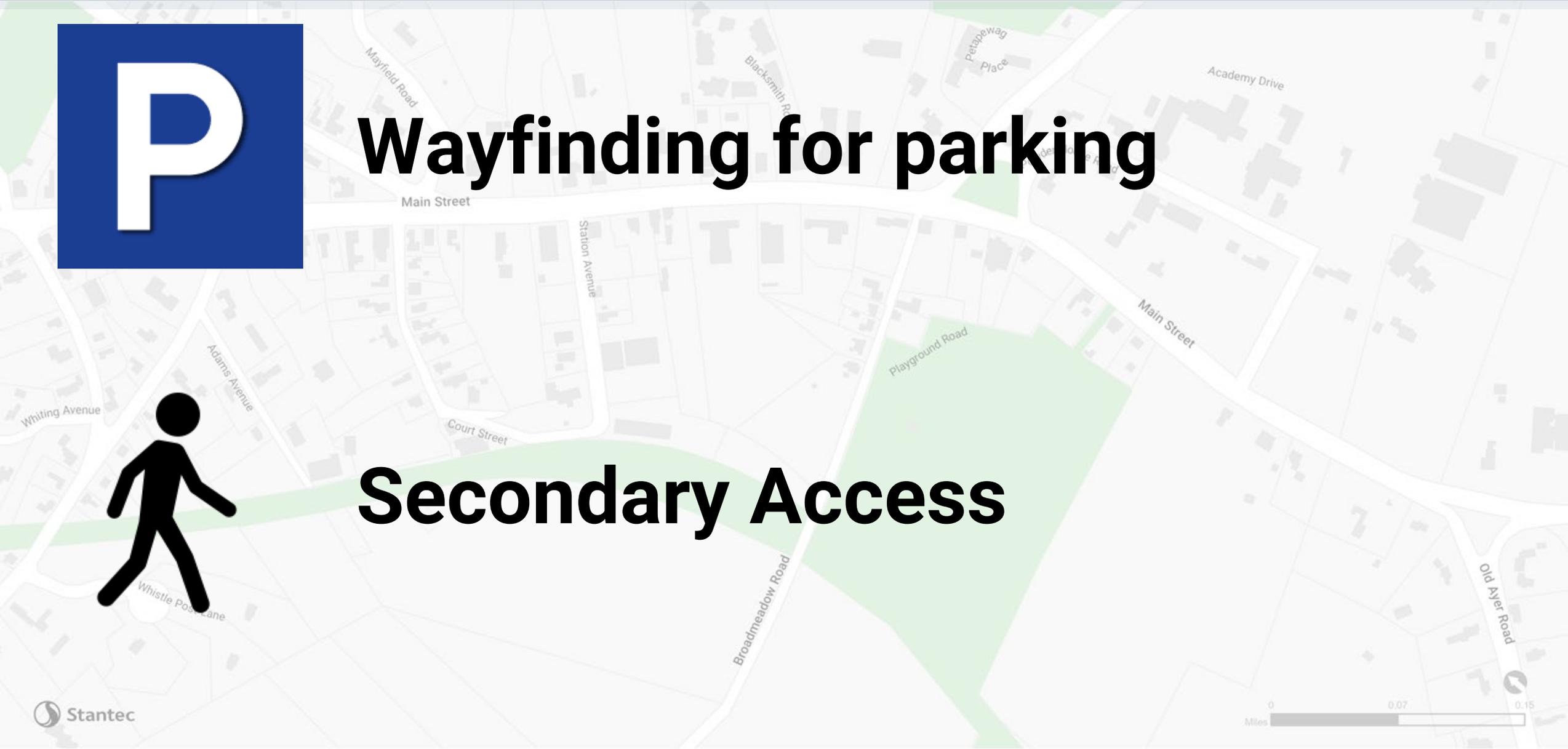
Groton Mobility Study



Wayfinding for parking



Secondary Access

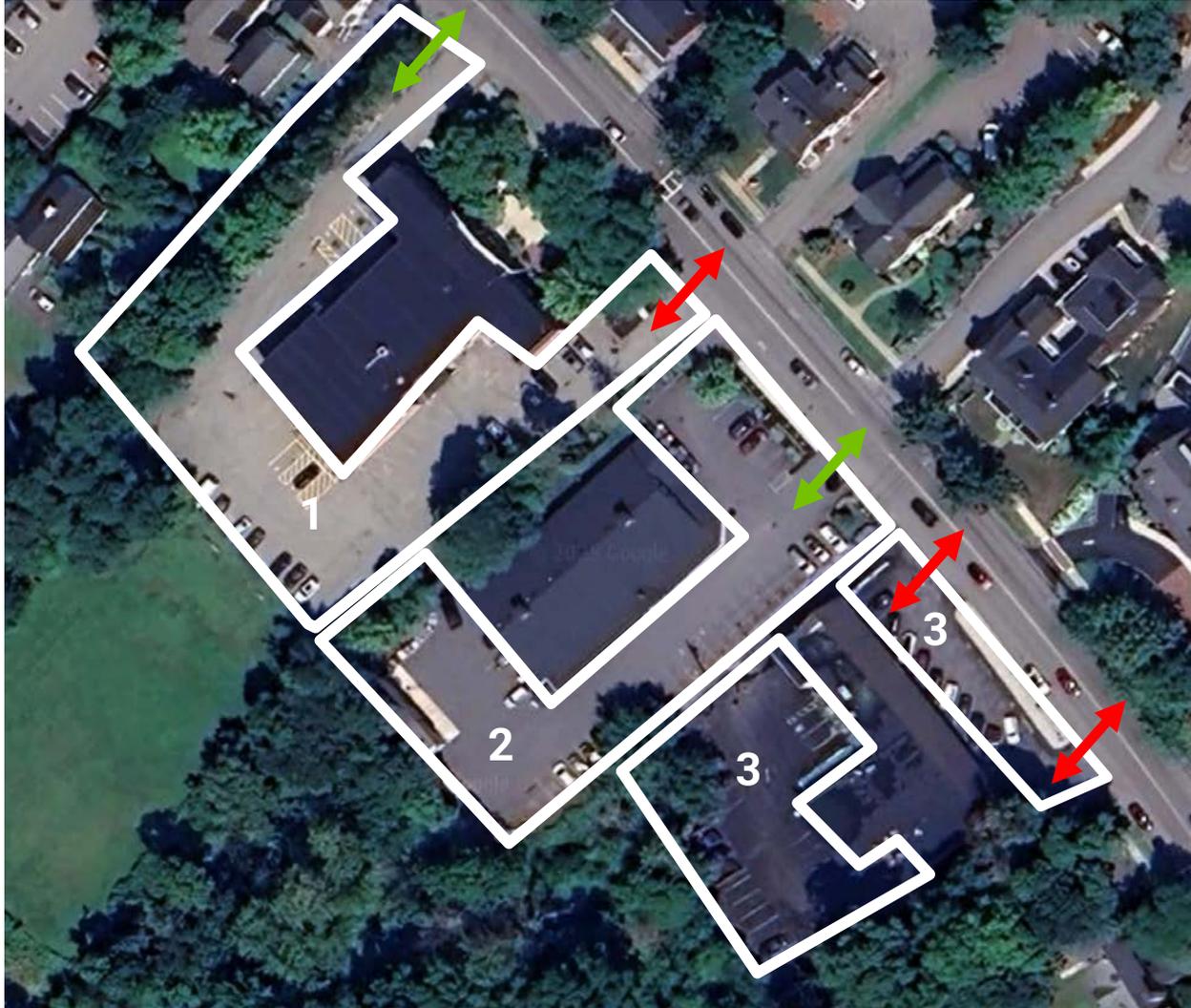




Economic Vitality – Potential Targeted Solutions

Groton Mobility Study

Parking Consolidation



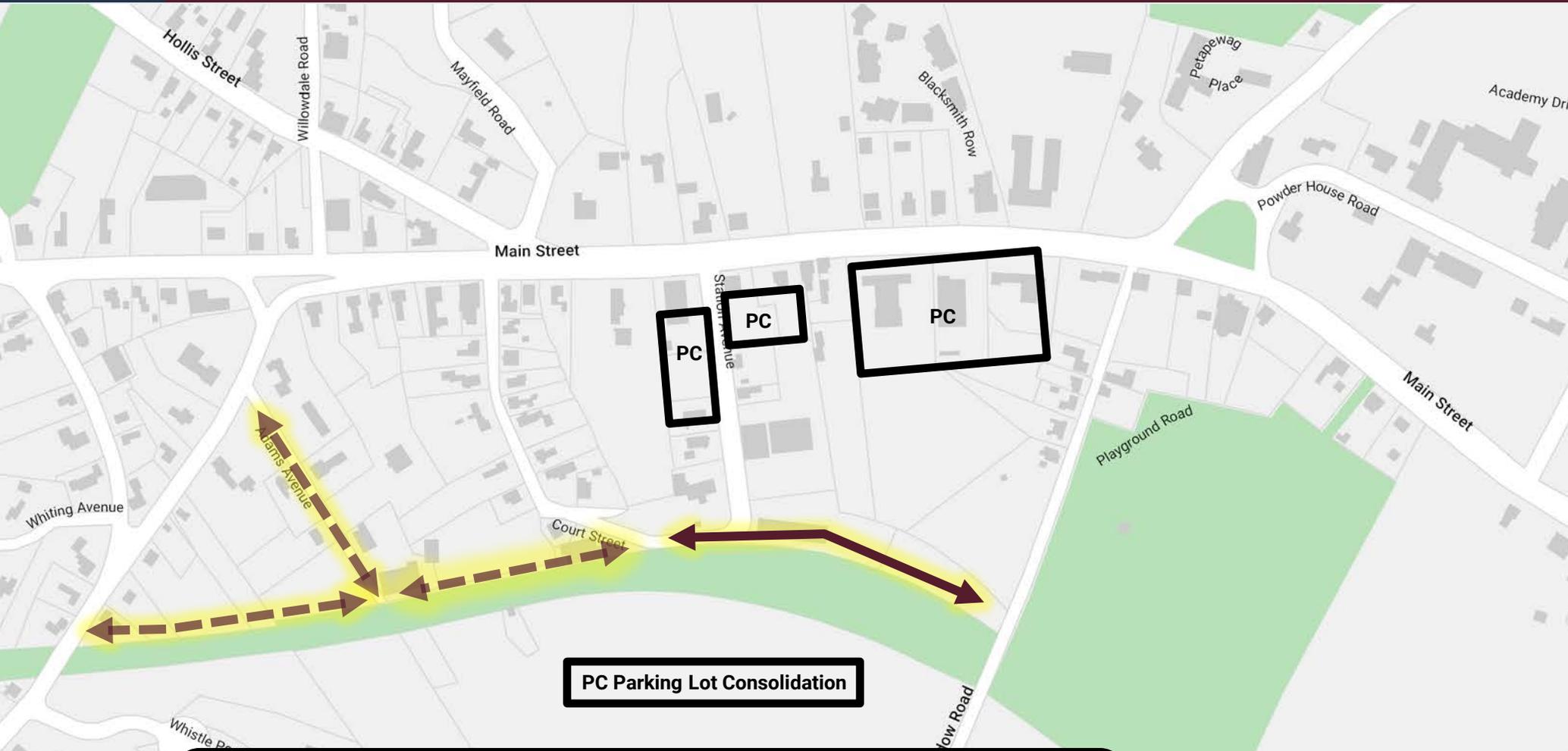
Secondary Access





Multimodal Travel – Evaluation

Groton Mobility Study



	Pkg Consol	2 nd Access
Bike Comfort	0	0
Coordination	-2	-2
Cost	0	-2
Local Access	+2	+2
Ped Comfort	+1	0
Safety	+1	0
Side Street Queues	0	+1
Traffic Volumes	0	+1
Vehicle Travel Time	0	+1
Wayfinding	+1	+1

Other potential ideas – municipal parking provision, on-street parking delineation, improved pedestrian wayfinding

-2	-1	0	+1	+2
Detrimental / Costly		Legend	Advantageous / Inexpensive	



Master Evaluation Matrix

Groton Mobility Study

Curb Bumpouts

Extending curb into Main St to shorten pedestrian crossings

Crosswalk Visibility

Pavement restriping, signage, and lighting for crosswalk visibility

Reduce Lane Widths

Reduce Main St travel lanes from 12 to 10 ft to slow vehicle speeds

Turn Pockets

Turn pockets at select locations on Main St to facilitate left turns

Parking Consolidation

Consolidation of private parking for a more legible parking supply

Secondary Access

Construct parallel street connecting Broadmeadow Rd + Station Ave

STOP Control

Four-way STOP control, esp. at the Lowell/Broadmeadow intersection

Curb Cut Consolidation

Reduce width of or consolidate curb cuts to force vehicles to turn in slower and reduce/eliminate pedestrian crossing distances

Geometric Improvements

To allow side streets (Old Ayer, Pleasant) to intersect Main St at a more traditional 90-degree angle

Roundabout

Roundabout, esp. at the Lowell/Broadmeadow intersection

Criteria→ Ideas↓	Safety	Ped Comfort	Local Access	Bike Comfort	Side Street Queues	Wayfin- ding	Cost	Traffic Volum- es	Vehicle Travel Time	Coordi- nation	
Curb Bumpouts	+2	+2	+1	0	0	0	+1	0	0	0	+6
Crosswalk Visibility	+2	+2	+1	0	0	0	+1	0	0	0	+6
Reduce Lane Widths	+2	+1	0	+1	0	0	+2	0	N/A	-1	+5
Turn Pockets	+1	0	+1	+1	0	0	+2	0	0	-1	+4
Parking Consolidation	+1	+1	+2	0	0	+1	0	0	0	-2	+3
Secondary Access	0	0	+2	0	+1	0	0	0	0	-2	+2
STOP Control	+1	+1	0	+1	+1	0	0	-1	-1	0	+2
Curb Cut Consolidation	+1	+2	0	+1	0	0	-1	0	0	-2	+1
Geometric Improvements	+2	+1	0	+1	+1	0	-2	0	0	-2	+1
Roundabout	+2	0	0	+1	+1	0	-1	0	-1	-1	+1
	+14	+10	+7	+6	+4	+1	+1	-1	-1	-11	



Summary

Groton Mobility Study

- Design of Main Street prohibits safe multimodal travel
- Main Street is heavily-trafficked, but wide right-of-way can enable fast vehicle travel
- Access to and from side streets can be challenging
- Some solutions allow for spot improvements which can largely borrow from available resources
- A more unified corridor plan requires a larger conceptual design study, which is recommended





Implementation Timeframe

Groton Mobility Study

Year 1

Year 2

Conceptual Design Study –
determine community's path forward for
Main Street improvements

Curb bumpouts
Crosswalk enhancements

Short-Term Option –
spot improvements along
corridor using Chapter
90, Complete Streets, or
small grants

Year 5

Year 4

Year 3

**Advance Towards
100% Design**

Pre-25% Design –
Including survey, corridor-wide improvement
design with intersection treatments

Long-Term Option –
acquisition of
Massworks funding for
corridor-wide project,
design and construction

*Funding source availability for
advanced design and construction*

Ongoing Coordination –
curb cut consolidation,
parking consolidation, other
improvements requiring
heavy coordination

Construction

Years 6-8

Years 8-10



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Curb Bumpouts	+2	+2	+1	0	0	0	+1	0	0	0	+6
Crosswalk Visibility	+2	+2	+1	0	0	0	+1	0	0	0	+6
Reduce Lane Widths	+2	+1	0	+1	0	0	+2	0	N/A	-1	+5
Turn Pockets	+1	0	+1	+1	0	0	+2	0	0	-1	+4
Parking Consolidation	+1	+1	+2	0	0	+1	0	0	0	-2	+3
Secondary Access	0	0	+2	0	+1	0	0	0	0	-2	+2
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Geometric Improvements	+2	+1	0	+1	+1	0	-2	0	0	-2	+1
Roundabout	+2	0	0	+1	+1	0	-1	0	-1	-1	+1
	+14	+10	+7	+6	+4	+1	+1	-1	-1	-11	