



SEPTA  
REGIONAL RAIL  
CENTER CITY  
STATIONS FARELINES  

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CONCEPTUAL DESIGN  
MAY 25, 2010



## SEPTA DESIGN OBJECTIVES

### METHODOLOGY AND OUTCOME

#### 1. Goals and Objective

The purpose of this report is a conceptual design study of implementing fare control devices to (5) five existing SEPTA stations. These stations were not designed with consideration to future division of existing concourses or platforms into Paid/Unpaid areas or the utilization of fare control system.

The five stations; Market East, University City, Temple University, 30<sup>th</sup> Street and Suburban Station each have unique conditions and patterns that are addressed in this report based on the following criteria:

- Level of Service design concept established by John Fruin.
- Applicable Building Codes and NFPA considerations.
- Current pedestrian flows and behaviors.
- SEPTA's operational requirements.

#### 2. Design Methodology Summary

The Design Methodology consisted of:

- Design sessions with the consultant team and Septa representatives.
- Establishment of baseline requirements in accordance with accepted industry standard Level of Service considerations and applicable Building Codes.
- Maintenance of the existing levels of service and egress at the five stations.
- Division of existing concourses or waiting areas in "Paid" and "Unpaid" areas.

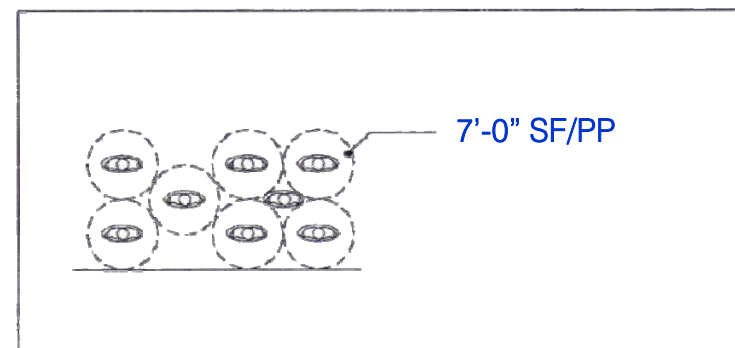
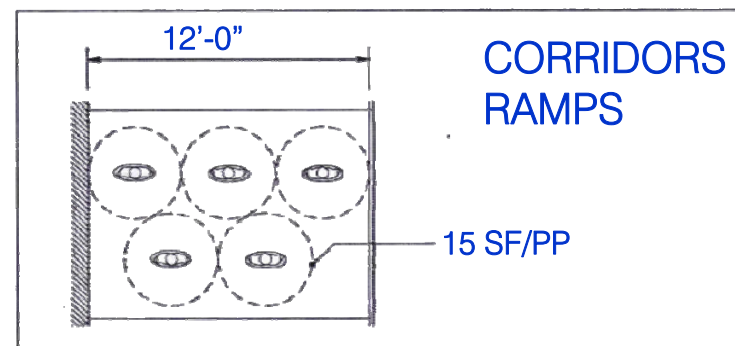
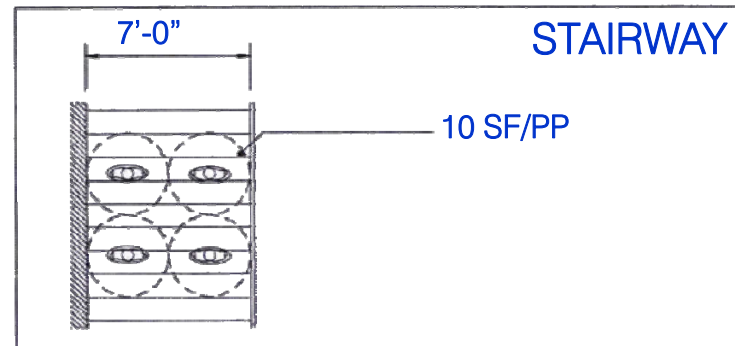
#### 3. Design Meetings Outcome

The design process consisted of (4) four design meetings with the SEPTA project team; (1) one meeting with SEPTA senior staff; and (1) one formal presentation to SEPTA board members. These meetings provided the design team with the following base design criteria:

- All paid zones will have at least one ADA fare device which will also accommodate passengers with baggage.
- (1) one doubled door service access gates will be provided at platform level at elevators; in order to accommodate regular maintenance and operation needs at platform level.
- SEPTA recommended that Pay on Foot/Ticket Vending Machines will be provided in all paid and unpaid areas. Locations are to be selected by SEPTA.
- Pay on foot machines/Ticket Machines should have 24 hours per day accessibility.
- SEPTA stated that each elevator area at platform level must have one ADA accessible fare device, one non ADA accessible fare device and one set of double doors or movable fencing/railing.
- SEPTA advised that one exit door on each enclosed paid area should be a double gate (6'-0" min. wide doors) at concourses and elevators. Movable fencing/railing may be used at elevators in lieu of double gates. This is required in order to allow access to fork lift and maintenance equipment.
- Surveillance cameras will be provided at elevator paid areas at platform level.
- SEPTA directed that a minimum of (2) two fare gates will be located at each paid area.

#### Future Actions:

SEPTA will define the quantity of Pay on Foot/Ticket Vending machines needed at each station. The railing/fencing aesthetical design will be finalized, in consultation with SEPTA's in house architectural team.



**LEVEL OF SERVICE C-D**  
**SPATIAL NEEDS DIAGRAMS**

**4. Level of Service Considerations**

"Level of service concept provides a useful model for the design of pedestrian spaces. Pedestrian service standards should, similarly, be based on the freedom to select normal locomotion speed, the ability to bypass slow-moving pedestrian, and the relative ease of cross-and-reverse-flow movements at various pedestrian traffic concentrations"  
-J. Fruin, Pedestrian Planning and Design

In our case the level of services provides a basis for assuring that existing services are maintained as new development is served.

John Fruin, in his book Pedestrian Planning and Design, notes a number of other attributes that facilitate walking. The attributes incorporated in our design were:

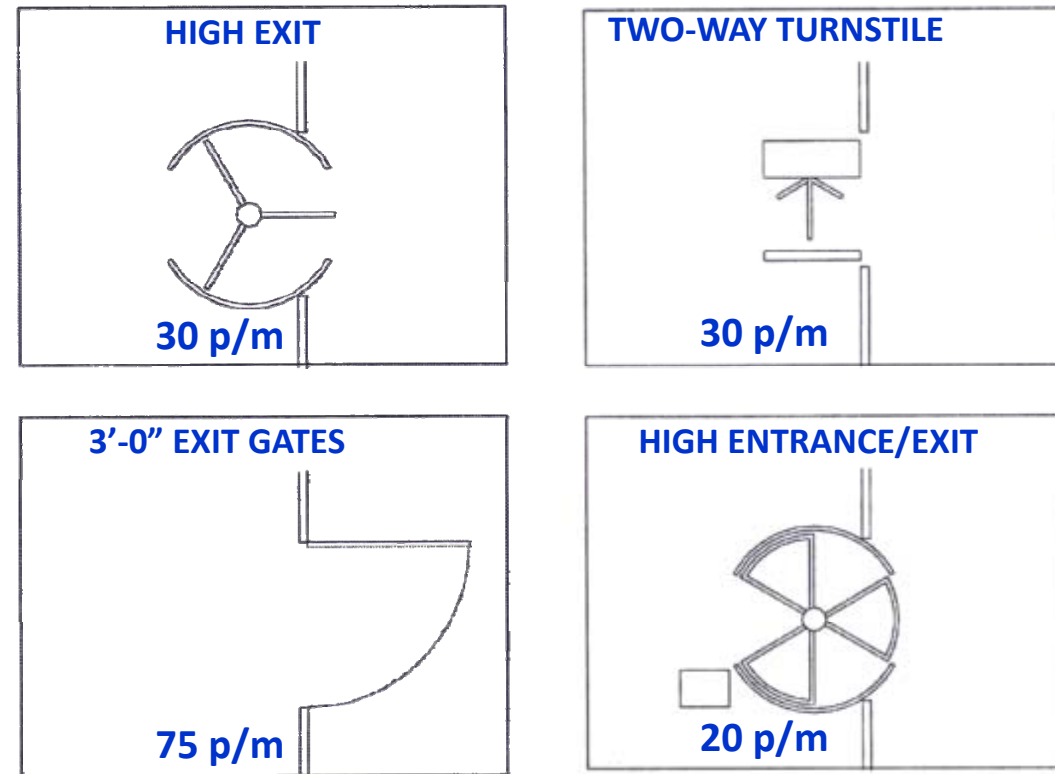
1. Sense of safety and security
2. Convenience, including the ability to link to other modes, the ability to get (directly) to where you want to go (along barrier-free paths) and minimal delays.
3. Comfort and attractiveness including appropriate weather protection and opportunities to rest. (Krzeminski 1988)

Types of Level of Service:

- Level of Service A and B- Sufficient area is provided for pedestrians to freely select their own walking speed. When cross flow and reverse flow movement exist, minor conflicts may occur.
- Level of Service C and D – Pedestrian movement is fluid although somewhat restricted. Reverse flow and cross flow movements are severely restricted due to congestion and difficulty bypassing slower moving pedestrians.
- Level of Service E and F- Represents severe congestion. Walking speed is restricted. There is insufficient area to bypass others and contra-flow movements would be good; Generally, this level of service is not acceptable for design.

SEPTA Fare Gates-Level of Service Standard C-D

According to Fruin's studies the level of service C-D would be representative of reasonable design for a facility of this type. Other agencies such as New York City Transit or Clifford Bonnett in his book "Practical Railway Engineering" confirm that the level of service C-D is the most appropriate for railway stations.



## MAXIMUM CAPACITY FOR TRAFFIC FLOW ELEMENTS

### 5. Building Code: Basic Egress and Level Parameters

- The basic fare collection device will be a turnstile, with paddle type devices used for ADA gates.
- One ADA fare device will be provided for each elevator in addition to egress requirements below, except where two elevators are provided within one paid zone. This device will also generally serve as the gate to accommodate passengers with baggage.
- All fare arrays have been developed to provide a level of service of at least C/D, based on the population that can be accommodated on the existing stairways (any exceptions are noted on the concept plans.)
- All fare arrays have been developed to provide at least the same physical exit width as the stairs they serve, using the code parameter that turnstile type fare devices may provide a maximum of 50% of the required exit capacity (any exceptions are noted on the concept plans.)
- All fare arrays have been developed to provide at least the required exit capacity (using code parameters) as the stairs they serve, without using the code parameter that turnstile type fare devices may provide a maximum of 50% of the required exit capacity (any exceptions are noted on the concept plans.)

### 6. New Traffic Flow Elements

In order to differentiate the Paid and Unpaid areas we are providing a series of architectural elements that will impact the pedestrian flow patterns and visual perception of the existing spaces. These elements are as follow:

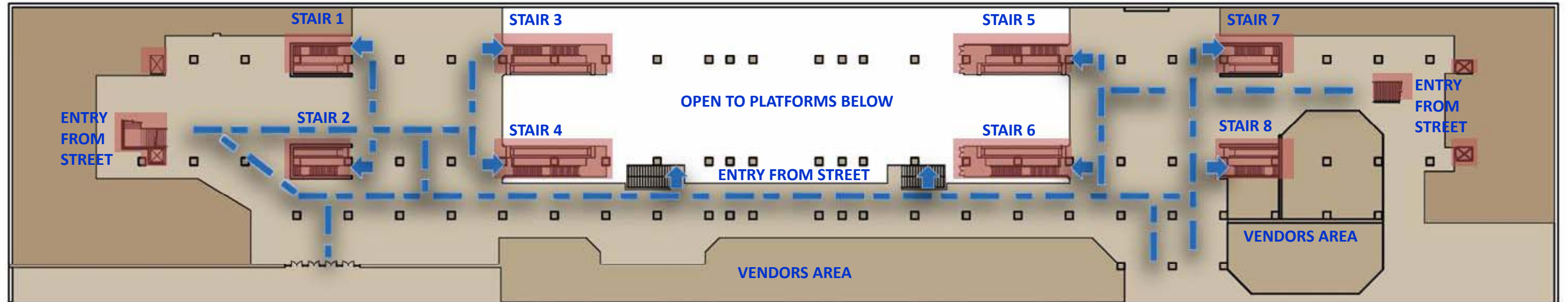
Non-capacity generating elements:

- Low guardrail: this will be implemented at concourse levels; considered safe and secured zones.
- High fencing: this will be implemented at platform levels; zones facing to street; and zones where minor surveillance is provided.

Capacity generating elements:

The following elements are being proposed in order to provide an equal minimum:

- Two way turnstile: 30 persons/minute (assuming 20% reduction for cross-traffic)
- High exit turnstiles: 28 persons/minute
- Exit gates-3'-0" wide: 75 persons/minute
- Exit gates 4'-0" wide: 100 persons/minute
- Where double gates are indicated for egress, one panel will be fixed



**EXISTING PEDESTRIAN FLOW DIAGRAM**

**MARKET EAST STATION  
EXISTING CONDITIONS**



**STAIR 1 AND 2 VIEW  
WEST CONCOURSE**



**STAIR 3 AND 4 VIEW  
WEST CONCOURSE**



**STAIR 8 VIEW  
EAST CONCOURSE**



**EAST-WEST CORRIDOR  
WEST CONCOURSE**



**ELEVATOR AT PLATFORM LEVEL**



**WEST CONCOURSE VIEW LOOKING WEST**



**COUNTER DESK AT WEST CONCOURSE**



**EAST CONCOURSE VIEW LOOKING WEST**

**Design Approach**

The design approach is based on pedestrian movements and maintaining level-of-service design standards, without any decrease in the egress capacity of the existing station while providing an efficient fare array layout.

**West Concourse**

- Paid Area:
  - The design provides (1) one centralized Paid area (+/-7400 sf) that serves Stairs #1, 2, 3, and 4; this centralized area does not have any major impact on the current pedestrian flow.
  - Existing benches should be relocated from this area in order to ease pedestrian flow.
  - Reception Desk at concourse level might remain if necessary.
- Unpaid Area:
  - Does not impact with any of the vendor areas adjacent to the shopping mall.
  - Shopping Mall visitors have direct access to the stairs and elevators to street at all times.

**East Concourse**

- Paid Areas:
  - The design provides (1) one centralized Paid area (+/-7400 sf) that serves Stairs #5, 6, 7, and 8; this centralized area eliminates direct cross flow between the east stair to the street and the north south passage way joining the east and west mezzanine.
- Unpaid Area:
  - Does not impact with any of the vendor areas adjacent to the shopping mall.
  - Shopping Mall visitors have direct access to the stairs and elevators to street at all times.

**Specific Design Requirements**

- Not all elevator areas at the platform level require swing gates for egress. A pair of 3'-0" swing gates will be provided at the east end of each platform to accommodate service equipment. Swing gates are not required at the west end as the ADA fare gate device will open automatically in an emergency.
- Pay on Foot Machines will not be provided at the street level due to security and possible vandalism issues.
- Benches and counter desk might need to be relocated in order to enhance the pedestrian flow.
- Low fencing/guardrail will be used for this station in order to separate paid and unpaid areas

# MARKET EAST STATION

## DESIGN APPROACH

STAIR/ ESCALATOR NUMBER	LEVEL OF SERVICE C/D CALCULATION				STAIR AND WIDTH REQUIREMENTS AS PER IBC 2009 and NFPA130			ADA FARE DEVICES +EXIT GATES REQUIREMENTS		OCCUPANT POPULATION SERVED		
	TOTAL OF EXIST. STAIR ESCALATOR WIDTH (in feet)	MAXIMUM STAIR CAPACITY (10 person per minute per foot)	MIN. QUANTITY OF 18" FARE DEVICES REQUIRED (30 Persons per minute)	PROVIDED FARE DEVICES CAPACITY (30 Persons per minute)	EXISTING EGRESS WIDTH (All Stairs width combined) (in feet)	EXISTING EGRESS WIDTH (All Stairs width + 1/2 of the escalator width) as per NFPA 130 (in feet)	PROVIDED EGRESS WIDTH ALL FARE DEVICES+EXIT GATES (to be equal or greater than exist. stair width) (in feet)	MIN. REQUIRED EXIT GATES + ADA FARE DEVICES (Shall be at least 50% of the total width of all stairs) (in feet)	PROVIDED EXIT GATES + ADA FARE DEVICES (in feet)	# OF EXISTING OCCUPANTS BASED ON EXISTING STAIR WIDTH (0.3 inches per occupant)	MIN. WIDTH REQUIRED FOR OTHER EGRESS COMPONENTS (exit gates+ ADA fare devices) (0.2 inches per occupant) (in feet)	PROVIDED WIDTH FOR OTHER EGRESS COMPONENTS (exit gates+ADA fare devices) (in feet)
1,2,3&4	33.8	338	12	12	19.8	26.8	31.50	9.9	15.00	792	13.20	15.00
5,6,7	25.46	255	9	16.5	14.96	20.21	28.50	7.48	12.00	598	9.97	12.00
8	8.34	84	3	6	4.84	6.59	9.00	2.42	3.75	194	3.23	3.75

- NOTES:
1. ADA fare devices assumed to be paddle type
  2. Turnstiles assumed as typical condition
  3. Level of service calculations are based on category C/D (Recommended Standard for transportation terminal projects as per "Pedestrian planning and design" by John J. Fruin )
  4. Doors, Gates and Fare devices as per section 1008 on International Building code 2009 edition
  5. Means of Egress based on occupant population served as per Table 1005.1 on International Building code 2009 edition.

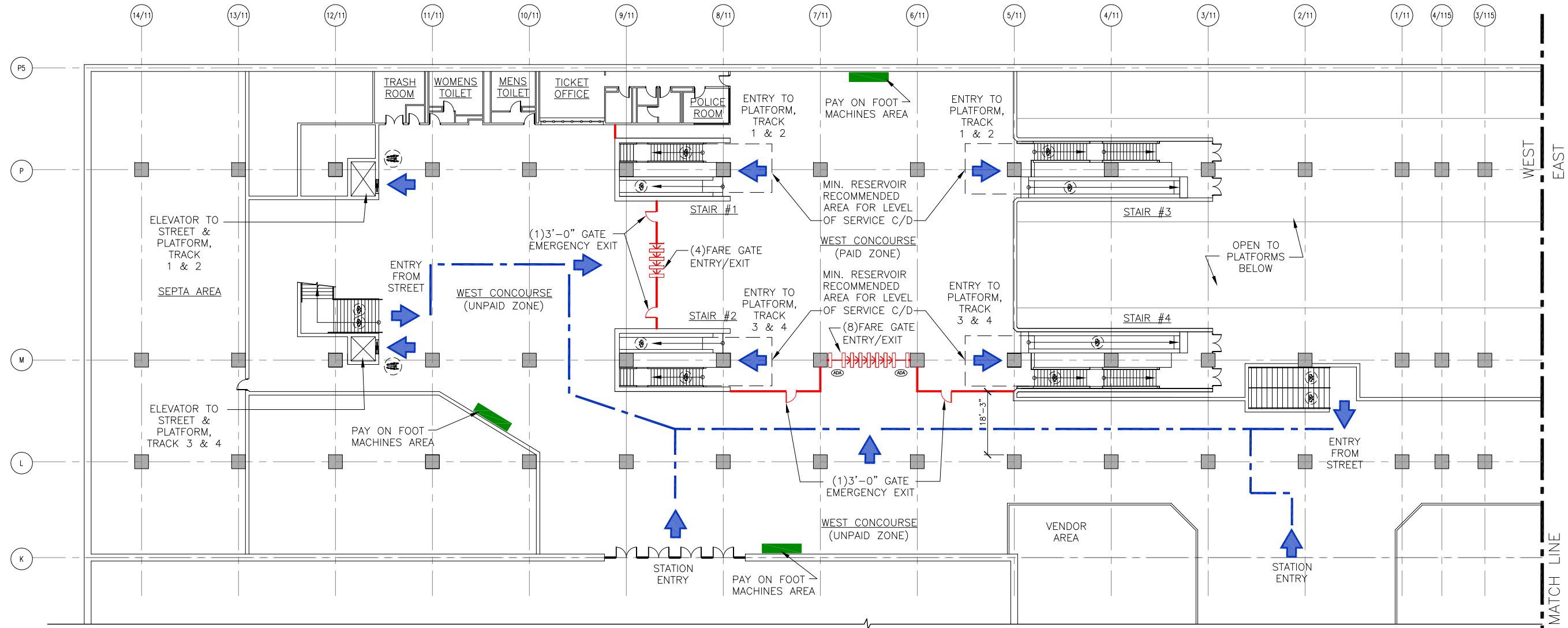
## MARKET EAST STATION

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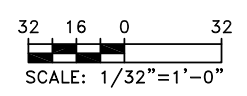
### DESIGN DRAWINGS

A series of scheme alternates were developed during the design process and meetings; however the preferred schemes for this station are:

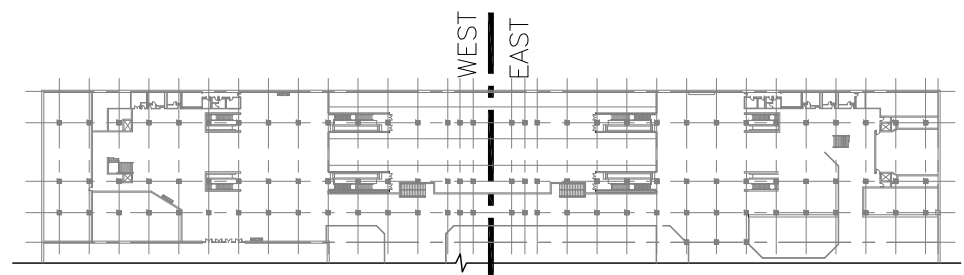
- M-4 Enlarged West Concourse Plan
- M-5A Enlarged East Concourse Plan
- M-8 Enlarged Platform Plan



ENLARGED WEST CONCOURSE PLAN



- LEGEND:**
- - - PEDESTRIAN FLOW TO PLATFORM
  - PROPOSED LOW SECURITY FENCE
  - - - PROPOSED HIGH SECURITY FENCE
  - ADA ADA COMPLIANT ENTRY/EXIT GATE
  - PAY ON FOOT MACHINES AREA



CONCOURSE KEY PLAN

# SEPTA - REGIONAL RAIL CENTER CITY STATIONS FARE LINES



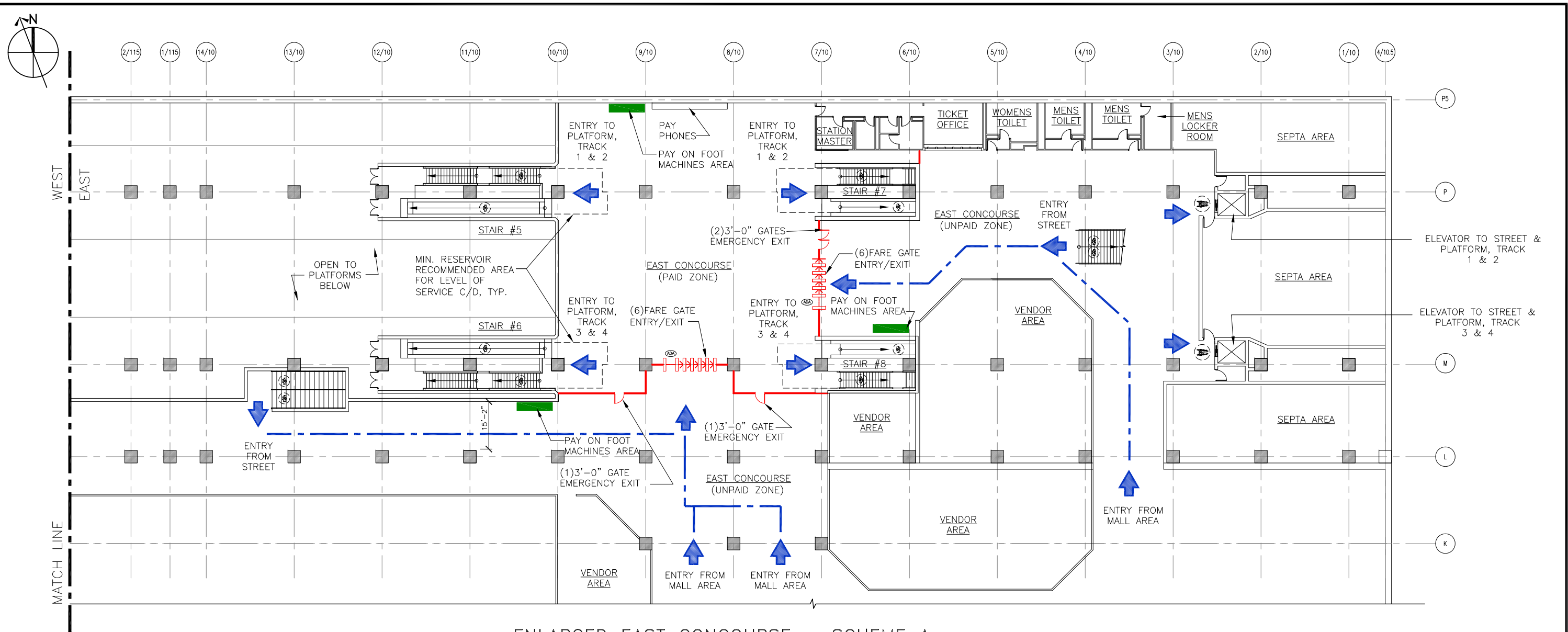
people, building, and planet



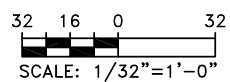
**MARKET EAST STATION**  
 CONCEPTUAL DESIGN DATE: 5/25/10

**M-4**

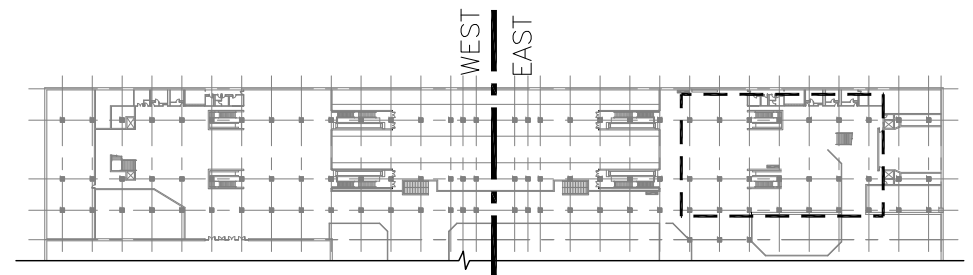




ENLARGED EAST CONCOURSE - SCHEME A



LEGEND:	
	PEDESTRIAN FLOW TO PLATFORM
	PROPOSED LOW SECURITY FENCE
	PROPOSED HIGH SECURITY FENCE
	ADA COMPLIANT ENTRY/EXIT GATE
	PAY ON FOOT MACHINES AREA



CONCOURSE KEY PLAN

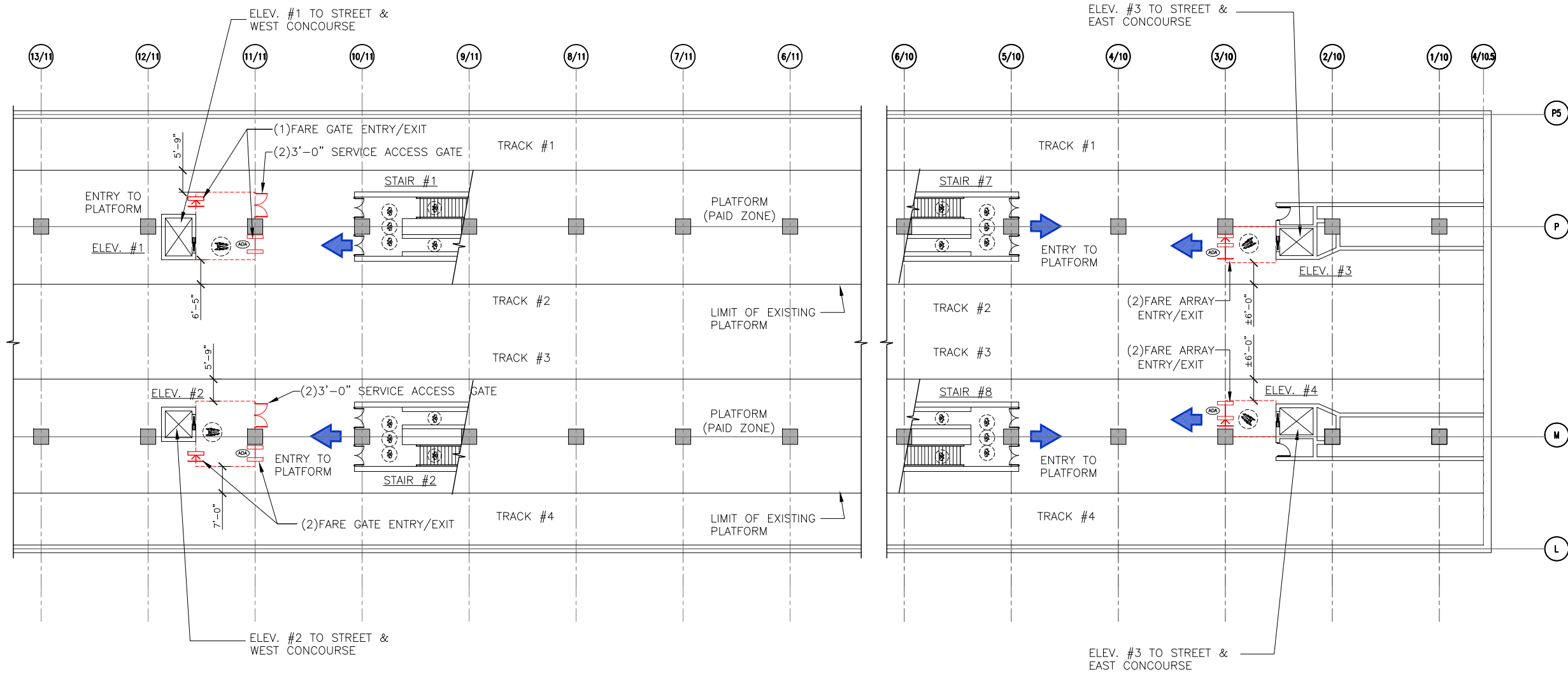
# SEPTA - REGIONAL RAIL CENTER CITY STATIONS FARE LINES



people, building, and planet



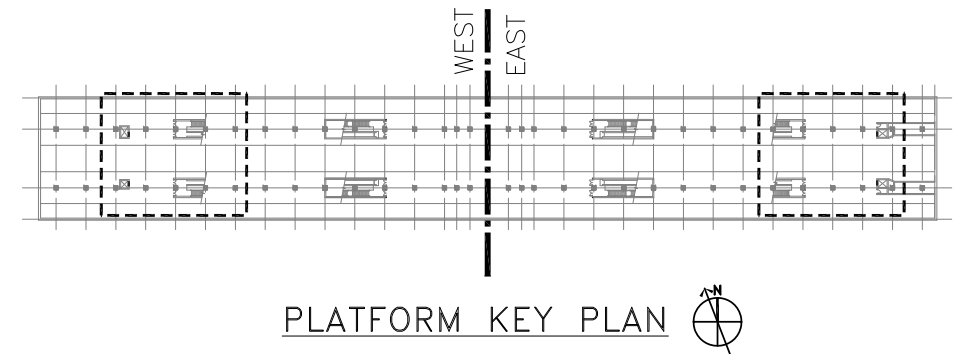
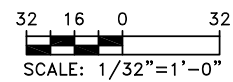
MARKET EAST STATION		M-5A
CONCEPTUAL DESIGN	DATE: 5/25/10	



**LEGEND:**

	PEDESTRIAN FLOW TO PLATFORM
	PROPOSED LOW SECURITY FENCE
	PROPOSED HIGH SECURITY FENCE
	ADA COMPLIANT ENTRY/EXIT GATE
	PAY ON FOOT MACHINES AREA

ENLARGED PLATFORM PLAN



**SEPTA - REGIONAL RAIL CENTER CITY STATIONS FARE LINES**

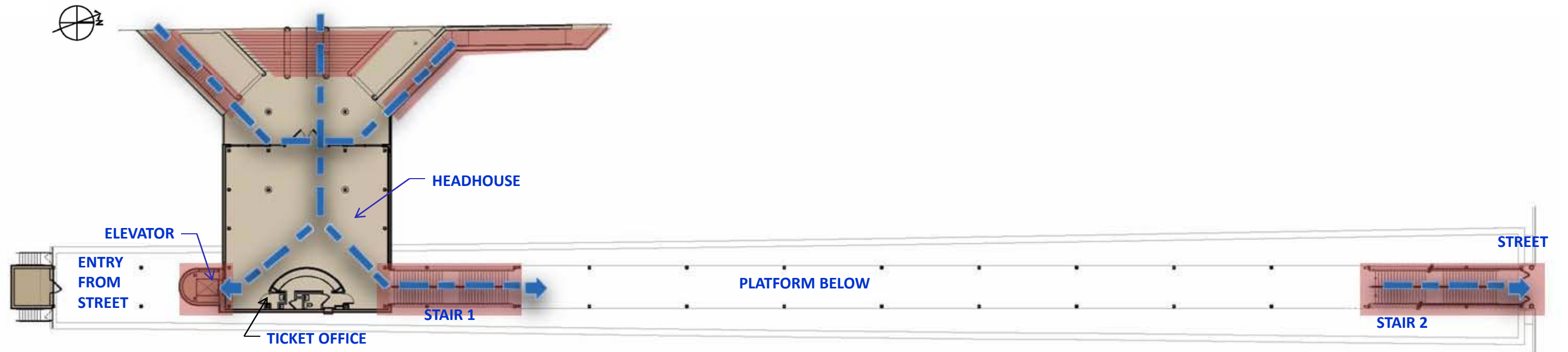


people, building, and planet



**MARKET EAST STATION**  
 CONCEPTUAL DESIGN DATE: 5/25/10

**M-8**



EXISTING PEDESTRIAN FLOW DIAGRAM

## UNIVERSITY CITY STATION

EXISTING CONDITIONS



AERIAL VIEW



TICKET OFFICE VIEW



HEAD HOUSE - MAIN ENTRANCE  
(WEST WALL)



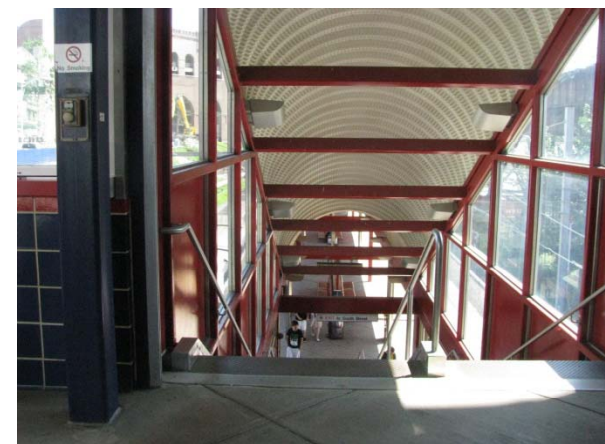
STAIR 1 VIEW



ELEVATOR VIEW



ELEVATOR VIEW



STAIR 1 VIEW



STAIR 1 VIEW AT PLATFORM



ELEVATOR VIEW

# UNIVERSITY CITY STATION

## DESIGN APPROACH

### Design Approach

The design approach is based on the concept of preserve the existing head house and north stair as the access (entry and exit) to the platform. The existing head house will contain and weather-protect the paid and unpaid areas

### Head House

Paid Area:

- The design provides (1) one centralized Paid area (+/-1000 sf) that serves the main stair; this centralized areas does not have any major impact on the current pedestrian flow.
- The existing ticket office will no longer be needed for ticketing; however the existing space can be used as an attendant booth.

Unpaid Area:

- In order to prevent the Pay on Foot Machines/Ticket Vending Machines from being vandalized the unpaid area can be closed at night once the train services are discontinued.

### North Stair

- SEPTA confirmed that the north platform stair will be for exit/egress. High exit/entry wheels will be provided at this location.
- Signage will be provided indicating that the north stair is not accessible without a prepaid fare. The signage will also direct passengers without prepaid fares to the south entry, and will indicate that the north stair is "unmanned" will be posted .

Design Requirements:

- SEPTA advised that surveillance cameras will be utilized at the head house.
- High fences will be used for this station.

STAIR/ ESCALATOR NUMBER	LEVEL OF SERVICE C/D CALCULATION				STAIR AND WIDTH REQUIREMENTS AS PER IBC 2009 and NFPA130			ADA FARE DEVICES +EXIT GATES REQUIREMENTS		OCCUPANT POPULATION SERVED		
	TOTAL STAIR + ESCALATOR WIDTH (in feet)	MAXIMUM STAIR CAPACITY (10 person per minute per foot)	MIN. QUANTITY OF 18" FARE DEVICES REQUIRED (30 Persons per minute)	PROVIDED FARE DEVICES CAPACITY (30 Persons per minute)	EXISTING EGRESS WIDTH (All Stairs width combined) (in feet)	EXISTING EGRESS WIDTH (All Stairs width + 1/2 of the escalator width) as per NFPA 130 (in feet)	PROVIDED EGRESS WIDTH ALL FARE DEVICES+EXIT GATES (to be equal or greater than exist. stair width) (in feet)	MIN. REQUIRED EXIT GATES + ADA FARE DEVICES (50% of existing stair width, excluding turnstiles) (in feet)	PROVIDED EXIT GATES + ADA FARE DEVICES (in feet)	# OF EXISTING OCCUPANTS BASED ON EXISTING STAIR (0.3 inches per occupant)	MIN. WIDTH REQUIRED FOR OTHER EGRESS COMPONENTS (exit gates+ ADA fare devices) (0.2 inches per occupant) (in feet)	WIDTH PROVIDED FOR OTHER EGRESS COMPONENTS (exit gates+ADA fare devices) (in feet)
1	9.50	95	4	5	9.50	9.50	15.00	4.75	9.00	380	6.33	9.00
2	9.50	95	4	2(4'-0")gate	9.50	9.50	9.50	4.75	8.00	380	6.33	8.00

- NOTES:
1. ADA fare devices assumed to be paddle type
  2. Turnstiles assumed as typical condition
  3. Level of service calculations are based on category C/D (Recommended Standard for transportation terminal projects as per "Pedestrian planning and design" by John J. Fruin )
  4. Doors, Gates and Fare devices as per section 1008 on International Building code 2009 edition
  5. Means of Egress based on occupant population served as per Table 1005.1 on International Building code 2009 edition.

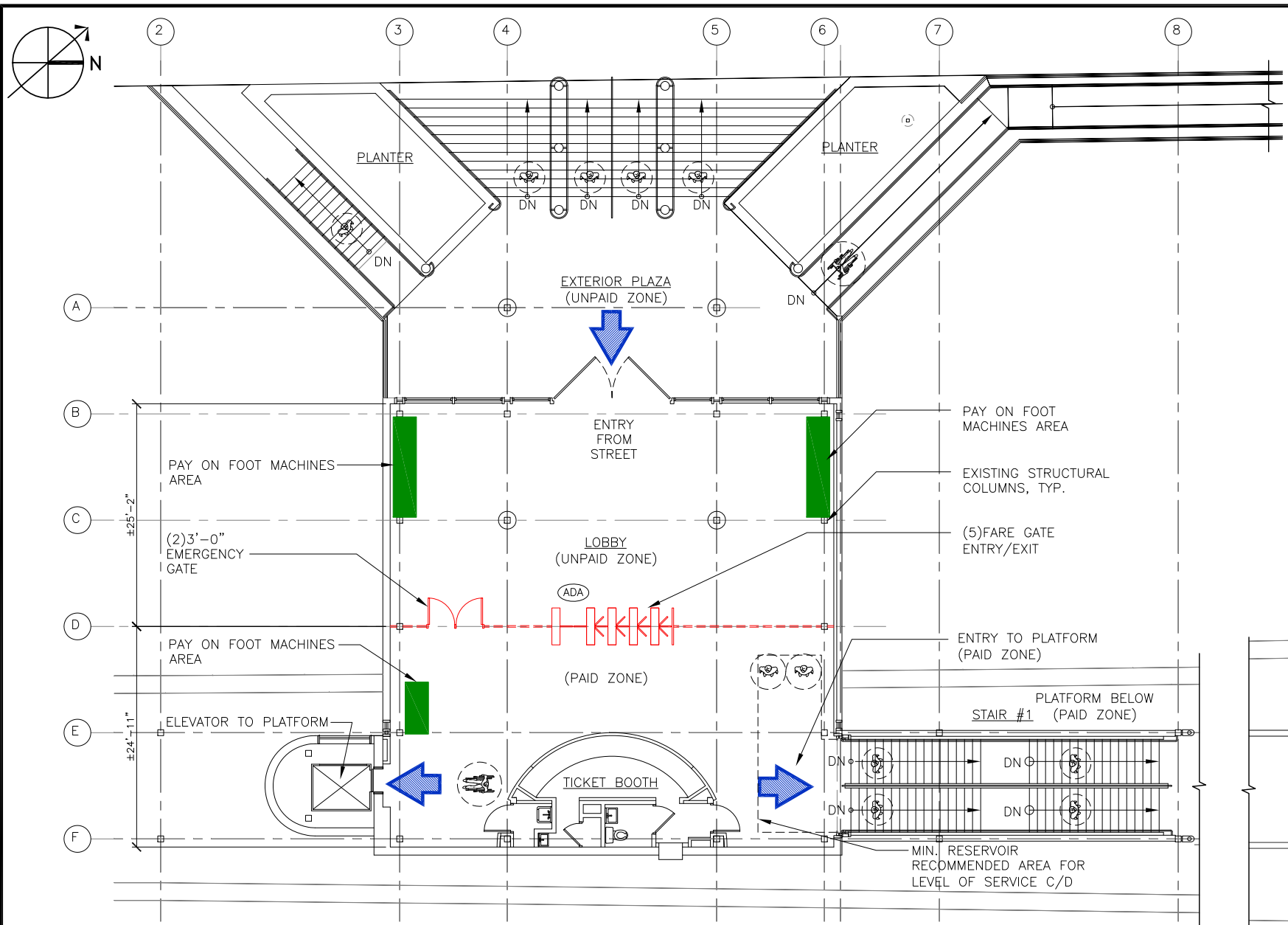
## UNIVERSITY CITY STATION

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### DESIGN DRAWINGS

A series of scheme alternates were developed during the design process and meetings; however the preferred schemes for this station are:

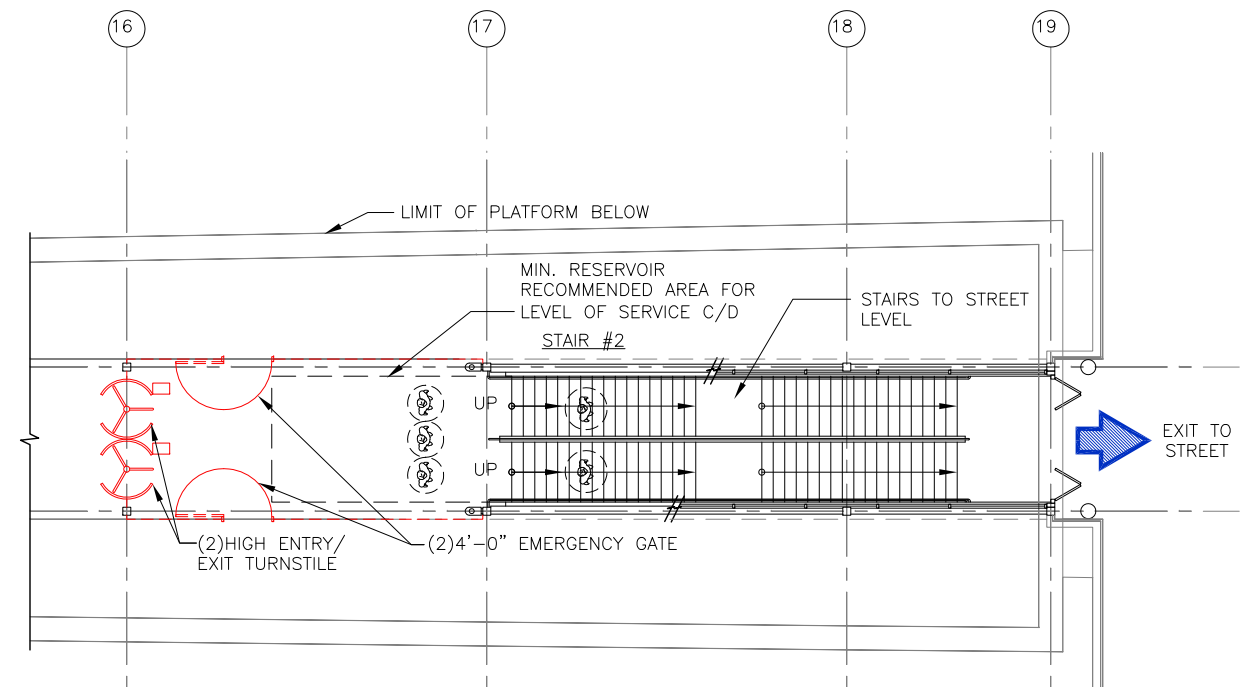
- U-3A Head House and North Stair Plan



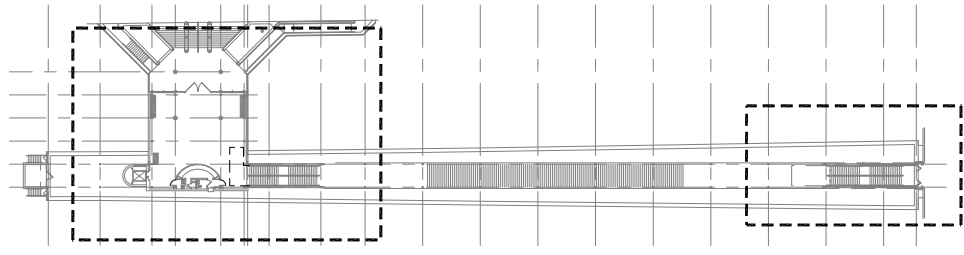
**HEADHOUSE PLAN**  
 16 8 0 16  
 SCALE: 1/16"=1'-0"

**LEGEND:**

- PEDESTRIAN FLOW TO PLATFORM
- PROPOSED LOW SECURITY FENCE
- PROPOSED HIGH SECURITY FENCE
- ADA COMPLIANT ENTRY/EXIT GATE
- PAY ON FOOT MACHINES AREA



**NORTH STAIR PLAN**  
 16 8 0 16  
 SCALE: 1/16"=1'-0"



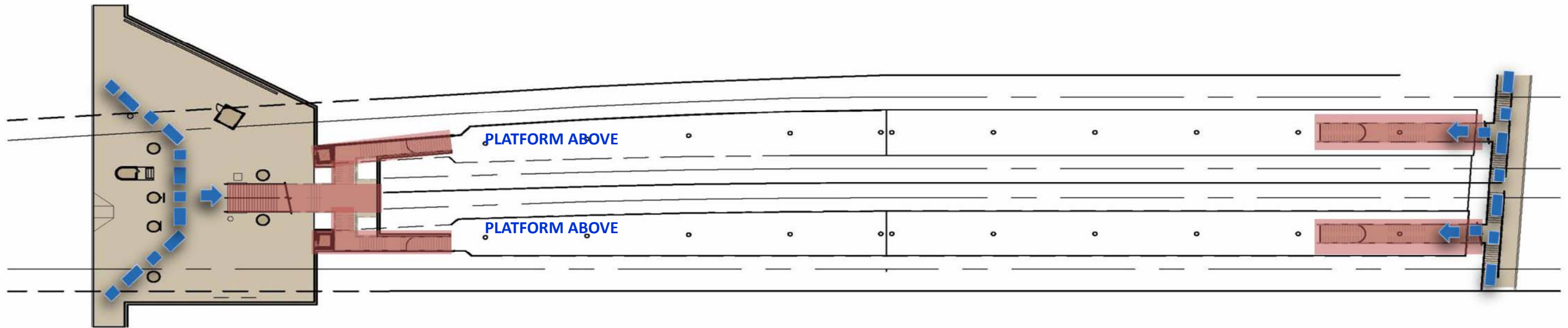
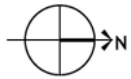
MEZZANINE LEVEL KEY PLAN

# SEPTA - REGIONAL RAIL CENTER CITY STATIONS FARE LINES



**UNIVERSITY CITY STATION**  
 CONCEPTUAL DESIGN DATE: 5/25/10

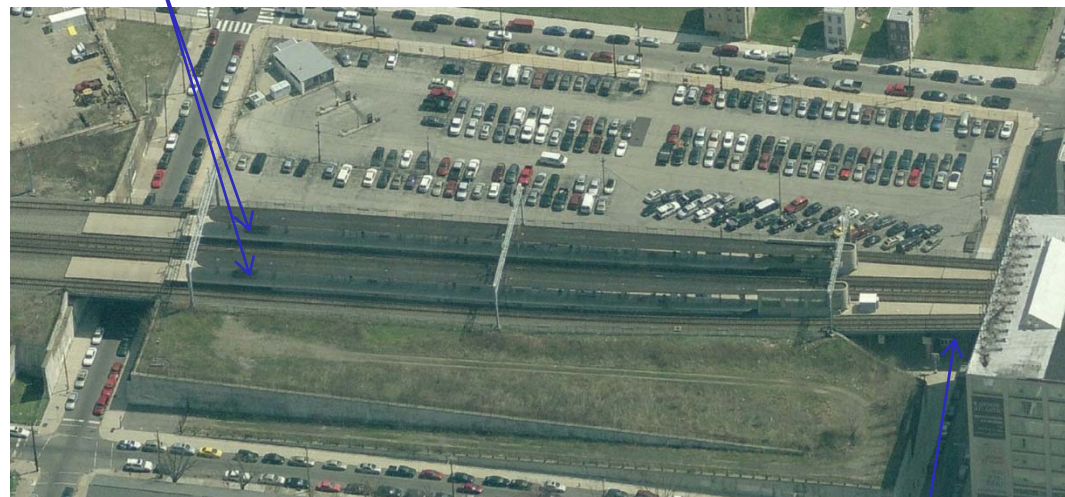
**U-3A**



EXISTING PEDESTRIAN FLOW DIAGRAM

### TEMPLE UNIVERSITY STATION EXISTING CONDITIONS

NORTH STAIR



AERIAL VIEW

SOUTH PLAZA



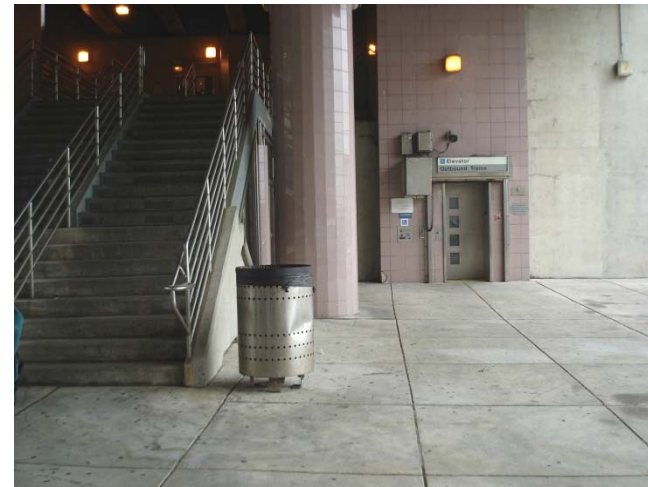
TICKET KIOSK



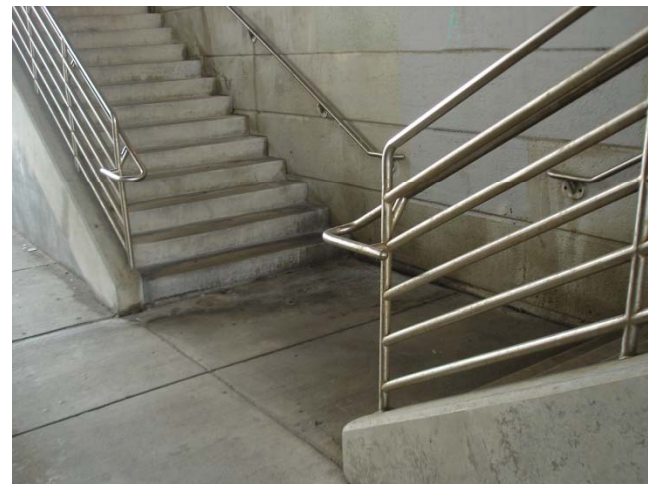
SOUTH END PLAZA



**SOUTH END PLAZA VIEW**



**STAIR 1 & ELEVATOR VIEW AT SOUTH END PLAZA**



**NORTH END STAIR VIEW AT STREET LEVEL**



**STAIR 4 VIEW**

**Design Approach**

The design approach is based on the concept of preserving the both existing means of ingress and egress for the platforms with a larger area at the south plaza to facilitate the pedestrian flow from the Temple University users.

**South Plaza**

Paid Area:

- The design provides (1) one centralized Paid area (+/-1400 sf) that serves the main stair and the (2) two elevators; the centralized area does not have any major impact on the current pedestrian flow.

**Design Requirements**

- Pay on foot machines could be located along the sides of the main stair.
- Since the majority of the pedestrian flow is approaching from the west, SEPTA indicated that the majority of the devices at the plaza area should be facing to that direction.
- SEPTA preferred that the Plaza area act as the more consolidated paid area that serves the existing stair and both elevators to the platform.
- Due to the existing condition constraints, the north platform stairs will be used for both inbound and outbound exit/egress with a Level of Service F during regular hours of operation and Level of Service C/D for emergency.
- High fences will be used for this station.
- Signage will be provided indicating that the north stair is not accessible without a prepaid fare. The signage will also direct passengers without prepaid fares to the south entry, and will indicate that the north stair is "unmanned" will be posted .

# TEMPLE UNIVERSITY STATION

## DESIGN APPROACH

STAIR/ ESCALATOR NUMBER	LEVEL OF SERVICE C/D CALCULATION				STAIR AND WIDTH REQUIREMENTS AS PER IBC 2009 and NFPA130			ADA FARE DEVICES +EXIT GATES REQUIREMENTS		OCCUPANT POPULATION SERVED		
	TOTAL STAIR + ESCALATOR WIDTH <i>(in feet)</i>	MAXIMUM STAIR CAPACITY <i>(10 person per minute per foot)</i>	MIN. QUANTITY OF 18" FARE DEVICES REQUIRED <i>(30 Persons per minute)</i>	PROVIDED FARE DEVICES CAPACITY <i>(30 Persons per minute)</i>	EXISTING EGRESS WIDTH (All Stairs width combined)  <i>(in feet)</i>	EXISTING EGRESS WIDTH (All Stairs width + 1/2 of the escalator width) as per NFPA 130  <i>(in feet)</i>	PROVIDED EGRESS WIDTH ALL FARE DEVICES+EXIT GATES <i>(to be equal or greater than exist. stair width)</i>  <i>(in feet)</i>	MIN. REQUIRED EXIT GATES + ADA FARE DEVICES <i>(50% of existing stair width, excluding turnstiles)</i>  <i>(in feet)</i>	PROVIDED EXIT GATES + ADA FARE DEVICES  <i>(in feet)</i>	# OF EXISTING OCCUPANTS BASED ON EXISTING STAIR  <i>(0.3 inches per occupant)</i>	MIN. WIDTH REQUIRED FOR OTHER EGRESS COMPONENTS <i>(exit gates+ ADA fare devices)</i> <i>(0.2 inches per occupant)</i>  <i>(in feet)</i>	WIDTH PROVIDED FOR OTHER EGRESS COMPONENTS <i>(exit gates+ADA fare devices)</i>  <i>(in feet)</i>
1&2	11.20	112	4	7	11.20	11.20	22.50	5.60	15.00	448	7.47	15.00
3	7.59	76	3	2(3'-4") gate	7.59	7.59	9.50	3.80	8.00	304	5.06	8.00
4	7.59	76	3	2(3'-4") gate	7.59	7.59	9.50	3.80	8.00	304	5.06	8.00

- NOTES:
1. ADA fare devices assumed to be paddle type
  2. Turnstiles assumed as typical condition
  3. Level of service calculations are based on category C/D (Recommended Standard for transportation terminal projects as per "Pedestrian planning and design" by John J. Fruin )
  4. Doors, Gates and Fare devices as per section 1008 on International Building code 2009 edition
  5. Means of Egress based on occupant population served as per Table 1005.1 on International Building code 2009 edition.



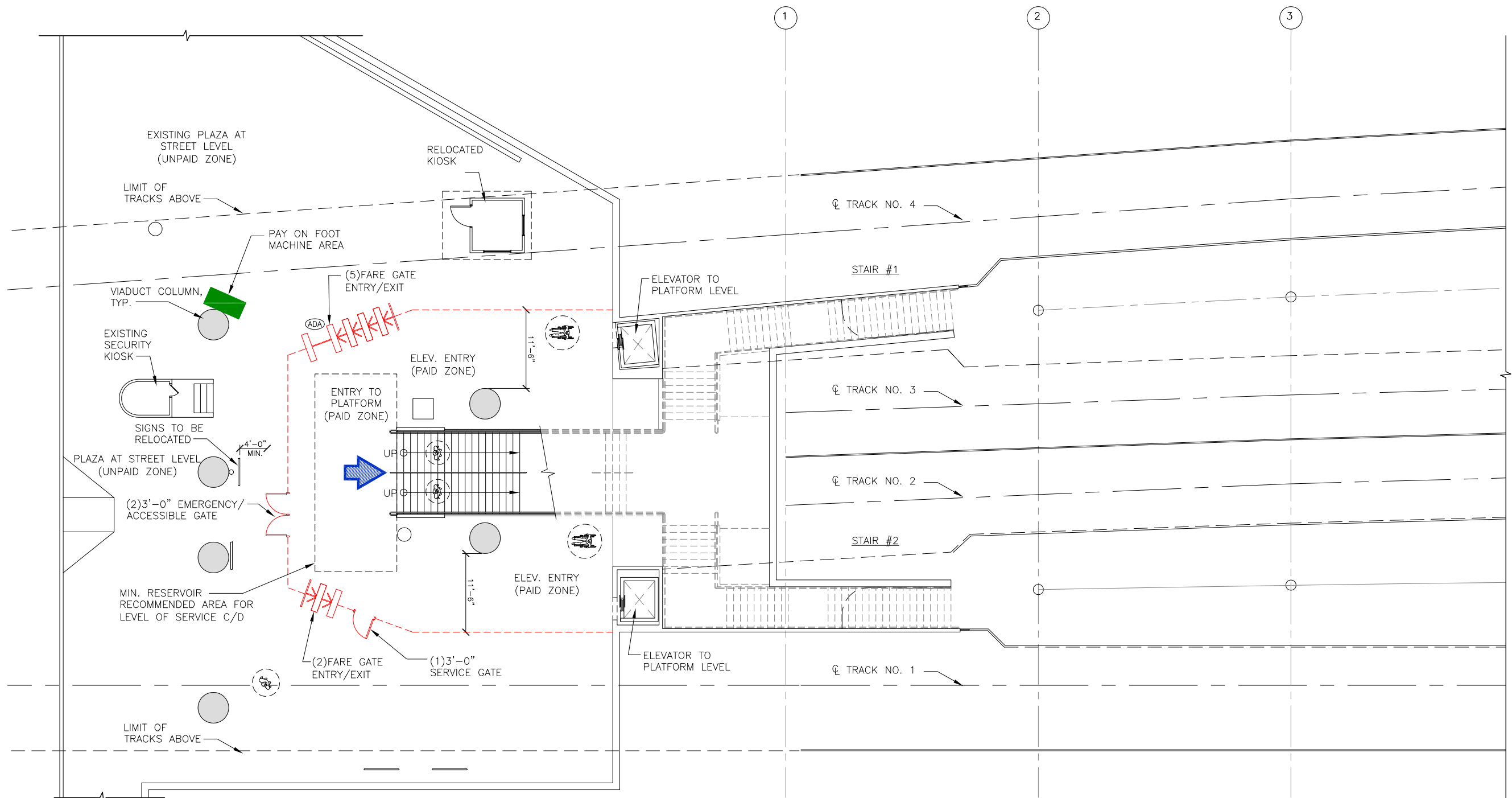
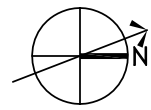
## TEMPLE UNIVERSITY STATION

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### DESIGN DRAWINGS

A series of scheme alternates were developed during the design process and meetings; however the preferred schemes for this station are:

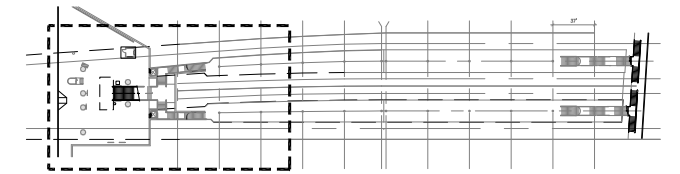
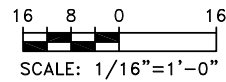
- T-5A Enlarged Plaza Plan
- T-6 Enlarged Platform Plan



**LEGEND:**

- - - PEDESTRIAN FLOW TO PLATFORM
- - - PROPOSED LOW SECURITY FENCE
- - - - - PROPOSED HIGH SECURITY FENCE
- ADA ADA COMPLIANT ENTRY/EXIT GATE
- PAY ON FOOT MACHINES AREA

**ENLARGED PLAZA PLAN**



**STREET LEVEL KEY PLAN**

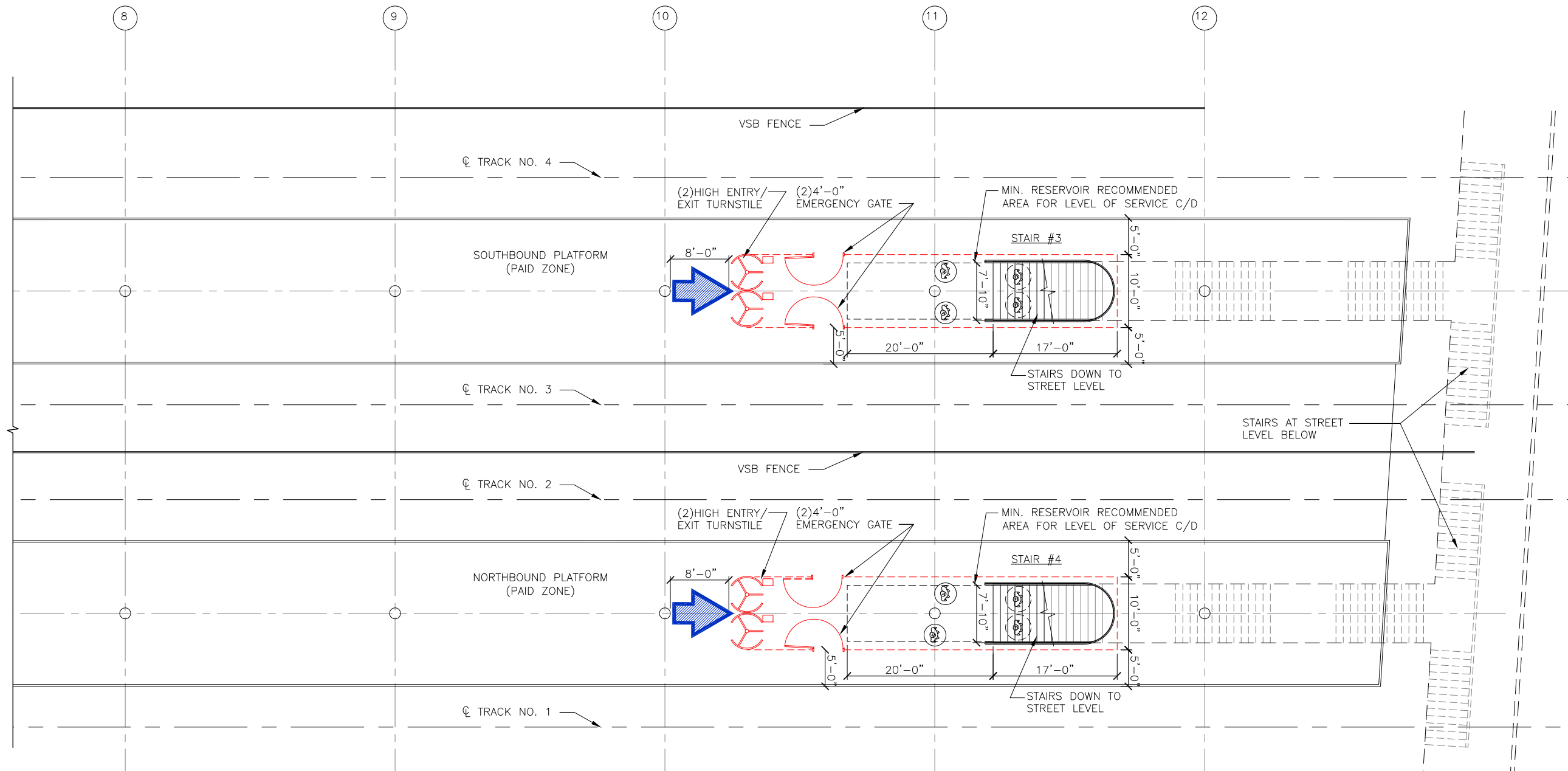
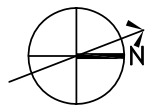
# SEPTA - REGIONAL RAIL CENTER CITY STATIONS FARE LINES



people, building, and planet



<b>TEMPLE UNIVERSITY STATION</b>		<b>T-5A</b>
CONCEPTUAL DESIGN	DATE: 5/25/10	



ENLARGED PLATFORM PLAN



**LEGEND:**

	PEDESTRIAN FLOW TO PLATFORM
	PROPOSED LOW SECURITY FENCE
	PROPOSED HIGH SECURITY FENCE
	ADA COMPLIANT ENTRY/EXIT GATE
	PAY ON FOOT MACHINES AREA



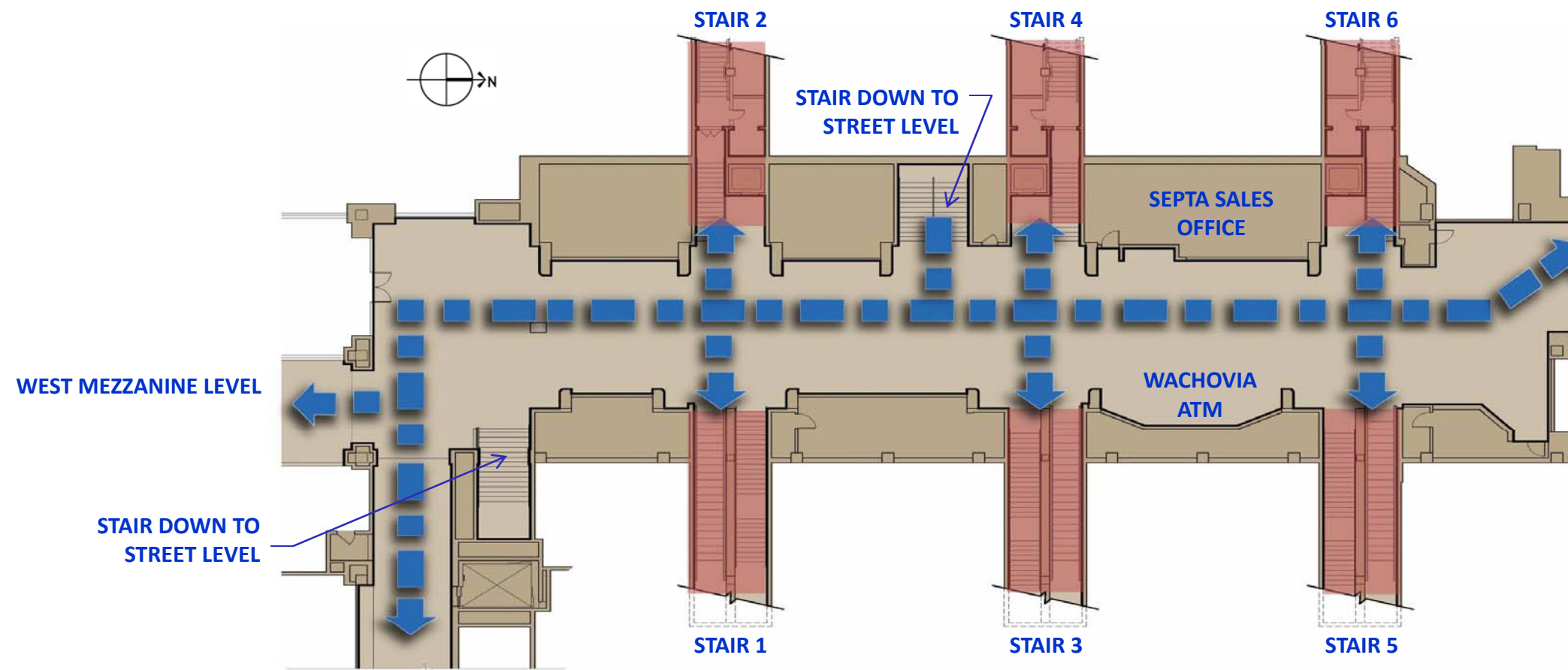
CONCOURSE KEY PLAN

# SEPTA - REGIONAL RAIL CENTER CITY STATIONS FARE LINES



**TEMPLE UNIVERSITY STATION**  
CONCEPTUAL DESIGN DATE: 5/25/10

**T-6**



EXISTING PEDESTRIAN FLOW DIAGRAM

### 30<sup>TH</sup> STREET STATION

EXISTING CONDITIONS



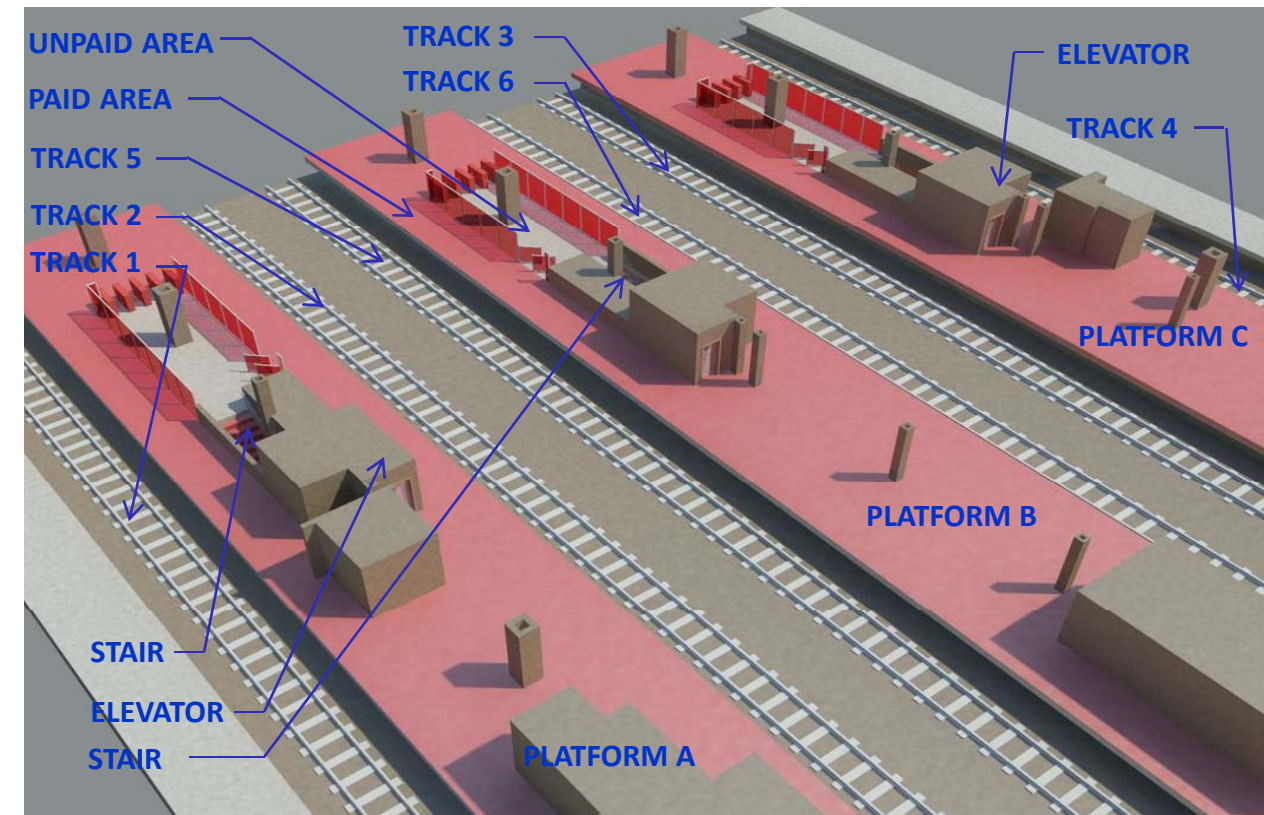
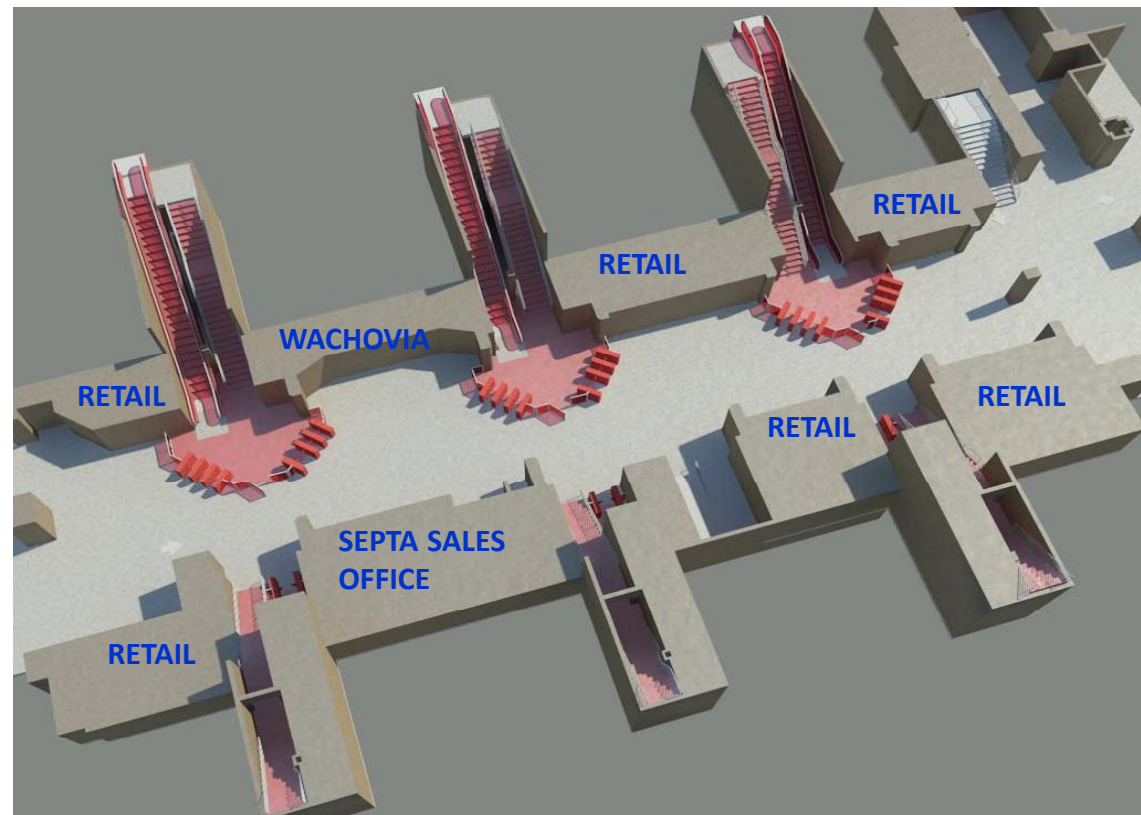
VIEW LOOKING SOUTH



VIEW LOOKING NORTH



VIEW LOOKING NORTH



**Design Approach**

Paid areas for all the east stairs to platforms will be located at the mezzanine level and all areas for the west stairs will be located at the platform level in order to maintain at least half of the existing width of corridor/hallway at the mezzanine level or create any pedestrian conflict within retail or store fronts and with increased square footage for paid areas compared to the original design provided by SEPTA.

**Design Requirements**

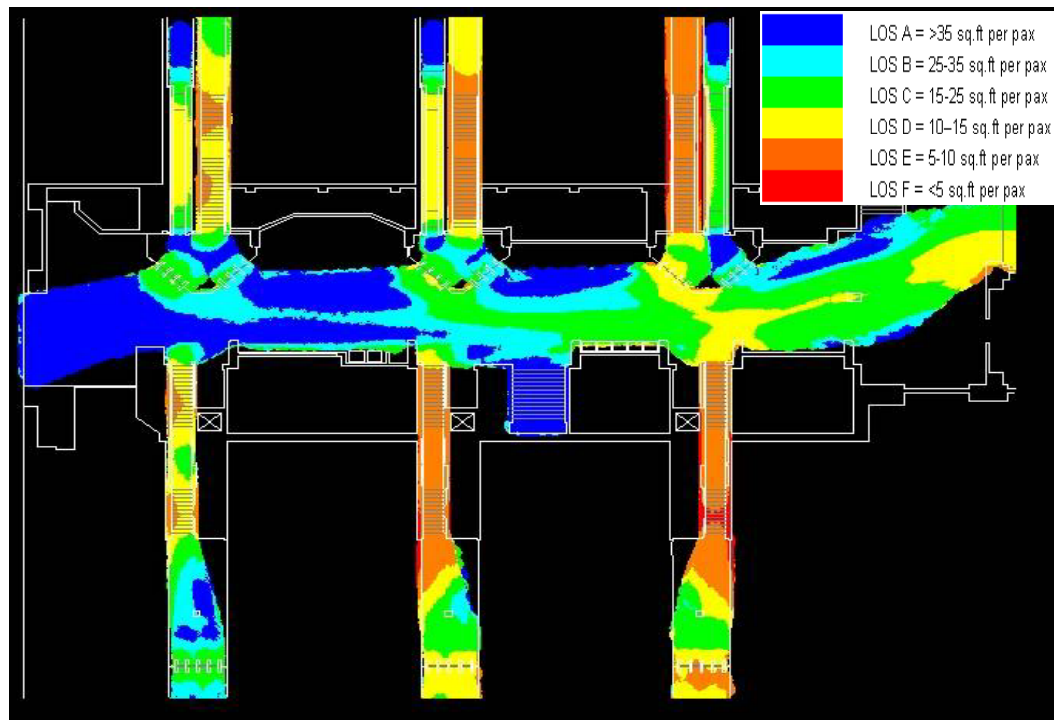
- Existing benches/furniture need to be relocated.

# 30<sup>TH</sup> STREET STATION

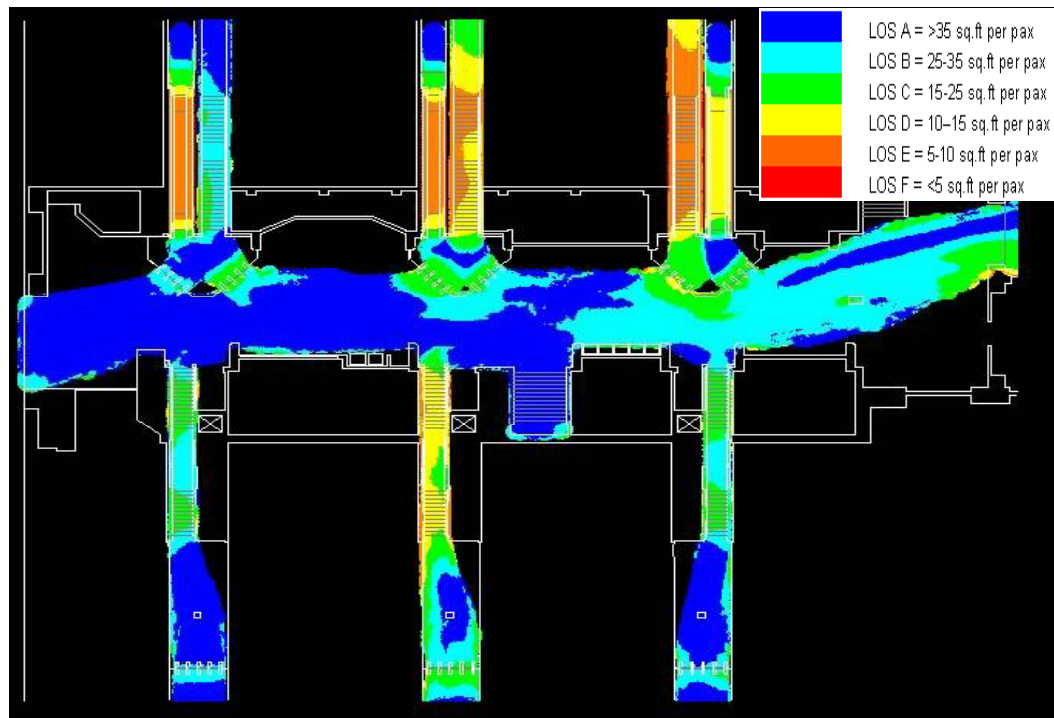
## DESIGN APPROACH

STAIR/ ESCALATOR NUMBER	LEVEL OF SERVICE C/D CALCULATION				STAIR AND WIDTH REQUIREMENTS AS PER IBC 2009 and NFPA130			ADA FARE DEVICES +EXIT GATES REQUIREMENTS		OCCUPANT POPULATION SERVED		
	TOTAL STAIR + ESCALATOR (WIDTH) <i>(in feet)</i>	MAXIMUM STAIR CAPACITY <i>(10 person per minute per foot)</i>	MIN. QUANTITY OF 18" FARE DEVICES REQUIRED <i>(30 Persons per minute)</i>	PROVIDED FARE DEVICES CAPACITY <i>(30 Persons per minute)</i>	EXISTING EGRESS WIDTH (All Stairs width combined) <i>(in feet)</i>	EXISTING EGRESS WIDTH (All Stairs width + 1/2 of the escalator width) as per NFPA 130 <i>(in feet)</i>	PROVIDED EGRESS WIDTH ALL FARE DEVICES+EXIT GATES <i>(to be equal or greater than exist. stair width)</i> <i>(in feet)</i>	MIN. REQUIRED EXIT GATES + ADA FARE DEVICES <i>(50% of existing stair width, excluding turnstiles)</i> <i>(in feet)</i>	PROVIDED EXIT GATES + ADA FARE DEVICES <i>(in feet)</i>	# OF EXISTING OCCUPANTS BASED ON EXISTING STAIR <i>(0.3 inches per occupant)</i>	MIN. WIDTH REQUIRED FOR OTHER EGRESS COMPONENTS <i>(exit gates+ ADA fare devices)</i> <i>(0.2 inches per occupant)</i> <i>(in feet)</i>	WIDTH PROVIDED FOR OTHER EGRESS COMPONENTS <i>(exit gates+ADA fare devices)</i> <i>(in feet)</i>
1	4.50	45	2	3	4.50	4.50	12.00	2.25	9.00	180	3.00	9.00
2	9.50	95	4	5	5.00	7.25	12.00	2.50	6.00	200	3.33	6.00
3	4.50	45	2	3	4.50	4.50	12.00	2.25	9.00	180	3.00	9.00
4	9.50	95	4	5	5.00	7.25	12.00	2.50	6.00	200	3.33	6.00
5	4.50	45	2	3	4.50	4.50	12.00	2.25	9.00	180	3.00	9.00
6	9.50	95	4	5	5.00	7.25	12.00	2.50	6.00	200	3.33	6.00

- NOTES:
- ADA fare devices assumed to be paddle type
  - Turnstiles assumed as typical condition
  - Level of service calculations are based on category C/D (Recommended Standard for transportation terminal projects as per "Pedestrian planning and design" by John J. Fruin )
  - Doors, Gates and Fare devices as per section 1008 on International Building code 2009 edition
  - Means of Egress based on occupant population served as per Table 1005.1 on International Building code 2009 edition.



**MEAN DENSITY MAP - AM**



**MEAN DENSITY MAP - PM**



**VISUAL PERCEPTION OF  
CONCOURSE LEVEL WITH  
THE FARE LINES SYSTEM**

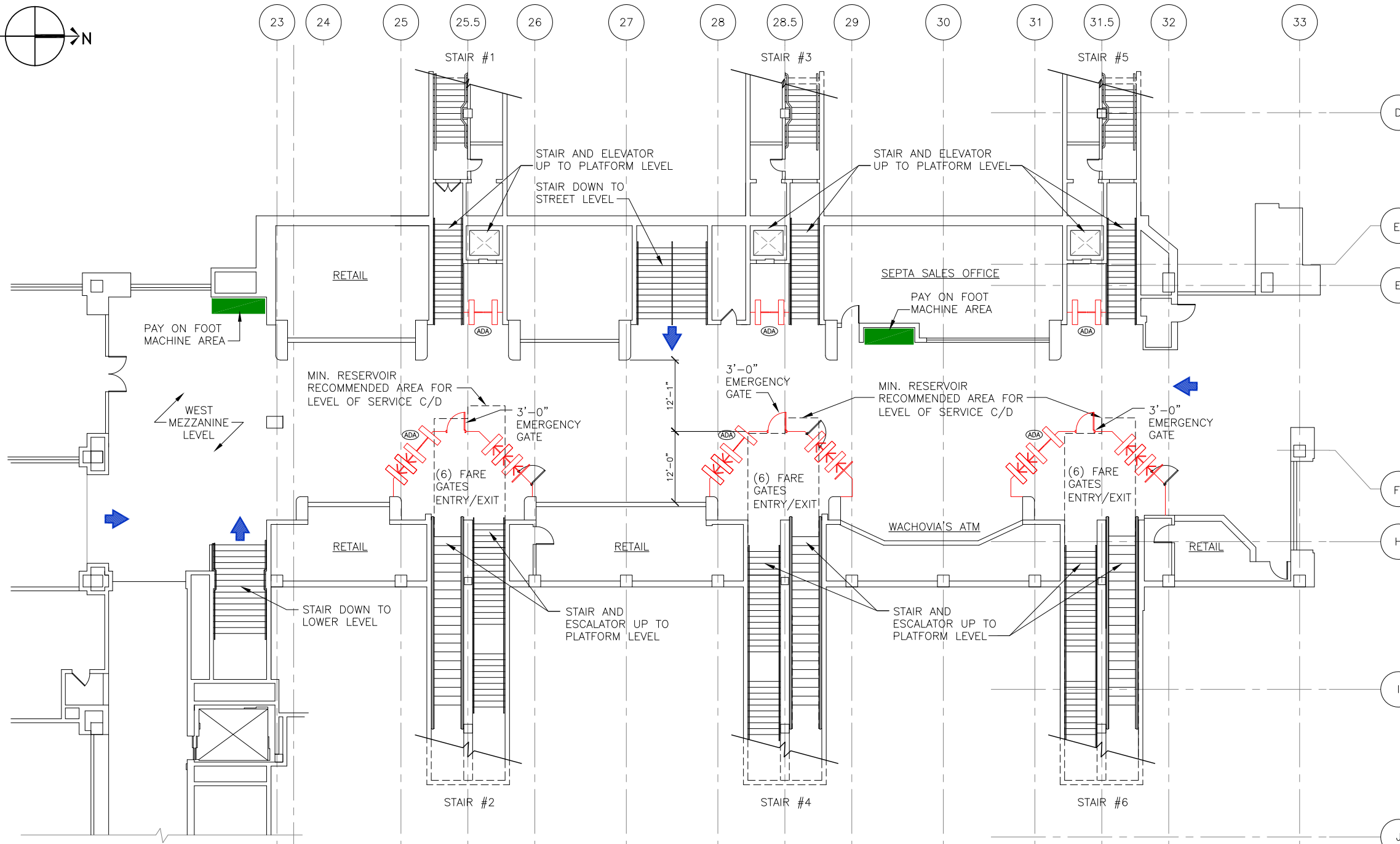
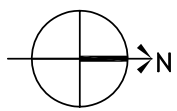
## 30<sup>TH</sup> STREET STATION

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### DESIGN DRAWINGS

A series of scheme alternates were developed during the design process and meetings; however the preferred schemes for this station are:

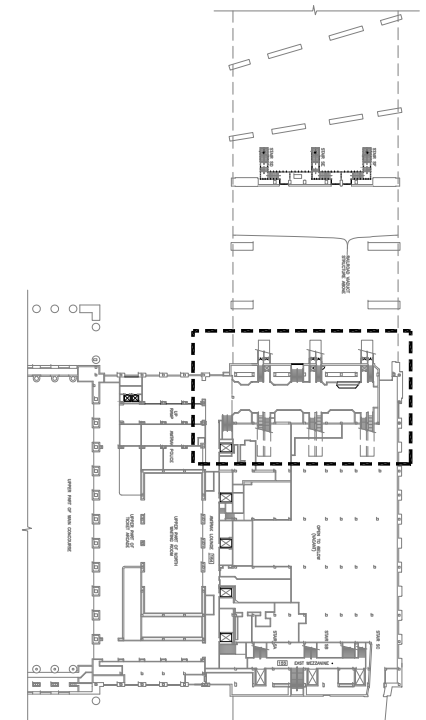
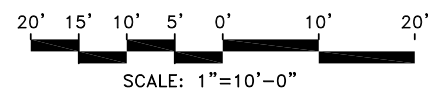
- A-1 West Mezzanine
- A-2 West Platform Plan



**LEGEND:**

- PEDESTRIAN FLOW TO PLATFORM
- PROPOSED LOW SECURITY FENCE
- PROPOSED HIGH SECURITY FENCE
- ADA COMPLIANT ENTRY/EXIT GATE
- PAY ON FOOT MACHINES AREA

WEST MEZZANINE PLAN - ALTERNATE A



MEZZANINE LEVEL KEY PLAN

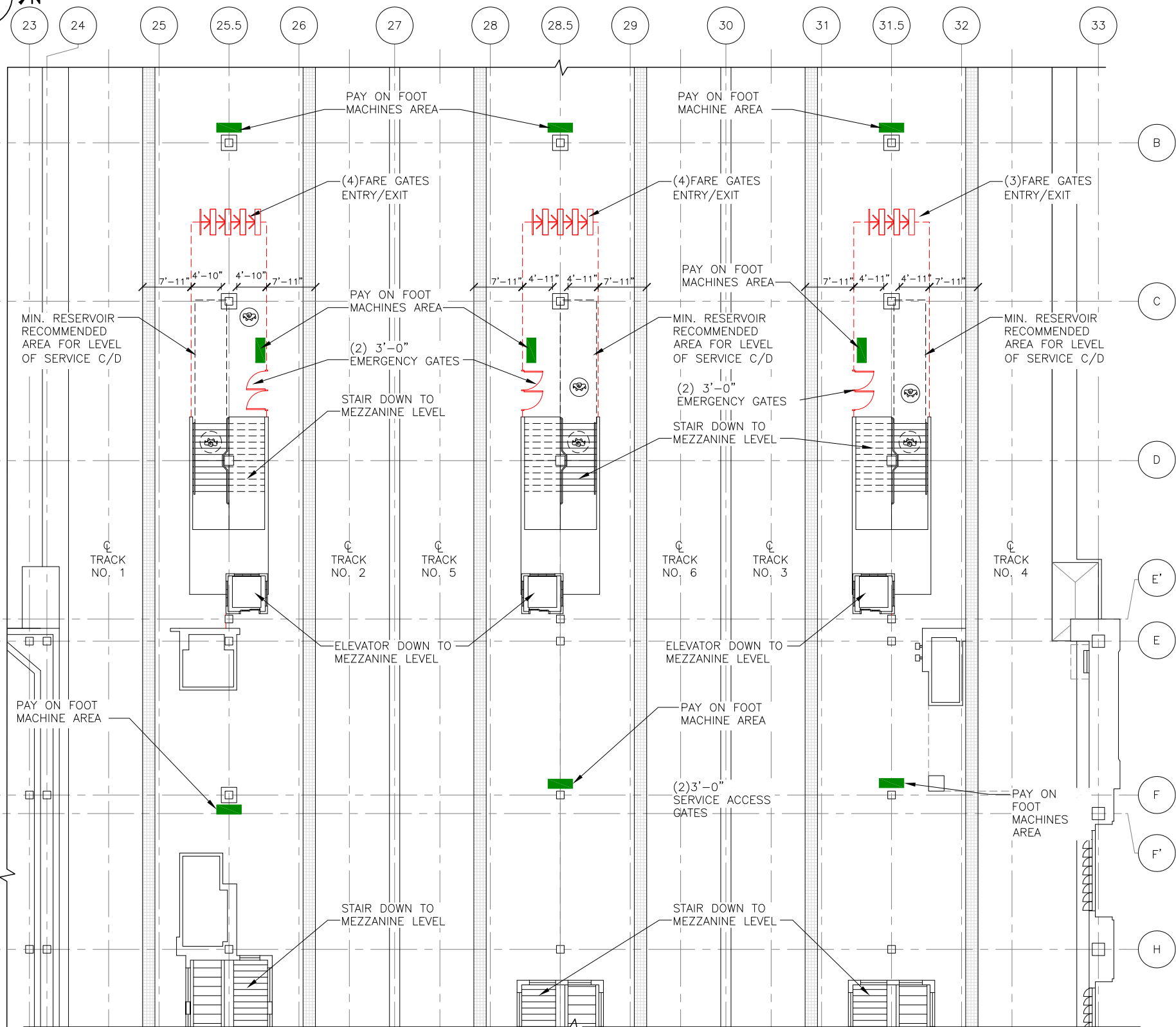
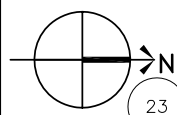
# SEPTA - REGIONAL RAIL CENTER CITY STATIONS FARE LINES



30th STREET STATION  
 CONCEPTUAL DESIGN DATE: 5/25/10

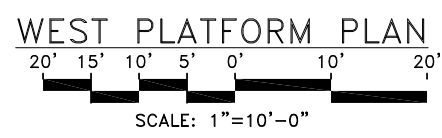
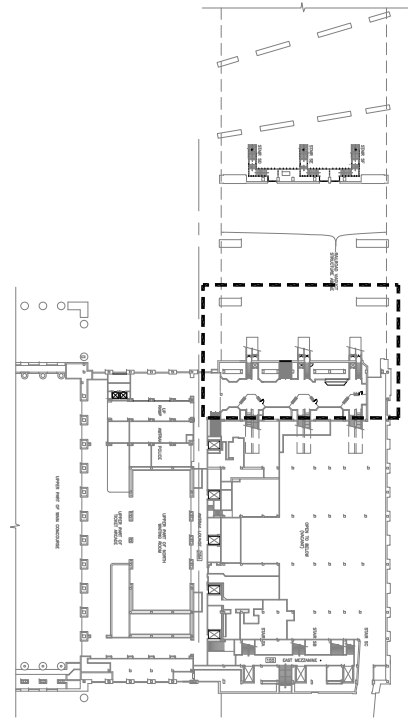
A-1





**LEGEND:**

- PEDESTRIAN FLOW TO PLATFORM
- PROPOSED LOW SECURITY FENCE
- PROPOSED HIGH SECURITY FENCE
- ADA COMPLIANT ENTRY/EXIT GATE
- PAY ON FOOT MACHINES AREA



# SEPTA - REGIONAL RAIL CENTER CITY STATIONS FARE LINES

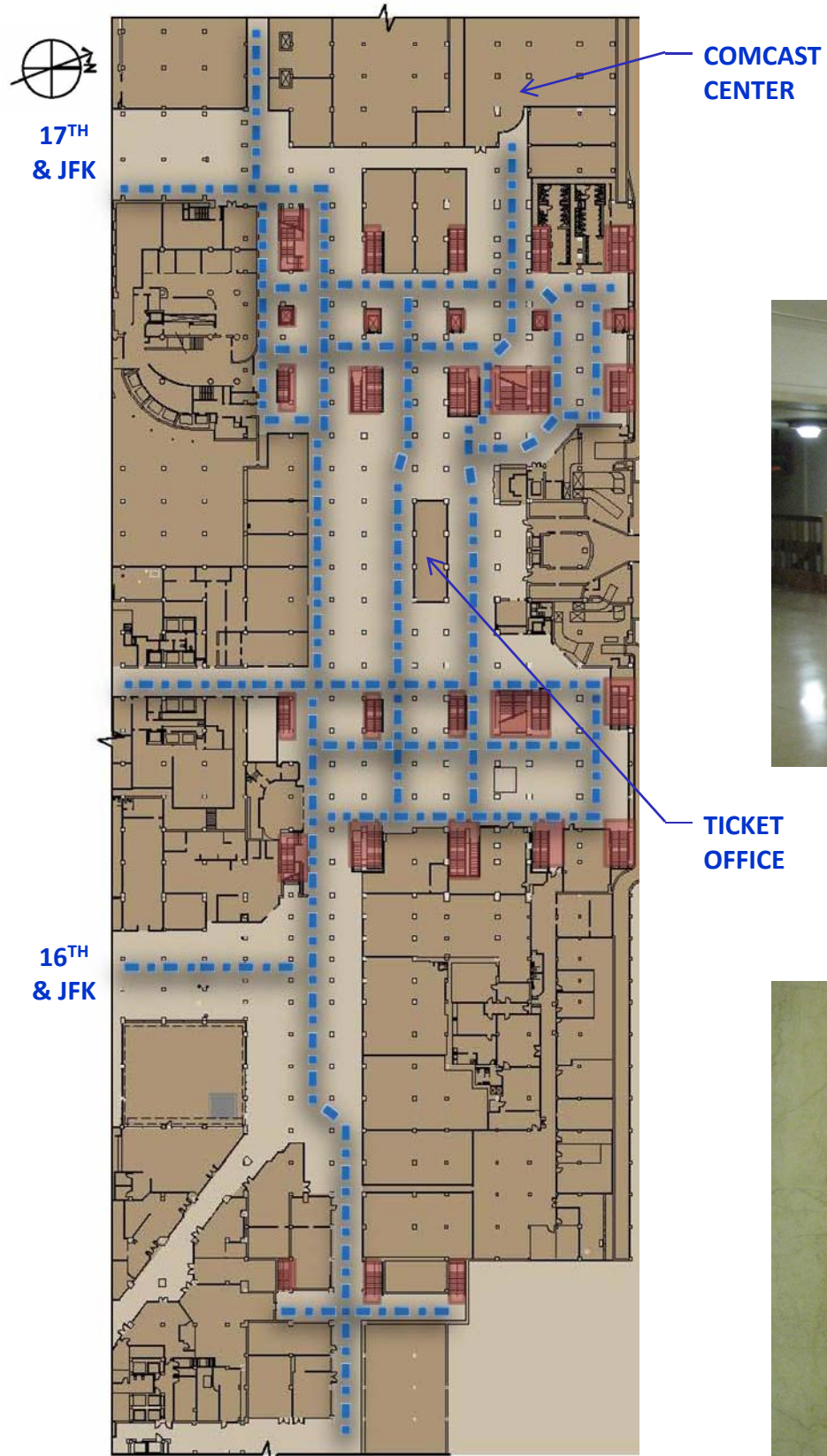


**30th STREET STATION**  
 CONCEPTUAL DESIGN DATE: 5/25/10

**A-2**

# SUBURBAN STATION

## EXISTING CONDITIONS



STAIR 12 VIEW



EAST CONCOURSE VIEW



EAST CONCOURSE VIEW



STAIR TO TRACK 3 & 4



STAIR 13 VIEW



CONCOURSE ELEVATOR VIEW

EXISTING PEDESTRIAN FLOW DIAGRAM



PLATFORM ELEVATOR VIEW



PLATFORM VIEW

**Design Approach**

Minimize the existing pedestrian flow where possible; however, platforms serving tracks 1-2 and 3-4, will be required to have a merged paid area since it is required to accommodate the constant flow of users transferring between the platforms that serve tracks 1-2 and 3-4.

**Design Requirements**

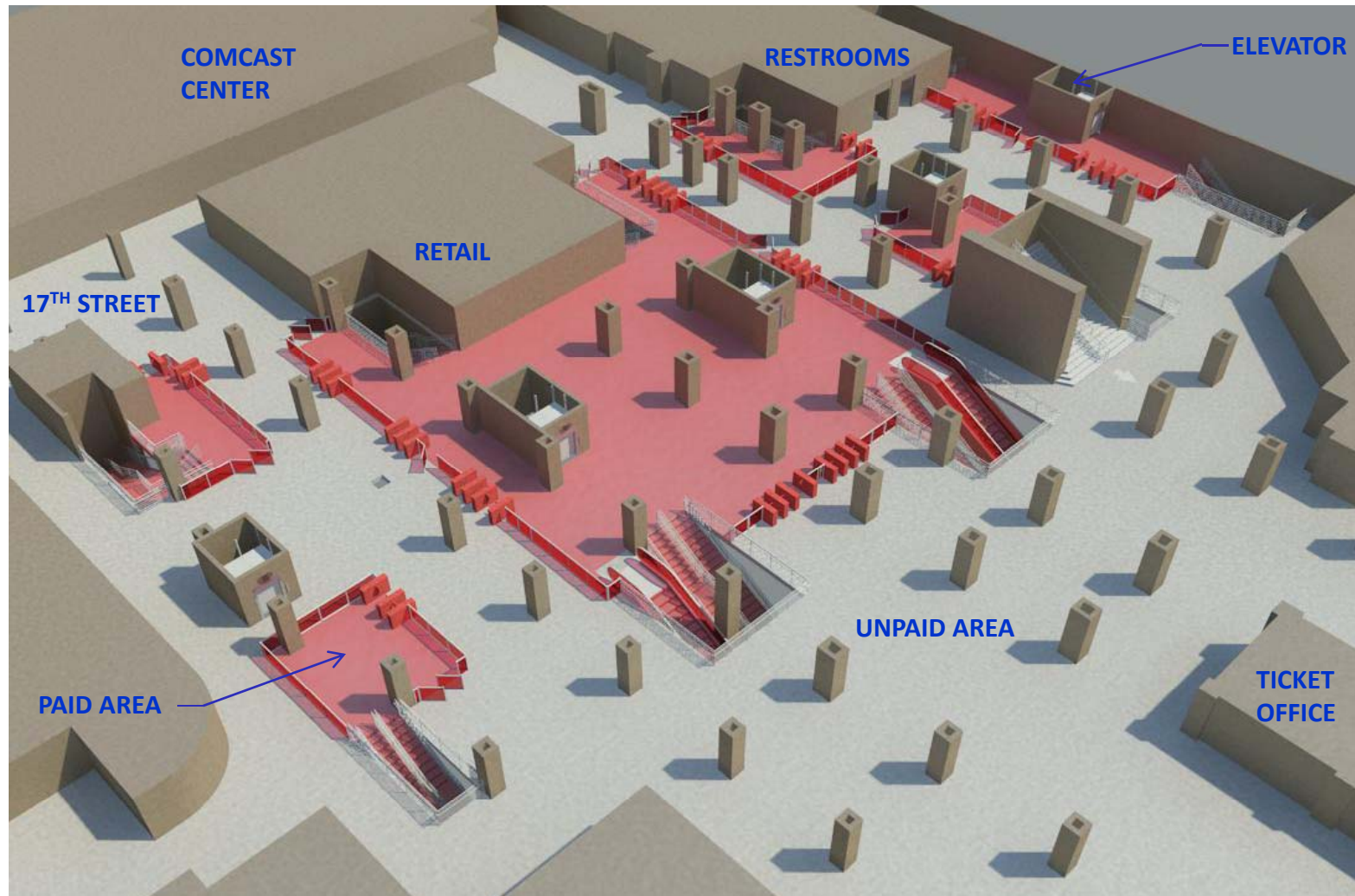
- Elevator serving track zero that connects the platform to the street will require controls at the platform end.
- (2) Two stores will require an internal reconfiguration in order to avoid any non-fare patron crossing from unpaid areas to paid areas.
- The necessity to reeducate and direct passengers with new way finding signage should be addressed as design progresses.
- The design prioritizes the pedestrian flow for railroad users.

# SUBURBAN STATION

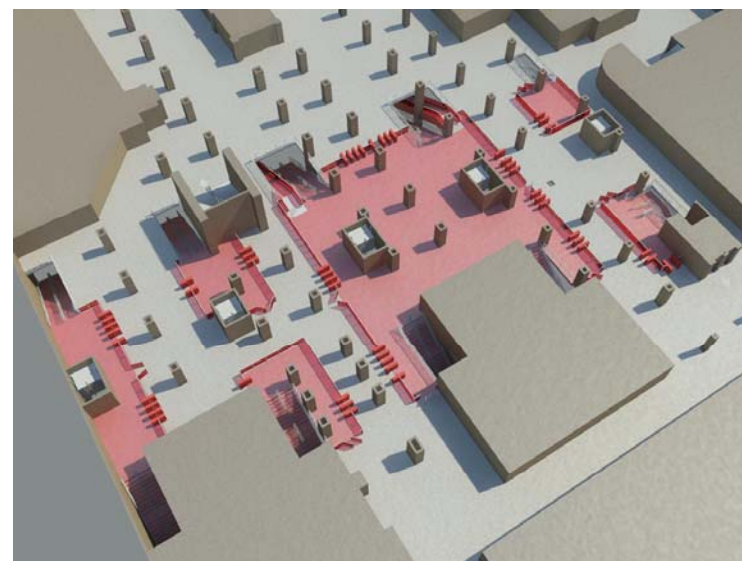
## DESIGN APPROACH

STAIR/ ESCALATOR NUMBER	LEVEL OF SERVICE C/D CALCULATION				STAIR AND WIDTH REQUIREMENTS AS PER IBC 2009 and NFPA130			ADA FARE DEVICES +EXIT GATES REQUIREMENTS		OCCUPANT POPULATION SERVED		
	TOTAL STAIR + ESCALATOR (WIDTH) <i>(in feet)</i>	MAXIMUM STAIR CAPACITY <i>(10 person per minute per foot)</i>	MIN. QUANTITY OF 18" FARE DEVICES REQUIRED <i>(30 Persons per minute)</i>	PROVIDED FARE DEVICES CAPACITY <i>(30 Persons per minute)</i>	EXISTING EGRESS WIDTH (All Stairs width combined) <i>(in feet)</i>	EXISTING EGRESS WIDTH (All Stairs width + 1/2 of the escalator width) as per NFPA 130 <i>(in feet)</i>	PROVIDED EGRESS WIDTH ALL FARE DEVICES+EXIT GATES <i>(to be equal or greater than exist. stair width)</i> <i>(in feet)</i>	MIN. REQUIRED EXIT GATES + ADA FARE DEVICES <i>(50% of existing stair width, excluding turnstiles)</i> <i>(in feet)</i>	PROVIDED EXIT GATES + ADA FARE DEVICES <i>(in feet)</i>	# OF EXISTING OCCUPANTS BASED ON EXISTING STAIR <i>(0.3 inches per occupant)</i>	MIN. WIDTH REQUIRED FOR OTHER EGRESS COMPONENTS <i>(exit gates+ ADA fare devices)</i> <i>(0.2 inches per occupant)</i> <i>(in feet)</i>	WIDTH PROVIDED FOR OTHER EGRESS COMPONENTS <i>(exit gates+ADA fare devices)</i> <i>(in feet)</i>
1&2	16.00	160	6	7	16.00	16.00	18.00	8.00	9.00	640	10.67	9.00
3&4	16.00	160	6	6	16.00	16.00	16.50	8.00	9.00	640	10.67	9.00
5	8.00	80	3	3	8.00	8.00	12.00	4.00	6.00	320	5.33	6.00
6	8.00	80	3	3	8.00	8.00	12.00	4.00	6.00	320	5.33	6.00
7	8.00	80	3	3	8.00	8.00	9.00	4.00	6.00	320	5.33	6.00
8	8.00	80	3	3	8.00	8.00	9.00	4.00	6.00	320	5.33	6.00
9,10,13,14	41.00	410	14	20	41.00	41.00	64.50	20.50	33.00	1640	27.33	33.00
11,12,15,16	41.00	410	14	14	41.00	41.00	40.50	20.50	24.00	1640	27.33	24.00
17	6.00	60	2	2	6.00	6.00	12.00	3.00	9.00	240	4.00	9.00
17a	6.00	60	2	2	6.00	6.00	10.50	3.00	9.00	240	4.00	9.00
18	6.00	60	2	2	6.00	6.00	7.50	3.00	6.00	240	4.00	6.00
18A	7.00	70	3	3	7.00	7.00	9.00	3.50	6.00	280	4.67	6.00
19	6.20	62	3	3	6.20	6.20	10.50	3.10	10.50	248	4.13	10.50
20	9.00	90	3	3	9.00	9.00	12.00	4.50	9.00	360	6.00	9.00
21	9.00	90	3	3	9.00	9.00	12.00	4.50	9.00	360	6.00	9.00

- NOTES:
1. ADA fare devices assumed to be paddle type
  2. Turnstiles assumed as typical condition
  3. Level of service calculations are based on category C/D (Recommended Standard for transportation terminal projects as per "Pedestrian planning and design" by John J. Fruin)
  4. Doors, Gates and Fare devices as per section 1008 on International Building code 2009 edition
  5. Means of Egress based on occupant population served as per Table 1005.1 on International Building code 2009 edition.



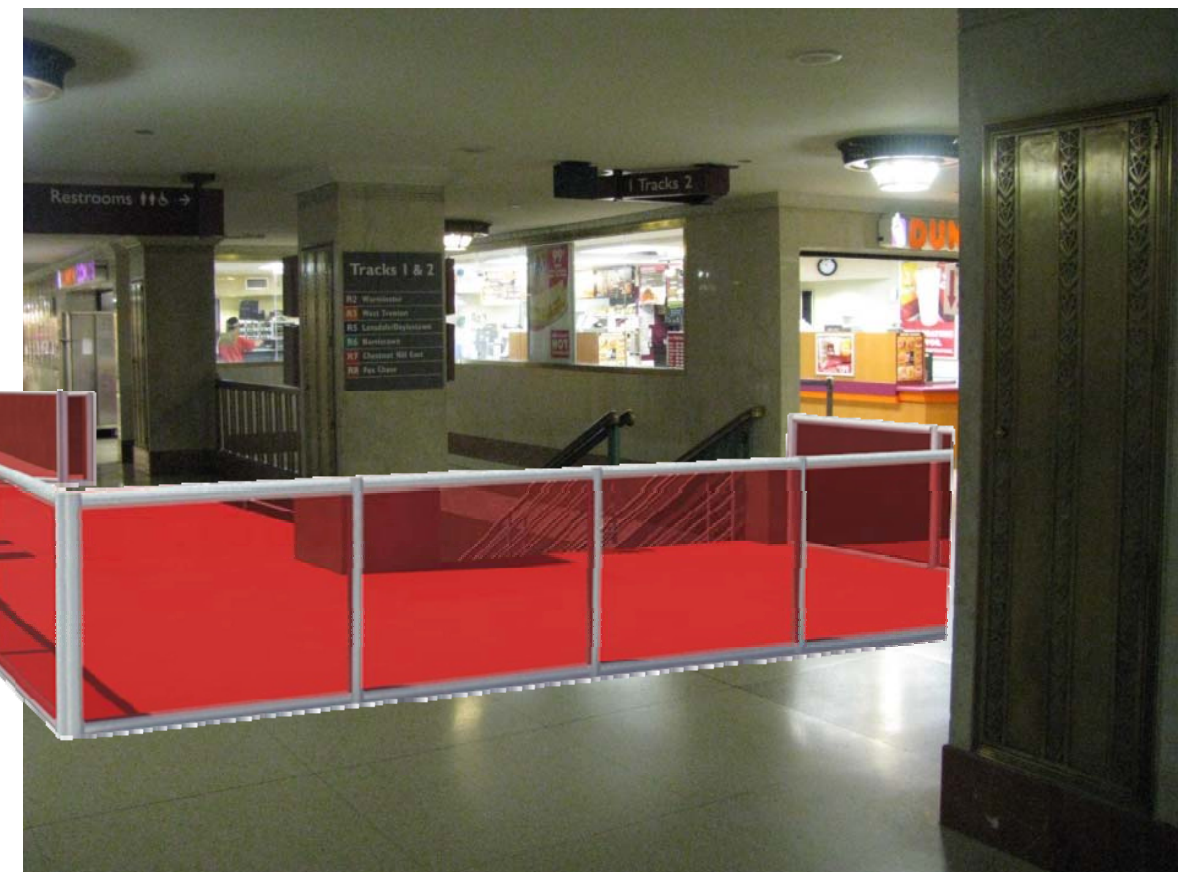
WEST CONCOURSE VIEW LOOKING NORTH



WEST CONCOURSE VIEW LOOKING WEST



WEST CONCOURSE VIEW LOOKING EAST



VISUAL PERCEPTION OF CONCOURSE LEVEL

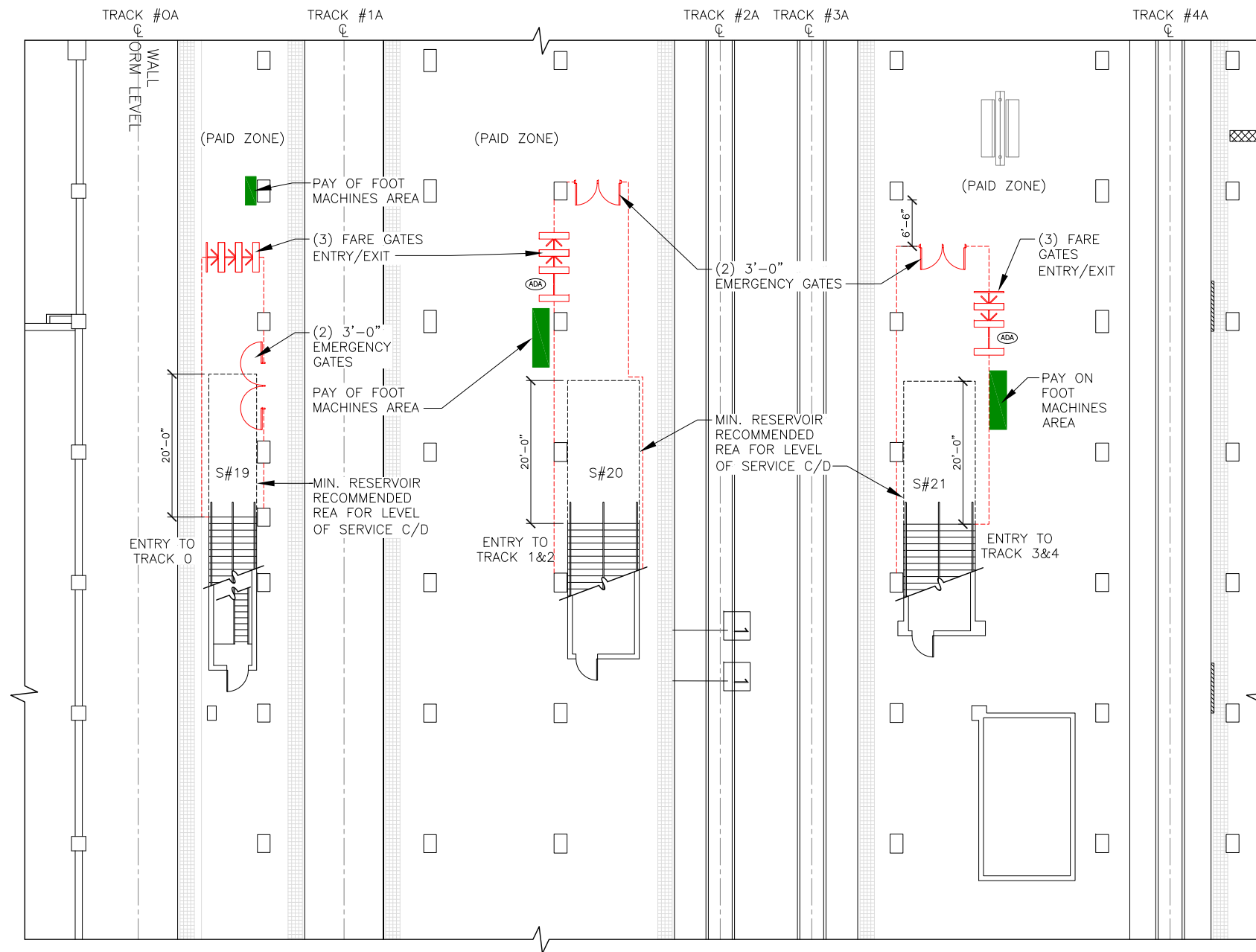
## SUBURBAN STATION

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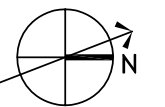
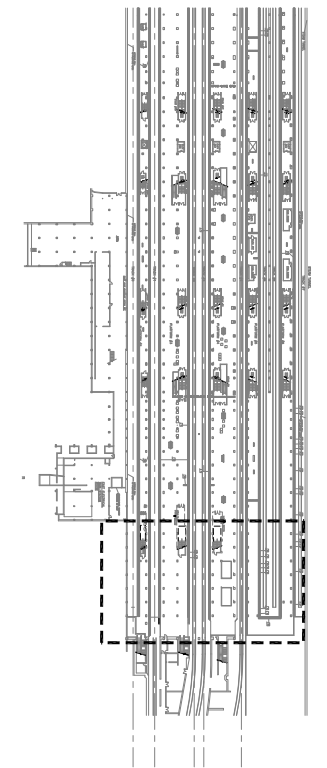
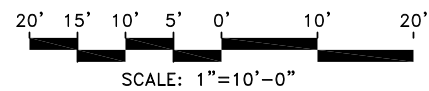
### DESIGN DRAWINGS

A series of scheme alternates were developed during the design process and meetings; however the preferred schemes for this station are:

- S-4A Platform Level Plan
- S-6F West Concourse Plan
- S-9C East Concourse Plan



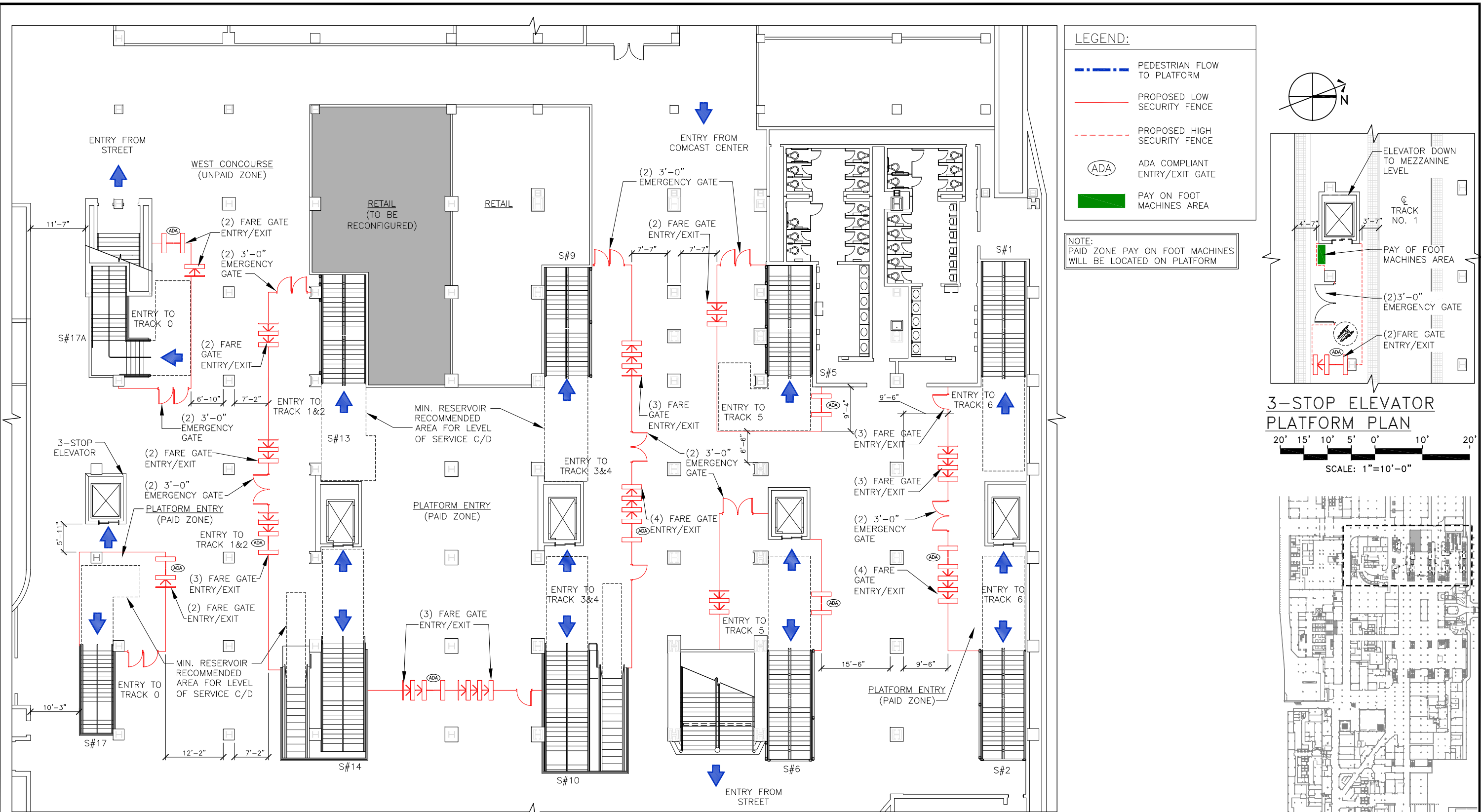
PLATFORM LEVEL PLAN - AREA C



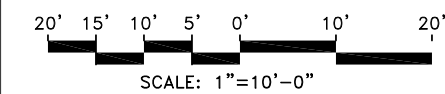
LEGEND:

- PEDESTRIAN FLOW TO PLATFORM
- PROPOSED LOW SECURITY FENCE
- PROPOSED HIGH SECURITY FENCE
- ADA COMPLIANT ENTRY/EXIT GATE
- PAY ON FOOT MACHINES AREA

# SEPTA - REGIONAL RAIL CENTER CITY STATIONS FARE LINES



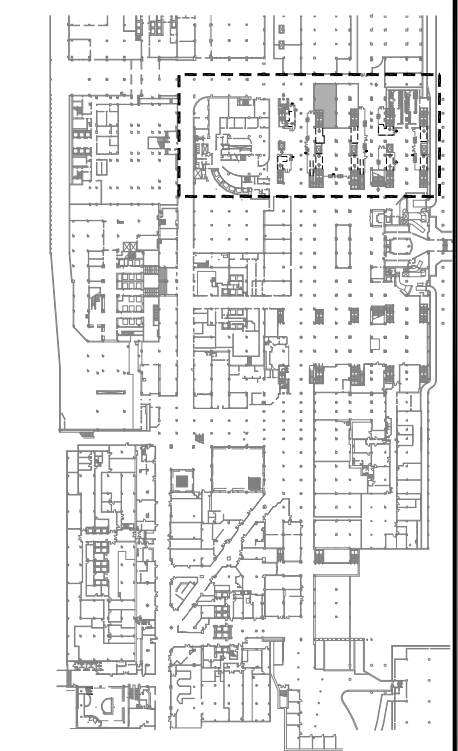
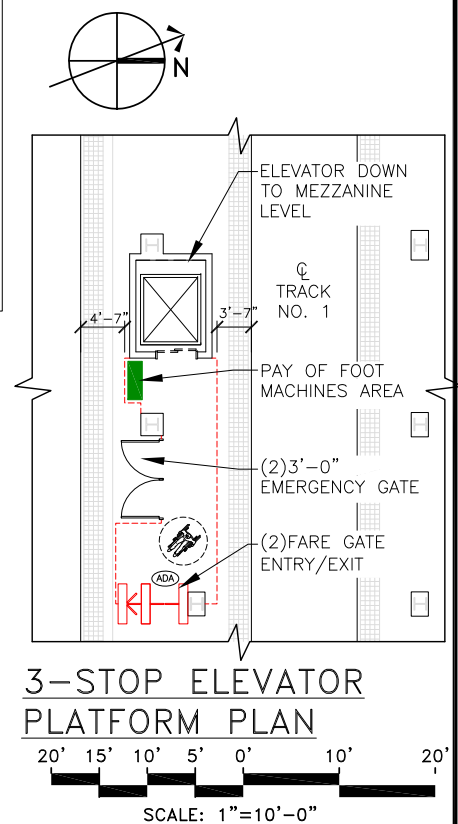
WEST CONCOURSE LEVEL PLAN - OPTION F



**LEGEND:**

- PEDESTRIAN FLOW TO PLATFORM
- PROPOSED LOW SECURITY FENCE
- PROPOSED HIGH SECURITY FENCE
- ADA COMPLIANT ENTRY/EXIT GATE
- PAY ON FOOT MACHINES AREA

**NOTE:**  
PAID ZONE PAY ON FOOT MACHINES WILL BE LOCATED ON PLATFORM



# SEPTA - REGIONAL RAIL CENTER CITY STATIONS FARE LINES

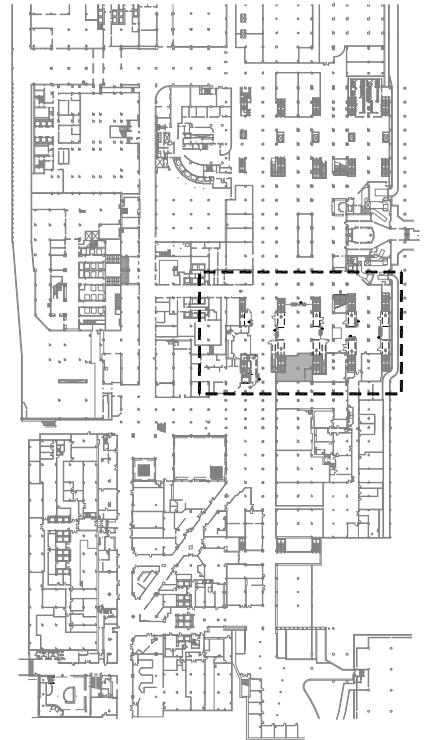
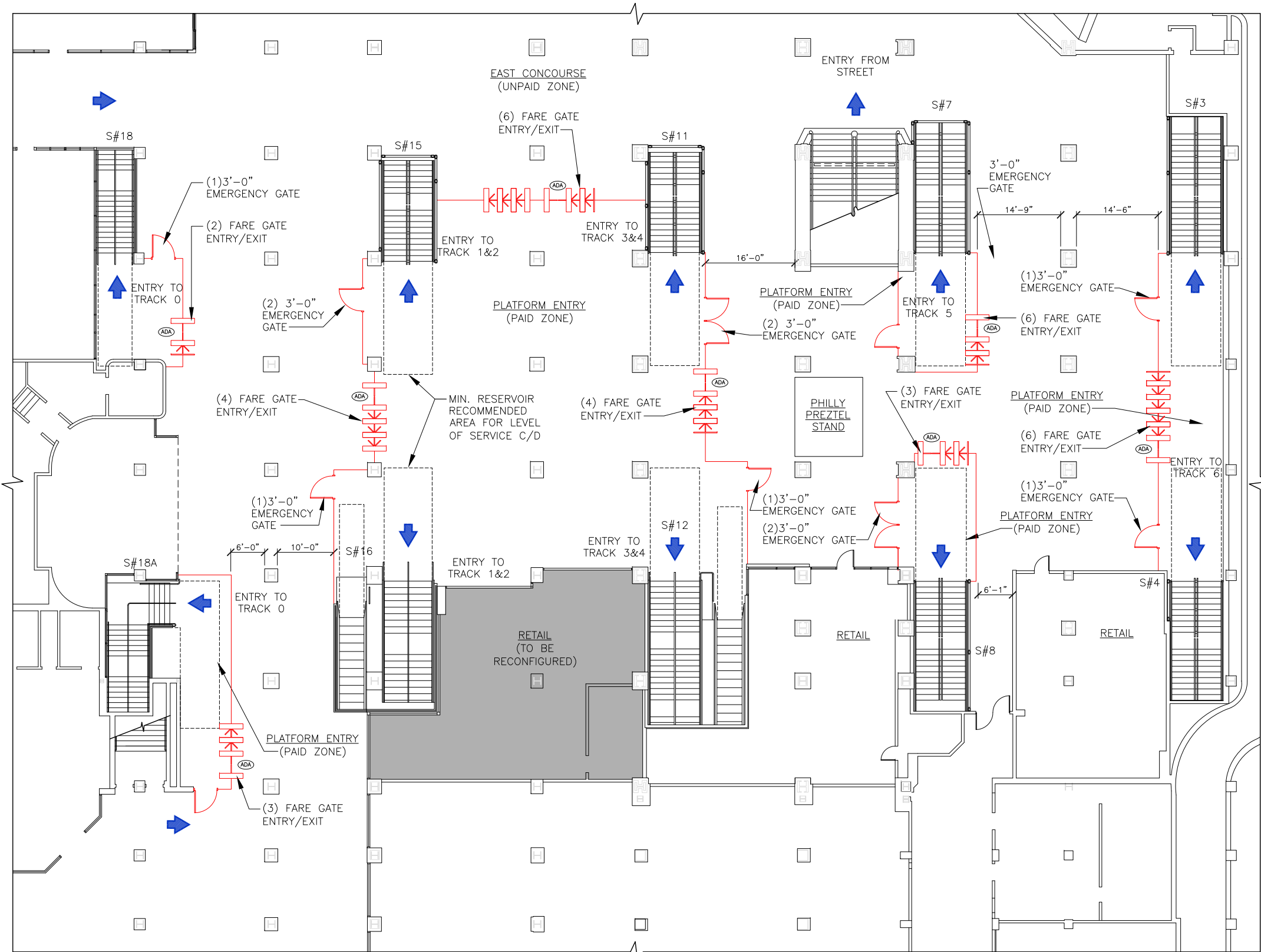


people, building, and planet



**SUBURBAN STATION**  
CONCEPTUAL DESIGN DATE: 5/25/10

**S-6F**

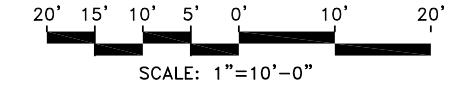


**LEGEND:**

- PEDESTRIAN FLOW TO PLATFORM
- PROPOSED LOW SECURITY FENCE
- - - PROPOSED HIGH SECURITY FENCE
- ADA ADA COMPLIANT ENTRY/EXIT GATE
- PAY ON FOOT MACHINES AREA

**NOTE:**  
PAID ZONE PAY ON FOOT MACHINES WILL BE LOCATED ON PLATFORM

**EAST CONCOURSE LEVEL PLAN- ALTERNATE C**



# SEPTA - REGIONAL RAIL CENTER CITY STATIONS FARE LINES



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<b>SUBURBAN STATION</b>	<b>S-9C</b>
CONCEPTUAL DESIGN      DATE: 5/25/10	



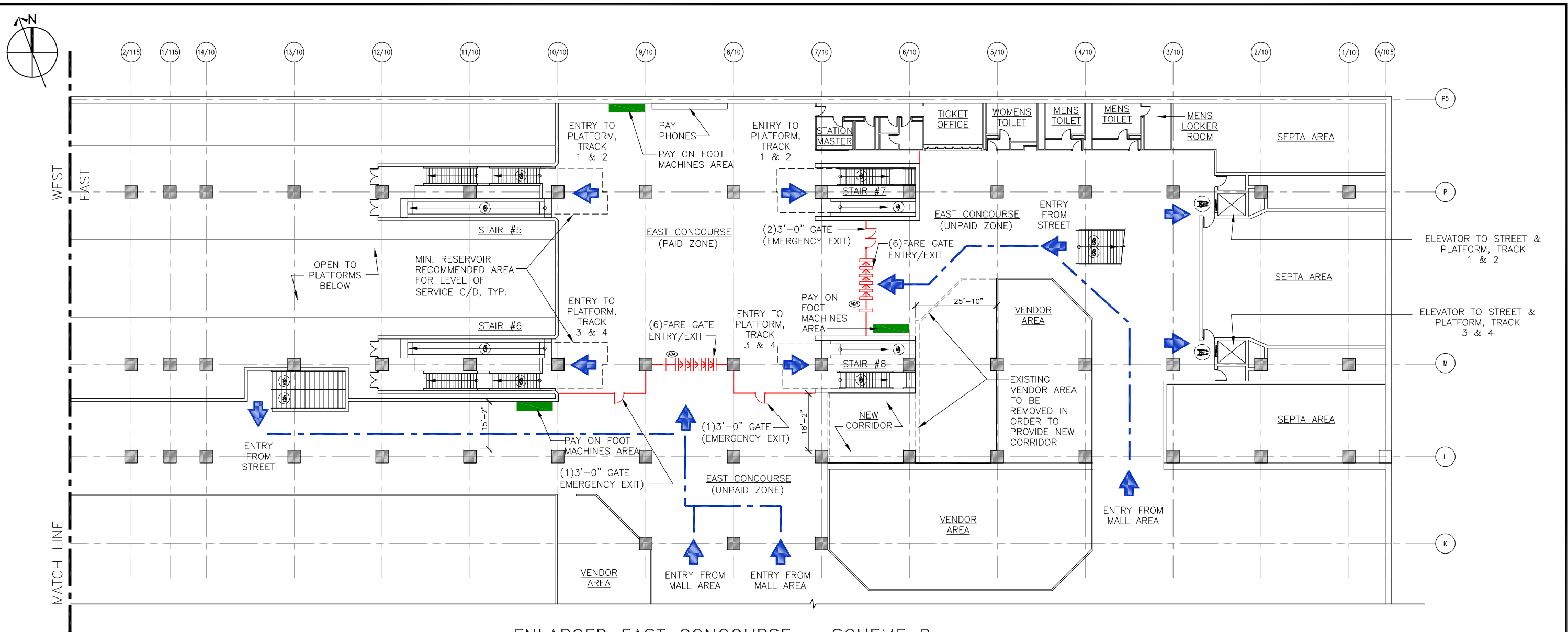
## APPENDIX

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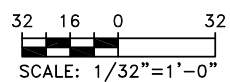
### DESIGN DRAWINGS

As per SEPTA's request the following drawings are being included in this report in order to show potential schemes that were explored:

- Market Street: M-5B Enlarged East Concourse – Scheme B
- Market Street: M-7 Enlarged East Concourse Plan – Scheme C
- Suburban Station: S-9D East Concourse Level Plan – Scheme D

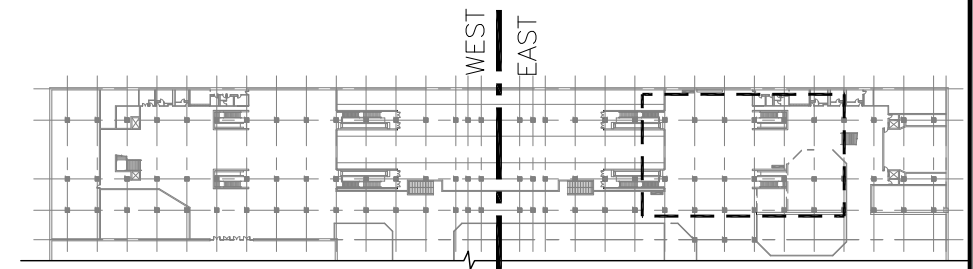


ENLARGED EAST CONCOURSE - SCHEME B



**LEGEND:**

- - - PEDESTRIAN FLOW TO PLATFORM
- PROPOSED LOW SECURITY FENCE
- - - PROPOSED HIGH SECURITY FENCE
- ADA ADA COMPLIANT ENTRY/EXIT GATE
- PAY ON FOOT MACHINES AREA



CONCOURSE KEY PLAN

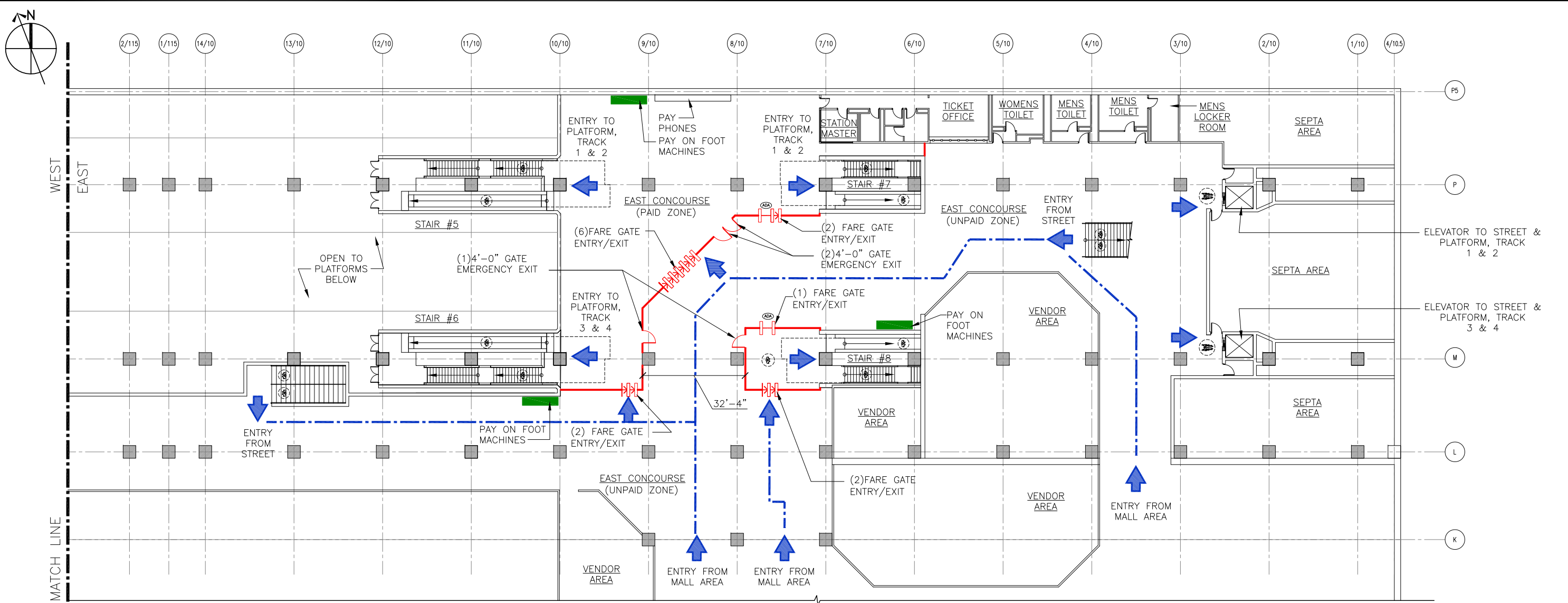
# SEPTA - REGIONAL RAIL CENTER CITY STATIONS FARE LINES



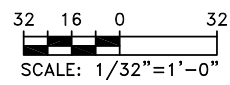
people, building, and planet



<b>MARKET EAST STATION</b>	<b>M-5B</b>
CONCEPTUAL DESIGN      DATE: 5/25/10	

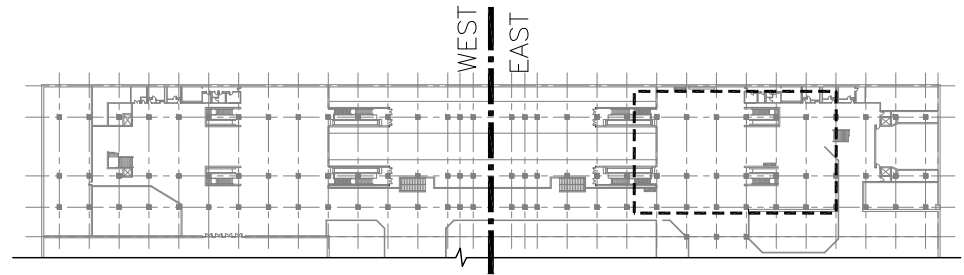


ENLARGED EAST CONCOURSE PLAN - SCHEME C



**LEGEND:**

- - - PEDESTRIAN FLOW TO PLATFORM
- PROPOSED LOW SECURITY FENCE
- - - PROPOSED HIGH SECURITY FENCE
- ADA ADA COMPLIANT ENTRY/EXIT GATE
- PAY ON FOOT MACHINES AREA



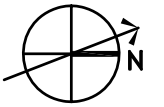
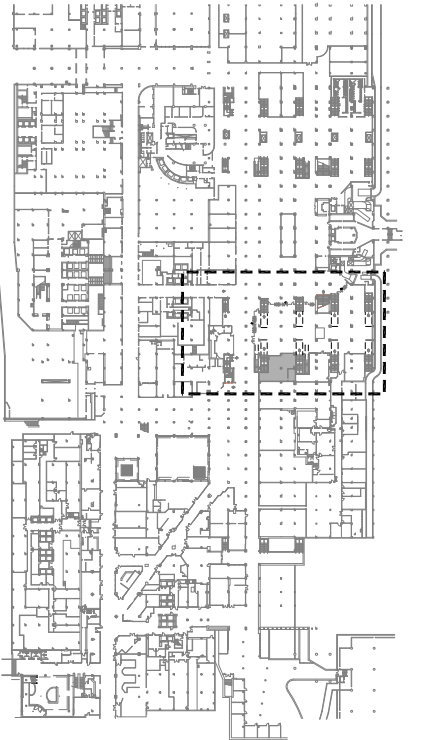
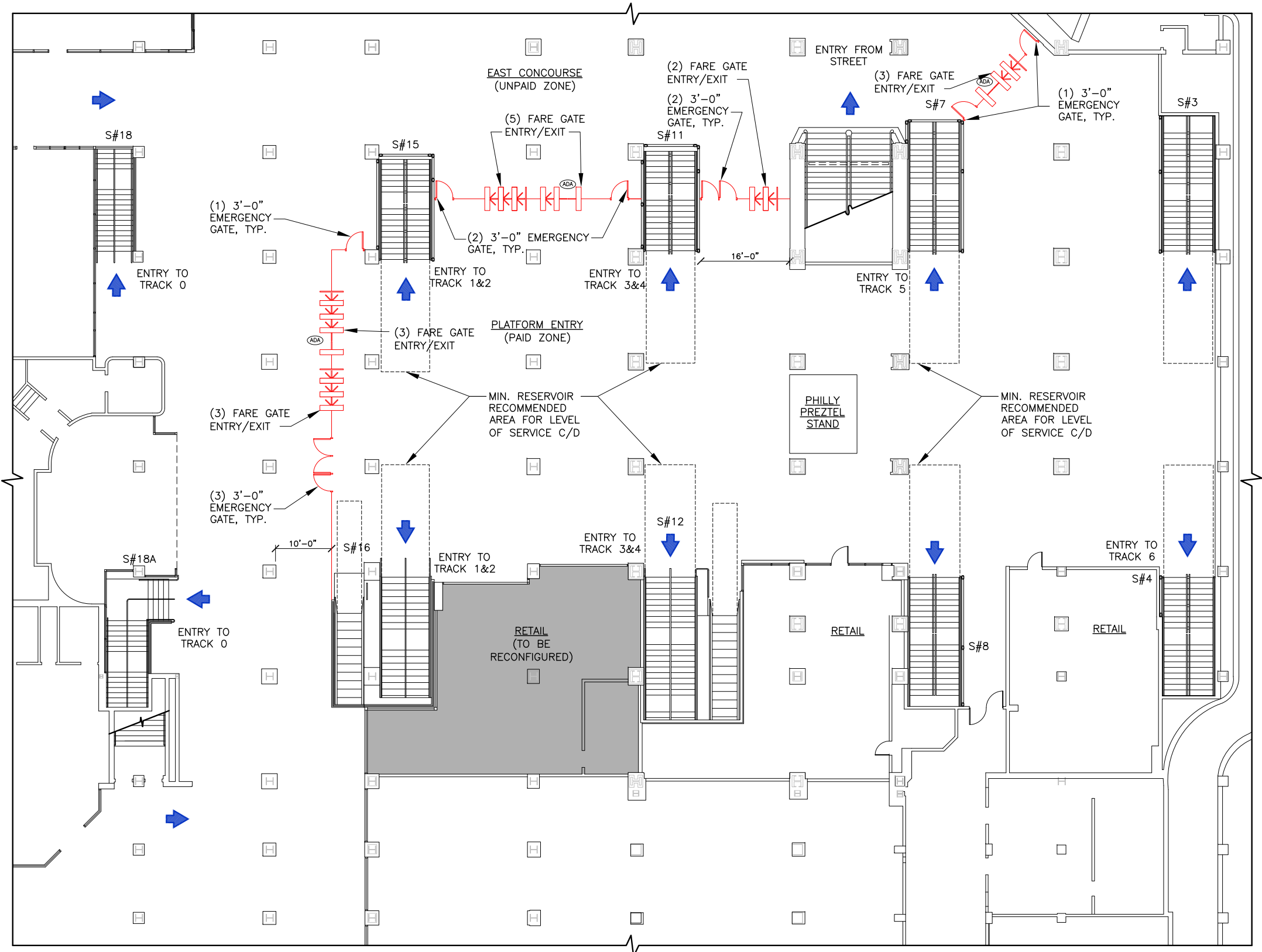
CONCOURSE KEY PLAN

# SEPTA - REGIONAL RAIL CENTER CITY STATIONS FARE LINES



**MARKET EAST STATION**  
 CONCEPTUAL DESIGN DATE: 5/25/10

**M-7**

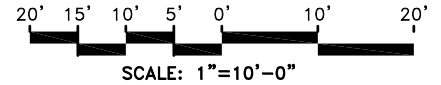


**LEGEND:**

- — — — — PEDESTRIAN FLOW TO PLATFORM
- — — — — PROPOSED LOW SECURITY FENCE
- - - - - PROPOSED HIGH SECURITY FENCE
- ADA ADA COMPLIANT ENTRY/EXIT GATE
- PAY ON FOOT MACHINES AREA

**NOTE:**  
PAID ZONE PAY ON FOOT MACHINES WILL BE LOCATED ON PLATFORM

**EAST CONCOURSE LEVEL PLAN— ALTERNATE D**



# SEPTA - REGIONAL RAIL CENTER CITY STATIONS FARE LINES



people, building, and planet



**SUBURBAN STATION**  
CONCEPTUAL DESIGN DATE: 5/25/10

**S-9D**