

CONCEPTUAL PROPOSAL



I-278 BQE ALTERNATIVES

The Brooklyn Heights Association, BHA, submits this booklet to the BQE Panel to enable it to evaluate concepts that Marc Wouters | Studios has proposed as potential alternatives to the two approaches NYC DOT discussed with the public at its hearing on September 27, 2018. BHA believes these concepts are far preferable to the elevated 6-lane highway that the DOT apparently currently favors, per its September report.

This booklet describes several concepts including A) the “Temporary Parallel Bypass Concept” with a final outcome that transforms the temporary bypass into a new park terrace for Brooklyn Bridge Park, B) a conceptual reconstruction plan for the Columbia Heights Bridge, C) pedestrian focus areas, and D) a four-lane alternative for the BQE. The comparative advantages of the BHA Temporary Parallel Bypass Concept proposal are summarized on pages 21-23. Please note that apart from these new proposed final outcome concepts, this booklet reflects significant refinements to the Parallel Bypass Concept that the BHA submitted to the DOT last November.

Please note that the proposals described in this booklet are solely concepts and do not purport to be the result of a full engineering study or assessment. The BHA has worked with transportation planning firm Nelson Nygaard and other engineering firms to review the Temporary Parallel Bypass Concept on a preliminary basis. These concepts assume that NYC DOT is able to alleviate in whole or in part the constraints created by the three assumptions it disclosed in September that led it to devise the elevated roadway approach.

The BHA requests the BQE Panel to consider these concepts as well as others that would achieve NYC DOT’s objectives while avoiding the highly adverse consequences of creating an elevated 6-lane highway.

FORWARD

April 25, 2019

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INDEX

A. TEMPORARY PARALLEL BYPASS METHOD

THE TEMPORARY PARALLEL BYPASS CONCEPT WAS DEVELOPED TO PROVIDE ADEQUATE TRANSPORTATION DURING THE I-278 BQE ATLANTIC TO SANDS RECONSTRUCTION PROJECT WHILE ALSO MAINTAINING INTERNATIONALLY RENOWNED PUBLIC SPACES AND PROTECTING THE QUALITY OF LIFE OF AREA RESIDENTS, BUSINESSES, AND INSTITUTIONS.

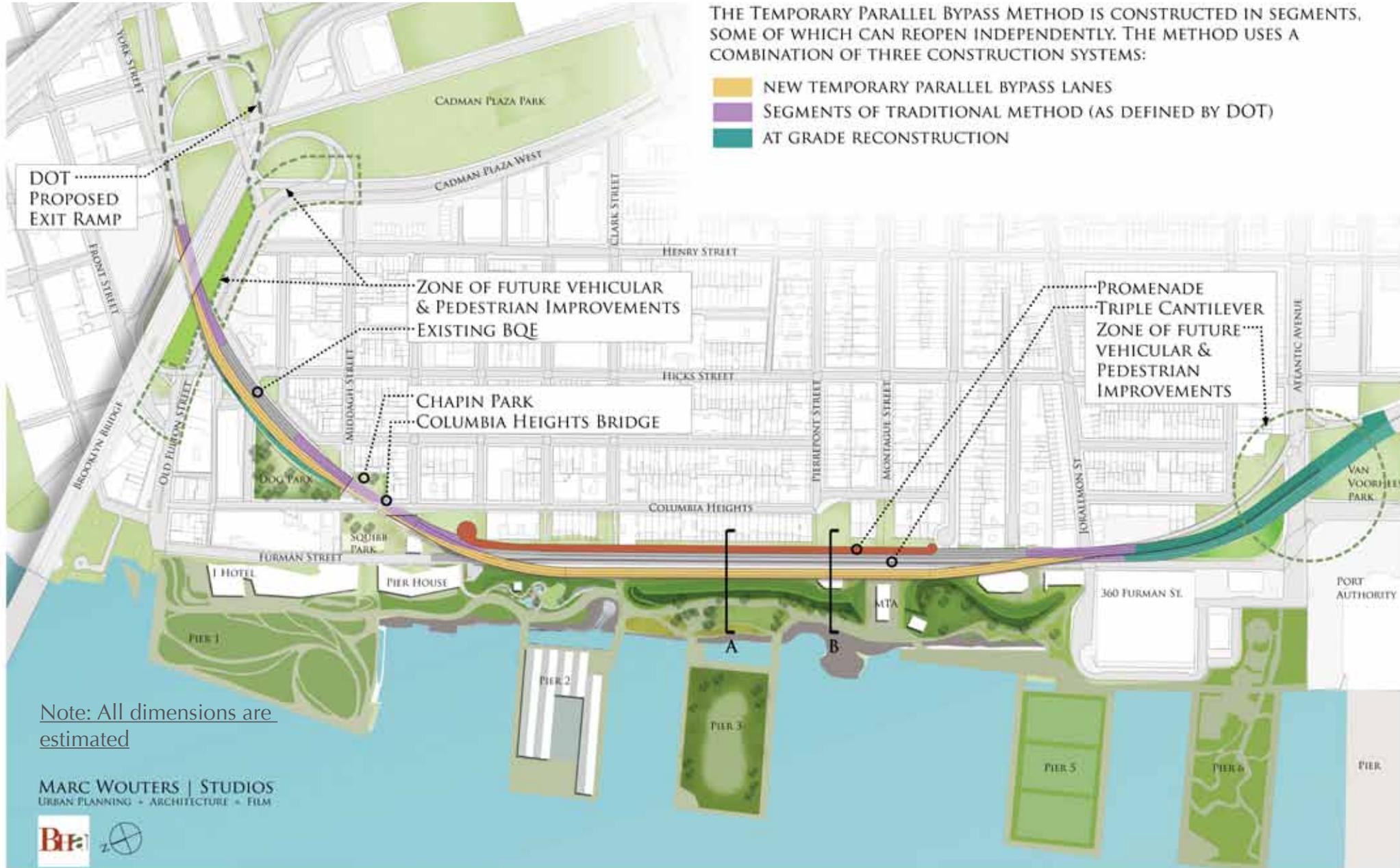
THE PLAN ALSO OFFERS A POTENTIAL FINAL OUTCOME THAT PROVIDES SEVERAL NEW PUBLIC SPACES AND TERRACES, IMPROVED PEDESTRIAN CONNECTIONS AT MULTIPLE INTERSECTIONS, AND EXPRESS TRAFFIC LANES THAT SERVE SUSTAINABLE FORMS OF TRANSPORTATION.

THE PLAN PROPOSES TEMPORARY TWO-LEVEL BYPASSES ADJACENT TO THE BQE IN TWO AREAS. WHERE SPACE IS CONSTRAINED, I.E., AT “PINCH POINTS”, THE PLAN PROPOSES RELATIVELY SHORT SEGMENTS OF A LANE-BY-LANE RECONSTRUCTION METHOD. THE PLAN ALLOWS THE POSSIBILITY OF PHASED SEGMENTS OF RECONSTRUCTION AND FOR SOME OF THE SEGMENTS TO OPEN BEFORE THE ENTIRE ATLANTIC TO SANDS PROJECT IS COMPLETE. ONE OF THESE LANE-BY-LANE RECONSTRUCTION AREAS IS THE COLUMBIA HEIGHTS BRIDGE AND IS DESCRIBED IN SECTION B.

UPON COMPLETION OF RECONSTRUCTION OF THE TRIPLE CANTILEVER SEGMENT, THE LOWER LEVEL OF THE BYPASS IS PROPOSED TO BE ADAPTED INTO A NEW PUBLIC LANDSCAPED TERRACE, CONNECTING TO THE PARK ON THE WEST AND WITH DIRECT ACCESS TO THE PROMENADE AT ONE OR MORE LOCATIONS ON THE EAST.

CONCEPTUAL PROPOSAL





SITE PLAN: TEMPORARY PARALLEL BYPASS

THE PARALLEL METHOD USES A COMBINATION OF THREE CONSTRUCTION SYSTEMS:

- THE TRADITIONAL (LANE BY LANE) REPLACEMENT METHOD (AS DEFINED BY DOT)
- NEW TEMPORARY PARALLEL BYPASS LANES
- AT GRADE RECONSTRUCTION

BROOKLYN BRIDGE	COLUMBIA HEIGHTS BRIDGE TO BK BRIDGE	COLUMBIA HEIGHTS BRIDGE	TRIPLE CANTILEVER	360 FURMAN TO GRACE COURT	ATLANTIC AVE. TO 360 FURMAN
500LF TRADITIONAL	650LF BYPASS	700LF TRADITIONAL	2200LF BYPASS	600LF TRADITIONAL	530LF AT GRADE



PARALLEL METHOD WITH SEGMENTED PLAN



THE BROOKLYN HEIGHTS
PROMENADE

BQE NORTHBOUND LANES

BQE SOUTHBOUND LANES

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FURMAN STREET
EXISTING SIDEWALK

BERM

.....SOUND BARRIER

ACTIVE PARK

THE TEMPORARY BYPASS IS ONLY REQUIRED WHILE THE TRIPLE CANTILEVER PORTION OF THE PROJECT IS RECONSTRUCTED. THEREFORE IT MAY BE DECOMMISSIONED AFTER A RELATIVELY BRIEF PERIOD.

IT IS PLACED BEHIND THE BERMS OF BROOKLYN BRIDGE PARK TO ALLOW BOTH THE PARK AND THE PROMENADE TO REMAIN OPEN DURING CONSTRUCTION.

Note: All dimensions are estimated

CROSS SECTION: TRIPLE CANTILEVER WITH TEMPORARY PARALLEL BYPASS



SOUND BARRIER

EXPRESS LANES

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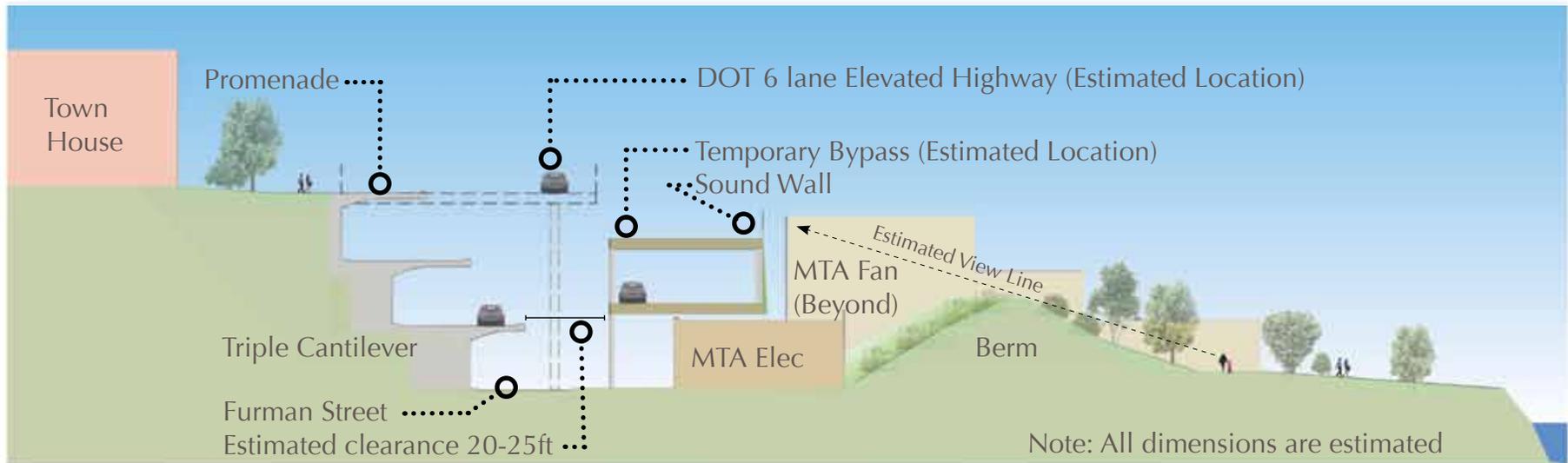
POTENTIAL TERRACE

BUS PARKING

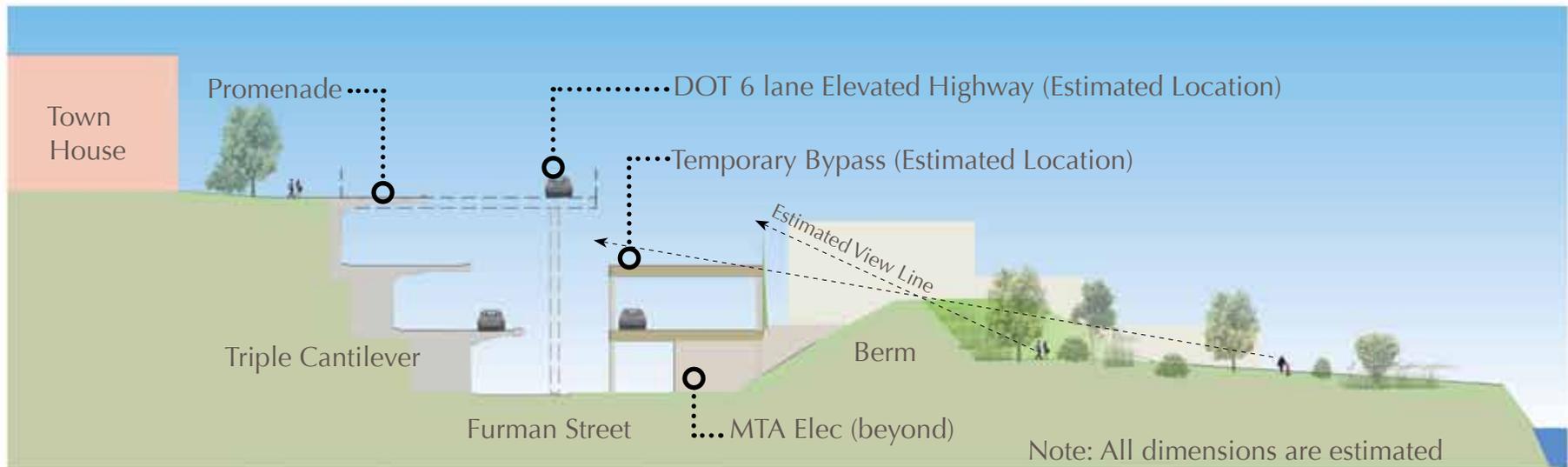
THE STRUCTURE OF THE TEMPORARY BYPASS COULD BE REPURPOSED AS A TERRACE FOR THE PARK BY REMOVING THE TOP LEVEL AND LANDSCAPING THE LOWER LEVEL. THE FINAL PLAN COULD INCLUDE PEDESTRIAN CONNECTIONS AND TERRACES FROM MONTAGUE STREET TO BROOKLYN BRIDGE PARK. THE PLAN COULD INCLUDE SOUND BARRIERS ON THE BQE.

THE NEW BQE COULD INCORPORATE HOV OR EXPRESS BUS LANES TO SUPPORT SUSTAINABLE TRANSIT.

POTENTIAL FINAL CONDITION: TERRACE PARK



ESTIMATED CROSS SECTION B: TRIPLE CANTILEVER AND MTA ELECTRICAL FACILITY
WITH DOT TEMPORARY HIGHWAY AND TEMPORARY PARALLEL BYPASS



ESTIMATED CROSS SECTION A: TRIPLE CANTILEVER NEAR PIER 3
WITH DOT TEMPORARY HIGHWAY AND TEMPORARY PARALLEL BYPASS

CROSS SECTIONS: TRIPLE CANTILEVER



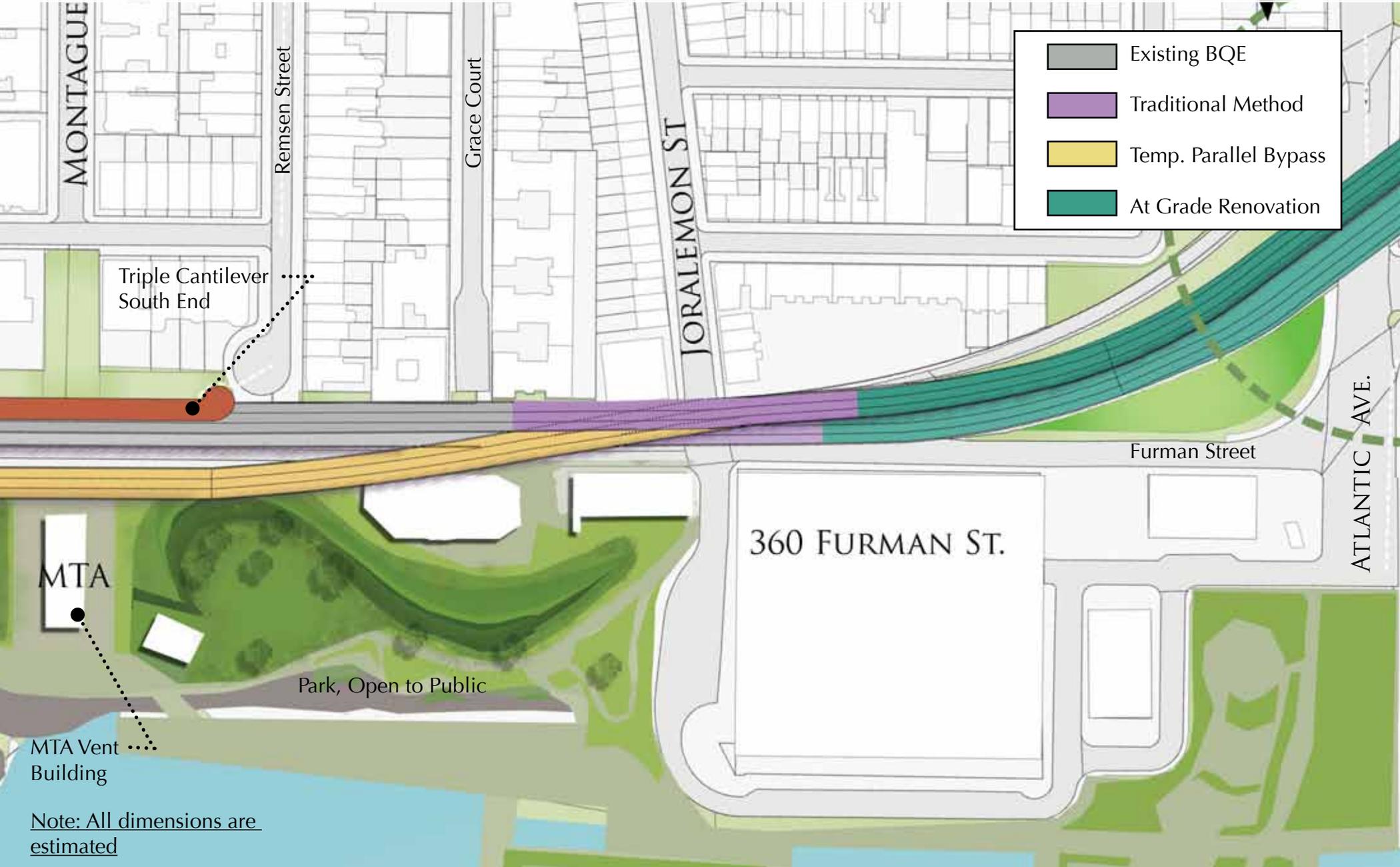
Furman Street and Brooklyn Bridge Park parking area (above)
View of Montague MTA Fan Building service yard (below)

View of berms from Promenade (above and below)



EXISTING AREAS ADJACENT TO TRIPLE CANTILEVER

TEMPORARY BYPASS IS LOCATED BEHIND THE BERMS OF THE PARK



PLAN: ATLANTIC TO MONTAGUE STREET

NARROW R.O.W. NEAR JORALEMON STREET USES TRADITIONAL METHOD

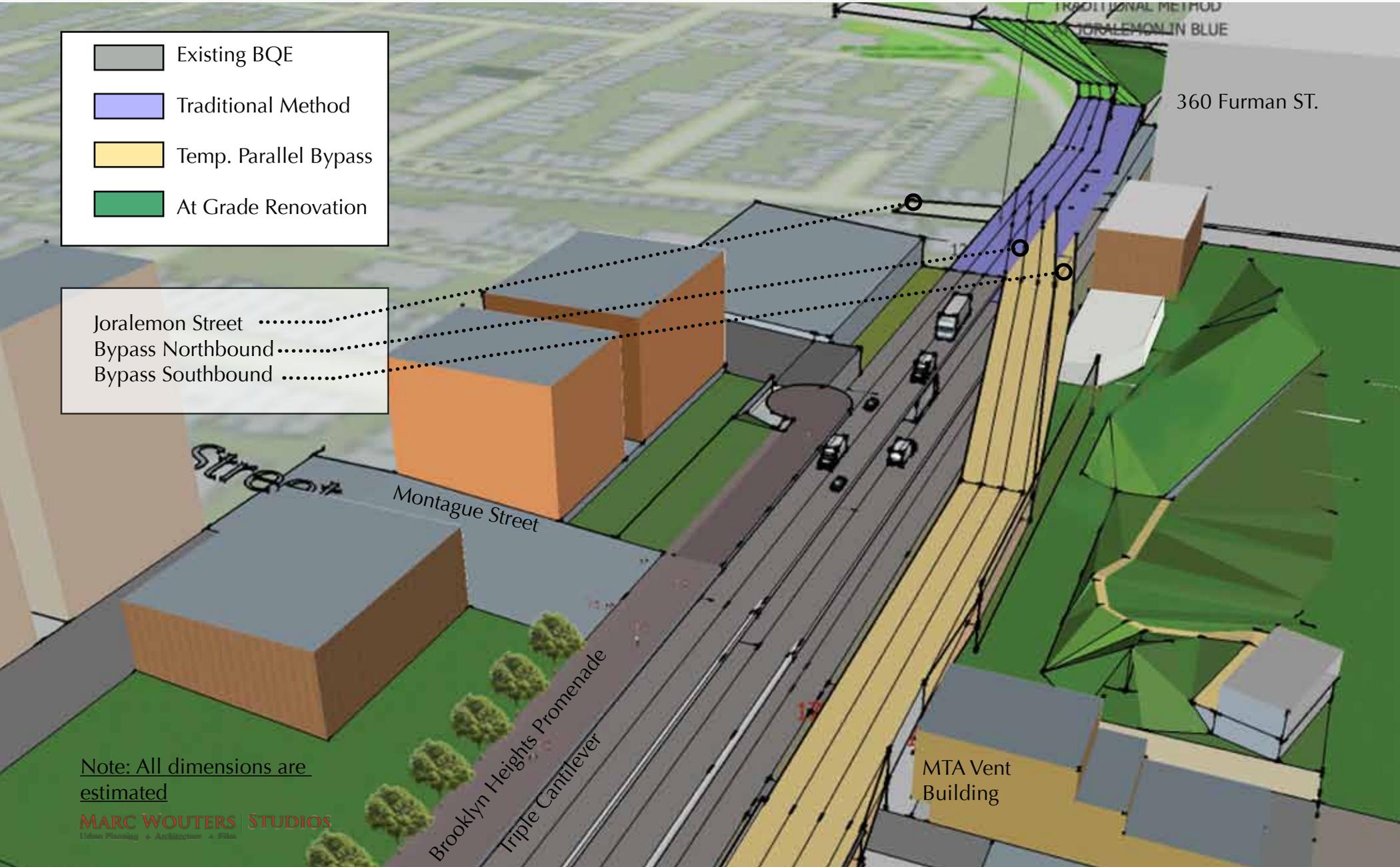
- › AT GRADE LANES
- › START OF CANTILEVER
- › 360 FURMAN STREET
- › JORALEMON STREET



EXISTING AERIAL VIEW NEAR 360 FURMAN STREET AND JORALEMON STREET

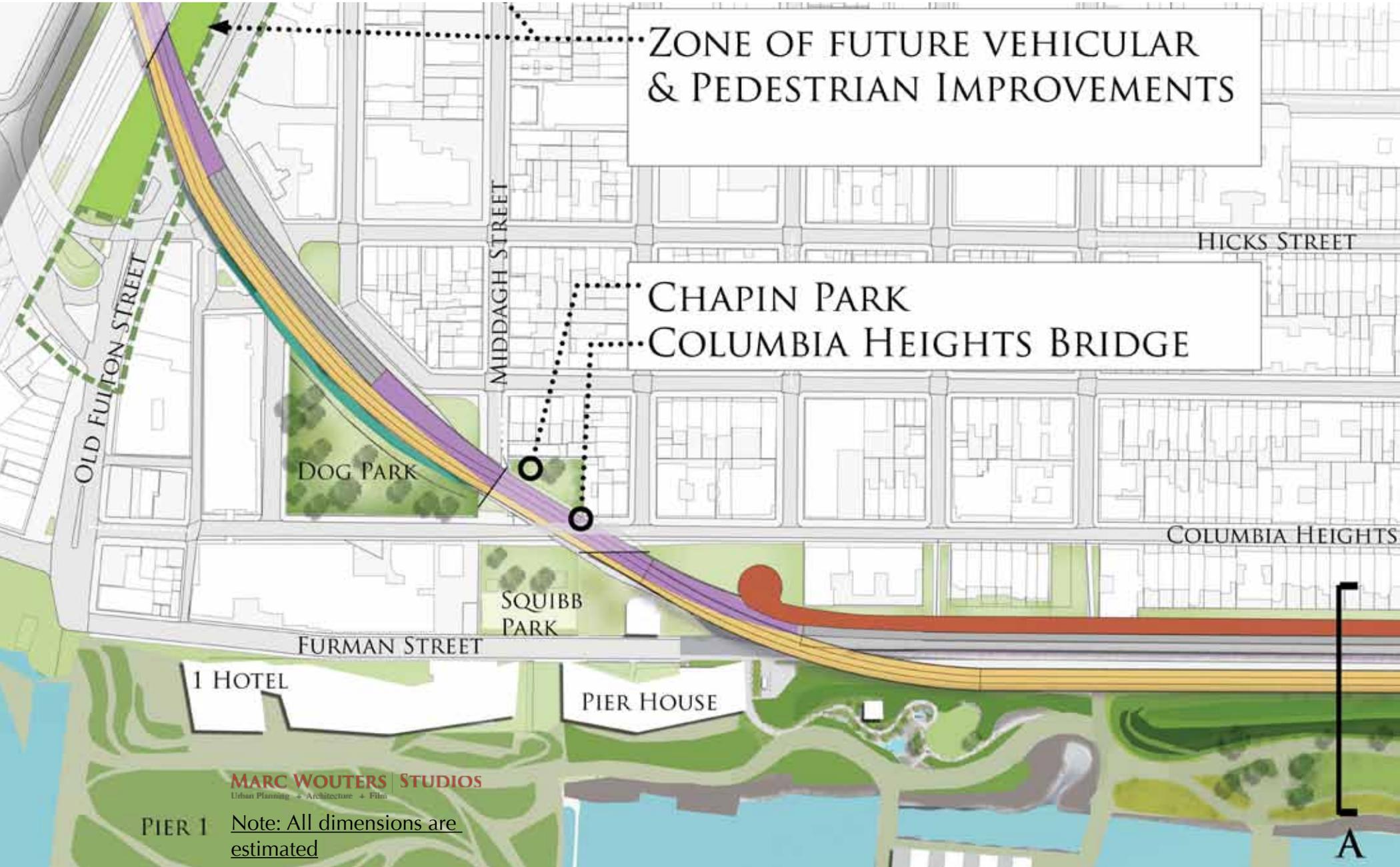
- Existing BQE
- Traditional Method
- Temp. Parallel Bypass
- At Grade Renovation

- Joralemon Street
- Bypass Northbound
- Bypass Southbound



TRANSITION TO BYPASS AT JORALEMON STREET

DIAGRAM SHOWING TWO LEVELS AT BYPASS TRANSITION ZONE



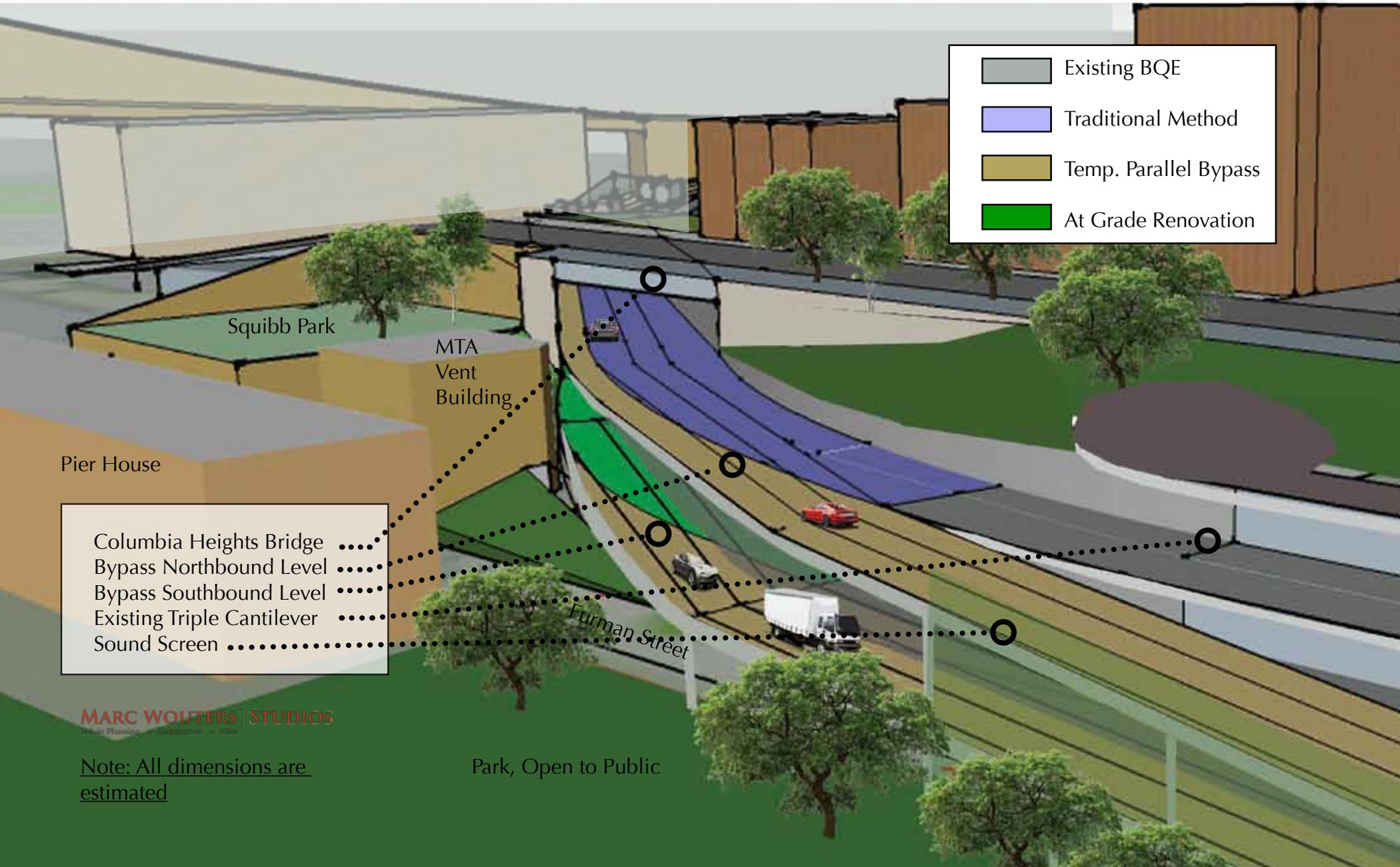
ZONE OF FUTURE VEHICULAR
& PEDESTRIAN IMPROVEMENTS

CHAPIN PARK
COLUMBIA HEIGHTS BRIDGE

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PIER 1 Note: All dimensions are estimated

PLAN: COLUMBIA HEIGHTS BRIDGE AREA



	Existing BQE
	Traditional Method
	Temp. Parallel Bypass
	At Grade Renovation

Columbia Heights Bridge
Bypass Northbound Level
Bypass Southbound Level
Existing Triple Cantilever
Sound Screen



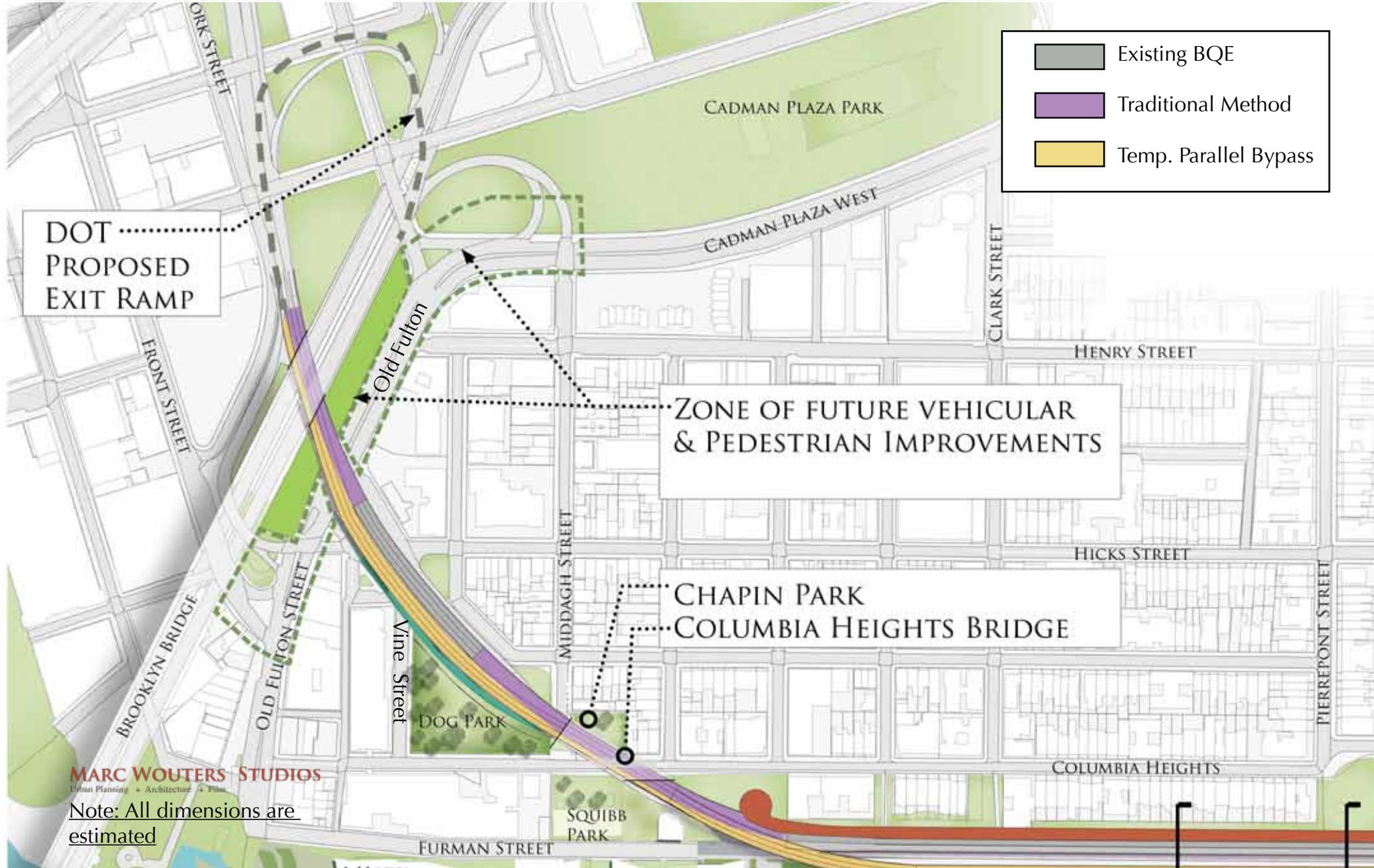
- THREE LANES NORTHBOUND
- TWO LANES SOUTHBOUND
- ADDITIONAL R.O.W. ON WEST SIDE

- CHAPIN PARK
- COLUMBIA HEIGHTS BRIDGE

Google

EXISTING AERIAL VIEW AT COLUMBIA HEIGHTS BRIDGE TO BROOKLYN BRIDGE

EXISTING PUBLIC R.O.W. LOCATED ALONG NORTHWEST SIDE OF BQE

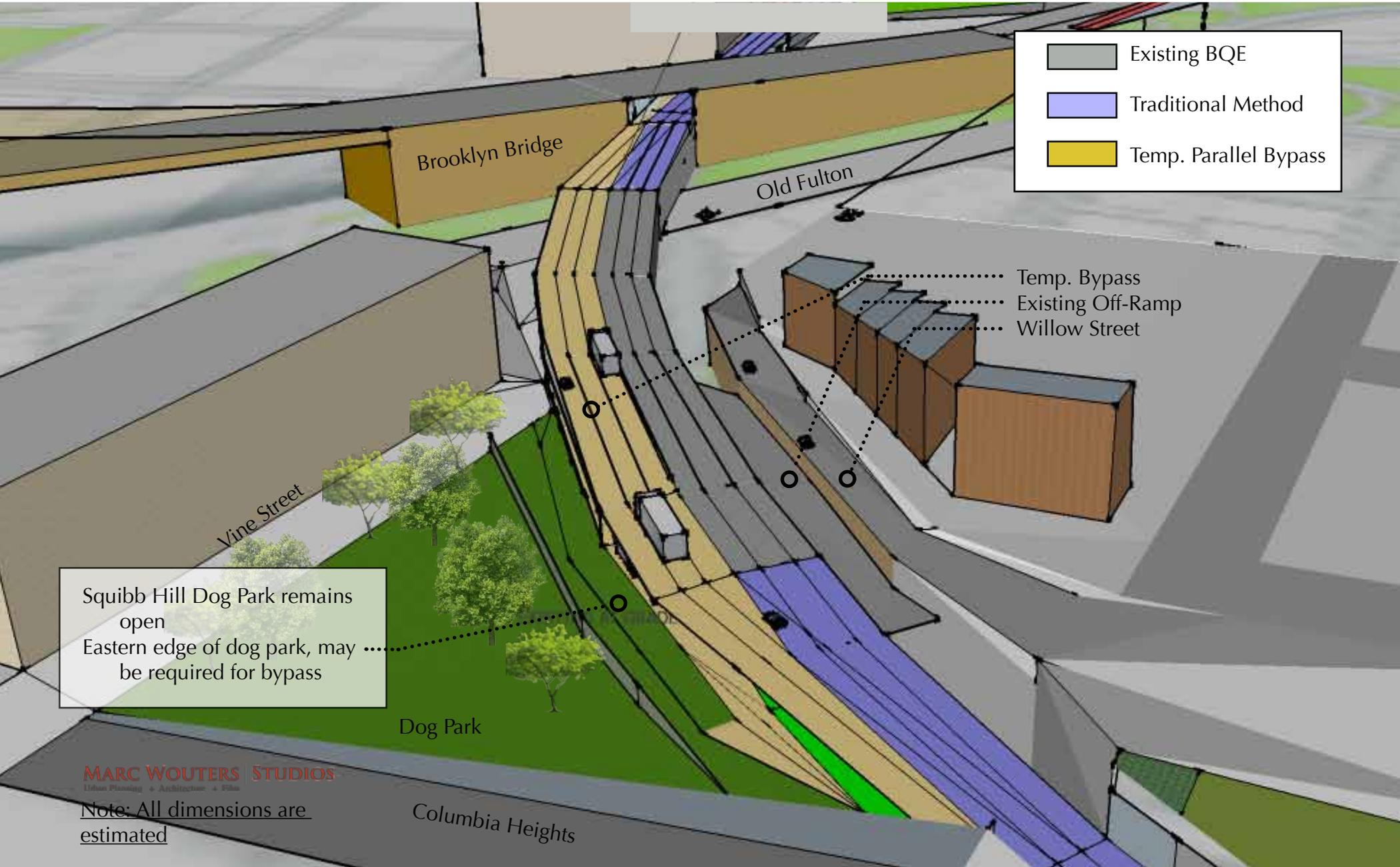


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Note: All dimensions are estimated

PLAN: COLUMBIA HEIGHTS BRIDGE TO BROOKLYN BRIDGE
NEW BYPASS IS BUILT OVER EXISTING DOT ON-RAMP



COLUMBIA HEIGHTS BRIDGE AREA: BQE ON-RAMP FROM OLD FULTON STREET



- Existing BQE
- Traditional Method
- Temp. Parallel Bypass

- Temp. Bypass
- Existing Off-Ramp
- Willow Street

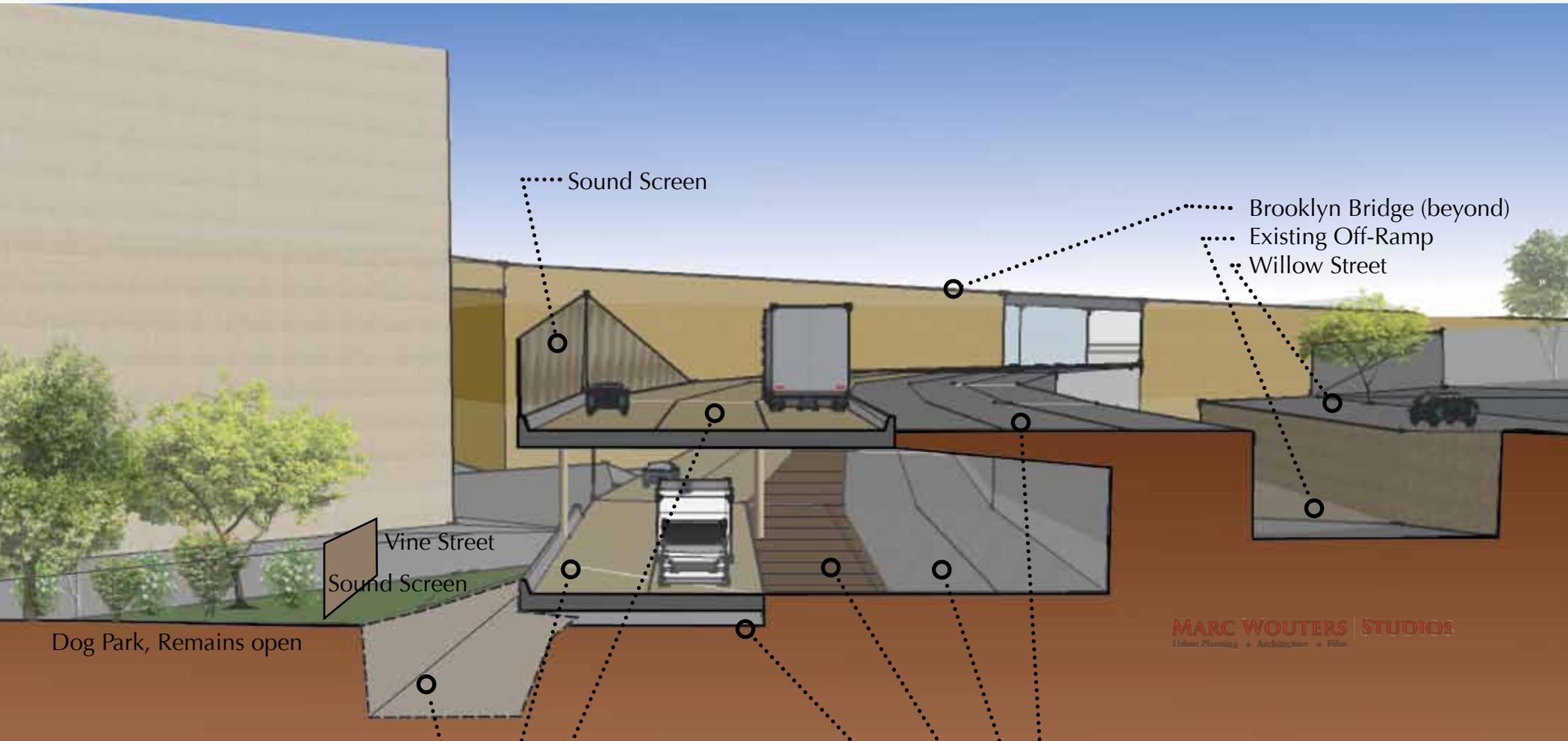
Squibb Hill Dog Park remains open
 Eastern edge of dog park, may be required for bypass

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Note: All dimensions are estimated

COLUMBIA HEIGHTS BRIDGE TO BROOKLYN BRIDGE

TEMPORAY BYPASS BUILT IN PUBLIC R.O.W. & NARROW STRIP OF PARK



Vine Street
Sound Screen

Dog Park, Remains open

Sound Screen

Brooklyn Bridge (beyond)
Existing Off-Ramp
Willow Street

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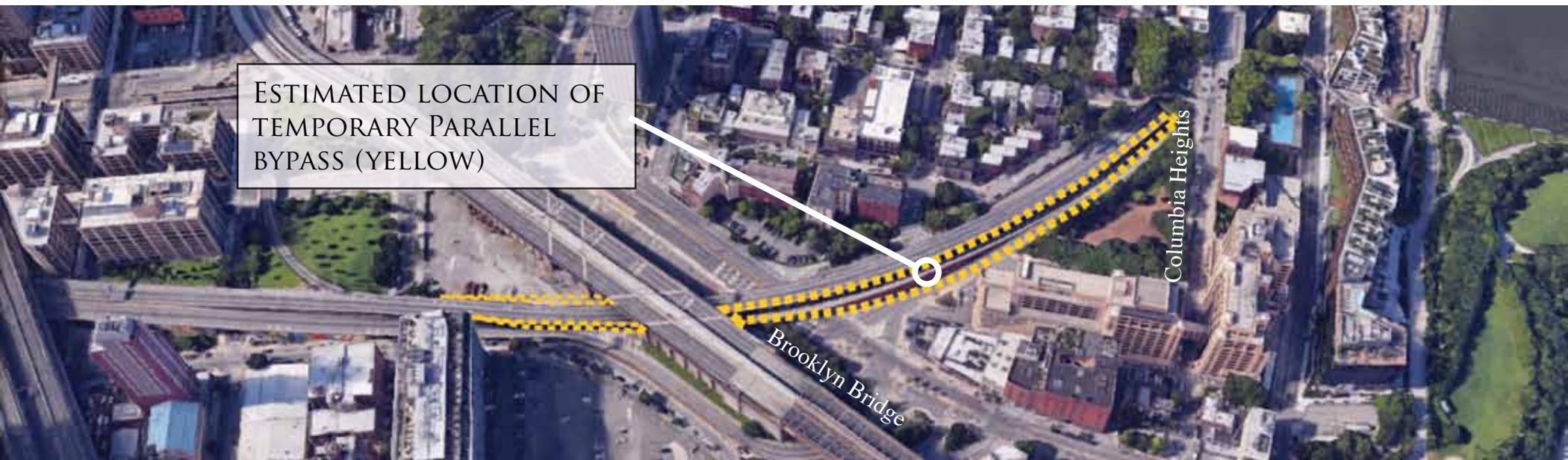
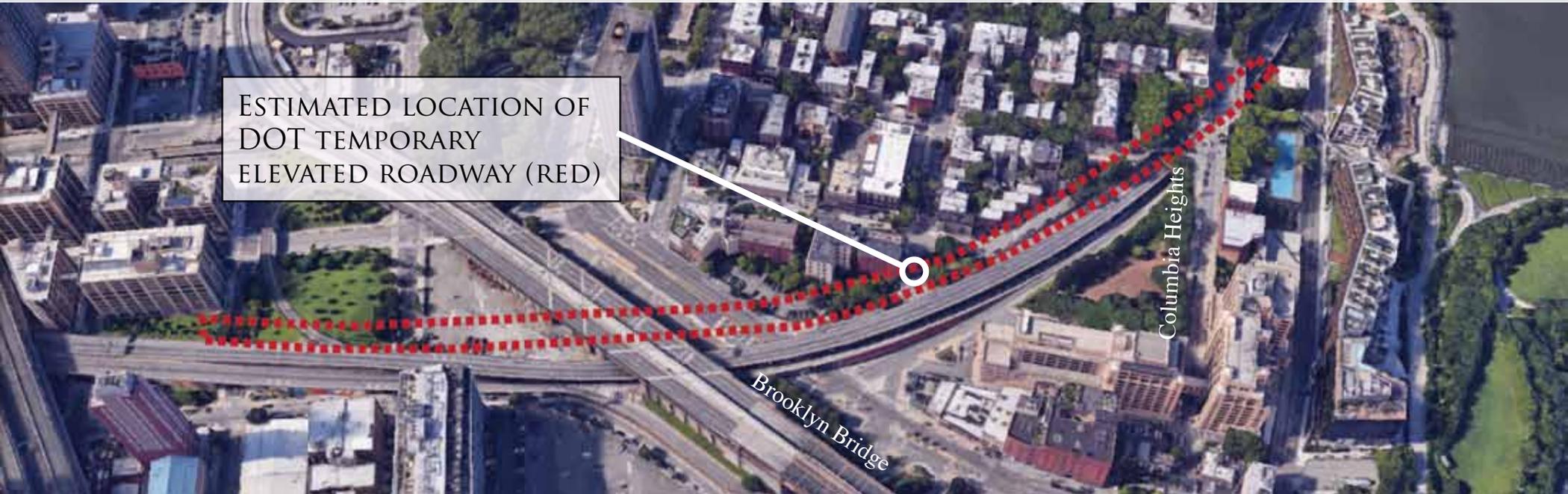
Temporary Bypass
 3 lanes Northbound (yellow)
 2 lanes Southbound (yellow)
 Potential On-Ramp from Old
 Fulton Street

Existing BQE
 3 lanes Northbound
 2 lanes Southbound
 Existing stripout lane (brown)
 Prior On-Ramp (light gray, underneath)

Note: All dimensions are estimated

CROSS SECTION NEAR VINE STREET LOOKING TO BROOKLYN BRIDGE

TEMP. BYPASS LOCATED MOSTLY IN R.O.W, / LIMITED ENCROACHMENT IN PARK 19



COMPARISON: LOCATION OF TEMPORARY HIGHWAYS

ELEVATED 6 LANE

PARALLEL METHOD

	<u>CONSTRUCTABILITY</u>	<u>CONSTRUCTABILITY</u>
TEMP. LANES	<ul style="list-style-type: none"> TEMPORARY STRUCTURE REQUIRES LANE CLOSURES IN ORDER TO BUILD AND DECONSTRUCT NEW 6 LANE UPPER DECK. 	<ul style="list-style-type: none"> TEMPORARY BYPASS LANES CAN BE CONSTRUCTED DURING DAYTIME.
SITE ACCESS	<ul style="list-style-type: none"> REQUIRES HILL REINFORCEMENT INSTALLED WHILE TRIPLE CANTILEVER IN USE. CREATES SERIES OF COLUMNS/ARCHES DIRECTLY ADJACENT TO CONSTRUCTION SITE, AND STRUCTURE ABOVE IT. 	<ul style="list-style-type: none"> ALLOWS HILL REINFORCEMENT TO BE INSTALLED AFTER CARS DIVERTED FROM TRIPLE CANTILEVER ONTO BYPASS. PROVIDES A CONSTRUCTION SITE FREE OF COLUMNS AND OVERHEAD STRUCTURES. IMPROVES SITE ACCESS. DOES NOT REQUIRE MAJOR ALTERATION OF MTA FACILITIES. DOES NOT REQUIRE ALTERATION OF MAJOR SEWER. DOES NOT REQUIRE DEMOLITION OF PARK BUILDINGS.
QUALITY	<ul style="list-style-type: none"> ALLOWS COMPLETE RECONSTRUCTION OF BQE. REQUIRES PERMANENT ALTERATION OF HISTORIC PROMENADE. 	<ul style="list-style-type: none"> ALLOWS EASIER INSTALLATION OF LARGE PREFABRICATED ELEMENTS ON COLUMN-FREE CONSTRUCTION SITE. ALLOWS RECONSTRUCTION OF HISTORIC PROMENADE SIMILAR TO ITS ORIGINAL STATE.

CONSTRUCTABILITY

ELEVATED 6 LANE

SCHEDULE

TEMP LANES
SCHEDULE

- TEMPORARY LANES REQUIRE TWO YEARS TO CONSTRUCT ACCORDING TO DOT.

TOTAL
SCHEDULE

- 6 YEARS, REOPENS ALL IN ONE PHASE. POTENTIAL ADDITIONAL TIME FOR REMOVAL OF TEMPORARY ROADWAY.
- IF ONE ITEM DELAYS THE REPLACEMENT ROAD, THE ENTIRE REOPENING IS DELAYED.

PARALLEL METHOD

SCHEDULE

- FIRST PORTION OF TEMPORARY BYPASS POTENTIALLY OPENS IN SUBSTANTIALLY LESS THAN TWO YEARS.
- SEGMENTED PHASING ALLOWS EARLY REOPENINGS, "EARLY VICTORIES" OF INDIVIDUAL SEGMENTS.
- IF ONE ITEM DELAYS THE REPLACEMENT ROAD, OTHER SEGMENTS CAN BE REOPENED ON SCHEDULE.
- PREFABRICATED CONSTRUCTION REDUCES CONSTRUCTION TIME.



SCHEDULE/ PHASING

APART FROM IMPROVED CONSTRUCTABILITY AND SCHEDULE, KEY ADVANTAGES OF BHA'S PARALLEL METHOD CONCEPT PROPOSAL INCLUDE:

- SPARES BROOKLYN HEIGHTS AND SEVERAL NEIGHBORHOODS FROM THE ENVIRONMENTAL AND HEALTH CONSEQUENCES OF AN ELEVATED SIX-LANE INTERSTATE HIGHWAY.
- SPARES 360 FURMAN AND THE RESIDENTIAL BUILDINGS AT FOOT OF REMSEN STREET, GRACE COURT AND THE MANY BUILDINGS BACKING ONTO PROMENADE FROM POTENTIAL CONSTRUCTIVE EVICTION/ CONDEMNATION PROCEEDINGS.
- PRESERVES USE OF THE PROMENADE -- CLOSURE PERIOD OF PROMENADE FOR RECONSTRUCTION IS SIGNIFICANTLY REDUCED.
- CREATES POSSIBILITY OF EXPANDING PARK BY ADAPTING TEMPORARY BYPASS INTO A TERRACE PARK.

B. COLUMBIA HEIGHTS BRIDGE: CONCEPTUAL RECONSTRUCTION

THE COLUMBIA HEIGHTS BRIDGE AND THE TWO LEVELS OF THE BQE BELOW IT ARE PART OF DOT'S RECONSTRUCTION PLAN. THE GOALS OF THIS CONCEPTUAL STUDY ARE TO:

- MAKE NECESSARY MODIFICATIONS TO THIS AREA WHILE MAINTAINING TWO LANES OF TRAVEL IN EACH DIRECTION DURING MOST OF CONSTRUCTION AND REOPENING TO THREE LANES IN EACH DIRECTION AS QUICKLY AS POSSIBLE. THE REGIONAL PLAN ASSOCIATION'S REPORT, REIMAGINING THE BQE, SUGGESTED THE BQE COULD OPERATE WITH TWO LANES OF TRAVEL IN EACH DIRECTION IN THIS LOCATION.
- ELIMINATE THE NEED FOR DOT'S PROPOSED OVERHEAD 6-LANE HIGHWAY AT THE COLUMBIA HEIGHTS BRIDGE, WHICH PUTS TRAFFIC DIRECTLY ADJACENT TO SEVERAL BLOCKS OF HOMES.



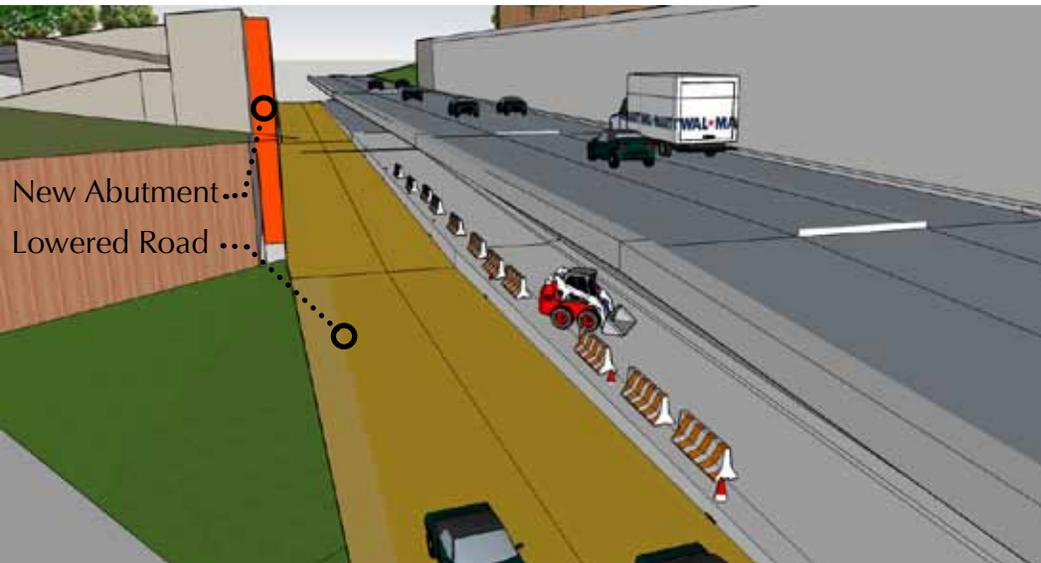
COLUMBIA HEIGHTS BRIDGE: CONCEPTUAL RECONSTRUCTION



1. Columbia Heights Bridge: Existing



2. Columbia Heights Bridge: Estimated existing framing



New Abutment...
Lowered Road ...

3. Columbia Heights Bridge: New abutment & lowered south-bound lanes

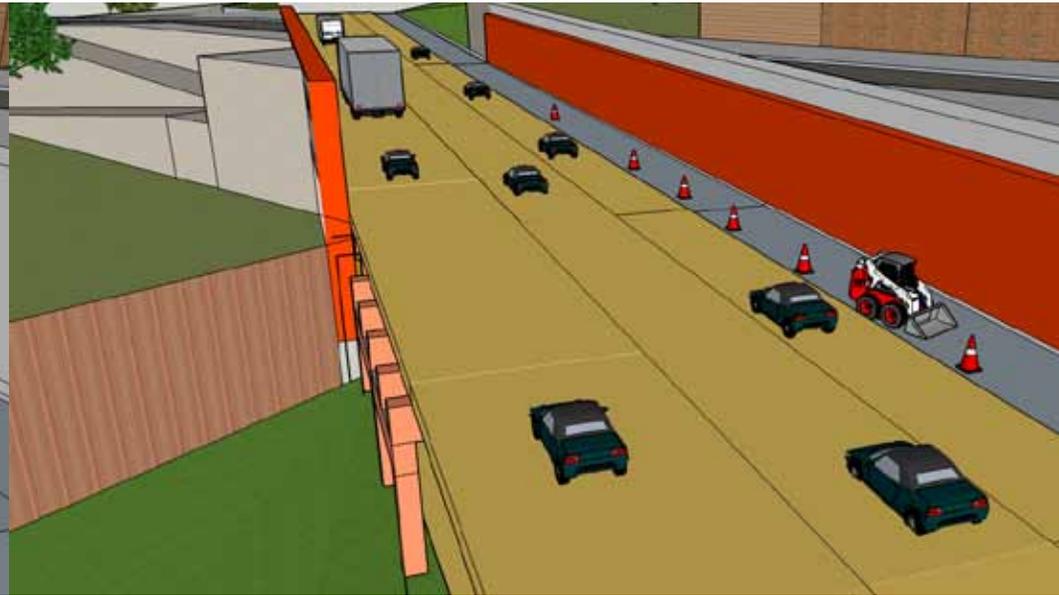


4. Columbia Heights Bridge: New framing under north-bound level

COLUMBIA HEIGHTS BRIDGE: CONCEPTUAL RECONSTRUCTION



5. Columbia Heights Bridge: New north-bound lane on new framing



6. Columbia Heights Bridge: Replaced north-bound Lanes. Eastern lane closed for retaining wall renovation.



7. Columbia Heights Bridge: New beam set at higher elevation

CONCEPTUAL PHASING:

- › INSERT NEW ABUTMENT AT NORTH SIDE
- › LOWER SOUTH-BOUND LANES
- › INSERT NEW BEAMS UNDER NORTH BOUND LANES
- › ADD NEW NORTH-BOUND LANE
- › REPLACE EXISTING NORTH-BOUND LANES
- › MODIFY SOUTH EASTERN RETAINING WALL

Note: All dimensions are estimated

COLUMBIA HEIGHTS BRIDGE: CONCEPTUAL RECONSTRUCTION

C. PEDESTRIAN FOCUS AREAS

THERE ARE MULTIPLE AREAS ALONG THE EXISTING BQE WHERE PEDESTRIAN CROSSINGS ARE CHALLENGING. THE PROJECT OFFERS AN OPPORTUNITY TO IMPROVE THESE PEDESTRIAN CONNECTIONS AND ALSO ACCOMMODATE IMPROVED BIKE CONNECTIONS. SPECIFIC AREAS OF FOCUS ARE NEAR THE MANHATTAN BRIDGE, OLD FULTON STREET, JORALEMON STREET, AND ATLANTIC AVENUE. A NEW PEDESTRIAN CONNECTION IS ALSO PROPOSED FROM THE BROOKLYN HEIGHTS PROMENADE AT MONTAGUE STREET TO BROOKLYN BRIDGE PARK.



PEDESTRIAN FOCUS AREAS: OLD FULTON STREET, MONTAGUE ST., JORALEMON ST., ATLANTIC AVE., COBBLE HILL, MANHATTAN BRIDGE

D. BQE FOUR LANE ALTERNATE

THE REGIONAL PLAN ASSOCIATION'S REPORT, REIMAGINING THE BQE, SUGGESTED THE BQE COULD OPERATE WITH TWO LANES OF TRAVEL IN EACH DIRECTION IN THIS LOCATION. THE RECENT APPROVAL OF NEW YORK CITY'S CONGESTION PRICING PLAN ALSO INDICATES THERE IS REASON TO INVESTIGATE THIS ALTERNATIVE.

THIS CONCEPTUAL PROPOSAL FOR A FINAL OUTCOME TRANSFORMS THE LOWER LEVEL OF THE TRIPLE CANTILEVER INTO FOUR LANES. THE PLAN ALLOWS THE MIDDLE LEVEL OF THE TRIPLE CANTILEVER TO BECOME A PEDESTRIAN WALK. THE PLAN MAY INCLUDE HOV EXPRESS LANES AND OTHER FORMS OF SUSTAINABLE TRANSIT. PEDESTRIAN CONNECTIONS FROM THE PROMENADE AT MONTAGUE STREET TO BROOKLYN BRIDGE PARK COULD BE INCORPORATED. ONE CONSTRAINT OF THIS ALTERNATIVE IS THE RELATIVELY CLOSE PROXIMITY OF THE FINAL HIGHWAY TO 334 FURMAN STREET.





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THE FOUR LANE ALTERNATE IS BASED ON STUDIES SUCH AS REGIONAL PLAN ASSOCIATION'S REPORT: REIMAGINING THE BQE THAT SUGGEST THE BQE COULD OPERATE WITH TWO LANES IN EACH DIRECTION.

Note: All dimensions are estimated

CROSS SECTION: BQE FOUR LANE ALTERNATIVE CONCEPT



Phase 1: New Lower deck



Phase 2: Reconstruct existing lower deck



Phase 3: Transfer traffic to lower deck

BQE FOUR LANE CONCEPTUAL ALTERNATE:

1. BUILD NEW DECK ADJACENT TO LOWER LEVEL OF BQE.
2. TRANSFER SOUTH-BOUND TRAFFIC TO NEW DECK.
RECONSTRUCT EXISING LOWER LEVEL.
3. TRANSFER UPPER DECK TRAFFIC TO LOWER DECK
4. UPPER DECK BECOMES PEDESTRIAN WALK

BQE FOUR LANE ALTERNATE: CONCEPTUAL CONSTRUCTION PHASING