CITY OF CAMBRIDGE
WESTERN AVENUE RECONSTRUCTION PROJECT
ADVISORY COMMITTEE #5, May 26, 2010
MEETING NOTES

Date, Time & Place: May 26, 2010, 6:00 PM – 8:00 PM
Cambridge Senior Center

Present
Commitee Members

Bill August	Velmer Brooks	Kathy Cannon	Abdullah Daoud
Reuben Dottin	Caitlin Gallagher	David Gibbs	Erin Gullage
Bob Nesson	Brad Nissenbaum	Eran Segev	Anne Shuhler

City of Cambridge
Susanne Rasmussen (CDD) Jeff Rosenblum (CDD) Wendy Robinson (DPW)

CDD = Community Development Department DPW = Public Works Department

Consultant Team:
Jerry Friedman (HDR Engineering, Inc.) Arthur Bonney (HDR Engineering, Inc.)
Rod Emery (Jacobs Engineering)

Public (signed in)
4 in attendance

******SEE ALSO POWERPOINT SLIDES OF PRESENTATION******

Note: Q=Question A=Answer C= Comment

1. WELCOME (Susanne Rasmussen)

Susanne welcomed the attendees; reviewed the agenda; and introduced City and Consultant staff. It was noted that at past meetings, the Committee wanted the team to examine a wide range of issues including restoring two-way traffic on Western Avenue, and reducing the Avenue from two travel lanes to one. Tonight's presentation is intended to address these questions.

2. OVERALL TRAFFIC CONFIGURATION OPTIONS (Jeff Rosenblum)

Jeff Rosenblum made a presentation on traffic operations on Western Avenue, analysis the team has done to date, and what the results mean in tems of potential options moving forward. Key points include:

- Western Avenue has "normal" peak weekday traffic, where traffic sometimes backs up to approximately Jay Street, sometimes not at all, and usually to Putnam; Western Avenue also experiences somewhat unpredictable, and relatively rare, "extreme" peak days, when traffic backs up to Central Square.
- The team conducted a number of timed vehicle runs on different days to confirm the operating conditions. Queues (line of cars) from each signalized intersection (Memorial, Putnam, Howard) backup as shown on the graphic, until the "peak of the peak" is reached around 5:30 pm. The queues then shrink back to "non-peak" conditions by about 6:30 pm.

At the last meeting, the Committee requested that two scenarios be explored:

Restoration of Two-Way Traffic

- Restoration of two-way traffic on Western Avenue would require reconfiguration changes to Western Avenue, and also to River Street and many of the side streets.
- Two-way traffic would provide a more "community feel" to Western Ave, which is one of the goals of the project.
- It turns out, however, that two-way traffic would not be feasible from a current traffic operations point of view. A significant change that has occurred, since River and Western were converted to one-way in the 1950's, was the opening of the Mass Turnpike Extension and the Allston interchange. The heavy volumes of traffic flowing to and from the Pike via Cambridge have altered the basic traffic patterns to the extent that the ability of River Street, Western Avenue, and other streets to handle the traffic volumes would be significantly impacted if the Avenue was to go back to a two-way pattern.

Dropping One of the Two Western Avenue Travel Lanes

- The team explored whether any significant length of Western Avenue could function acceptably with only one travel lane. The benefits from dropping a lane would include extra space for other uses, and a significant change in the character of the street.
- The analysis shows that during "normal" peak hours, two lanes are not required to process traffic through the intersections at the "upper" end of the corridor (from Green Street through Howard Street). The only traffic signal of significance in this section is the one at Howard Street—because there is light vehicle volume on Howard itself, the green light for Western Avenue vehicles can be long enough to allow the same number of cars on Western Avenue to get through the Howard Street intersection, regardless of whether there is one lane or two. Signal timing could be adjusted such that travel times from Central Square to Memorial Drive would be roughly the same as they are today.
- Analysis shows that a 2-lane configuration is needed from about Gilmore Street to Memorial Drive, in such that the Putnam Street traffic signal can process enough vehicles on Western Avenue through the intersection on each green cycle. Unlike at Howard, providing a longer green light at Putnam is not possible because "green light" time would need to be reduced for the cars on Putnam Avenue, and this isn't desirable.
- Though travel times would remain about the same regardless of whether there is a 1-lane or 2-lane configuration from Mass. Ave to Memorial Drive, the queue lengths (the amount of " traffic backup") would be longer in the upper part of the Avenue. This is because the same number of vehicles would have only one lane to be "stored" in instead of two. Because a driver will be in a longer line of cars during backups, it may seem to him/her that the traffic backup is twice as bad. But in reality, the travel time that driver experiences through that traffic backup would not be improved even if there were two lanes. It is important to remember that it is the travel time from point "A" to "B" that affects drivers most, and not the length of back-up at individual intersections.
- Some of the existing traffic problems are caused by inefficiencies of the current operations of the intersections at Memorial Drive/Western Avenue, and Soldiers Field Road/Western Avenue. Much more attention is being given to these intersections now by MassDOT as part of the Accelerated Bridge Program which includes reconstruction of both the Western and River bridges. The bridge reconstruction project will include new traffic signal equipment at these intersections. In addition, there is a much higher level of cooperation between agencies such as DCR, MassDOT, and cities of Cambridge and Boston than there has been in recent decades.
- Our project team performed our own analysis of the DCR signals, and the results are shown in an animation produced by the SYNCRO modeling software (animation was shown). Key points:
    - There is inefficiency in the current traffic operation because the signals on either side of the Western Ave. bridge are not coordinated with the signals on either side of the River Street bridge. There are times that the light is green for Memorial Drive, but there isn't any cars using the intersection because they are being held up behind the River Street light (and causing backups toward the BU bridge). If all these signals were coordinated, you could use these critical intersections more efficiently, and improve traffic conditions.
    - Currently, when traffic gets bad, the DCR signals end up favoring Memorial Drive traffic at the expense of Western Avenue traffic. Traffic from Memorial Drive westbound, can generally make the left turn at Western Avenue, cross the bridge, and make another left onto Soldiers Field (to reach the Pike) all in one movement. There are times when plenty of traffic can enter the Western Ave. bridge from westbound Memorial Drive, only to fill up the bridge space—and when

the signal turns green for Western Ave., there is little to no space available for any vehicles from Western Avenue. Traffic from Western Avenue has much more limited opportunity to "use" the intersection, and when Western Avenue traffic does go through the signal and crosses the bridge, it generally encounters a red signal at Soldiers Field Road and must wait again there before accessing the Pike.
  - There are also some basic inefficiencies in the way the signals operate. There is often empty space on the Western Avenue bridge, for example, with no traffic arriving to fill this gap. Similarly, there are times when the Memorial Drive westbound left-turn signal is green, but not cars are arriving on Memorial Drive.

- We then modeled an alternative scenario, under which all key signals were coordinated, and timing was optimized.
  - In this scenario, with no physical changes to Western Avenue, the travel time from Central Square to Memorial Drive decreased from 8 minutes, during an average peak, to 4 minutes.
  - We also found that on the "extreme" peak days when traffic backs towards Central Square, the "recovery" time to a normal condition was reduced significantly, compared to the present situation when it can take up to 1 ½ hours for traffic to recover.

- <u>Conclusion</u>: Strictly from a traffic flow perspective, and assuming collaboration with DCR on improvements to their signals, and better signal coordination, Western Avenue could function with a single travel lane from Central Square to approximately Gilmore Street.

Questions/Comments:

Q: Would pedestrian timing/phasing also be revised under this scenario?
A: Yes – it could also be improved because the overall timing is being made more efficient.

Q: Would more traffic use Western Avenue if travel time was improved?
A: That is a good question. Sometimes building more capacity into a roadway system results in additional vehicles using up that capacity.

Q: Can traffic be encouraged to use Memorial Drive to the MassPike instead of Western Avenue?
A: Since all of the roadways in this area are pretty near capacity in the peak hours, it is in a state of equilibrium. People tend to have experimented with alternative routes, and have chosen one which they have concluded works best for them.

Q: Is Memorial Drive westbound affected by the signals at River Street?
A: People probably do not divert from Memorial Drive due to the signals at River or Pleasant Streets. Alternative routes such as Putnam are also at their capacity. Putnam is interesting because it sees relatively little traffic outside of peak hours, then gets totally clogged during the peak.

Q: Is the lane arrangement on the Western Ave bridge being changed?
A: Current plans by MassDOT show the same number of travel lanes, only narrower, so that a bike lane can be added.

Q: If a single agency controlled all of the roads, would the signal situation would be better?
A: Interagency coordination is actually starting to get better, since MassDOT was formed.

Q: Do we know the size of the area which contributes for Western Ave traffic? Does BU Bridge construction impact traffic?
A: This was not specifically studied as part of this project (it's a very costly endeavor), but anecdotally the catchment area extends back to Union Square in Somerville for vehicles desiring to enter the MassPike. Though this information would be interesting to know, but it wouldn't really affect the decision-making for this project.

Q: Is there a better way for Somerville traffic to reach the Pike, that they just don't know about?
A: Probably not. I-93 routing also heavy and slow during peaks.

Q: Would conditions during Riverbend Park closures (Sunday closures) be improved with coordinated signals?
A: Yes. A new signal system, would allow for a special timing setting to be in effect for Sunday Riverbend Park closures that would improve the flow of traffic.

C: If Western Ave/Mem. Drive intersection had a grade-separated pedestrian crossing, many conflicts and safety issues would be eliminated.

Q: Can trucks be banned from Western Ave during peak hours?
A: This is a larger issue outside the scope of this project. In general, City of Cambridge cannot ban truck traffic from specific streets. Only the Commonwealth of Massachusetts can do this.

Q: Can signals have different timing during non-peak hours?
A: Yes – modern signals have timing options which allow it to vary throughout the day and on weekends, and even be able to respond in real time to traffic conditions.

Q: Can signals be re-timed now, so don't have to wait two years for conclusion of project?
A: Yes. The City is already working with MassDOT and DCR on short-term changes, especially during construction of the various bridges.

Q: Are there are examples of synchronized signals in Cambridge?
A: Harvard Square is a good example. Traffic flow heading outbound on Mass Avenue from Central Square, through Harvard and towards Porter Square is much better since the Harvard Sq. project was finished, even with the addition of a signal at Johnson Gate, and the elimination of a lane through the Square itself.

C: Let us know if Committee can somehow help with ongoing MassDOT/DCR coordination.
A: Yes. But keep in mind, this will not happen overnight! It is a process.

3. CONCEPTUAL DESIGN ALTERNATIVES (Jerry Friedman / Jeff Rosenblum)

After the traffic analyses were completed, we began developing possible concepts for the basic width and functional arrangement of the street for pedestrians, vehicles, and bicycles. The following five concepts were presented. There were also very brief presentations on cycle tracks and back-in angled parking (see powerpoint presentations):

Cycle Track "101":

- Concepts 2 and 3 show a bike facility called a cycle track, which may not be familiar to all committee members.
- Examples of different types of cycle tracks were shown from around the world, including cycle tracks at sidewalk level; at street level; and at an intermediate level between street and sidewalk.
- There are a number of different treatments possible for the buffer between bikes and pedestrians. Sometimes there is room for plantings or street furniture in this zone; other locations indicate the separation with a change in materials.
- Approaching intersections, raised cycle tracks can either descend to street level, or remain raised as they cross side streets.
- Cambridge has an existing cycle track on Vassar Street; and one will be included as part of the current Concord Avenue project. There are long range plans for one on Binney Street as well.
- In New York, there are a number of cycle tracks at street level, between the parking lane and the curb.

Back In Angle Parking (Reverse Angle Parking) "101":

- Concept 5 includes an innovative concept called "Back-In Angle Parking" (also called "Reverse Angle Parking.")
- It is similar in dimension to conventional "head-in" angle parking, but is much safer and easier to use.
- Motorists pull past their spot (like in parallel parking), and then back-in at an angle. When leaving, they have a much better view of oncoming traffic, and can pull out into the travel lane in one maneuver.
- When a bike lane must be adjacent to parking, this is a safer arrangement since motorists and cyclists have a better view of each other, and dooring is eliminated.
- Added benefits include having the trunk at the curb for easier loading, and the car doors open in such a way to funnel children toward the curb (not into traffic, like "head-in" parking does).
- There is growing interest in this type of parking around the country. A number of communities of all sizes are currently using it, including Seattle, Washington, New York, Montreal.

Concept 1: "Bike lane"

- Basically existing conditions; i.e. 45-feet curb-to-curb; with two travel lanes, two parking lanes, and a bicycle lane. Exact lane dimensions could be modified somewhat from what you see existing out there today in order to narrow the travel lanes and widen the bike lane.
- As on all concepts to be shown tonight, there are additional interventions (curb extensions at intersections, additional crosswalks) that we expect to add to the basic concept. The idea for tonight is not to focus on those elements– just to focus on the basic cross-section concepts.
- As on all concepts to be shown tonight, we are proposing that at bus stops, the sidewalks be extended right to the edge of the travel or bike lane. This makes it much easier for buses to pull into and out of stops; and makes it easier for passengers, especially those with mobility issues, to get on and off the buses.

  Q: What about buses partially blocking the bike lanes. Might not be safe for bikes
  A: When the buses pull in to pick up passengers and temporarily stop on the bicycle lane, there is an equal bicycle-lane size space on the left of the bus. This new space is too small for a car to pass, but the same size as a bike lane making it comfortable for cyclists to pass. Cyclists can also choose to wait a few seconds behind the bus until the bus pulls away from the bus stop.

  Q: What about a stopped bus disrupting traffic behind it?
  A: During most times of day, traffic is light enough so that it isn't a problem for a vehicle to change lanes to pass a stopped bus. And when there is significant traffic, there is nowhere for the car to get to, so waiting behind the bus for a few seconds will have a very negligible impact on traffic. With the CharlieCard system, boarding times have improved significantly. Finally, for full accessibility to buses by persons with disabilities, both doors of the bus need to be pulled up against the curb for the bus stop. Cars illegally park or stop in bus "pull-ins", preventing buses from accessing the curb fully. The design shown in all these concepts is the best practice recommended around the country and by the MBTA for streets like Western Avenue.

Concept 2: "Buffered cycle track"

- Like Concept 1, this concept keeps existing curb-to-curb width of 45-feet, but uses some of the extra space which today exists to create a street-level cycle track behind the parking lane.
- A flush buffer is provided between the parking lane and the cycle track. The buffer would be comprised of paint stripes to indicate that cars are supposed to stay to the left of the buffer, and that cyclists should avoid that buffer in case a passenger car door opens.
- At bus stops, the cycle track would climb to sidewalk level, and special markings and signage would be provided to remind cyclists to slow down and share the space.

- This configuration of cycle track eliminates instances of cyclists being "doored" by drivers opening their door of their parked car, when the bike lane is against parked cars.

Concept 3: "Raised cycle track"

- This concept starts to narrow the roadway width. A raised cycle track is provided, and the curb-to-curb width becomes about 36 feet. This option still has two lanes of traffic, and two parking lanes.
- Cyclists are separated from pedestrians by the existing buffer of trees and lights, and additional buffer space is provided to protect cyclists from dooring by parked cars, and from trees, lights and other street furniture elements.
- Sidewalk width remains the same as existing, which is about 10 feet (including trees, etc.)

Concept 4: "1-travel-lane to Gilmore plus bike lane and wider sidewalk"

- This is a "one travel lane" concept, which could be implemented in the eastern part of the corridor.
- It is a fairly conventional arrangement of two parking lanes, one travel lane, and in-street bike lane.
- With the one-lane concept, it becomes critical to establish a corridor that is wide enough for emergency vehicles to get through, even if blocked by other traffic. Also need enough width so that normal City services such as trash pick-up do not block all traffic.
- The proposed solution is to provide a travel lane and bike lane that combined are wide enough to serve as two lanes in an emergency. Exact dimension to be worked out with City services, but likely to be on the order of 18-20 feet.
- This requirement makes it inefficient to combine a one-lane alternative with a cycle track alternative. Since we need a wide emergency corridor anyway, it makes the most sense for a conventional bike lane to use some of this width.

  C: Concern that the combined wide "emergency corridor" would encourage normal motorists to use as a two lane road (i.e. they would drive in the bike lane)
  A: Central Square (Mass Ave) has a similar arrangement, and drivers seem to generally respect the bike lane and not use it as a travel lane or to pass cars on the right.

Concept 5: "Back-in angle parking, 1-travel-lane to Gilmore, plus bike lane

- This is a "one travel lane" concept, with reverse angle parking on the south (left) side of the street.
- Some extra width is provided in the cross-section for parking maneuvers, and the south sidewalk is widened by a few feet to allow for vehicles to overhang the curb without hitting existing trees, etc.
- As in Concept 4, a single travel lane and bike lane are provided, and must be wide enough to also serve as an emergency corridor.
- The curb-to-curb width is around 38-40 feet. The north sidewalk is widened slightly to increase the buffer between pedestrians and moving traffic.
- At intersections where the parking ends, large curb extensions can be provided.

  C: Discussion of why the parking is shown on the south side and not the north. Concern that residents on one side will not accept inability to park in front of their homes. Inability to pull over and drop off people without blocking travel lane. Discussion of how this would impact operations at the Funeral Home.

  A: All good points. Jeff. R. did spend some time discussing funeral operations with A.J. Spears. Based on our current understanding, Concept 5 would be compatible with their operations, as they could still block-off some spaces and double park cars without blocking the travel lane.

4. PROS AND CONS OF CONCEPT ALTERNATIVES (Committee and Public)

Concept 1

PROS	CONS
Keeping the curbs where they are today would save on construction costs	There are fewer opportunities for addition of green space, and less space to meet “Low Impact Design (e.g., “Rain Gardens”) water quality goals
Because it is what is out there today, there will not need to be any behavior change on the part of motorists, cyclists, or pedestrians	No significant improvements for pedestrians
	Bike lane is against parked cars
	This option will have a minimal impact on reducing vehicle travel speeds, and the street would still have the wide, barren feel.
	Not a very bold nor exciting option
	The ratio of space for cars (both travel lanes and parking) compared with space for pedestrians is the same, which sends a message about value of pedestrians

Concept 2

PROS	CONS
Achieves behavior change, more people will want to bicycle	Increases complexity of bicycle/vehicle conflicts at intersections and driveways
Achieves narrower street width, and narrower travel lanes for traffic calming effect	Cars might pull up to curb temporarily, blocking cycle track
The pedestrian crossings become shorter	The design is still street-focused
The pedestrians are farther from the moving cars	Snow clearing when there isn’t a parking ban is problematic, because can’t get a plow between parked cars and the sidewalk
Safer for cyclists because not against parked cars	
Allows for larger curb extensions	
Snow emergency parking ban on the right side helps ability to do snow clearing	

Concept 3

PROS	CONS
Separating cyclists is safer, will significantly increase the number and diversity of cyclists	Like Concept 2, have to deal with more complex design issues around intersections
Though there are still 2 lanes of travel, the total roadway width is narrowed which is a good thing	Snow clearance and street sweeping might be an issue for the cycle track
More opportunities for plantings	There is a larger space between the parked car and the sidewalk, so people getting to and from their cars have more distance to walk, and also watch out for cyclists.
Property values will go up	
Shorter pedestrian crossings	
Cycle tracks is where bike accommodation is headed for urban areas	

Concept 4

PROS	CONS
Creates the most dramatic effect to change the street to be more residential	Are bicyclists really gaining anything? They are still in a bike lane on the street against parked cars.
Significant traffic calming and pedestrian crossing improvements	This will generate more controversy, and therefore be more of a process to get community and political buy

	in.
Slower traffic means increased safety for cyclists and pedestrians	What about emergency vehicles?
Street will look a lot nicer, increase property values	What if you want to, in the future, have a bus-only lane? With this option, you will not be able to.
A much bolder option	Negative effect on the AJ Spears Funeral Home operations
	Makes very short-term double parking impossible
	Higher risk of bad things happening during the occasional really bad traffic backup.

Concept 5

PROS	**CONS**
Totally new look for the street, looks good! Like a small business district.	Totally new look for the street, but is really ugly, looks like a parking lot.
Opportunity for significant additional green space.	Makes it hard to short-term double park for loading/unloading
There is less confusion for all users	Because of need for extra space for emergency vehicles, need to put the bike lane in the street, can't do the raised cycle track option here
Cyclists are not against parked cars	Concerns that the public will not like this option because it expects them to do something different
Narrows the street, makes for slower traffic	
New, innovative, bold.	
Works better than concept 4 for funeral home operations	