

Four-Way Intersection

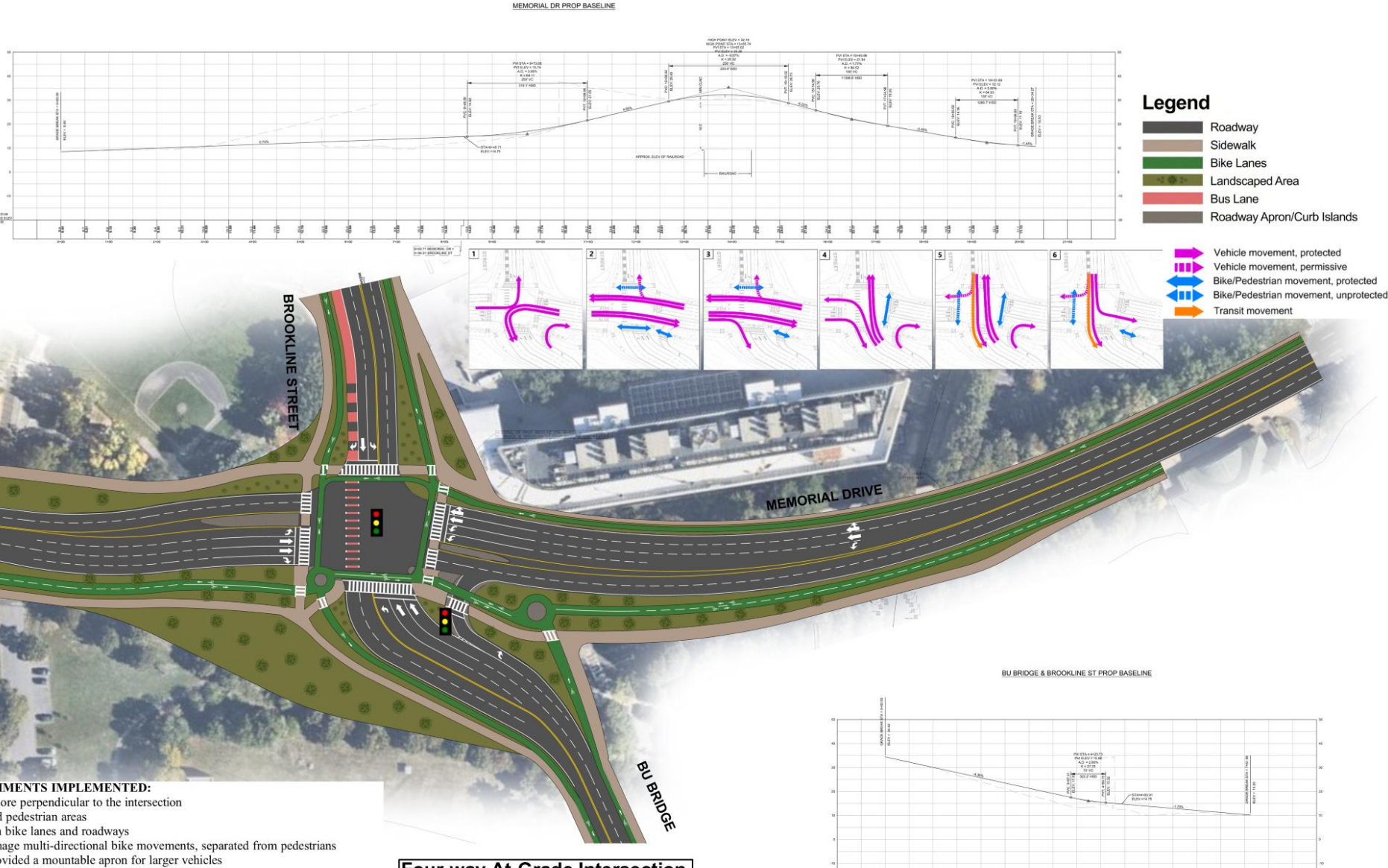
ADVANTAGES

- At-Grade Signalization: provides traditional assignment of right-of-way for all approaches and turning movements
- Acceptable operational performance: achieves reasonable control delay, queue lengths, and v/c ratios with optimized signal timing and lane configurations
- Maintains all turning movements: supports local and regional circulation
- Integrates pedestrian crossings, bicycle facilities, and ADA-compliant features
- Allows for protected pedestrian phases and signal-controlled crossings
- Signal timing can be adjusted and coordinated with adjacent intersections to respond to changing traffic conditions
- Less expensive than grade-separated alternatives; no bridge or major structures required
- Context-sensitive solution: Fits within urban setting without introducing large vertical infrastructure allow open river vista opportunity
- Option for bus queue jump shared with right turn lane coming off Brookline Street

LIMITATIONS

- At-grade Memorial Drive traffic limits signal time available for side street movements.
- Signal timing limits performance, particularly under high traffic volumes or unbalanced flows
- Additional lanes (turn lanes, storage) to maintain capacity requires additional pavement widening
- Wider intersections increase crossing distance and exposure time for peds/bikes

Condition	Existing Geometry	Four-Way Intersection
Green Space (ft^2)	61,999	73,291



Draft
Concept

For Review
Only



PUBLIC/STAKEHOLDER COMMENTS IMPLEMENTED:

- Shifted the NB lanes closer and more perpendicular to the intersection
- Separation between bike lanes and pedestrian areas
- Buffer/vertical separation between bike lanes and roadways
- Provided bike roundabouts to manage multi-directional bike movements, separated from pedestrians
- Tightened the NB right turn & provided a mountable apron for larger vehicles

Description of the Four-Way Intersection

- **Advantages:**

- At-grade signalization provides traditional right-of-way for all approaches and turning movements
- Acceptable operational performance: achieves reasonable control delay, queue lengths and V/C ratios with optimized signal timing and lane configurations
- Maintains all turning movements, supports local and regional circulation.
- Integrates pedestrian crossings, bicycle facilities, and ADA-compliant features.
- Signal timing can be adjusted and coordinated with adjacent intersections to respond to changing conditions
- Less expensive than grade separated alternative; no bridge required.
- Context sensitive solution: fits within urban setting without introducing large vertical infrastructure allows open river view
- Options for bus queue jump shared with right turn lane coming off Brookline Street

- **Limitations:**

- At grade Memorial Drive traffic limits signal time for side street movements
- Signal timing limits performance, particularly under high

traffic volumes or unbalanced flows

- Additional lanes for turning and storage to maintain capacity widen pavement
- Wider intersection increases crossing time and exposure for cyclists and pedestrians.

- **Green Space in Square Feet:**

- Existing: 61,999
- Four-Way Intersection: 73,291
- Tight Diamond Intersection with Bridge: 84,329

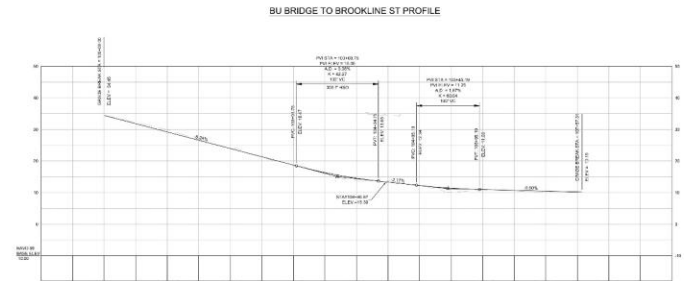
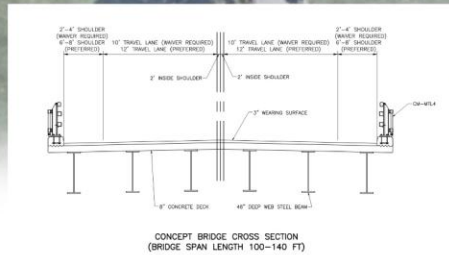
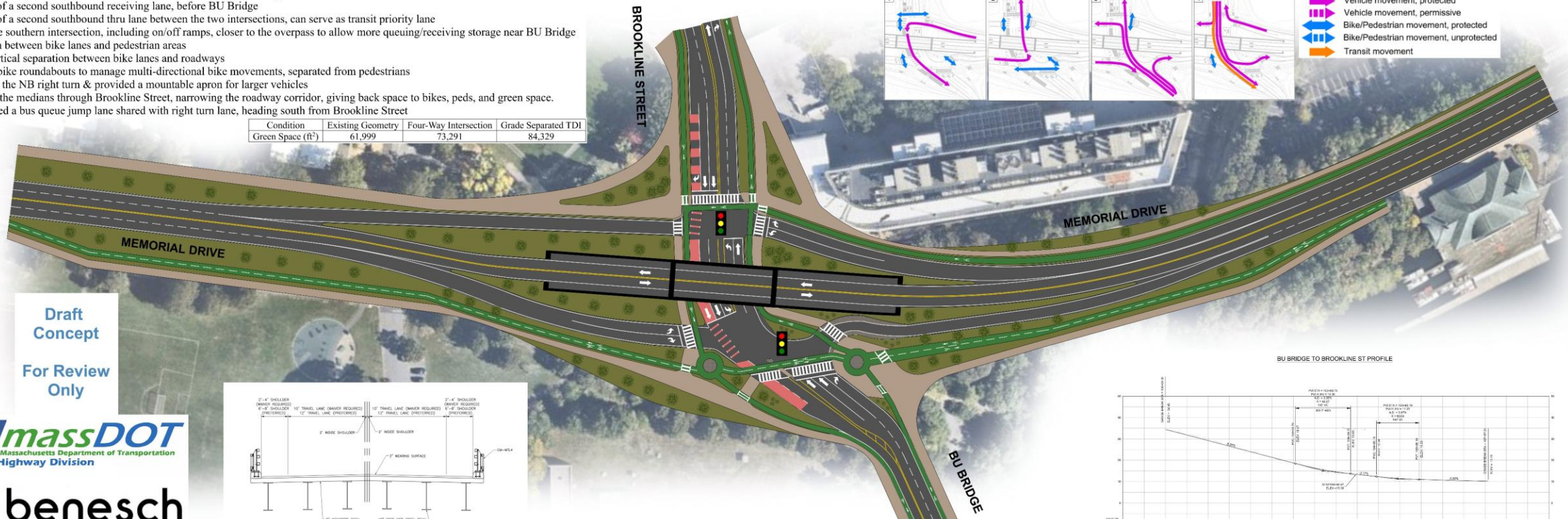
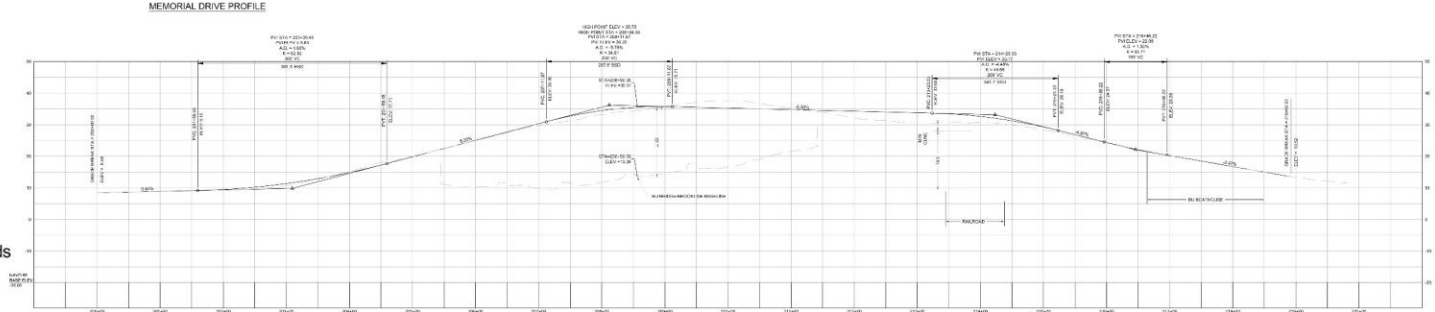
- **Public/stakeholder comments implemented:**

- Shifted the northbound lanes closer and more perpendicular to the intersection
- Separation between pedestrian and bicycle areas
- Bicycle roundabouts to manage multidirectional bicycle movements
- Tighter northbound right lane with mountable apron for large vehicles
- Removed median on Brookline Street with space returned to green/pedestrian/bicycles
- Bus queue jump lane coming south off Brookline Street

Condition	Existing Geometry	Four-Way Intersection	Grade Separated TDI
Green Space (ft ²)	61,999	73,291	84,329

Legend

-  Roadway
-  Sidewalk
-  Bike Lanes
-  Landscaped Area
-  Bus Lane
-  Roadway Apron/Curb Islands



Grade Separated Tight Diamond Intersection

Description of the Tight Diamond Intersection with Bridge

- **Advantages:**

- Keeps Memorial Drive through traffic above/out of intersection
- Minimizes crossing distances for pedestrians and cyclists
- Free flow conditions for Memorial Drive thru traffic reduces overall delay and queueing
- Reduces travel time and variability for Memorial Drive traffic
- Tight geometry controls speeds
- Option for bus queue jump shared with right turn lane heading south off Brookline Street

- **Limitations:**

- High construction cost, requires a bridge and retaining wall systems
- Reduced contiguous green space, larger approach footprint
- Crossing over Paul Dudley White path remains close to existing conditions
- Visual impact: larger structure with aesthetic concerns
- Requires careful consideration of pedestrian/bicycle connectivity under the structure

- **Green Space in Square Feet:**

- Existing: 61,999
- Four-Way Intersection: 73,291
- Tight Diamond Intersection with Bridge: 84,329

- **Public/stakeholder comments implemented:**

- Addition of a separate right turn lane coming off the BU bridge heading north
- Addition of a second southbound receiving lane before the BU bridge
- Addition of a second southbound through lane between the two intersections to serve transit vehicles
- Buffer and vertical separation between bicycle lanes and roadways
- Provided bicycle roundabouts to manage multidirectional bicycle movements
- Tighter northbound right lane with mountable apron for large vehicles
- Removed median on Brookline Street with space returned to green/pedestrian/bicycles
- Bus queue jump lane coming south off Brookline Street