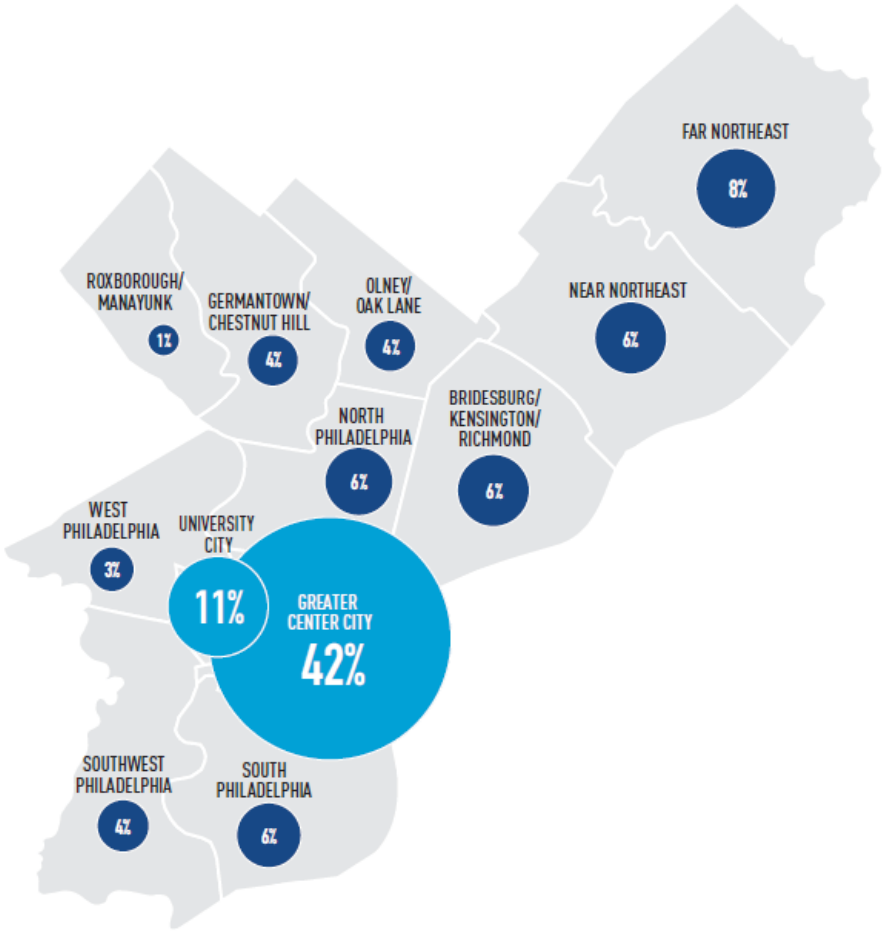
Problem of far West Market Street: 2010-2011
Role of infrastructure development

CENTER CITY DISTRICT

Two large employment nodes: Center City, 42% of all jobs + University City, 11% = 53% of all jobs in Philadelphia

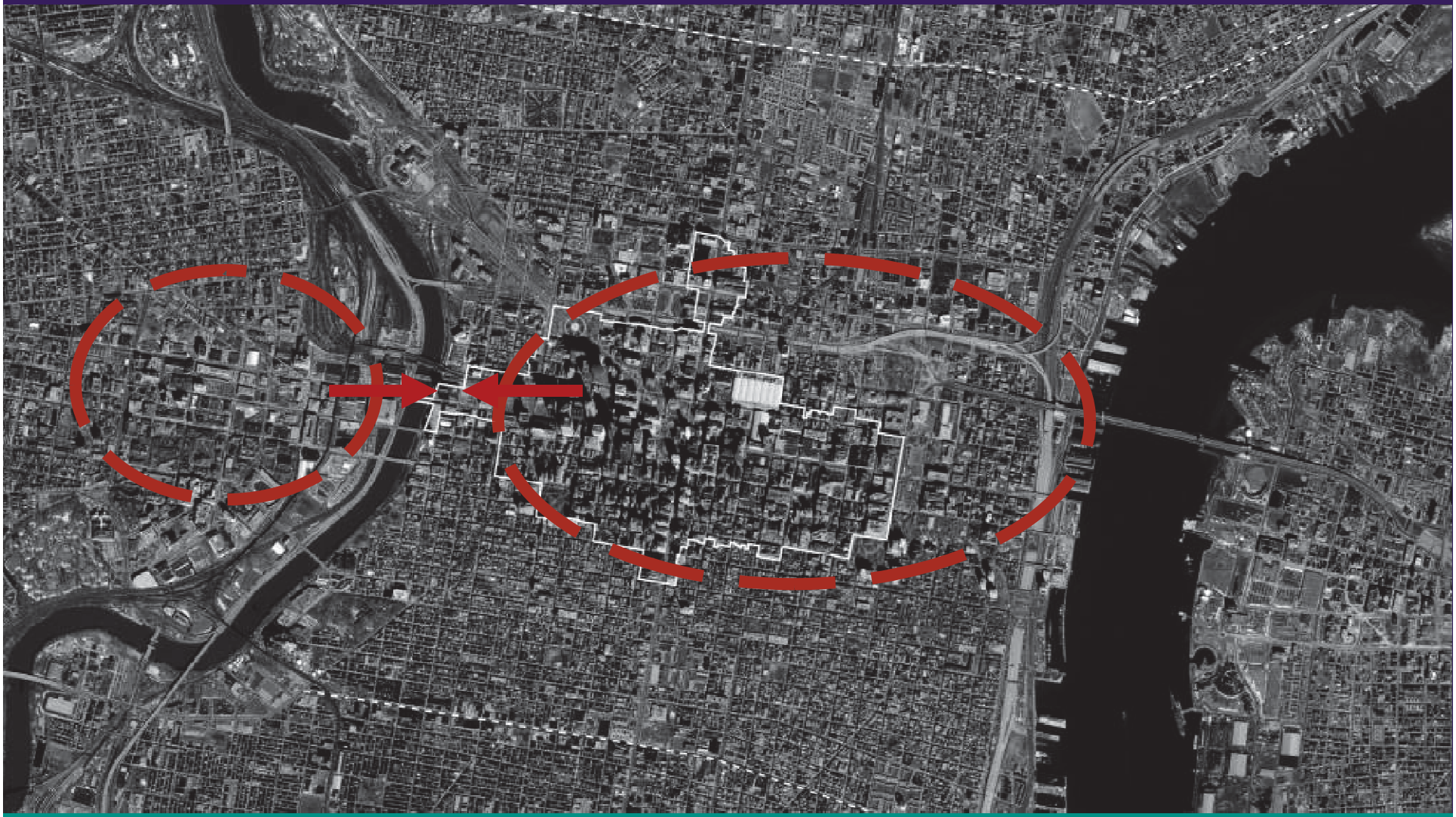
PHILADELPHIA EMPLOYMENT BY AREA



Source: U.S. Census Bureau, Local Employment-Household Dynamics, 2014

CENTER CITY DISTRICT

How to connect 2 largest employment & research nodes: 2010



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In between: a significant number of vacant & under developed parcels

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PECO owned site

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Used as employee surface parking lot:

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Barren PECO Building: ground floor

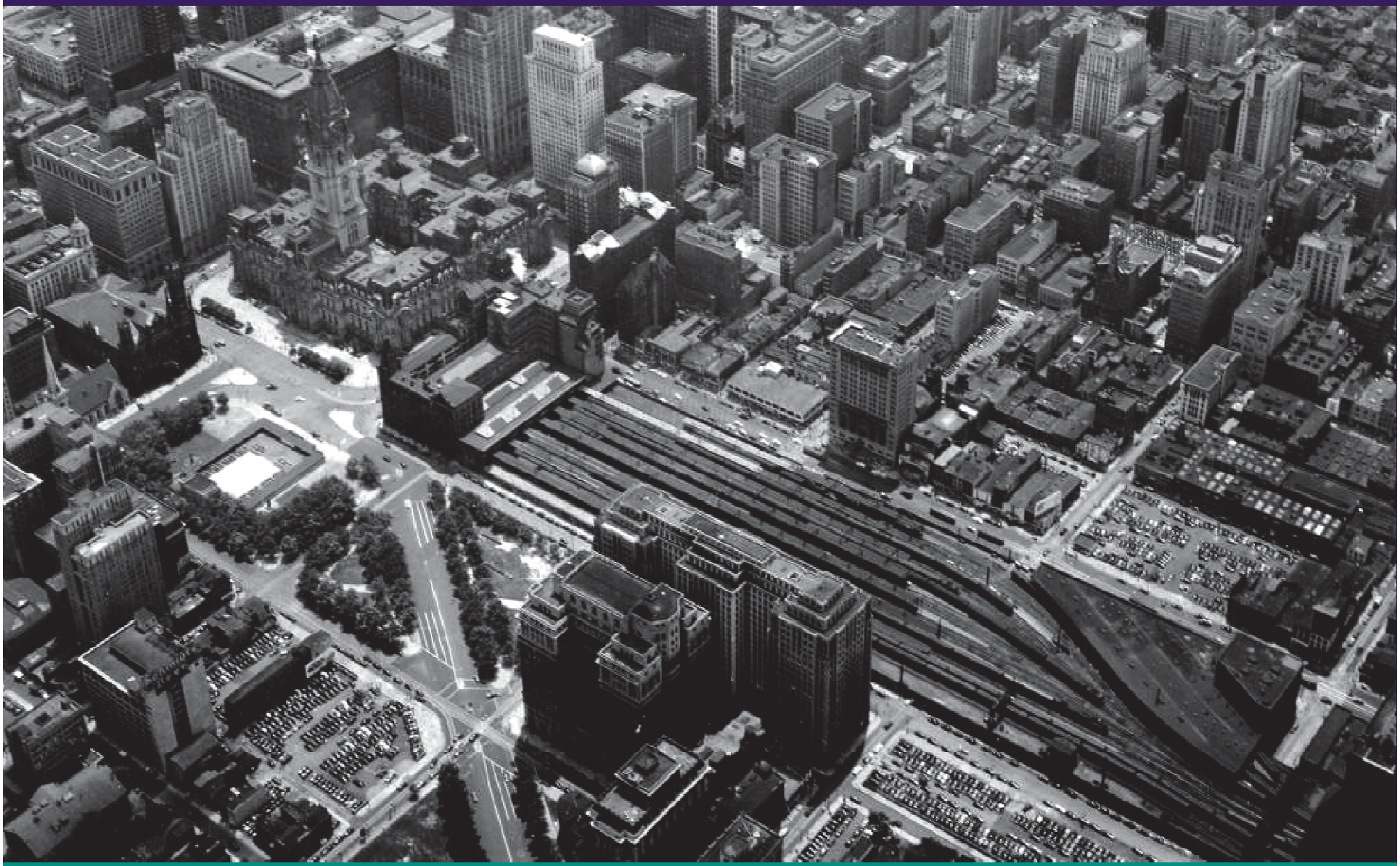
CENTER CITY DISTRICT

Parkway's lot across the street

CENTER CITY DISTRICT

Deteriorated properties, inappropriate uses
Low density developments

How we got here 1953: demolition of elevated tracks



CENTER CITY DISTRICT

CENTER CITY DISTRICT

Penn Center

CENTER CITY DISTRICT

1950s: Creation of modern new Office District

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1960s & 1970s: all buildings connected to transit

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1980s: Linked Pennsylvania & Reading Railroad into integrated regional rail system

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Employers: easy access to 360 degree labor market
300,000 riders/day take transit into downtown

Regional transit lines provide downtown employers with 360°access to a highly skilled workforce.

Joel Katz Design Associates

CENTER CITY DISTRICT

1980s office boom:

CENTER CITY DISTRICT

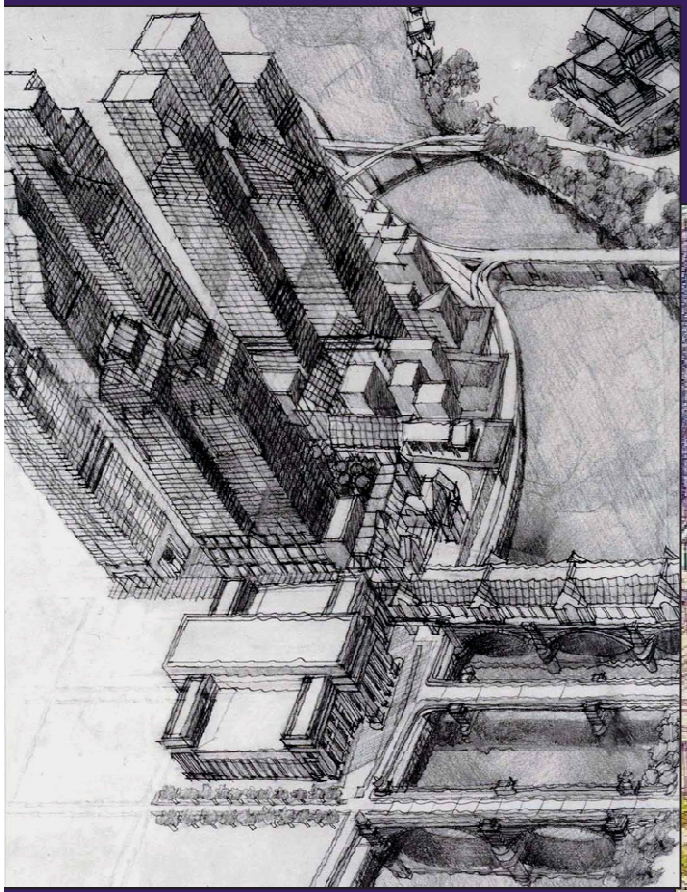
40 million square feet of office;
Largest employment sector downtown

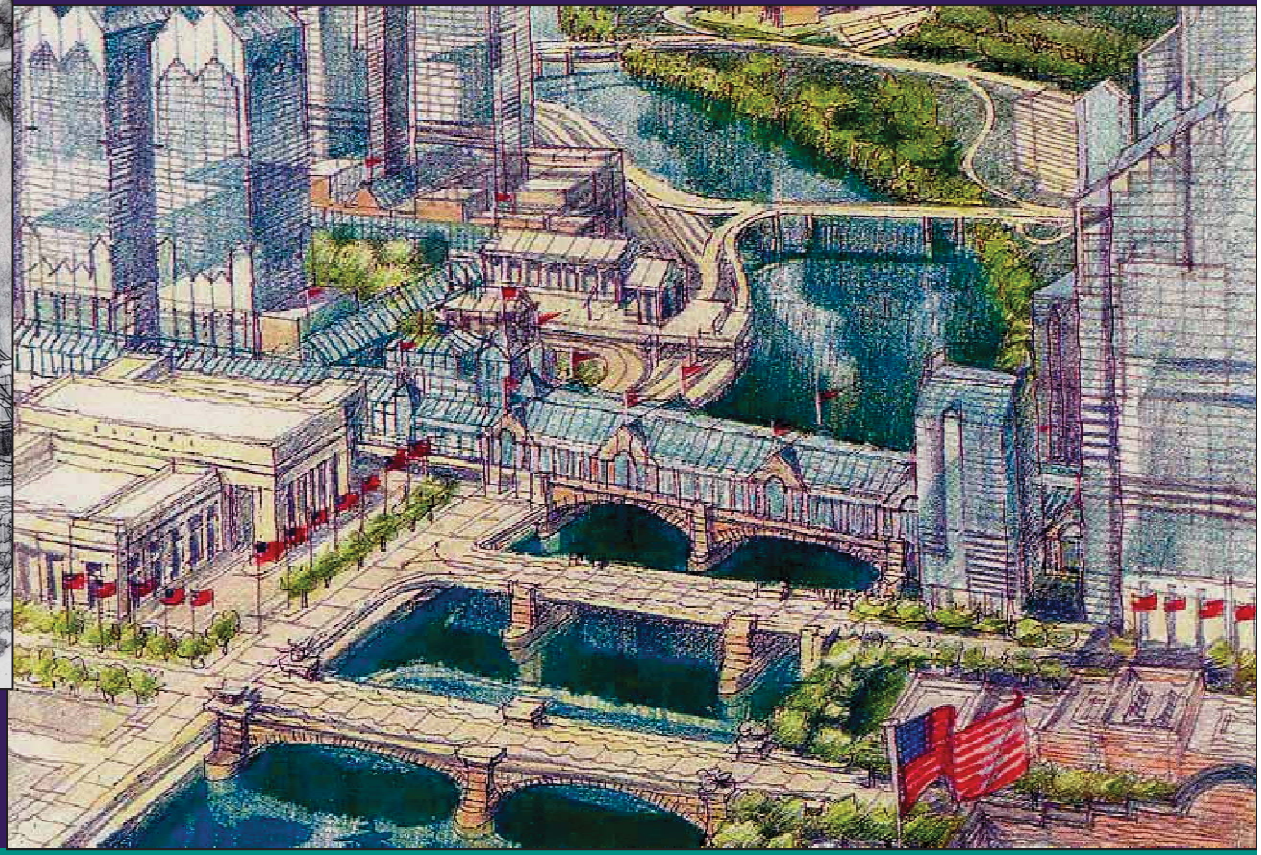
CENTER CITY DISTRICT

An old Philadelphia dream, 1968

CENTER CITY DISTRICT

1988 Center City Plan
Envisioned 20 million sf of new office
On West Market & JFK Boulevard





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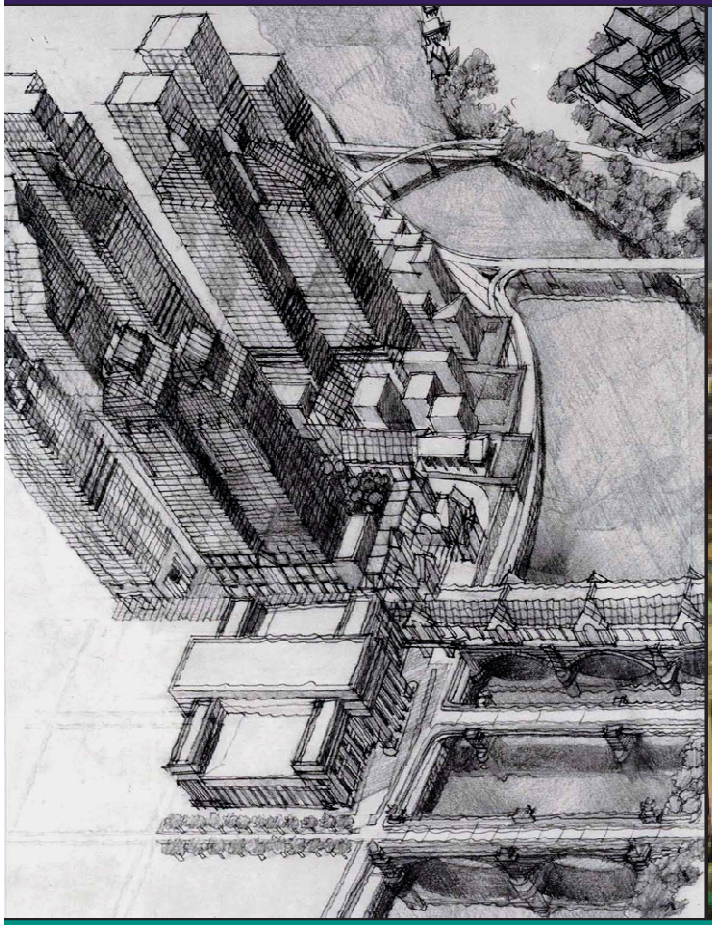
Covering the rail yards at 30th Street station



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This is not a new dream

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Market St. office development stopped in 1991

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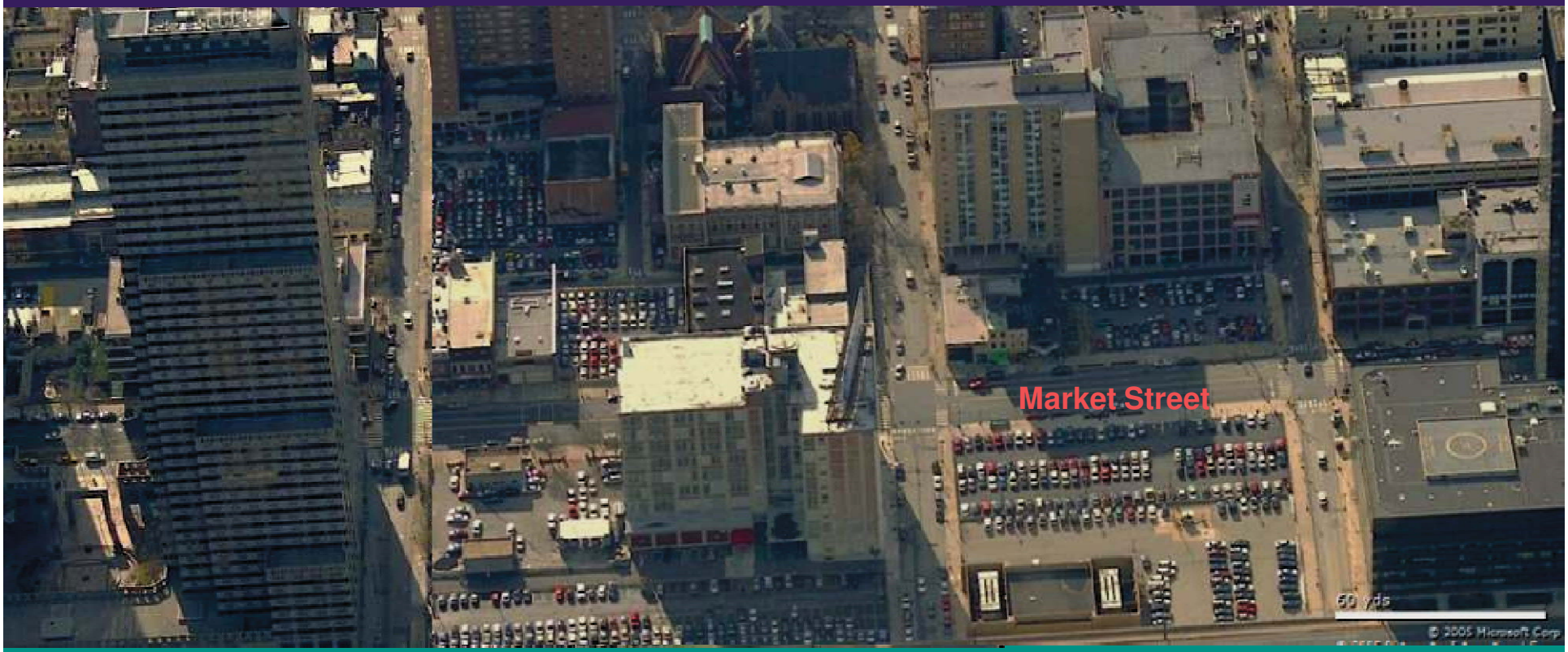
Challenge:

thinned out, underperforming western edge



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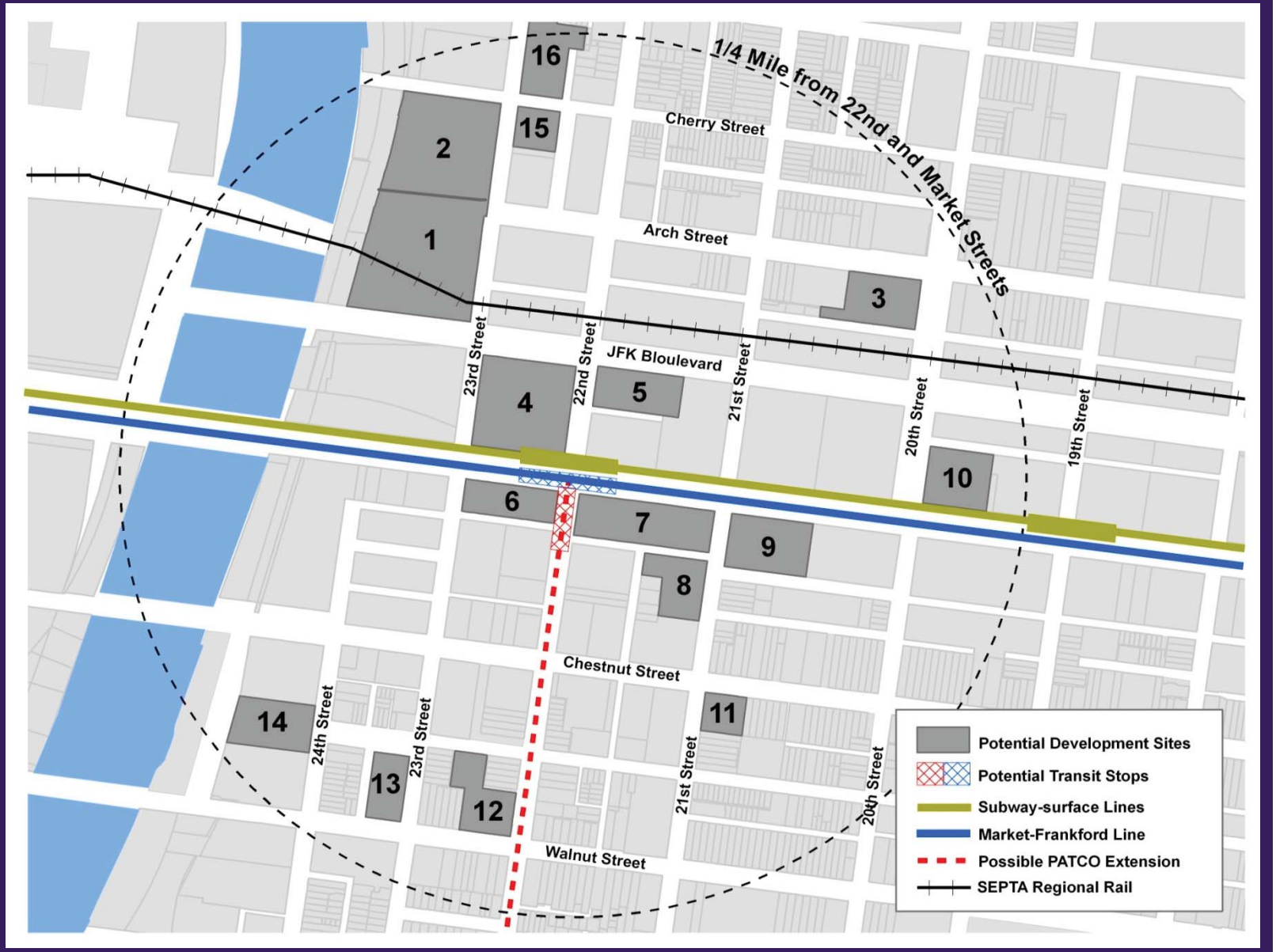
Current FAR = 3.59; Broad & Walnut FAR = 5.99



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After completing Commerce Square

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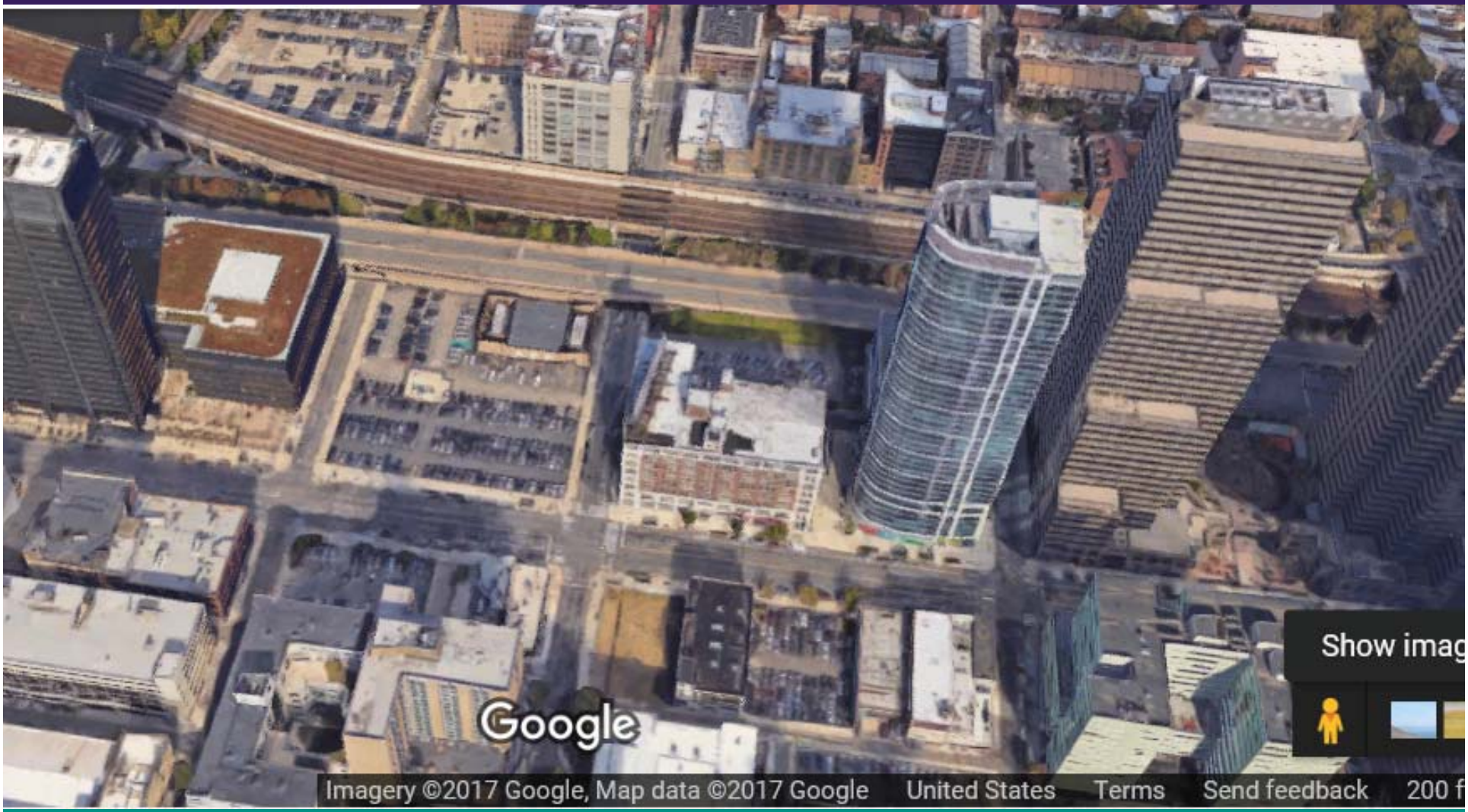
Thomas Properties switched plans to residential

2121 Market & the Murano

CENTER CITY DISTRICT

But what about the rest?



Thomas Properties commissioned Olin Partnership In 2002 mixed use commercial/residential

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6 story: Continuous ground floor retail

Market Street at 22nd looking southwest

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Active & animated at night; but lower density

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AAA building: Residential redevelopment

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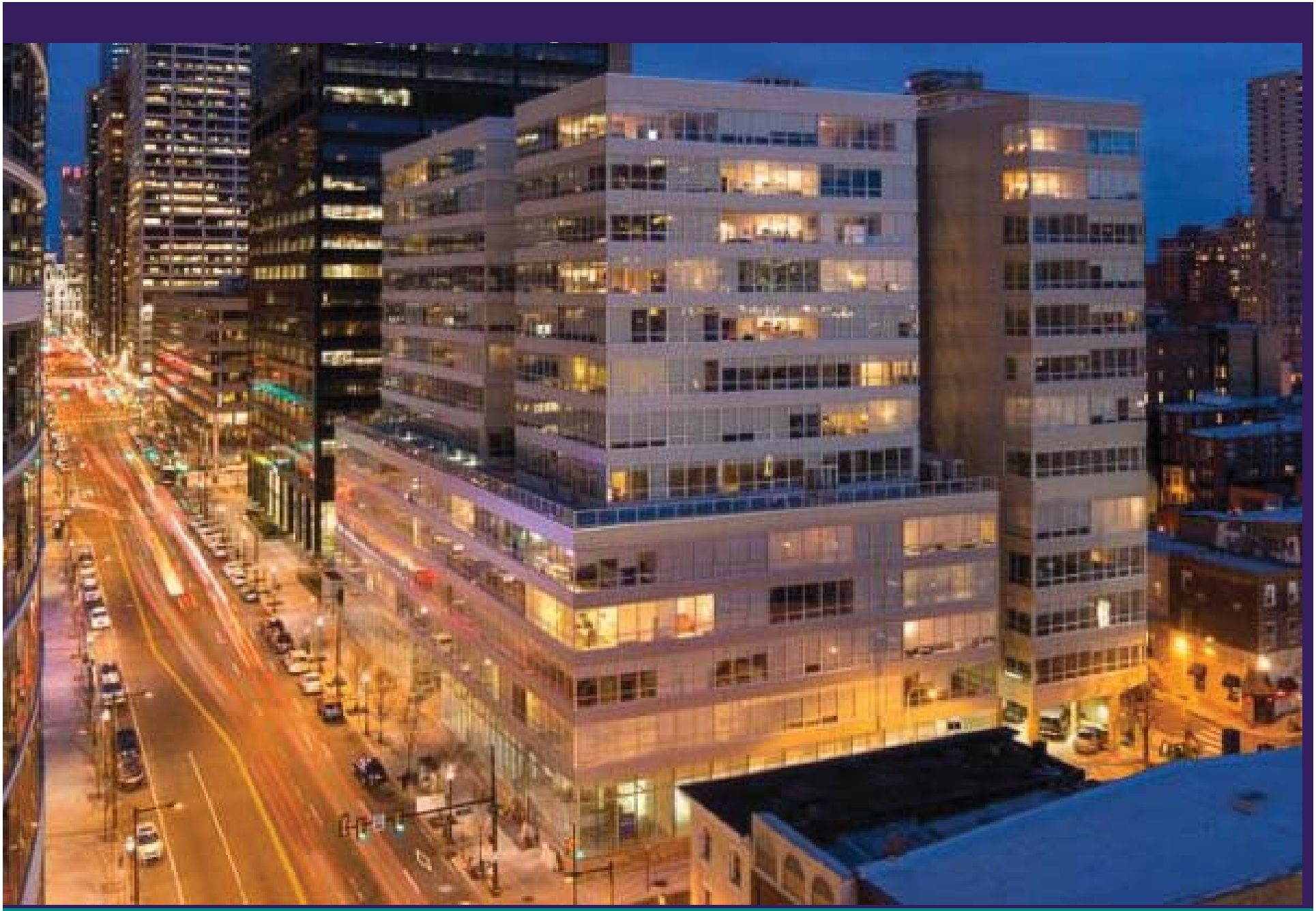

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20th & Market: Office site is now housing

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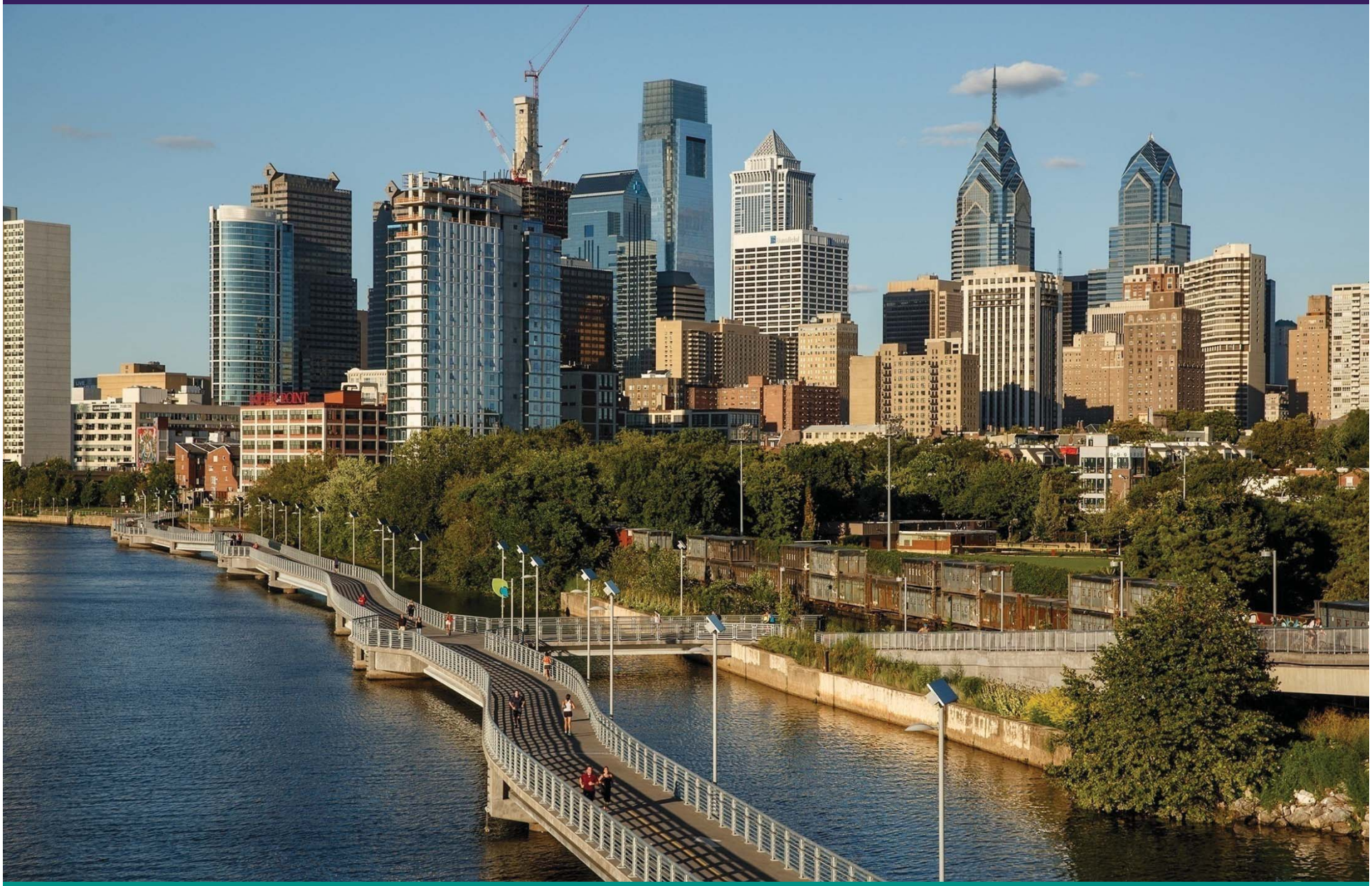
Dranoff on the riverfront



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University City campuses dramatically expanding

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Drexel focusing on start-ups & new industries spawned by research & technological innovations ambitious plans to come east

Drexel
UNIVERSITY

CENTER CITY DISTRICT

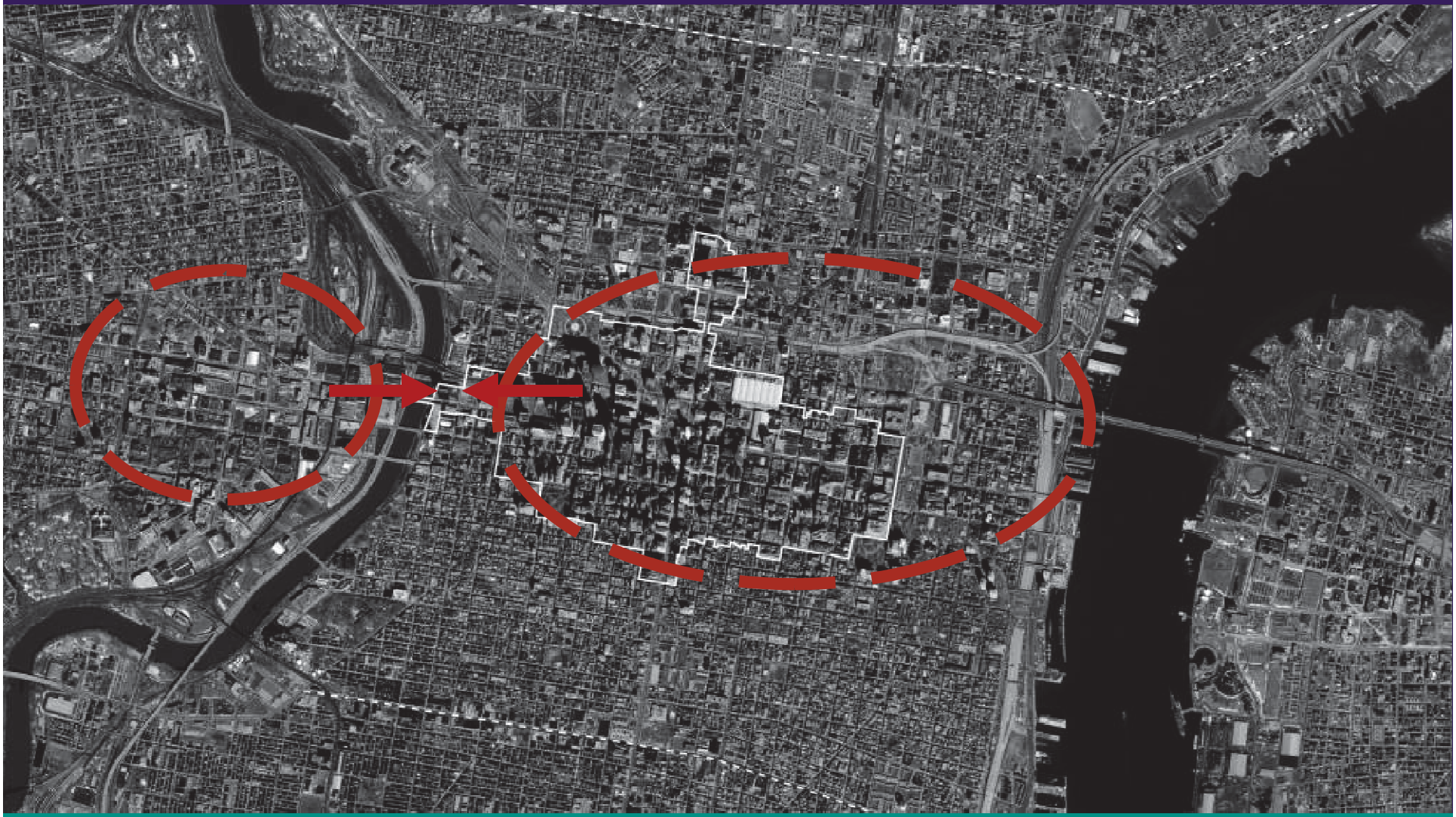
Drexel/Brandywine Innovation District

CENTER CITY DISTRICT

Penn & FMC are growing to the east

CENTER CITY DISTRICT

How to connect 2 largest employment & research nodes: 53% of jobs ---- streetscape & infrastructure investment



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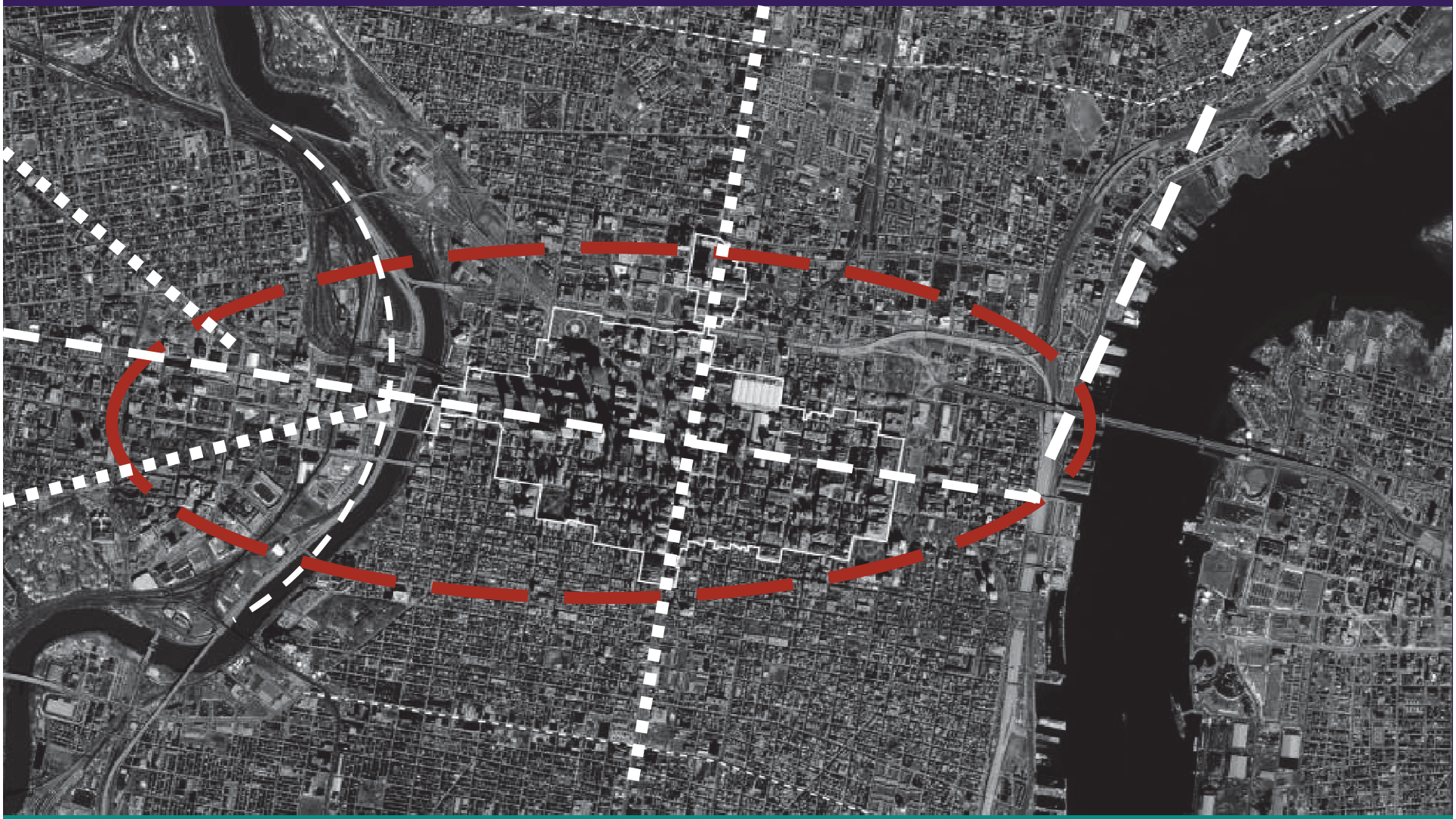
Vision: Front - 40th: one continuous business district
Regional center of transit-oriented development



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UCD is improving the quality of public spaces

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Reclaiming barren places, creating the Porch
Can this be extended east?

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Can the improvements at the porch….

CENTER CITY DISTRICT

And the level of pedestrian activity…

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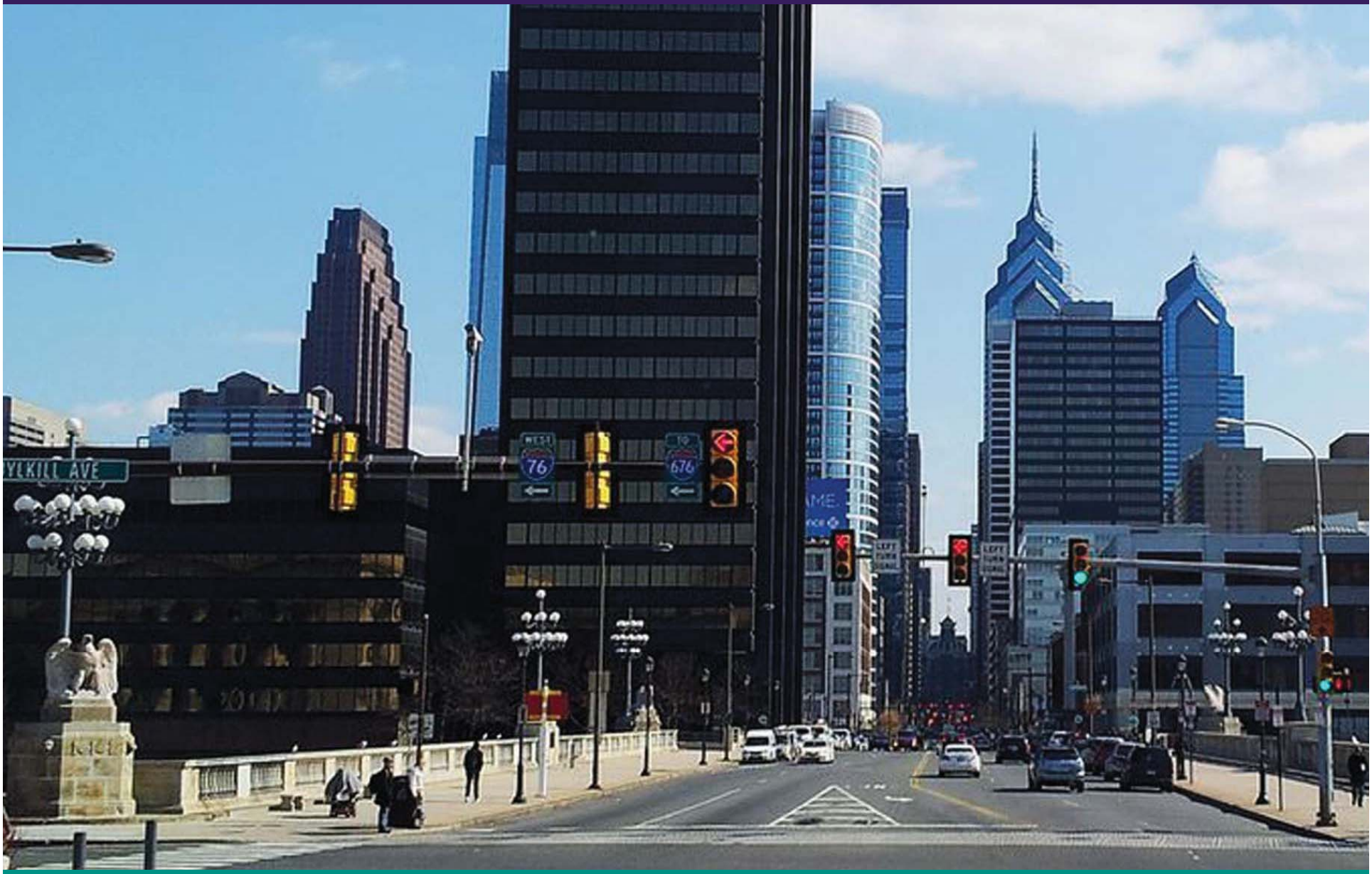
…..extend east across 29th Street



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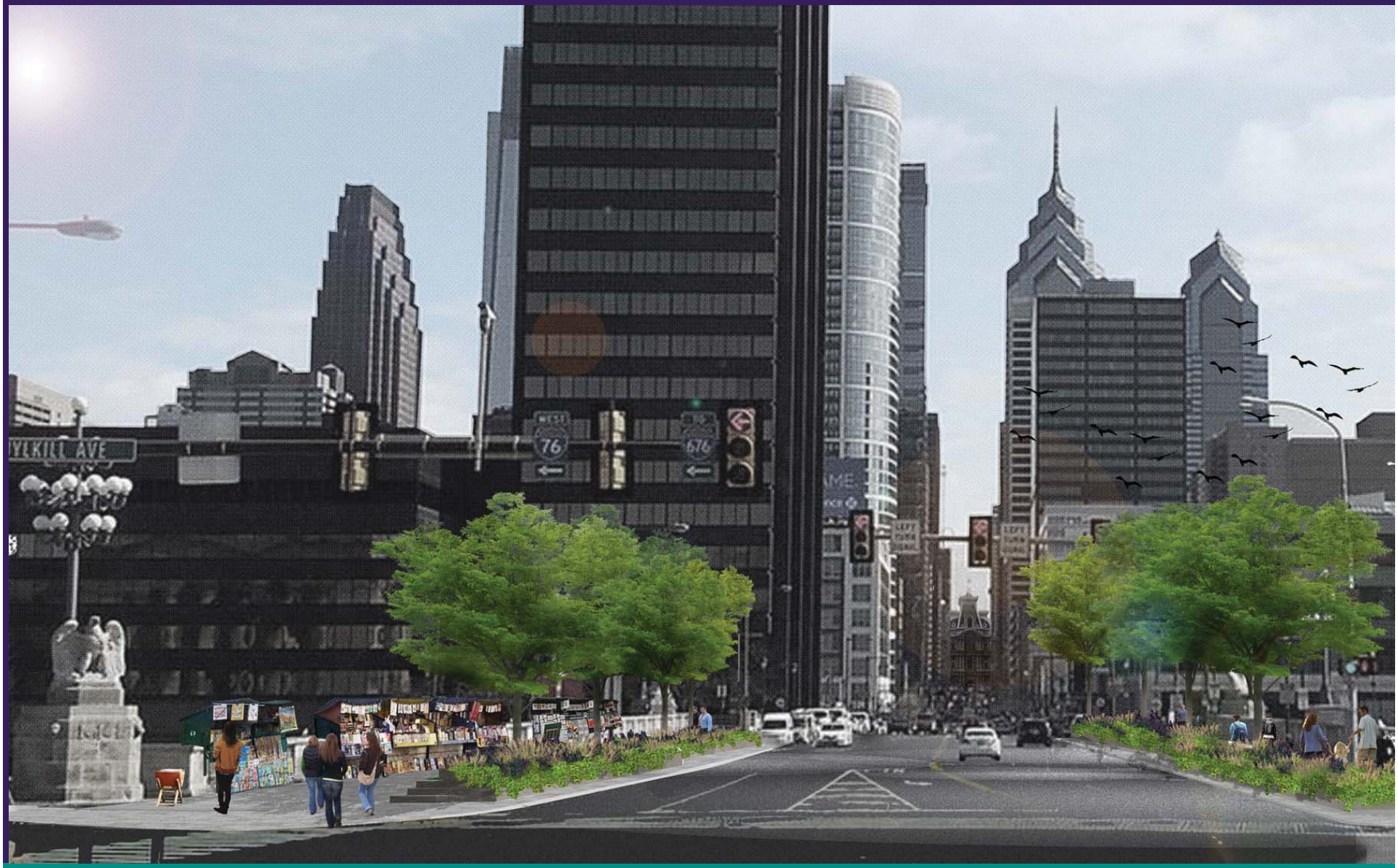
…..to the Market St bridge?



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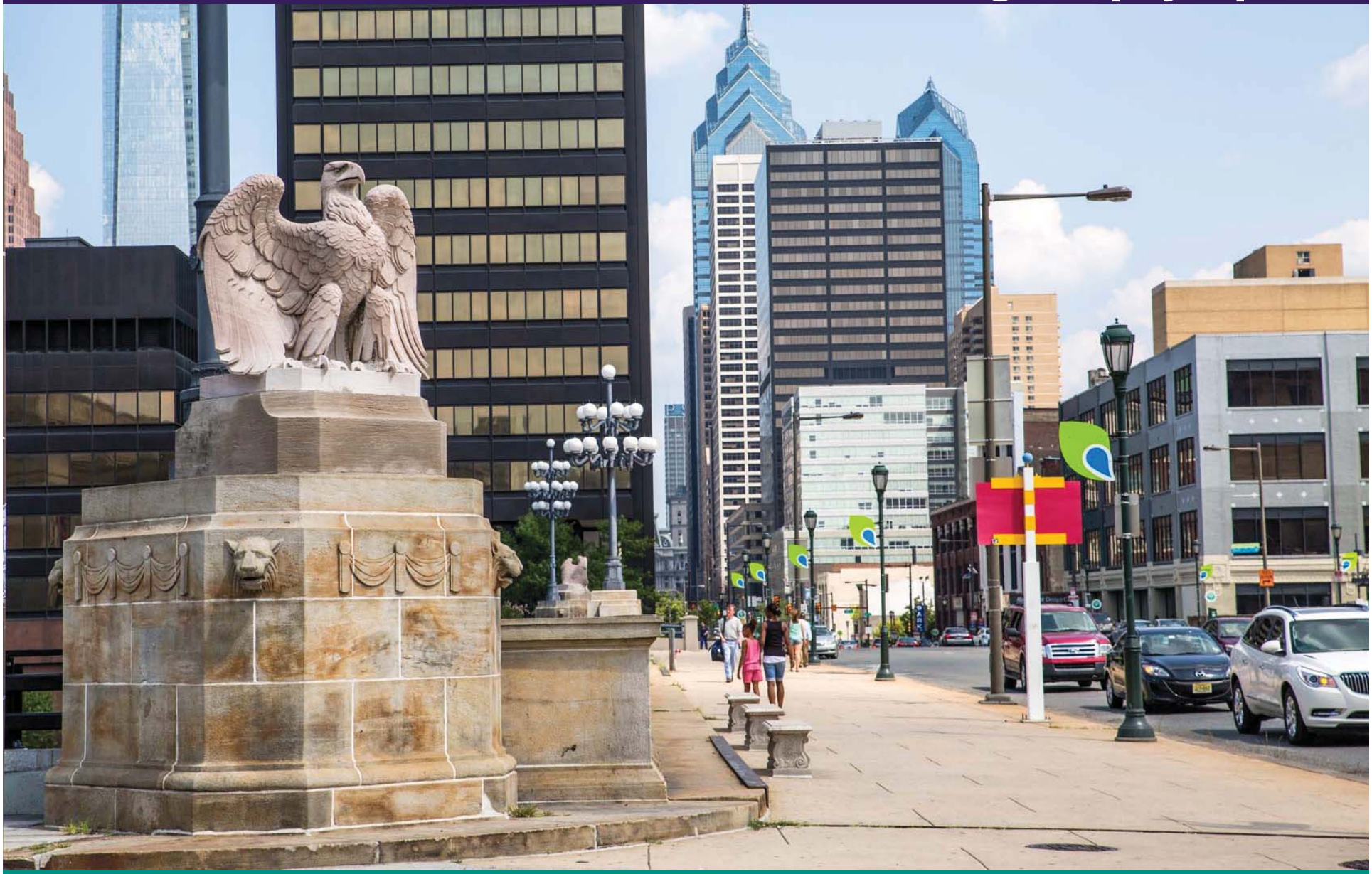
Activating empty space



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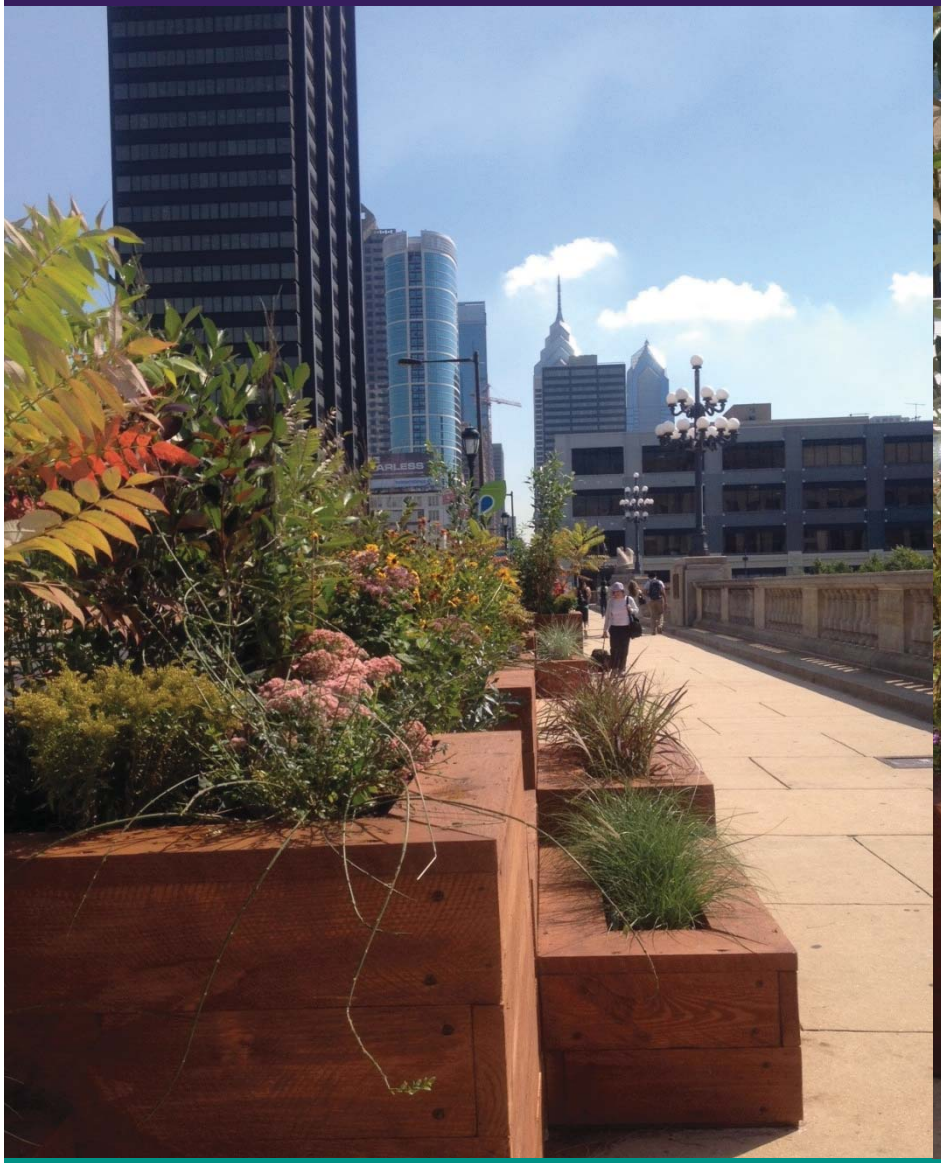
Groundswell landscape enhancements: UCD & CCD



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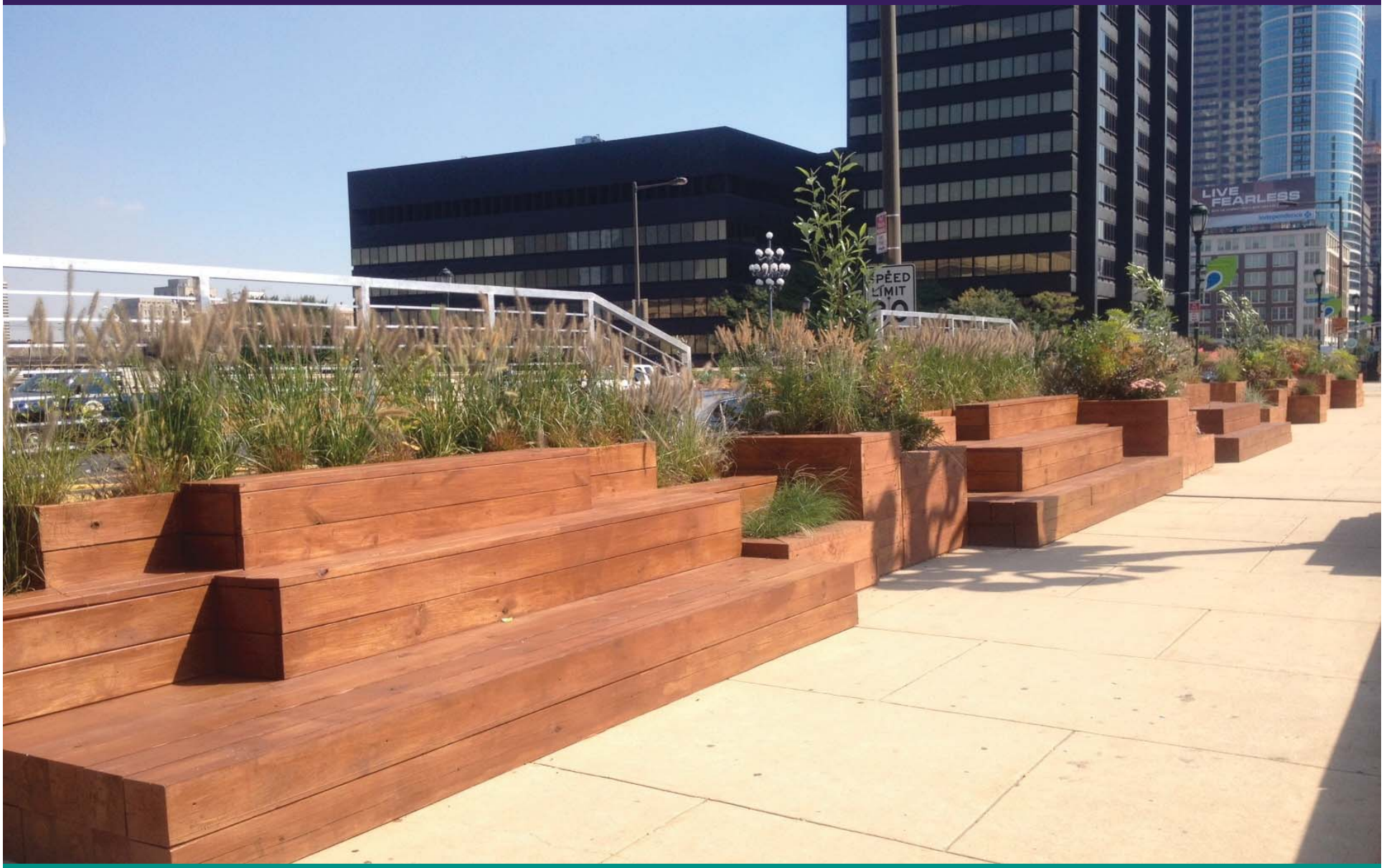
That connect 30th Street to Center City



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Penn & SRDC humanizing Walnut Street bridge

Softening it from a highway

Removing overhead signs designed for high-speeds

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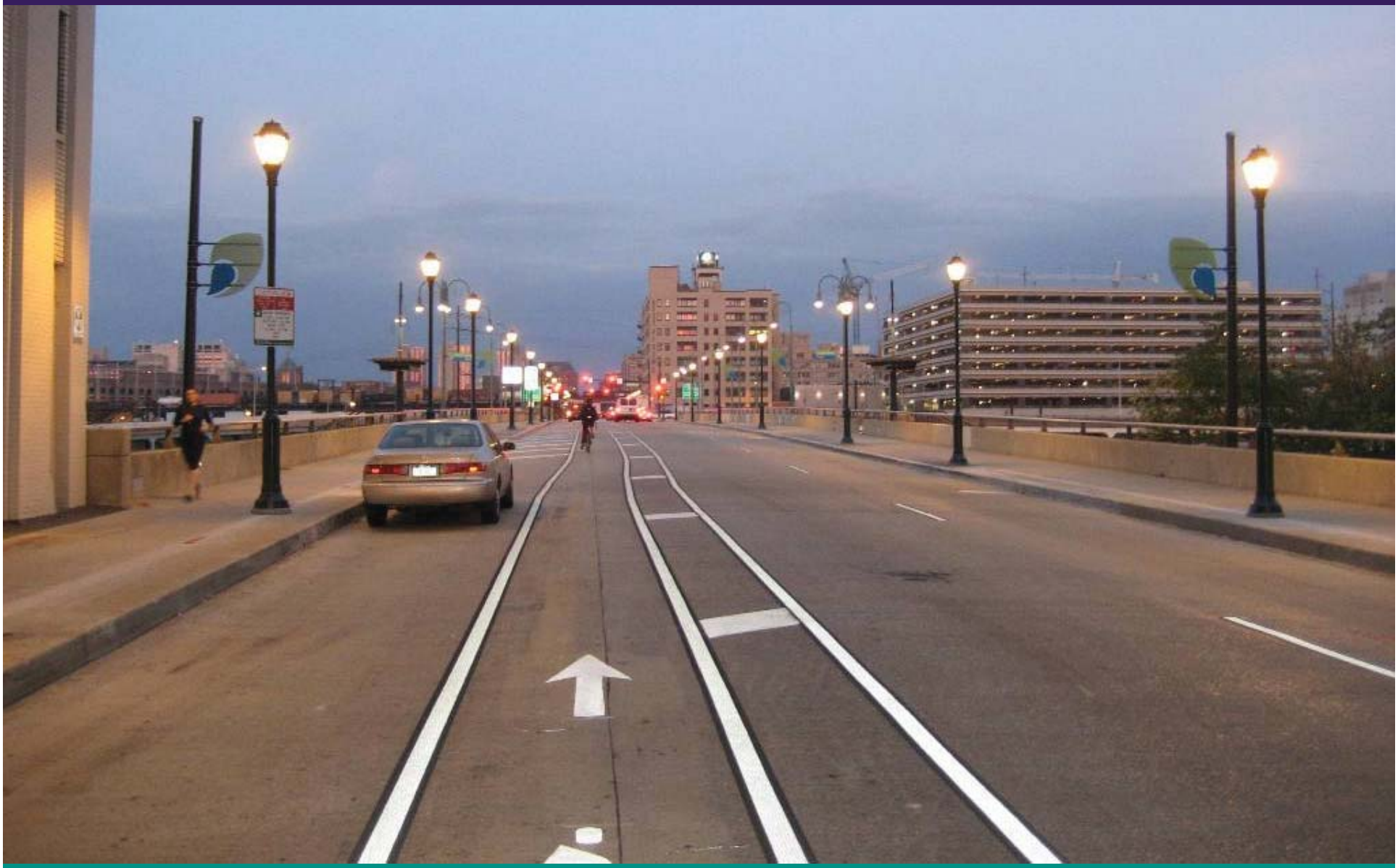
Adding bike lane & pedestrian lighting



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Connection to Schuylkill Banks

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To make it more human scale & pedestrian friendly

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SRDC has been improving the Schuylkill

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Largely at the river level

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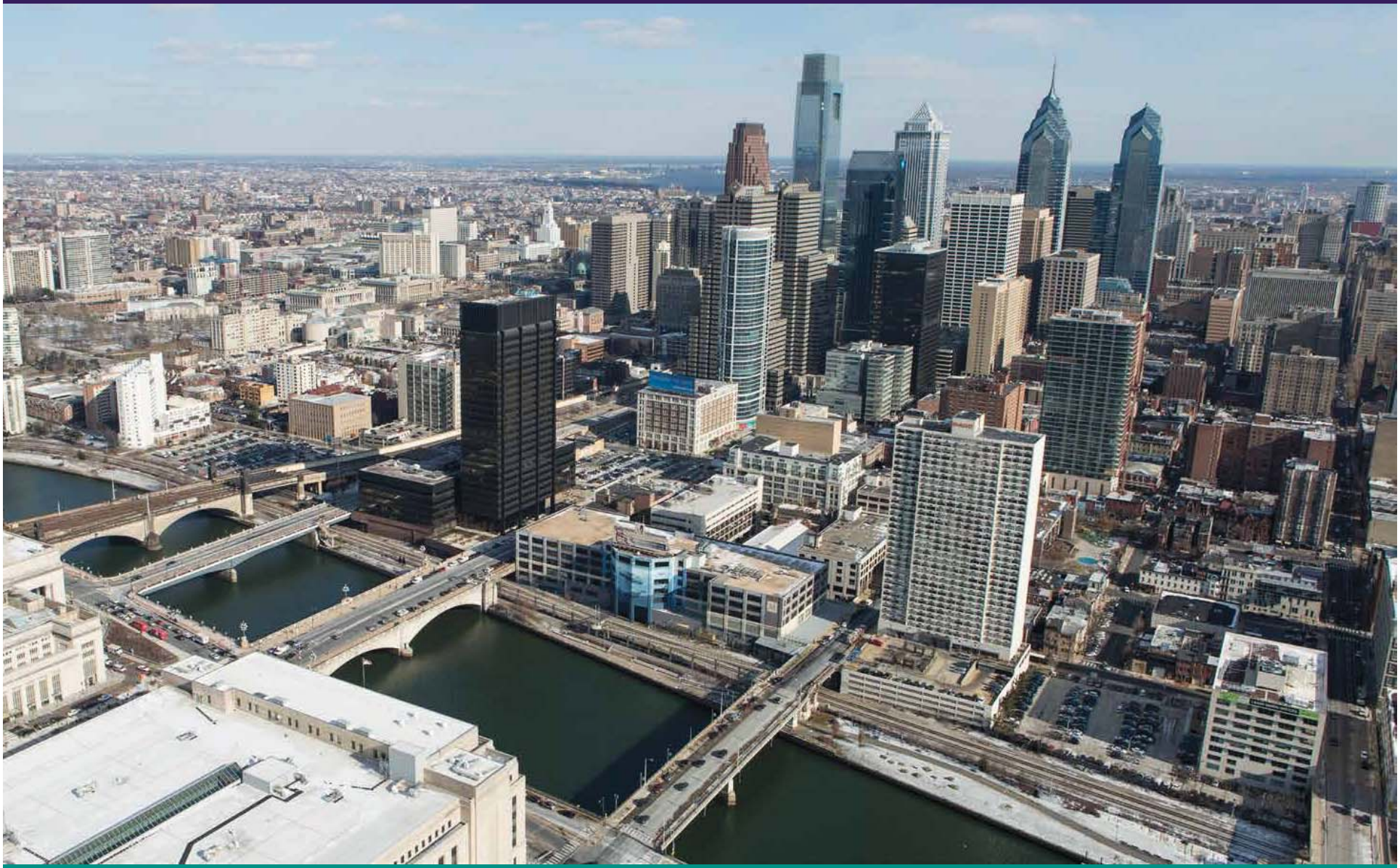
But only partially at the bridge & city level



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In 2003, Sasaki advanced the concept of an upper level pedestrian promenade

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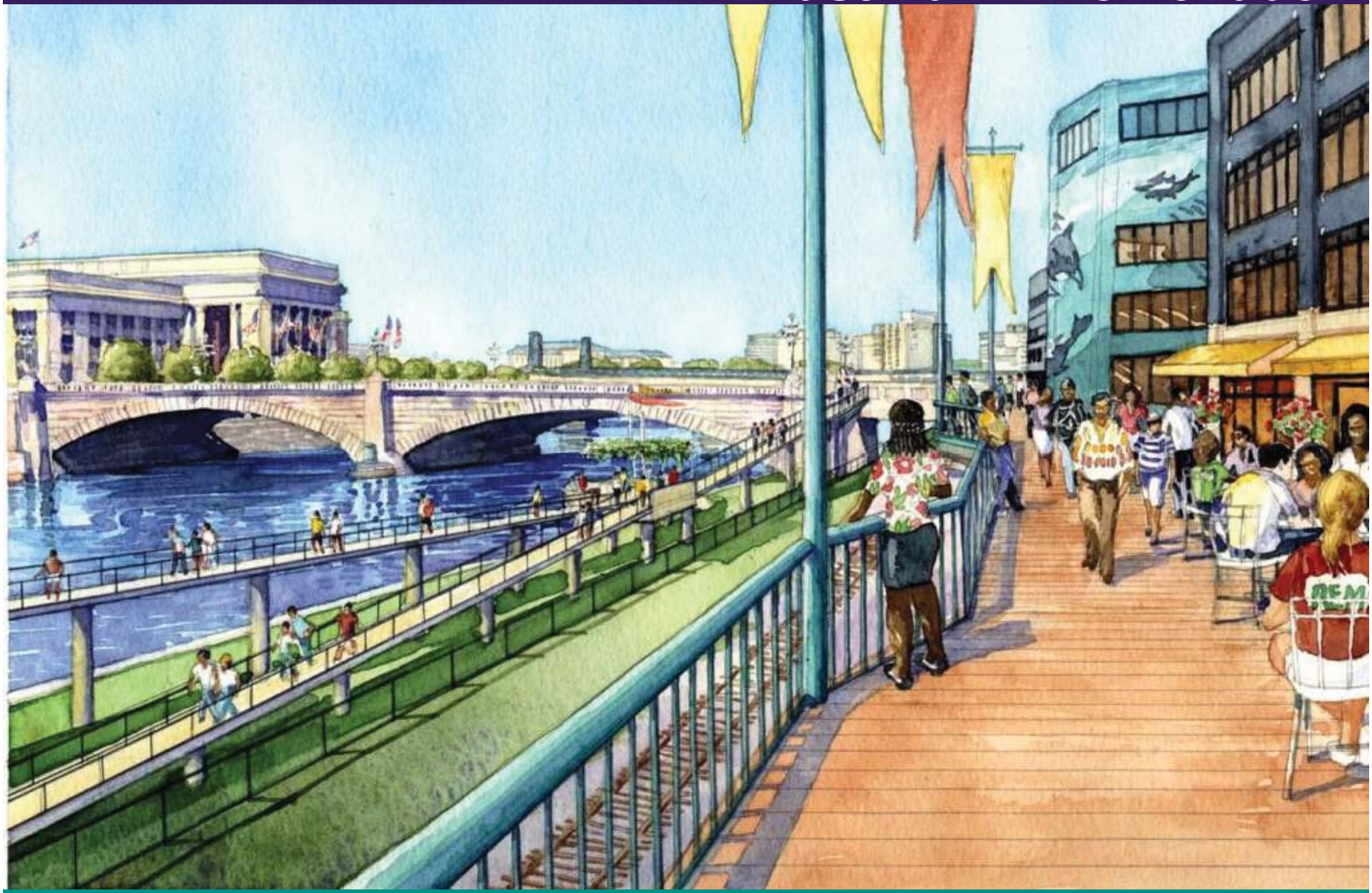
Left Bank Promenade

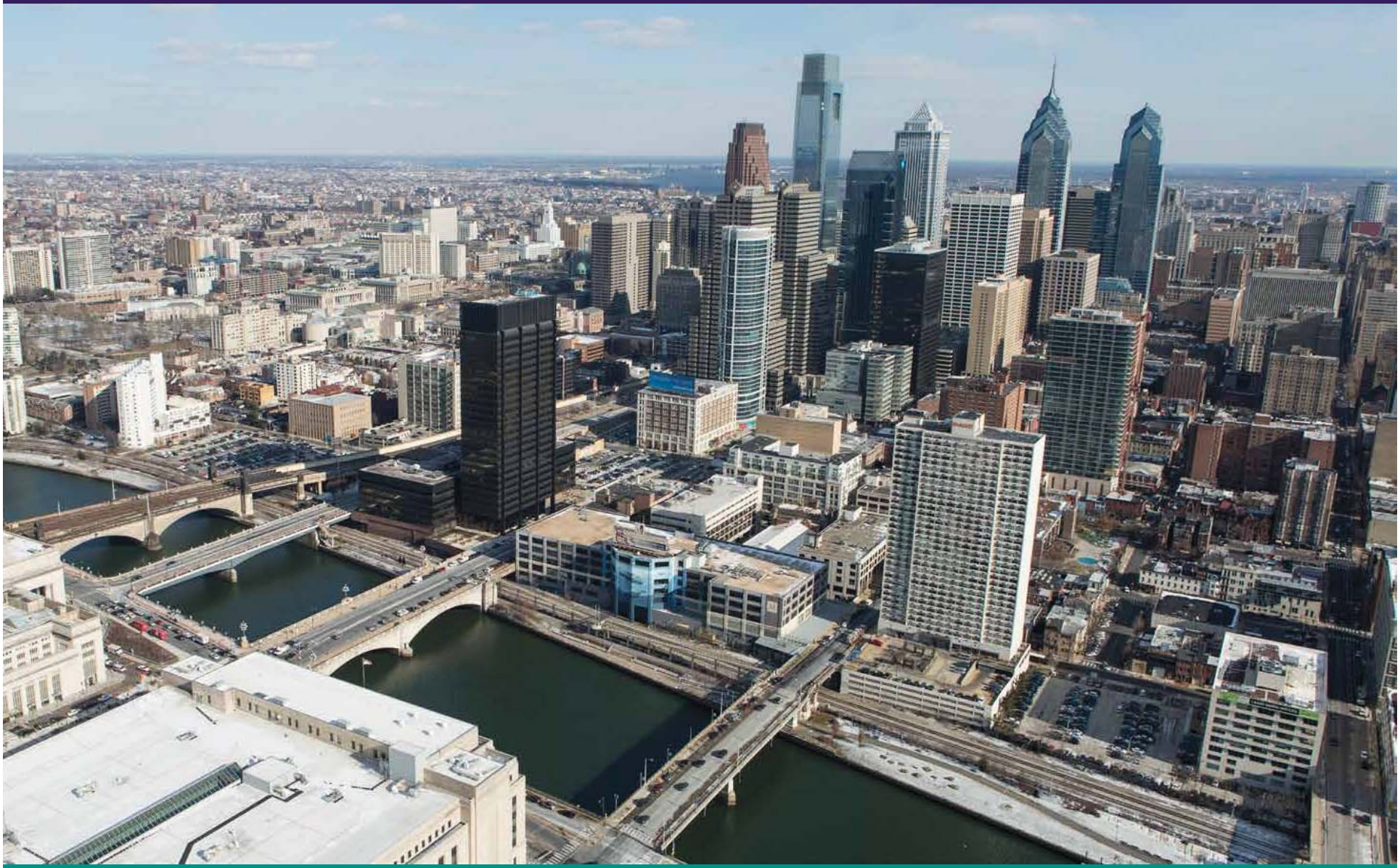
CENTER CITY DISTRICT

East Bank Promenade



CENTER CITY DISTRICT

Aramark moving to 2401 Market



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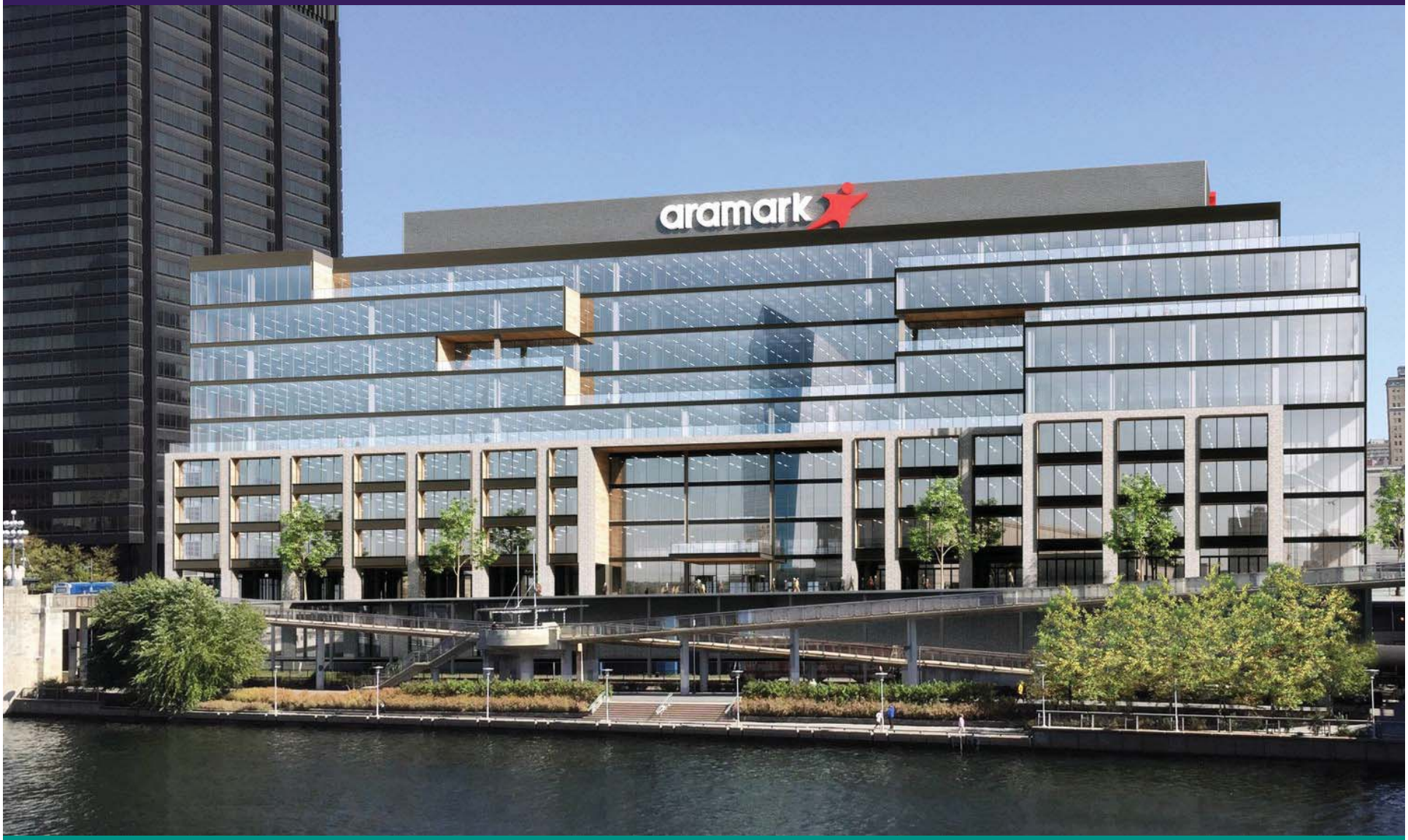
Focused on the amenity of the river & proximity to transportation



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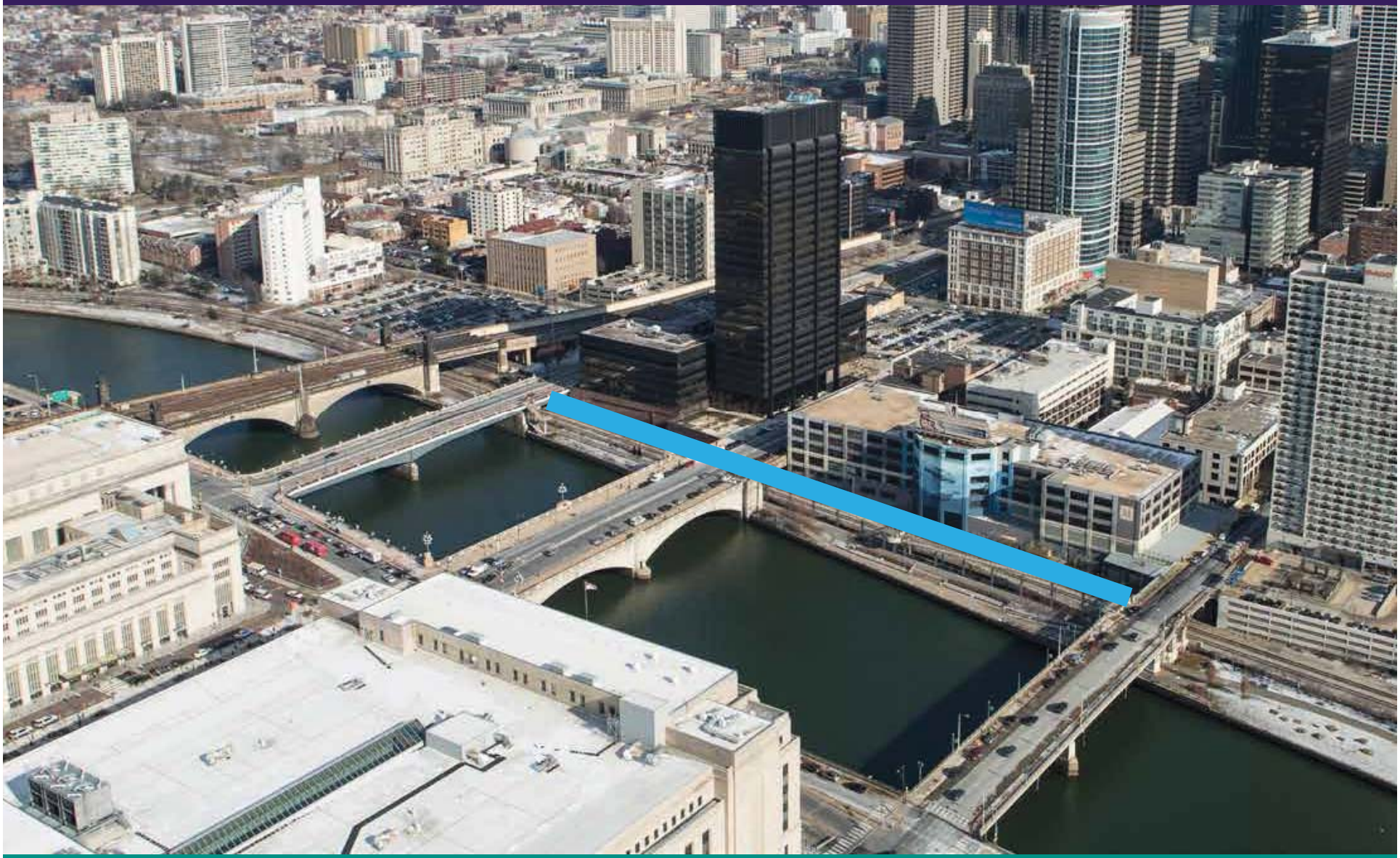
Promenade from JFK to Chestnut Street?



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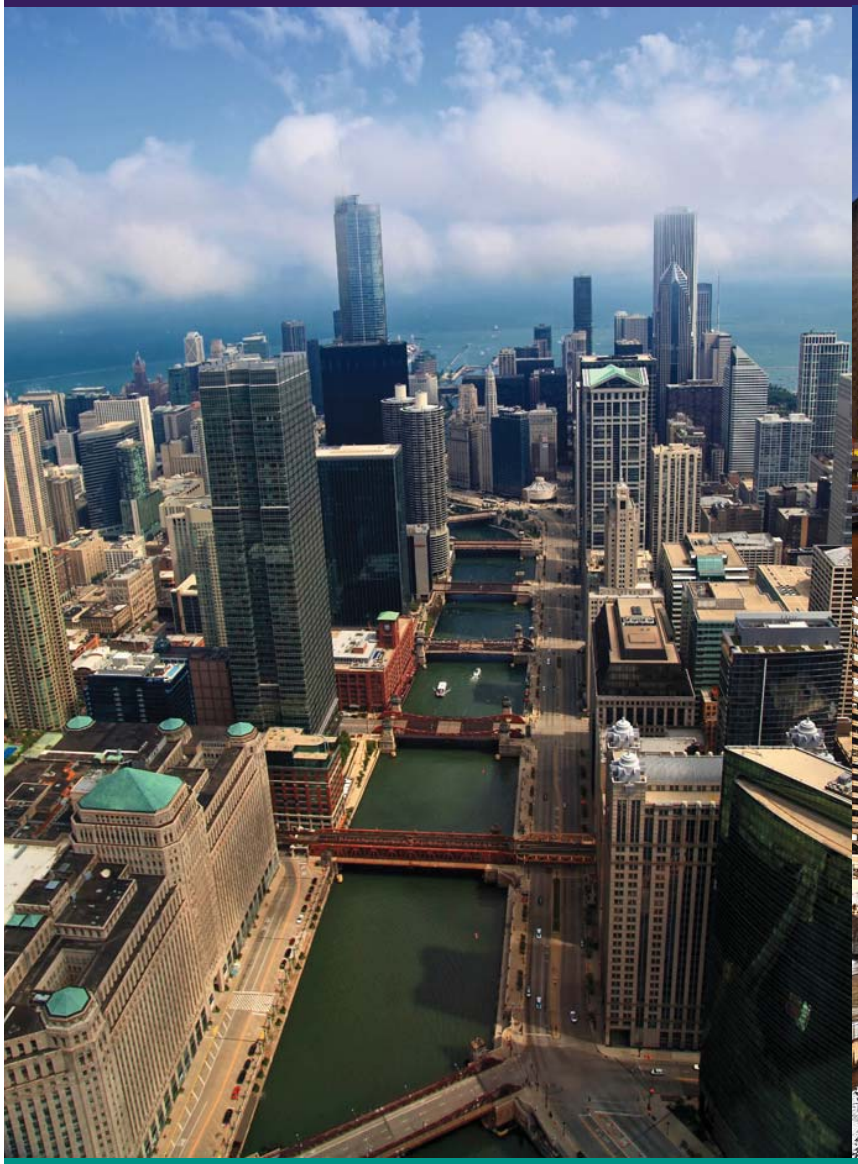
Analogy of the Chicago River



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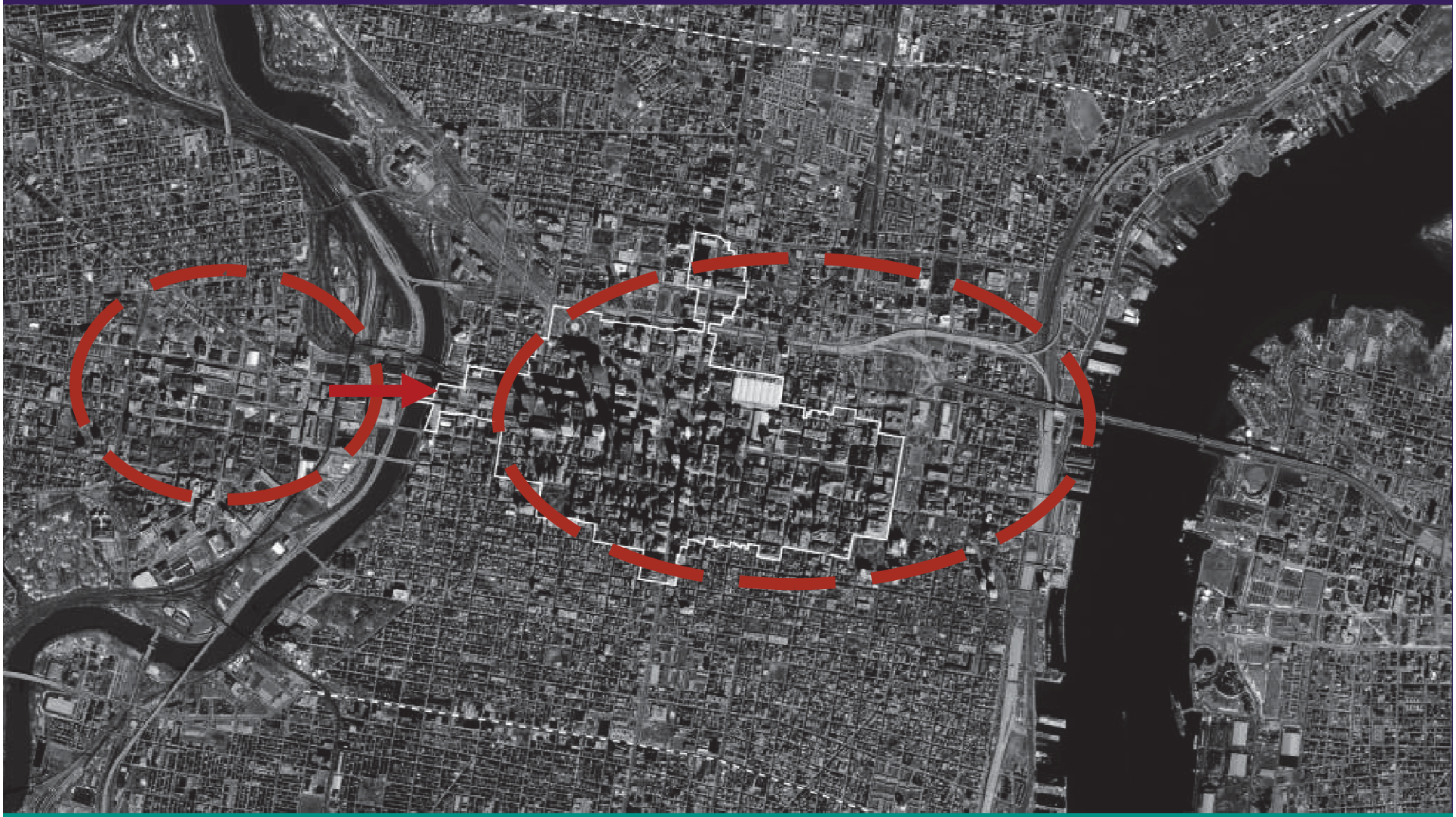
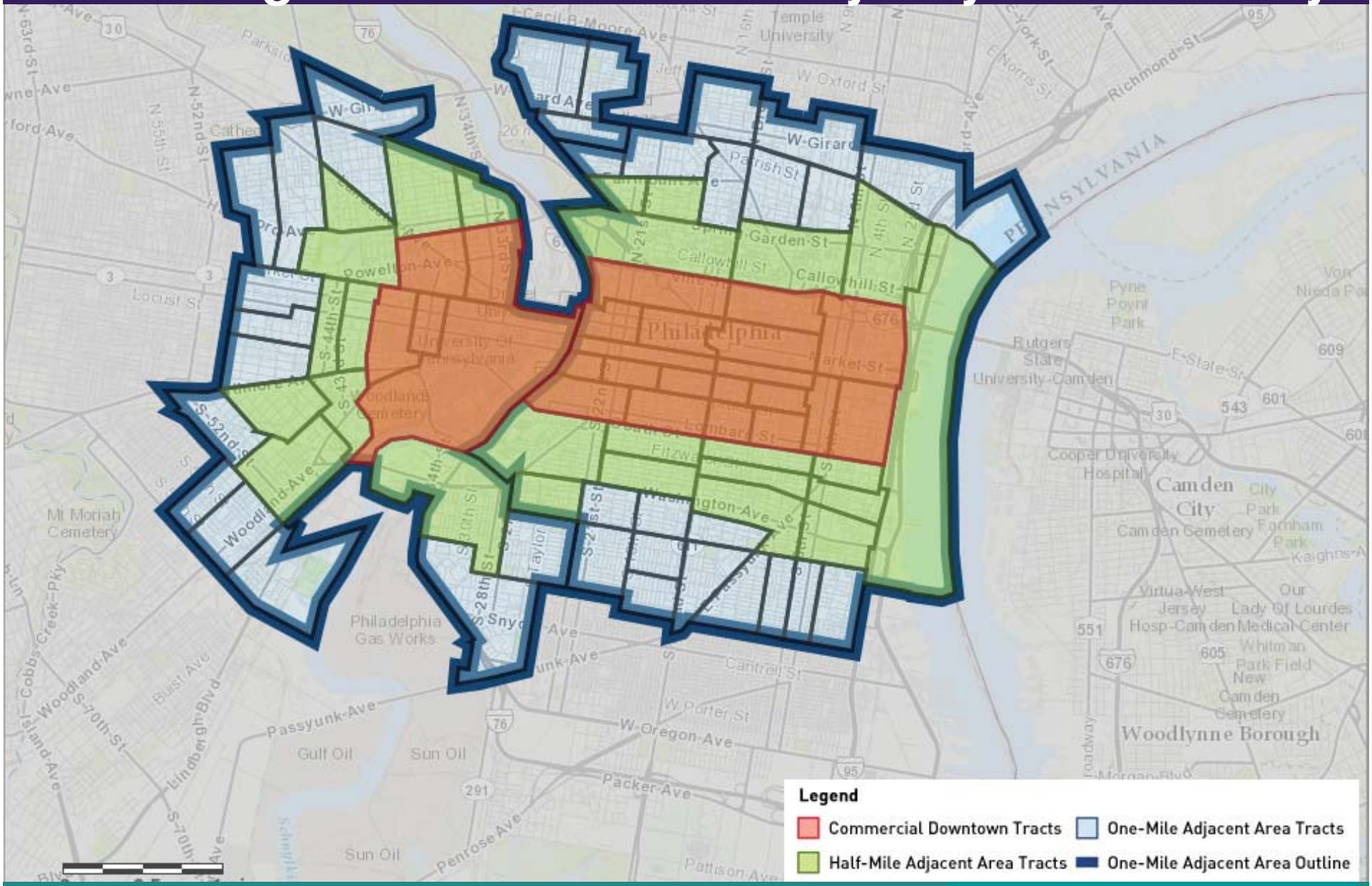
But momentum from west to east is insufficient



CENTER CITY DISTRICT

If the goal is to link University City + Center City



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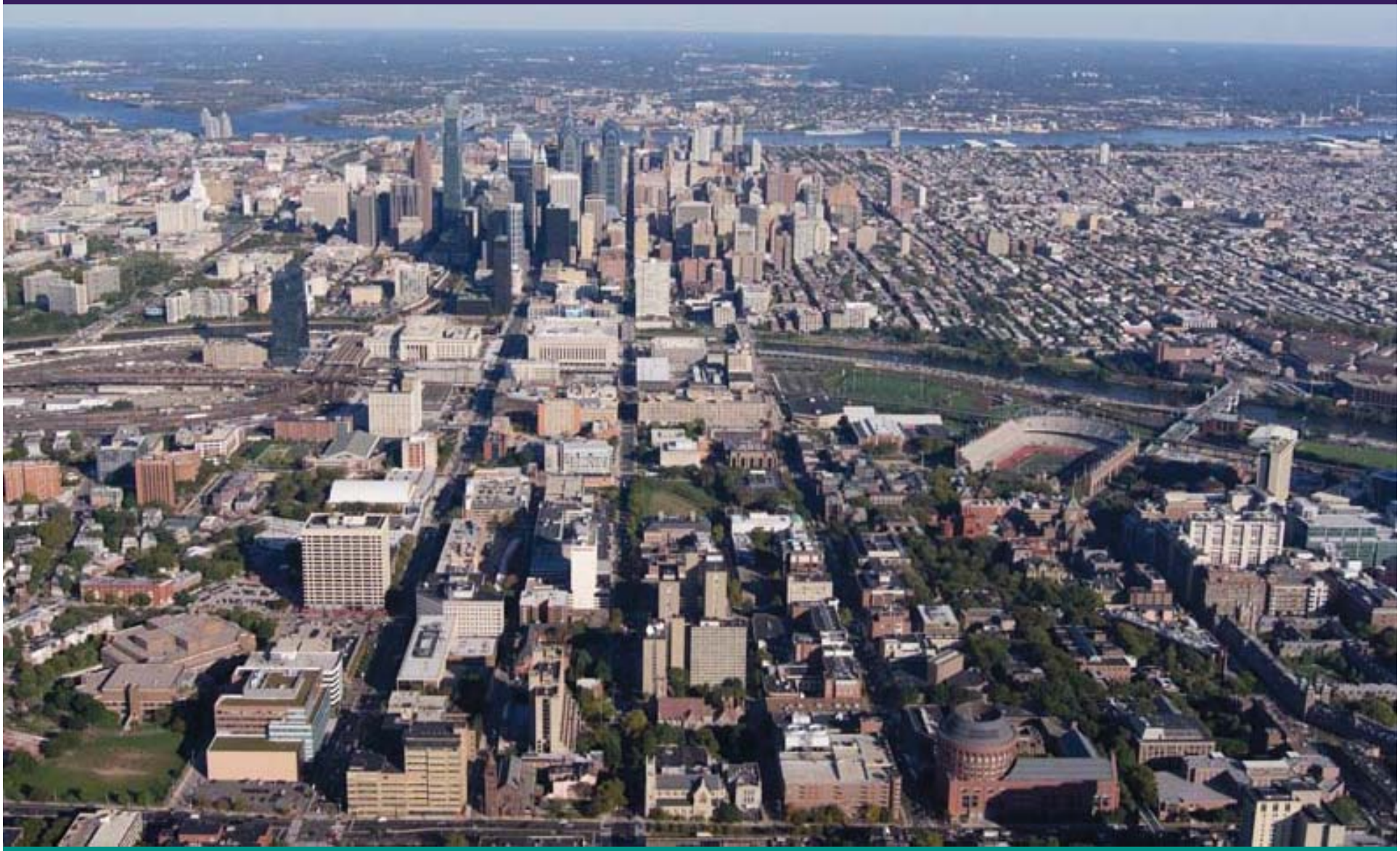
Into a continuous regional business center



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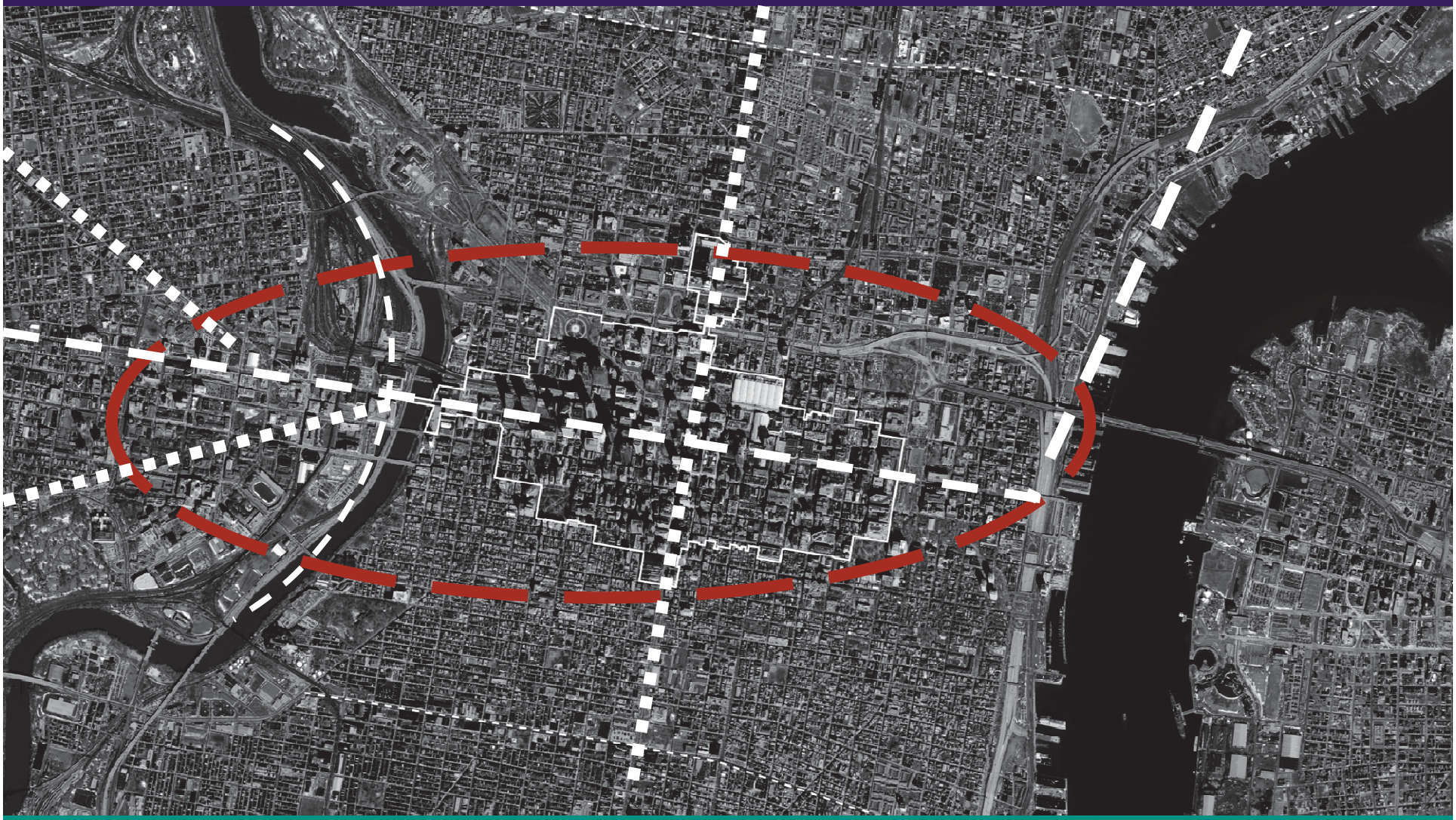
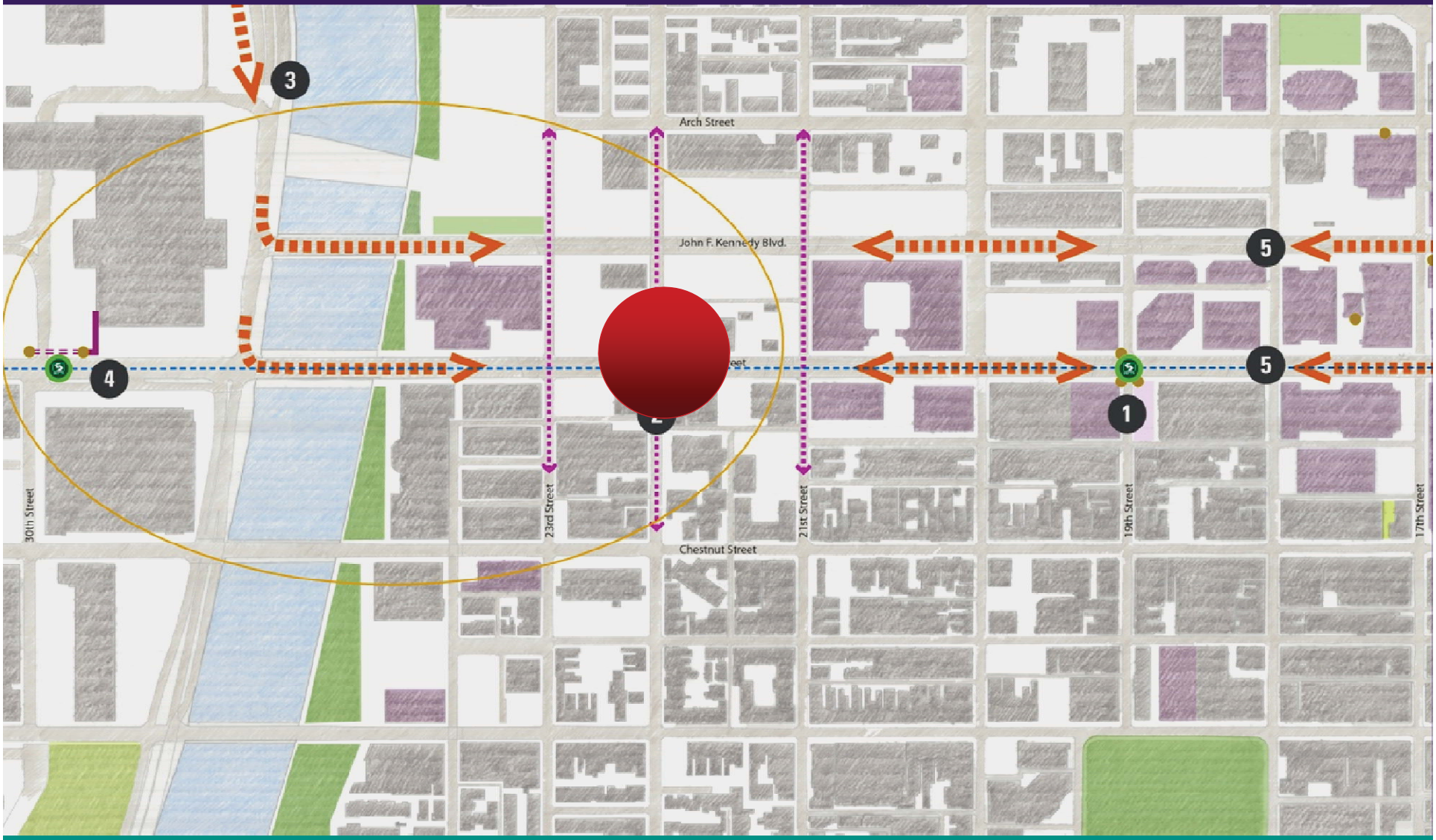
Well-connected to region by public transit



CENTER CITY DISTRICT

Could transportation investments unlock development potential?



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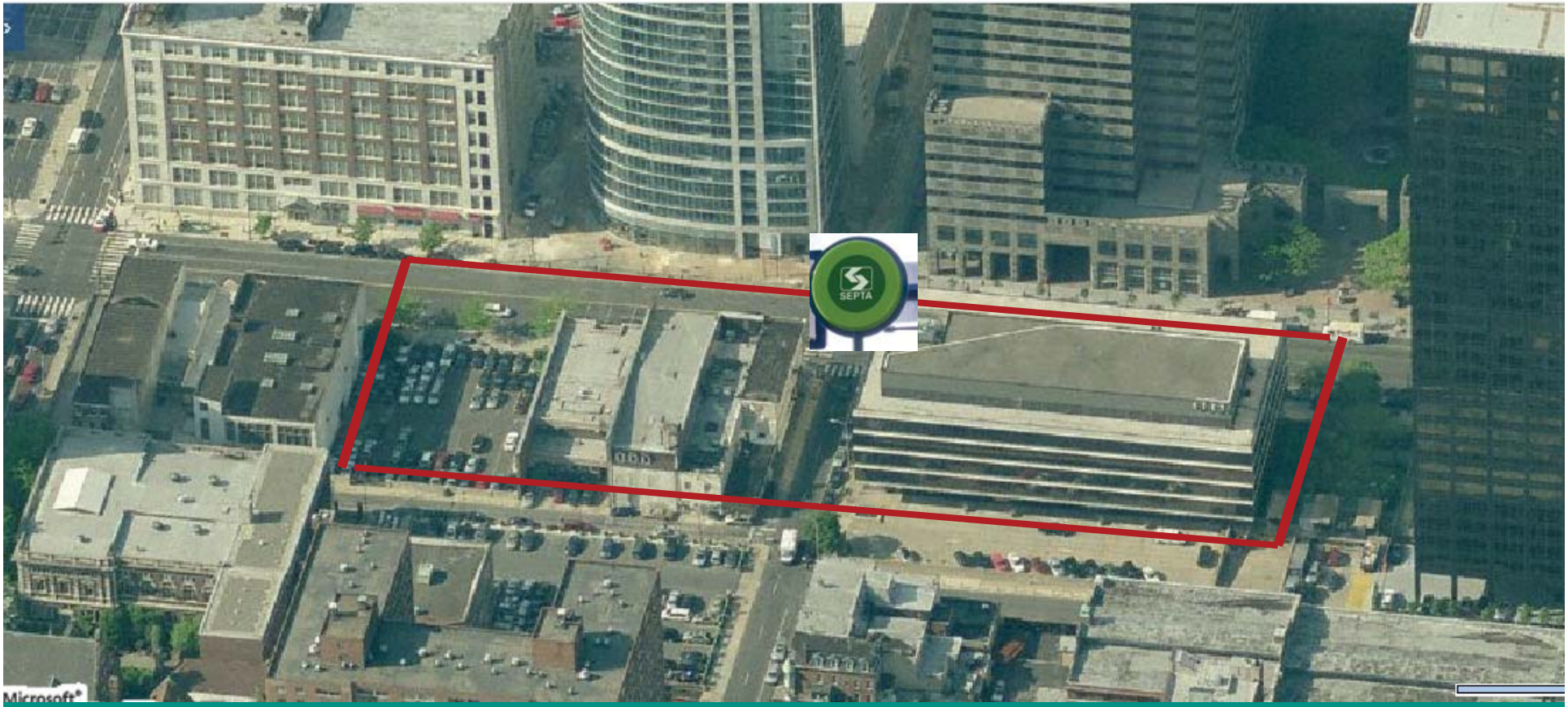
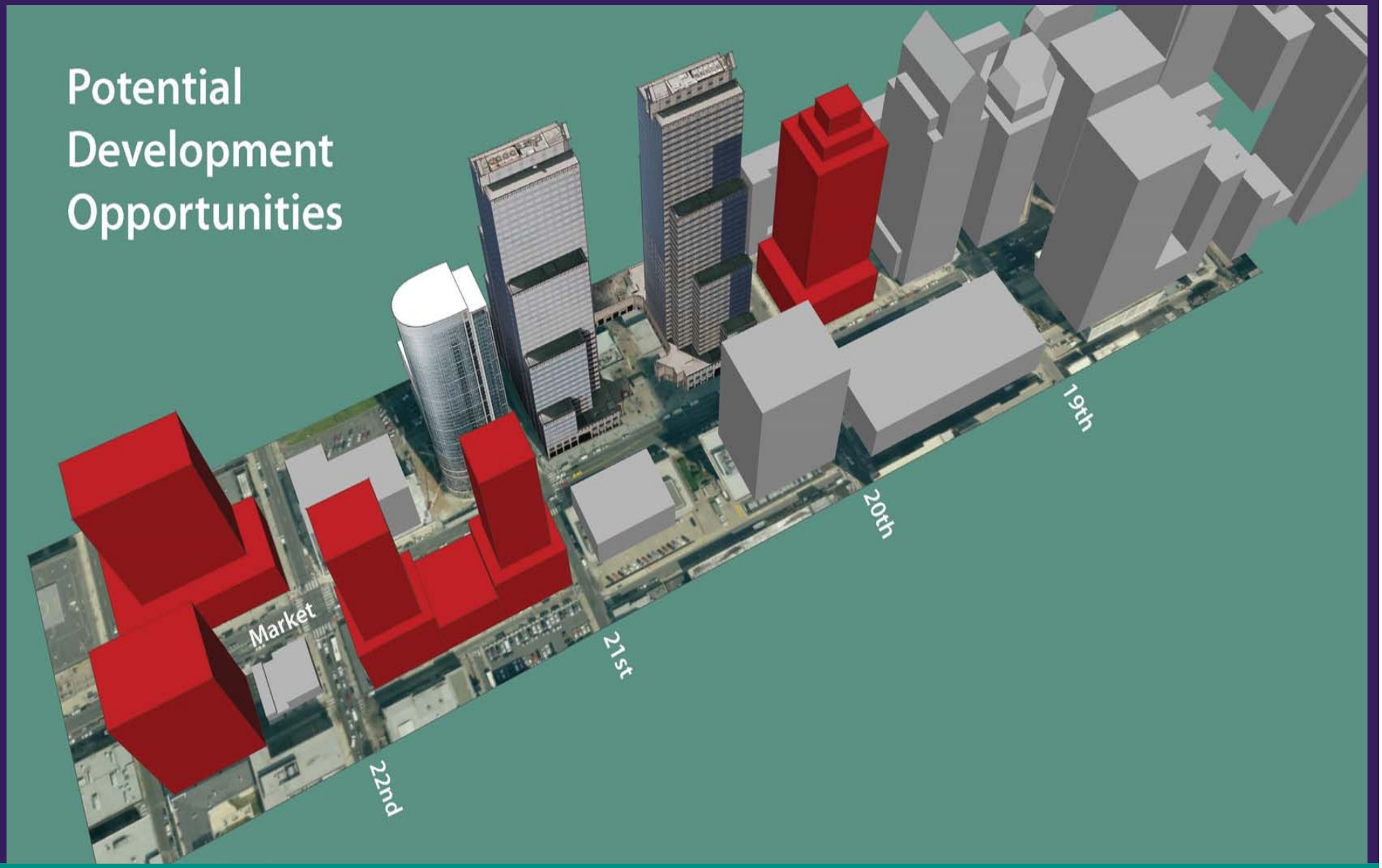
Not in isolation but in context of future comprehensive redevelopment strategy



Help transform this:

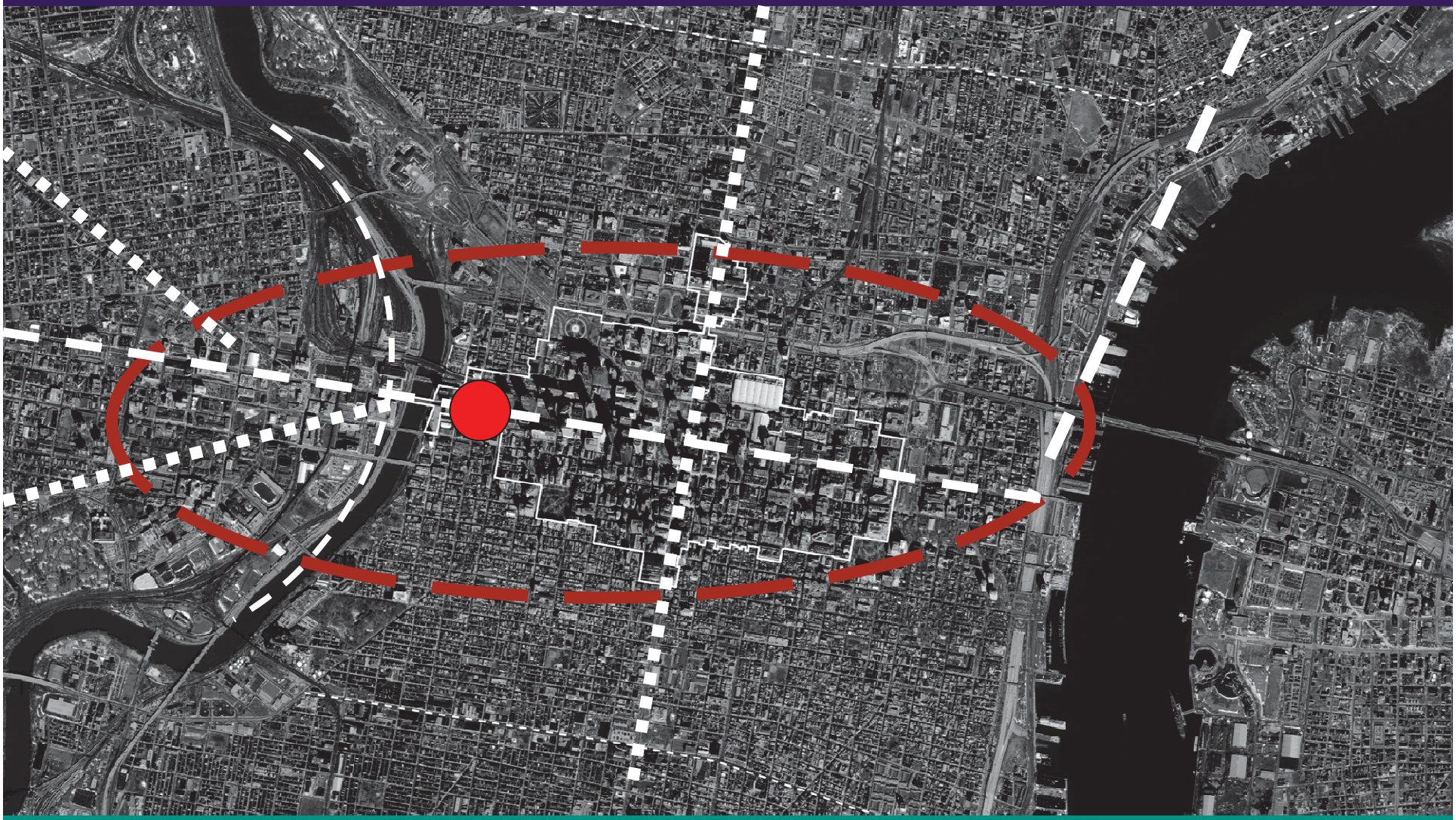
CENTER CITY DISTRICT

Into this



CENTER CITY DISTRICT

(1) A stop on the Market Street line?

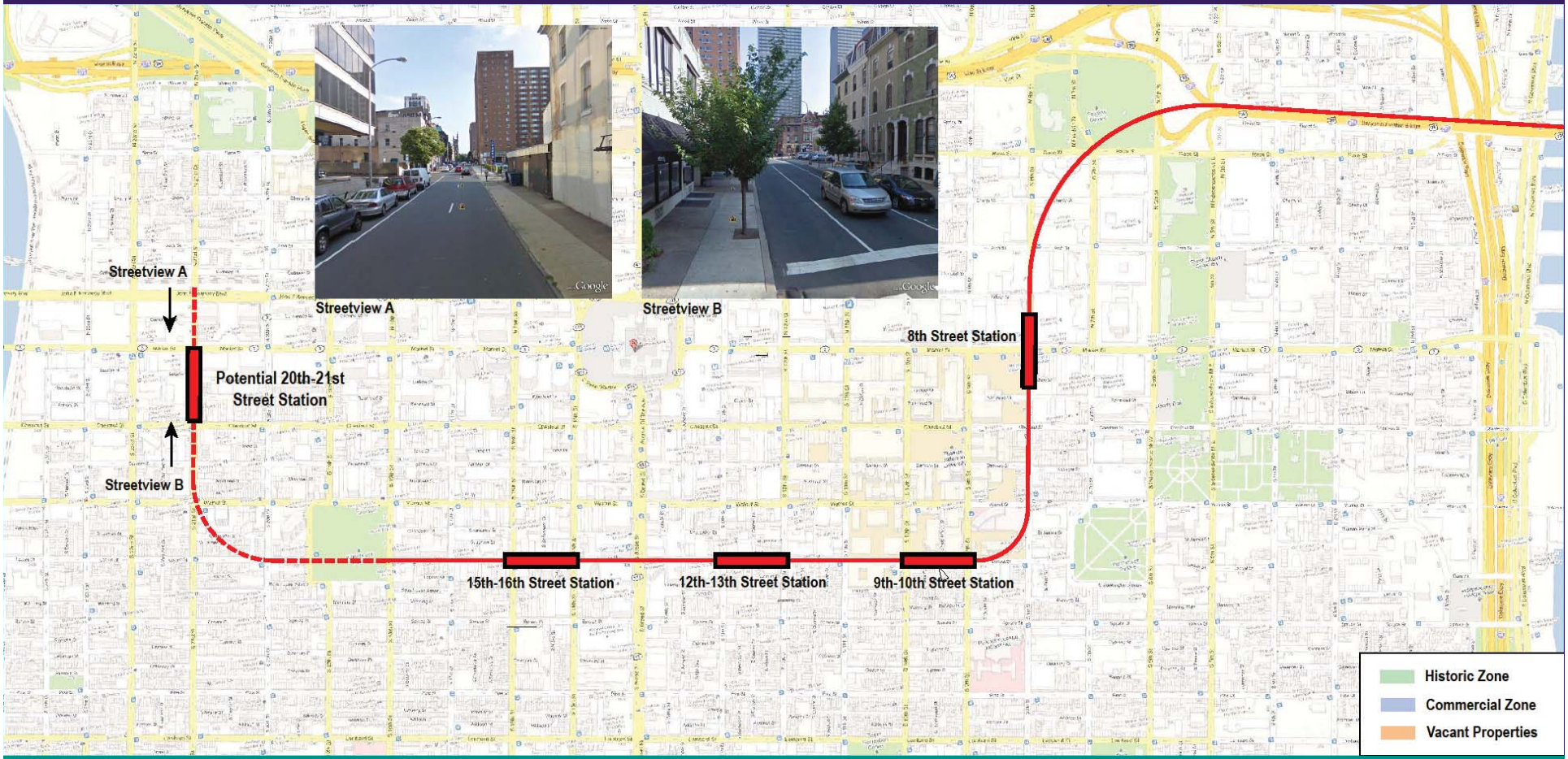


CENTER CITY DISTRICT

(2) An extension of PATCO?:

Directly bringing N.J. residents to Market West

13% of Center City's employees commute from NJ



CENTER CITY DISTRICT

To evaluate transit: commissioned 3 studies

(1) What are the costs & logistics of a Market subway line stop? Urban Engineers

(2) What are the costs & logistics involved with extending the PATCO line? AECOM

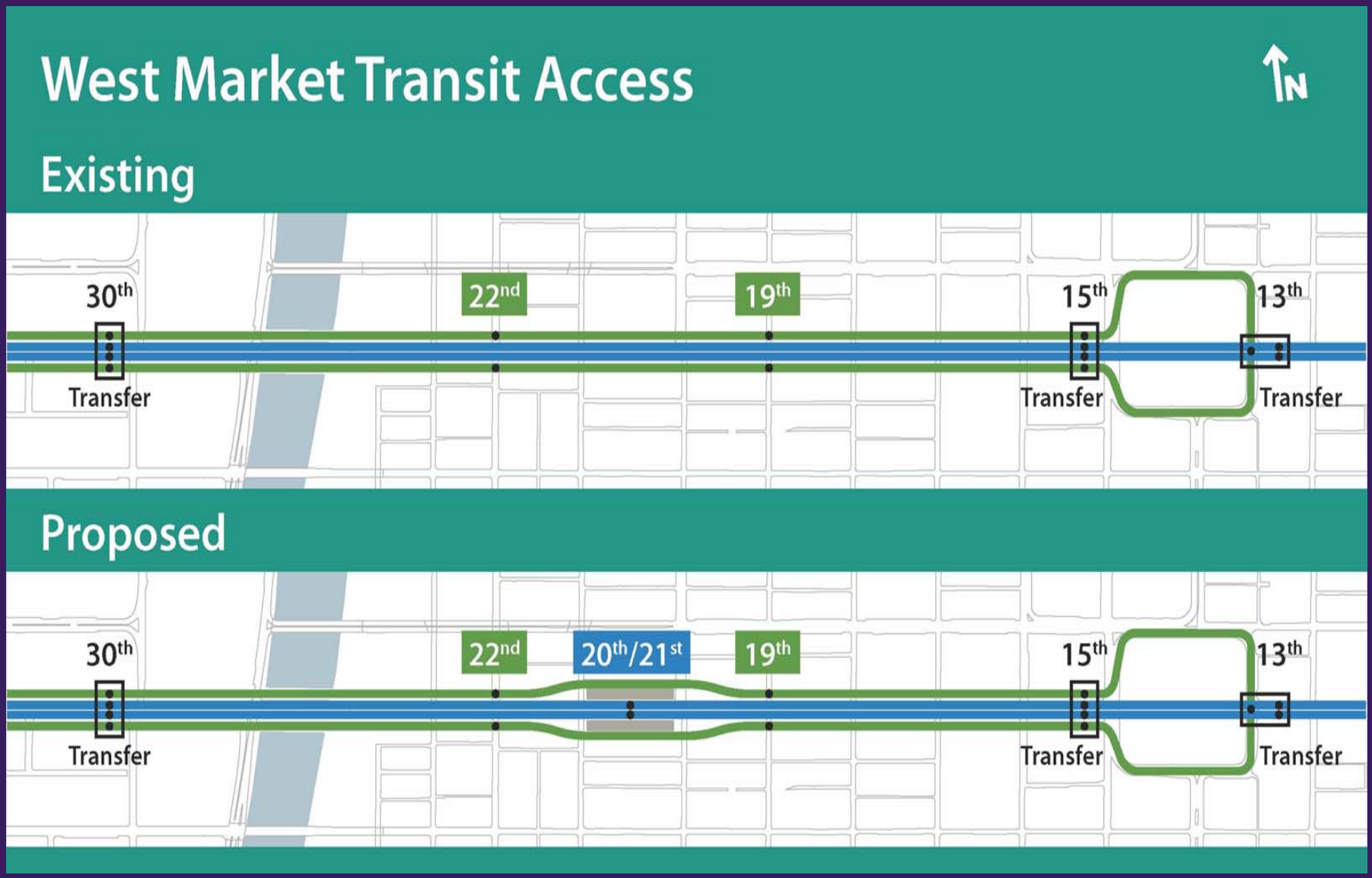
(3) What new development might be induced by a new transit stop? Econsult

Urban Engineers, Inc.

April 2011

CENTER CITY DISTRICT

Feasibility & cost of a new subway station



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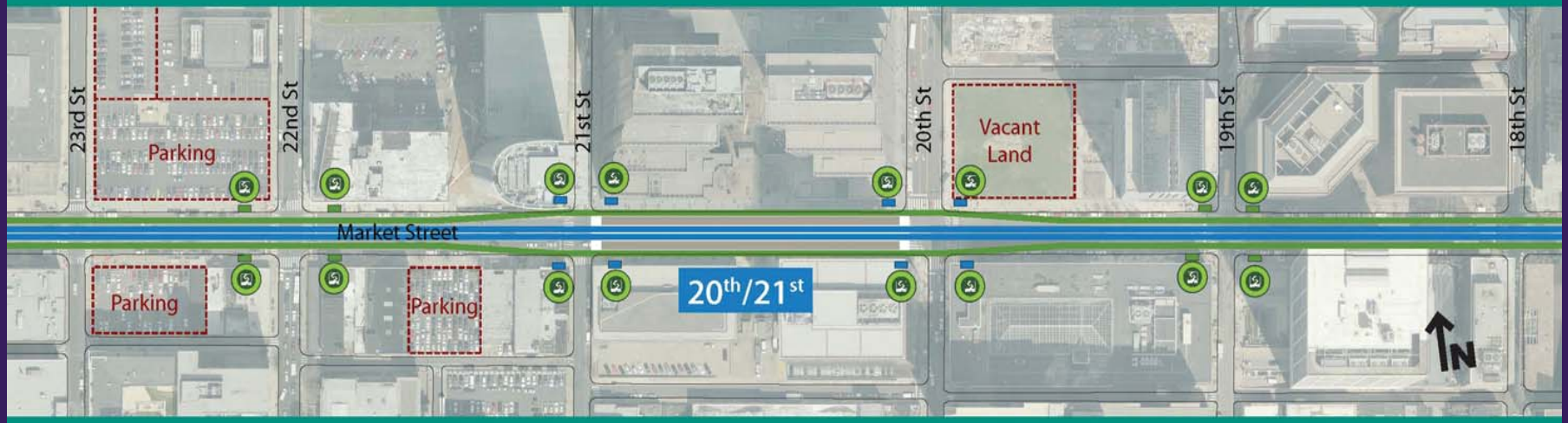
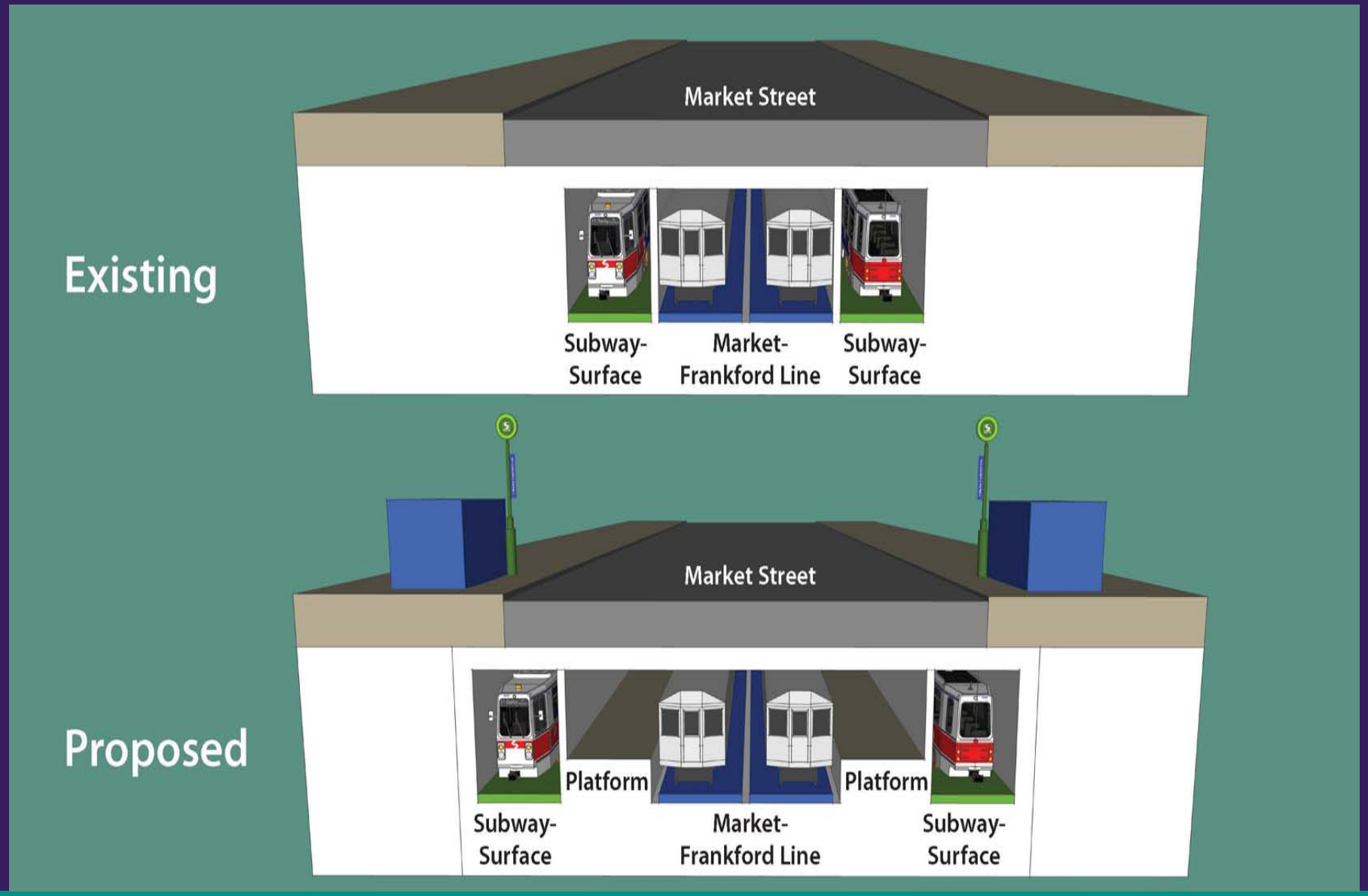
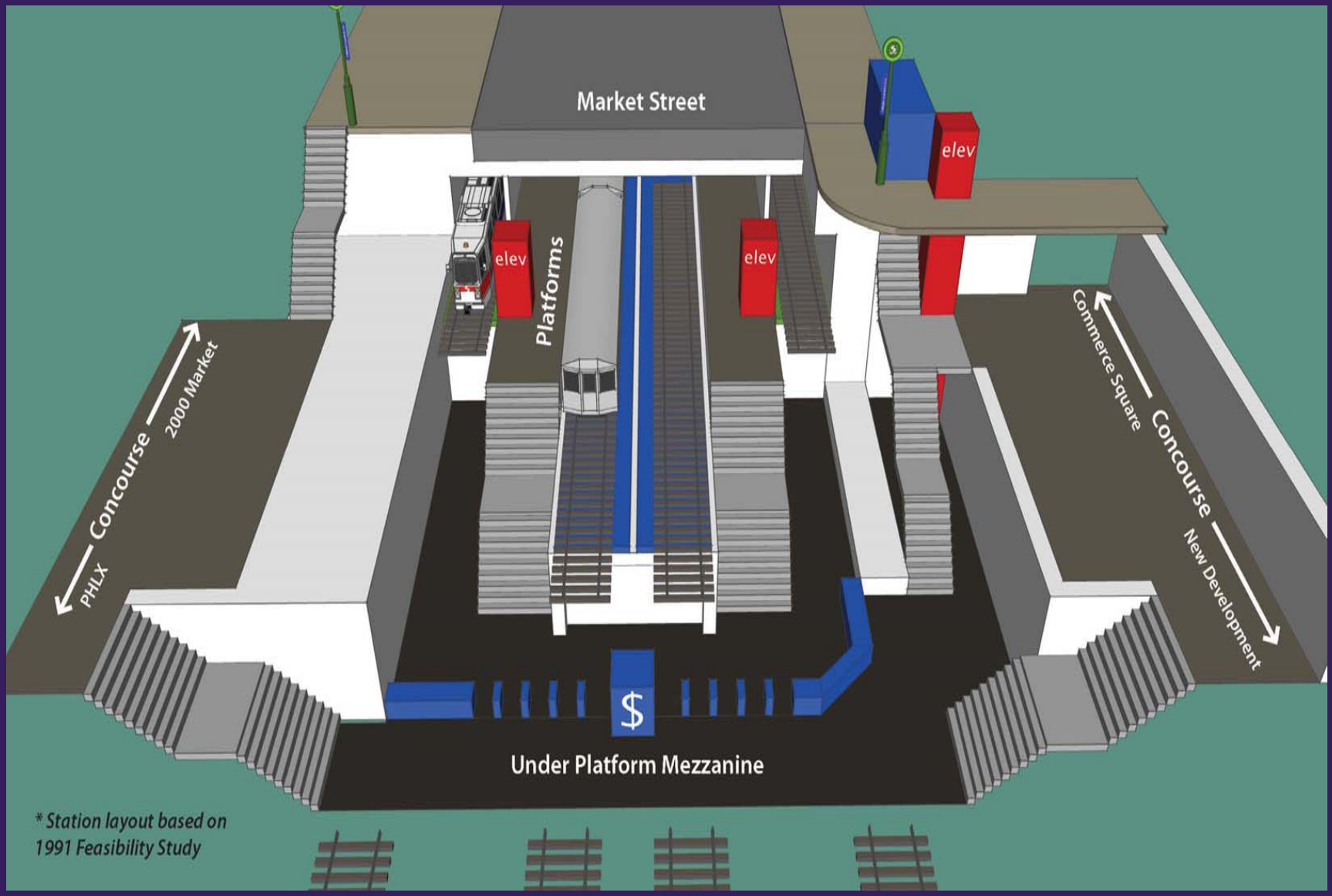
Station Plan



Typical Section



Perspective View



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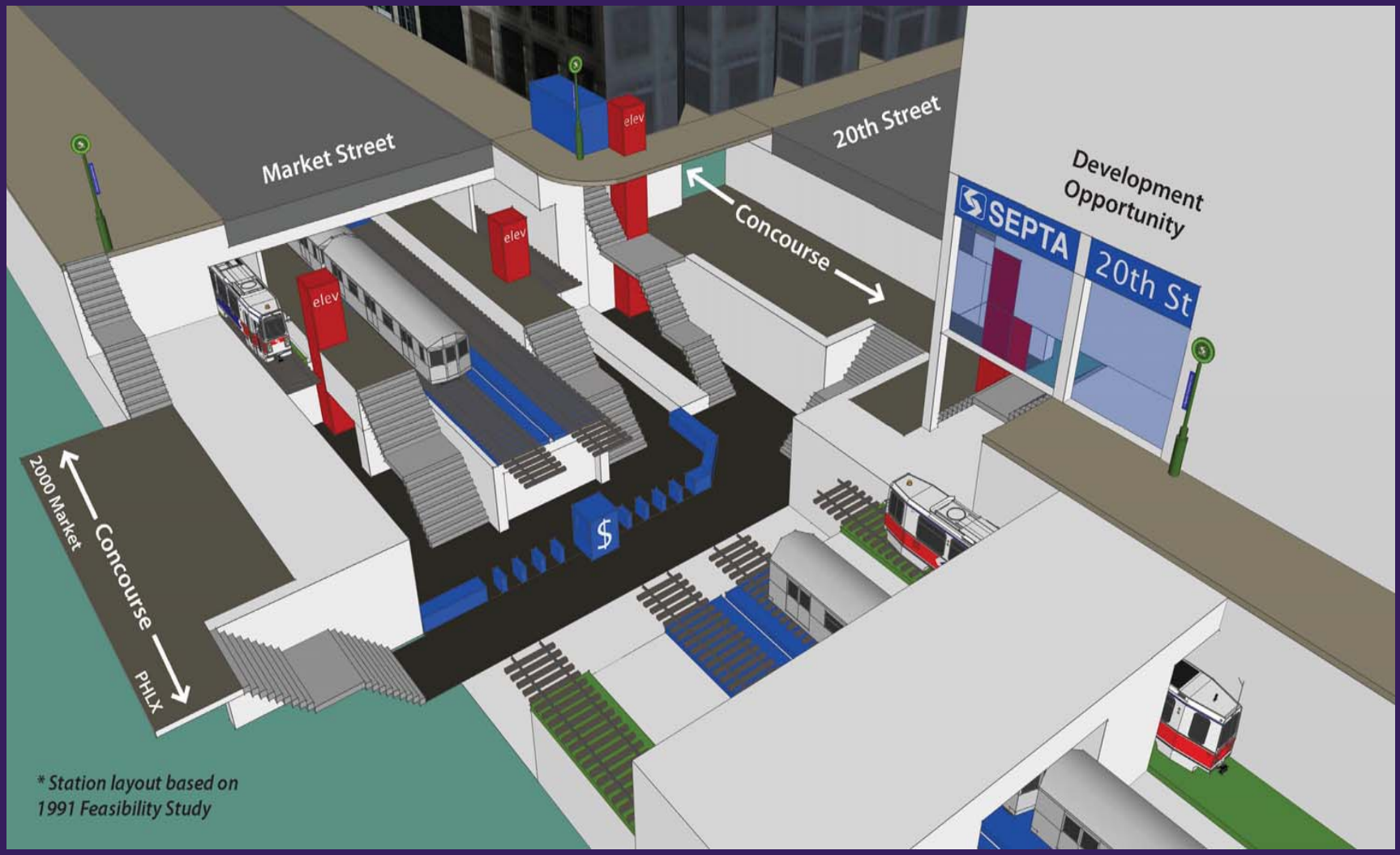
Perspective View



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Perspective View

CENTER CITY DISTRICT

Estimated Implementation Time: 6 to 7 Years

2-3 years for planning and design; less if no Federal funds are used

4 years for bidding and construction

Estimated Cost: $335 Million

Assumes construction starts in 2014

Includes Design, Construction Management and 30% Contingency

Estimated Construction Impacts

Extended shutdown of subway surface tunnel with diversion of cars to 40th and Market and substitute busing

Intermittent night and/or weekend single tracking or shutdown of Market-Frankford Line

Closure of up to ½ of Market Street at a time

Extension of PATCO service

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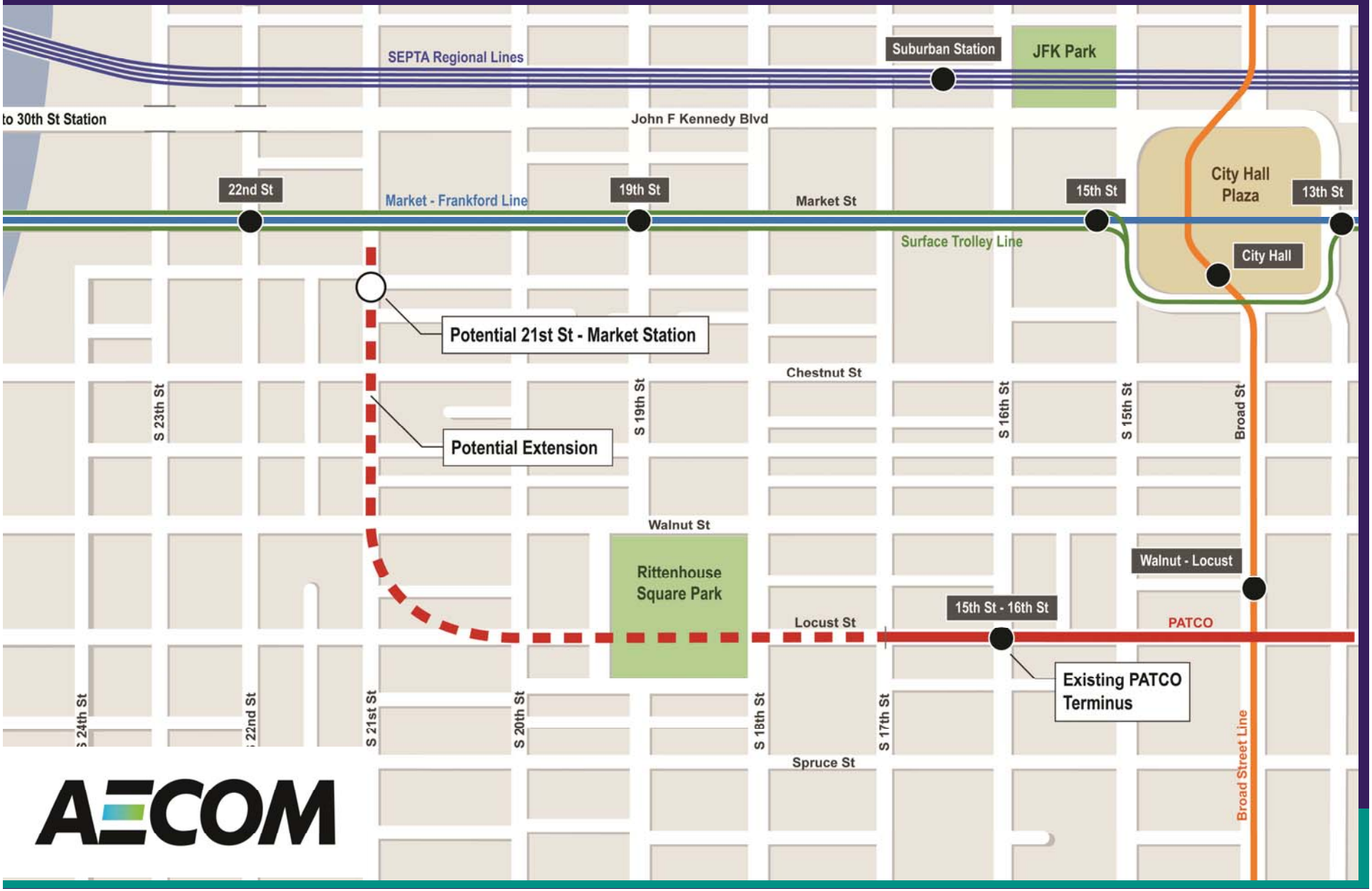
PATCO service terminates at 16th & Locust Street

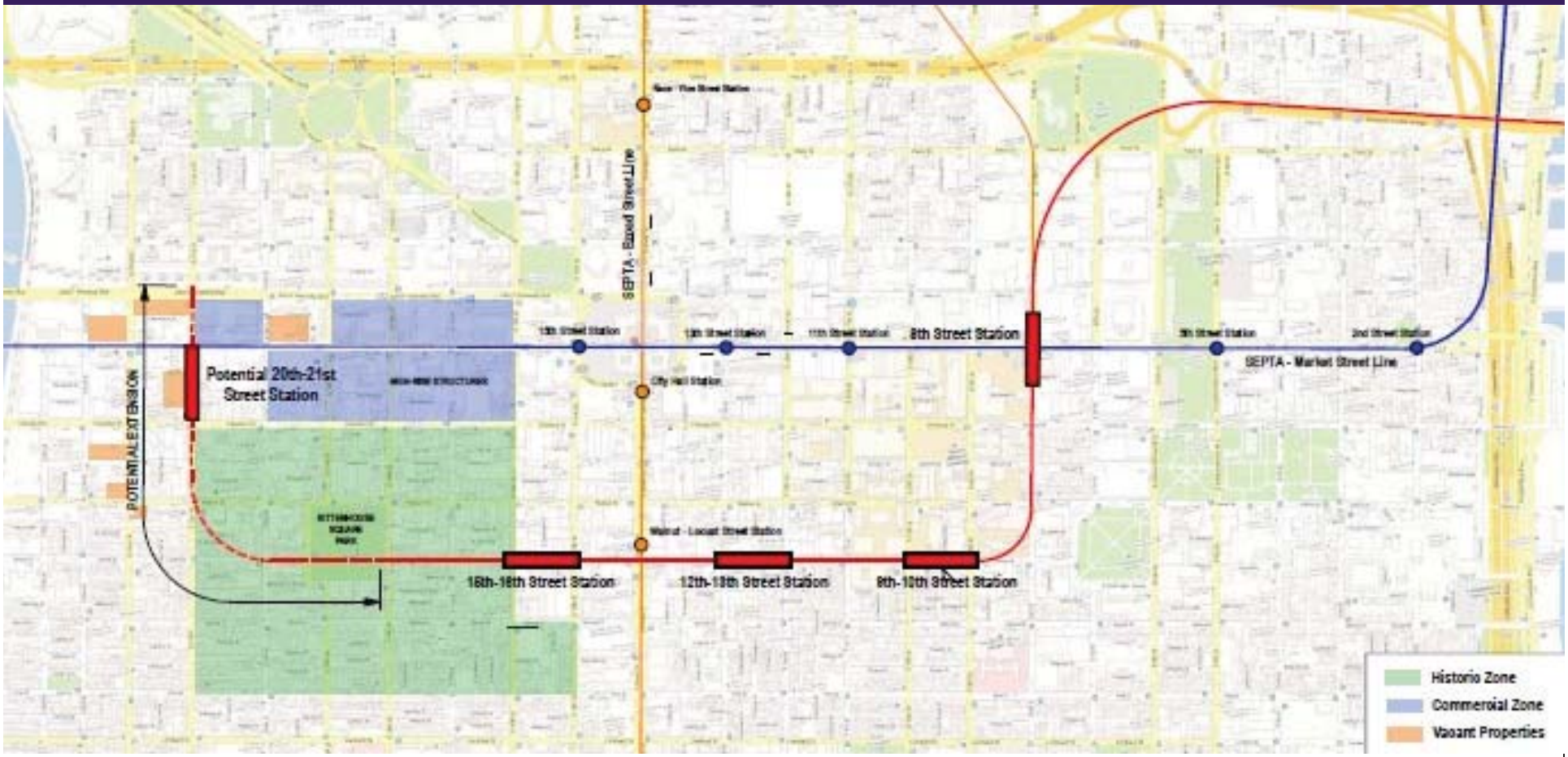
AECOM

Can it be extended to Market Street West?



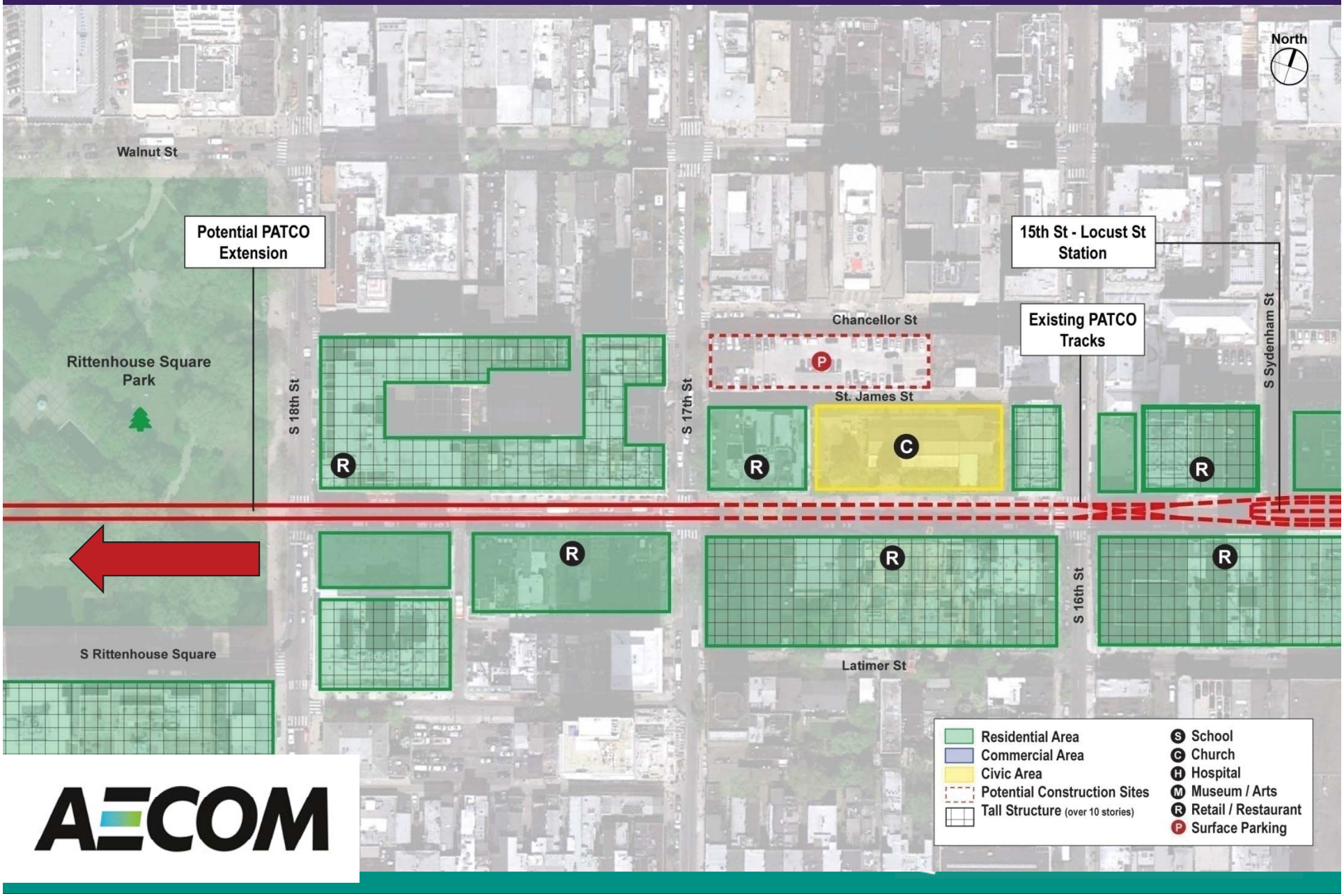
AECOM

Considered 21st & 22nd ; focused on 21st Street



AECOM

What is the likely path for extension?

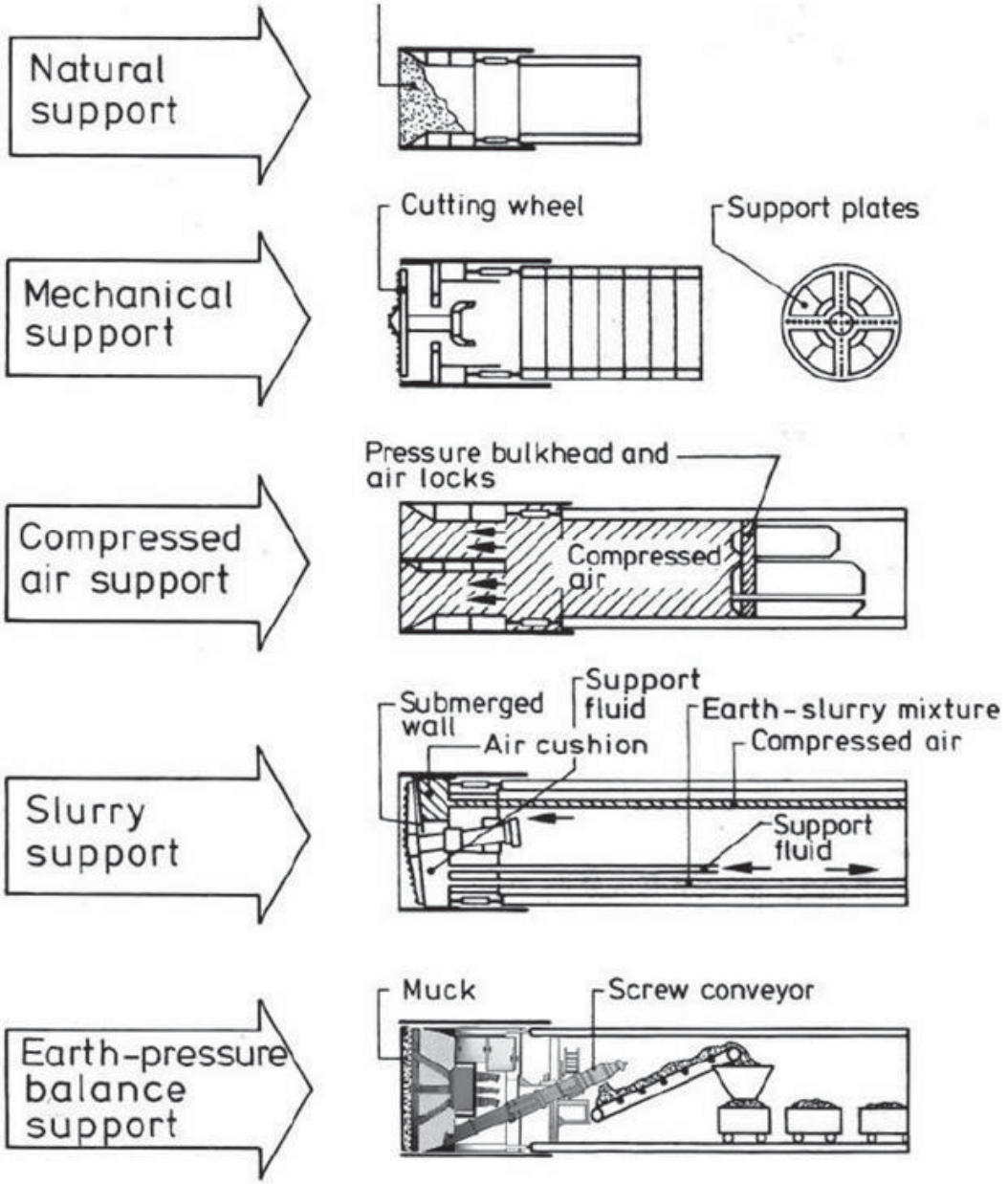


AECOM

Extend west under Locust Street

Cut & cover thru Rittenhouse Square is DOA

Have to rely on deep bore technology



Two options: #1

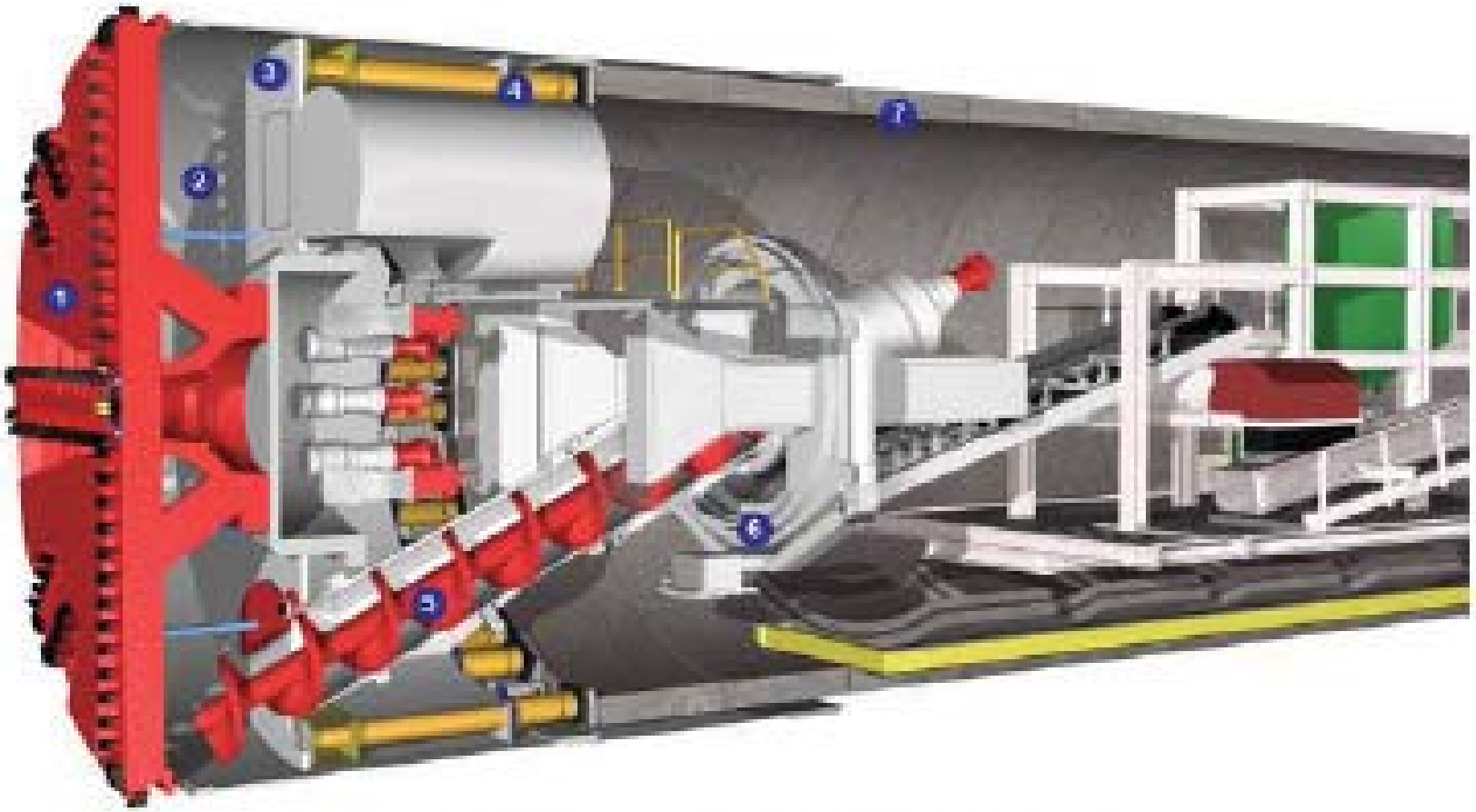


Figure 2. Earth Pressure Balance T

Option 2

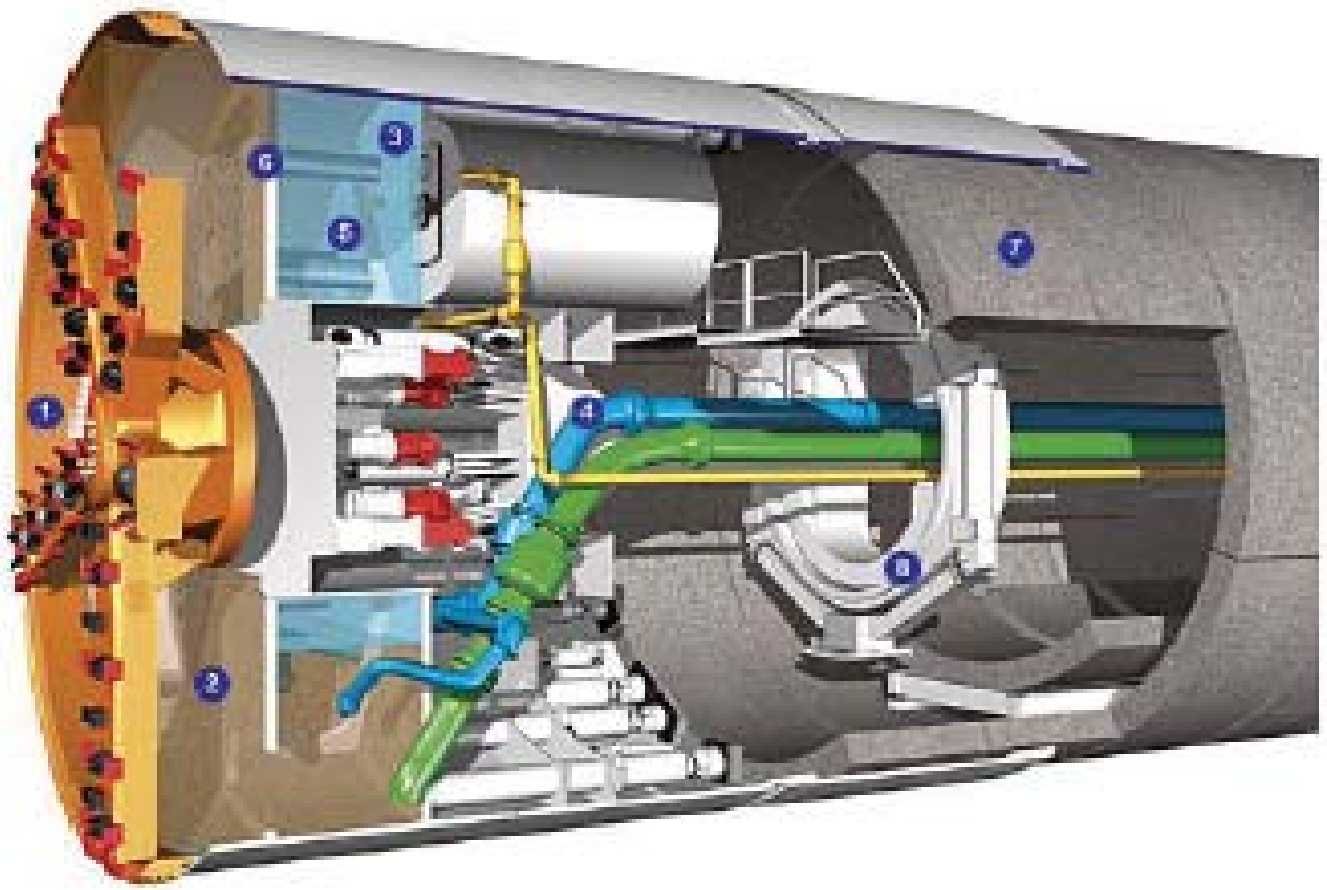


Figure 3. Slurry Face TBM

AECOM

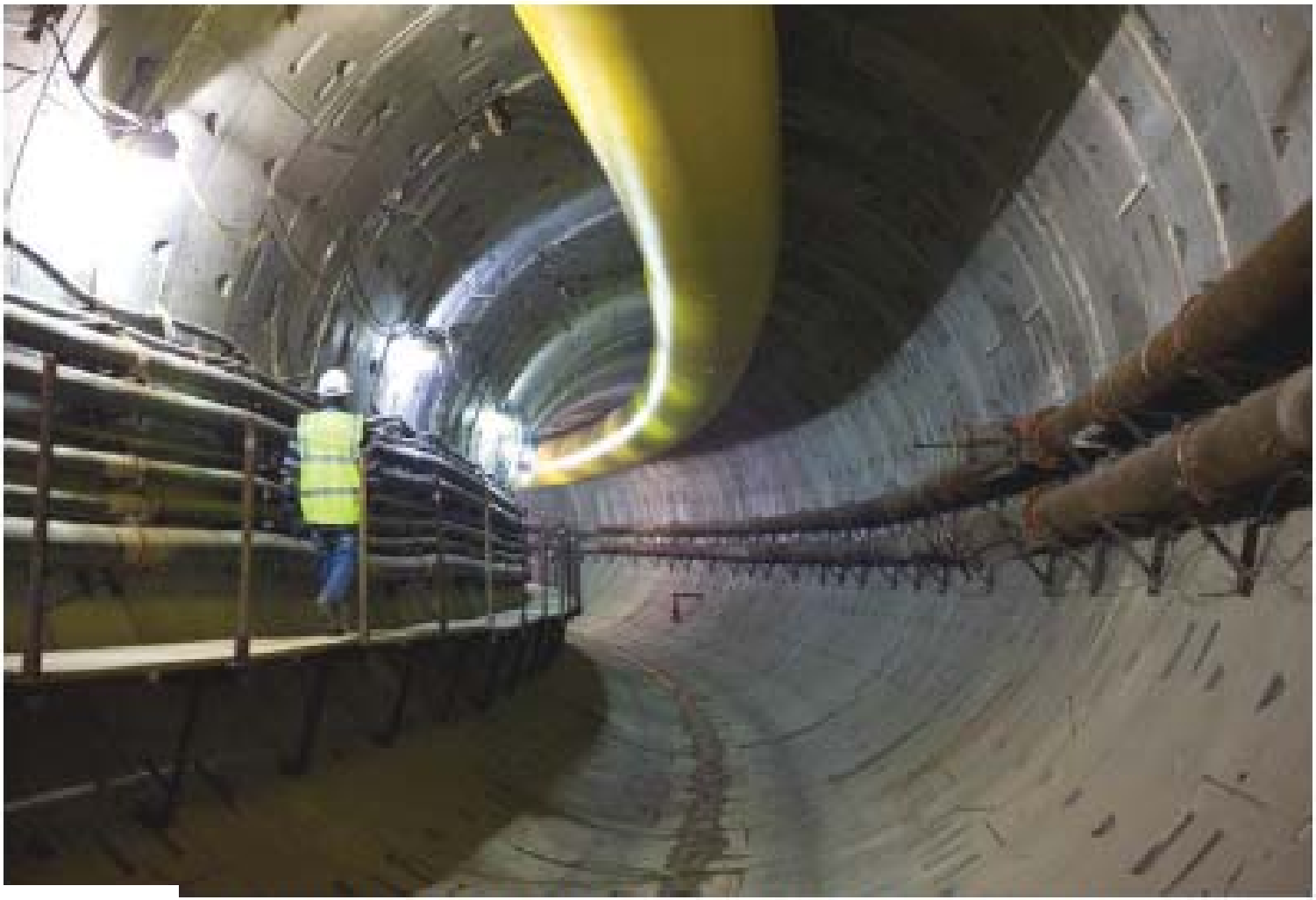


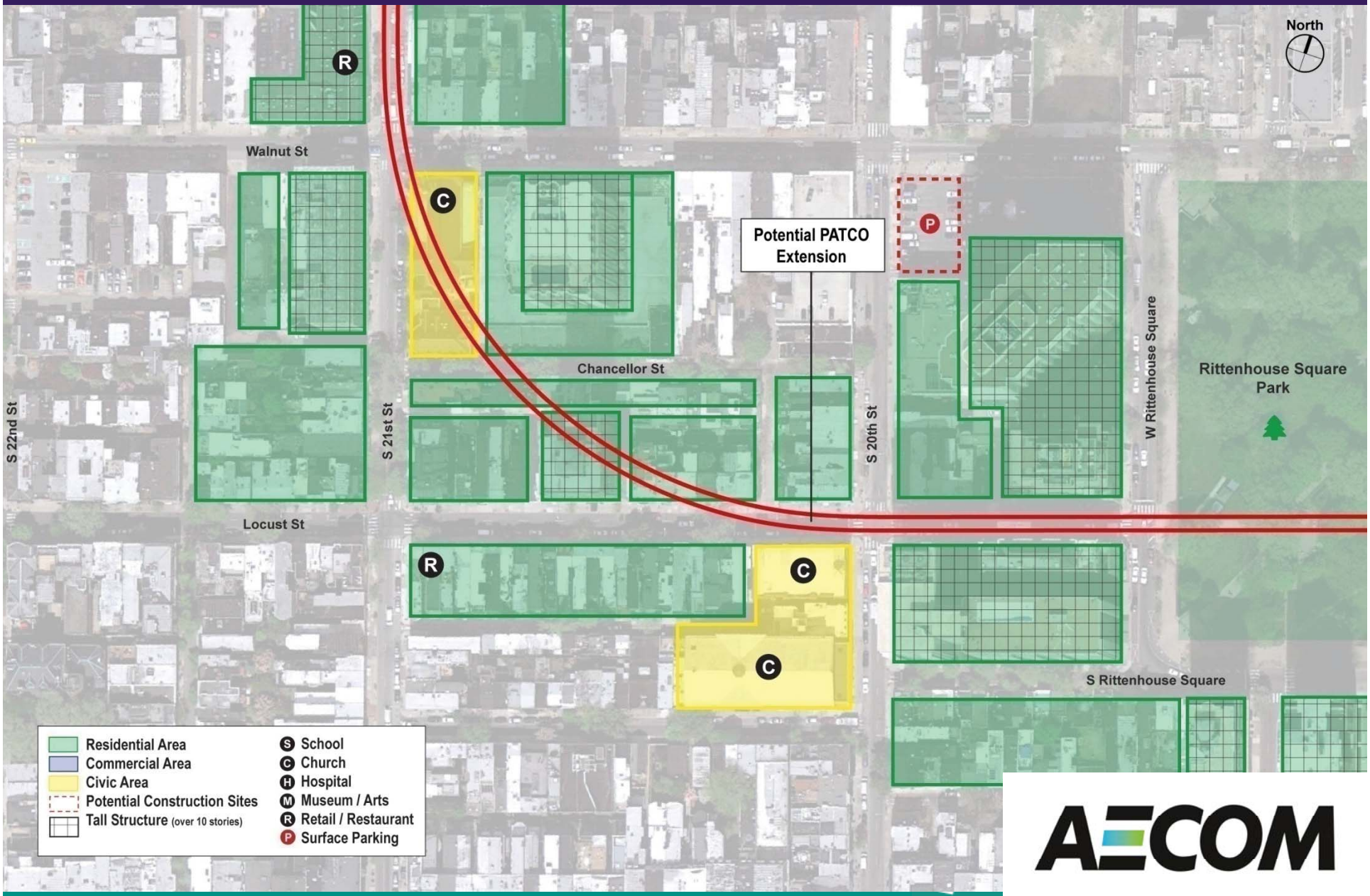
Figure 4: One-Pass Pre-cast Concrete Segmental Lining

(North Shore Connector LRT in Pittsburgh Designed by AECOM)

AECOM

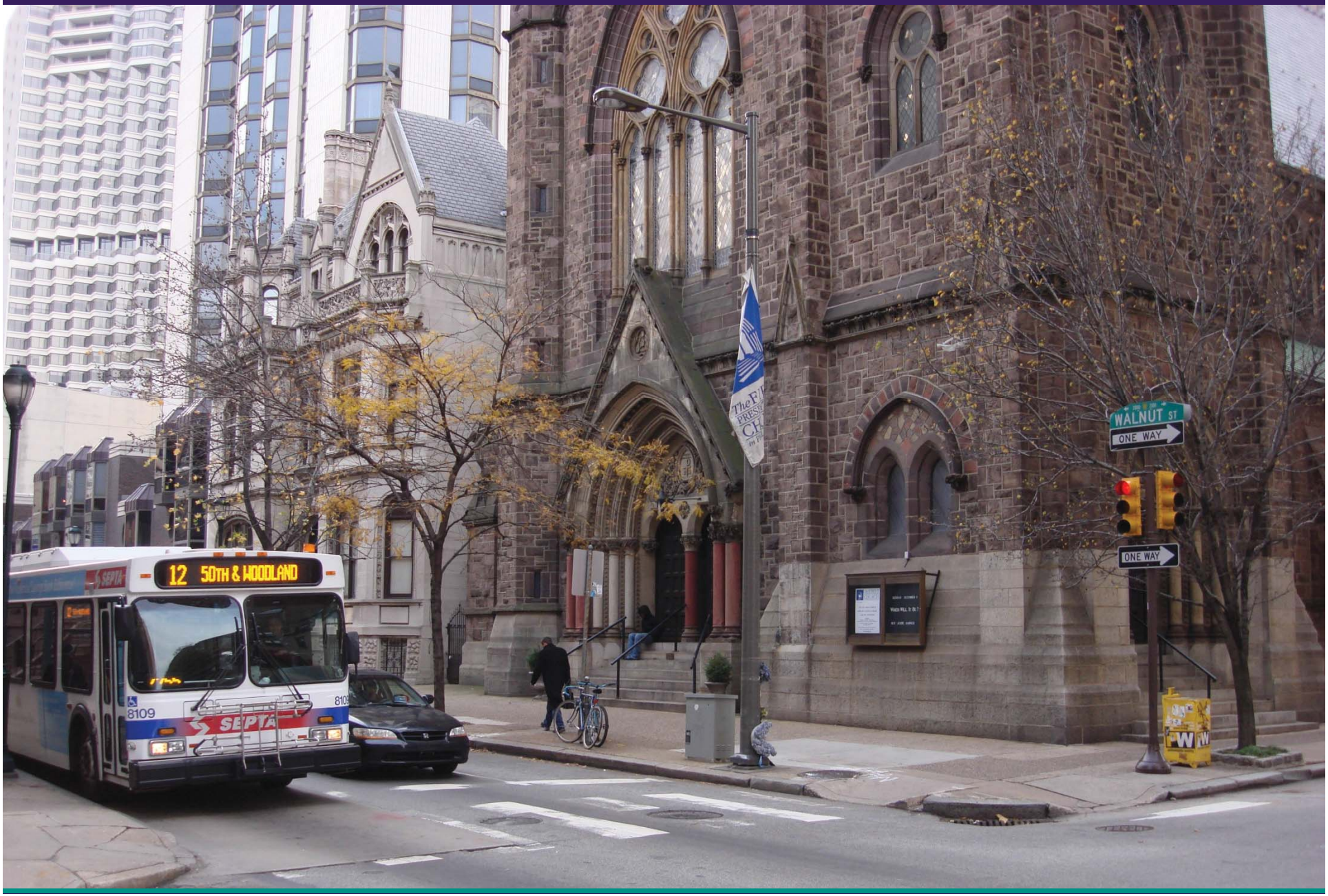
View looking east on Locust to Rittenhouse Square

Pass under Square & beneath building foundations



AECOM

Substantial number of historic buildings



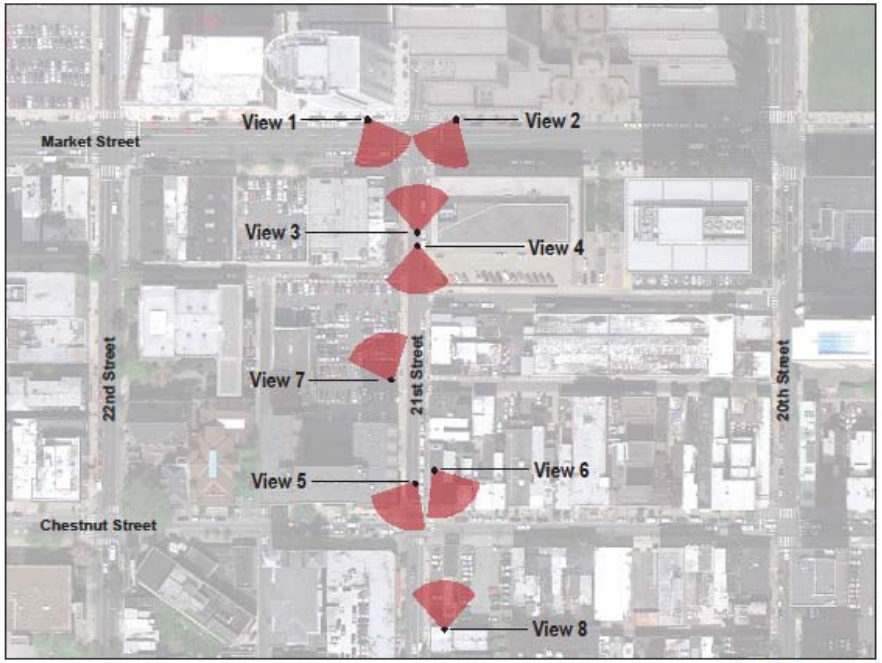
View 1

View 2

View 3

View 4

View 5



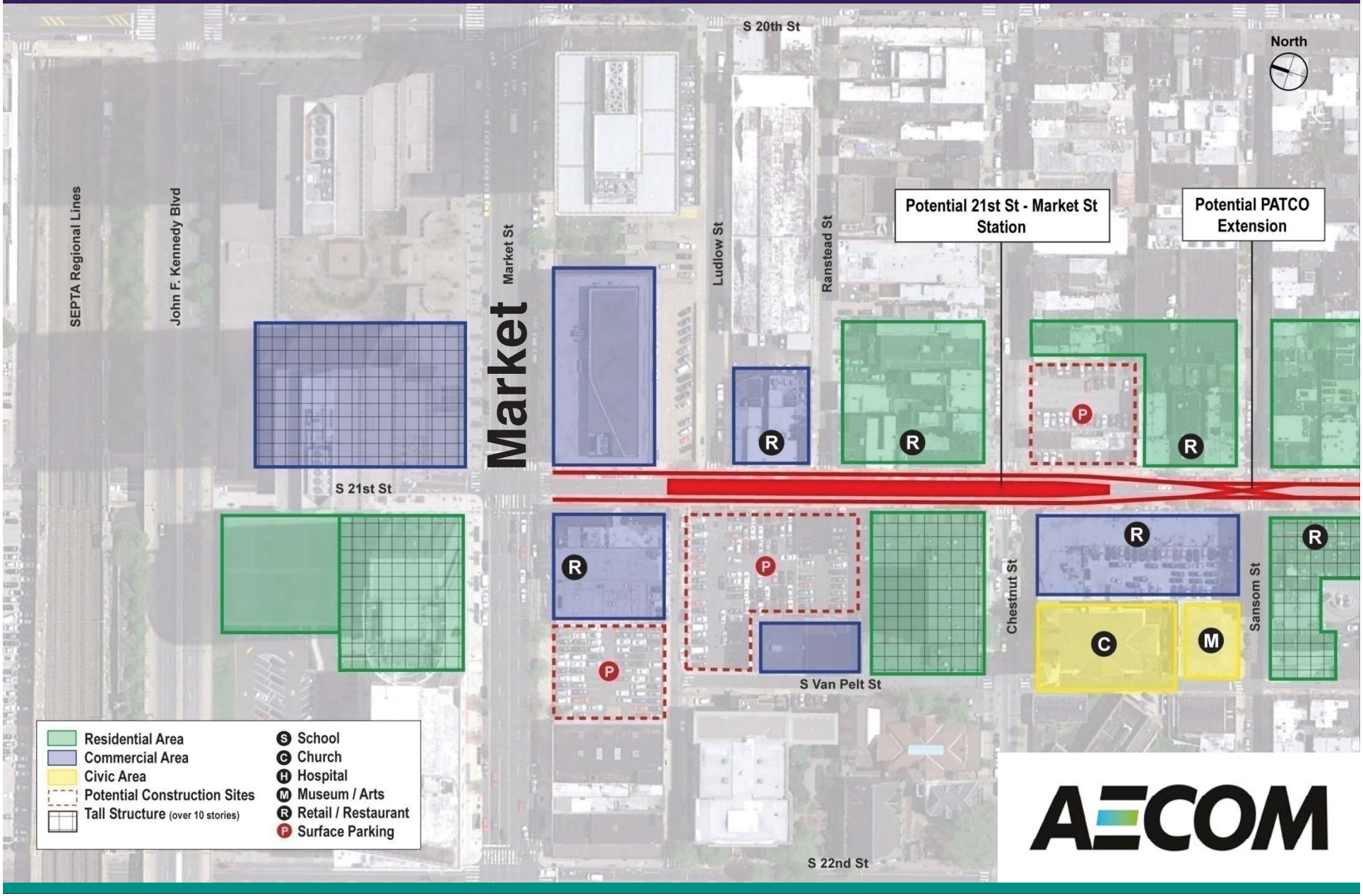
Site Perspectives

View 7

View 6

View 8

Coming north on 21st street just south of Market

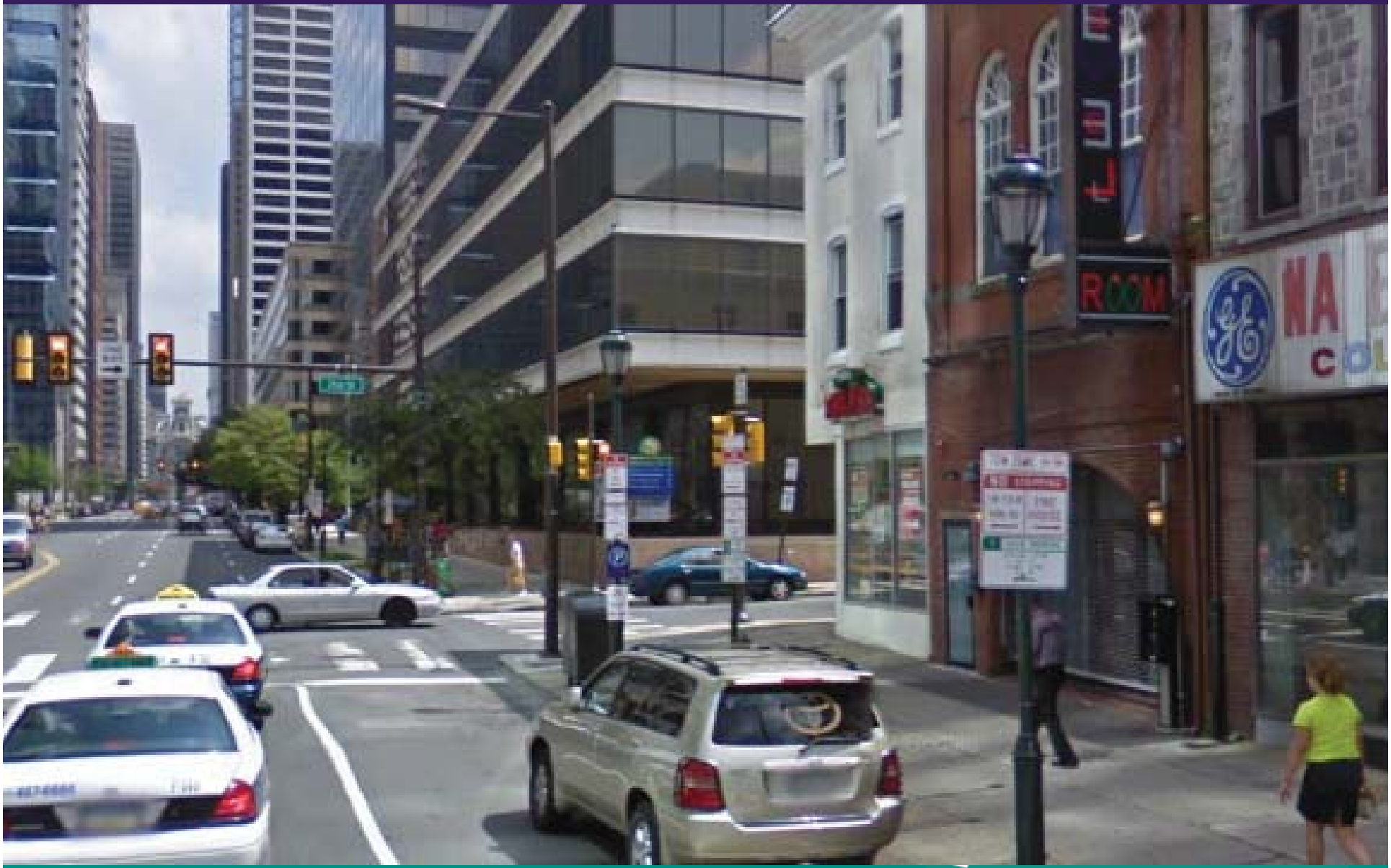


AECOM

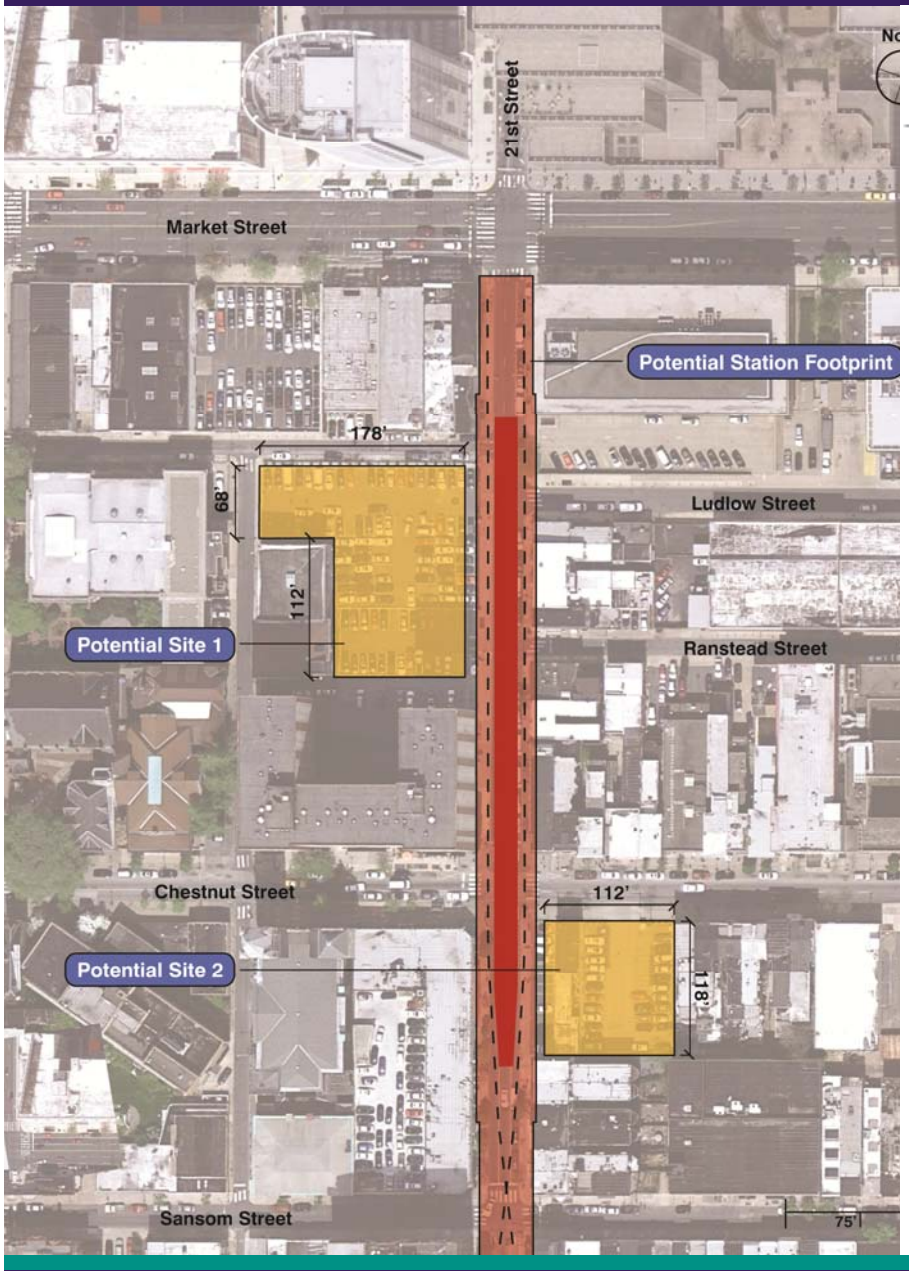
View looking south on 21st Street

AECOM

21st & Market Street



Potential station entrance locations & cross-section



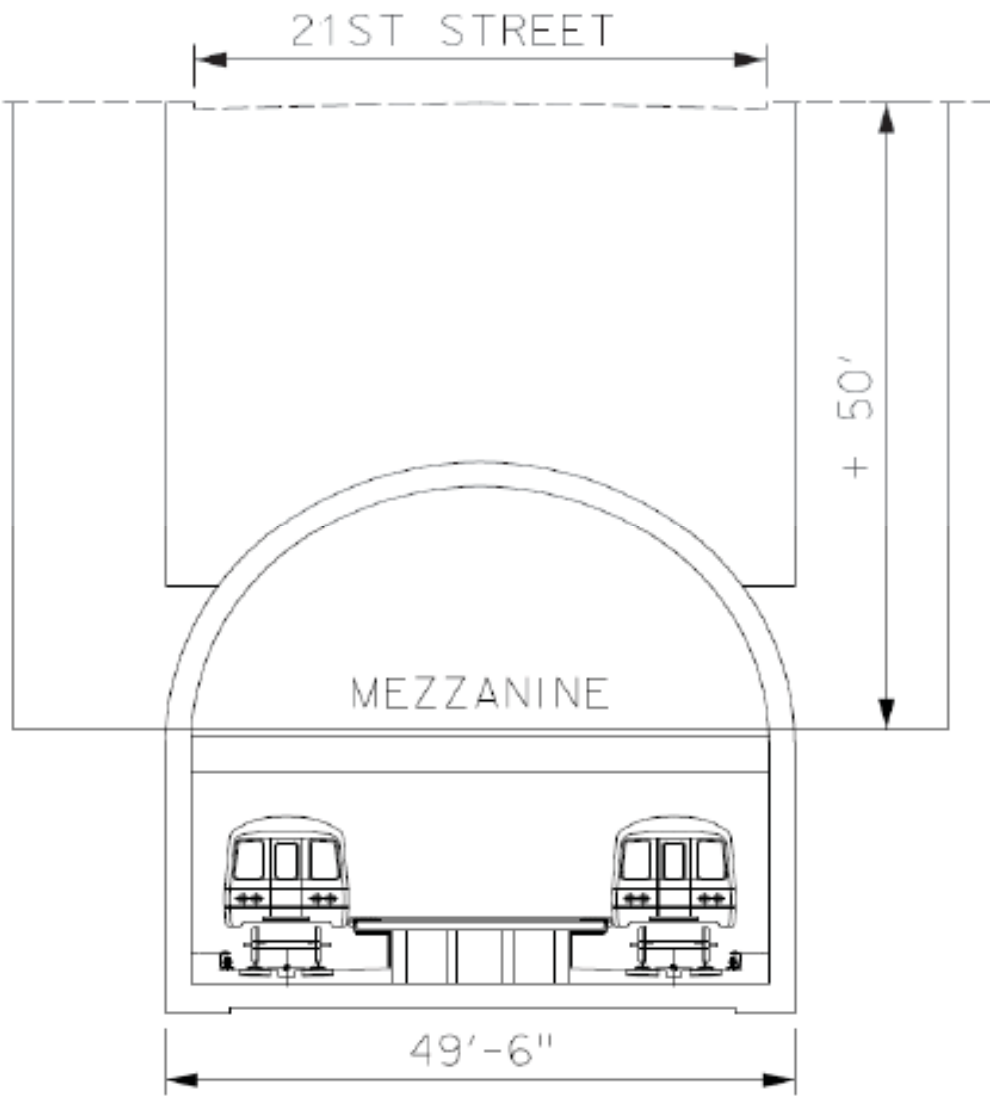


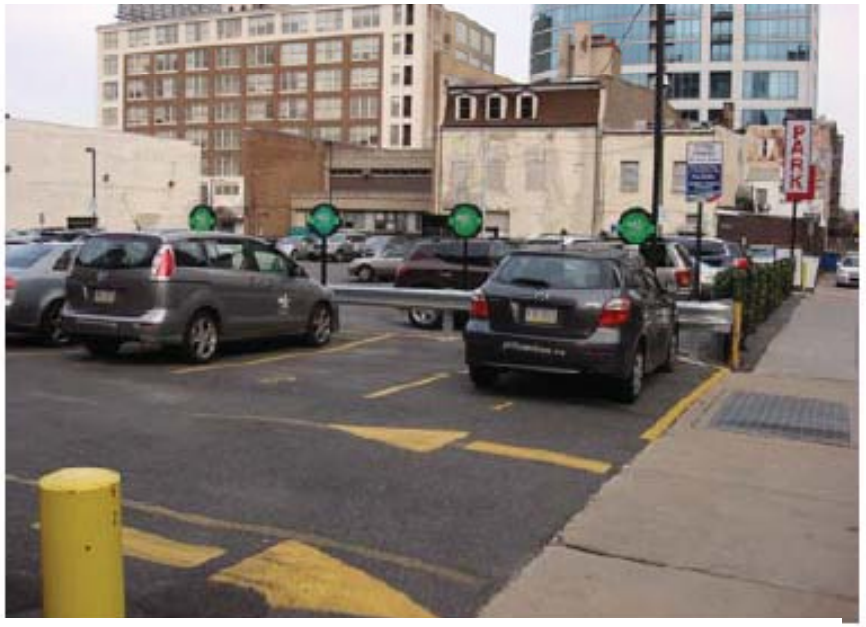
Figure 9: Concept Station Cross Section along 21st Street

Potential station locations

- **Existing parking lots on 21st Street provide opportunities for station entrances, ancillary facilities, and construction staging areas.**

- **Depth of Station would require off-street entrances with escalators and elevators that provide overbuild opportunities.**
  - **Two adjacent lots midblock between Market and Chestnut Streets**
  - **Parking lots & adjacent small commercial building on southeast corner of Chestnut St.**

Chestnut & 21st, Southeast corner



21st, between Market & Chestnut Streets

Station entrance options: free-standing in a plaza

AECOM

Cut-out in building fabric

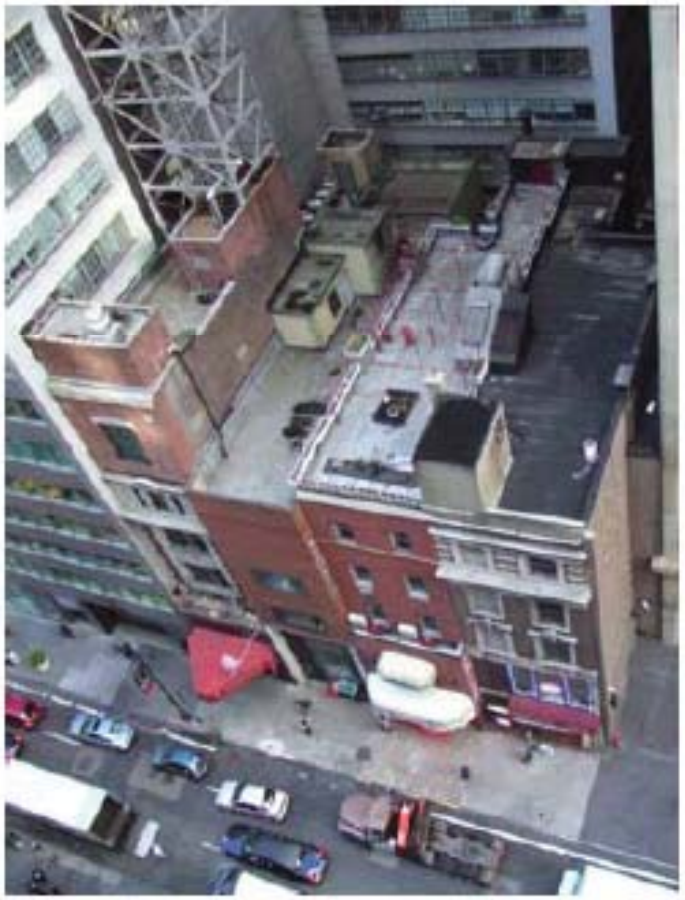


Figure 11: 50th Street - Before

Figure 12: 50th Street - After

Placed into a new park

Figure 13: 50th Street Ventilation Facility with Park

Incorporated into building's first floor

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Attached to existing building

AECOM

Order-of-Magnitude Cost Estimate

SECTION BREAKOUT COSTS	TOTALS
INITIAL WORK (SITE UTILITIES & HEAVY CIVIL)	
Utilities and Maintenance/Protection of Traffic	$24,460,000
Geotechnical	$5,000,000
Cavern Construction and Support	$158,106,100
TUNNELING (EXCAVATION, LINING, & DOSPOSAL)	$55,191,200
STATION (STRUCTURAL & ARCHITECTURAL)	
Station	$146,818,608
Entrances	$57,718,608
Ancillary Building for ventilation	$60,068,608
TRACK, SIGNAL, POWER, COMM & MEP	$69,535,980
TOTAL PROJECTED DIRECT CONSTRUCTION	$576,899,105
CONTINGENCY - 30%	$173,069,732
SUBTOTAL, CONSTRUCTION	$749,968,837
SOFT COSTS - 32.5% (ENGINEERING, PROGRAM MGT, PERMITTING, CONST MGT, SURVEY, INSURANCE, ENVIRONMENTAL)	$243,739,872
GRAND TOTAL, PROJECTED PROJECT COST	$993,708,708

Order-of-Magnitude Cost Estimate

SECTION BREAKOUT COSTS	TOTALS
INITIAL WORK (SITE UTILITIES & HEAVY CIVIL)	
Utilities and Maintenance/Protection of Traffic	$24,460,000
Geotechnical	$5,000,000
Cavern Construction and Support	$237,719,280
TUNNELING (EXCAVATION, LINING, & DOSPOSAL)	$55,191,200
STATION (STRUCTURAL & ARCHITECTURAL)	
Station	$146,818,608
Entrances	$57,718,608
Ancillary Buildings	$60,068,608
TRACK, SIGNAL, POWER, COMM & MEP	$69,535,980
TOTAL PROJECTED DIRECT CONSTRUCTION	$656,512,285
CONTINGENCY - 30%	$196,953,686
SUBTOTAL, CONSTRUCTION	$853,465,971
SOFT COSTS - 32.5% (ENGINEERING, PROGRAM MGT, PERMITTING, CONST MGT, SURVEY, INSURANCE, ENVIRONMENTAL)	$277,376,440
GRAND TOTAL, PROJECTED PROJECT COST	$1,130,842,411

The Fiscal Impacts of a Transit Stop at 22nd & Market Streets

ECONSULT CORPORATION®

Member of the Econsult/Fairmount Group

CENTER CITY DISTRICT

Project Background

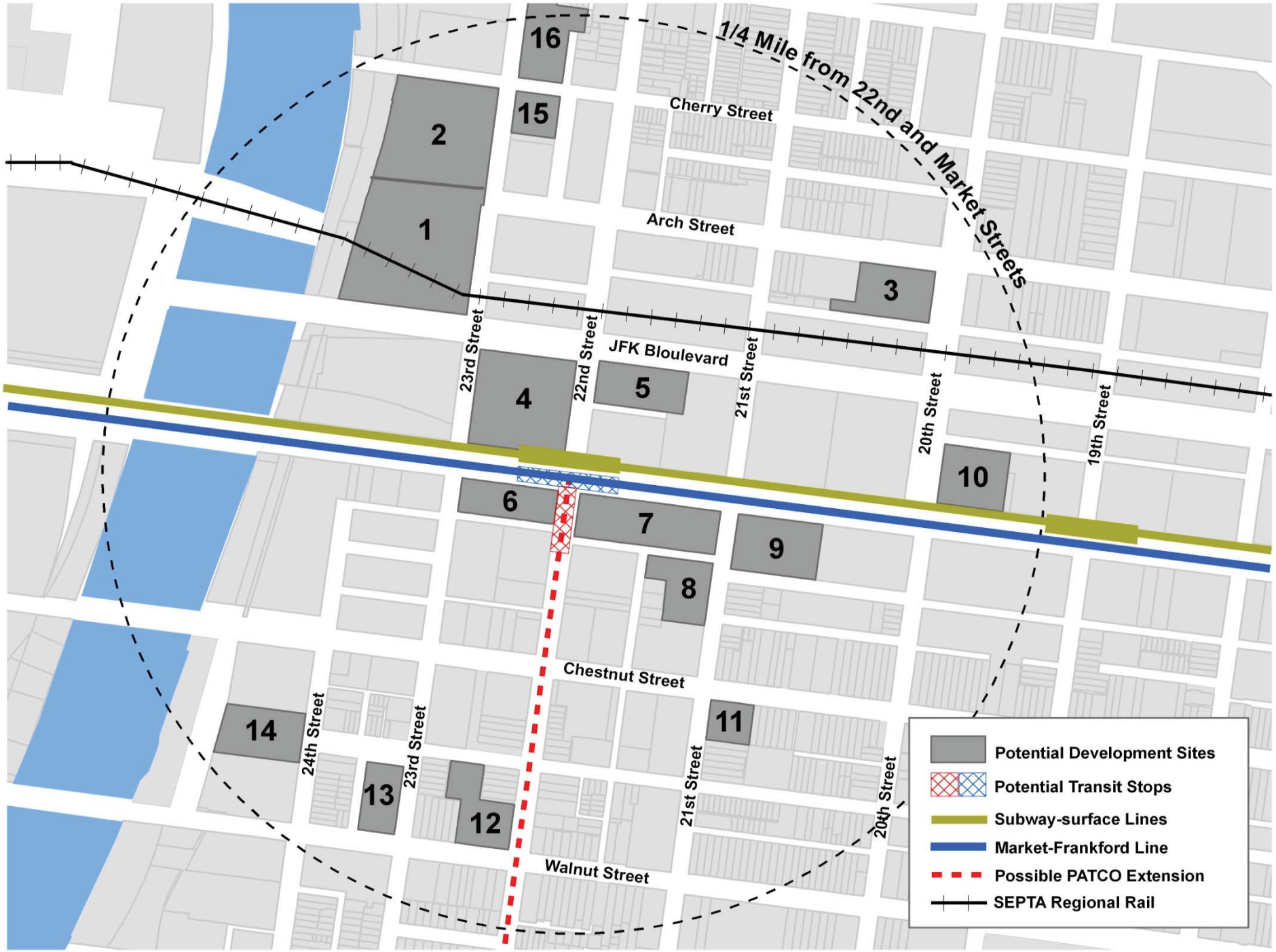
Development around 22nd and Market has lagged behind the rest of Center City.

The lack of MFL Stop is usually cited as one of the main causes.

Econsult was tasked with analyzing the development potential and fiscal impacts of a new transit stop at 22nd and Market Streets.

Travel Time Savings

Trip	Effect	Trips Per Day	Percent Affected	Affected Trips	Time difference per trip (sec)	Change in travel time (hours per day)
Eastbound						
El From 30th to 15th and beyond	Almost all slowed down	22,000	75%	16,500	-50	-229
El to 30th, transfer to SS	Almost all sped up	2,012	75%	1,509	164	69
Westbound						
El from 15th to 30th and beyond	All slowed down	27,000	75%	20,250	-50	-281
El to 13th, transfer to SS	Almost all sped up	10,324	52%	5,383	188	281
PATCO to 15/16, walk	some sped up	13,578	20%	2,716	310	234
Total						73
Value of one hour saved for an individual (1/2 wage)						$8.75
Total change in value of time per day						$641
Days per year (Assumes Saturday + Sunday = 1 workday)						300
Annual value						$192,342


1/4 Mile from 22nd and Market Streets
Cherry Street
Arch Street
JFK Bloulevard
23rd Street
22nd Street
21st Street
20th Street
19th Street
24th Street
Chestnut Street
Walnut Street
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Potential Development Sites
Potential Transit Stops
Subway-surface Lines
Market-Frankford Line
Possible PATCO Extension
SEPTA Regional Rail

Current Development Conditions

Within a ¼ of the proposed station

- Currently developed at a FAR of 3.59
  - The area around Broad and Walnut has a FAR of 5.99

- There are a number of unutilized or underutilized parcels
  - 16 parcels with over 600,000 ft^2 of developable land
  - The 16 parcels currently have 220,000 ft^2 of development
  - The 16 parcels have a current FAR of 0.4

Development Scenarios

Scenario	New Development (million ft^2)	FAR	Timing
Optimistic	7.5	5.89	400 new residential units/year 1 new office building/3 years
Base	3.54	4.71	200 new residential units/year 1 new office building/5 years
Conservative	1.35	4.03	50 new residential units/year 1 new office building/10 years

Conclusions

Travel time benefits are negligible

Present value of the fiscal impacts is well in excess of $130 million

Does not include an estimate of the fiscal impacts to the State – only the City

This implies that a project around $260 million is justifiable, provided the federal government funds at least half the costs.

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Comparisons

$130 million in tax impact; 50% federal match
we can afford a $260 million transit investment

$335 million is the price tag for subway station

$1 billion is price tag for PATCO extension

Federal funding for infrastructure changes the equation; 2012: stopped pursuing - Dilworth

Option 3: Enhance subway-surface & subway lines

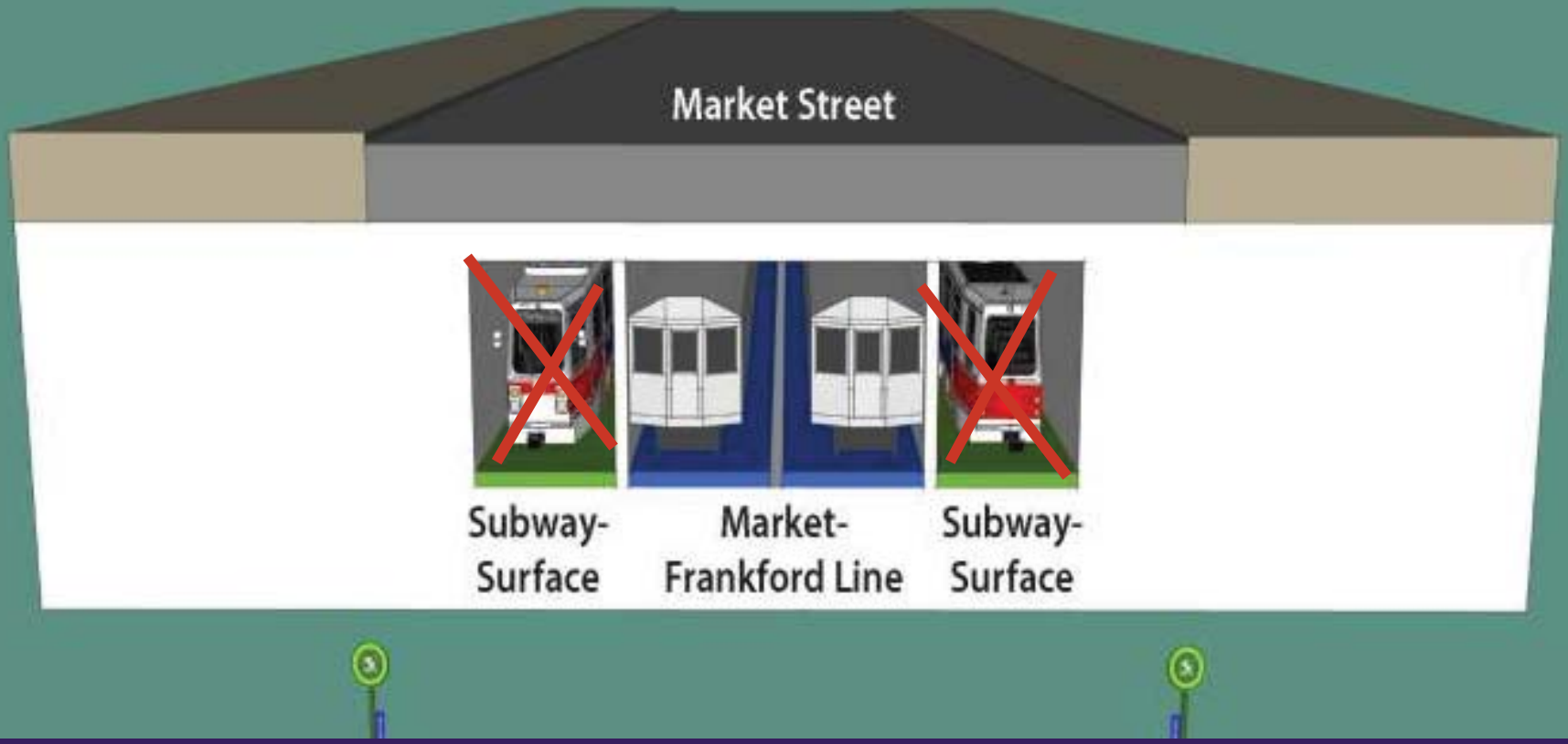
CENTER CITY DISTRICT

With new transit signs + real time information

CENTER CITY DISTRICT

CENTER CITY DISTRICT

What if the trolleys came out of the tunnels and the space was used for platforms?



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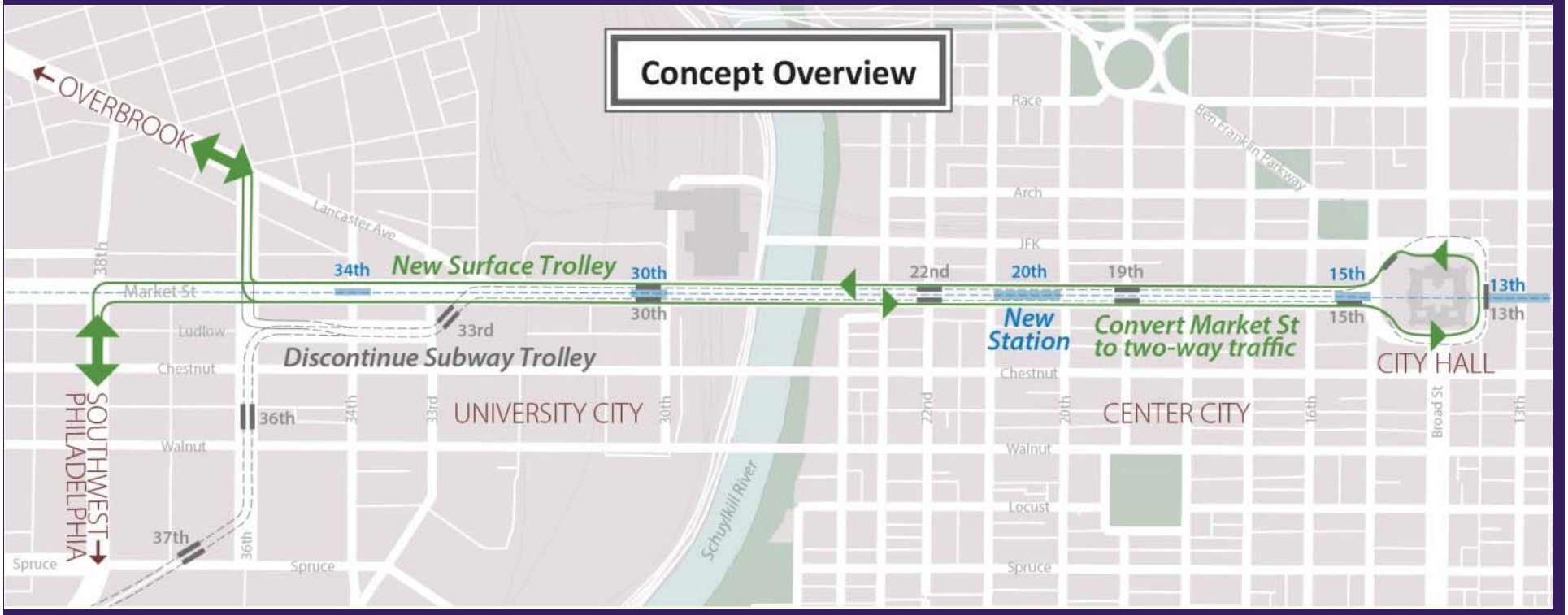
Concept

Reroute Trolleys to a New Surface Alignment on Market Street

- Modern Streetcars
- Dedicated Transit Lane
- Traffic Signal Improvements
- Streetscape Improvements

Construct New Market-Frankford Line Station Platforms in Vacated Trolley Subway Space



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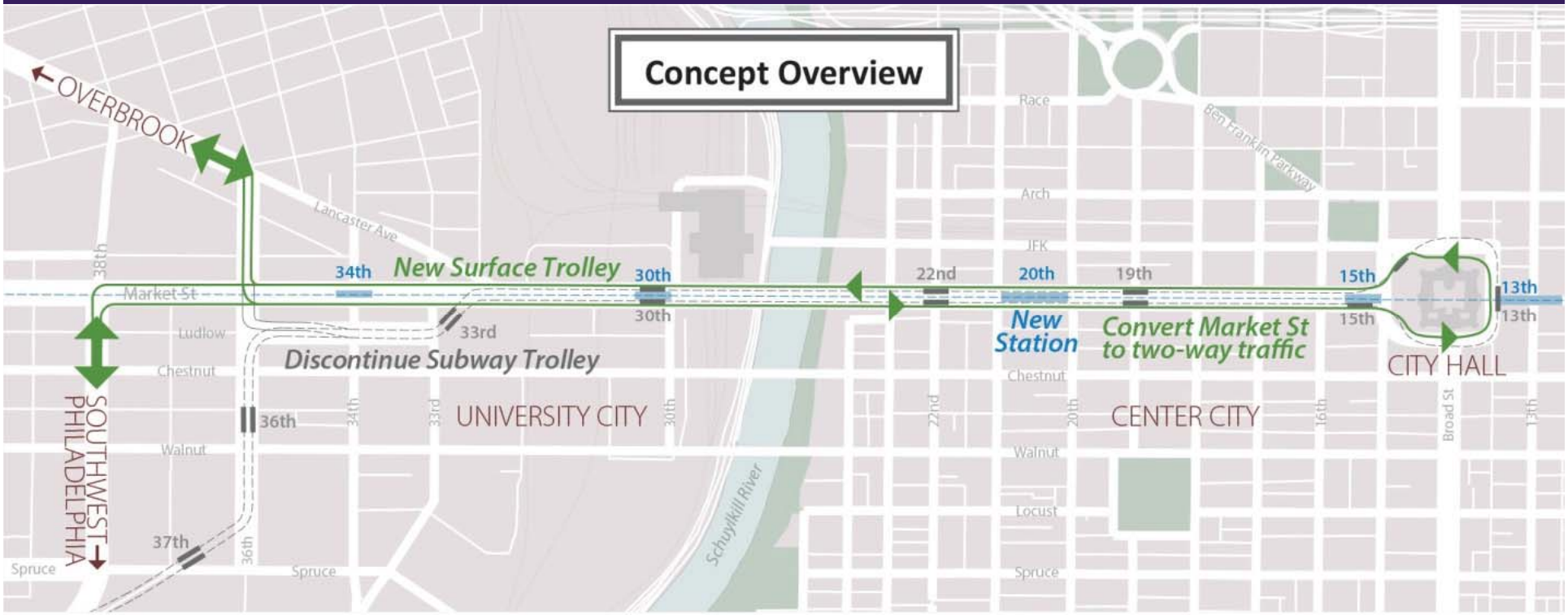
Concept



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Trolley Routing Options
West Philadelphia

Via Existing Diversion Trackage

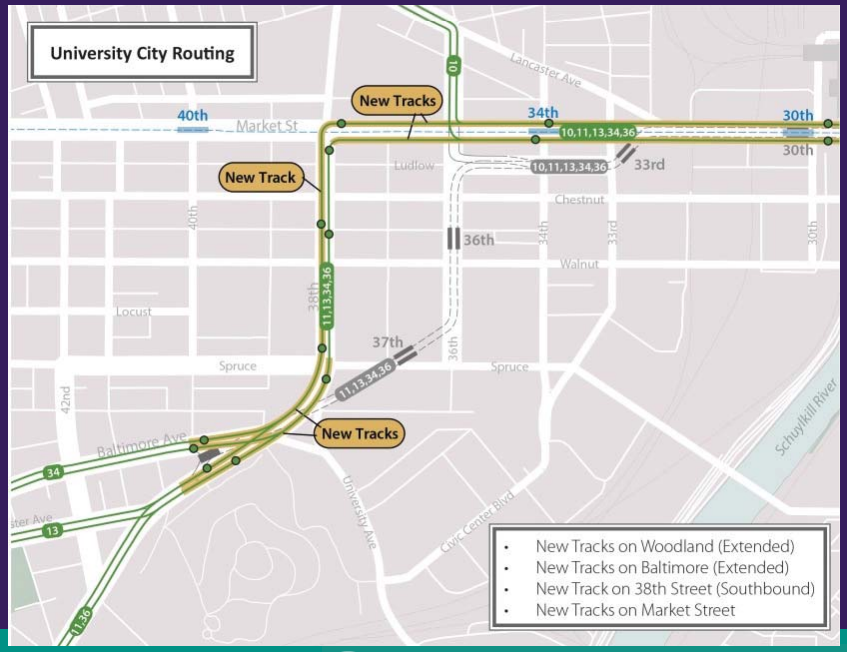
Uses Mostly Existing Trackage via Spruce and 42nd Streets.

Traverses More Intersections

Via Direct Connection

New Trackage on Baltimore and Woodland Ave to 38th Street

Shorter Distance and Fewer Intersections and Turns



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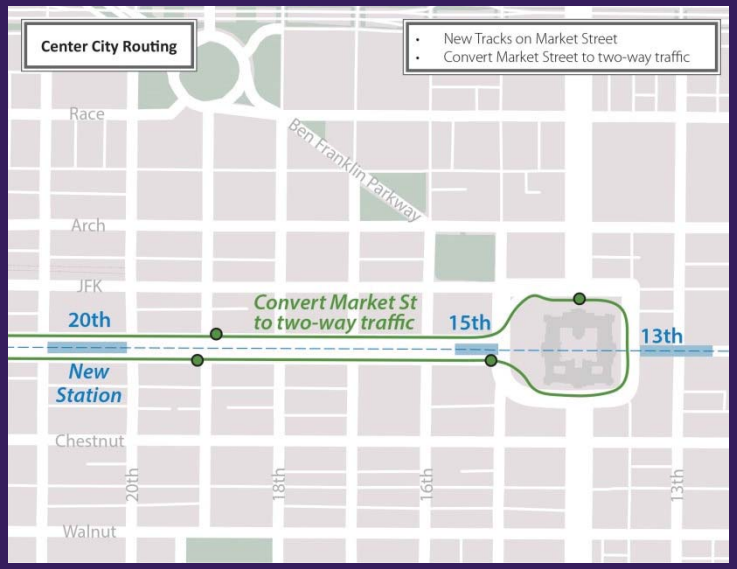
Trolley Routing Options
Center City 20th to 15th Streets

Market Street Options

Two Way Trolley and EB Buses

Two Way All Traffic

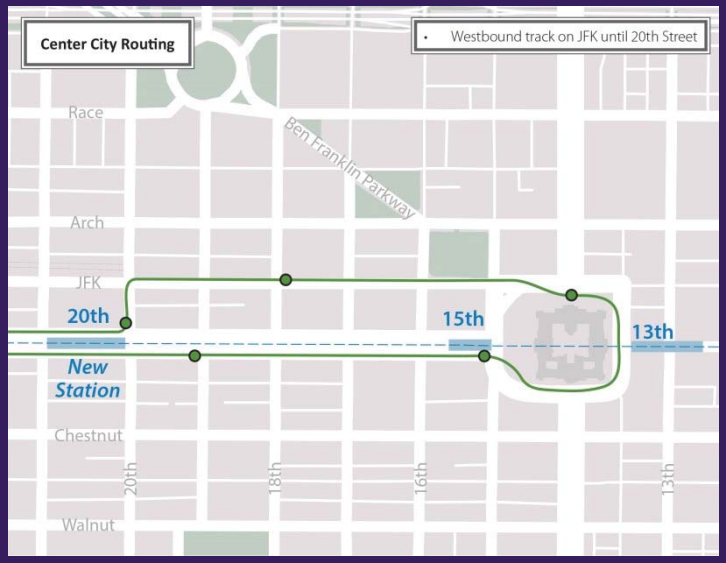


Market Plus JFK Options

Two Way Trolleys on Market and Two Way Buses on JFK

EB Trolleys and Buses on Market & WB Trolleys and Buses on JFK

Additional Traffic and Turning Movements at 20th Street



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Directional Options for Dedicated Lanes

Normal Flow

More Difficult to Enforce - Easier for Other Vehicles to Encroach on and Use Transit Only Lanes

Contraflow

Self Enforcing – Other Vehicles Cannot Easily Use

Allows Center Platforms with Center of Street Operation

Safety Issue for Pedestrians Not Expecting Two Way Movements on Otherwise One Way Street

Track Location Options

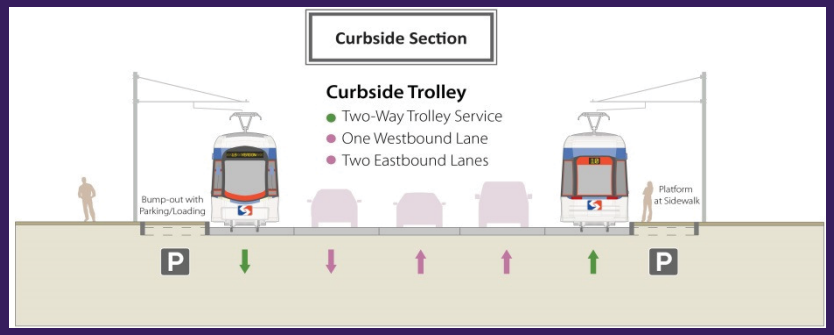
Curbside

Uses Sidewalk Area for Platforms

More Pleasant Area to Wait

Numerous Conflicts with Right Turns, Loading Zones, Driveways, Etc.

More Utility Modifications



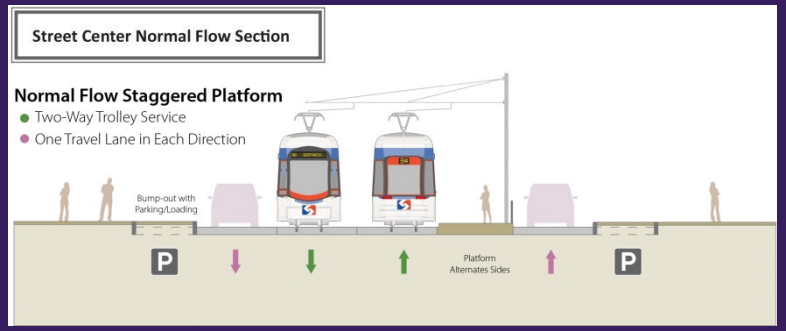
Center of Street

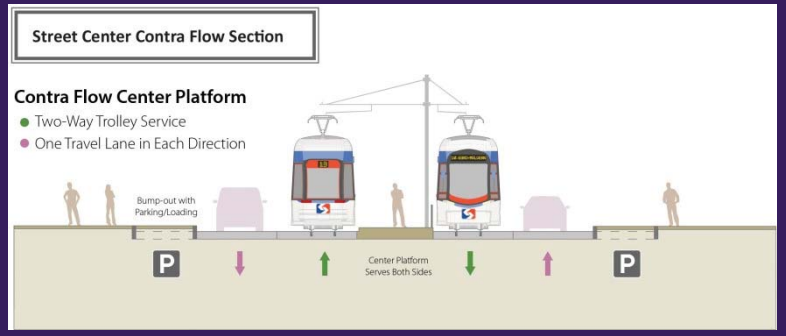
Additional Cartway Space Needed for Platforms

Less Pleasant Waiting Area

Conflicts Only with Left Turns – Easy to Prohibit

Fewer Utility Conflicts





(4) Green & enhance bicycle infrastructure

MARKET JFK STREETSCAPE

MARKET ST

SEPTEMBER 2010

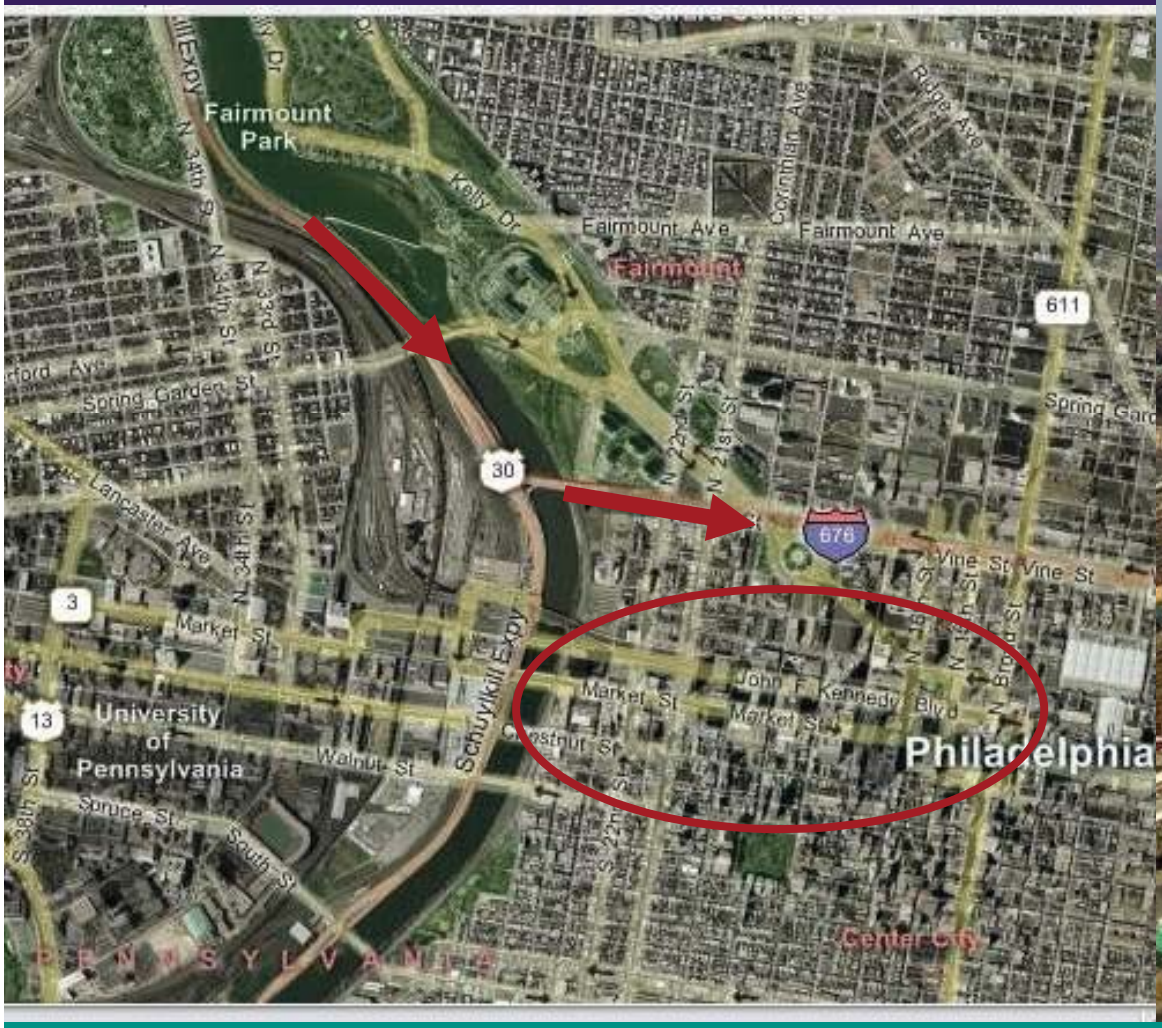
STUDIO BRYAN HANES

Conceptual design complete:

MARKET JFK STREETSCAPE
MARKET ST

SEPTEMBER 2010
STUDIO BRYAN HANES

Improve connections from Schuylkill Expressway



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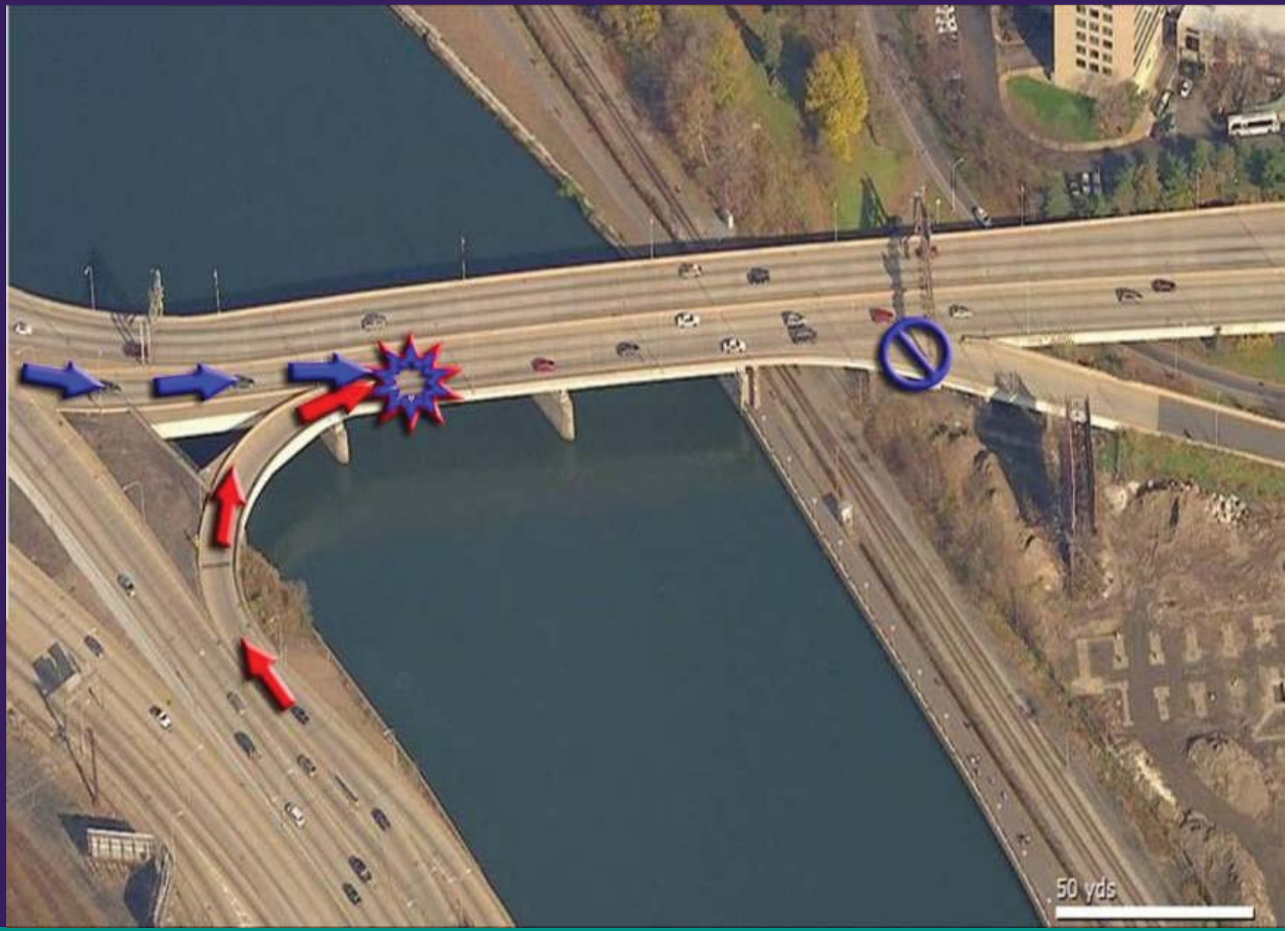
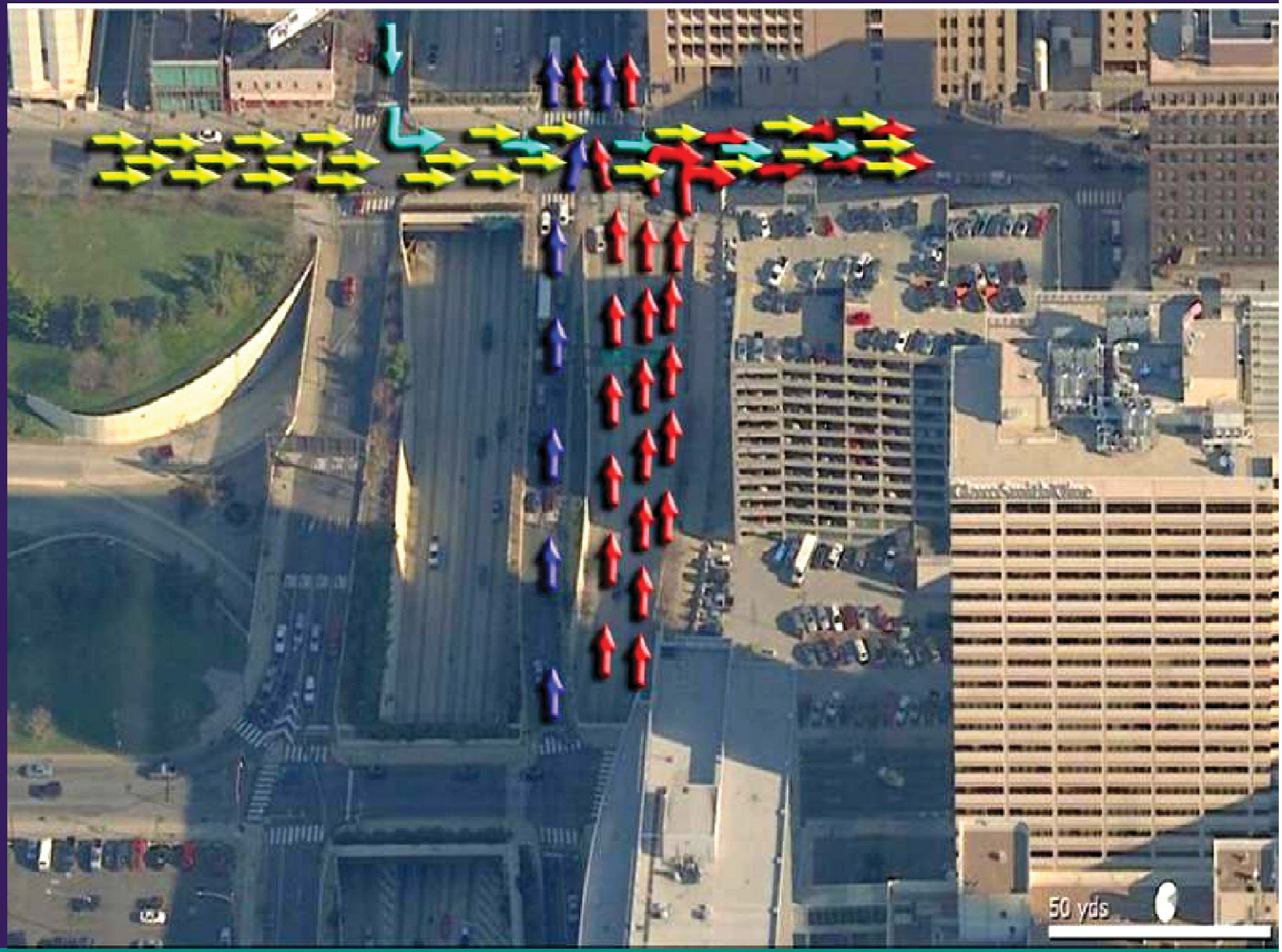
22nd Street off-ramp difficult to use

CENTER CITY DISTRICT

Conflict with north bound off-ramp



15th & Vine congestion/gridlock



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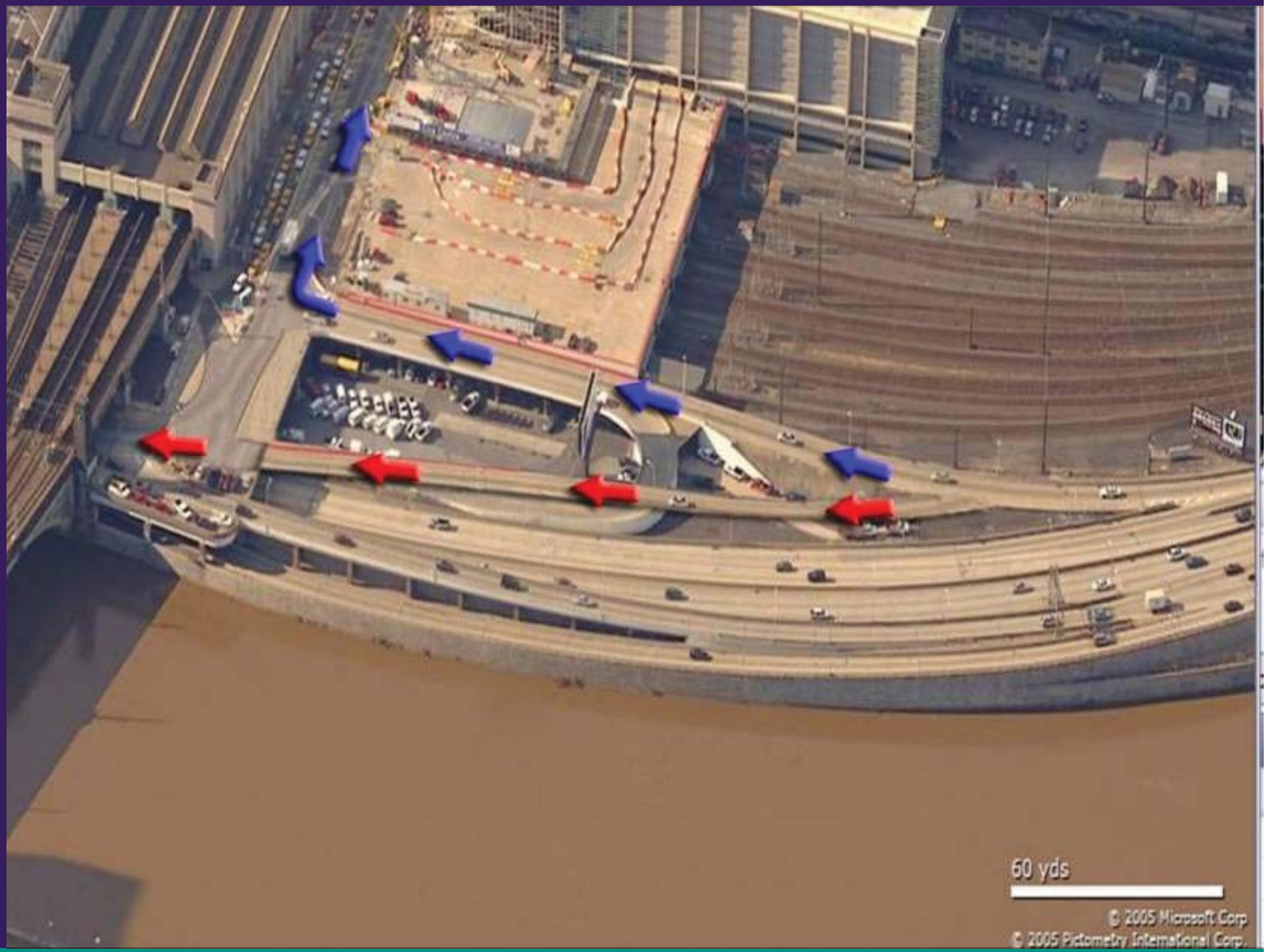
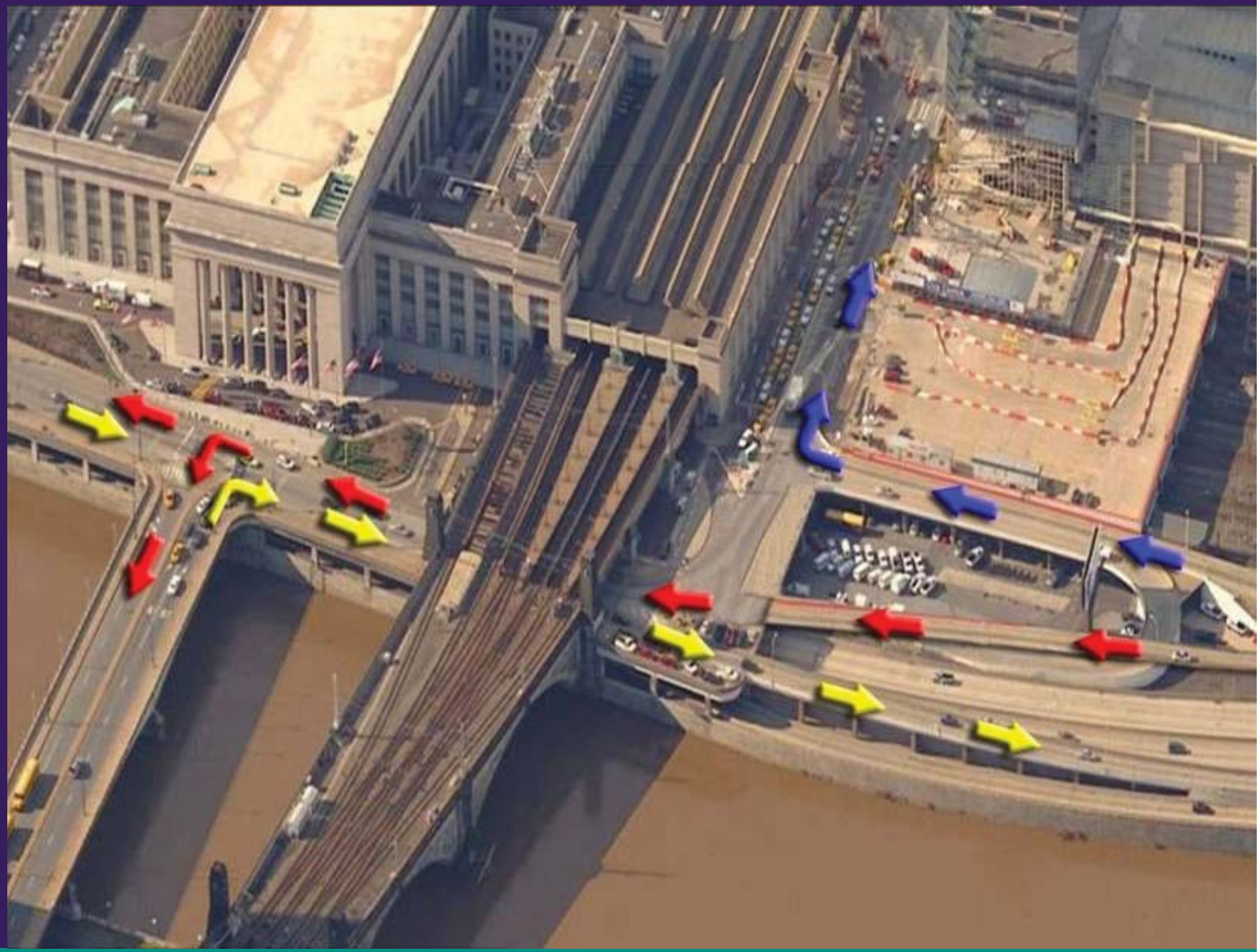
Proposal : Realign 30th Street off-ramp



Make 29th Street/Schuylkill Avenue Two-Way



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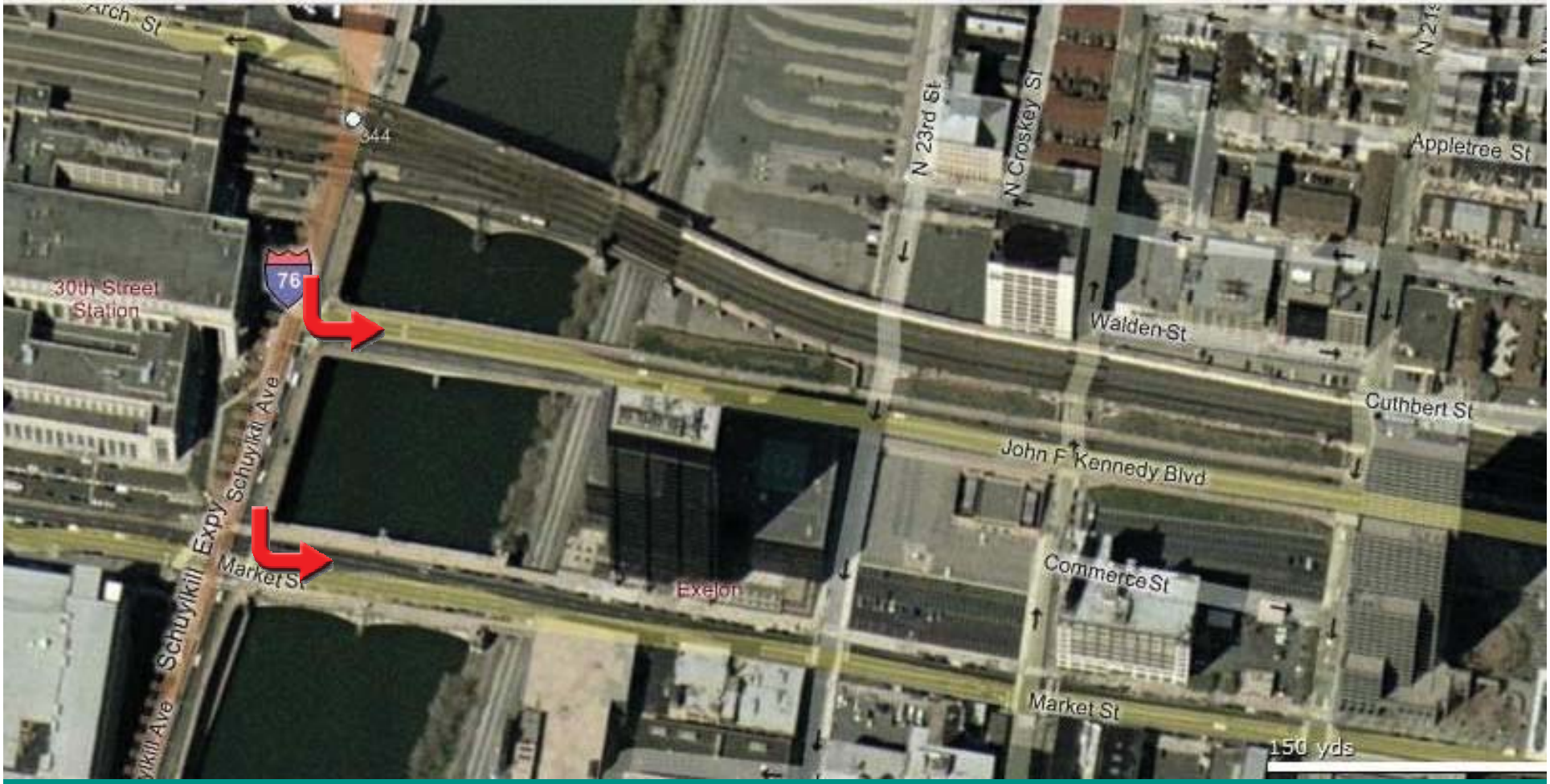
Enable left-turn onto JFK or Market Street



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Provide greater connectivity to West Market:

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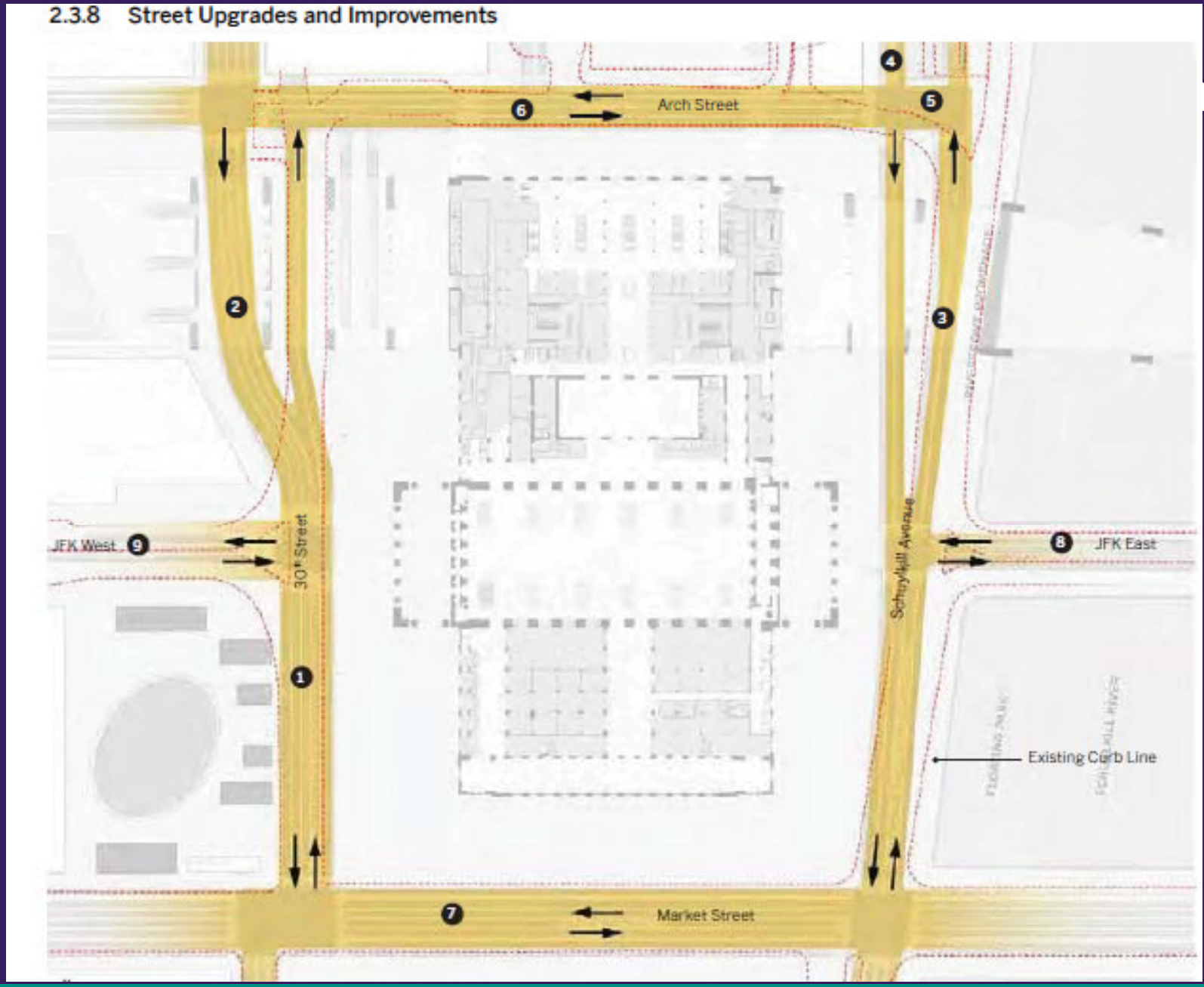
2.3.8 Street Upgrades and Improvements



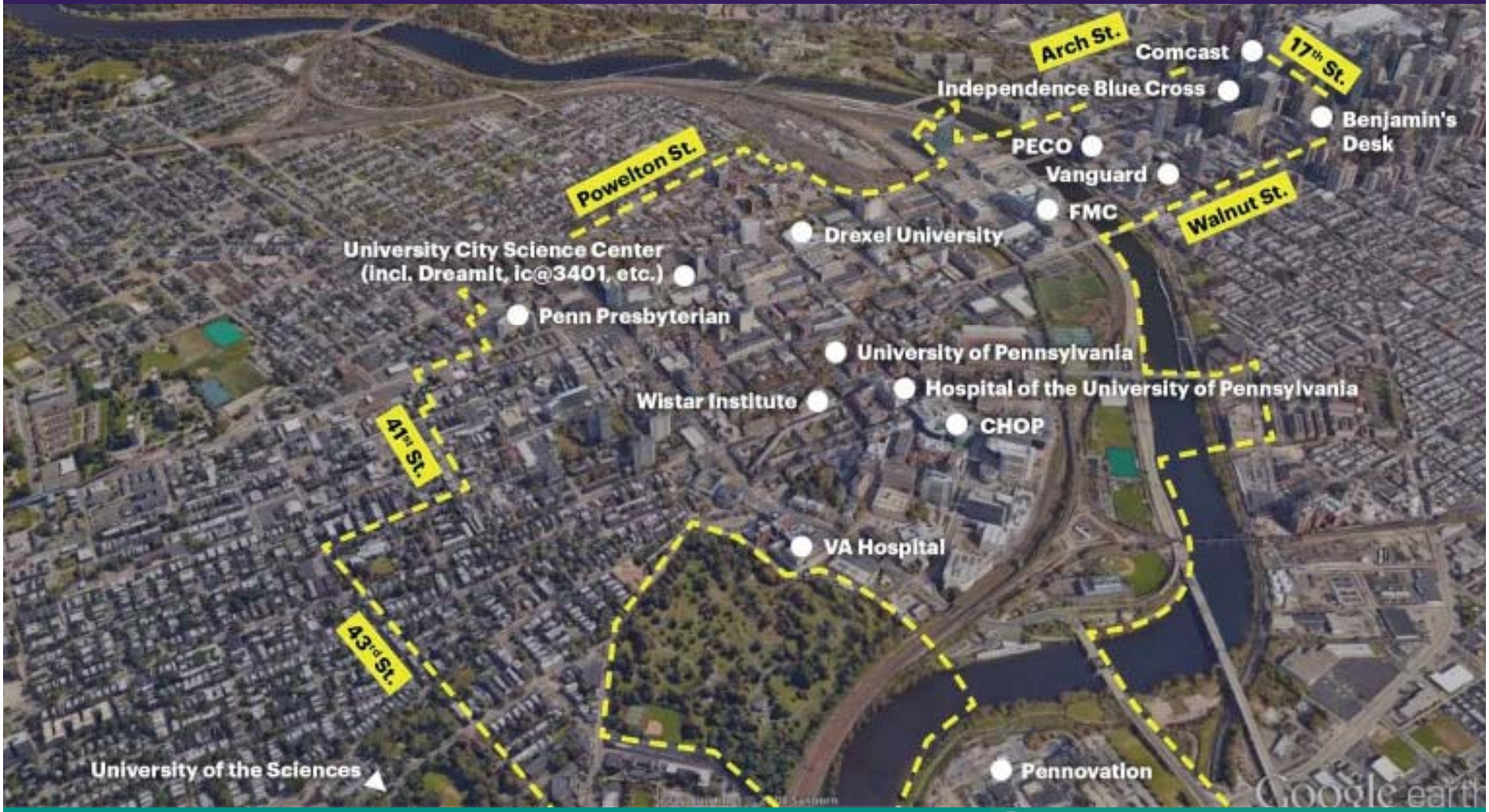
rket:

Levels of intervention:

1. BID services supplement municipal services: clean & safe
2. Communications/promotions to attract development
3. Streetscape enhancements
4. Place specific tax incentives (TIF)
5. Direct construction subsidies; state RACP
6. Condemnation/Compulsory Purchase
7. City-wide tax policies/incentives
8. Infrastructure investments that alter competitive positioning

Goal: Private market redevelopment

Brookings Innovation District



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