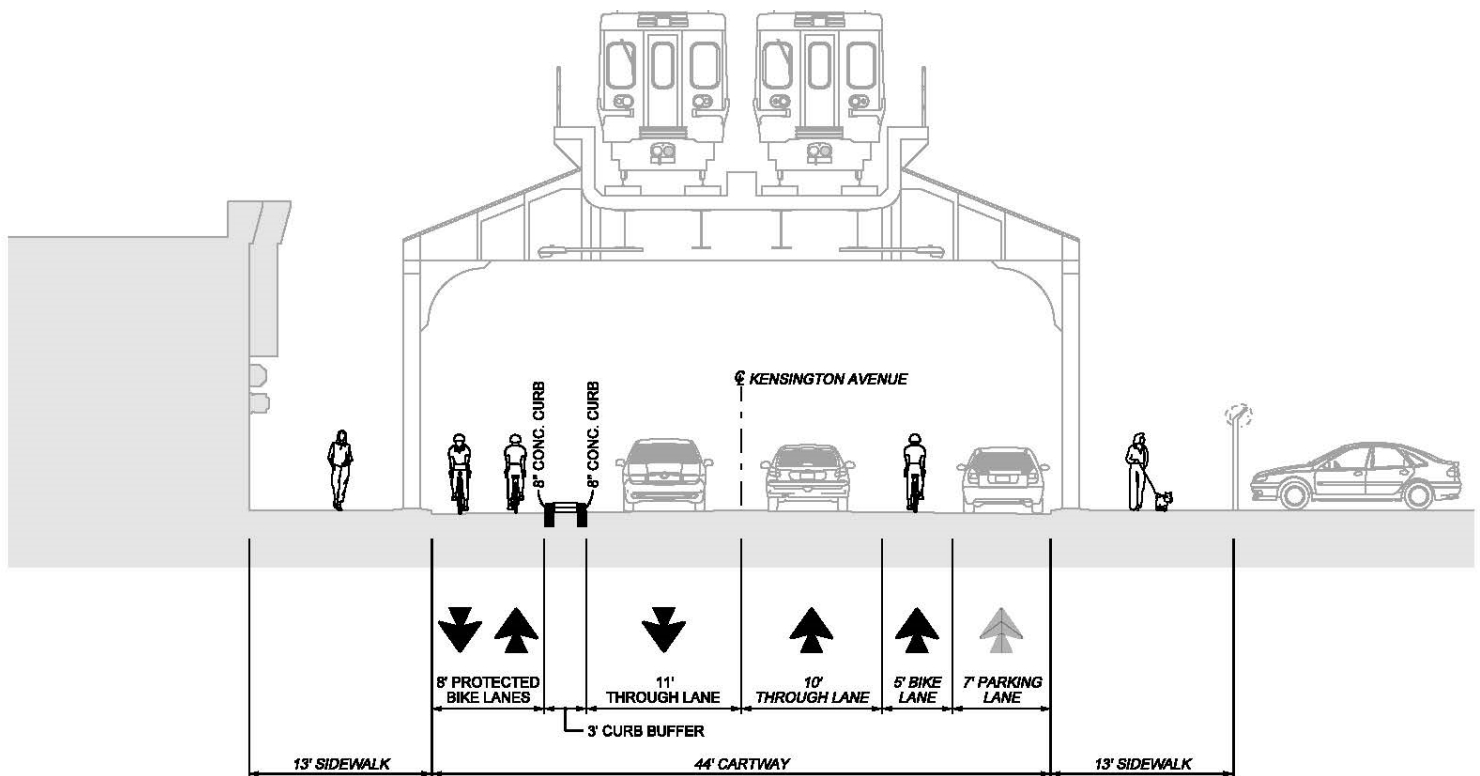


FRANKFORD CREEK GREENWAY

SECTION 3

ADVANCED FEASIBILITY STUDY



KENSINGTON AVENUE SECTION



PHILADELPHIA
PARKS &
RECREATION

June 2018

Michael Baker
INTERNATIONAL

Frankford Creek Greenway Section 3 Advanced Feasibility Study

Description:

Michael Baker was commissioned to advance feasibility studies to continue development of the Frankford Creek Greenway between the existing trail at Tacony Creek Park at I Street/Ramona Avenue and the proposed side path at Adams Avenue. This study expands on the information provided in Michael Baker's Frankford Creek Feasibility date May 2014. Please refer to that study for additional detail. The scope of this work order includes the following tasks:

- Alignment Alternatives Analysis
- Conceptual Trail Plans /Cross Sections
- Preliminary Easement Plans
- Order of Magnitude Cost Estimates
- Implementation Recommendations

There were two public meetings during this study, one in fall 2013, and the other in spring 2014. In addition to the public meetings, there was a public information survey for the residents of Potter Street to gather feedback on the alignment options in Segment 2 (either on Potter Street, the alley, or along the creek). Residents of Potter Street were most interested in the alignment option on Potter Street and were least interested in the alignment option along the creek.

Members of the general public have mentioned various maintenance and operations recommendations for the greenway. A preference for low maintenance and more durable surfaces such as asphalt has been recommended by several individuals. They indicated that an asphalt surface serves a majority of users, can be used in almost all weather conditions and minimizes additional on-going repairs and maintenance costs in the future. The surface also allows for better access by emergency services and police patrols as needed. Fencing along private property and along the creek was mentioned for safety reasons.

Additionally, multiple meetings and forms of outreach with city agencies were conducted in 2017 and 2018. These agencies include: Philadelphia Streets, PPR, PCPC, and OTIS.

Alignment Alternatives Analysis

This alternatives analysis expands on our previous study and goes into additional detail on specific sections of the planned Frankford Creek Greenway corridor.

Overall Greenway Map: We have developed the overall map of the various greenway sections that follows on the next page to assist with the alignment planning and alternatives analysis. The following numbered sections will be used in the explanation of each segment of trail:

- 3.1** I Street - Ramona Avenue to East Cayuga Street
- 3.2** East Cayuga St. - I Street to Castor Avenue
- 3.3** Wingohocking Street - Castor Avenue to Frankford Creek
- 3.4** Creek Side Trail – Wingohocking Street to Bristol Street
- 3.5** Creek Side Trail – Bristol Street to South end of Leiper Street Cap
- 3.6** Leiper Street Cap to Adams Avenue

3.7 Adams Avenue/Worrell Street- Kensington Avenue to Torresdale Avenue

3.8 Torresdale Avenue – Worrell Street to Adams Avenue Connector Trail

Conceptual Trail Plans and Cross Sections: The following discussion describes the proposed trail concept beginning at the existing trail in Tacony Creek Park and moving south toward Adams Avenue. Conceptual plans and cross sections are included in Appendix A.

3.1 I Street from Ramona Avenue to East Cayuga Street

An 800 foot long protected shared use path is proposed along the east side of I Street between the existing trail at Ramona Avenue, and East Cayuga Street. The existing street is 50' wide, striped as two 17' wide travel lanes flanked by two 8' parking lanes. An 8' wide sidewalk parallels the curb on the west side. There is no sidewalk on the east side.

The proposed design narrows the cart way from 50 feet to 36 feet. The existing curb line on the west side of I Street is maintained, as is parking on both sides of the street.

The proposed cross section will consist of the following:

- Two 11' vehicle travel lanes
- Two 7' parking lanes
- 8" concrete curb
- 5' grass/landscape buffer
- 10' shared use path

The majority of the improvements fit within the existing city street right of way. City owned park property abuts the east side of I Street. Approximately 5' of the proposed trail will be located on the adjacent park property.

3.2 East Cayuga St. from I Street to Castor Avenue

A 2800 foot long (approximately half mile long) protected shared-use path is proposed for the north side of Wingohocking Street between Castor Avenue and Frankford Creek. The existing curb to curb width is 48 feet. Pavement markings divide the cart way into two 11' wide travel lanes, two 5' wide unprotected bike lanes, and two 8' wide parking lanes.

Total width of street right-of-way is 75 feet. The cart way is not centered in the right-of-way. The distance between the face of curb and the right-of-way line is 12 feet on the south side, and 15 feet on the north side.

The proposed design narrows the cart way from 48 feet to 38 feet. The existing curb line on the south side of East Cayuga Street is maintained, as is parking on both sides of the street.

The proposed cross section will consist of the following:

- Two 8' parking lanes
- Two 11' vehicle travel lanes
- 8" concrete curb
- 5' grass/landscape buffer
- 10' shared use path

This cross section fits within the existing right of way. Adjacent to the park, several large trees between the existing curb and sidewalk will need to be removed. Utility poles in the grass strip will also need to be relocated. Streets Department has indicated that this project's scope must include the upgrading of existing traffic signals affected by this project, including but not limited to new cameras and lighting. This project will require the removal and restriping of the entire roadway. It is therefore recommended that this shared use path project be coordinated with a future street re-surfacing project. In addition, Philadelphia Water Department (PWD) is implementing green infrastructure improvements (GSI) along East Cayuga Street. These GSI may need to be modified with the shared use path project.

3.3 Wingohocking Street – Castor Avenue to Frankford Creek

An 800-foot-long two-way buffered bike lane is proposed for the north side of Wingohocking Street between Castor Avenue and the west bank of Frankford Creek.

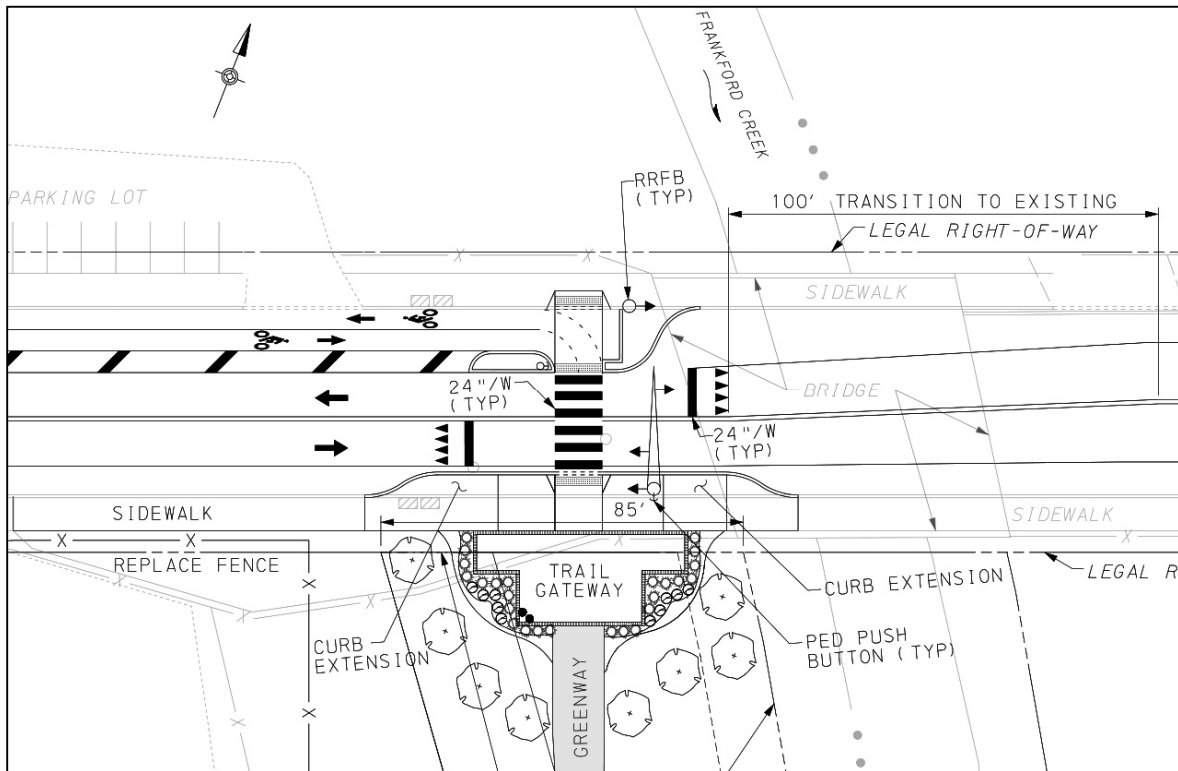
Wingohocking Street's right-of-way measures 70' wide. The existing roadway is 44' wide, currently striped for two 14' wide travel lanes and two 8' parking lanes.

The proposed cross section will consist of the following:

- Two 5' bike lanes
- 5' wide paint buffer
- Two 11' vehicle lanes
- 7' parking lane

Pedestrians will utilize the existing sidewalks. The parking lane on the north side of the roadway would be eliminated. Because adjacent businesses offer their customers ample off-street parking, the loss of street parking is expected to have no adverse effect on those businesses.

A formal mid-block crossing is proposed near the Frankford Creek to transition from the buffered bike lanes to the off road shared use path along the creek. The mid-block crossing will include curb extensions to shorten the crossing distance, user activated overhead and ground mounted rectangular rapid flashing beacon signals, advance signage and pavement markings. Please refer to graphic below.



3.4a Creekside Trail – Wingohocking Street to East Cayuga Street/Potter Street

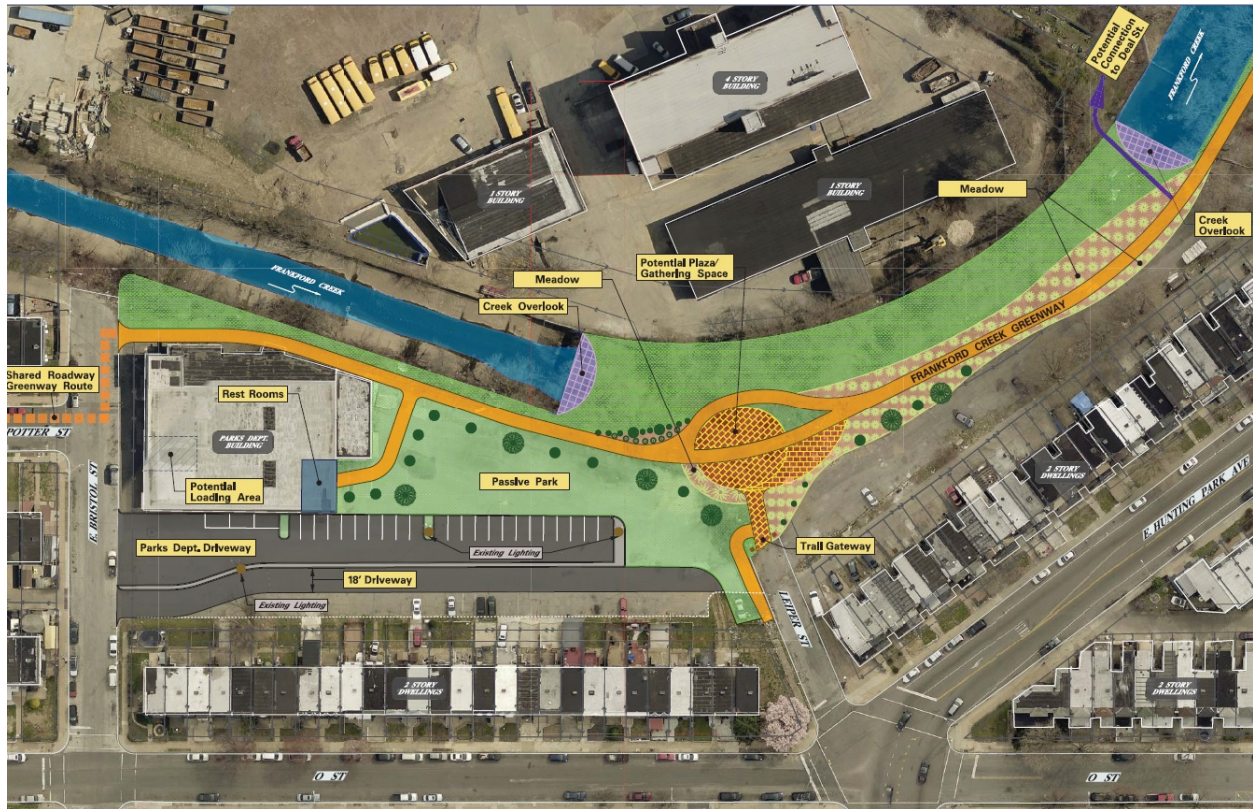
A landscaped gateway plaza on the south side of Wingohocking Street will highlight the entrance to the trail. Wayfinding signage, trail maps, benches and other amenities are envisioned here. A proposed 10'-12' shared use path is planned to extend 650 feet south from this point, traversing existing open space, and connecting with the 1500 block of East Cayuga Street. Data suggests that regulated soil material may be present on this site. The placement of 2' of fill over the existing ground may minimize issues arising from potentially contaminated soils. Shade trees may be planted on both sides of the trail to create an aesthetically pleasing trail for walkers and bicyclists alike. This segment of trail will connect with the existing dead end of East Cayuga Street near Potter Street. A bikeway easement is required from the Impact Community Development Corporation as shown on a preliminary easement plan in Appendix B.

3.4b Potter Street - East Cayuga Street to future Bristol Street Park

An on-road bicycle route designated by shared lane markings and signage is envisioned on a 130-foot-long portion of E. Cayuga Street, a 600 foot long block of Potter Street, and a short (60') portion of Bristol Street. Pedestrians would use the existing sidewalks through this area. The off-road trail would resume on the south side of Bristol Street.

3.5a Creekside Trail: Future Bristol Street Park from Bristol Street to Leiper Street

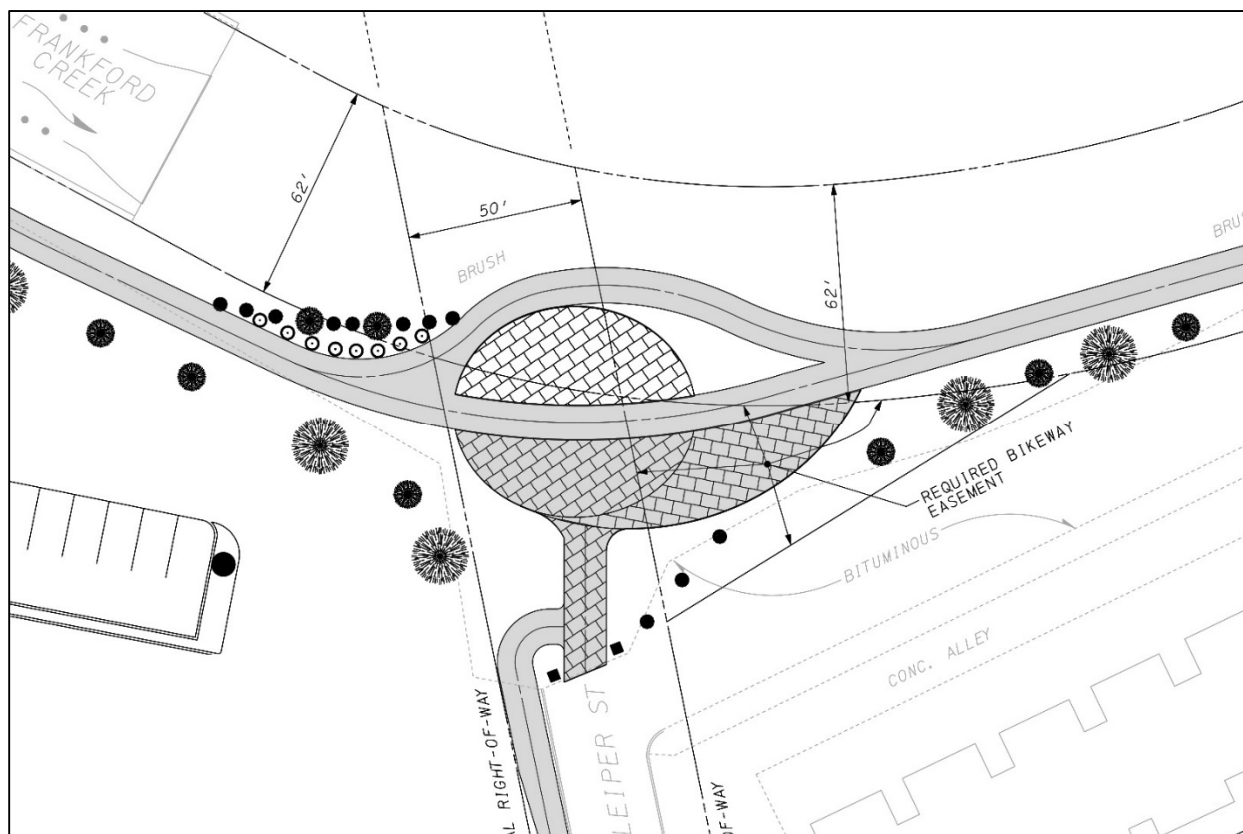
A 475-foot-long 10' wide shared-use path along the west bank of Frankford Creek will traverse a former Acme supermarket property that PPR has purchased with the intention of developing a park. In addition to implementing the trail, PPR plans envision the removal of a portion of the asphalt parking area and the repurposing of the existing building as a park maintenance facility, including the installation of restrooms which will be open to the public. See Appendix C for a larger scale plan.



Concept plan for the Bristol Street Park with the Frankford Creek Greenway passing through it.

At a point 100 feet north of Leiper Street, a 1950s stream channelization project placed Frankford Creek inside a 500 foot long, three cell, box culvert. The city owns a 62 foot wide right-of-way above the culvert. Sufficient fill was placed above the culvert to allow vegetation including mature trees to take root here. This area is known as the Leiper Street cap.

At Leiper Street a short (75 foot long) spur trail will connect trail users to the city street and sidewalks. A landscaped area will provide a neighborhood focal point at this trail junction. Depending on the final configuration of this gateway area, this may require a 3700 s.f. (0.08 acre) trail easement or right-of-way acquisition from an adjacent property owner (see below).



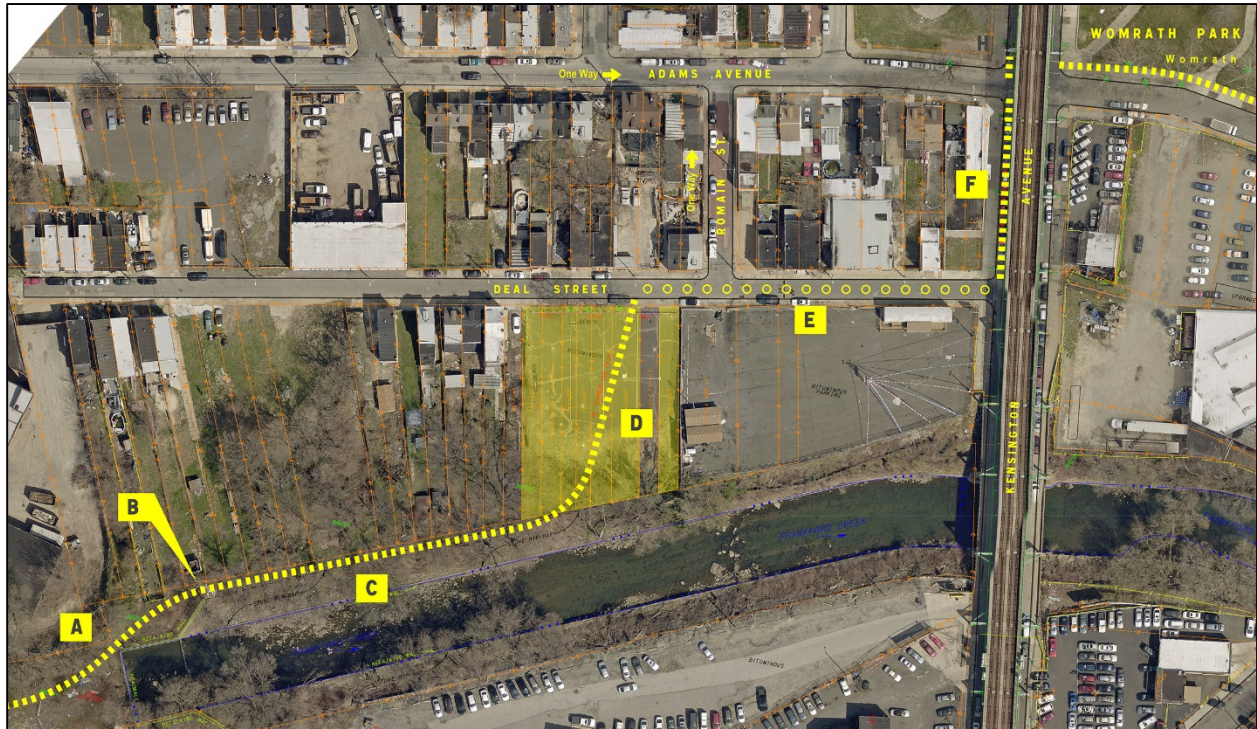
Conceptual gateway plan for connection between Leiper Street, the Frankford Greenway and future Bristol St. Park.

3.5b Trail on Leiper Street cap

Selective removal of vegetation will create a clear trail corridor within the city-owned right-of-way on the Leiper Street cap. At a point 400 feet south of Leiper Street the culvert ends, and the trail alignment shifts to parallel the east streambank. Creative use of overlooks of the creek at each end of the culvert would be interesting elements in this area.

3.6a Deal Street Option - Leiper Street Cap to Adams Avenue

Downstream of the Leiper Street cap, there are two alignment options that have been considered. The Deal Street option includes a combination of shared use path and shared roadway configuration. A detailed graphic is below with letter designations corresponding to the list below.



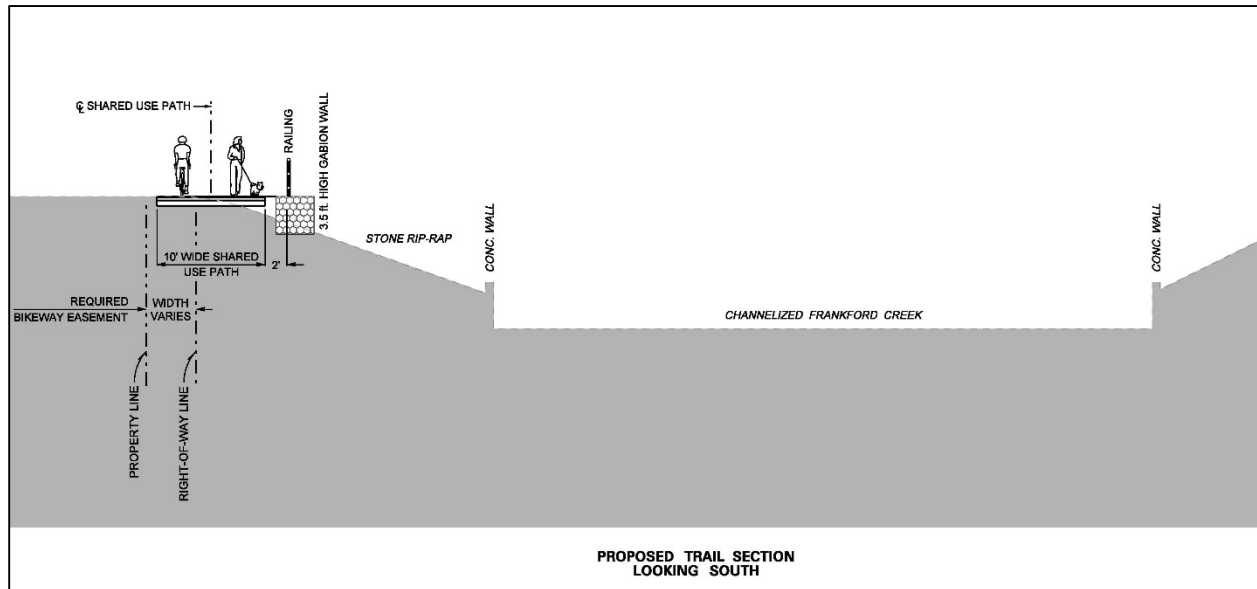
Deal Street Alignment between Leiper Street cap and Womrath Park.

The following letter designations provide more explanation for the graphic above:

- A. Easement will be needed from Good Friday Investments property
- B. Close clearance between base of concrete wingwall and rear property lines of rowhouses that front on Deal St.
- C. Trail along top of 3:1 slope - may need minor earthwork or low retaining wall
- D. Traverse state-owned land (parcels shaded yellow)
- E. Sharrows in Deal Street (two-way traffic / 16' cart way / 7' sidewalks / 30' right-of-way)
- F. Construct protected bike lanes along Kensington Ave from Deal Street to Adams Avenue signal

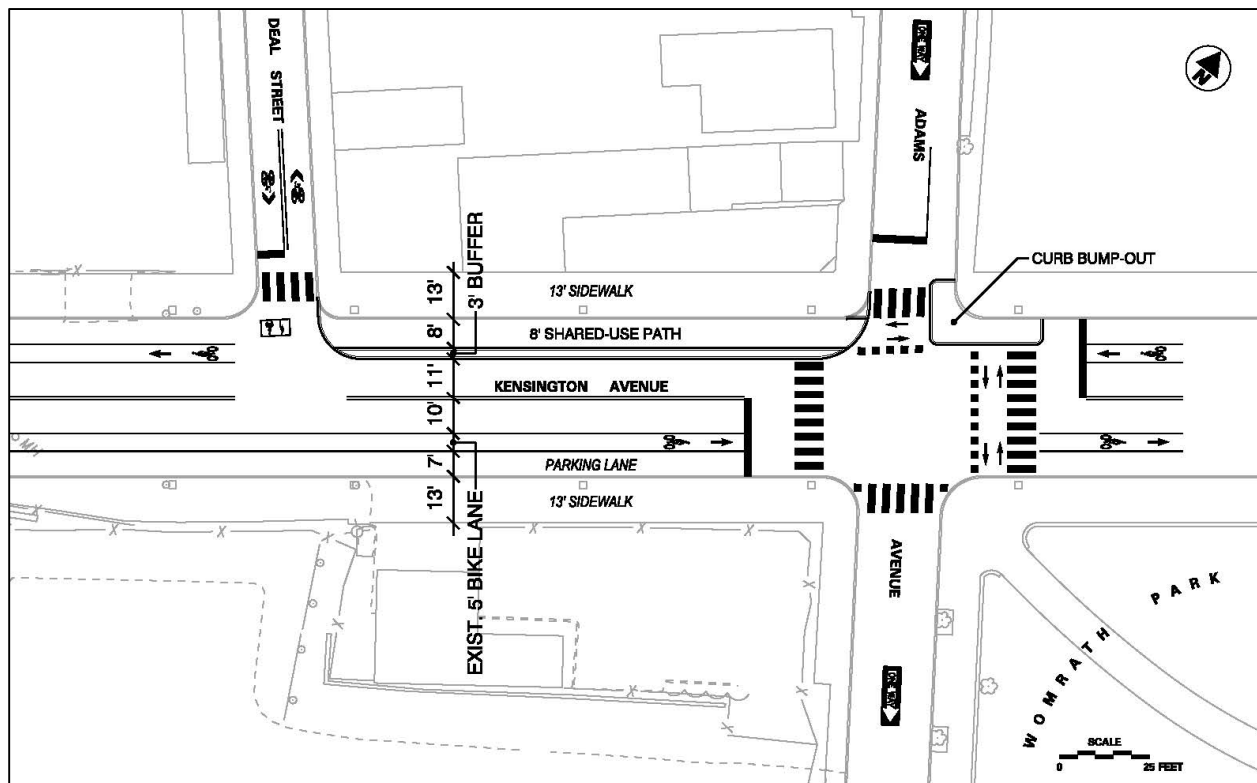
From the south end of the Leiper Street cap, the trail alignment follows a narrow strip of land along the top of the east bank of Frankford Creek for a short distance. This alignment will require a 6800 s.f. (0.15 acre) trail easement or right-of-way acquisition from a private property owner, Good Friday Investments. At letter B, the trail will have close clearance to the full height concrete wingwall of the Leiper Street box culvert.

Detailed review of this area will be needed in design to determine the amount of space available on City owned property along the creek. At letter C, the side slope of the creek bank above the concrete channel walls is approximately a 1:3 slope. As shown in the graphic below, a small retaining structure such as a rock gabion basket will likely be needed to fit in the shared use path.

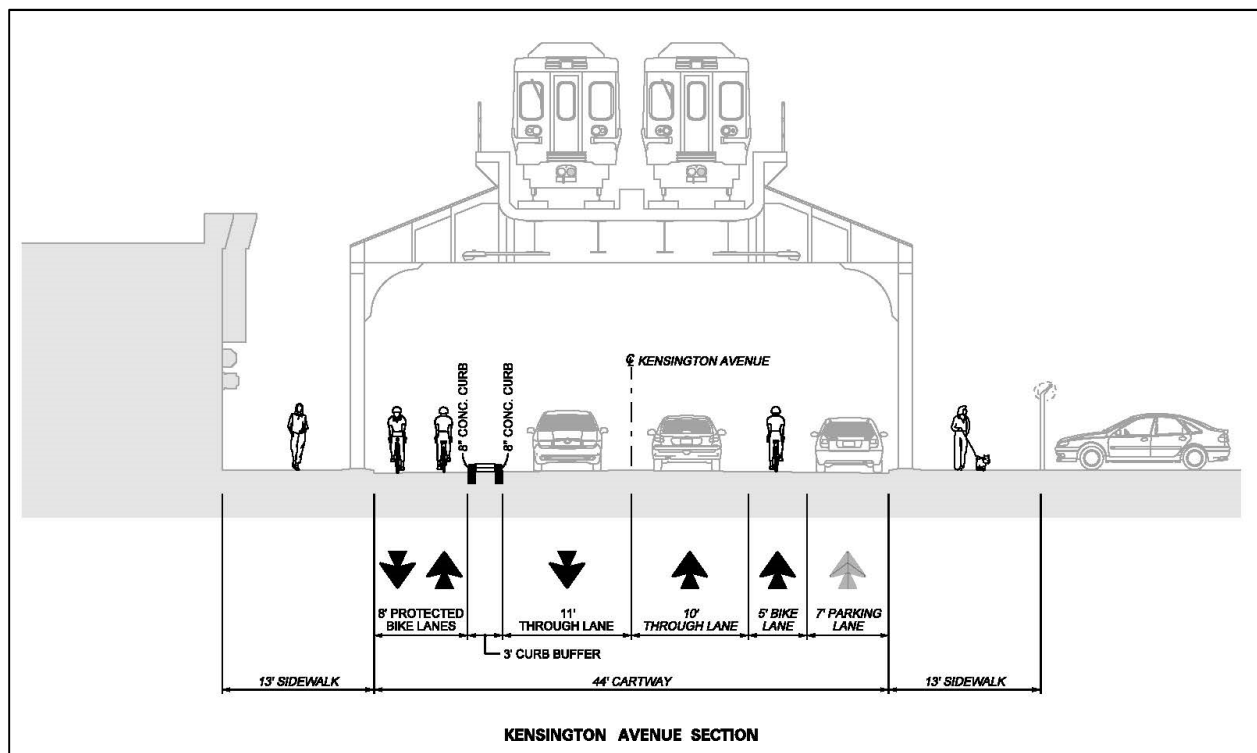


Cross section of area just south of Leiper Street cap.

At letter D, several PennDOT owned parcels are present that connect the creek to Deal Street. Use or transfer of this property for the trail will have to be coordinated with PennDOT. Once the trail route reaches Deal Street, a shared road design using sharrows and signage is anticipated to travel along Deal street up to Kensington Avenue. At letter F between Deal Street and the Adams Avenue traffic signal, curb protected bike lanes are envisioned along Kensington Avenue graphics below show the plan view and cross section of this area. The parking would be removed on this block. At the intersection with Adams Avenue, a curb extension could be installed to facilitate the creation of the protected area for the bike lanes.



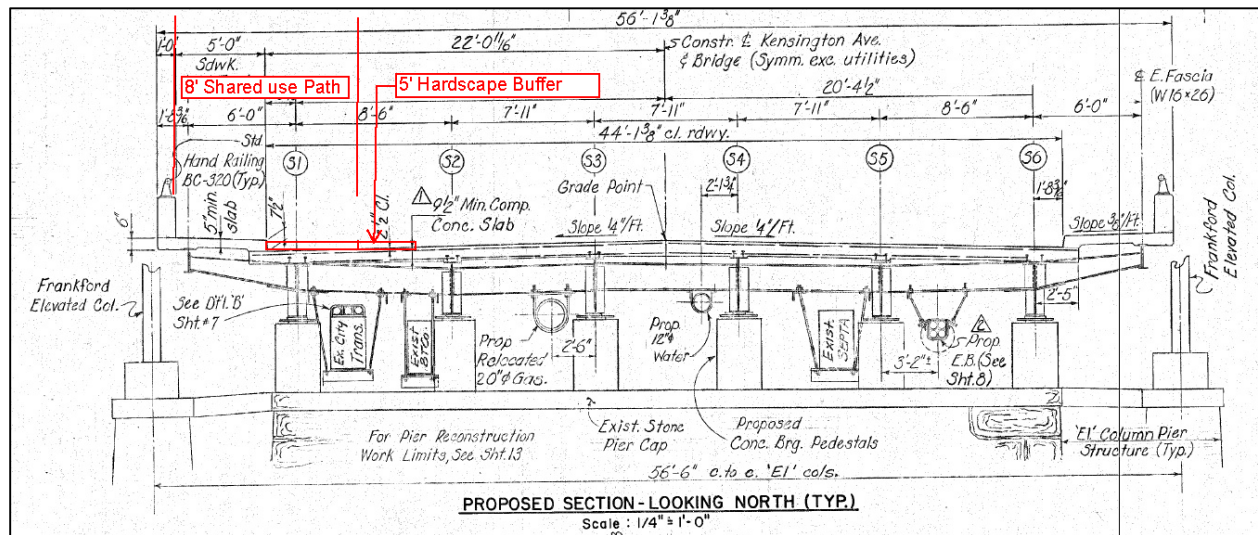
Plan view of the proposed protected bike lanes along Kensington Avenue between Deal Street and Adams Avenue



Cross section of protected bike lanes on Kensington Avenue between Deal Street and Adams Avenue below elevated SEPTA line

3.6b Creek Side Option – Leiper Street Cap to Adams Avenue.

Another option for the trail location uses the west bank of the creek from the Leiper Street Cap to Kensington Avenue. A bikeway easement from the Good Friday Investments property would be required between the Leiper Street Cap to Kensington Avenue (see Appendix B). About half of this area is open land but the other half is used by the Autocare USA business. This business includes a large parking area and driveway adjacent to the west bank of the creek. The parking area and driveway would require substantial modifications/relocation if the trail was located in that area. Once reaching Kensington Avenue, extensive modifications of the bridge would be needed to create a shared use path across the structure to reach Adams Avenue.



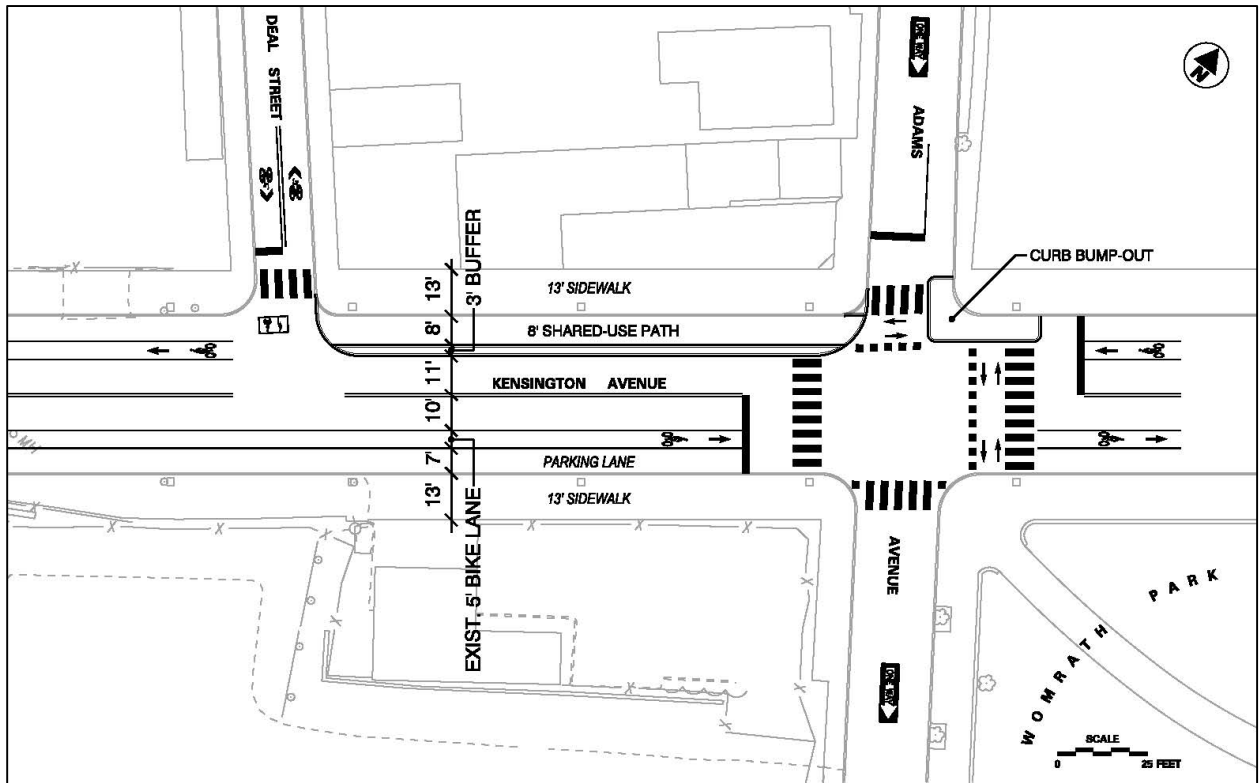
Conceptual bridge modifications envisioned for Kensington Avenue bridge over Frankford Creek.

The graphic above shows the general concept for widening the existing sidewalk area to create a 5' hardscape buffer and 8' wide shared use path. The additional load on the bridge would likely require costly strengthening of the superstructure and supporting beams as well as a new railing system on the outside parapet wall to meet bicycling standards.

In consultation with City staff, the Deal Street alignment option appears to more feasible and cost effective.

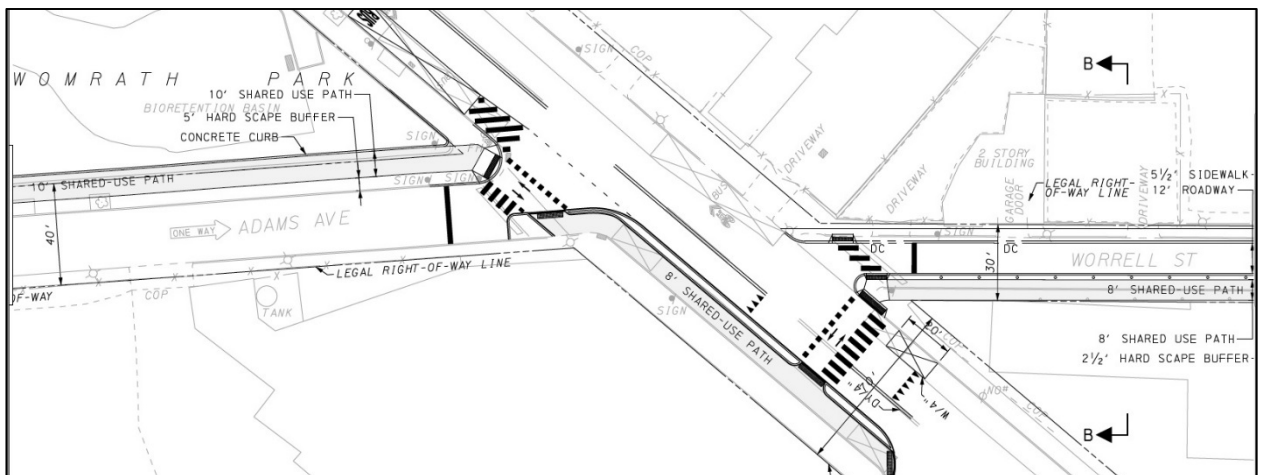
3.7 Adams Avenue/Worrell Street – Kensington Avenue to Torresdale Avenue

The existing traffic signal at Adams Avenue/Kensington Avenue will have minor modifications to facilitate movement of trail users through the intersection to the east side of Adams Avenue. This area is called Womrath Park and the existing sidewalk area will be widened by approximately 5' to create a shared use path. The existing large sycamore trees along the curb line will remain in place as part of a landscaped buffer between the path and the roadway. One tree will be removed as part of the sidewalk widening. A concrete curb will be used at the back edge of the widened sidewalk to minimize impacts on the adjacent park. The path will end at Frankford Avenue and will transition to a short section of protected bike lanes and an improved crossing location to Worrell Street.



Protected bike lanes proposed along Kensington Avenue from Deal Street to Adams Avenue.

At Frankford Avenue, the existing 15' travel lane would be reduced to 11' to create a 4' wide concrete island on the west side of Frankford Avenue. The parking would be removed on this block and an 8' wide shared use path or bike lanes would be installed. A high visibility crosswalk with advance signing and a potential rectangular rapid flashing beacon would be constructed across Frankford Avenue to reach Worrell Street.



Proposed protected bike lane and crosswalk concept at intersection of Adams Avenue/Frankford Avenue and Worrell Street.

Worrell Street is a one-way street with narrow sidewalks and on street parking. The roadway will be modified to include the following:

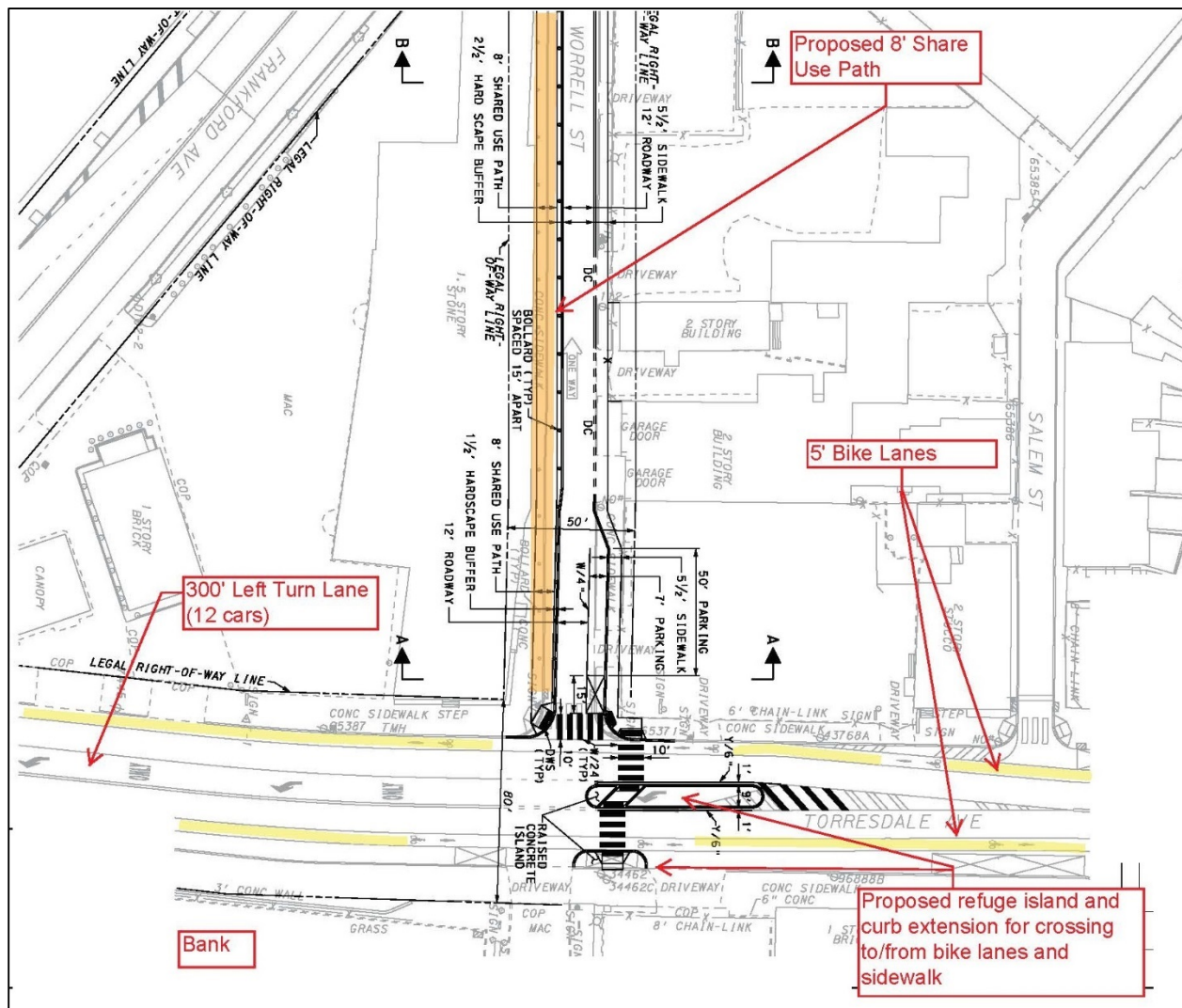
- 8' shared use path with 1.5' to 2.5' hardscape buffer. Bollards would be installed in the buffer at a regular interval to protect the path users and prevent parking on the path as well.
- 8" vertical concrete curb adjacent to the shared use path
- 12' travel lane
- 7' parking lane for approx. 50' near Torresdale Avenue. Other on street parking would be removed
- 5.5' sidewalk on east side of the roadway

The adjacent land uses appear to be commercial/industrial and have off street parking or parking access from adjacent streets. Two parking spaces are proposed near the intersection of Worrell St. and Torresdale Avenue.

3.8 Torresdale Avenue – Worrell Street to Adams Avenue Connector Trail

Torresdale Avenue will be repaved and the pavement markings modified slightly as part of the Adams Avenue Connector project (SR 1026 Section H04). That project is being advanced by PennDOT in association with improvements to I-95. The existing five-foot (5') bike lanes will be maintained in the future along Torresdale Avenue. The Frankford Greenway will utilize the bike lanes and existing sidewalks along Torresdale Avenue between Worrell Street and the new Adams Avenue Connector. A 10' wide shared use path will be constructed along the west side of Adams Avenue. There is a building on Worrell street that is located within right-of-way, and therefore the final roadway, sidewalk, and shared use path dimensions are dictated by the total available space.

To facilitate safer crossings between the Worrell Street shared use path and the Torresdale Avenue bike lanes, a raised concrete island, curb extension and formal crosswalk is recommended as shown on following page.



Proposed raised refuge island on Torresdale Avenue to enhance safe crossings between shared use path on Worrell Street and existing bike lanes on Torresdale Avenue. Pavement marking plan from SR 1026 Section H04 provided by PennDOT/AECOM.

Led imbedded advance warning signs or a rectangular rapid flashing beacon may also be considered as part of the final design of this crossing. If this concept is preferred by the City, a formal, written request to PennDOT to incorporate this crossing into the SR 1026-HO4 project is recommended.

Protected Bike Lane Concept:

If parking and bus stops can be removed/relocated along Torresdale Avenue, it is recommended to create a 3.5' painted buffer between the bike lanes and travel lanes to better protect bicyclists. A preliminary plan for protected bike lanes is included in Appendix E. This preliminary plan is based on the proposed pavement marking plan for the SR 1026 Section HO4 project.

Order of Magnitude Cost Estimates:

Michael Baker completed two order of magnitude cost estimates for the design and construction of the Frankford Greenway between Tacony Creek Park and Torresdale Avenue. The two estimates include the following:

1. Original trail alignment from May 2014 study which includes trail on the west side of the creek from the Leiper Street Cap to Kensington Avenue and modifications of the Kensington Avenue bridge.
2. Original trail alignment with substitution of the “Deal Street Option” avoiding costly modifications of the Kensington Avenue Bridge over Frankford Creek.

More detail on the cost estimates can be found in Appendix D.

Summary tables of the two cost estimates as follows:

Cost Estimate #1 (Original Alignment)

Segment #	Description	Design & Construction Cost
Original Alignment		
3.1	I Street - Ramona Ave to E. Cayuga St.	\$404,461
3.2	E. Cayuga St. - I St. to Castor Ave.	\$1,628,667
3.3	East Wingohocking St. - Castor Ave to Frankford Creek	\$505,160
3.4	Wingohocking St. to Potter St. to Bristol Street along Creek	\$372,383
3.5	Bristol St. to south end of Leiper St. cap along Creek	\$454,281
3.6	South end of Cap to Kensington Ave Bridge to Adams Ave.	\$1,473,141
3.7	Adams Ave/ Worrell St. - Kensington to Torresdale	\$783,769
	Total=	\$5,621,861

Cost Estimate #2 (Deal St. Option)

Deal St. Alignment		
3.1	I Street - Ramona Ave to E. Cayuga St.	\$404,461
3.2	E. Cayuga St. - I St. to Castor Ave.	\$1,628,667
3.3	East Wingohocking St. - Castor Ave to Frankford Creek	\$505,160
3.4	Wingohocking St. to Potter St. to Bristol Street along Creek	\$372,383
3.5	Bristol St. to south end of Leiper St. cap along Creek	\$454,281
	Deal St - Cap to Adams Ave	\$411,007
3.7	Adams Ave/ Worrell St. - Kensington to Torresdale	\$783,769
	Total=	\$4,559,727

Cost Est #1 (Original Alignment)	\$5,621,861
Cost Est #2 (Deal St. Alignment)	\$4,559,727
Difference Original Align. - Deal St. Alignment=	\$1,062,134

Please note above costs do not include right of way/easement acquisition costs or utility relocation costs. The improvements along Torresdale Avenue are assumed to be completed by PennDOT.

Implementation Recommendations

The goal is to create a sequence of projects that connects logical destinations for trail users, can be funded in a reasonable manner through existing grant programs and to create infrastructure that can be used safely with logical ending point (i.e. not ending a facility that forces trail users to make unsafe movements).

Project sequence:

1. Torresdale Avenue (Worrell Street to Adams Avenue Connector) – assumed to be incorporated into PennDOT SR 1026 Section H04 project in 2018/2019
2. I Street – Ramona Avenue to existing bike lanes on East Cayuga Street. (Segment 3.1)
 - a. No ROW acquisition required.
3. East Cayuga Street – I Street to Castor Avenue (Segment 3.2)
 - a. No ROW acquisition required.
 - b. Recommended to sequence with roadway resurfacing to minimize cost and improve final product.
 - c. Will connect to existing sharrows on Castor Avenue.
4. Bristol Street Park and Creek side trail from Bristol Street to South end of Cap (Segment 3.5)
 - a. No ROW acquisition required.
 - b. To be coordinated with Bristol Street building and park improvements.
5. Creek side trail - Wingohocking Street to Bristol Street Park (Segment 3.4)
 - a. Recommend to sequence with roadway resurfacing to minimize cost and improve final product since it is primarily modification of pavement markings
 - b. One easement required.
6. Bristol Street Park to Womrath Park (aka Deal Street Option Segment 3.6)
 - a. One easement required. Need agreement with PennDOT to use their properties.
7. Adams Avenue/Worrell Street – Womrath Park to existing bike lanes along Torresdale Avenue (Segment 3.7)

Potential Funding Options:

PA Department of Conservation and Natural Resource (DCNR) grants are a logical potential funding source for trail projects less than \$500,000. Also, projects that improve trail access to existing parks are good candidates for DCNR grants. Therefore, the following segments are recommended for DCNR grants:

- 3.1 I Street – Ramona Ave. to East Cayuga Street
- 3.4 Creek Side Trail – Wingohocking Street to Bristol Street/Bristol Street Park
- 3.5 Creek Side Trail – Bristol Street/Park to South end of Leiper Street Cap
- 3.6 Deal Street Option from Bristol Park to Womrath Park

PennDOT Transportation Alternatives Set Aside, PennDOT Multimodal fund, PA DCED Multimodal fund grants are typical larger projects in the range of \$1,000,000 to \$3,000,000. These projects are more transportation based and the following segments would be better suited for these types of grants:

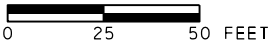
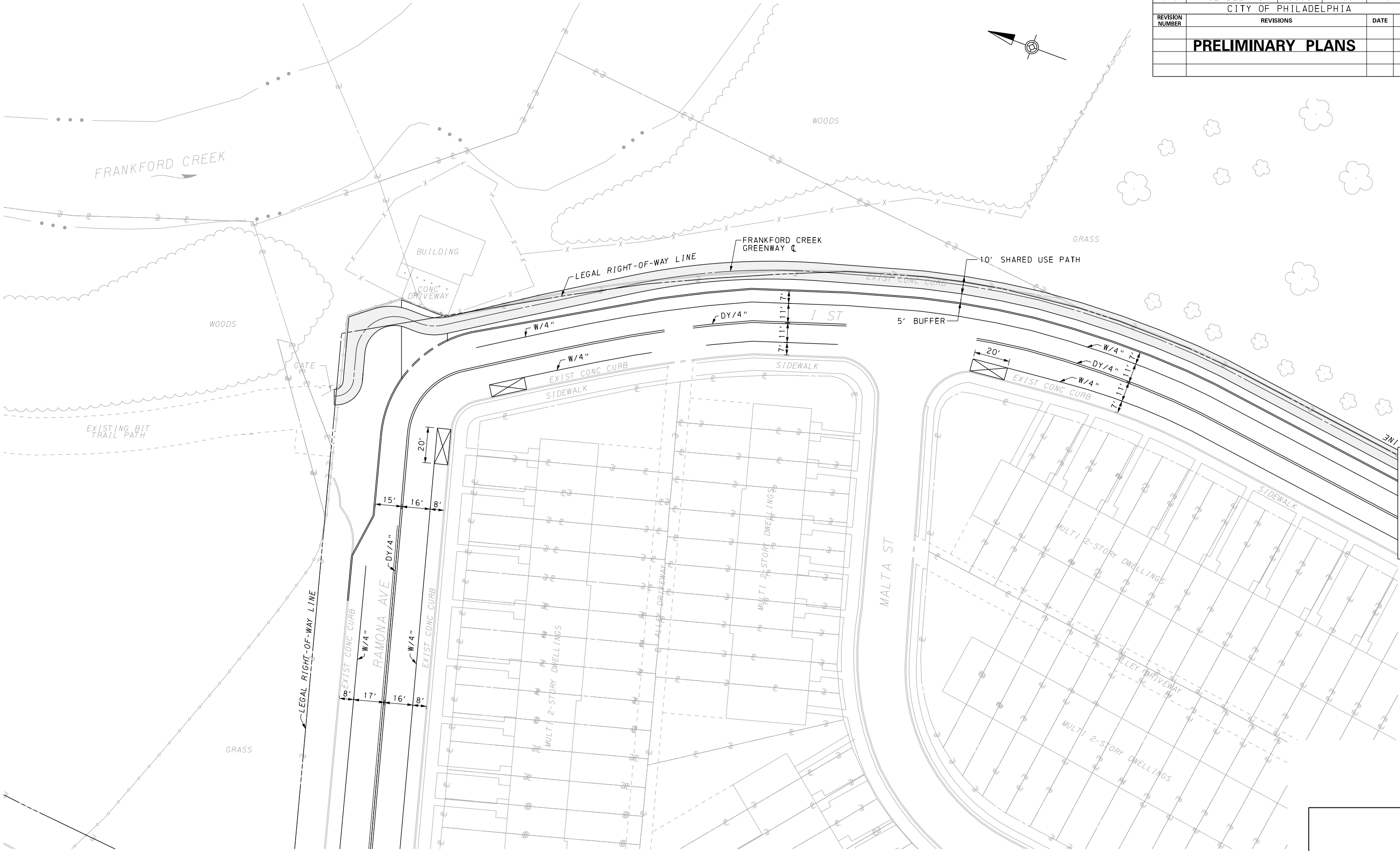
- 3.2 East Cayuga Street-I Street to Castor Avenue
- 3.3 Wingohocking Street – Castor Avenue to Frankford Creek
- 3.7 Adams Avenue/Worrell Street – Kensington Avenue to Torresdale Avenue

It is anticipated that matching funds from the DVRPC Regional Trails fund and/or TIP line item may also be utilized to close any funding gaps for the Frankford Creek Greenway. Additionally, the use of CMAQ grants for projects that promote transportation alternatives for commuting may be considered.

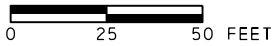
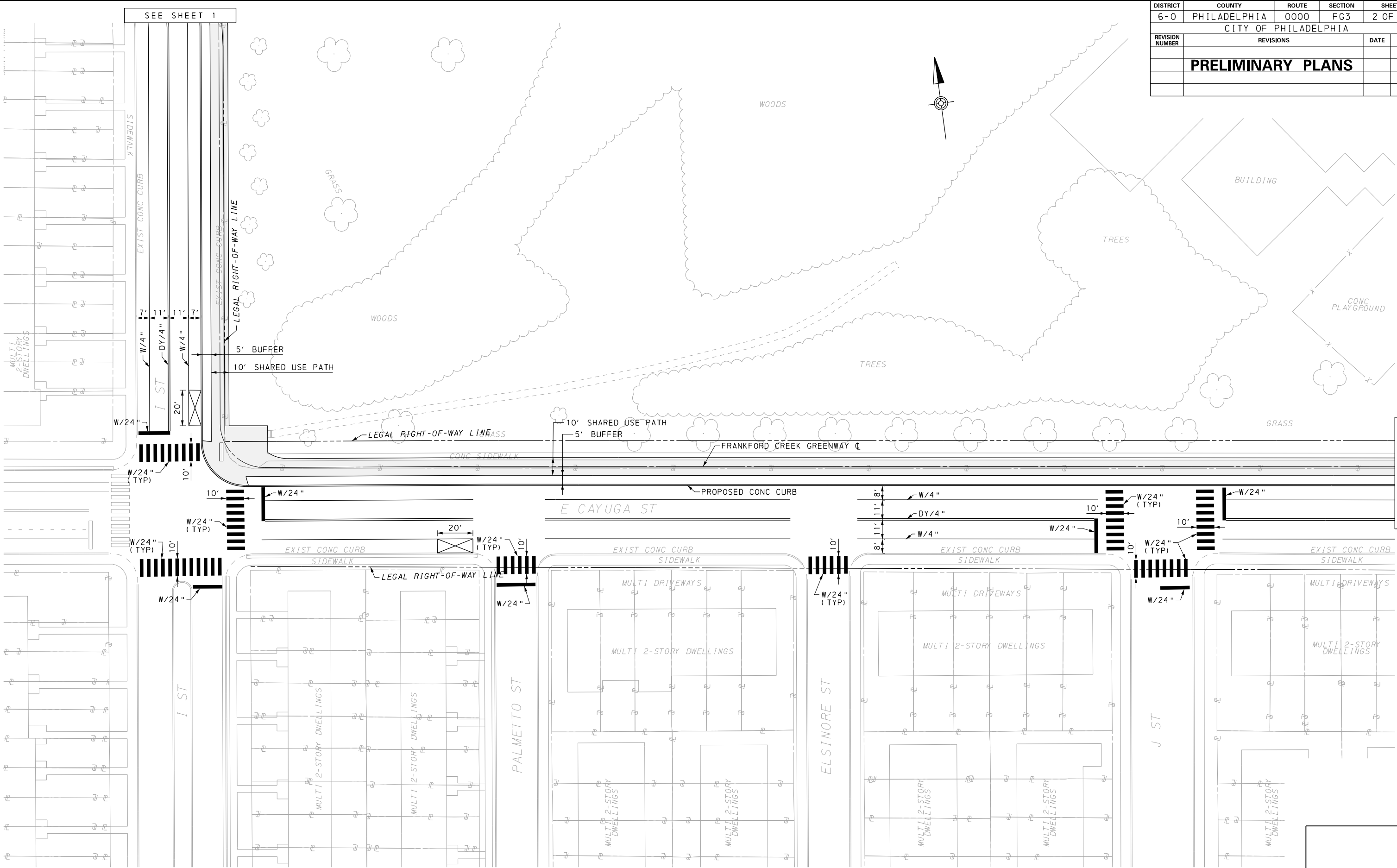
Appendix A

Conceptual Plans and Cross Sections

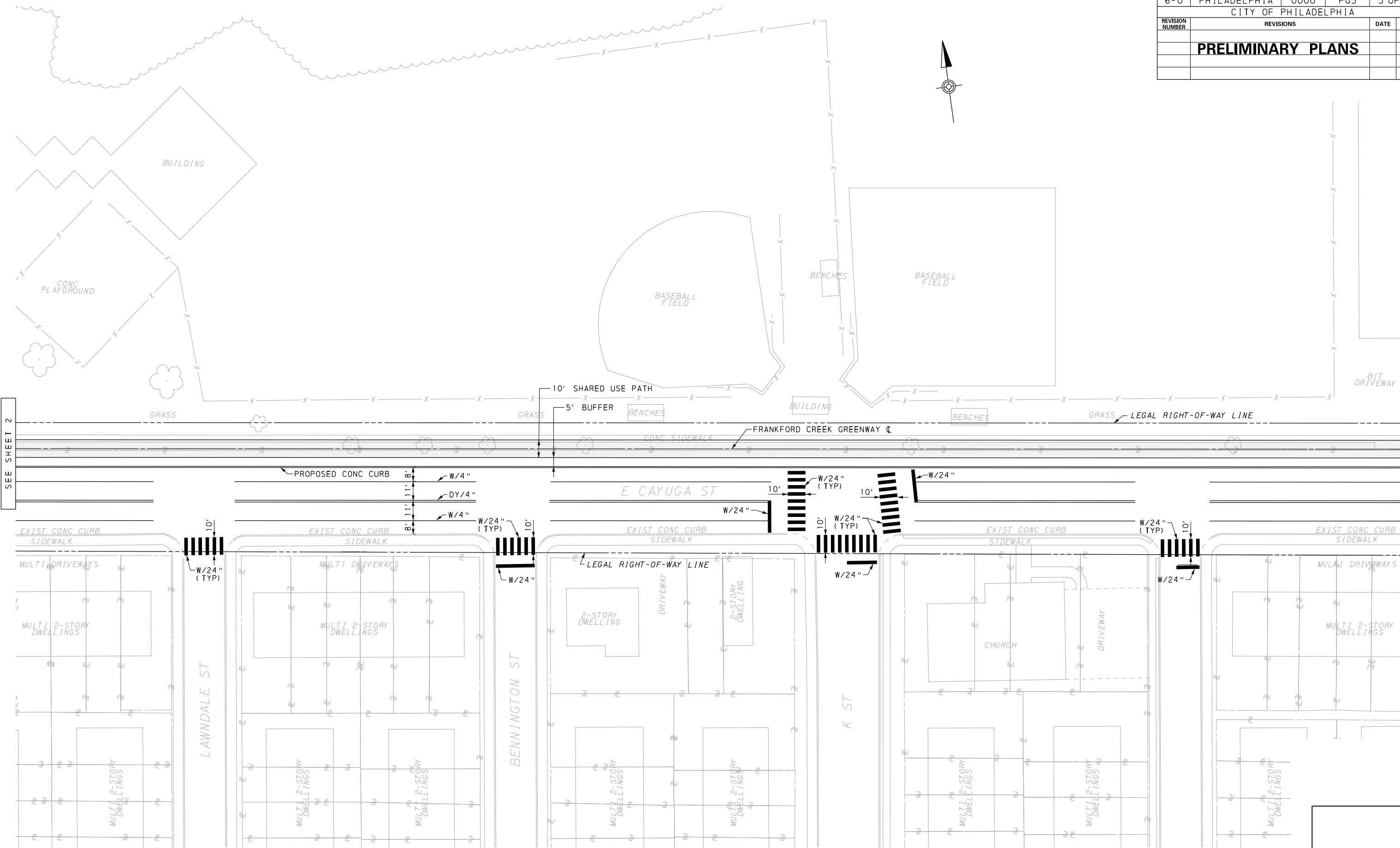
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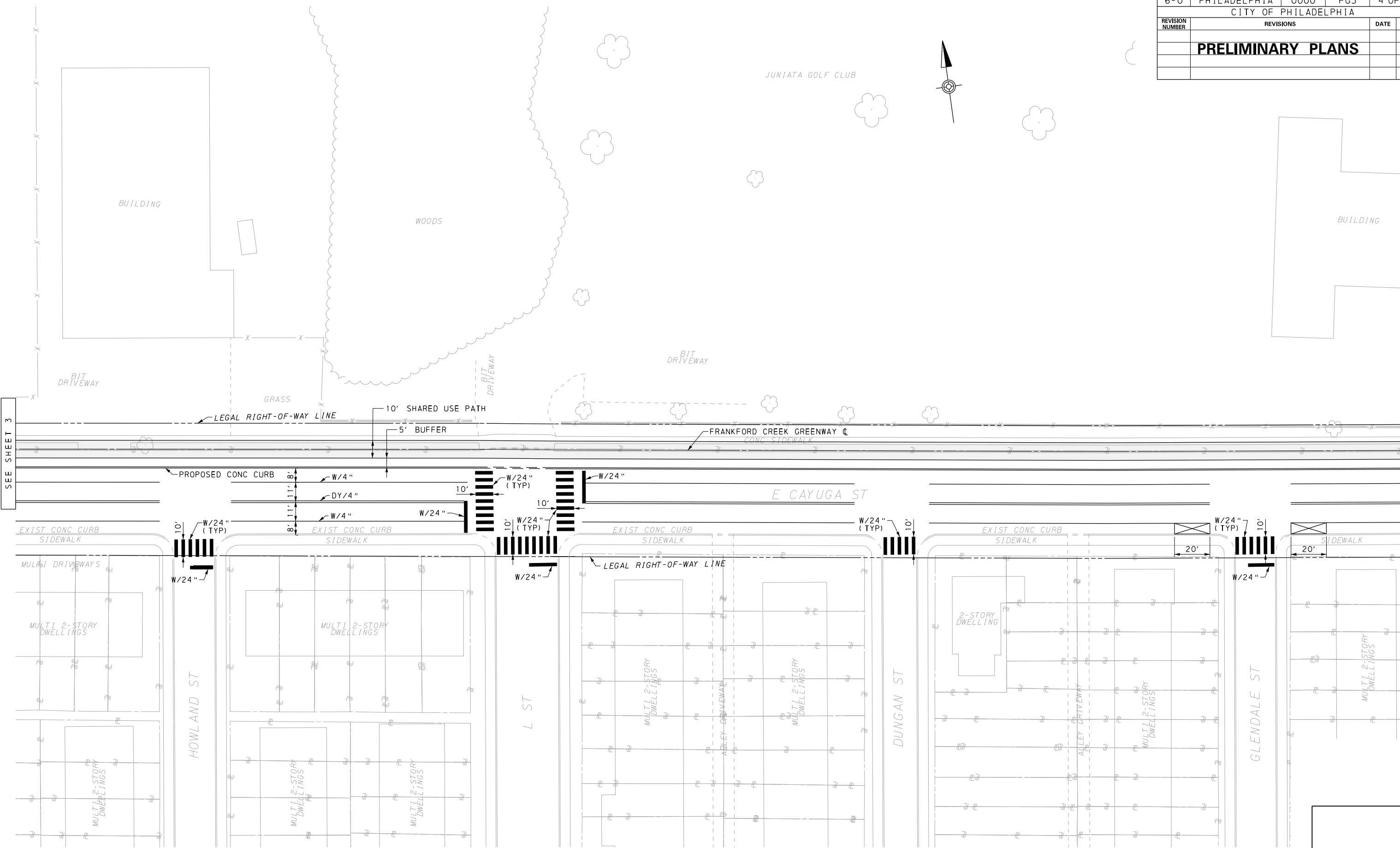
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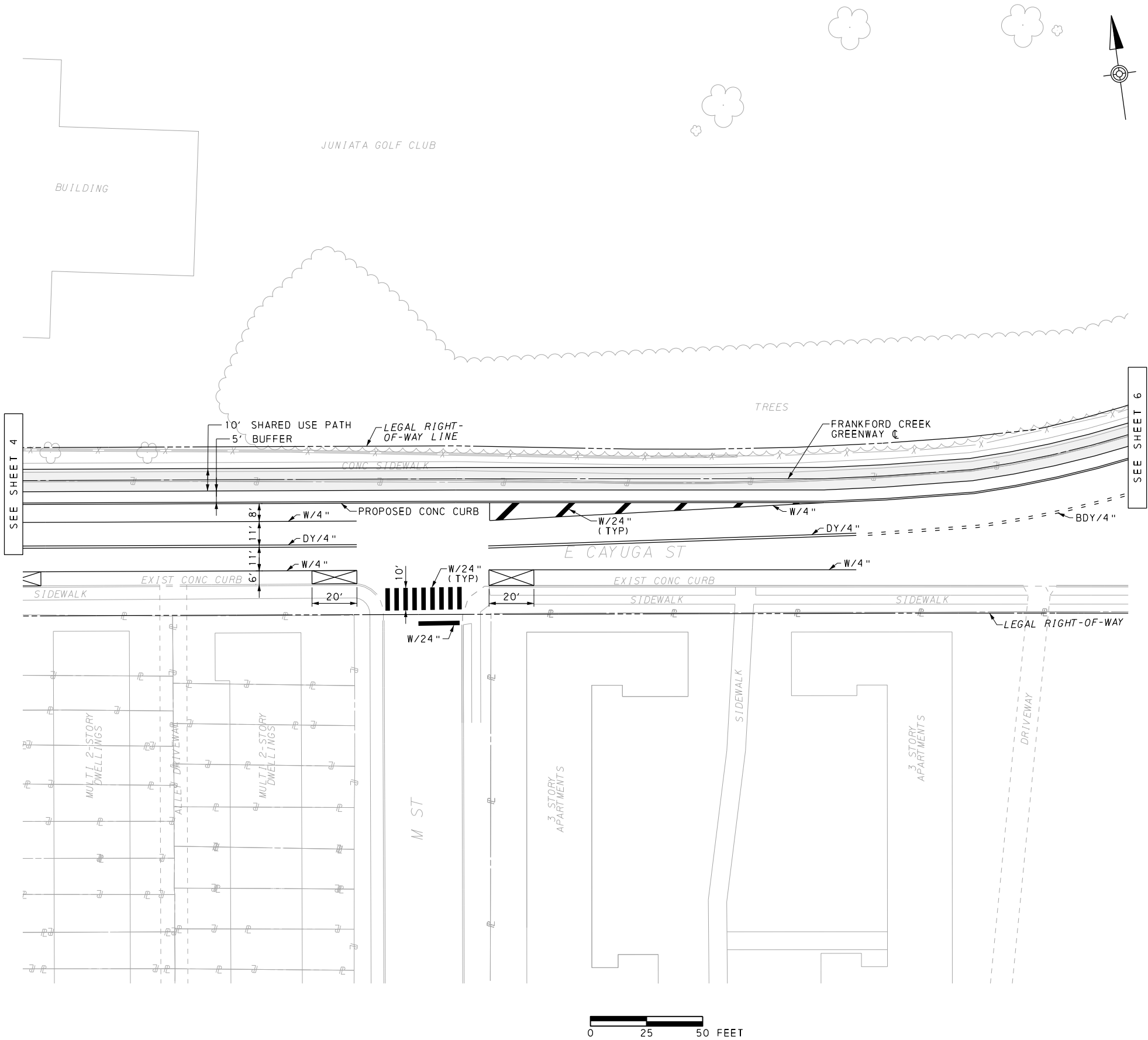
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SEE SHEET 3

SEE SHEET 5

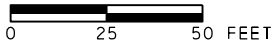
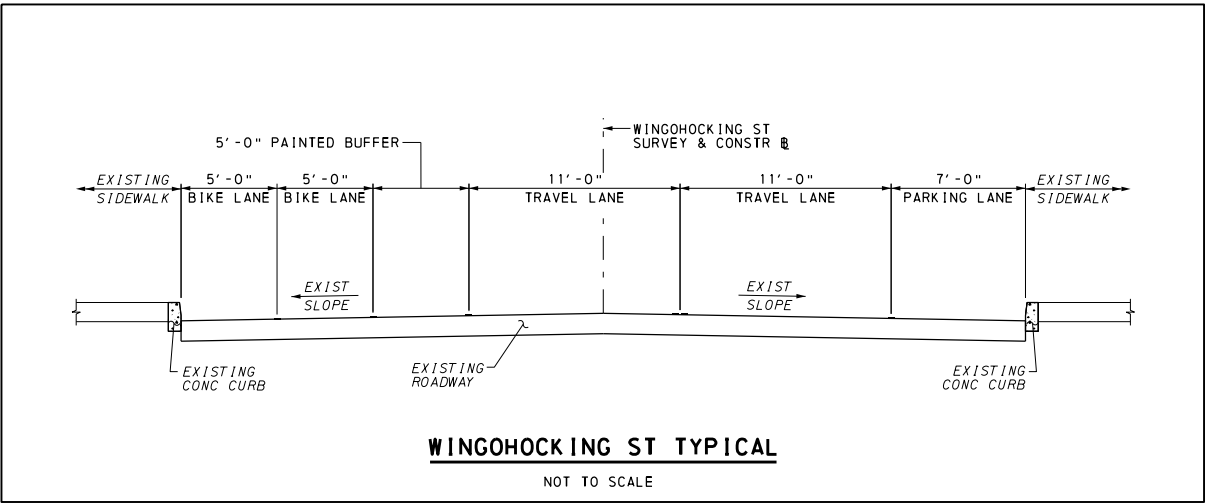
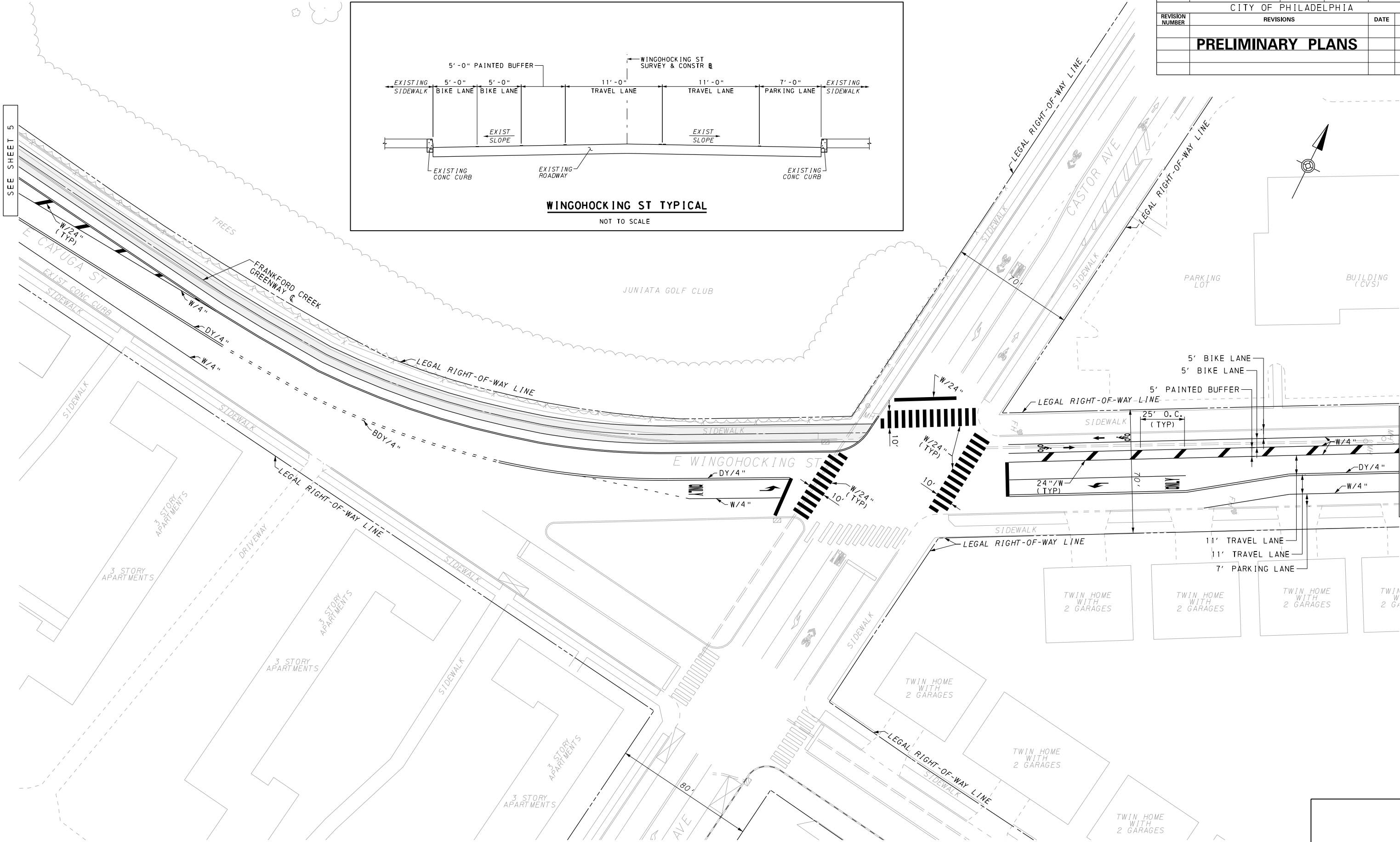
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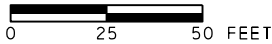
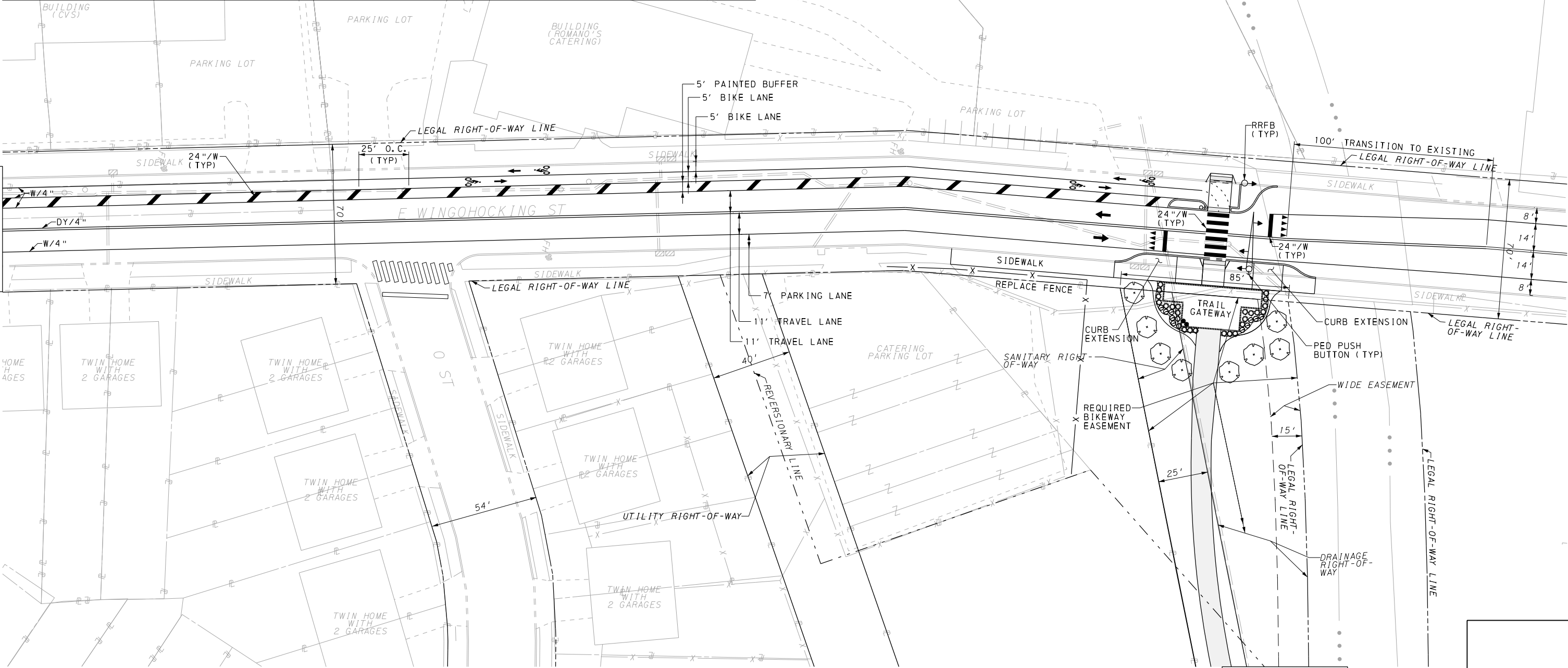
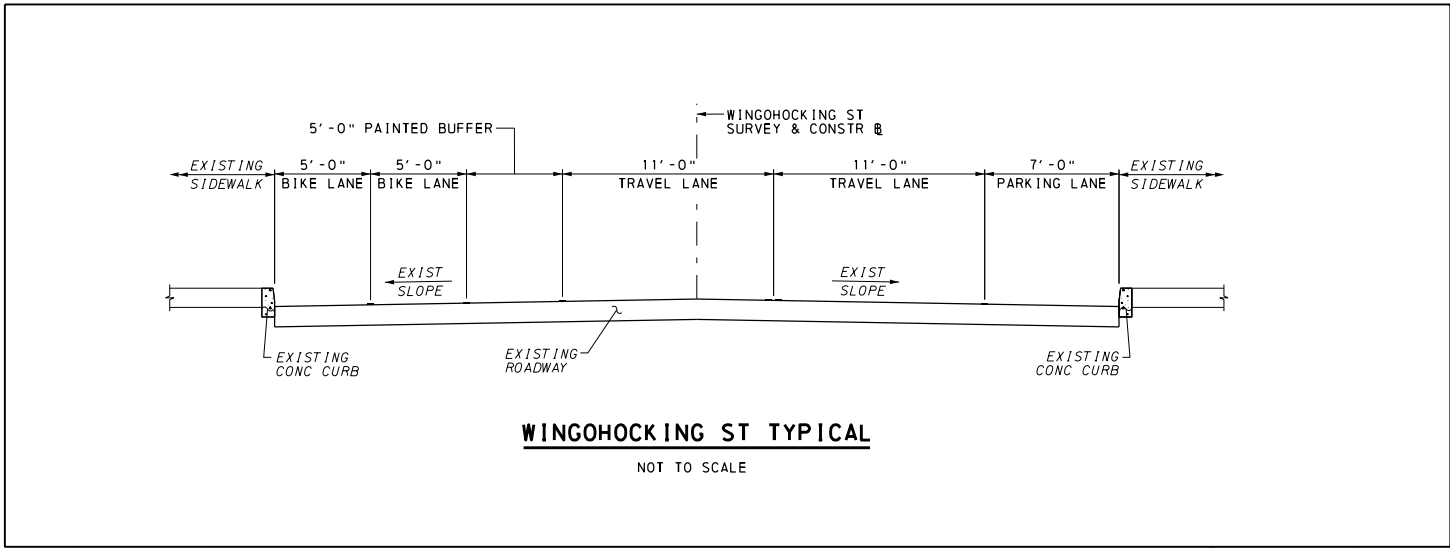
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REVISION NUMBER	REVISIONS			DATE	BY
	PRELIMINARY PLANS				

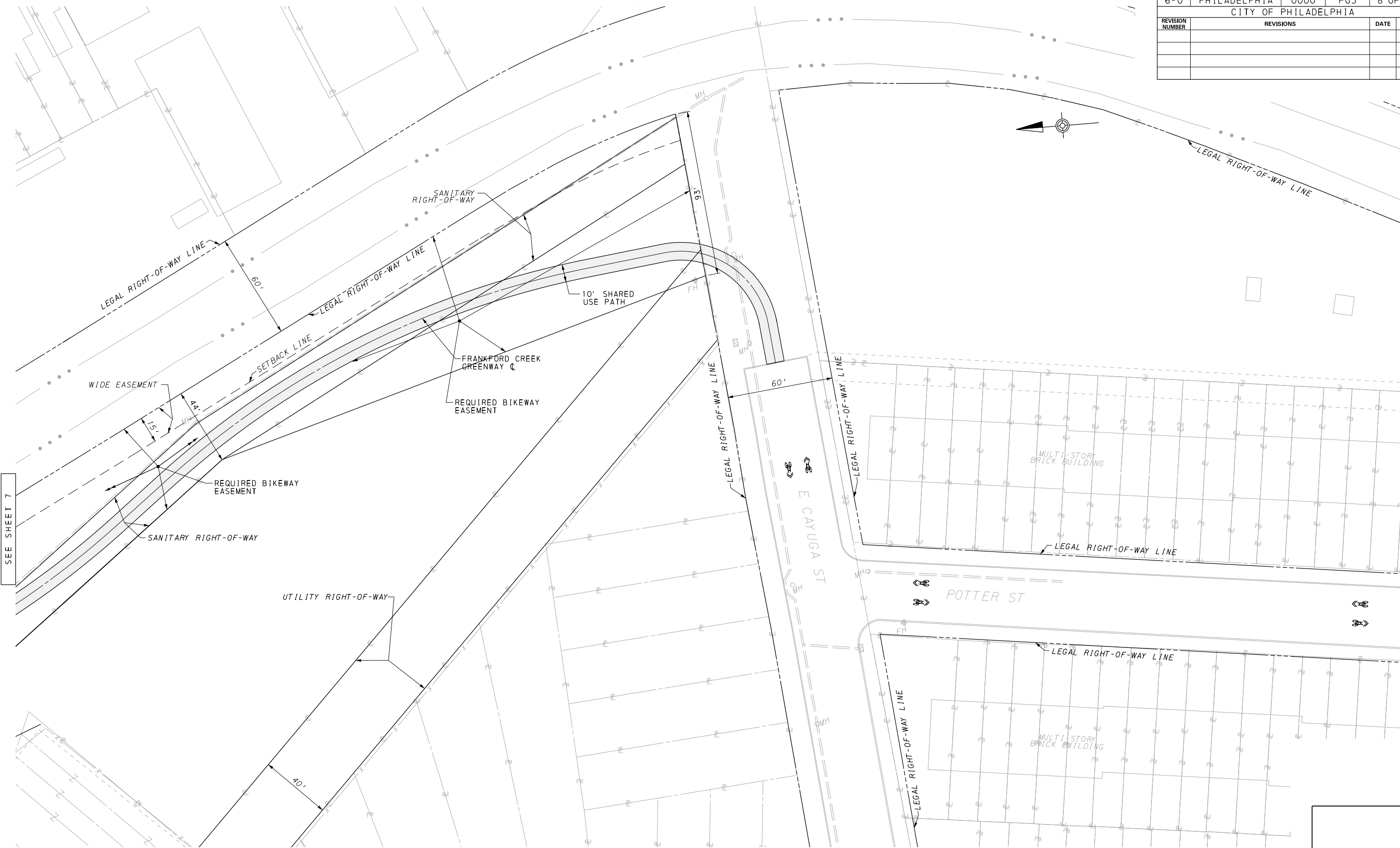


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REVISION NUMBER	REVISIONS			DATE	BY



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REVISION NUMBER	REVISIONS			DATE	BY

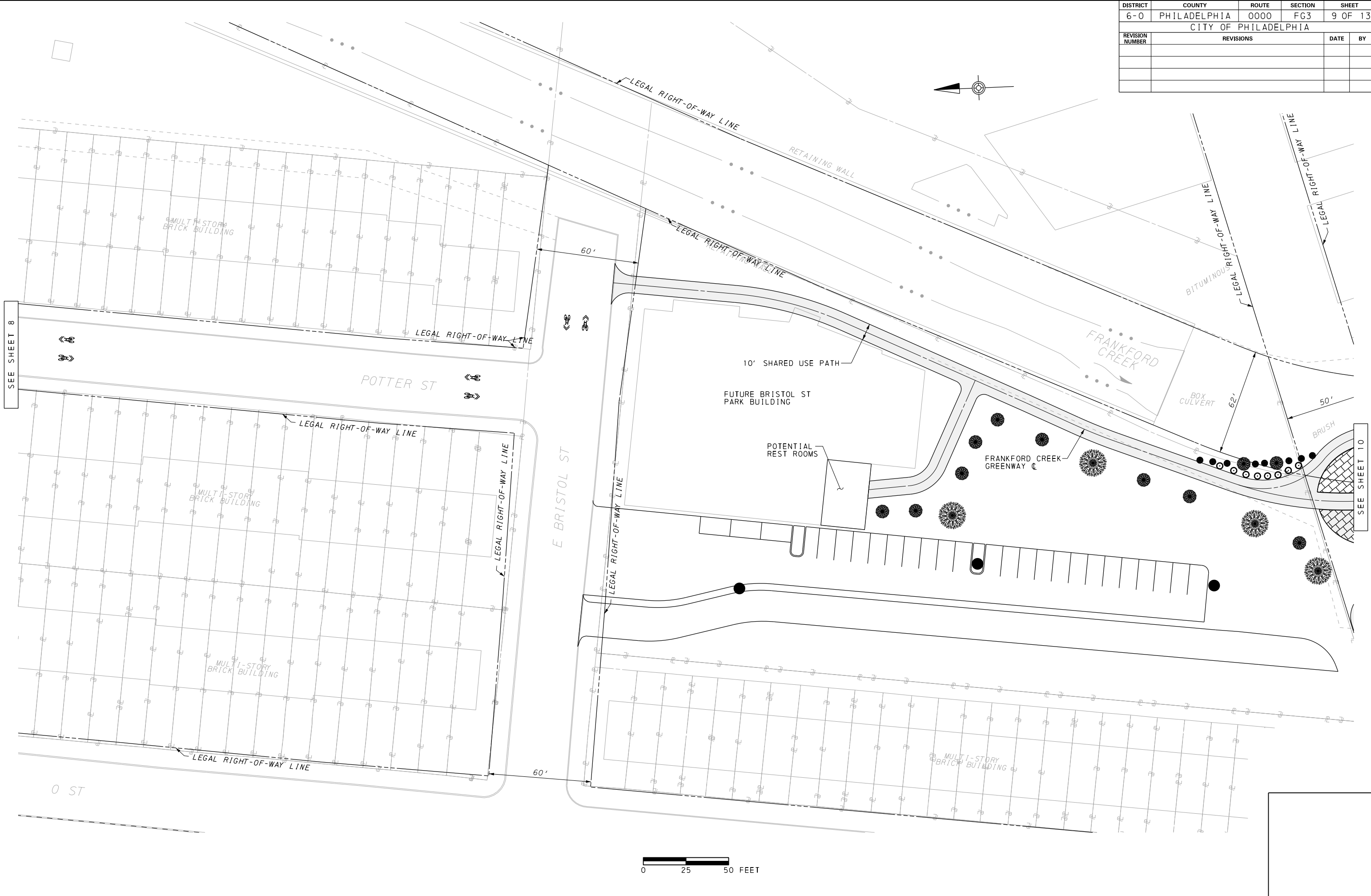


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0 25 50 FEET

DISTRICT	COUNTY	ROUTE	SECTION	SHEET	
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CITY OF PHILADELPHIA					
REVISION NUMBER	REVISIONS			DATE	BY



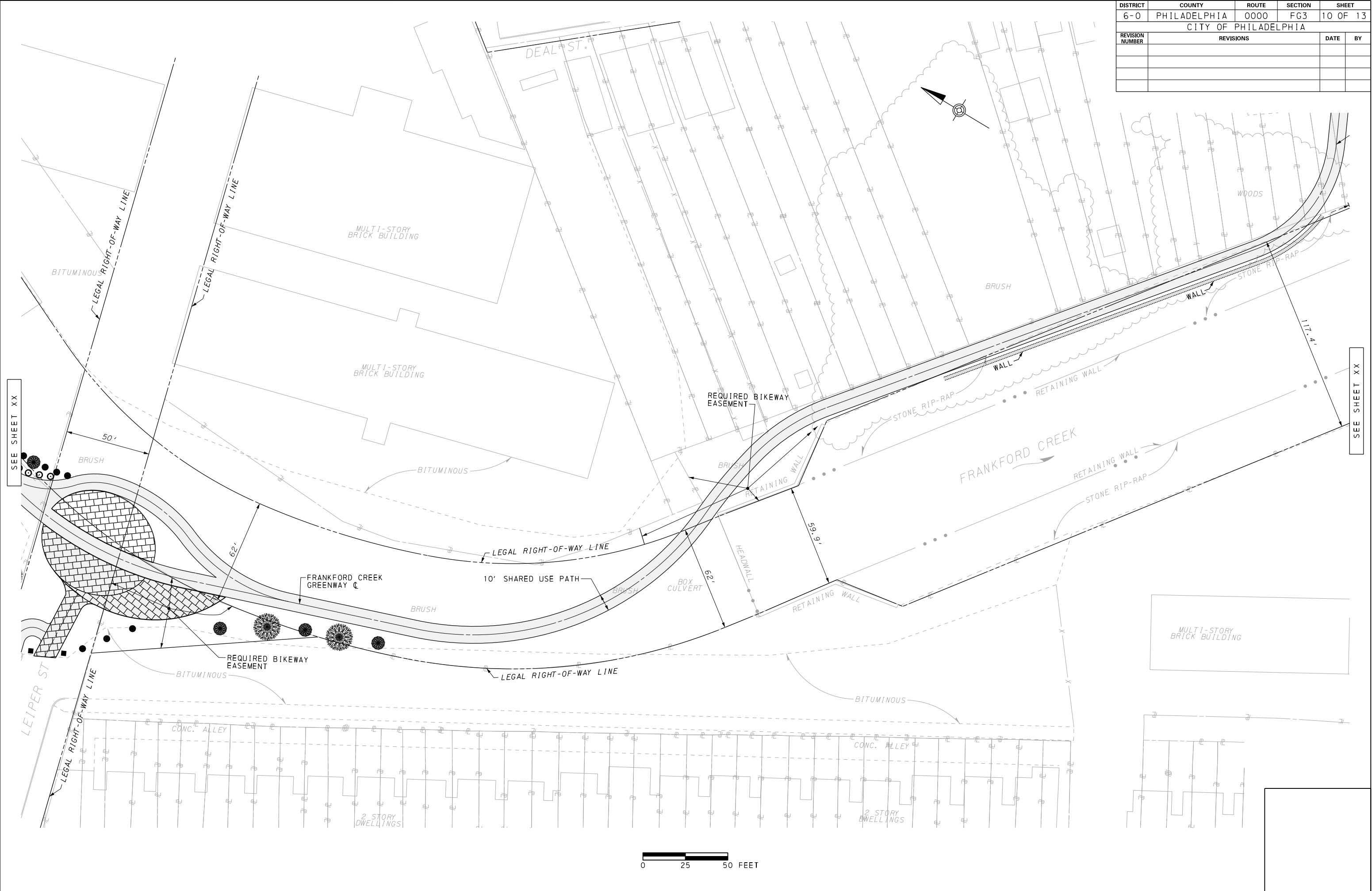
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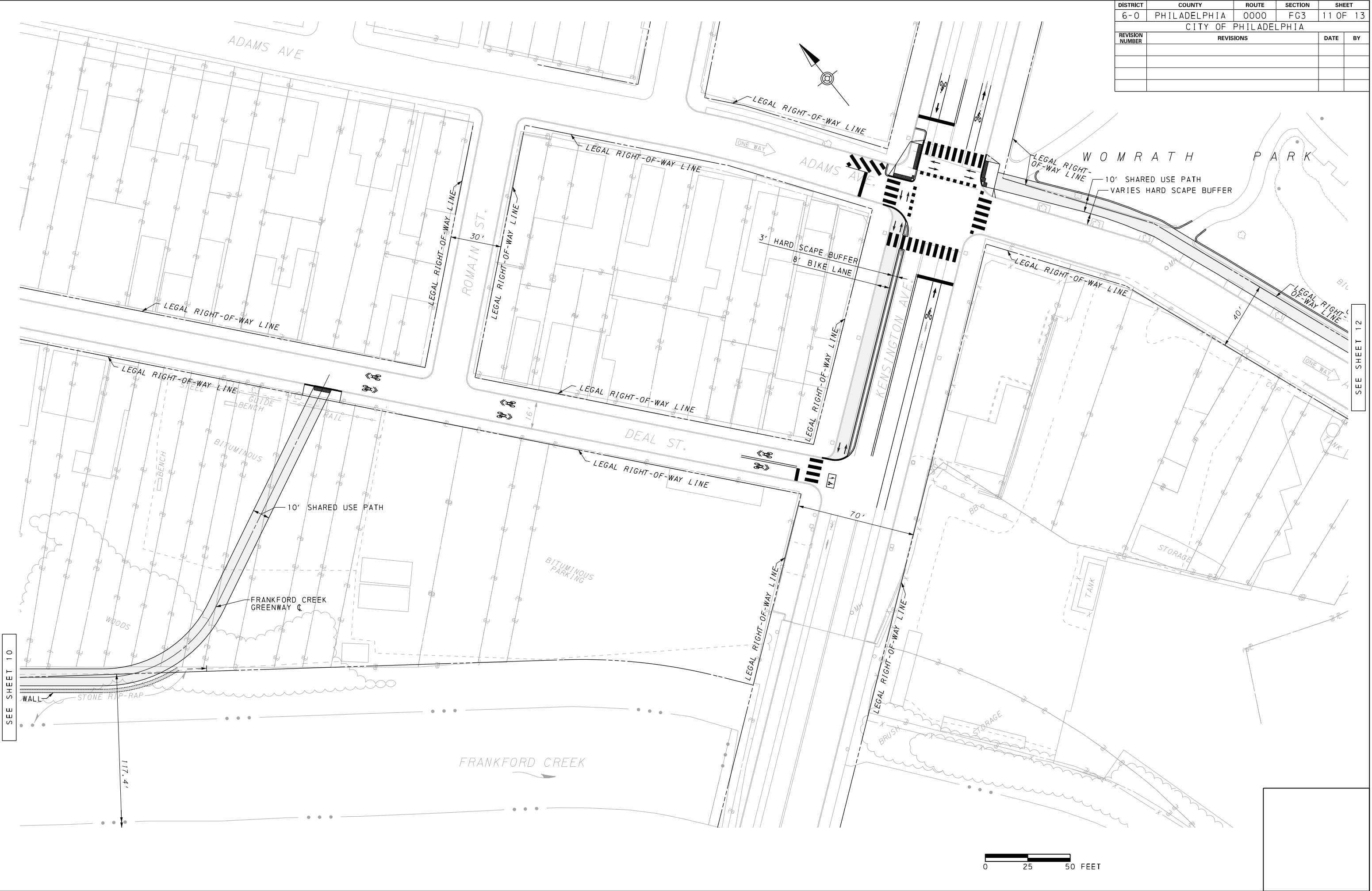
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CITY OF PHILADELPHIA					
REVISION NUMBER	REVISIONS			DATE	BY



14-JUN-2018

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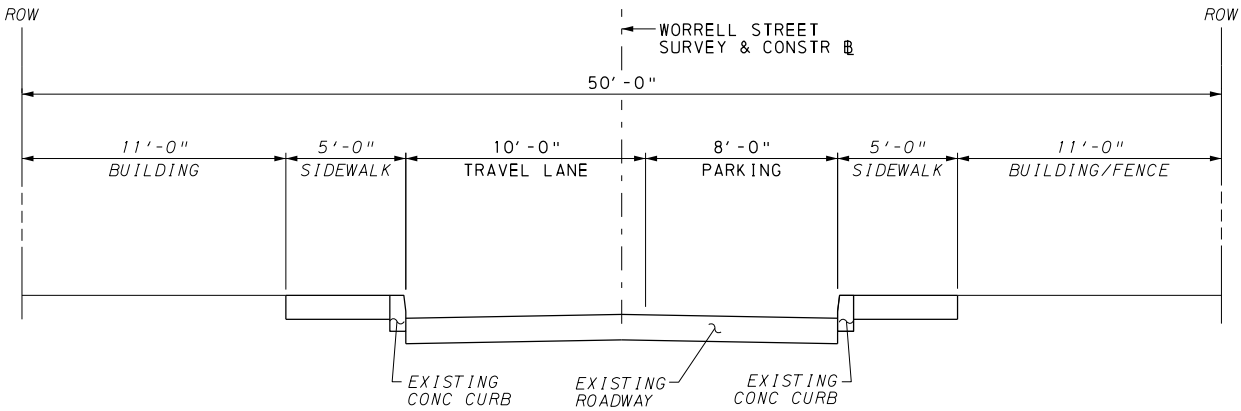


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CITY OF PHILADELPHIA					
REVISION NUMBER	REVISIONS			DATE	BY

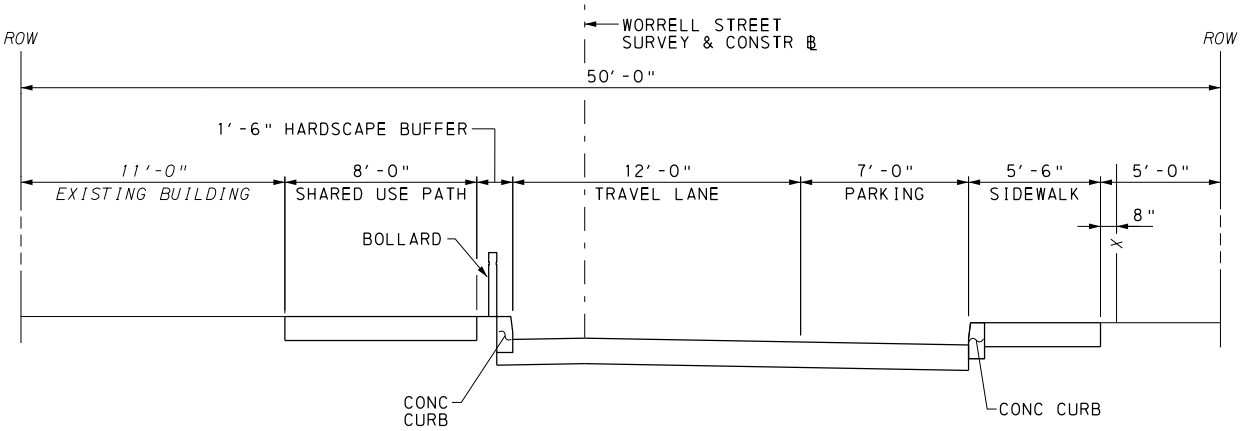
SEE SHEET 12

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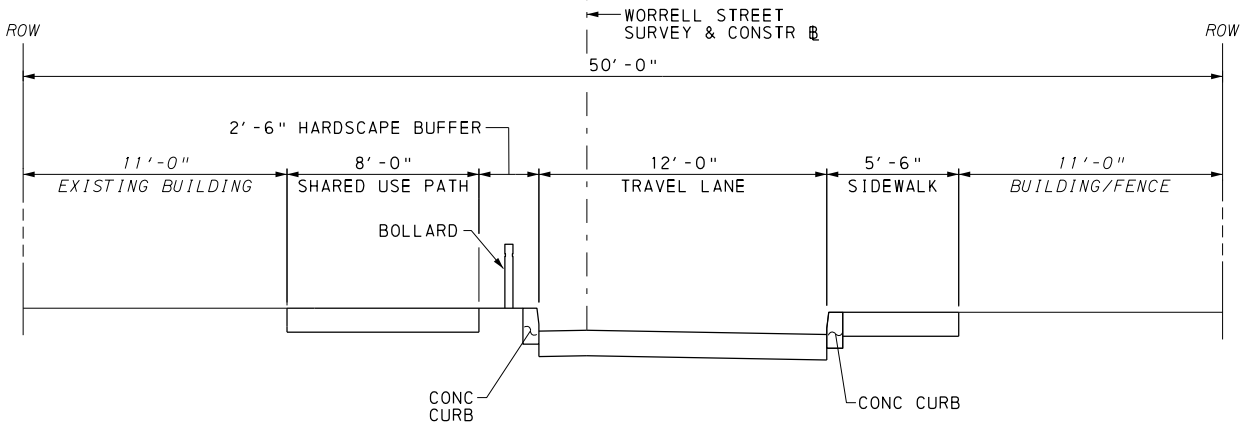
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6-0	PHILADELPHIA	0000	FG3	13 OF 13	
CITY OF PHILADELPHIA					
REVISION NUMBER	REVISIONS			DATE	BY



EXISTING WORRELL STREET-TYPICAL SECTION
NOT TO SCALE



WORRELL STREET-TYPICAL SECTION A-A
NOT TO SCALE



WORRELL STREET-TYPICAL SECTION B-B
NOT TO SCALE

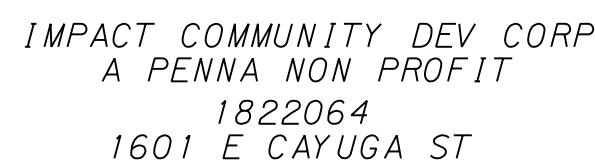
Appendix B

Preliminary Easement Plans


THE PROPERTY PLOT PLAN IS NOT TO BE SUBSTITUTED FOR A BOUNDARY SURVEY.


BIKEWAY EASEMENT: AN EASEMENT FOR THE CONSTRUCTION, INSPECTION, MAINTENANCE, REPAIR, RECONSTRUCTION AND ALTERATION OF A BIKEWAY. THE BIKEWAY IS FOR BICYCLISTS AND PEDESTRIANS ONLY. NO MOTORIZED VEHICLES ARE PERMITTED EXCEPT FOR MINIMAL CROSS OVERS BY MOTORISTS AT DRIVEWAY CROSSINGS. ALL CONSTRUCTION, INSPECTION, MAINTENANCE, REPAIR, RECONSTRUCTION AND ALTERATION IS THE RESPONSIBILITY OF DOYLESTOWN TOWNSHIP. THE EASEMENT SHALL NOT PREVENT THE PROPERTY OWNER FROM MAKING ANY LEGAL USE OF THE AREA WHICH IS NOT DETRIMENTAL TO ITS USE FOR BIKEWAY PURPOSES AS LONG AS THE PROPERTY OWNER OBTAINS PRIOR APPROVAL FROM DOYLESTOWN TOWNSHIP.

BIKEWAY EASEMENT: AN EASEMENT FOR THE CONSTRUCTION, INSPECTION, MAINTENANCE, REPAIR, RECONSTRUCTION AND ALTERATION OF A BIKEWAY. THE BIKEWAY IS FOR BICYCLISTS AND PEDESTRIANS ONLY. NO MOTORIZED VEHICLES ARE PERMITTED EXCEPT FOR MINIMAL CROSS OVERTS BY MOTORISTS AT DRIVEWAY CROSSINGS. ALL CONSTRUCTION, INSPECTION, MAINTENANCE, REPAIR, RECONSTRUCTION AND ALTERATION IS THE RESPONSIBILITY OF DOYLESTOWN TOWNSHIP. THE EASEMENT SHALL NOT PREVENT THE PROPERTY OWNER FROM MAKING ANY LEGAL USE OF THE AREA WHICH IS NOT DETRIMENTAL TO ITS USE FOR BIKEWAY PURPOSES AS LONG AS THE PROPERTY OWNER OBTAINS PRIOR APPROVAL FROM DOYLESTOWN TOWNSHIP.



CITY OF PHILADELPHIA
0616873
1670 E CAYUGA ST

 PROPOSED FRANKFORD CREEK GREENWAY PATH

 REQUIRED BIKEWAY EASEMENT

A horizontal scale bar labeled "SCALE IN FEET" below it. The bar has three markings: "0" at the left end, "25" at the midpoint, and "50" at the right end. The segment from 0 to 25 is shaded black, and the segment from 25 to 50 is white.

STATE ROUTE: 000 SEC. NO: FG2 CITY OF PHILADELPHIA PHILADELPHIA COUNTY
PARCEL NO. XX SHEET NO. XX CLAIM NO.
PROPERTY OWNER(S) IMPACT COMMUNITY DEV CORP A PENNA NON PROFIT
GRANTOR(S) --

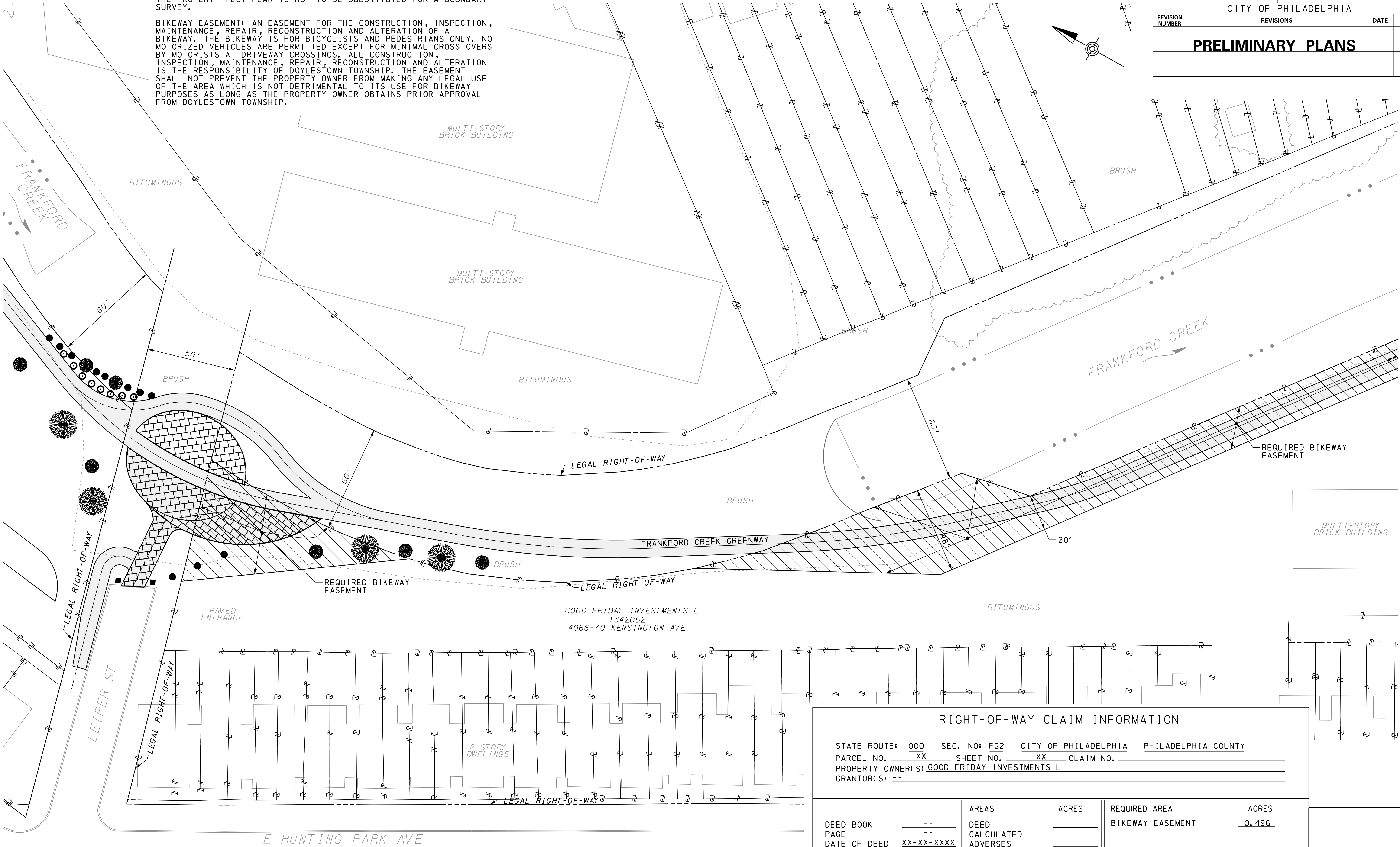
DEED BOOK	--	DEED		REQUIRED AREA	ACRES
PAGE	--	CALCULATED		BIKEWAY EASEMENT	<u>0.211</u>
DATE OF DEED	<u>XX-XX-XXXX</u>	ADVERSES			
DATE OF RECORD	<u>XX-XX-XXXX</u>	EXCEPTIONS			
CONSIDERATION	<u>\$--</u>	LEGAL R/W			
TAX STAMPS	<u>\$--</u>	EFFECTIVE			
TAX PARCEL NO.	<u>--</u>	TOTAL REQ'D R/W		VERIFICATION DATE	<u>XX-XX-XXXX</u>
		TOTAL RESIDUE		DRAWN BY	MICHAEL BAKER INTERNATIONAL
		RESIDUE LT.		SCALE:	AS SHOWN
		RESIDUE RT.			

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THE PROPERTY PLOT PLAN IS NOT TO BE SUBSTITUTED FOR A BOUNDARY SURVEY.

BIKEWAY EASEMENT: AN EASEMENT FOR THE CONSTRUCTION, INSPECTION, MAINTENANCE, REPAIR, RECONSTRUCTION AND ALTERATION OF A BIKEWAY. THE BIKEWAY IS FOR BICYCLISTS AND PEDESTRIANS ONLY. NO MOTORIZED VEHICLES ARE PERMITTED EXCEPT FOR MINIMAL CROSS OVERS BY MOTORISTS AT DRIVEWAY CROSSINGS. ALL CONSTRUCTION, INSPECTION, MAINTENANCE, REPAIR, RECONSTRUCTION AND ALTERATION IS THE RESPONSIBILITY OF DOYLESTOWN TOWNSHIP. THE EASEMENT SHALL NOT PREVENT THE PROPERTY OWNER FROM MAKING ANY LEGAL USE OF THE AREA WHICH IS NOT DETRIMENTAL TO ITS USE FOR BIKEWAY PURPOSES AS LONG AS THE PROPERTY OWNER OBTAINS PRIOR APPROVAL FROM DOYLESTOWN TOWNSHIP.

DISTRICT	COUNTY	ROUTE	SECTION	SHEET	
6-0	PHILADELPHIA	0000	FG2	1 OF 2	
CITY OF PHILADELPHIA					
REVISION NUMBER	REVISIONS			DATE	BY
	PRELIMINARY PLANS				

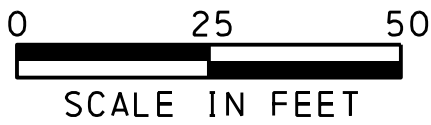


PRIVATE PROPERTY LINES ARE PLOTTED FROM THE DEED OF RECORD, RECORDED SUBDIVISION OR LOT PLANS, EXISTING TOPOGRAPHICAL FEATURES AND LIMITED FIELD DATA. PRIVATE PROPERTY LINES WERE NOT SURVEYED BY THE PROFESSIONAL LAND SURVEYOR RESPONSIBLE FOR THE PROJECT.

LEGEND:

- PROPOSED FRANKFORD CREEK GREENWAY PATH
- REQUIRED BIKEWAY EASEMENT

DETAIL

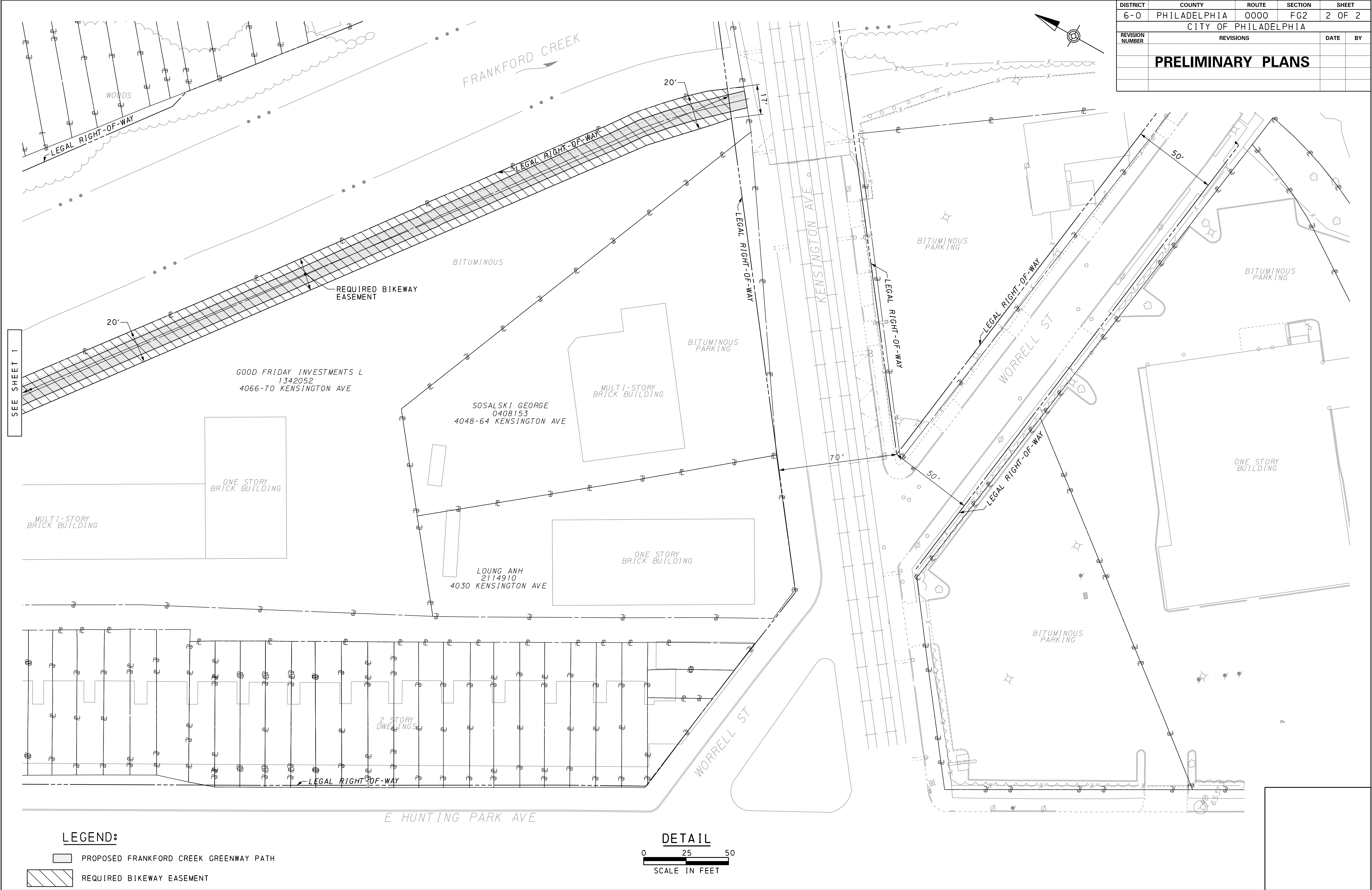


RIGHT-OF-WAY CLAIM INFORMATION

STATE ROUTE: 000 SEC. NO: FG2 CITY OF PHILADELPHIA PHILADELPHIA COUNTY
PARCEL NO. XX SHEET NO. XX CLAIM NO. _____
PROPERTY OWNER(S) GOOD FRIDAY INVESTMENTS L
GRANTOR(S) --

DEED BOOK		AREAS	ACRES	REQUIRED AREA	ACRES
PAGE		DEED	_____	BIKEWAY EASEMENT	0.496
DATE OF DEED XX-XX-XXXX		CALCULATED	_____	VERIFICATION DATE XX-XX-XXXX DRAWN BY MICHAEL BAKER INTERNATIONAL SCALE: AS SHOWN	
DATE OF RECORD XX-XX-XXXX		ADVERSES	_____		
CONSIDERATION \$--		EXCEPTIONS	_____		
TAX STAMPS \$--		LEGAL R/W	_____		
TAX PARCEL NO. --		EFFECTIVE	_____		
		TOTAL REQ'D R/W	_____		
		TOTAL RESIDUE	_____		
		RESIDUE LT.	_____		
		RESIDUE RT.	_____		

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Appendix C

Bristol Street Park Concept Plan

Appendix D

Order of Magnitude Cost Estimates

Segment #	Description	Design & Construction Cost	Comments
Original Alignment			
3.1	I Street - Ramona Ave to E. Cayuga St.	\$404,461	No ROW takes required
3.2	E. Cayuga St. - I St. to Castor Ave.	\$1,628,667	No ROW takes required. Coordination with PWD project needed. Significant utility pole relocation likely required.
3.3	East Wingohocking St. - Castor Ave to Frankford Creek	\$505,160	No ROW takes required. Removal of parking on north side required.
3.4	Wingohocking St. to Potter St. to Bristol Street along Creek	\$372,383	1 ROW take required.
3.5	Bristol St. to south end of Leiper St. cap along Creek	\$454,281	No ROW takes required. To be coordinated with Bristol St. park bldg.
3.6	South end of Cap to Kensington Ave Bridge to Adams Ave.	\$1,473,141	1 ROW take required. Removal of parking on north side of Kensington Ave off bridge required.
3.7	Adams Ave/ Worrel St. - Kensington to Torresdale	\$783,769	Minor impact to Womrath Park. Need parking removed on portions of Frankford Ave and Worrel St.
	Total=	\$5,621,861	

Deal St. Alignment			
3.1	I Street - Ramona Ave to E. Cayuga St.	\$404,461	No ROW takes required
3.2	E. Cayuga St. - I St. to Castor Ave.	\$1,628,667	No ROW takes required. Coordination with PWD project needed. Significant utility pole relocation likely required.
3.3	East Wingohocking St. - Castor Ave to Frankford Creek	\$505,160	No ROW takes required. Removal of parking on north side required.
3.4	Wingohocking St. to Potter St. to Bristol Street along Creek	\$372,383	1 ROW take required.
3.5	Bristol St. to south end of Leiper St. cap along Creek	\$454,281	No ROW takes required. To be coordinated with Bristol St. park bldg.
	Deal St - Cap to Adams Ave	\$411,007	1 ROW take required. Need to use PennDOT property.
3.7	Adams Ave/ Worrel St. - Kensington to Torresdale	\$783,769	Minor impact to Womrath Park. Need parking removed on portions of Frankford Ave and Worrel St. No ROW takes.
	Total=	\$4,559,727	
	Difference Original Align. - Deal St. Alignment=	\$1,062,134	

Frankford Creek Trail - Section 3 (Tacony Park to Torresdale Ave)								
6/12/2018								
	Description	Length	Depth	Width	Quantity	Unit	Cost/Unit	Total Cost
Segment 3.1	I Street - Ramona Ave to E. Cayuga St.							
10' Paved Shared Use Path	6" Subbase, 3" Bit. Base Course, 1.5" Wearing Course	1100		10	1222	SY	\$40.00	\$48,888.89
Excavation	Excavation - Class 1	1100	0.833	15	509	CY	\$25.00	\$12,726.39
Curb	Concrete curb with exist curb removal and pavement restoration	1100			1100	LF	\$100.00	\$110,000.00
Sawcut	Area in front of proposed curb	1100			1100	LF	\$1.00	\$1,100.00
Driveway apron to PWD bldg.	8" of paved concrete	30		10	33	SY	\$100.00	\$3,333.33
Drainage	New inlet, pipe extension, manhole				1	EACH	\$9,000.00	\$9,000.00
Striping	White (Thermo) 4"	1100			1100	LF	\$1.00	\$1,100.00
Striping	White (Thermo) 4" Blockout	100		4	400	LF	\$1.00	\$400.00
Striping	Yellow (Thermo) 4"	2200		2	4400	LF	\$1.00	\$4,400.00
Striping	White (Thermo) 24"-Crosswalk at PWD bldg	300			300	LF	\$10.00	\$3,000.00
Landscaping	top soil, seeding, trees (50' spacing)	1100			1100	LF	\$35.00	\$38,500.00
							subtotal	\$232,448.61
E&S Control (3%)					1	LS		\$6,973.46
Drainage (5%)					1	LS		\$13,946.92
Design (20%)					1	LS		\$46,489.72
CM/CI (10%)					1	LS		\$23,244.86
Survey (5%)					1	LS		\$11,622.43
Traffic Control (5%)					1	LS		\$11,622.43
Mobilization (5%)					1	LS		\$11,622.43
Contingency (20%)					1	LS		\$46,489.72
					1	LS	subtotal	\$404,460.58

	Description	Length	Depth	Width	Quantity	Unit	Cost/Unit	Total Cost
Segment 3.2	E. Cayuga St. - I St. to Castor Ave.							
10' Paved Shared Use Path	6" Subbase, 3" Bit. Base Course, 1.5" Wearing Course	2900		10	3222	SY	\$40.00	\$128,888.89
Excavation	Excavation - Class 1	14614.5		0.833	451	CY	\$25.00	\$11,276.13
Curb	Concrete curb with exist curb removal and pavement restoration	2900			2900	LF	\$55.00	\$159,500.00
Sawcut	Area in front of proposed curb	2900			2900	LF	\$1.00	\$2,900.00
Sidewalk					96	SY	\$150.00	\$14,333.33
Drainage	new inlet, pipe extension and manhole				7	EACH	\$10,000.00	\$70,000.00
Striping	White (Thermo) 4"	3831.53			3832	LF	\$1.00	\$3,831.53
Striping	White (Thermo) 4" Blockout	100		5	500	LF	\$1.00	\$500.00
Striping	Yellow (Thermo) 4"	2135.67		2	4271	LF	\$1.00	\$4,271.34
Striping	White (Thermo) 24"	2142.5			2142	LF	\$10.00	\$21,424.95
Striping	White (Thermo) "ONLY"				1	EACH	\$250.00	\$250.00
Striping	White (Thermo) "Left Arrow"				1	EACH	\$250.00	\$250.00
Signalized Intersection	Number of signals in Section (I St., J St., K St.)				3	EACH	\$75,000.00	\$225,000.00
ADA Ramps	Number of Ramps in Section				45	EACH	\$2,500.00	\$112,500.00
Landscaping	top soil, seeding, trees (50' spacing)	2900			2900	LF	\$35.00	\$101,500.00
Modifiy PWD improvements					1	LS	\$50,000.00	\$50,000.00
Clearing and Grubbing	Removal of numerous large trees trees				1	LS	\$35,000.00	\$35,000.00
							subtotal	\$941,426.18
E&S Control (3%)					1	LS		\$28,242.79
Drainage (5%)					1	LS		\$47,071.31
Design (20%)					1	LS		\$188,285.24
CM/CI (10%)					1	LS		\$94,142.62
Survey (5%)					1	LS		\$47,071.31
Traffic Control (5%)					1	LS		\$47,071.31
Mobilization (5%)					1	LS		\$47,071.31
Contingency (20%)					1	LS		\$188,285.24
							subtotal	\$1,628,667.29

	Description	Length	Depth	Width	Quantity	Unit	Cost/Unit	Total Cost
Segment 3.3	East Wingohocking St. - Castor Ave to Frankford Creek							
Excavation	Excavation - Class 1	200		100	741	CY	\$25.00	\$18,518.52
Curb	Concrete curb with exist curb removal and pavement restoration	250			250	LF	\$55.00	\$13,750.00
Sawcut	Area in front of proposed curb	250			250	LF	\$1.00	\$250.00
Sidewalk		200		20	444	SY	\$150.00	\$66,666.67
Striping	White (Thermo) 4"	3432.99			3433	LF	\$1.00	\$3,432.99
Striping	White (Thermo) 4" Blockout	100			0	LF	\$1.00	\$0.00
Striping	Yellow (Thermo) 4"	920		2	1840	LF	\$1.00	\$1,840.00
Striping	White (Thermo) 24" Crosswalk	650.571			651	LF	\$10.00	\$6,505.71
Striping	White (Thermo) "ONLY"				1	EACH	\$250.00	\$250.00
Striping	White (Thermo) "Left Arrow"				1	EACH	\$250.00	\$250.00
Striping	White (Thermo) "Straight Arrow"				1	EACH	\$250.00	\$250.00
Striping	Bike Lane Symbol (Arrow and Bike)				6	EACH	\$300.00	\$1,800.00
Signalized Intersection	Number of signals in Section (Castor/Cayuga)				1	EACH	\$75,000.00	\$75,000.00
	Mast Arm				1	EACH	\$30,000.00	\$30,000.00
	Ped Push Button				2	EACH	\$1,000.00	\$2,000.00
	Flashing Warning Lights				4	EACH	\$7,500.00	\$30,000.00
ADA Ramps	Number of Ramps in Section				6	EACH	\$3,500.00	\$21,000.00
Fencing	Replace Existing Fence	200			200	LF	\$25.00	\$5,000.00
Landscaping	top soil, seeding, trees (50' spacing)				28	EACH	\$300.00	\$8,400.00
Clearing and Grubbing					1	LS	\$5,000.00	\$5,000.00
Signing	for crossing to gateway				1	LS	\$10,000.00	\$10,000.00
Drainage	2 inlets, pipe extension, 2 manholes				1	LS	\$10,000.00	\$10,000.00
							subtotal	\$309,913.88
E&S Control (1%)					1	LS		\$3,099.14
Design (20%)					1	LS		\$61,982.78
CM/CI (10%)					1	LS		\$30,991.39
Survey (2%)					1	LS		\$6,198.28
Traffic Control (5%)					1	LS		\$15,495.69
Mobilization (5%)					1	LS		\$15,495.69
Contingency (20%)					1	LS		\$61,982.78
							subtotal	\$505,159.63

	Description	Length	Depth	Width	Quantity	Unit	Cost/Unit	Total Cost
Segment 3.4	Wingohocking St. to Potter St. to Bristol Street along Creek							
10' Paved Shared Use Path	6" Subbase, 3" Bit. Base Course, 1.5" Wearing Course	700		10	778	SY	\$35.00	\$27,222.22
Excavation	Excavation - Class 1	700	0.83	10	215	CY	\$25.00	\$5,379.63
Fencing	New Fencing	1400			1400	LF	\$25.00	\$35,000.00
Fencing	Removing Existing Fence	50			50	LF	\$10.00	\$500.00
Clearing and Grubbing					1	LS	\$20,000.00	\$20,000.00
Landscaping	2 trees/50'				28	EACH	\$300.00	\$8,400.00
Signing & Pavement Markings					1	LS	\$25,000.00	\$25,000.00
Sharrows with green paint	every 200 feet				10	EACH	\$500.00	\$5,000.00
Gate at end of street	E. Cayuga St.				1	EACH	\$10,000.00	\$10,000.00
Gateway Signage/Furniture	Signage, bollards, gate and furniture				1	LS	\$35,000.00	\$35,000.00
Gateway	Paving, landscaping				1	LS	\$35,000.00	\$35,000.00
Signage	Showing trail/directions to turn				1	LS	\$10,000.00	\$10,000.00
							subtotal	\$216,501.85
E&S Control (5%)					1	LS		\$10,825.09
Drainage (5%)					1	LS		\$10,825.09
Design (20%)					1	LS		\$43,300.37
CM/CI (10%)					1	LS		\$21,650.19
Survey (2%)					1	LS		\$4,330.04
Traffic Control (5%)					1	LS		\$10,825.09
Mobilization (5%)					1	LS		\$10,825.09
Contingency (20%)					1	LS		\$43,300.37
							subtotal	\$372,383.19

	Description	Length	Depth	Width	Quantity	Unit	Cost/Unit	Total Cost
Segment 3.5	Bristol St. to south end of Leiper St. cap along Creek							
	note- Trail assumed at top of bank. No retaining walls.							
10' Paved Shared Use Path	6" Subbase, 3" Bit. Base Course, 1.5" Wearing Course	850		10	944	SY	\$35.00	\$33,055.56
Excavation	Excavation - Class 1 (includes removal of 30' of asphalt outside trail area)	850	0.83	40	1045	CY	\$30.00	\$31,355.56
Fencing		850			850	LF	\$25.00	\$21,250.00
Top soil and seeding	Replace asphalt with grass - 400' south of Leiper St. x 30' wide	400		30	1333	SY	\$15.00	\$20,000.00
Signing/Pavement Markings					1	LS	\$5,000.00	\$5,000.00
Gate at end of street	Leiper St.				1	EACH	\$10,000.00	\$10,000.00
Clearing and Grubbing					1	LS	\$45,000.00	\$45,000.00
Leiper St. Cap	Minor railing/fencing Improvements on cap				1	LS	\$100,000.00	\$100,000.00
							subtotal	\$265,661.11
E&S Control (5%)					1	LS		\$ 13,283.06
Drainage (5%)					1	LS		\$ 13,283.06
Design (20%)					1	LS		\$ 53,132.22
CM/CI (10%)					1	LS		\$ 26,566.11
Survey (5%)					1	LS		\$ 13,283.06
Traffic Control (1%)					1	LS		\$ 2,656.61
Mobilization (5%)					1	LS		\$ 13,283.06
Contingency (20%)					1	LS		\$ 53,132.22
							Segment Total	\$454,280.50

	Description	Length	Depth	Width	Quantity	Unit	Cost/Unit	Total Cost
Segment 3.6	South end of Leiper St. cap along Creek to Kensington Ave							
	note- trail assumed at top of bank. No retaining walls							
10' Paved Shared Use Path	6" Subbase, 3" Bit. Base Course, 1.5" wearing course	800		10	889	SY	\$35.00	\$31,111.11
Excavation	Excavation - Class 1 (includes removal of 10' of asphalt outside trail area)	800	0.83	20	492	CY	\$30.00	\$14,755.56
Autocaste USA - Driveway Gate Modification					1	LS	\$40,000.00	\$40,000.00
Fencing	Both sides of trail	1600			1600	LF	\$25.00	\$40,000.00
Top soil and seeding	800' south of Leiper x 10' wide	800		10	889	SY	\$15.00	\$13,333.33
Clearing and Grubbing					1	LS	\$45,000.00	\$45,000.00
Signing/Small Gateway					1	LS	\$15,000.00	\$15,000.00
Modifications to Autocare USA parking area - curb stops, pavement markings					1	LS	\$50,000.00	\$50,000.00
Modify bridge wall/connect to sidewalk					1	LS	\$50,000.00	\$50,000.00
							subtotal	\$299,200.00
E&S Control (5%)					1	LS		\$ 14,960.00
Drainage (5%)					1	LS		\$ 14,960.00
Design (20%)					1	LS		\$ 59,840.00
CM/CI (10%)					1	LS		\$ 29,920.00
Survey (2%)					1	LS		\$ 5,984.00
Traffic Control (5%)					1	LS		\$ 14,960.00
Mobilization (5%)					1	LS		\$ 14,960.00
Contingency (20%)					1	LS		\$ 59,840.00
							Segment Total	\$514,624.00

	Description	Length	Depth	Width	Quantity	Unit	Cost/Unit	Total Cost
Segment OPTION	Deal Street Option							
10' Paved Shared Use Path	6" Subbase, 3" Bit. Base Course, 1.5" Wearing Course	920		10	1022	SY	\$35.00	\$35,777.78
Excavation	Excavation - Class 1	920	0.8333	10	284	CY	\$25.00	\$7,098.74
Fencing	both sides of trail	1840			1840	LF	\$40.00	\$73,600.00
ADA Ramps	Number of Ramps in Section				5	EACH	\$3,500.00	\$17,500.00
Striping	Sharrow Symbol (Arrow and Bike)				12	EACH	\$300.00	\$3,600.00
Signage	Post mounted signs				1	LS	\$20,000.00	\$20,000.00
Clearing and Grubbing	Remove asphalt from PennDOT property on Deal St.				1	LS	\$35,000.00	\$35,000.00
Landscaping at PennDOT property					1	LS	\$30,000.00	\$30,000.00
Small Gateway	At trail interface with Deal St				1	LS	\$15,000.00	\$15,000.00
							subtotal	\$237,576.51
E&S Control (5%)					1	LS		\$ 11,878.83
Drainage (5%)					1	LS		\$ 11,878.83
Design (20%)					1	LS		\$ 47,515.30
CM/CI (10%)					1	LS		\$ 23,757.65
Survey (3%)					1	LS		\$ 7,127.30
Traffic Control (5%)					1	LS		\$ 11,878.83
Mobilization (5%)					1	LS		\$ 11,878.83
Contingency (20%)					1	LS		\$ 47,515.30
							Segment Total	\$411,007.37

	Description	Length	Depth	Width	Quantity	Unit	Cost/Unit	Total Cost
Segment 3.6 cont.	Kensington Ave- Bridge to Adams Ave							
10' Paved Shared Use Path	6" Subbase, 3" Bit. Base Course, 1.5" wearing Course	235		10	261	SY	\$35.00	\$9,138.89
Excavation	Excavation - Class 1	235		15	73	CY	\$25.00	\$1,813.26
Sawcut	Sawcut existing pavement	235			235	LF	\$1.00	\$235.00
Curb	Concrete curb with exist curb removal and pavement restoration	235			235	LF	\$55.00	\$12,925.00
Drainage	Move 1 inlet				1	EACH	\$9,000.00	\$9,000.00
Landscaping	hardscape buffer	235		5	1175	SF	\$20.00	\$23,500.00
ADA Ramps					8	EACH	\$3,500.00	\$28,000.00
Signing and Pavement Marking	2 crosswalks				1	LS	\$10,000.00	\$10,000.00
Signal Adjustment					1	LS	\$50,000.00	\$50,000.00
							subtotal	\$144,612.15
	Bridge							
Sidewalk Barrier					25	CY	\$800	\$20,000.00
Hand Railing on Barrier					190	LF	\$150	\$28,500.00
Deck and Sidewalk Placement					107	CY	\$1,000	\$107,000.00
Beam modifications					1	LS	\$50,000	\$50,000.00
Demo exist. Deck/pavement					2470	SY	\$50	\$123,500.00
							bridge rounded subtotal	\$400,000.00
							trail and bridge subtotal	\$544,612.15
E&S Control (2%)					1	LS		\$ 10,892.24
Drainage (5%)					1	LS		\$ 27,230.61
Design (25%)					1	LS		\$ 136,153.04
CM/CI (10%)					1	LS		\$ 54,461.22
Survey (2%)					1	LS		\$ 10,892.24
Traffic Control (7%)					1	LS		\$ 38,122.85
Mobilization (5%)					1	LS		\$ 27,230.61
Contingency (20%)					1	LS		\$ 108,922.43
							Segment total	\$958,517.39

	Description	Length	Depth	Width	Quantity	Unit	Cost/Unit	Total Cost
Segment 3.7	Adams Ave- Kensington Ave to Frankford Ave							
Widen existing sidewalk 5'		365		5	203	SY	\$150.00	\$30,416.67
Excavation	Excavation - Class 1	350		10	108	CY	\$25.00	\$2,700.61
Curb	Plain Cement Concrete Curb, Including Removal of Existing Curb	350			350	LF	\$50.00	\$17,500.00
Landscaping	top soil, seeding, trees (50' spacing), modify bed at Frankford	350			350	LF	\$50.00	\$17,500.00
Clearing and Grubbing	Removing 1 large tree				1	LS	\$2,000.00	\$2,000.00
Signing					1	LS	\$5,000.00	\$5,000.00
ADA Ramps	Number of curb ramps				4	EACH	\$2,500.00	\$10,000.00
Striping	White (Thermo) 4"	268			268	LF	\$1.00	\$268.00
Striping	White (Thermo) 24"	180			180	LF	\$10.00	\$1,800.00
Striping	White "BUS"				1	EACH	\$250.00	\$250.00
							subtotal	\$87,435.27
E&S Control (2%)					1	LS		\$1,748.71
Drainage (5%)					1	LS		\$4,371.76
Design (25%)					1	LS		\$21,858.82
CM/CI (10%)					1	LS		\$8,743.53
Survey (3%)					1	LS		\$2,623.06
Traffic Control (5%)					1	LS		\$4,371.76
Mobilization (5%)					1	LS		\$4,371.76
Contingency (20%)					1	LS		\$17,487.05
							Segment total	\$153,011.73
Segment 3.7 cont.	Frankford Ave - Adams to Worrell							
Curb	Concrete curb with exist curb removal and pavement restoration	250			250	LF	\$55.00	\$13,750.00
Sawcut	Sawcut existing pavement	250			250	LF	\$1.00	\$250.00
Sidewalk		250		5	139	SY	\$150.00	\$20,833.33
Buffer	hardscape	250		5	139	SY	\$150.00	\$20,833.33
ADA Ramps	Number of curb ramps				4	EACH	\$3,500.00	\$14,000.00
Striping	White (Thermo) 4"	620			620	LF	\$1.00	\$620.00
Striping	White (Thermo) 24"-crosswalks	162			162	LF	\$15.00	\$2,430.00
Striping	Yellow (Thermo) 4"	135		2	270	LF	\$1.00	\$270.00
Striping	White "BUS"				1	EACH	\$250.00	\$250.00
Striping	Bike and Arrow				2	EACH	\$500.00	\$1,000.00
Drainage	Move 2 inlets				2	EACH	\$5,000.00	\$10,000.00
Bollards					6	EACH	\$300.00	\$1,800.00
Signing					1	LS	\$10,000.00	\$10,000.00
							subtotal	\$96,036.67
E&S Control (2%)					1	LS		\$1,920.73
Drainage (5%)					1	LS		\$4,801.83
Design (20%)					1	LS		\$19,207.33
CM/CI (10%)					1	LS		\$9,603.67
Survey (3%)					1	LS		\$2,881.10
Traffic Control (10%)					1	LS		\$9,603.67
Mobilization (5%)					1	LS		\$4,801.83
Contingency (20%)					1	LS		\$19,207.33
							Segment total	\$168,064.17

	Description	Length	Depth	Width	Quantity	Unit	Cost/Unit	Total Cost
Segment 3.7 cont.	Worrell St- Frankford Ave to Torresdale Ave							
8' Paved Shared Use Path	6" Subbase, 3" Bit. Base Course, 1.5" Wearing Course	500		8	444	SY	\$35.00	\$15,555.56
Excavation	Excavation - Class 1	500		8	123	CY	\$25.00	\$3,086.41
Curb	Concrete curb with exist curb removal and pavement restoration	1000			1000	LF	\$55.00	\$55,000.00
Sawcut	Sawcut existing pavement	1000			1000	LF	\$1.00	\$1,000.00
Hardscape buffer		500		3	1500	SF	\$25.00	\$37,500.00
Bollards		24			24	EACH	\$300.00	\$7,200.00
Sidewalk	east side	500		5.5	306	SY	\$150.00	\$45,833.33
1.5" Milling of street		500		12	667	SY	\$5.00	\$3,333.33
Superpave Overlay 1.5"		500		12	667	SY	\$10.00	\$6,666.67
Striping	White (Thermo) 4"	113			113	LF	\$1.00	\$113.00
Striping	White (Thermo) 24"	180			180	LF	\$10.00	\$1,800.00
Striping	Yellow (Thermo) 4"			2	0	LF	\$1.00	\$0.00
Striping	Yellow (Thermo) 6"	260			260	LF	\$1.00	\$260.00
Striping	Yellow (Thermo) 24"	60			60	LF	\$1.00	\$60.00
ADA Ramps					10	EACH	\$3,500.00	\$35,000.00
Drainage	Move 4 inlets				4	EACH	\$6,000.00	\$24,000.00
Clearing and grubbing					1	LS	\$5,000.00	\$5,000.00
Intersection Improvements	Both ends of Worrell- signing and pavement markings				1	LS	\$20,000.00	\$20,000.00
							subtotal	\$261,408.30
E&S Control (2%)					1	LS		\$5,228.17
Drainage (5%)					1	LS		\$13,070.41
Design (20%)					1	LS		\$52,281.66
CM/CI (10%)					1	LS		\$26,140.83
Survey (5%)					1	LS		\$13,070.41
Traffic Control (10%)					1	LS		\$26,140.83
Mobilization (5%)					1	LS		\$13,070.41
Contingency (20%)					1	LS		\$52,281.66
							Segment total	\$462,692.68

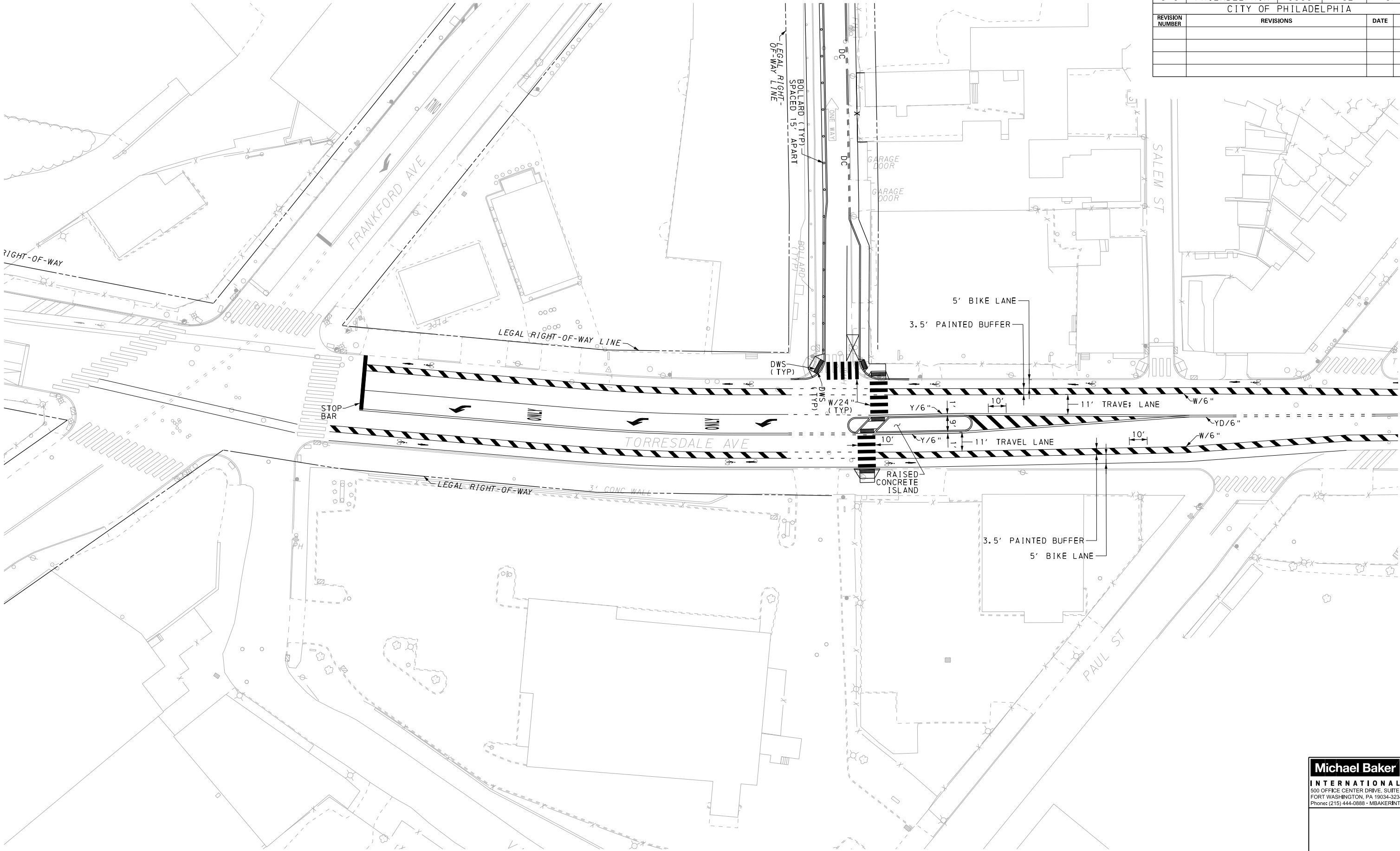
Appendix E

Concept Plan for Torresdale Avenue Protected Bike Lanes

16-MAR-2018

E:\161611_FrankfordCreek_Study\Plot\Traffic\FCG11-PM_TDA_Plan01.dgn

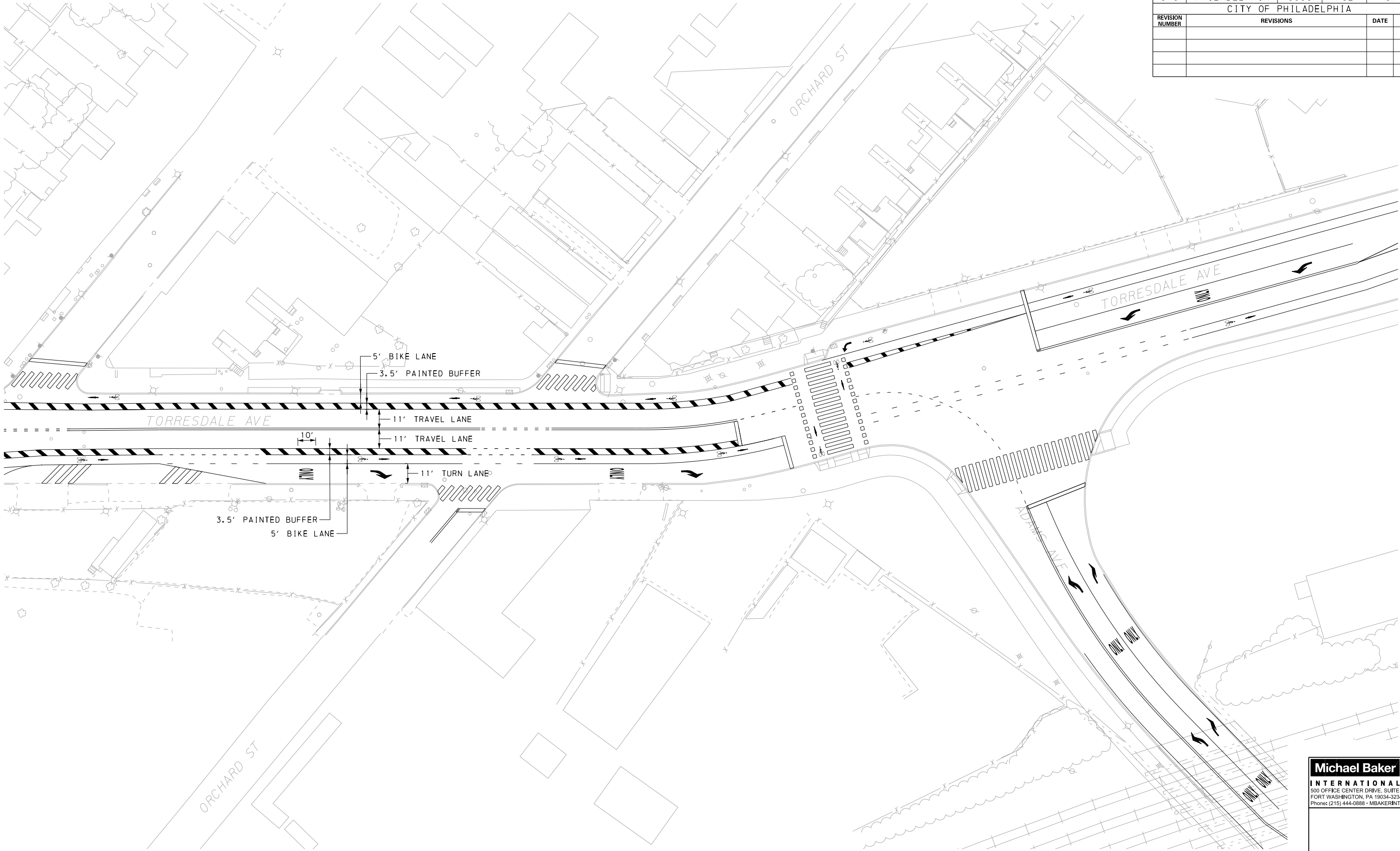
DISTRICT	COUNTY	ROUTE	SECTION	SHEET	
6-0	PHILADELPHIA	0000	FG2	OF XX	
CITY OF PHILADELPHIA					
REVISION NUMBER	REVISIONS			DATE	BY



Conceptual Protected Bike Lane Plan

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DISTRICT	COUNTY	ROUTE	SECTION	SHEET	
6-0	PHILADELPHIA	0000	FG2	OF XX	
CITY OF PHILADELPHIA					
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