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TO: Gerald S. Mee, Jr., Superintendent

FROM: Matthew I. Shuman, P.E.
Town Engineer

DATE: July 6, 2018

RE: Mount Auburn Street Project Process Summary

As discussed, I have provided a brief summary of the Mount Auburn Street project history, public process, and design goals.

Project History

- This project began with a study of the Coolidge Square area, where residents, businesses and other users advocated for safety, aesthetic, and economic revitalization of the area. The study recommendations included providing a single travel lane in each direction of Mount Auburn Street, between Upland Road and Arlington Street, with a painted median and back-to-back left turn lanes at each of the intersections (i.e. road diet). This option (see Attachment 1) was found to provide efficient vehicular operations, reduce travel speeds and provide a more pedestrian-friendly environment. The Functional Design Report was issued in August 2009 and is available on the www.mountauburnstreet.com web-site.
 - In 2009 and 2010, the Town expanded the study area to the entire Mt. Auburn Street corridor, with a similar goal of safety, particularly for pedestrians. Based on traffic volumes, the following recommendations were endorsed (among others):
 - Mt. Auburn Street should remain two travel lanes in each direction west of Common Street;
 - East of Common Street, a single travel lane in each direction should be provided, with dedicated left-turn lanes at key intersections;
 - The level of service at each key intersection would, based upon signal upgrades and design changes, be equal to or better than what currently exists with the four lane configuration.
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As part of the recommendations, a bike lane would be provided on each side of the street, pedestrian crossings would be significantly reduced, and adequate maneuvering room for emergency vehicles would remain. These recommendations, which were consistent with the 2009 Coolidge Square design concepts, were presented at a Public Works Sub-committee meeting on March 7, 2011.

- The public process continued with the Public Works Sub-committee, and the preferred cross section, consisting of a single travel lane in each direction with dedicated left-turn lanes at key intersections was selected and unanimously endorsed by the Town Council in July 2013. Authorization to continue with design was also provided at that time.
- DPW unveiled a conceptual level “roll plan” of the corridor in 2015 and presented the more refined concept at a Public Works Sub-committee meeting held on May 14, 2015. The meeting discussed the rationale behind the proposed “road diet,” alternatives previously considered, and how the project fit was consistent with Complete Streets guidelines. A second community workshop was subsequently held on December 8, 2016.

Project Reboot and Community Engagement

During and after the 2016 community workshop, DPW received a number of comments related to the community process and public engagement on this important project. There was concern that not enough of the community was aware of the project and that the “Complete Streets” elements of the projects needed further analysis and better definition to ensure that the proposed pedestrian, bicycle, vehicular, and transit improvements desired by the community were incorporated in the plan.

Responding to community concerns, DPW “rebooted” the project with the following public engagement and community involvement actions:

- A project-specific web-site was developed, www.mountauburnstreet.com. The web-site contains project documents back to 2009, draft concept plans, and contains a comment form. Well over 5,000 people have visited the site since its inception in May 2017 and over 120 comments have been received and answered by the Project Team.
 - In November 2017, letters were sent to direct Mt. Auburn Street abutters, informing them of the design process, the next scheduled meeting, and the web-site.
 - A notice, including the web-site address, was included in the 2018 Town Newsletter.
 - On June 19, 2017, a joint meeting of the Public Works Sub-committee and the Bicycle-Pedestrian Committee was held to discuss bicycle accommodations along the corridor. There were 41 attendees. A second meeting to discuss bicycle accommodations was held by the Public Works Sub-committee on November 20, 2017. There were 52 attendees.
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- On January 30, 2018, the DPW held an Open House to discuss Coolidge Square with the public. During the meeting, participants were able to engage directly with staff about Complete Streets issues and design concerns in the Square. A conceptual plan for this section of the project was also available for review and comment. Prior to that meeting, the project team personally visited area businesses to notify them of the meeting. There were 115 attendees.
- On February 15, 2018, the DPW held a Mt Auburn Street Transit Public Meeting to discuss bus transit planning in the Mt Auburn Street Reconstruction Project. The project team worked with the MBTA to have the meeting advertised directly on MBTA buses. There were 58 attendees.
- The public engagement and involvement process to-date culminated in a second Open House held on May 14, 2018 for the entire corridor. At this meeting, an updated “roll plan” was unveiled and the project was divided into four segments to allow participants the ability to review the plan in detail, ask questions of staff, and provide comments. There were also tables focused on the various Complete Streets elements of the plan, including pedestrian and buses, bicycles, and transit operations. There were 84 attendees.

Over the course of the public process, a series of themes and concerns related to bicycle, pedestrian, transit and general complete streets and planning became clear. A summary of these issues are posted on the web-site and attached with this memorandum (see Attachment 2).

Complete Streets Process Results and Project Goals

Complete Streets is more than an outcome with bicycle, pedestrian, and transit elements. As embodied in the Complete Street Guidelines, it is a process that yields a more optimal accommodation among the users with the overarching goal being safer travel for all users.

Through our stakeholder process, and as embodied in the public input themes, we have been able to remain true to the 2009 and 2011 goals of increasing safety and retain, but further refine, the original concept of a “road” diet from Common Street, east through Coolidge Square and beyond to the City of Cambridge line. Through our various public processes from 2009 to present, the following goals have been identified:

- Increase pedestrian safety: Pedestrians are the most vulnerable population and every user of the corridor is a pedestrian at some point in their trip. Pedestrian improvements are provided in many ways, but primarily in coordination with the “road diet” concept which reduces pedestrian crossing lengths as well as increased visibility at crosswalks by removing illegal parking and increased signage. Safe pedestrian crosswalks have been provided at important desire lines, with bump-outs and enhanced signage.
 - Provide safe bicycle facilities: The 2015 concept plan provided conventional bike lanes in each direction, with gaps at Coolidge Square. Throughout our public process, we continually heard that there was unmet demand for bicycle use on this corridor due to a lack of facilities, that the safest possible facilities should be provided, and that there was a strong desire for a
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continuous facility. We held two meetings focused on bicycle facilities and investigated several alternatives to enhance the facilities provided, such as separated (off-road) bicycle facilities, parking-protected bicycle lanes, and buffered bicycle lanes.

As part of our alternative analysis for bicycles, we reviewed the facilities in the context of overall safety, vehicular and transit operations, and the practicality of operating and maintain the bicycle facility. This resulted in our addition of bicycle lanes through Coolidge Square to provide a continuous facility from Common Street to the Cambridge City line. We also reallocated road space to provide buffered and double buffered bicycle lanes where possible, while remaining consistent with the original “road diet” concept. The buffer enhances bicycle safety by provided an offset from parked cars and vehicular travel. Bike boxes were also included at signalized intersections to assist bicycles in making turns.

The alternative analysis used to evaluate bicycle facilities on the corridor provides an insight into the requirement to balance the needs of all users while providing the safest facility possible, but also the need for compromise, because there are multiple competing uses that often conflict with each other.

- Increase service and reliability for transit users: As part of the public process, it became evident that transit users comprise a significant portion of the users of Mt. Auburn Street—the 71 trackless trolley being rated as a top 15 bus route by the MBTA—with up to 40% of all users during the peak hour being transit users and around 30% of daily trips on the corridor comprised of MBTA riders. Input from transit users was critical in further refining the concept plan.
 - Through our discussions with the MBTA, we found that delays on this bus route are mainly attributed to delays at intersections and the physical pulling in and out of bus stops—rather than vehicular speed between stops. Our project team has been working with the MBTA and the City of Cambridge to implement elements of bus rapid transit—particularly traffic signal prioritization and queue jump lanes—and have reviewed each intersection to incorporate these features to the maximum extent practicable.
 - For the most part, bus stop locations are remaining the same, however as part of our review, we have identified some bus stops that should be shifted or relocated so that they can work with the traffic signal priority equipment. Bus stop locations are shown on the concept plans. We received generally positive comments about the locations at our Open House.
 - We reviewed each proposed bus stop with the MBTA to ensure that sufficient bus stop length is provided to allow the busses to pull in and out of the stop efficiently and without blocking traffic. Most of the current bus stops are too short; unfortunately lengthening bus stops to meet MBTA requirements sometimes requires the loss of parking spaces.
 - We also heard from transit users that amenities at bus stops are critical. We will continue to work with the MBTA and abutters to provide amenities such as the benches, shelters, bicycle parking, signage and other amenities desired by transit users.
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- Maintain parking, particularly in business districts: We consistently heard two opposing themes about parking: parking is critical to the vitality of each business district and there is support for more parking, but when not located carefully, parking contributes to a lack of safety by reducing pedestrian visibility, conflicting with bicyclists, and impeding vehicular traffic flow. As a result of our public process we have been able to:
 - Maintain and increase overall parking in the business districts. We were able to accomplish this by maximizing reclaimed street space for parking and modifying other uses such as fire hydrant locations. This is not without sacrifice, however. Some blocks will lose parking to address safety concerns, provide adequate bus stop lengths, etc., which remain higher priorities of the project.
 - Provide parking at the two funeral homes on the north side of Mt. Auburn Street. These funeral homes currently utilize one of the existing two travel lanes for parking. Removing the ability to park at these locations would be a hardship for these businesses.
 - Increase parking options on Mt. Auburn Street near Common Street. We were able to provide parking on the north side of Mt. Auburn Street between Russell Ave. and Common Street. Not only does this supplement the parking supply, but it also provides areas for westbound vehicles to park without entering the adjacent neighborhoods to turn.
 - With parking studies being undertaken by DCDP in the near future, our plan allows flexibility to implement any changes to parking times, meter technology or other recommendations that may arise.

- Support economic vitality in Coolidge Square: This project has its roots in Coolidge Square and the desire to make it more comfortable and attractive for shopping, dining, gathering, and socializing. The proposed plan continues to implement the recommendations of the 2009 study and furthers them:
 - During our public process, we consistently heard of the need to create a “sense of place” in Coolidge Square. We were able to reconfigure the Mt. Auburn Street/Bigelow Ave. intersection to provide a significant, central meeting space.
 - The desire for additional amenities, such as benches, tables and bike racks and additional place-making features will be incorporated, with further public input, as the design progresses.
 - As previously noted, we will retain and increase overall parking on Mt. Auburn Street in Coolidge Square.
 - We now provide a continuous bicycle facility through the Coolidge Square that is critical for bicycle users.

It is important to remember that there are other business districts along Mt. Auburn Street. The concepts being developed for Coolidge Square will also be implemented in the other districts.

- Provide more efficient traffic operations: Throughout our public process, we continually heard concerns related to overall traffic operations and delays, consideration of increasing traffic demands for the road, and general concerns about the “road diet.” Throughout our public process, we have tried to allay these concerns by providing relevant information and updating the plans where necessary.
 - Additional traffic counts and traffic forecast modeling have been performed since the “road diet” concept was endorsed in 2011. The “road diet” remains viable even considering projected increased traffic demands as a result of local development and regional traffic growth (see Attachment 3).
 - “Road diets” have been successfully implemented both locally and nationally and have become common practice. We have disseminated additional general information about road diets at our meetings.
 - The existing traffic signal equipment dates to the 1980s, is outdated and failing. A variety of traffic signal and traffic management technologies have recently been developed that will allow us to better manage traffic at intersections where most of the corridor delays occur. Again, traffic forecast modeling indicates that overall travel times will remain about the same when the “road diet” and signal upgrades are implemented (see Attachment 4).
 - We have heard concerns about traffic operations on Belmont Street and a concern about making left turns onto Mt. Auburn Street from side streets. The current traffic signals cannot meter traffic on Mt. Auburn Street. New signal equipment will be able to meter the traffic to provide gaps to allow left turning vehicles to enter the roadway from side streets.
 - There have also been concerns about vehicles on Mt. Auburn Street needing to turn left on side streets and causing traffic to back-up behind them. We have added left-turn pockets wherever space allows, even if not necessarily “warranted” by our traffic modeling; nearly every unsignalized intersection now includes left-turn pockets.
 - Issues related to public safety access, loading and unloading, and other operational issues have been brought up and considered. The plans have been reviewed by public safety officials and modified as needed to their satisfaction. The proposed cross-section, including the bicycle lane buffers, includes the “lane and a half” that is desired for maneuverability and safety.

Conclusions

A “Complete Streets” approach is required both by MassDOT as a condition of any State or Federally funded project, and by the Town’s Complete Streets Policy adopted in May 2017. Our process has been consistent with these requirements, particularly by considering, seeking public input, defining Complete Streets goals, and performing alternatives analyses.

A summary of every design change made since the May 2015 is available on the web-site and attached to this memorandum (see Attachment 5).

There is no doubt that the detailed public participation and engagement process implemented in 2017 has actively engaged the community in the design process and directly resulted in a number of changes to the concept plans that enhance the design while remaining consistent with the 2009 and

2011 recommendations that were supported by the Town Council. While difficult to summarize in a memorandum or even a project meeting, our year-long process has been successful and we look forward to additional public input as the design proceeds.



PREPARED BY:



TITLE:

SINGLE LANE WITH
LEFT TURN BAYS

PROJECT:

COOLIDGE SQUARE
REDEVELOPMENT

PREPARED FOR:

TOWN OF
WATERTOWN, MA

*Attachment 1
Functional Design Report
August 2009*



Mount Auburn Street
A Complete Streets Project

Public Input Themes – May 2018

Complete Streets Issues	How the design responds to the issue	Highlighted comments
<p>Key issue raised by public input</p> <p>Traffic congestion and lane reductions</p> <ul style="list-style-type: none"> Concern about existing traffic (esp. at Arlington St., Grove St., Bigelow Ave.) Concern that reducing travel lanes will create more traffic Concern that housing growth will create more traffic Concern that congestion on Mount Auburn Street will cause traffic to use local streets Lane widths 	<p>How the design responds to the issue</p> <ul style="list-style-type: none"> Traffic studies using on the ground vehicle counts showed that segments of the corridor can be reduced to one lane each way, implementing Complete Streets The traffic studies include planned and expected future growth to 2040 Left turn lanes will allow through-traffic to continue unimpeded by turning vehicles By making traffic flow on Mount Auburn Street more efficiently, drivers will stay on the main street and not divert to local roads The intersection of Arlington and Grove Streets will be signalized, reducing delays that exist today and reducing the risk of angle crashes in the intersection The Arlington Street approaches to Mt. Auburn Street will be better organized and defined to improve operational efficiency Traffic signal technology and timing will be upgraded to better react to traffic demands Lane widths have been studied and provide sufficient width for buses and other vehicles. Pull-outs of sufficient depth will be provided so that the buses do not stop in the travel lane where the road diet is proposed. 	<p>Highlighted comments</p> <p><i>“The result of furthering congestion and reducing the rate of traffic flow through the heart of Watertown (alias “traffic calming”) simply leads to aggravated drivers and road rage. Such an approach has been tried in many areas around Boston with poor results. Other than “true believers”, wise city planners should not pursue such destructive plans for our roadways.”</i></p> <p><i>“What we don’t need or want is more traffic on our residential side-streets. But in all likelihood, traffic on these roads will increase because drivers will be looking for alternatives to Mount Auburn St., both during and after construction. So, we feel that converting 4-lanes to 2-lanes is a bad idea to start.”</i></p>

Key issue raised by public input

Difficulty making left turns

- From Mount Auburn onto side streets (Russell Ave., Common St., Oakley St.)
- From side streets onto Mount Auburn Street (Melendy Ave.)

How the design responds to the issue

- Left turn pockets will be provided at signalized intersections and key unsignalized side streets to provide space for turning vehicles to be out of the way of through traffic
- In some instances, existing parking spaces that are too close to intersections and reduce visibility will be modified or removed
- Implementing the road diet on Mount Auburn Street will improve visibility and safety for vehicles turning onto Mount Auburn Street by reducing the number of travel lanes crossed to make the turn. The bike lanes will provide additional visibility and buffer for left turns.

Highlighted comments

General meeting comment.

Safety

- Vehicle speeds
- Visibility of and conflicts between vehicles, pedestrians, and bikes
- Need for enforcement
- Access for emergency vehicles

- Narrower travel lanes, striping, crosswalks, and curb extensions will result in more appropriate vehicle speeds for the Mount Auburn Street corridor
- Buffered bike lanes, high visibility crosswalks, and improved signage will reduce conflicts between vehicles, bicyclists, and pedestrians
- All new traffic signals will be equipped with emergency vehicle preemption, and buffered bike lanes will provide sufficient space for vehicles to pull over to allow emergency vehicles through

"Hi wish you could put cameras on top of traffic lights, many cars don't stop when walk sign is on and pedestrians walking across the street. Drivers should be fined for not stopping at crosswalk when walk signal is on."

"This business district is very busy, but at the end or beginning of a longer straightaway, cars and trucks treat this area as a speedway. It is not unusual to have cars speed away from the stop light at Bigelow St. as if they think they are at the Indy 500. And most of the time cars & trucks coming into the area from the School St are driving as fast as 40 or 50 mph."

Key issue raised by public input

How the design responds to the issue

Highlighted comments

Parking

- Insufficient parking for local businesses and residents (at Coolidge Square and elsewhere)
- Proximity to traffic when exiting parked vehicle
- Illegal parking at intersections

- Illegal parking spaces at intersections will be removed, but other parking will be maintained and increased where feasible
- Some on-street parking areas and the Wells Avenue public parking lot are currently underutilized, and wayfinding signage will be improved to encourage drivers to use them
- Buffered bike lanes will provide separation from adjacent traffic while drivers and passengers are exiting parked vehicles
- Parking supply, regulations, and policies will be evaluated by DCDP independent from the Mount Auburn Street roadway reconstruction project

"As you well know, all the businesses are congregated in Coolidge square between Dexter Ave. and Bigelow Ave. and the parking situation is unbearable."

"I was parked in front of America Cleaners the other day. I tried to get out of my car but with cars, trucks and buses going by me I was almost hit."

"We do not have sufficient parking in the retail sections to warrant bike lanes, special bus areas, etc."

"I like to emphasize that parking is much more important than a loading solution. Most deliveries are received early in the morning."

Trucks and Deliveries

- Desire to minimize truck traffic on Mount Auburn Street
- Desire for temporary parking for deliveries

- Designation of on-street parking areas on Mount Auburn Street and nearby side streets for deliveries during certain hours of the day will be considered based on further discussions with business owners

"In a single lane traffic, there is no room for trucks to stop and unload merchandise."

One-way Streets

- Concern about neighborhood access
- Support for reduced cut-through traffic

"...Make Irma Avenue [a] one-way street. This way, all the cars that drive down this street will have [more] space, thus much safer for both the drivers and the neighbors on the street."

"Changing Parker Street to one-way would be problematic for [the] neighborhood."

- To improve safety and operations in Coolidge Square, to reduce cut-through traffic on residential streets, Lloyd Road, Irma Avenue and Kimball Road were considered for conversion to one-way streets. Kimball Road is recommended, to improve the intersection operation and safety and expand sidewalk area in Coolidge Square.

- To minimize changes in access for residents, no other one-way conversions or turn restrictions are proposed along the corridor, and Parker Street will remain open to two-way traffic

Bicycle Issues

Key issue raised by public input

Bike accommodations

- Desire for dedicated bike lanes on both sides of the road
- Desire for protected bike lanes (with physical barrier) between bikes and vehicles
- Current bicyclist counts do not support the need for bike accommodations
- Concern that there is not enough space for bike accommodations

How the design responds to the issue

- On-street bicycle lanes in each direction will be provided for the majority of the project corridor where traffic volumes permit, from east of Common Street to the Cambridge City Line
- Painted buffers between the bike lane and the adjacent travel lane and parking lane will be provided where feasible as an added safety feature
- Parking-protected bike lanes were found to be not feasible due to sight distance issues at intersections and driveways, space constraints, and maintenance considerations
- Existing bicycle volumes are low due to the lack of safe bicycle facilities; however, Mount Auburn Street is a desirable bike commute route from Watertown to Harvard Square
- Clear striping and signage for bicycle accommodations
- Painted bike boxes will be provided at signalized intersections

Highlighted comments

"I fully support the protected bike lanes (Cars protecting the bike lane, or some form of physical barrier). As someone that bikes a lot, I can assure you this is the safest form of bike lane you can provide to cyclists."

"We do not have sufficient bicycle traffic to warrant special rights for them."

Safety

- Special considerations at intersections (Arlington St., Bigelow Ave.)
- Increasing safety will result in more bikes

"Bikes work really hard to get where they are going. They should also have the right to feel and be safe doing it. People in cars on the other hand are sitting comfortably not working hard to get places. They are safe in a steel cage."

"A Bike Box at Arlington St would be a big help going east so cars taking a right onto Grove don't clip the cyclist."

Proximity to parked cars

- Concern with "dooring"
- A two-foot striped buffer will be provided between the bike lane and parking lane, where feasible, to buffer the door zone

Key issue raised by public input

Connections to other Bike Lanes/Paths

- Connect to path along Charles River

How the design responds to the issue

- Bike lanes on Mount Auburn Street will connect to the Watertown-Cambridge Greenway at Cottage Street, the Watertown Community Path at Taylor Street, and to the Charles River via Irving Street

Highlighted comments

Snow Removal

- Providing buffered bicycle lanes in the street with parking at curb-side will allow the Town to continue its current operations of plowing to the curb. Other options (off-road separated, parking protected) would present challenges for snow treatment and removal.

Pedestrian Issues

Key issue raised by public input

Crosswalks and pedestrian safety

- Need for safe crosswalks (at Dexter/Upland Rd., Arlington St., Amherst Rd./Bailey Rd., Melendy/Elton/Lloyd, etc.)
- Desire for signalized crosswalks with count-downs
- Desire for leading pedestrian intervals (LPIs)

How the design responds to the issue

- Crosswalks across Mount Auburn Street will be added at locations with high pedestrian activity and at bus stop locations
- Rectangular rapid flashing beacons (RRFBs) will be provided at the Dexter Street/Upland Road intersection and other high use crosswalks
- Countdown pedestrian signal heads will retain existing exclusive pedestrian phasing
- Curb extensions and signage will be added at crosswalks to increase visibility
- In general, the road diet concept will improve pedestrian safety by reducing crossing time and removing the "double threat" of cars in the inner lanes not able to see pedestrians already in the crosswalk

Highlighted comments

"Route 16 needs total resurfacing, no question. It also desperately needs more well-marked crosswalks with pedestrian lights, so that people can cross safely. We have seen too many people hit by cars on this road."

"There is no crosswalk at the bus stop at Dexter/Upland Rd. This is a heavily used stop, and is also the area with a lot of shops and funeral homes. This makes crossing Mt Auburn a hazard – especially at rush hour (see speed of cars above). The crosswalk in front of the Town Diner is not safe for many reasons..."

Sidewalk improvements

- Request for benches
- Snow removal
- Space for outdoor café/restaurant seating

- The design will incorporate street furniture space on the sidewalks in business districts around Coolidge Square and Common Street to allow for potential amenities such as bus shelters, benches, street trees, café space, bicycle parking, and snow storage (at our current level of design, these areas will be called out on the plan with details to be added as the design progresses)

"It's always a bit scary to cross the street and in many places, the sidewalk is too narrow."

"Not pedestrian friendly – uneven sidewalks, trash, stores have pallets or delivery containers on sidewalk."

Key issue raised by public input

Landscaping

- Damage to existing trees
- Size of new trees

How the design responds to the issue

- The corridor design specifically minimizes impacts to existing shade trees along the corridor by maintaining the current curb layout
- The project will comply with the Public Shade Tree Law with respect to any required removals
- Tree protection will be provided during construction
- The design incorporates street furniture space on the sidewalks to allow for planting street trees and providing other landscaping features
- Street trees will be designed with sufficient space for growth, and appropriate species will be selected to thrive in an urban environment

Highlighted comments

"Please include adequate growing conditions for any shade trees planned."

Lighting

- Need for more lighting particularly in pedestrian areas

Americans with Disabilities Act (ADA) Compliance

- Lighting will be evaluated during future phases of design and will consider luminosity, scale, and style
- All intersections will have accessible curb ramps and detectable warning panels
- All signalized intersections will have Accessible Pedestrian Signals (APS) with audible crossing signals and push buttons with vibrotactile arrows

"As a blind citizen, I hope the needs of blind pedestrians are being considered as part of the Mount Auburn Street/Coolidge Square redesign."

Transit Issues

Key issue raised by public input

Bus stops

- Request for relocations
- Driveway access concerns
- Request for benches

How the design responds to the issue

- Bus stop locations were last adjusted in the Key Bus Routes study in 2011
- Reevaluating in this project to locate stops at the far side of intersections to provide Transit Signal Priority, in front of businesses rather than residences where possible; and to provide more amenities at heavily used stops including shelters, benches, countdown clocks, and bicycle parking
- Increasing bus stop lengths to aid buses getting in and out of traffic and reduce encroachment of the bus into the travel lane while stopped
- Consolidation and relocation of the Parker Street and Russell Avenue bus stops to Chester Street allows for implementation of transit signal prioritization at Common Street, better movement of the bus into and out of the stop, provides a safer, direct connection between the High School and the bus stop using signalized crossings, and provides room for a bus shelter. Although parking spaces are lost between Parker Street and Chester Street, they are replaced (with more spaces provided than currently available) at Phillips Street and Russell Avenue.

Highlighted comments

"We now have a bus stop near our driveway which results in every bus that stops to load and unload to block our driveway so we always have to wait for it to leave before we can back out."

Key issue raised by public input	How the design responds to the issue	Highlighted comments
<p>Traffic congestion and issues at intersections</p> <ul style="list-style-type: none"> • Slow bus service • Desire for dedicated bus lanes • Desire to prioritize buses in other creative ways (transit signal priority, etc.) 	<ul style="list-style-type: none"> • Queue jump lanes will be provided at selected locations to reduce travel times for the 71 bus and other shuttles using the Mount Auburn Street corridor • The project team is working with the MBTA to implement Transit Signal Priority as part of the project • The Town of Watertown is working with the City of Cambridge on the Mount Auburn Street Bus Priority Pilot • Refer to MBTA's Better Bus Project 	<p><i>"I'd also like to propose incorporating bus prioritization for the 71 and 73 bus lines on Mount Auburn Street. Currently, the buses get caught up in car traffic and, as a result, bus service is sub-par during the busiest times of the day. Keeping the buses moving by giving them priority over car traffic would encourage more people to use them, therefore creating less car traffic to begin with."</i></p>
<p>Bus crowding, schedules, and operational issues</p>		<p><i>"...bus lanes and signal priority (TSP) everywhere, or at least not prevented by design except for future expensive re-construction, will better prepare for the rising and soon to be dramatically rising numbers of commuters in Watertown and Cambridge."</i></p>

Planning/Land Use Issues

Key issue raised by public input

Making Coolidge Square a destination

How the design responds to the issue

- The design incorporates street furniture space on the sidewalks in business districts around Coolidge Square to allow for potential amenities such as bus shelters, benches, street trees, café space, and bicycle parking

Highlighted comments

"I want to see the project expand to consider how to make the square a pleasant destination - to go to and spend time in. It only seems to be focused on how to move cars, buses, bikes, & pedestrians through the space. Why not take this incredible opportunity to redesign the square beyond the issue of traffic."

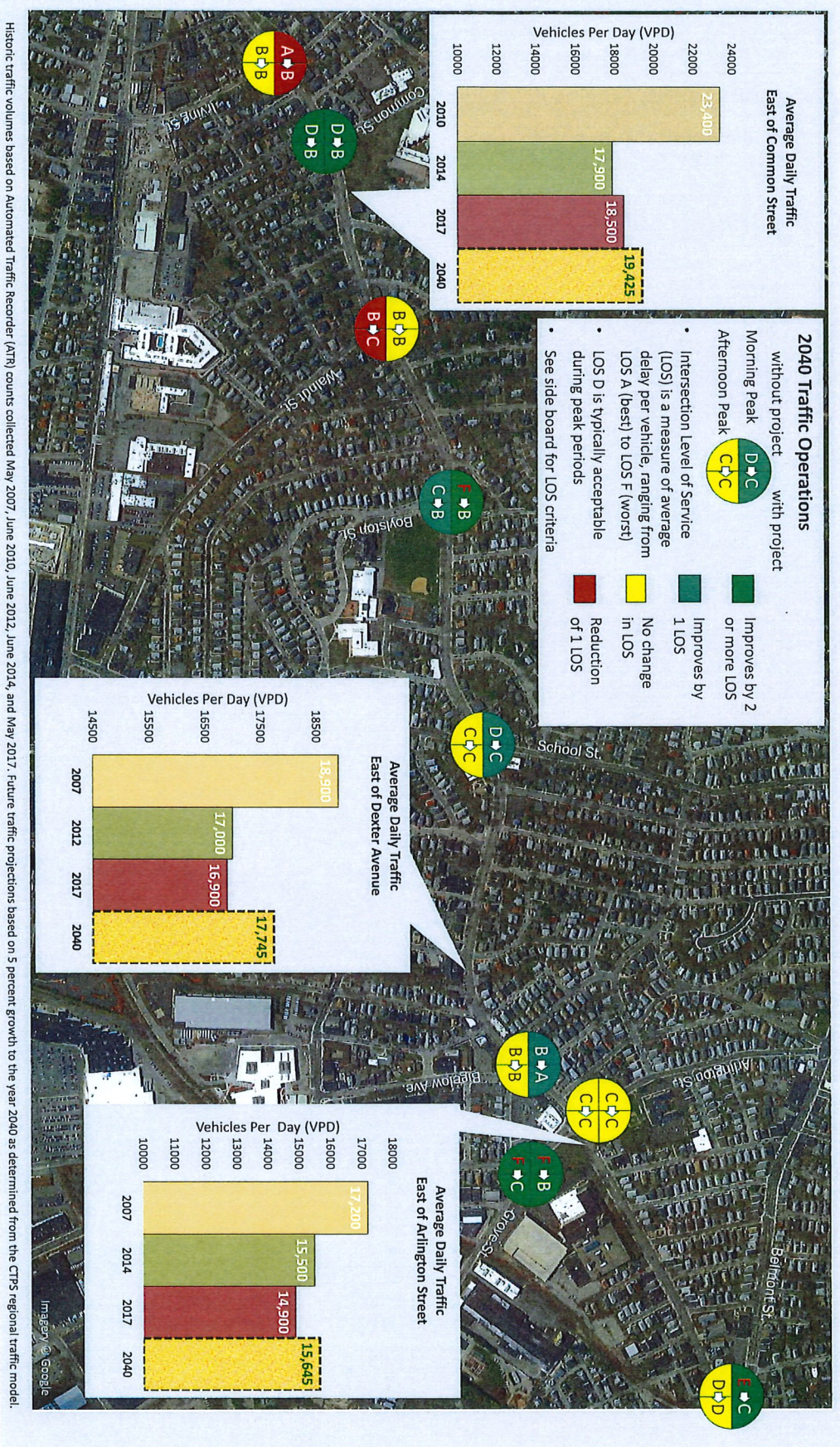
Economic development and businesses on Mount Auburn Street

- Coolidge Square is a significant retail district and will be enhanced with traffic calming and physical improvements such as plantings, benches, bike racks and other amenities, to support local business activity
- Design features will create more of a destination and remove the perception of a through-way
- The defined lanes and turn lanes improve safety which attracts pedestrians, shoppers, and diners

"We are mainly a bakery/pastry/retail business, this type of business to survive - street parking is essential!"

"I am looking forward to seeing what you come up with for Coolidge Square. That area is very precious: so many locally owned small businesses are thriving there, the 4 lanes of vehicular traffic are not helping with the foot traffic. My suggestion is to do something that calms the vehicular traffic so that the people who come to enjoy an evening there don't have to fear for their lives."

Attachment 3



Historic traffic volumes based on Automated Traffic Recorder (ATR) counts collected May 2007, June 2010, June 2012, June 2014, and May 2017. Future traffic projections based on 5 percent growth to the year 2040 as determined from the CRPS regional traffic model.



Mount Auburn Street
A Complete Streets Project

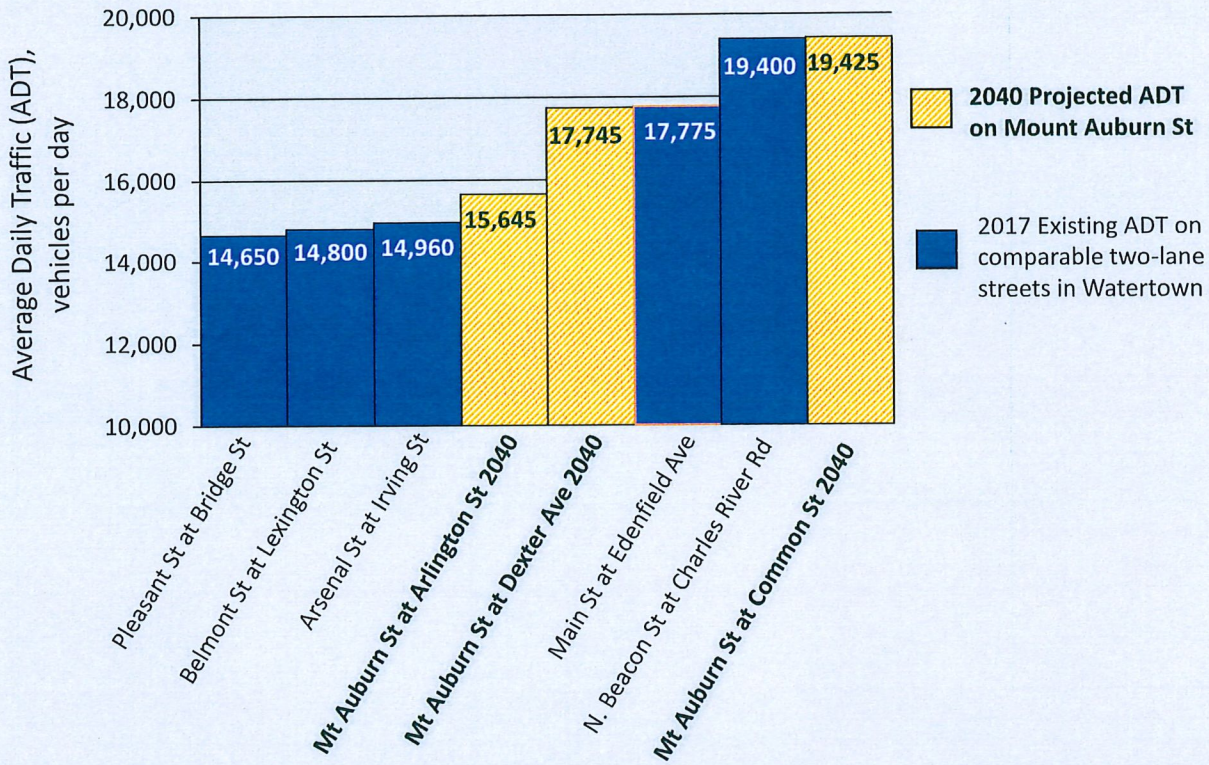


Traffic Forecasting & Operations

Mount Auburn Street Open House, May 2018



Daily Traffic Volumes on Comparable Two-Lane Roadways in Watertown



Intersection Level of Service Criteria

Level of Service	Average Stopped Delay per Vehicle (seconds)	
	Signalized Intersection	Unsignalized Intersection
A	0 - 10	0 - 10
B	>10 - 20	>10 - 15
C	>20 - 35	>15 - 25
D	>35 - 55	>25 - 35
E	>55 - 80	>35 - 50
F	>80	>50

2010 Highway Capacity Manual, Transportation Research Board, Washington, DC

Change in corridor delay

Increase/decrease in total average delay per vehicle experienced along Mount Auburn Street from Irving Street to Belmont Street as a result of the project

Weekday Morning Peak Hour

Eastbound +11 seconds / Westbound -81 seconds

Weekday Afternoon Peak Hour

Eastbound -70 seconds / Westbound +29 seconds

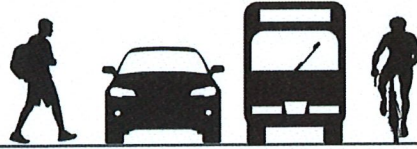
Minor increases are due to the addition of a new signal at Boylston Street and the balancing of signal timing to reduce delays on side streets



Mount Auburn Street
A Complete Streets Project



Mount Auburn Street



A Complete Streets Project

Guide to Concept Plan Changes: Segment 1

The intent of this summary is to share the details, by segment, of the proposed Complete Streets Plan for Mount Auburn Street improvements. The plan has evolved over time for a number of reasons, including responding to suggestions made in public meetings by residents and business owners, learning more about traffic volumes and interactions in the segments, and complying with the Complete Streets program. The recommendations address residents' requests; fine tuning of plans for pedestrian, transit, traffic and parking and bicycle facilities; and safety. Read in conjunction with the complete roll plan, this list provides the details that meeting participants have requested. The team appreciates the ideas and suggestions provided by the community that have shaped the proposed plan.

Pedestrian Changes

- Across Mount Auburn Street
 - Crosswalk removed at Parker Street

Bus Changes

- Mt. Auburn Street East Bound
 - Queue Jump Lanes Added at
 - Walnut Street intersection
 - Consolidated Stops
 - Far-side stop at Phillips Street and the Midblock stop between Otis Street and Franklin Street combine in a near-side stop at Chester St.
- Mt. Auburn Street West Bound
 - Consolidated Stops
 - Near-side stop at Russel Avenue and the near-side stop at Marshal Street combined in a far-side stop at Common Street
 - Relocated Stops
 - Far-side stop at Bates Road East moved to the near-side of Bates Road

Bike Changes

- Mount Auburn Street East Bound
 - Dedicated bicycle facility continuous from Parker Street to Cambridge Town Line
 - Bike boxes added along Mount Auburn Street

- Common Street
 - Bike boxes removed along Mount Auburn Street
 - East Bates Road
 - Buffers
 - Double Buffered from Chester Street to Boylston St
- Mt. Auburn Street **West Bound**
 - Dedicated bicycle facility continuous from Cambridge town line to Palfrey Street
 - Bike Boxes Removed along Mount Auburn Street at
 - Common Street intersection
 - Bicycle Turn Queue Box added
 - Across from Irving Street
- Palfrey Street
 - Addition of contra flow bike lane
- Common Street
 - Bike box removed from common street
 - At Mount Auburn Street intersection

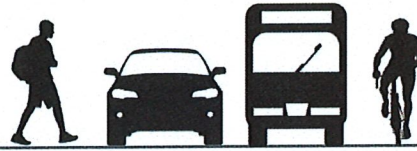
Traffic Changes

- Mount Auburn Street **West Bound**
 - Left turn pocket added at Franklin Street

Parking Changes

- Mount Auburn Street **East Bound**
 - Irving Street to Phillips Street
 - Removed 2 parking spaces from signalized intersection
 - Phillips Street to Parker Street
 - Added 7 parking spaces from bus stop consolidation
 - Parker Street to Chester Street
 - Removed 3 parking spaces from bus stop consolidation
 - Otis Street to Franklin Street
 - Added 5 parking spaces from bus stop consolidation
 - Total of East Bound parking spaces
 - Added 12 parking spaces in total
 - Removed 5 parking spaces in total
- Mount Auburn Street **West Bound**
 - Russell Avenue to Common Street
 - Added 10 parking spaces from reduction of turn lane

Mount Auburn Street



A Complete Streets Project

Guide to Concept Plan Changes: Segment 2

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Pedestrian Changes

- Across Mount Auburn Street
 - Between Oakley Road and Richards Road
 - Crosswalk removed
 - RRFB removed
 - At Langdon Avenue
 - Crosswalk added

Bus Changes

- Mt. Auburn Street East Bound
 - School Street intersection
 - Relocated Stops
 - Near-side stop at Boylston Street moved to the far-side of Boylston Street
 - Inside of intersection stop at School Street moved to the far-side of the School Street
 - Far-side stop at Adam Street moved to the near-side of Adam Street
- Mt. Auburn Street West Bound
 - Relocated Stops
 - Far-side stop at Langdon Avenue moved to the near-side of Windsor Avenue
 - Far-side stop at Adams Avenue moved to the near-side of Adams Avenue
 - Near-side stop at Amherst Road moved to the far-side of Amherst Road
 - Far-side stop at Bates Road East moved to the near-side of Bates Road

Bike Changes

- Mount Auburn Street East Bound
 - Dedicated bicycle facility continuous from Parker Street to Cambridge Town Line
 - Bike boxes removed along Mount Auburn Street
 - Boylston Street
 - Buffers
 - Double Buffered from Chester Street to Boylston St
 - Parking buffer from Boylston Street to Adams St
- Mt. Auburn Street West Bound
 - Dedicated bicycle facility continuous from Cambridge town line to Palfrey Street
 - Buffers
 - Travel lane buffer from Upland Road to Garfield Street

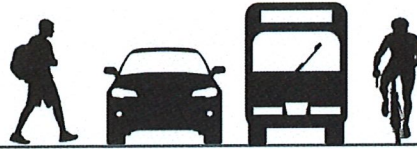
Traffic Changes

- Mount Auburn Street East Bound
 - Garfield Street
 - Left turn pocket added
 - Oakley Road
 - Left turn pocket added
 - Richards Rd
 - Left turn pocket added

Parking Changes

- Mount Auburn Street East Bound
 - Spruce Street to Boylston Street
 - Added 3 parking spaces from Bus Stop Relocation
 - Boylston Street to Winthrop Street
 - Added 2 parking spaces from removal of crosswalk
 - Chauncy Street to School Street
 - Removed 6 parking spaces for Right turn lane/ Transit Queue Jump lane
 - School Street to Boylston Street
 - Removed 1 parking space from Bus Stop Relocation
 - Total of East Bound parking spaces
 - Added 5 parking spaces in total
 - Removed 7 parking spaces in total
- Boylston Street
 - Project Limit to Mount Auburn Street
 - Added 3 parking spaces

Mount Auburn Street



A Complete Streets Project

Guide to Concept Plan Changes: Segment 3

The intent of this summary is to share the details, by segment, of the proposed Complete Streets Plan for Mount Auburn Street improvements. The plan has evolved over time for a number of reasons, including responding to suggestions made in public meetings by residents and business owners, learning more about traffic volumes and interactions in the segments, and complying with the Complete Streets program. The recommendations address residents' requests; fine tuning of plans for pedestrian, transit, traffic and parking and bicycle facilities; and safety. Read in conjunction with the complete roll plan, this list provides the details that meeting participants have requested. The team appreciates the ideas and suggestions provided by the community that have shaped the proposed plan.

Pedestrian Changes

- Across Mount Auburn Street
 - Crosswalk removed east of Kimball Road
- Across Arlington Street
 - At Grove Street crosswalks are reconfigured to new intersection layout

Bus Changes

- Mt. Auburn Street West Bound
 - Relocated Stops
 - Midblock stop between Kimball Road and Templeton Parkway moved to the near-side of Templeton Parkway

Bike Changes

- Mount Auburn Street East Bound
 - Dedicated bicycle facility continuous from Parker Street to Cambridge Town Line
 - Bike boxes removed along Mount Auburn Street
 - Kimball Road
 - Buffers
 - Parking buffer from Elton Avenue to Arlington Street
- Mt. Auburn Street West Bound
 - Dedicated bicycle facility continuous from Cambridge town line to Palfrey Street

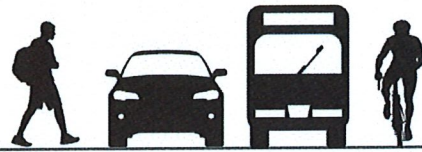
Traffic Changes

- Mount Auburn Street East Bound
 - Lloyd Road
 - Left Turn Pocket removed
 - Kimball Road
 - No left turns from Mount Auburn Street
 - Templeton Parkway
 - No left turns from Mount Auburn Street
- Kimball Road
 - One way North Bound
- Intersections
 - Bigelow Avenue / Mount Auburn Street
 - Intersection reconfigured to be closer to perpendicular
 - Kimball Road/ Mount Auburn Street
 - Removed from signal at Bigelow Avenue and Mount Auburn Street
 - Arlington Street/ Grove Street
 - Intersection reconfigured to be closer to perpendicular

Parking Changes

- Mount Auburn Street East Bound
 - Dexter Avenue to Melendy Avenue
 - Removed 1 parking space from Realignment
 - Melendy Avenue to Elton Ave
 - Removed 2 parking spaces No legal parking available
 - Bigelow Avenue to Arlington Street
 - Added 3 parking spaces from change in driveway location
 - Total of East Bound parking spaces
 - Added 3 parking spaces in total
 - Removed 3 parking spaces in total
- Mount Auburn Street West Bound
 - Kimball Road to Irma Avenue
 - Removed 1 parking space from intersection reconfiguration
 - Lloyd Road to Upland Road
 - Added 5 parking spaces from road realignment
 - Total of West Bound parking spaces
 - Added 5 parking spaces in total
 - Removed 1 parking space in total

Mount Auburn Street



A Complete Streets Project

Guide to Concept Plan Changes: **Segment 4**

The intent of this summary is to share the details, by segment, of the proposed Complete Streets Plan for Mount Auburn Street improvements. The plan has evolved over time for a number of reasons, including responding to suggestions made in public meetings by residents and business owners, learning more about traffic volumes and interactions in the segments, and complying with the Complete Streets program. The recommendations address residents' requests; fine tuning of plans for pedestrian, transit, traffic and parking and bicycle facilities; and safety. Read in conjunction with the complete roll plan, this list provides the details that meeting participants have requested. The team appreciates the ideas and suggestions provided by the community that have shaped the proposed plan.

Pedestrian Changes

- Across Mount Auburn Street
 - RRFB added at Cottage Street

Bus Changes

- Mt. Auburn Street **East Bound**
 - Relocated Stops
 - Midblock stop between Norseman Avenue and Ralph A. Piteri Terrace moved to the far-side Cottage Street

Bike Changes

- Mount Auburn Street **East Bound**
 - Dedicated bicycle facility continuous from Parker Street to Cambridge Town Line
 - Buffers
 - Double Buffered from Arlington Street to Cottage Street
 - Shared Bus-Bike lane provided
 - From Cottage Street to Cambridge city limit
- Mt. Auburn Street **West Bound**
 - Dedicated bicycle facility continuous from Cambridge town line to Palfrey Street
 - Bike Boxes Removed along Mount Auburn Street at
 - Cottage Street intersection
 - Shared Bus-Bike lane provided

- From Cambridge city limit to Cottage Street
- Buffers
 - Double Buffered from Cottage Street to Prentiss Street

Traffic Changes

- Intersections
 - Removed proposed signal at Cottage Street and Mt Auburn Street intersection

Parking Changes

- Mount Auburn Street East Bound
 - Arlington Street to School Ln.
 - Removed 5 parking spaces from extension of segment 3
 - Norseman Avenue to Ralph A. Piteri Terrace
 - Added 6 parking spaces from bus stop relocation
 - Cottage Street to Cambridge town line
 - Removed 4 parking spaces from bus stop relocation
 - Total of East Bound parking spaces
 - Added 6 parking spaces in total
 - Removed 9 parking spaces in total