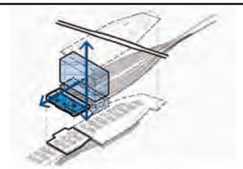
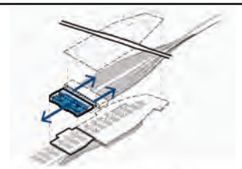
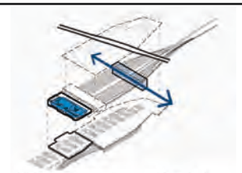
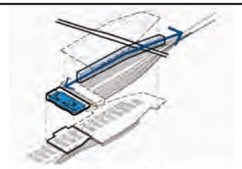
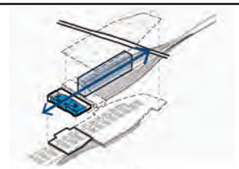
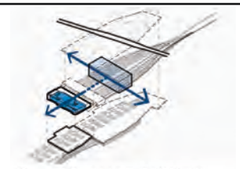
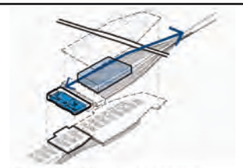
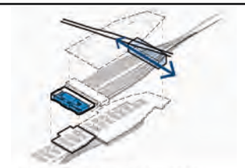
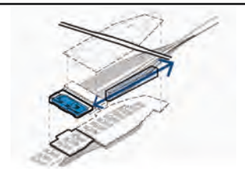
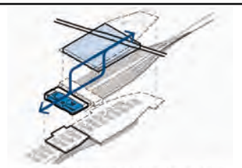
A-4 Program Element Sub-options Evaluation Matrices

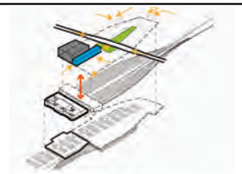
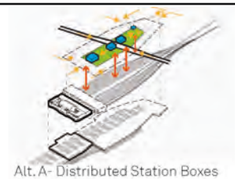
COMPONENTS EVALUATION - CONCOURSE & RETAIL

	01	02	03	04	05	06
	EXISTING CONCOURSES	**EXISTING CONCOURSES**	**UNDER TRACKS**	**UNDER TRACKS**	**UNDER TRACKS**	**UNDER TRACKS**
	 Expanded Concourse A (Terraced Retail Leading up to B.P.)	 Reinstate Historic Concourse (Exist. Retail Relocated to Other Locations/B.P.)	 H Street Concourse at Grade / Under Train Yard	 West Concourse at Grade Along 1st Street / Under Train Yard	 Central Concourse N-S	 Central Concourse E-W Under Train Yard
TRANSPORTATION						
	• Integrated and centralized facilities are best for wayfinding and modal transfers • delays might significantly impact on density of population in waiting areas so need to allow for such circumstances • must have good links to concourse(s) under the tracks and next-gen HSR	• potential for longer stub-end platforms • Integrated and centralized facilities are best for wayfinding and modal transfers • delays might significantly impact on density of population in waiting areas so need to allow for such circumstances • must have good links to concourse(s) under the tracks and next-gen HSR • consider reinstating the lower level also	• provides good access to midpoint of platforms which is even more important for double berthed trains • provides valuable alternative major route to / from WMATA at midpoint of platforms when right-sized and connected to a right-sized West Concourse	• good path of travel for largest element of passengers, who are travelling to WMATA or to southwest of station • could be daylit concourse if all/some of rail yard width not used by tracks and platforms is allocated above this concourse	• this concourse extends through the tracks and platforms and thus reduces the rail capacity of WUT by two tracks • Integrated and centralized facilities are best for wayfinding and modal transfers • provides central access from station to H St Concourse and its vertical circulation elements at midpoint of platforms • must have good links to other concourse(s) under the tracks and next-gen HSR • potential vertical connections up to Burnham Place and any transit modes located above and any located below • connects passenger flow to future streetcar	• needs to be significantly lower than 1st Street in order to extend under the run-through tracks • cannot connect to 1st St as its blocked by WMATA tunnel but does conect to the West Concourse so provides a good route from run-through tracks to WMATA • close to Concourse A so of questionable benefit • if the space is built as part of new TI then could be more valuable as Amtrak Service or other functions
EXPERIENCE						
	• clear headhouse where a majority of passengers will flow through • good daylighting to all passengers at a key point to assist in placemaking and wayfinding • potential mezzanine level retail can serve multiple consumer groups - travelers on lower levels, destination / neighborhood serving above • increased passenger flows will put pressure on Concourse A - which is already being expanded in early works - so needs to be right-sized	• clear wayfinding with headhouse linking to all tracks • main waiting area and passenger circulation would be in the beautiful historic concourse • reinstates historic functionality • relationship between the train hall and historic building is incredibly important and this option is an opportunity unlike any other development given the unique resource of the historic property	• this is the only concourse that boasts connections at both ends to public streets allowing two new significant entrances to WUT at a location that is desirable for passengers and thus will have the footfall to become the second (northern) entrance to WUT	• can have skylights all along its length on west side width depends on the track and platform design selected • can have daylight and retail along 1st St at H St and to the north • responds to current development and pedestrian desire lines • increased public circulation and connectivity between concourse level and Burnham Place development	• allows daylight through Burnham Place deck to filter down to the spaces below the tracks facing the central concourse • promotes public feature for Burnham Place development • if double height increases centalized natural light • limited light and air on the sides of the track level beyond the central concourse and train box above	• cannot communicate to streets to east or west • daylit Central Concourse and/or daylit West Concourse and/or distributed daylight at each platform would greatly improve the experince
FEASIBILITY						
	• pressure on Burnham Place southernmost buildings to move north to allow for the expanded Concourse A • potential reduced square footage of Brnham Place unless can densify in remaining site	• huge impact on existing ASI retail operations • very costly to purchase extensive current retail spaces unless can provide suitable alternative additional square footage elsewhere • Burnham Place potentially extends south over all or part of the current Concourse A which could make up for some of the lost retail in historic concourse • there is no breaking the 75-year lease so Ashkenazy would have to be persuaded to voluntarily vacate the historic concourse due to something better within plan • must address how retail will remain a vital and important part of a future reinstated historic concourse • challenging institutional feasibility • nothing is attached to the historic structure so demolition of the mezzanine could be relatively straightforward construction-wise	• the space exists as it was the original H Street although this is not a huge advantage as the whole rail yard is being rebuilt anyway	• will need to be coordinated with the existing Metro including vibration and existing structures • some of the space is already excavated though this is not an advantage as the whole railyard is being rebuilt anyway • success relies on improvements at current vertical circulation bottleneck at Metro being addressed in Phase I	• proposed to be full height and daylit so extends through the tracks and platforms and thus reduces the rail capacity of WUT by two tracks • need to find a solution so that the glazing at Burnham Place deck level that this concourse calls for will not get dirty from diesel fumes • Amtrak and FRA confirm that these two additional tracks are not required as 20/21 are sufficient to meet the project needs (will follow up with a written technical explanation) • reinforces (new) Delaware access on Burnham Place for train passengers • road access to Burnham Place more difficult	• if the space is built as part of new TI then could be more valuable as Amtrak Service or other functions
URBAN CONTEXT						
	• a major access to / from southern side of Burnham Place is critical • visibility from Burnham Place is important • opportunity to reconfigure existing retail within Concourse A to better meet passenger needs • potential increase in retail square footage and adjacency to existing retail • pay attention to the important views to the south	• less opportunity to provide a major access to / from southern side of Burnham Place • less opportunity to provide visibility from Burnham Place • reinstates a historic resource to its original use • must activate the east side of the station	• H-Street concourse will provide a fast connection to midpoint of platforms for passengers arriving / departing to NOMA on 1st Street & Near Northeast on 2nd Street	• access from 1st St possible at H St and north providing great connectivity to NoMA and potential for retail to activate 1St Street and to take advantage of the significant footfall • provides opportunity for Burnham Place buildings to drop cores down and have lobbies at 1st Street level when coordinated with the track & platform layout above • most efficient pedestrian connection with NoMA and Metro	• potential vertical connections up to Burnham Place on either side of H St	• does not connect to neighborhood directly
PASS / FAIL	**PASS**	**PASS**	**PASS**	**PASS**	**PASS**	**FAIL**
	• most important concourse should be right-sized	• radical promising alternative that merits further study to determine its true potential	• will become the second (northern) main entry to WUT	• critical link between WMATA and H St Concourse (at midpoint of platforms) and further north to NoMA and possibly up to Burnham Place buildings	• provides central access from historic station to H St Concourse, up to Burnham Place and down to the future HSR and to any other public facilities located below	• of questionable benefit as a concourse

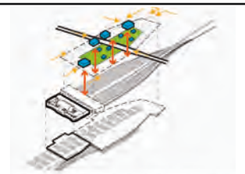
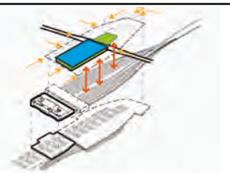
COMPONENTS EVALUATION - CONCOURSE & RETAIL

	07	08	09	10
	EXISTING CONCOURSES	**EXISTING CONCOURSES**	**UNDER TRACKS**	**ELEVATED**
	 Expanded Mega-concourse at Grade Along 1st Street / Under Train Yard	 North Concourse E-W Under Train Yard	 East Concourse	 Upper Concourse Over Train Yard
TRANSPORTATION				
	• ideal expansive concourse to future HSR below (if that location is the approved HSR strategy) • before HSR the space could be used for Amtrak Service and/or Retail functions • could be left unexcavated initially to be built only when HSR moves ahead	• could be a desirable concourse at far north for access to the thriving NoMA on 1st Street & to the Near Northeast neighborhod on 2nd Street however only a few stub-end platforms reach this far north so of limited value • emergency egress is necessary at the north end of the long stub-end platforms but there may be a way to provide this without it being a full passenger Concourse • may be needed for critical egress • additional connectivity through the site • with double berthing this concourse would be used for fast exit for passengers heading to NoMA	• possible link to possible new future WMATA line • possible link to future HSR if alignment under 2nd St	• much longer transfers to WMATA and next-gen HSR as elevated over tracks rather than under tracks • could link vertically to the bus station if it was located above so excellent connectivity • Integrated and centralized facilities are best for wayfinding and modal transfers • delays might significantly impact on density of population in waiting areas so need to allow for such circumstances
EXPERIENCE				
	• cannot communicate to streets to east or west • daylit Central Concourse and/or daylit West Concourse and/or distributed daylight at each platform would greatly improve the experince • large unified passenger space	• can open to 1st and 2nd Streets but does not connect to many platforms so limited desirability and adds to the complexity of the wayfinding	• not on a strong desire line • would need to be underground below street level due to run-through tracks above so poor experience • could get daylight in distributed daylight schemes	• potential for significant daylight throughout concourse through Burnham Place deck
FEASIBILITY				
	• if the space is built as part of new TI then could be more valuable as Amtrak Service or other functions • could be left unexcavated initially to be built only when HSR moves ahead	• if the space is built as part of new TI then could be more valuable as Amtrak Service and emergency egress	• if the space is built as part of new TI then could be more valuable as Amtrak Service and/or other functions at least temporarily until HSR is built	• huge impact to Burnham Place as this concourse significantly reduces the height available for the development south of H Street • will likely need to be fire & smoke separated from train hall below • • lower construction costs than below tracks concourses
URBAN CONTEXT				
	• does not connect to neighborhood directly	• can connect to 1st and 2nd Streets but only connects with a small number of platforms so of limited value	• east side of station is adjacent to current service yard for SEC & Kaiser buildings so no opportunity to connect to neighborhood • if HSR alignment is under 2nd St then east side becomes more important and this concourse could be more successful	• potential for great connectivity up to Burnham Place and its retail and other amenities • great visibility from Burnham Place • maximum connectivity to Burnham Place as more amenities above will draw people through this level
PASS / FAIL	**PASS**	**PASS**	**PASS**	**PASS**
	• ideal expansive concourse to future HSR below (if that location is the approved HSR strategy)	• of questionable benefit as a concourse	• potential for great connectivity up to Burnham Place and its retail and other amenities • great visibility from Burnham Place • maximum connectivity to Burnham Place as more amenities above will draw people through this level	• significant impact on Burnham Place and has many challenges that if resolved could become a unique successful integrated train station / TOD

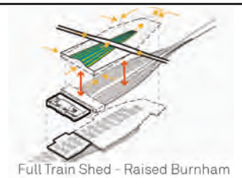
COMPONENTS EVALUATION - BURNHAM PLACE ACCESS

	01	02	03
	 Existing Garage - Restricted Station box with vertical connection adjacent to Existing Garage	 2012 Master Plan - Singular Station Box - Vertical connection to Concourse A	 Alt. A- Distributed Station Boxes with vertical connection above Expanded A and H street concourses
TRANSPORTATION	• need to modify the garage structural columns that reach the rail level below in order to provide the required rail capacity • limits opportunities to upgrade the quality of the rail experience below by incorporating an expansive train hall • limits opportunities to upgrade and expand bus terminal • maintains all station access of 2012 masterplan • primary public transportation access from Burnham Place south of H Street restricted alongside existing parking garage • primary vertical connection to concourse A adjacent to historic station	• multiple distributed possibilities to access the station from Burnham Place • primary public transportation access from Burnham Place via singular train shed south of H Street • vertical connection focused on to concourse A adjacent to the historic station	• maintains all station access of 2012 MP • primary public transportation access from Burnham Place to Concourse A adjacent to the historic station and to H St Concourse from both north and south of H Street Bridge
EXPERIENCE	• requires incorporating a lower quality building into the station and overbuild plan • greatly limited central day-lit “train hall” volume reduced from 2012 MP • daylighting restricted to narrow slice of central tracks south of H Street. Remaining tracks to the west remain below opaque roof with 19’-6” clearance above platforms with little or no daylight • provides a limited enhancement for Acela arrival for the front train cars only that stop on the central tracks south of H Street • concentrated height and daylight in proposed train hall fragments train hall experience and does not express scale of Union Station in its entirety • daylighting focused on historic station and central concourse, but does not enhance wayfinding for secondary cross concourses that provide platform access • public realm at Burnham Place severely restricted or nearly eliminated south of H Street	• experience of large day-lit “train hall” volume limited to a few central tracks south of H Street. Remaining tracks within train hall remain below opaque roof with 19’-6” clearance above platforms with little daylight • provides a privileged experience for Acela arrival on central tracks but only for a few forward few cars that stop south of H Street under the train shed. The back cars of the Acela trains remain below opaque roof with 19’-6” clearance above platforms with little daylight • concentrated height and daylight in proposed train hall fragments train hall experience and does not express scale of Union Station in its entirety • daylighting focused on historic station and central concourse, but does not enhance wayfinding for secondary cross concourses that provide platform access • public realm at Burnham Place restricted south of H Street, by concentrated train shed	• provides daylighting to train shed distributed north and south of H street • expands the perceptive scale of the train hall to encompass the entire length of the rail yard and the platforms through distributed daylighting • strengthens the perception of adjacency and ease of connections to station from Burnham Place public realm • enhances wayfinding both external and internal to the station by focusing daylight on vertical connections to Concourse A adjacent to the historic station and down to an expanded H Street concourse • opens up larger central public realm north and south of H Street by distributing station light boxes
FEASIBILITY	• may not provide the rail capacity required • severly impacts Burnham Place 2012 MP	• proximity of train hall volume with neighboring over-build development presents potential phasing and ownership issues to be resolved between Union Station and over-build developer	• clarifies the division between private development and public space / station roof at Burnham Place • introduces additional Union Station interfaces within Burnham Place public realm both south and north of H Street
URBAN CONTEXT	• relation to Urban context fragmented by size and location of existing looming parking structure, limiting of active uses at street level above on Burnham Place • public spaces at Burnham Place fragmented and scaled as local neighborhood amenities only • absence of any grand public gathering spaces oriented in scale to DC’s Monument core, and representative of the historic station’s role in this district and the city at large • train shed volume fills open space between buildings south of H Street and existing garage, resulting in an awkward interface between Union Station and the surrounding private over-build development • primary public access to Burnham place via elevated H Street • residents and visitors to Burnham Place should feel like they are ‘in the city’. Concern at options with roads only at edges of the site / service driveways as the exclusive building access	• public spaces at Burnham Place fragmented and scaled as local neighborhood amenities only • train shed location enjoys proximity to historic station • absence of any grand public gathering spaces oriented in scale to DC’s Monument core, and representative of the historic station’s role in this district and the city at large • train shed volume fills majority of open space between buildings south of H Street resulting in an awkward interface between Union Station and the surrounding private over-build development • train shed enjoys pride of place adjacent to historic train station structure • primary public access to Burnham place via elevated H Street • residents and visitors to Burnham Place should feel like they are ‘in the city’. Concern at options with roads only at edges of the site / service driveways as the exclusive building access	• distribution of train hall volume both north and south of H Street improves interface between Union station and over-build development • redistribution of train hall volumes allows for larger, more open, and better defined public realm centered between development both north and south of H Street • potential for larger public open spaces may provide greater neighborhood draw beyond over-build development • possibility to develop a hierarchy of public spaces that are differentiated in scale and character • central train shed above central concourse extends the central axis of the historic station into the layout of the over-build • residents and visitors to Burnham Place should feel like they are ‘in the city’. Concern at options with roads only at edges of the site / service driveways as the exclusive building access
PASS / FAIL	**PASS** • requires significant structural modifications in order to provide the required rail capacity below and limits opportunities to upgrade the quality of the rail experience below by incorporating an expansive train hall but needs to be studied further as there is no agreement to demolish existing garage	**PASS** • single concentrated train shed idea is dramatic but leaves much of the platform environment mean and Penn Station like	**PASS** • enlarges the train shed concept but perhaps too fragmented

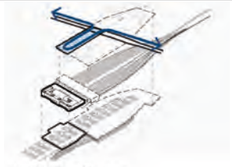
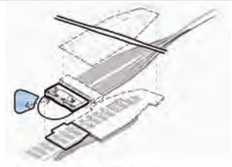
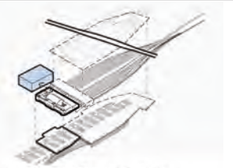
COMPONENTS EVALUATION - BURNHAM PLACE ACCESS

	04	05	06
	 Alt. B- Distributed Station Boxes with vertical connection above A and H street concourses along western edge	 Alt. C- Distributed Station Boxes with vertical connection above A and H street concourses	 Alt.D- Elevated Semi-Open Concourses at B.P. Level
TRANSPORTATION			
	• maintains all station access of 2012 MP while enhancing access all along 1st Street and West Concourse • primary public transportation access from Burnham Place distributed north and south of H Street long the western edge of the over-build to emphasize connectivity with First Street and elevated greenway • vertical connections provided to concourse A adjacent to the historic station and down to an expanded H Street concourse	• maintains all station access of 2012 MP • primary public transportation access from Burnham Place to Concourse A adjacent to the historic station and to H St Concourse from both north and south of H Street Bridge • main concourse under tracks is lower than 1st St level in order to provide a grander civic space that can also function as a concourse for the HSR to be built directly below	• maintains all station access of 2012 masterplan. • primary public transportation access from Burnham Place via upper level concourse south of H street within grand public train hall • vertical connections provided to concourse A adjacent to the historic station and down to an expanded H Street concourse
EXPERIENCE			
	• provides daylighting to train shed distributed north and south of H street • expands the perceptive scale of the train hall to encompass the entire length of the rail yard and the platforms • enhances wayfinding both external and internal to the station by focusing daylight and access along the western edge of the development where the most pedestrian activity (entering, exiting, and transferring) take place. • focuses primary public realm along western edge with connections to First Street, greenway, and existing bridges • concentrates access to west side of Burnham Place with less connectivity on east side, to be considered particularly during winter	• provides daylighting to train shed distributed north and south of H street • expands the perceptive scale of the train hall to encompass the entire length of the rail yard and the platforms through distributed daylighting • enhances wayfinding both external and internal to the station by focusing daylight on vertical connections to Concourse A adjacent to the historic station and down to an expanded H Street concourse • central public realm north and south of H Street a blended hybrid of station roof, providing access and light monitors, and usable public open space	• daylighting focused to south of H Street with train hall absorbing entire central courtyard space between perimeter development • enhances sense of one collective train hall South of H Street adjacent to historic station • central Acela tracks still privileged with most light and spatial volume for arrival • monumental scale of Train Hall Station box south of H provides wayfinding clarity, by dramatically pronouncing station presence at Burnham Place • central public realm to south of H Street, absorbed by station • hierarchy of public realm with a broadly public, commercial and transit focused realm south of H within the train hall and a more residential and neighborhood scaled public realm north of H street
FEASIBILITY			
	• intent to capture the real estate value associated with the proposed greenway much like the High Line in NYC • requires significant modifications to current over-build massing as represented in 2012 MP • does not support construction phasing	• clarifies the division between private development and public space / station roof at Burnham Place • introduces additional Union Station interfaces within Burnham Place public realm both south and north of H Street	• disrupts over-build Burnham Place 2012 MP as over-track concourse pushes up into what was previously part of the over-build • presents ownership and development interface challenges • concourses over the tracks will be extremely warm and polluted unless segregated by walls
URBAN CONTEXT			
	• distribution of train hall volume both north and south of H Street improves interface between Union station and over-build development • relation to urban context focused on First Street in response to primary pedestrian traffic entering and exiting station and proposed greenway whihc would be a fantastic major pedestrian and bike access to Burnham Place • expanded West Concourse could provide direct access from 1st St to building lobbies with cores leading up through track and greenway level up to overbuild development buildings • provides a hierarchy of public space at Burnham Place with a primary focus on the most public space along the western edge, connecting to the greenway and Frist Street, and more private residential-scaled, courtyard type spaces further to the east bounded by private development • capitalizes on relation to, and connectivity from Burnham Place to elevated greenway, and to neighboring buildings to the west via the existing bridges that cross First Street • focus on western edge provides an opportunity to celebrate the Burnham Wall • residents and visitors to Burnham Place should feel like they are 'in the city'. Concern at options with roads only at edges of the site / service driveways as the exclusive building access • limited opportunity for street ativation and placemaking; majority of buildings do not have street access • 'turns back' on neighborhoods to the east • reduces ability to wayfind	• distribution of train hall volume both north and south of H Street improves interface between Union station and over-build development • primary pedestrian connection to surrounding urban context focused on elevated H Street • distribution of access points and daylighting apertures across Burnham Place allows for an expanded public realm at the center of the over-build development with views and more direct relations to the historic station and the monument core beyond • potential for larger public open spaces may provide greater neighborhood draw beyond over-build development • residents and visitors to Burnham Place should feel like they are 'in the city'. Concern at options with roads only at edges of the site / service driveways as the exclusive building access	• primary pedestrian connection to surrounding urban context via elevated H Street and through new train hall via the historic station itself • the absorption of the public realm into an upper level concourse within a grand train hall creates the potential for a grand interior public space with the scale and character that relates to the historic station and capable of providing a greater neighborhood draw beyond the over-build development • hierarchy of public realm with a broadly public, commercial and transit focused realm south of H within the train hall and a more residential and neighborhood scaled public realm north of H street • residents and visitors to Burnham Place should feel like they are 'in the city'. Concern at options with roads only at edges of the site / service driveways as the exclusive building access
PASS / FAIL	**PASS**	**PASS**	**PASS**
	• Burnham Place focus on capturing value on greenway to the western edge while enabling the train shed below with prime experience at center for Acela	• Burnham Place focus on central plaza AND west side greenway	• significant impact on Burnham Place and has many challenges that if resolved could become a unique successful integrated train station / TOD

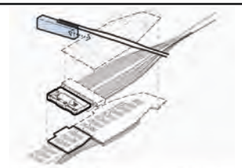
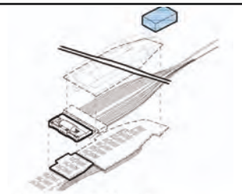
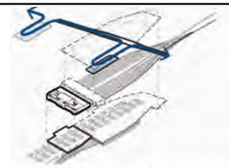
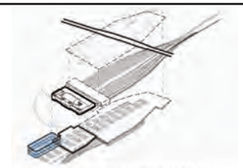
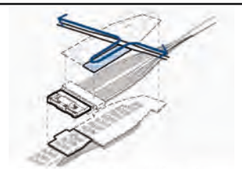
COMPONENTS EVALUATION - BURNHAM PLACE ACCESS

	07
	 Full Train Shed - Raised Burnham Place plaza with Vertical connections above A and H street concourses along western edge
TRANSPORTATION	• maintains all station access of 2012 MP • provides grand train shed encompassing the full width of the rail yard but with a clear premium experience at the center over Acela • primary public transportation access from Burnham Place can be at center and/or on west side to Concourse A and H St Concourse
EXPERIENCE	• provides distributed daylighting through train shed down the middle of the platforms with greatest amount of daylight at the center • expands the perceptive scale of the train hall to encompass the entire width and length of the rail yard and the platforms through soffit design, distributed daylight and a raised volume within the entire train shed • Acela arrival at central tracks still privileged by placement below peak of raised deck surface above • enhances wayfinding internal to the station by providing distributed daylight (or artificial lighting where Burnham Place building is directly above) down the center of the platforms for their full length • central landcaped public realm slopes south of H street to provide greater loft at entry into train shed from Concourse A
FEASIBILITY	• impacts to Burnham Place 2012 MP as train shed below takes some height previously within over-build development thus requires re-planning to achieve the 3m sf
URBAN CONTEXT	• distribution of train hall volume both north and south of H Street improves interface between Union station and over-build development • is compatible with greater focus of Burnham Place on capturing the value associated with the greenway • distribution of access points and daylighting apertures across Burnham Place allows for an expanded public realm at the center of the over-build development with views and more direct relations to the historic station and the monument core beyond • potential for larger public open spaces may provide greater neighborhood draw beyond over-build development • raised deck requires redistributed massing of buildings horizontally to accommodate target development area • • residents and visitors to Burnham Place should feel like they are 'in the city'. Concern at options with roads only at edges of the site / service driveways as the exclusive building access
PASS / FAIL	**PASS** • much improved train shed below with prime experience at center for Acela and is compatible with Burnham Place focus on capturing value of proposed greenway • can be combined with other options

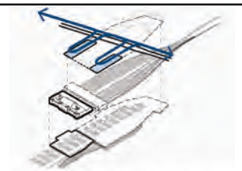
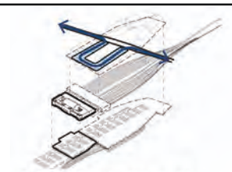
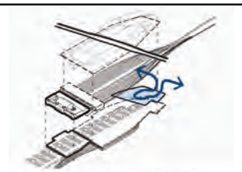
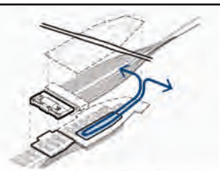
COMPONENTS EVALUATION - BUS

	01		02	03
	EXISTING GARAGE	**EXISTING GARAGE**	**OFF-SITE**	**OFF-SITE**
	 In Existing Garage	 New Garage in Location of Existing Garage	 In adjacent parking lots	 In adjacent Postal Building
TRANSPORTATION	• operational inefficiencies as many bus passengers must cross the bus lane in order to reach their bus boarding concourse • given the existing constraints of the garage, there are limited opportunities for expansion of additional bus bays • access and circulation is maintained, simplifying bus traffic patterns • regional buses are kept north of the station and away from more heavily congested streets near Columbus Circle and the station's front door • consider the needs and requirements for charter/tourism buses which are different than intercity and intra-city buses	• short transfers to all modes • access and circulation is maintained in a similar location on the south side of H Street, simplifying bus traffic patterns • regional buses kept north of the station and away from more heavily congested streets near Columbus Circle and the station's "front door" • consider the needs and requirements for charter/tourism buses which are different than intercity and intra-city buses	• flexibility in planning a new facility on grade on a large site • lease dictates that the charter and tour buses must be included in the station footprint • consider the needs and requirements for charter/tourism buses which are different than intercity and intra-city buses	• Postal Building is large enough that an efficient new bus facility should be able to be planned within it • access and circulation would be from North Capitol Street which is a major two-way street linking to the ramp to H Street Bridge currently used by all the buses • consider the needs and requirements for charter/tourism buses which are different than intercity and intra-city buses
EXPERIENCE	• safety concerns as many passengers must cross the bus lane in order to reach their bus boarding concourse • poor wayfinding can be improved with new approach to vertical circulation being studied in Phase 1 contract • requires incorporating a lower quality building into the station and overbuild plan • limits spatial quality to upgrades to existing structure • passenger transfers from buses to other modes are contained within the Union Station building and do not require crossing any public streets	• convenient and accessible location close to Concourse A and Metro • simple wayfinding • the new facilities would be designed to segregate passengers from buses thus improving safety • fantastic views to the Greenway • limits daylight that can be provided to rail tracks below	• requires users to travel longer distances and cross public streets to transfer to other modes	• short transfer to Metro • new facility would be designed to segregate passengers from buses thus improving safety • potential utilization of existing above grade bridge for direct connection to station avoiding crossing 1st Street
FEASIBILITY	• no new construction required • least cost and shortest schedule	• temporary facilities must replace bus and parking facilities currently located in existing garage while the existing garage is demolished and the permanent facility is built • above ground parking is likely less expensive than below ground parking • likely fewer adverse standoff effects as compared to locating under tracks	• requires acquiring land from AOC or loss of revenue for USRC • a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished • above ground parking is likely less expensive than below ground parking • likely fewer adverse standoff effects as compared to locating under tracks • potential other major uses proposed on sites controlled by other agencies, required additional layers of time and design coordination • provides bus facility outside of station footprint so project site capacity can support other requirements	• requires acquiring Postal Building (or part of) or loss of revenue for USRC • a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished • above ground parking is likely less expensive than below ground parking • likely fewer adverse standoff effects as compared to locating under tracks • potential other major uses proposed on sites controlled by other agencies, required additional layers of time and design coordination • Postal facility already has ramps off North Capitol Street for trucks and other vehicles leading to internal vehicular loading and parking areas on two levels making conversion to bus facility more feasible • provides bus facility outside of station footprint so project site capacity can support other requirements
URBAN CONTEXT	• limits opportunities to upgrade the quality of the rail experience below by incorporating an expansive train hall • continued negative visual impacts of the looming parking garage structure • limits opportunities for open space vibrancy and ground floor activation at Burnham Place ground level and H Street bridge level • limits potential to maximize mixed-use above grade development • sustainable solution reusing existing structure	• new facility could be set back from 1st St as 2012 MP in order to improve the urban experience of 1st St and the proposed Greenway • significant challenge for public space south of H St Bridge as terminal is quite wide east-west	• potential impacts to historic viewsheds • creates additional bus congestion on streets already heavily trafficked by MetroBuses	• Postal facility already has a similar use with ramps off North Capitol Street for trucks and other vehicles leading to internal vehicular loading and parking areas on two levels • potential negative impact to a historic landmark
PASS / FAIL	**PASS** • bus terminal can be significantly upgraded	**PASS** • if temporary facilities are acceptable then offers the fastest intermodal connectivity	**FAIL** • difficulties in obtaining control of this land	**PASS** • potential good re-use of part of Postal Building with good connectivity to WUT

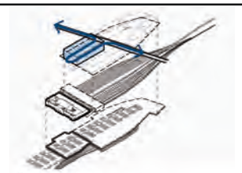
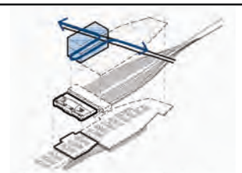
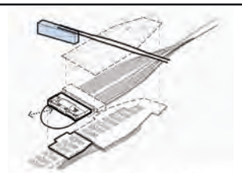
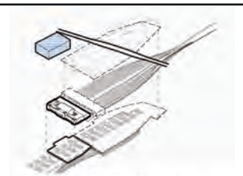
COMPONENTS EVALUATION - BUS

	04		05	06	07
	OFF-SITE	**OFF-SITE**	**OFF-SITE**	**OFF-SITE**	**ON BURNHAM-PLACE DECK**
	 In adjacent Government Printing Building	 Nearby available lots	 Split bus terminals integrated into Burnham Place and in adjacent building	 Under Columbus Circle (2012 MP Alt)	 Off H St. Bridge to southeast, integrated into Burnham Place
TRANSPORTATION	• inflexible / inefficient bus facility planning due to narrow footprint of Government Printing Building • access and circulation would be from North Capitol Street which is a major two-way street linking to the ramp to H Street Bridge currently used by all the buses • consider the needs and requirements for charter/tourism buses which are different than intercity and intra-city buses		• compact bus facility for services with intermodal transfers can be placed closer to the other modes as it can be more easily integrated • can separate higher frequency buses from bus storage associated with tourist buses • access and circulation is maintained in a similar location on the south side of H Street, simplifying bus traffic patterns • • lease dictates that the charter and tour buses must be included in the station footprint • consider the needs and requirements for charter/tourism buses which are different than intercity and intra-city buses • consider benefits in separate locations for the charter/tour buses, due to congestion and different user groups	• tight site due to existing Metro and run-through tracks make planning difficult and limit capacity • distribution of multimodal access points decreases congestion in the historic station • brings buses to the already busy “front door” of the historic station rather than leaving them at the back on H St • precludes options for WMATA to have a new E-W metro line in front of station • consider the needs and requirements for charter/tourism buses which are different than intercity and intra-city buses	• short transfers to all modes • access and circulation is maintained in a similar location on the south side of H Street, simplifying bus traffic patterns • regional buses kept north of the station and away from more heavily congested streets near Columbus Circle and the station’s “front door” • consider the needs and requirements for charter/tourism buses which are different than intercity and intra-city buses
EXPERIENCE	• new facility would be designed to segregate passengers from buses thus improving safety • potential utilization of existing above grade bridge for direct connection to station avoiding crossing 1st Street		• limits daylight that can be provided to rail tracks below • the On-Site terminal is in a convenient and accessible location close to Concourse A and Metro • the Off-Site terminal will be far from the amenities provided at Union Station that are desirable to those users • wayfinding will be more complicated with two terminals instead of all services in one facility • the new facilities would be designed to segregate passengers from buses thus improving safety	• underground facility not ideal for daylight and quality of experience • short transfer to Metro through basement level of historic station building • new facility would be designed to segregate passengers from buses thus improving safety	• convenient and accessible location close to Concourse A and Metro • simple wayfinding • the new facilities would be designed to segregate passengers from buses thus improving safety • limits daylight that can be provided to rail tracks below
FEASIBILITY	• requires acquiring Government Printing Building Building or loss of revenue for USRC • viability to integrate a bus facility will need further investigation due to narrow width of Government Printing Building • a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished • above ground parking is likely less expensive than below ground parking • likely fewer adverse standoff effects as compared to locating under tracks • potential other major uses proposed on sites controlled by other agencies, required additional layers of time and design coordination • Printing facility already has internal vehicular movement making conversion to bus facility more feasible • provides bus facility outside of station footprint so project site capacity can support other requirements		• requires acquiring nearby land or a building for the off-site terminal or loss of revenue for USRC • a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished • above ground parking is likely less expensive than below ground parking • likely fewer adverse standoff effects as compared to locating under tracks • potential other major uses proposed on sites controlled by other agencies / private owners, required additional layers of time and design coordination • provides part of bus facility outside of station footprint so project site capacity can support other requirements	• impacts NPS property and potentially AOC property • requires Section 4(f) process with potential schedule impacts • potential other major uses proposed on sites controlled by other agencies / private owners, required additional layers of time and design coordination • a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished • requires major Tiber Creek sewer diversion • higher cost of putting bus facility below grade • likely fewer adverse standoff effects as compared to locating under tracks • access and circulation is from Columbus Plaza or Louisiana Avenue, which could carry bus volumes associated with the bus facility though they are already heavily trafficked • provides bus facility outside of station footprint so project site capacity can support other requirements	• a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished whihc is easier on the east side of the rail yard • above ground parking is likely less expensive than below ground parking • likely fewer adverse standoff effects as compared to locating under tracks
URBAN CONTEXT	• potential negative impact to a historic landmark		• significant impacts to the Burnham Place development by having to incorporate a bus terminal within it • significant challenge for public space south of H St Bridge as terminal is quite wide east-west	• difficult to accomodate verntilation louvers / generators within the historic plaza • potential for greater pedestrian activation of Columbus Circle with further traffic calming and streetscape upgrades • the use of Louisiana Avenue would require coordination with the Architect of the Capitol and the removal of Senate surface parking spaces along Louisiana Avenue	• significant impacts to the Burnham Place development by having to incorporate a bus terminal within it • significant challenge for public space south of H St Bridge as terminal is quite wide east-west
PASS / FAIL	**FAIL** • Government Printing Building too narrow for efficient bus terminal	**FAIL** • any other off-site option that does not have immediate connectivity to WUT does not meet the project requirement for buses to be part of the intermodal facility	**FAIL** • difficulties in obtaining land, limit on potential daylight down to rail yard and impact on public space south of H St Bridge	**FAIL** • difficulties in obtaining control of this land, too tight a site and too costly	**FAIL** • limit on potential daylight down to rail yard and impact on public space south of H St Bridge

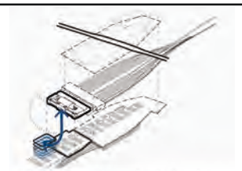
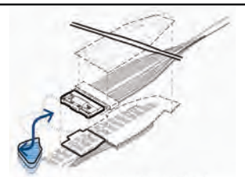
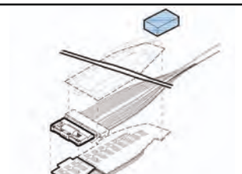
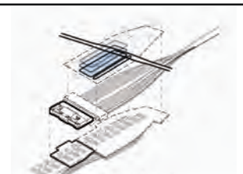
COMPONENTS EVALUATION - BUS

	08	09		10	11
	ON BURNHAM-PLACE DECK	**ON BURNHAM-PLACE DECK**	**ON BURNHAM-PLACE DECK**	**UNDER-TRACKS**	**UNDER-TRACKS**
	 Off H St. Bridge to north, integrated into Burnham Place	 Split bus terminals integrated into Burnham Place	 New Garage in Location of Existing Garage	 Under Tracks to north of H St. (2012 MP)	 Under Lower Level Run-Through Tracks (2012 MP Alt)
TRANSPORTATION	• access and circulation is maintained in a similar location but on the north side of H Street, simplifying bus traffic patterns • regional buses kept north of the station and away from more heavily congested streets near Columbus Circle and the station's "front door" • short transfer to rail with vertical circulation down to H St Concourse • longer transfer to metro than exisiting but still within footprint of station • mixes bus access with streetcar (as existing condition) • consider the needs and requirements for charter/tourism buses which are different than intercity and intra-city buses	• both compact bus facilities can be placed closer to the other modes as they can be more easily integrated • access and circulation is maintained in a similar location on the south side of H Street, simplifying bus traffic patterns • regional buses kept north of the station and away from more heavily congested streets near Columbus Circle and the station's "front door" • consider the needs and requirements for charter/tourism buses which are different than intercity and intra-city buses • consider benefits in separate locations for the charter/tour buses, due to congestion and different user groups		• regional buses kept north of the station and away from more heavily congested streets near Columbus Circle and the station's "front door" • bus traffic rerouted to K Street whihc is more challenging than existing access off H St Bridge • short transfer to rail via the H St Concourse • longer transfer to metro than exisiting but still within footprint of station • consider the needs and requirements for charter/tourism buses which are different than intercity and intra-city buses	• regional buses kept north of the station and away from more heavily congested streets near Columbus Circle and the station's "front door" • bus traffic rerouted to K Street whihc is more challenging than existing access off H St Bridge • short transfer to rail via the H St Concourse • longer transfer to metro than exisiting but still within footprint of station • consider the needs and requirements for charter/tourism buses which are different than intercity and intra-city buses
EXPERIENCE	• potential for simple wayfinding along H St Concourse & West Concourse to station and metro • the new facilities would be designed to segregate passengers from buses thus improving safety • can have views at perimeter to trains below and if on west side views plus access to Greenway	• convenient and accessible location close to Concourse A and Metro • wayfinding will be more complicated with two terminals instead of all services in one facility though both terminals are close to each other • limits daylight that can be provided to rail tracks below • the new facilities would be designed to segregate passengers from buses thus improving safety		• underground facility not ideal for daylight and quality of experience • new facility would be designed to segregate passengers from buses thus improving safety	• underground facility not ideal for daylight and quality of experience • new facility would be designed to segregate passengers from buses thus improving safety
FEASIBILITY	• a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished which is more complex though doable in this option as potentially it spans the width of the rail yard • above ground parking is likely less expensive than below ground parking • likely fewer adverse standoff effects as compared to locating under tracks • significant impact on Burnham Place north of H St	• a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished which is only doable on the east side of the rail yard so capacity would be limited until existing garage is demolished and second terminal built • above ground parking is likely less expensive than below ground parking • likely fewer adverse standoff effects as compared to locating under tracks		• a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished which would be very difficult / costly • security concern at having buses below tracks • higher cost of putting bus facility below grade	• a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished which will be costly • security concern at having buses below tracks • higher cost of putting bus facility below grade
URBAN CONTEXT	• no impact on Burnham Place south of H St which allows best design for train shed and daylight down to rail as well as more flexibility for overbuild structures in the highest value land to south and west • activates Burnham Place with potential drop-off / pick-up of bus users on H St Bridge • activates Burnham Place with some bus users electing to walk on the deck in good weather towards the station entrance at south end of Burnham Plaza rather than going straight down and through concourses • significant impacts to the Burnham Place development by having to incorporate a bus terminal within it • challenge for public space north of H St Bridge though this area of Burnham Place is more residential in nature so communal space could be elevated above bus facility	• significant impacts to the Burnham Place development by having to incorporate two bus terminals within it • significant challenge for public space south of H St Bridge as each terminal is quite wide east-west		• no impact	• no impact
PASS / FAIL	**PASS** • good intermodal connectivity with least negative impact on Burnham Place of the on-deck options	**FAIL** • limit on potential daylight down to rail yard and impact on public space south of H St Bridge		**FAIL** • security concerns, complex phasing and costly	**FAIL** • security concerns and costly

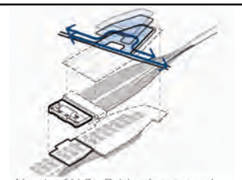
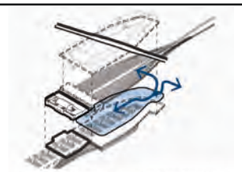
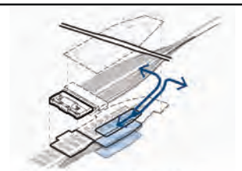
COMPONENTS EVALUATION - PUBLIC PARKING GARAGE

	01	02	03	04
	EXISTING	**EXISTING**	**OFF-SITE**	**OFF-SITE**
	 In existing garage	 Extra parking on top of existing garage	 In adjacent Gov. Printing Build-ing	 In adjacent Postal Building
TRANSPORTATION	• given the existing constraints of the garage, there are limited opportunities for expansion of additional parking • access and circulation is maintained, simplifying traffic patterns	• existing garage structure should have capacity for expansion upwards with additional parking levels • access and circulation is maintained, simplifying traffic patterns	• access and circulation for buses would be from North Capitol Street which is a major two-way street linking to the ramp to H Street Bridge currently used by garage patrons	• Postal Building is large enough that an efficient new parking facility should be able to be planned within it • access and circulation for buses would be from North Capitol Street which is a major two-way street linking to the ramp to H Street Bridge currently used by garage patrons
EXPERIENCE	• wayfinding can be improved with new approach to vertical circulation being studied in Phase 1 contract • lots of daylight around perimeter of garage • requires incorporating a lower quality building into the station and overbuild plan • limits spatial quality to upgrades to existing structure • passenger transfers from private car to other modes are contained within the Union Station building and do not require crossing any public streets	• wayfinding can be improved with new approach to vertical circulation being studied in Phase 1 contract • lots of daylight around perimeter of garage • requires incorporating a lower quality building into the station and overbuild plan • limits spatial quality to upgrades to existing structure • passenger transfers from private car to other modes are contained within the Union Station building and do not require crossing any public streets	• potential utilization of existing above grade bridge for direct connection to station avoiding crossing 1st Street	• short transfer to Metro • potential utilization of existing above grade bridge for direct connection to station avoiding crossing 1st Street • sensitive integration of parking into historic structure could provide a high quality space for patrons
FEASIBILITY	• no new construction required • least cost and shortest schedule	• little new construction required to increase garage capacity • least cost and shortest schedule	• requires acquiring Government Printing Building Building or loss of revenue for USRC • capacity of garage will need further investigation due to narrow width of Government Printing Building • a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished • above ground parking is likely less expensive than below ground parking • potential other major uses proposed on sites controlled by other agencies, required additional layers of time and design coordination • Printing facility already has internal vehicular movement making conversion to parking garage facility more feasible • provides parking garage outside of station footprint so project site capacity can support other requirements	• requires acquiring Postal Building (or part of) or loss of revenue for USRC • a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished • above ground parking is likely less expensive than below ground parking • potential other major uses proposed on sites controlled by other agencies, required additional layers of time and design coordination • Postal facility already has ramps off North Capitol Street for trucks and other vehicles leading to internal vehicular loading and parking areas on two levels making conversion to parking garage more feasible • provides parking garage outside of station footprint so project site capacity can support other requirements
URBAN CONTEXT	• limits opportunities to upgrade the quality of the rail experience below by incorporating an expansive train hall • proposed trail over WMATA will need to be carefully reviewed as buses and cars enter the garage immediately adjacent to bikes and pedestrians using the trail and crossing at the H St Bridge • continued negative visual impacts of the looming parking garage structure • limits opportunities for open space vibrancy and ground floor activation at Burnham Place ground level and H Street bridge level • limits potential to maximize mixed-use above grade development • sustainable solution reusing existing structure	• limits opportunities to upgrade the quality of the rail experience below by incorporating an expansive train hall • proposed trail over WMATA will need to be carefully reviewed as buses and cars enter the garage immediately adjacent to bikes and pedestrians using the trail and crossing at the H St Bridge • continued negative visual impacts of the looming parking garage structure • limits opportunities for open space vibrancy and ground floor activation at Burnham Place ground level and H Street bridge level • limits potential to maximize mixed-use above grade development • sustainable solution reusing existing structure	• existing loading dock facility for large trucks would be very valuable to service the thriving retail on west side of station • potential negative impact to a historic landmark	• Postal facility already has a similar use with ramps off North Capitol Street for trucks and other vehicles leading to internal vehicular loading and parking areas on two levels • potential to build a loading dock facility within Postal Building to service the thriving retail on the west side of the station • potential negative impact to a historic landmark
PASS / FAIL	**PASS** • garage can be significantly upgraded	**PASS** • garage can be significantly upgraded and its capacity increased	**PASS** • if capacity is sufficient for garage Government Printing Building offers a great loading dock conveniently located to service the thriving retail on west side of station	**PASS** • potential good re-use of part of Postal Building with good connectivity to WUT

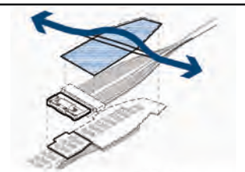
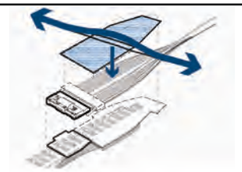
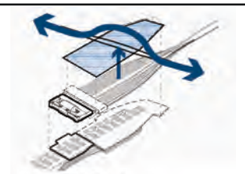
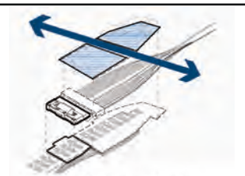
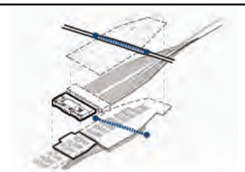
COMPONENTS EVALUATION - PUBLIC PARKING GARAGE

	05	06	07	08
	OFF-SITE	**OFF-SITE**	**OFF-SITE**	**ON DECK**
	 Multiple levels under Columbus Circle	 Multiple levels under south of Columbus Circle	 Nearby available lots	 Southeast of H St. Bridge integrated into Burnham Pl.
TRANSPORTATION	• can have a short direct underground connection to station • tight site due to existing Metro and run-through tracks limit capacity • distribution of multimodal access points decreases congestion in the historic station • brings garage patrons to the already busy “front door” of the historic station rather than leaving them at the back on H St • precludes options for WMATA to have a new E-W metro line in front of station	• can have a long underground connection to station • distribution of multimodal access points decreases congestion in the historic station • brings garage patrons to the already busy “front door” of the historic station rather than leaving them at the back on H St	• too far from station to be considered part of an intermodal facility	• short transfers to all modes • access and circulation is maintained in a similar location on the south side of H Street, simplifying vehicular traffic patterns • garage traffic kept north of the station and away from more heavily congested streets near Columbus Circle and the station’s “front door”
EXPERIENCE	• underground facility not ideal for daylight and quality of experience • short transfer to Metro through basement level of historic station building	• underground facility not ideal for daylight and quality of experience • can have a longer underground connection to transfer to Metro through basement level of historic station building	• inconvenience for modal transfers with facility blocks away from the station	• convenient and accessible location close to Concourse A and Metro • simple wayfinding • limits daylight that can be provided to rail tracks below
FEASIBILITY	• impacts NPS property and potentially AOC property • requires Section 4(f) process with potential schedule impacts • potential other major uses proposed on sites controlled by other agencies / private owners, required additional layers of time and design coordination • a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished • requires major Tiber Creek diversion • higher cost of putting parking garage below grade • likely fewer adverse standoff effects as compared to locating under tracks • access and circulation is from Columbus Plaza or Louisiana Avenue, which could carry bus volumes associated with the bus facility though they are already heavily trafficked • provides bus facility outside of station footprint so project site capacity can support other requirements	• impacts NPS property and potentially AOC property • requires Section 4(f) process with potential schedule impacts • potential other major uses proposed on sites controlled by other agencies / private owners, required additional layers of time and design coordination • a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished • requires major sewer diversions • higher cost of putting parking garage below grade • likely fewer adverse standoff effects as compared to locating under tracks • access and circulation is from Columbus Plaza or Louisiana Avenue, which could carry bus volumes associated with the bus facility though they are already heavily trafficked • provides bus facility outside of station footprint so project site capacity can support other requirements	• requires acquiring property or loss of revenue for USRC • a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished • above ground parking is likely less expensive than below ground parking • potential other major uses proposed on sites controlled by other agencies, required additional layers of time and design coordination • provides parking garage outside of station footprint so project site capacity can support other requirements • saves construction schedule and disruption	• a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished whihc is easier to do on the east side of the rail yard whihc is built first • above ground parking is likely less expensive than below ground parking • likely fewer adverse standoff effects as compared to locating under tracks
URBAN CONTEXT	• difficult to accomodate verntilation louvers / generators within the historic plaza • potential for greater pedestrian activation of Columbus Circle with further traffic calming and streetscape upgrades • the use of Louisiana Avenue would require coordination with the Architect of the Capitol and the removal of Senate surface parking spaces along Louisiana Avenue	• difficult to accomodate verntilation louvers / generators within the historic plaza • potential for greater pedestrian activation of Columbus Circle with further traffic calming and streetscape upgrades • the use of Louisiana Avenue would require coordination with the Architect of the Capitol and the removal of Senate surface parking spaces along Louisiana Avenue	• not ideal to have passengers especially those with luggage having to walk multiple blocks between the bus terminal and WUT • urbanistically missed opportunity to integrate bus terminal into new WUT	• significant impacts to the Burnham Place development by having to incorporate a parking garage within it • eastern side of Burnham Place is less valuable than the west side so this is a better place to integrate parking • activates Burnham Place as garage patrons can walk out onto Burnham Plaza and the retail fronting it
PASS / FAIL	**PASSV** • difficulties in obtaining control of this land and too costly	**FAIL** • difficulties in obtaining control of this land and too costly	**FAIL** • difficulties in obtaining control of this land and too far away	**PASS** • good intermodal connectivity with less negative impact on Burnham Place

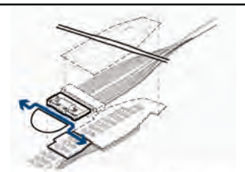
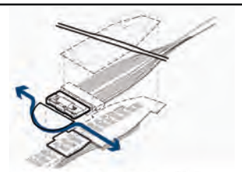
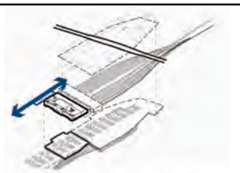
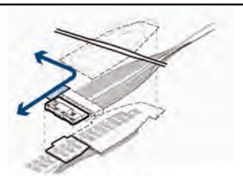
COMPONENTS EVALUATION - PUBLIC PARKING GARAGE

	09	10	11
	ON DECK	**UNDER TRACKS**	**UNDER TRACKS**
	 North of H St. Bridge integrated into Burnham Pl.	 In a single level under the tracks	 Multiple levels under the tracks
TRANSPORTATION	• access and circulation is maintained in a similar location but on the north side of H Street, simplifying vehicular traffic patterns • garage traffic kept north of the station and away from more heavily congested streets near Columbus Circle and the station's "front door" • short transfer to rail with vertical circulation down to H St Concourse • longer transfer to metro than exisiting but still within footprint of station	• garage traffic kept north of the station and away from more heavily congested streets near Columbus Circle and the station's "front door" • garage traffic rerouted to K Street whihc is more challenging than existing access off H St Bridge • short transfer to rail via Concourse A or the H St Concourse depending on where you park • short transfer to metro if you park towards the south end	• garage traffic kept north of the station and away from more heavily congested streets near Columbus Circle and the station's "front door" • garage traffic rerouted to K Street whihc is more challenging than existing access off H St Bridge • short transfer to rail via Concourse A or the H St Concourse depending on where you park • short transfer to metro if you park towards the south end
EXPERIENCE	• potential for simple wayfinding along West Concourse to station and metro • can have views at perimeter to trains below and views + access to the proposed trail	• underground facility not ideal for daylight and quality of experience • a large single level of parking would be more difficult for wayfinding and potentially a long walk to where you need to go	• underground facility not ideal for daylight and quality of experience • multiple smaller levels of parking arranged on east side between Concourse A and H St Concourse may be easier for wayfinding and short distance to elevators
FEASIBILITY	• a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished which is more complex though doable in this option as potentially it spans the width of the rail yard rather than being on east side only • above ground parking is likely less expensive than below ground parking • likely fewer adverse standoff effects as compared to locating under tracks	• a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished so only the eastern part of the new facility would be operational before existing garage needed to be demolished • higher cost of putting parking garage below grade and longer schedule • security concern at having larger private vehicles below tracks some screening may be necessary • higher cost of putting bus facility below grade	• a deal must be reached to replace bus and parking facilities currently located in existing garage and these new facilities must be operational before the existing garage can be demolished whihc is easier when the full new facility is on the east side • higher cost of putting parking garage below grade and longer schedule • security concern at having larger private vehicles below tracks some screening may be necessary • higher cost of putting bus facility below grade
URBAN CONTEXT	• no impact on Burnham Place south of H St whihc allows best design for train shed and daylight down to rail as well as more flexibility for overbuild structures in the highest value land to south and west • activates Burnham Place with some garage patrons electing to walk on the deck in good weather towards the station entrance at south end of Burnham Plaza rather than going straight down and through concourses • significant impacts to the Burnham Place development by having to incorporate a bus terminal within it though it can be "hidden away" • challenge for public space north of H St Bridge though this area of Burnham Place is more residential in nature so communal space could be elevated above bus facility	• no impact	• no impact
PASS / FAIL	**PASS** • good intermodal connectivity with least negative impact on Burnham Place	**FAIL** • public parking below tracks is much more costly, longer schedule and still requires bus terminal to be rebuilt elsewhere	**FAIL** • public parking below tracks on east side is more costly, longer schedule but minimizes impact on Burnham Place

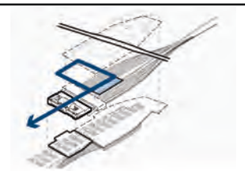
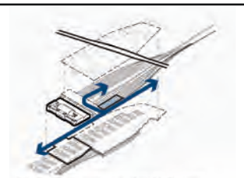
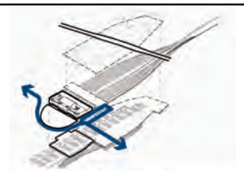
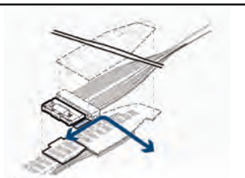
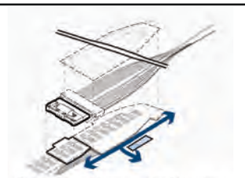
COMPONENTS EVALUATION - H STREET BRIDGE CONNECTIVITY

	01	02	03	04	05
	BRIDGE VERTICAL ALIGNMENT	**BRIDGE VERTICAL ALIGNMENT**	**BRIDGE VERTICAL ALIGNMENT**	**NO BRIDGE**	**NO BRIDGE**
	 2012 MP - Current H St Bridge	 Lower H St Bridge	 Raise H St Bridge	 Reinstate H Street at Grade	 Close H St on all levels between 1st-2nd Sts
TRANSPORTATION	• slope at the limit of streetcar capabilities • retains existing vertical alignment and traffic layout can be optimized for new requirements when deck is rebuilt • impediment to bicycle and pedestrian circulation	• better slope for streetcar • crest of bridge drops and traffic layout can be optimized for new requirements • improved bicycle and pedestrian circulation helps create a strong public transit corridor • need to coordinate so that Amtrak clearences and operations are not impacted	• steeper slope would be too much for streetcar to handle • additional height would allow Burnham Place to move up without loss of height giving greater clearence to the trains below	• limits opportunity for H St passenger concourse • improves experience for bicycle and pedestrian users • reinstates connection between 1st and 2nd Streets	• motor traffic, streetcar, bicycle and pedestrians would all need to be re-routed • east-west routes over and under tracks are already very limited
EXPERIENCE	• the approaches and curvature feel like a highway bridge designed for cars to traverse at speed rather than an urban walkable street	• the approaches and curvature would feel less like a highway bridge designed for cars to traverse at speed and more like an urban walkable street	• the approaches and curvature would feel even more like a highway bridge designed for cars to traverse at speed • pedestrians and cyclists would be put off using H St	• potential to be a more appealing space than current K Street and current H Street Bridge especially if distributed natural light is provided through each platform above	• allows for more flexibility for porject design options • a major constraint is removed
FEASIBILITY	• most manageable in terms of agreement with authorities • simplest rebuild of deck while maintaining access to existing garage • can build new deck on existing piers until TI work builds permanent piers in phases at center of new platforms and existing piers are demolished	• should be manageable in terms of agreement with authorities as vertical alignment can only drop some 6' maximum due to Amtrak minimum clearences below • rebuild of deck with slightly lower alignment requires existing garage & Station Place access ramp adjustments, existing piers to be trimmed and existing approach ramps to be lowered • can build new deck on existing piers until TI work builds permanent piers in phases at center of new platforms and existing piers are demolished	• should be manageable in terms of agreement with authorities as vertical alignment could only only rise some 6' maximum and still be usable as a highway • rebuild of deck with slightly higher alignment requires existing garage & Station Place access ramp adjustments and existing piers to be extended • can build new deck on existing piers until TI work builds permanent piers in phases at center of new platforms and existing piers are demolished	• may not be feasible due to clearence under run-through tracks and higher grade on 2nd St	• DDOT would likely not allow this
URBAN CONTEXT	• does not improve H St as an urban place • does not improve Burnham Place's connectivity to neighborhoods to east and west • risk of Burnham Place feeling isolated (like L'Enfant Plaza)	• significantly improves H St as an urban place • significantly improves Burnham Place's connectivity to neighborhoods to east and west • a flatter lower crest would foster great placemaking opportunities at the heart of the Burnham Place project • reduces risk of Burnham Place feeling isolated (like L'Enfant Plaza) • impacts maximu height of air rights development if authorities insist it is measured off new H St Bridge crest elevation	• H St will feel even less like an urban place • Burnham Place's connectivity to neighborhoods to east and west is made even worse • greater risk of Burnham Place feeling isolated (like L'Enfant Plaza)	• limits ability to provide vehicular access to Burnham Place above the tracks • reinstates connection between 1st and 2nd Streets • reinstates historic condition and part of the ground level L'Enfant Plan • eliminates the bypass nature of the bridge • diverts non-Union Station traffic to the local roads and intersections in and around 1st and 2nd Streets	• makes already difficult east-west connection worse • significant hurdles in closing a historic L'Enfant street • further limits ability to provide vehicular access to Burnham Place above the tracks • diverts non-Union Station traffic to other local roads and intersections in and around 1st and 2nd Streets making traffic worse • allows more flexibility in parcelling up Burnham Place
PASS / FAIL	**PASS** • easiest to achieve consensus	**PASS** • if achievable then better urban feel and connectivity for Burnham Place	**FAIL** • streetcar would not work and bridge would put off pedestrians and cyclists even more	**FAIL** • may not be feasible due to clearence under run-through tracks and higher grade on 2nd St and greatly limits ability to provide vehicular access to Burnham Place	**FAIL** • makes already difficult east-west connection worse and greatly limits ability to provide vehicular access to Burnham Place

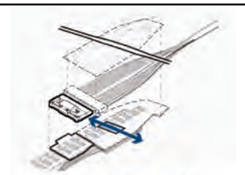
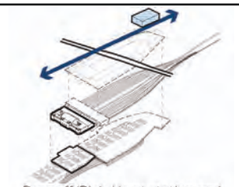
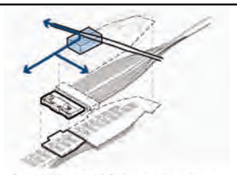
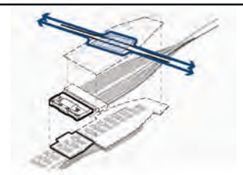
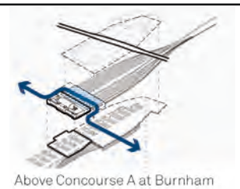
COMPONENTS EVALUATION - TAXI & PICK-UP DROP-OFF

	01	02	03	04	05
	SOUTH	**SOUTH**	**SOUTH**	**WEST**	**WEST**
	 At front of Historic Station at grade (enhanced operation)	 Along Columbus Circle perime-ter	 Below Columbus Circle	 To west of historic station next to bike station	 On First Street at WMATA entrance
TRANSPORTATION	• current principal location with views of the Capitol and waiting under cover of historic station colonnade • this is the obvious location a transit user would expect a taxi facility and USRC requires it to be included in any future taxi plan • current arrangement does not work well and needs to be re-planned to address increased need as rail service expands • high volumes of taxis put additional pressure on inefficient Columbus Circle traffic patterns • need to minimize congestion and modal conflicts: taxi / bus / pedestrians / private car drop-offs • must address how will taxi queuing work if not allowed on the road network	• would require widening the roadway and reducing the sidewalk width, which runs counter to the recently completed significant investment in providing bettter pedestrian circulation across Columbus Plaza • must address how will taxi queuing work if not allowed on the road network	• retains similar pattern for cabs just down one level • provides the opportunity for significant stacking and loading operations for taxi functions • convenient location for rail passengers coming from the platforms transferring to a lower level or from HSR and transferring up a level heading south as they do now but within basement of historic station and out to new underground facility • must address how will taxi queuing work if not allowed on the road network	• current secondary location with views of the Capitol and waiting under cover of historic station colonnade • this is a good alternative location for when the primary location is unavailable • consider making this a permanent location working at the same time as the primary • adjust arrangement for greater efficiency • with proper wayfinding could be a supplemental taxi stand within a distributed system • high volumes of taxis put additional pressure on inefficient Columbus Circle traffic patterns • need to minimize congestion and modal conflicts: taxi / bus / pedestrians / private car drop-offs • must address how will taxi queuing work if not allowed on the road network	• uses existing street frontage with taxis facing south that must go into congested Columbus Circle • provides visible location with views of the Capitol and uses existing street frontage • desirable location especially with proposed new 1st St entrance to the station and WMATA • with proper wayfinding could be a supplemental taxi stand within a distributed system • this entrance is already congested at peak times on 1st St sidewalk with pedestrians to / from NoMA so a taxi facility here will need careful study and coordination to see if it can work well • must address how will taxi queuing work if not allowed on the road network
EXPERIENCE	• waiting for a taxi under the historic colonnade with a view of the Capitol is a memorable experience • existing location is highly desirable & visible at the front door of the station with views of the Capitol • the best simple wayfinding approach is a straight line transfer from one mode to another so rail passengers coming off Acela and walking straight through the historic station find themselves at the taxi facility right in front of the building and with a view that puts them on the map	• significant distance to walk out in the elements across Columbus Plaza to a re-located taxi facility at it's perimeter and then wait there compared to waiting under cover in the historic colonnade	• taxi pick-up is hidden below ground so even though at front door there are none of the wayfinding and experiential benefits of being at grade in daylight with the magnificent view to the nation's Capitol	• waiting for a taxi under the historic colonnade with a view of the Capitol is a memorable experience • existing location is highly desirable & visible at the front door of the station with views of the Capitol • great wayfinding for WMATA and Marc passengers on the west side of the station • visible from and close to the front taxi facility when it is unavailable or when it is too busy • west side of station is very busy with pedestrians walking south / south-west so a permanent taxi stand here would increase congestion	• there may be an opportunity to integrate a taxi stand at the new larger 1st St entrance with waiting inside the station though care will need to be taken that this does not cause too much congestion
FEASIBILITY	• need to coordinate with NPS, DDOT and potentially AOC • limited footprint at Columbus Circle for improvements to taxi operation • low cost improvements as only need to modify surface elements	• taxis along the perimeter of Columbus Circle would be difficult to accommodate given the existing cross-section of two travel lanes in each direction and a bike lane in each direction	• impacts NPS property and potentially AOC property • requires Section 4(f) process with potential schedule impacts • potential other major uses proposed on sites controlled by other agencies / private owners, required additional layers of time and design coordination • higher cost of putting taxis below grade	• existing taxi stand that should be able to be improved at low cost	• need to coordinate with WMATA, DDOT • limited footprint in an already congested location
URBAN CONTEXT	• most visitors to Washington DC would prefer catching their cab at a highly efficient facility right on the front door of the station with views to the Capitol that immediately orient you • discourages pedestrian flow through Columbus Plaza and connection to the Monumental Core	• the congestion along Columbus Circle would be exacerbated with taxi loading activity on the circle	• reduces congestion on Columbus Circle and improves access and efficiency for other modes • has benefit of allowing taxi drivers to access the facility without entering Columbus Circle • minimizes visible impacts of taxi queuing • minimizes pedestrian / vehicle conflicts in Columbus Plaza • potential negative impact to a historic landmark (Columbus Plaza)	• most visitors to Washington DC would prefer catching their cab at a highly efficient facility right on the front door of the station with views to the Capitol that immediately orient you • discourages pedestrian flow through Columbus Plaza and connection to the Monumental Core	• makes Foodcourt retail more attractive / accessible • makes a congested area even more congested
PASS / FAIL	**PASS** • ideal location	**FAIL** • doesn't work	**FAIL** • will be very difficult to get all stakeholders to agree to this proposal with a huge impact on Columbus Circle	**PASS** • ideal second taxi stand at station front door	**PASS** • worth exploring in greater detail but may not work well

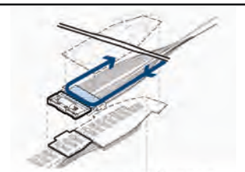
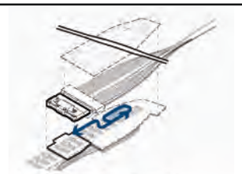
COMPONENTS EVALUATION - TAXI & PICK-UP DROP-OFF

	06	07	08	09	10
	WEST	**WEST**	**EAST**	**EAST**	**EAST**
	 On First St. between G St. and G Pl.	 On First Street under H Street Bridge	 On Union Station Drive NE	 On F Street	 On Second Street under H Street Bridge
TRANSPORTATION	• uses existing street frontage with taxis facing south but can easily head north by going along G St NE and up North Capitol St NW so works well for all directions • desirable location between proposed new 1st St entrance to the station and WMATA and potential major station entrance at H St • with proper wayfinding could be a supplemental taxi stand within a distributed system • if Trail is built above WMATA could use current (recent) bike paths for taxi stand • sidewalk is already congested at peak times with pedestrians to / from NoMA so a taxi facility here will need careful study and coordination to see if it can work well • must address how will taxi queuing work if not allowed on the road network	• uses existing street frontage with taxis facing south but can easily head north by going along G St NE and up North Capitol St NW so works well for all directions • desirable location at major new station entrance at H St & 1st St • with proper wayfinding could be a supplemental taxi stand within a distributed system • if Trail is built above WMATA could use current (recent) bike paths for taxi stand • sidewalk is already congested at peak times with pedestrians to / from NoMA so a taxi facility here will need careful study and coordination to see if it can work well • must address how will taxi queuing work if not allowed on the road network	• great secondary (tertiary) location with views of the Capitol and waiting under cover of historic station colonnade • this is a good alternative location for when the primary location is unavailable • consider making this a permanent location working at the same time as the primary • with proper wayfinding could be a supplemental taxi stand within a distributed system • high volumes of taxis put additional pressure on inefficient Columbus Circle traffic patterns • need to minimize congestion and modal conflicts: taxi / bus / pedestrians / private car drop-offs • must address how will taxi queuing work if not allowed on the road network	• good location at proposed new entrance to WUT on F St • taxis leaving along F St avoid Columbus Circle congestion and are quickly on 2nd St for routes anywhere • with proper wayfinding could be a supplemental taxi stand within a distributed system • high volumes of taxis put additional pressure on inefficient Columbus Circle traffic patterns • must address how will taxi queuing work if not allowed on the road network	• uses existing street frontage with taxis facing north so good for those heading to NoMA • desirable location at new station entrance at H St & 2nd St • this entrance to H St Concourse will have far fewer pedestrians using it so less conflict putting a taxi stand here • with proper wayfinding could be a supplemental taxi stand within a distributed system • must address how will taxi queuing work if not allowed on the road network
EXPERIENCE	• queing would be outdoors on sidewalk in front of Burnham Wall but could provide a light canopy to protect against the elements	• great wayfinding as you come down from rail platforms to H St Concourse and can see the yelow cabs through the expansive glass curtain wall to 1st St • waiting will be on sidewalk but under cover of H St Bridge overhead and potentially extending into H St Concourse	• waiting for a taxi under the historic colonnade with a view of the Capitol is a memorable experience • location is highly desirable & visible at the front door of the station with views of the Capitol • great wayfinding for Acela and VRE passengers on the east side of the station through the a new east entrance (at current McDonalds) • visible from and close to the front taxi facility when it is unavailable or when it is too busy	• convenient for frequent users of WUT avoiding the primary more congested taxi stands at the front of the historic station • convenient for users of amenities on the east side of the station and potentially members of Club Acela depending on where it is relocated	• great wayfinding as you come down from rail platforms to H St Concourse and can see the yelow cabs through the expansive glass curtain wall to 1st St • waiting will be on sidewalk but under cover of H St Bridge overhead and potentially extending into H St Concourse
FEASIBILITY	• need to coordinate with DDOT • requires Trail to be built above WMATA and 1st St bike lanes used for taxi stand	• need to coordinate with DDOT • requires Trail to be built above WMATA and 1st St bike lanes used for taxi stand	• in existing taxi queing route so a stand here should be able to be implemented at low cost • future taxi approach to this stand will need careful consideration • east side of station is currently under-used so a permanent taxi stand here makes a lot of sense to better equalize pedestrian flows	• F St seems set up for a drop-off or parking at this location already so a stand here should be able to be implemented at low cost • needs proposed new entrance on F St to be built • east side of station is currently under-used so a permanent taxi stand here makes a lot of sense to better equalize pedestrian flows	• need to coordinate with DDOT • requires Trail to be built above WMATA and 1st St bike lanes used for taxi stand
URBAN CONTEXT	• in a desirable location slightly removed from new 1st St entrance and new H St entrance and located between them will limit pedestrian conflicts	• located at the new major H St entrance will be very convenient for commuters and visitors going to NoMA • could be placed at south side of H St so queing would not conflict with pedestrians coming out of H St Concourse and heading north	• most visitors to Washington DC would prefer catching their cab at a highly efficient facility right on the front door of the station with views to the Capitol that immediately orient you • encourages pedestrian flow through east side of station	• activates F St and the neighborhood to the east • encourages pedestrian flow through east side of station	• located at the new major H St entrance will be very convenient for commuters and visitors going to NoMA • could be placed at south side of H St so queing would not conflict with pedestrians coming out of H St Concourse and heading north
PASS / FAIL	**PASS** • prime location worth exploring in greater detail but depends on Trail decision	**PASS** • prime location worth exploring in greater detail but depends on Trail decision	**PASS** • ideal second/ third taxi stand at station front door	**PASS** • good location worth exploring in greater detail but depends on implementing F St entrance	**PASS** • prime location worth exploring in greater detail but depends on Trail decision

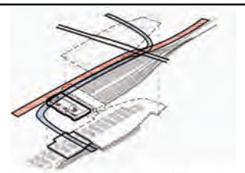
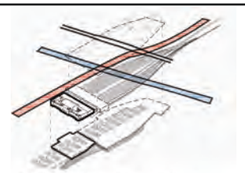
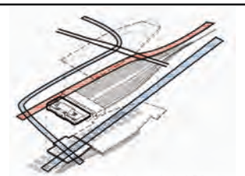
COMPONENTS EVALUATION - TAXI & PICK-UP DROP-OFF

	11	12	13	14	15
	NORTH	**NORTH**	**EXISTING GARAGE**	**BURNHAM PLACE**	**BURNHAM PLACE**
	 On H Street at grade / under tracks	 Drop off/Pick-Up at station and Stand-by in vacant lot at 1st and L street	 In existing parking garage next to bus station	 On H St. Bridge	 Above Concourse A at Burnham Place
TRANSPORTATION	• limits opportunity for H St passenger concourse • if not just for taxis improves experience for bicycle and pedestrian users • if not just for taxis reinstates connection between 1st and 2nd Streets • must address how will taxi queuing work if not allowed on the road network	• if a site is available this could be a great solution for taxi queuing for the next few years until technology makes taxi queuing unnecessary	• direct elevators and escalators in Concourse A could take you directly up to a large efficient taxi facility in the level above the bus terminal • could acomodate taxi queuing off the public roads • would require reduction of public parking spaces or rebuilding them elsewhere (e.g. new level(s) above existing garage)	• uses existing street frontage • requires good connectivity down to H St Concourse • would serve patrons destined for Burnham Place well • plan to minimize congestion and modal conflicts (bike, pedestrian, bus, streetcar) • taxi queuing on the H Street Bridge would be difficult to accommodate with the travel lanes serving streetcar service. Any taxi queuing would likely need to take place along the internal Burnham Place roads. • could be a supplemental taxi stand within a distributed system	• centrally located and easily accessed • direct elevators and escalators in Concourse A could take you directly up to a large efficient taxi facility on existing roadway above Concourse A • reduces the congestion on Columbus Circle • may reduce slightly the capacity of the bus terminal • could be a supplemental taxi stand within a distributed system
EXPERIENCE	• negative impact of H St Concourse bisected by taxi facility • potential to be an appealing space for a taxi stand, especially if distributed natural light is provided through each platform above	• not a public facility	• poor wayfinding can be improved with new approach to vertical circulation being studied in Phase 1 contract • requires incorporating a lower quality building into the station and overbuild plan • limits spatial quality to upgrades to existing structure • passenger transfers from taxis to other modes are contained within the Union Station building and do not require crossing any public streets	• typical streetside urban taxi stand adjacent to a civic plaza	• poor wayfinding can be improved with new approach to vertical circulation being studied in Phase 1 contract • requires incorporating a lower quality building into the station and overbuild plan • limits spatial quality to upgrades to existing structure • passenger transfers from taxis to other modes are contained within the Union Station building and do not require crossing any public streets
FEASIBILITY	• may not be feasible due to clearence under run-through tracks and higher grade on 2nd St though for a taxi only facility (as opposed to a public street) it should be doable	• requires acquiring or renting nearby land • much more affordable for something that may not be needed in the years to come than building a permanent facility at great cost within the valuable station footprint	• no new construction required if parking spots do not have to be reinstated • potentially least cost and shortest schedule	• integrate into Burnham Place masterplan	• minimum new construction required, surface alterations • low cost and short schedule • could be incorporated in Phase 1B
URBAN CONTEXT	• keeps taxi stand off the public streets and in an covered semi-internal environment in a very central desirable location • reinstates connection between 1st and 2nd Streets unless taxi-only • reinstates historic condition and part of the ground level L'Enfant Plan unless taxi-only	• if a site can be found close by with good traffic connections to the station's distributed taxi stands then this temporary solution allows for the best possible urban use of the station footprint	• currently taxis enter the queu off H St Bridge and through garage so this option retains this entry route and also has taxis exiting onto H St Bridge • sustainable solution reusing existing structure • limits opportunities to upgrade the quality of the rail experience below by incorporating an expansive train hall • continued negative visual impacts of the looming parking garage structure • limits opportunities for open space vibrancy and ground floor activation at Burnham Place ground level and H Street bridge level • limits potential to maximize mixed-use above grade development	• provides direct access to bridge level open spaces and retail at Burnham Place • take care that taxi stands do not impact access into the Burnham Place project • activates Burnham Place streetscape • high volumes of vehicular traffic through and around Burnham Place open spaces • impact on retail at Burnham Place facing H St Bridge	• currently taxis enter the queu off H St Bridge and through garage so this option retains this entry route and has taxis exiting onto Columbus Circle on east side • could be a good temporary taxi stand while garage structure is still operational • sustainable solution reusing existing structure • if permanent solution with garage structure staying then limits opportunities to upgrade the quality of the rail experience below by incorporating an expansive train hall • continued negative visual impacts of the looming parking garage structure • limits opportunities for open space vibrancy and ground floor activation at Burnham Place ground level and H Street bridge level • limits potential to maximize mixed-use above grade development
PASS / FAIL	**PASS** • keeps taxi stand off the public streets and in an covered semi-internal environment in a very central desirable location	**PASS** • potentially a very sensible strategy for taxi queuing which should only be required for a few more years	**PASS** • consider if the garage structure is retained	**PASS** • prime location for Burnham Place and for H St Concourse if vertical circulation is adequate	**PASS** • could be a good temporary solution to help deal with growing capacity

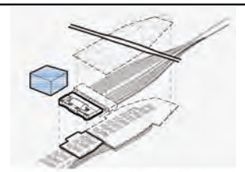
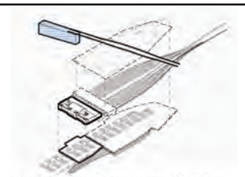
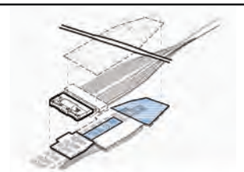
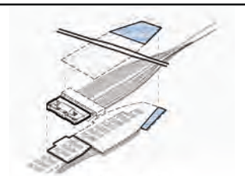
COMPONENTS EVALUATION - TAXI & PICK-UP DROP-OFF

	16	17
	BURNHAM PLACE	**UNDERGROUND**
	 Above Concourse A at Burnham Place - alt	 Below Lower Run -Through Tracks (2012 MP Alt)
TRANSPORTATION	• centrally located and easily accessed • direct elevators and escalators in Concourse A could take you directly up to a large efficient taxi facility on new roadway above expanded Concourse A • needs to be carefully integrated in the design so it does not impact the train shed below • reduces the congestion on Columbus Circle • would serve patrons destined for Burnham Place well • could be a supplemental taxi stand within a distributed system	• could be centrally located below H St Concourse or Central Concourse and easily accessed • reduces the congestion on Columbus Circle • could be a supplemental taxi stand within a distributed system • can build queing zone within station footprint and avoid queing in city streets
EXPERIENCE	• simple wayfinding with vertical circulation elements takig you straight up to taxi stand (and Burnham Place) • passenger transfers from taxis to other modes are contained within the Union Station building and do not require crossing any public streets • taxi stand is hidden away so there are none of the wayfinding and experiential benefits of being at grade in the city	• taxi stand is hidden below ground so there are none of the wayfinding and experiential benefits of being at grade in the city in daylight
FEASIBILITY	• significant impact in order to properly integrate into Burnham Place masterplan	• higher cost of putting taxis below grade and potential schedule impacts
URBAN CONTEXT	• currently taxis enter the queu off H St Bridge and through garage so this option retains this entry route and has taxis exiting onto H St Bridge on east side • hidden and removed from local streets • reduces congestion on Columbus Circle and improves access and efficiency for other modes • has benefit of allowing taxi drivers to access the facility without entering Columbus Circle • minimizes visible impacts of taxi queuing • minimizes pedestrian / vehicle conflicts in Columbus Plaza	• reduces congestion on Columbus Circle and improves access and efficiency for other modes • has benefit of allowing taxi drivers to access the facility without entering Columbus Circle • minimizes visible impacts of taxi queuing • minimizes pedestrian / vehicle conflicts in Columbus Plaza
PASS / FAIL	**PASS** • could be a centrally located taxi stand within a distributed system as long as can be integrated into Burnham Place and does not negatively impact train shed	**PASS** • costly but centrally located and can build queing zone within station footprint and avoid queing in city streets

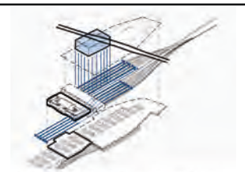
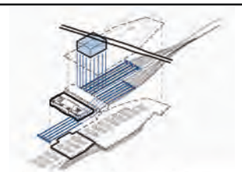
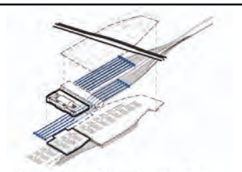
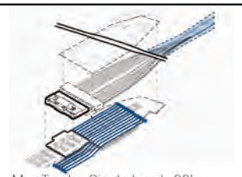
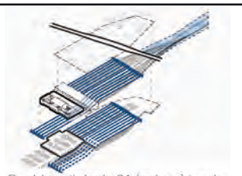
COMPONENTS EVALUATION - METRO

	01	02	03
	UNDER WUT	**UNDER WUT**	**OFF-SITE**
	 Allow for Metro Line Addition Parrarell to Existing Line	 Allow for Metro Line Addition Under H-street	 Allow for Metro Line Additions along 2nd Street and North Capital Street NW
TRANSPORTATION	• if under 1st St this would provide a short transfer within paid zone between the two Metro lines with minimal impact on WUT • vertical circulation at the south end of the Red Line platform down to the new line platform would be on opposite end of platform from the congestion at the north leading to WUT and 1st St	• this line under H St Concourse could have vertical circulation at each end of the concourse with the center available for HSR and need close coordination between the two • a free transfer could be provided for Metro users to be able to move between the two Metro Stations using the unpaid 1st St West Concourse • a direct pedestrian paid tunnel could extend north from Red Line platform to reach the new line platform under H St	• the Red Line ideally connects to new lines at the south end of its platform away from the congestion on the north end leading to WUT and 1st St which would work well for a new platform running east-west under Columbus Circle which could lead to another platform under 2nd St
EXPERIENCE	• short direct connection possible	• longer direct underground connection or via West Concourse along 1st St (free transfer)	• can connect new lines directly underground
FEASIBILITY	• should have limited impact on WUT though would be best to better understand this option as Phase 1 progresses	• need more information / requirements / constraints from WMATA to integrate this line • H St Bridge piles would be impacted by this construction	• should have no impact
URBAN CONTEXT	• should have very limited impact within WUT footprint	• may allow some transfer passengers to use the West Concourse along 1st St which is good for its vitality and retail	• should have no impact within WUT footprint
PASS / FAIL	**PASS** • best to review and plan for these potential future Metro lines now	**PASS** • best to review and plan for these potential future Metro lines now	**PASS** • best to review and plan for these potential future Metro lines now

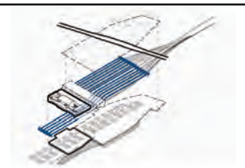
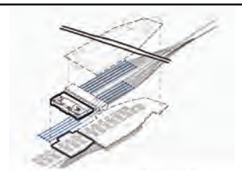
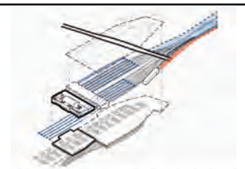
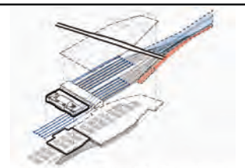
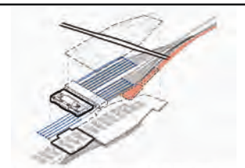
COMPONENTS EVALUATION - AMTRAK SERVICE

	01	02	03	04	05
	OFF-SITE	**OFF-SITE**	**IMMEDIATELY UNDER TRACKS**	**IMMEDIATELY OVER TRACKS**	**MULTIPLE LEVELS UNDER TRACKS**
	 In Adjacent Postal Building	 In Adjacent Government Printing Building	 North of H St. - At grade Immediately Under Tracks	 Over Tracks Within Deck	 At Grade, El. 31'-42' including REA Garage (2012 MP Alt, May 2015)
TRANSPORTATION	• located at south side of rail yard which may be appropriate for some services while others are best located at north end of platforms in order to be separated from passenger access from the south so not a complete solution • moves services out of rail yard • frees up valuable on-site footprint into adjacent spaces that are already directly connected via bridge above 1st St • Postal Building should have an interior loading dock facility (for mail trucks) which should be useful for Amtrak as well as the retailers at west side of the station	• located at south side of rail yard which may be appropriate for some services while others are best located at north end of platforms in order to be separated from passenger access from the south so not a complete solution • moves services out of rail yard • frees up valuable on-site footprint into adjacent spaces that are already directly connected via bridge above 1st St • Government Printing building has a large loading dock facility which should be useful for Amtrak as well as the retailers at west side of the station	• services space is ideally located via ramps (and elevators if desired) at the north end of the platforms down to the level immediately below the tracks • only location that easily links down to HSR if it is built as in 2012 MP below the stub-end tracks • uses space that is suitable for other uses such as parking though parking could be one level below with little negative impact while train servicing would be much less efficient anywhere else • adjacent to the new major north entrance to the station at H St Concourse • must include a north-south service corridor linking the main train servicing area north of H St to historic station service areas	• service level above the tracks will need to be quite high due to Amtrak catenary clearences so ramps up would be much longer than ramps to a level below the tracks • not well located for servicing HSR if it is built as in 2012 MP below the stub-end tracks • further away from concourses and other service spaces below the tracks and from historic station • good access from H St Bridge	• elevator only connection between platforms and Amtrak service spaces below as provided in 2012 MP / Test Fits is not recommended • disparate rooms separated by public concourses and/or retail not ideal for Amtrak
EXPERIENCE	• existing Postal Building has plenty of daylight and easy access for Amtrak staff arriving and leaving work	• existing Printing Building has plenty of daylight and easy access for Amtrak staff arriving and leaving work	• at grade with the opportunity for street frontage on K, 1st and 2nd Streets so some spaces can have daylight and direct access to the outside	• above tracks with plenty of opportunity for daylight and views to the trains below	• great majority of spaces are internal or underground so very little opportunity for daylight
FEASIBILITY	• requires acquiring all or part of the Postal Building • phasing is easier as Amtrak can relocate before any new construction within station footprint must be operational • re-use of existing building is likely less expensive than constructing below ground space • potential other major uses proposed on sites controlled by other agencies, required additional layers of time and design coordination • Postal facility already has internal vehicular movement making Amtrak secure vehicle parking within the facility easier • provides service facility outside of station footprint so project site capacity can support other requirements	• requires acquiring Government Printing Building • previous studies exist for locating some Amtrak services into this building • phasing is easier as Amtrak can relocate before any new construction within station footprint must be operational • re-use of existing building is likely less expensive than constructing below ground space • potential other major uses proposed on sites controlled by other agencies, required additional layers of time and design coordination • Printing facility already has internal vehicular movement making Amtrak secure vehicle parking within the facility easier • provides service facility outside of station footprint so project site capacity can support other requirements	• more costly to build space under the tracks though for this critical use which impacts facility capacity it makes sense to pay the premium and locate in the very best position as every second counts • any vehicle screening should happen outside of rail yard footprint and REA parking lot is the only option as identified in 2012 MP / Test Fits so all vehicles driving to spaces under the tracks should enter thorugh this location unless they are pre-vetted	• above ground space is less expensive than below ground space • significant impact on Burnham Place	• more costly to build space under the tracks so a shame to spend the money and not use the ideal servicing location for best performance of trains and greatest capacity of station • disparate rooms separated by public concourses and/or retail so cannot reach them in a vehicle for deliveries need to transfer to carts • any vehicle screening should happen outside of rail yard footprint and REA parking lot is the only option as identified in 2012 MP / Test Fits so all vehicles driving to spaces under the tracks should enter thorugh this location unless they are pre-vetted
URBAN CONTEXT	• potential suitable re-use of a historic landmark which originally was already semi-industrial • potential negative impact to a historic landmark	• potential suitable re-use of a historic landmark which originally was already semi-industrial • potential negative impact to a historic landmark	• space has street frontage on K, 1st and 2nd Streets and would be ideal to activate these streets with windows and access through the historic Burnham Wall if the authorities allow it	• no impact on Burnham Place south of H St which allows best design for train shed and daylight down to rail as well as more flexibility for overbuild structures in the highest value land to south and west • activates Burnham Place with Amtrak staff working up on deck and using the public spaces and retail offer • challenge for public space north of H St Bridge though this area of Burnham Place is more residential in nature so communal space could be elevated above Amtrak service facility	• street frontage limited to corner of K and 2nd St at REA parking lot where it is proposed (in all options) that vehicles entering the station will be security screened as this is the only space not under the tracks
PASS / FAIL	**PASS** • if all or part of Postal building could be acquired for other WUT uses then this could be a good home for some Amtrak WUT staff	**PASS** • if Government Printing building could be acquired this could be a good home for some Amtrak WUT staff	**PASS** • THE ideal location for most rail service facilities includes use of the REA Building	**FAIL** • good alternative location for most rail service facilities if below the tracks is unavailable	**PASS** • elevator only connection between platforms and Amtrak service spaces is not recommended

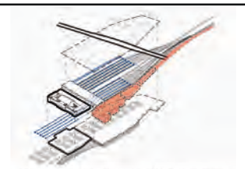
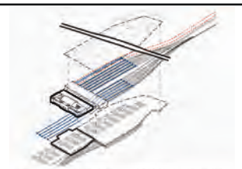
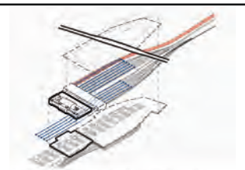
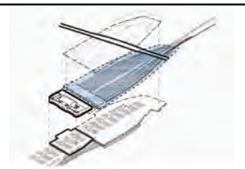
COMPONENTS EVALUATION - TRACKS & PLATFORMS

	01	02	03	04	05
	RETAIN / PARTIALLY RETAIN EXISTING GARAGE	**RETAIN / PARTIALLY RETAIN EXISTING GARAGE**	**MAXIMUM NUMBER OF TRACKS (23)**	**MAXIMUM NUMBER OF TRACKS (23)**	**MAXIMUM NUMBER OF TRACKS**
	 Keep Current Garage Structure, 2-Level, Max Tracks	 Keep Original Southern Garage Structure, 2-Level, Max Tracks, Demolish North Extension	 Max Tracks, 2-Level, 30' Platforms	 Max Tracks, Single Level, 30' Platforms, Re-grade Throat	 Double rail deck: 21 (or less) tracks on surface & same or less down below
TRANSPORTATION	• less than the 2012 MP 21 no. tracks & platforms (28-30' wide) can be provided principally due to garage northern extension columns so significant structural modifications will be required • access and circulation for existing garage users (patron parking, rental cars, buses) is maintained, simplifying traffic patterns	• impacts the ability to provide the most efficient track layout due to existing garage columns • can provide the 2012 MP 21 no. tracks & platforms (28-30' wide) • reduction in capacity of Bus facility and Parking facility whihc may need to be replaced elsewhere • access and circulation for existing garage users (patron parking, rental cars, buses) is very similar, simplifying traffic patterns	• provides additional platform capacity beyond 2012 MP taking total tracks from 21 to 23 which is the maximum number of tracks and platforms possible in the current rail yard footprint • platforms are 30' wide which is industry best practice	• provides additional platform capacity beyond 2012 MP taking total tracks from 21 to 23 which is the maximum number of tracks and platforms possible in the current rail yard footprint • greater flexibility than 2012 MP as additional tracks can be run-through as all at same level • platforms are 30' wide which is industry best practice	• provides track & platform capacity significantly beyond 2012 MP on day one • HSR tracks & platforms are built and operational from day one • mixed HSR and local / regional not recommended for security, access and operations so lower level should be all-Acela • greater flexibility than 2012 MP as additional tracks can be run-through • platforms are 30' wide (industry best practice) or more • portal issues may mean not feasible
EXPERIENCE	• low headroom under garage makes provision of ventilation / exhaust system difficult and further reduces the height resulting in a very poor quality space • impacts the ability to provide daylight to the platforms	• low headroom under garage makes provision of ventilation / exhaust system difficult and further reduces the height resulting in a very poor quality space • impacts the ability to provide daylight to the platforms	• great majority of rail yard width is either track or platform so leaves little space for daylight to penetrate to concourses under the tracks	• train shed can be the full width of the rail yard with greater height available for a quality civic space without impinging on overbuild available height	• upper tracks could be 21 total or less allowing for even more daylight penetration than 2012 MP achieves
FEASIBILITY	• potential need for underpinning existing foundations in order to construct concourses under tracks • eliminates need to find other ways to accommodate bus and parking within the project • overall project costs are lower since the garage is retained / reduced build out	• potential need for underpinning existing foundations in order to construct concourses under tracks • reduces the need to find other ways to accommodate bus and parking within the project • overall project costs are lower since the garage is partially retained / reduced build out	• phasing of construction is easier than 2012 MP as the space occupied by the Central Concourse in the 2012 MP can be used for tracks & platforms during construction, thus reducing construction duration • alternative bus and parking locations will need to be built before existing garage can be demolished	• tracks need to be lowered far to north which is very disruptive to rail operations during construction and very costly • alternative bus and parking locations will need to be built before existing garage can be demolished	• rail tunnel to lower level of tracks needs to be built now which is very costly • high cost of building basement to full extent of railyard footprint • may be difficult to get stakeholder consensus to do it all at once • greatest return of capacity for cost of deep basement • alternative bus and parking locations will need to be built before existing garage can be demolished • portal issues may mean not feasible
URBAN CONTEXT	• the existing garage impacts the layout options for the Burnham Place project • continued negative visual impacts of the looming parking garage structure	• the existing garage impacts the layout options for the Burnham Place project • continued negative visual impacts of the looming parking garage structure	• great majority of rail yard width is either track or platform so leaves little space for vertical circulation access between under-track concourses and overbuild development	• lower tracks allows for better connectivity at H St as it can sail over the tracks at a much lower elevation and thus provide a city street access to Burnham Place. K St can now be a low bridge over the tracks too providing a second major access to Burnham Place. • great majority of rail yard width is either track or platform so leaves little space for vertical circulation access between under-track concourses and overbuild development	• upper tracks could be 21 total or less allowing for generous vertical circulation access between under-track concourses and overbuild development
PASS / FAIL	**PASS** • requires significant structural modifications to existing garage in order to provide the required rail capacity below and limits opportunities to upgrade the quality of the rail experience below by incorporating an expansive train hall but needs to be studied further as there is no agreement to demolish existing garage	**PASS** • requires significant structural modifications to existing garage in order to provide the required rail capacity below and limits opportunities to upgrade the quality of the rail experience below by incorporating an expansive train hall but needs to be studied further as there is no agreement to demolish existing garage	**PASS** • provides maximum track & platform capacity	**FAIL** • unacceptable rail operations disruption and cost	**FAIL** • rail and HSR capacity are all operational at end of MDP construction

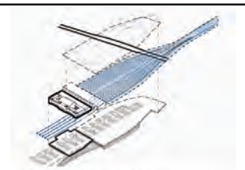
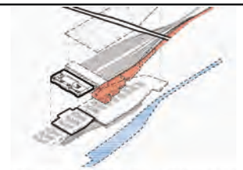
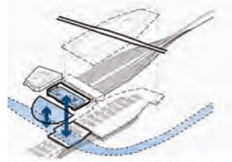
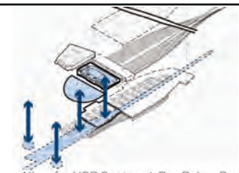
COMPONENTS EVALUATION - TRACKS & PLATFORMS

	06	07	08	09	10
	20 TRACKS	**20 TRACKS**	**ACQUIRE LAND / BUILDINGS TO EAST TO EXPAND RAIL YARD**	**ACQUIRE LAND / BUILDINGS TO EAST TO EXPAND RAIL YARD**	**ACQUIRE LAND / BUILDINGS TO EAST TO EXPAND RAIL YARD**
	 21 tracks with distributed daylight	 2012 MP Configuration - 2-Level (includes Central Concourse)	 Maintain Existing REA Bldg, Extend Platform Length Using REA Park-ing, & Widen Throat	 Demolish Existing REA Building to Extend Lower Level Platform Length, & Widen Throat	 Demolish Existing REA & Modify Station Pl. III Bldg Loading Access t· Add Platforms to East
TRANSPORTATION	• provides 2 fewer tracks & platforms that the maximum track & platforms options do • less tracks means greater need for more double berthed trains with passengers walking a long way along platforms rather than being in air conditioned space for longer • platforms can be 30' wide or more • provides greater flexibility in the layout of tracks and platforms than schemes with the same number of tracks & platforms but with a central concourse on axis with the historic station • allows for flexibility in the location of the boundary between the stub-end tracks and the lower run-through tracks such that there could be an additional run through track than is possible in the 2012 MP	• provides 2 fewer tracks & platforms that the maximum track & platforms options do • less tracks means greater need for more double berthed trains with passengers walking a long way along platforms rather than being in air conditioned space for longer • platforms are 28' wide and cannot be 30' wide (industry best practice) due to the central concourse	• TI team advises there is little benefit for rail operations	• lower level platforms can be longer extending north of H St	• potential for one additional track & platform at far east side over current Station Place loading yard • lower level platforms can be longer extending north of H St
EXPERIENCE	• provides possibility of daylight at every platform and down to concourse below and/or flexibility to make some daylight zones larger than others • the openings in platforms for daylight call for similar distributed skylights in ceiling of train hall whihc suggests a civic scale daylit train shed across the full width of the rail yard	• provides a grand central concourse which calls for a similar grand central skylight in ceiling of train hall • provides a generous circulation spine between historic station and new transit facilitites at H St and beyond • does not provide daylight to other concourses	• no impact	• facilitates a larger concourse at H St on the east side with additional vertical circulation up to the extended platforms north of H St	• facilitates a larger concourse at H St on the east side with additional vertical circulation up to the extended platforms north of H St
FEASIBILITY	• alternative bus and parking locations will need to be built before existing garage can be demolished	• alternative bus and parking locations will need to be built before existing garage can be demolished	• may be difficult and/or costly to purchase REA parking lot and other land on east side of tracks that allows widening of the throat • eliminates or reduces the flexibility of the REA parking area used for other functions such as vehicle security screening • alternative bus and parking locations will need to be built before existing garage can be demolished	• potentially costly to purchase REA building • will be difficult to get approvals to demolish REA • alternative bus and parking locations will need to be built before existing garage can be demolished	• potentially costly to purchase REA building • will be difficult to get approvals to demolish REA • potentially difficult to negotiate / purchase easement on Station Place property • alternative bus and parking locations will need to be built before existing garage can be demolished
URBAN CONTEXT	• provides flexibility to create larger spaces for vertical circulation between under-track concourse level and overbuild development	• opportunity at central concourse for vertical circulation between under-track concourse level and overbuild development	• brings tracks closer to 2nd Street thereby reducing the buffer between the railroad tracks and the adjacent neighborhood	• demolition of a potentially eligible historic property • demolition of the REA building will have a negative impact on the character of 2nd Street NE between H &23:23K Streets as it would eliminate the western street edge and the buffer between the railroad tracks and the adjacent neighborhood	• demolition of a potentially eligible historic property • demolition of the REA building will have a negative impact on the character of 2nd Street NE between H &23:23K Streets as it would eliminate the western street edge and the buffer between the railroad tracks and the adjacent neighborhood
PASS / FAIL	**PASS** • flexibility to provide daylight & vertical access to overbuild development to under-track concourses across the full width of the rail yard	**PASS** • concentrates investment in a new user experience in one grand civic scale central concourse	**FAIL** • little benefit for rail operations	**FAIL** • it will be a hard sell to purchase and demolish REA building	**FAIL** • it will be a hard sell to purchase and demolish REA building

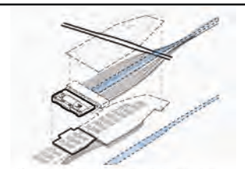
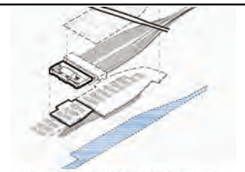
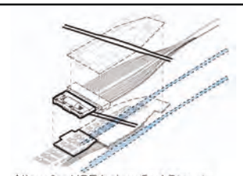
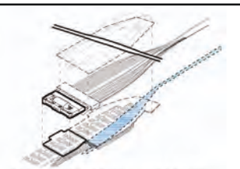
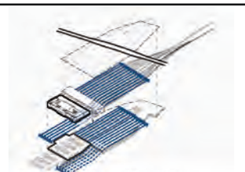
COMPONENTS EVALUATION - TRACKS & PLATFORMS

	11	12	13	14
	ACQUIRE LAND / BUILDINGS TO EAST TO EXPAND RAIL YARD	**ACQUIRE LAND / BUILDINGS TO WEST TO EXPAND RAIL YARD**	**ACQUIRE LAND / BUILDINGS TO WEST TO EXPAND RAIL YARD**	**ACQUIRE LAND / BUILDINGS EAST AND WEST TO EXPAND RAIL YARD**
	 Demolish Existing REA & Station Place I, II, III Buildings Add Platforms to East	 Acquire land from WMATA on west side without impacting Metro right-of-way	 WMATA Moves to Lower Level, Add Tracks to West	 Historical Configuration, 30 Tracks, Narrow Platforms
TRANSPORTATION				
	• potential for additional tracks & platforms at far east side on current Station Place • lower level platforms can be longer extending north of H St	• potential for longer straight platforms on west side of rail yard / widening of throat • TI team advises there is little benefit for rail operations	• additional tracks & platforms on west side over undergrounded WMATA • potential for longer straight platforms on west side of rail yard	• provides greatest additional track capacity beyond 2012 MP at surface levels • potential for additional tracks & platforms at far east side on current Station Place and far west side over undergrounded WMATA • all platforms can be longer • narrower platforms might require different configuration if stairs / elevators etc to keep same LOS (level of service)
EXPERIENCE				
	• allows under-track concourses to open directly to 2nd Street • facilitates a larger concourse at H St on the east side with additional vertical circulation up to the extended platforms north of H St	• no impact	• undergrounding WMATA allows the West Concourse under the tracks to be right on 1st St and allows the puncturing of the Burnham Wall along 1st St anywhere bringing daylight and views to the street to this important concourse	• allows under-track concourses to open directly to 2nd Street • facilitates a larger concourse at H St on the east side with additional vertical circulation up to the extended platforms north of H St
FEASIBILITY				
	• very costly purchase and demolition of SEC and Kaiser buildings • potentially costly to purchase REA building • will be difficult to get approvals to demolish REA • alternative bus and parking locations will need to be built before existing garage can be demolished	• may be difficult and/or costly to acquire WMATA land on west side that doesn't impact Metro right-of-way but allows widening of the throat • alternative bus and parking locations will need to be built before existing garage can be demolished	• requires acquisition of land / buildings outside current station footprint • requires 'undergrounding' WMATA to the north beyond NoMA Metro Stop which would be very disruptive to Metro services and very costly • alternative bus and parking locations will need to be built before existing garage can be demolished	• very costly / difficult to purchase and demolish REA, SEC and Kaiser buildings • requires 'undergrounding' WMATA to the north beyond NoMA Metro Stop which would be disruptive to Metro services and very costly • alternative bus and parking locations will need to be built before existing garage can be demolished
URBAN CONTEXT				
	• demolition of a potentially eligible historic property • demolition of the REA building will have a negative impact on the character of 2nd Street NE between H &23:23K Streets as it would eliminate the western street edge and the buffer between the railroad tracks and the adjacent neighborhood • potential to open up Washington Union Station directly to 2nd Street with new entrances, under-track concourses opening to street, retail at grade	• no impact	• undergrounding WMATA allows the puncturing of the Burnham Wall along 1st St anywhere along the western edge of the station whihc dramatically increases connectivity to NoMA • use of land over WMATA to extend rail tracks & platforms west to 1st Street eliminates potential for Metropolitan Branch Trail over WMATA r.o.w. to the Washingotn Union Station Bikestation	
PASS / FAIL	**FAIL**	**FAIL**	**FAIL**	**FAIL**
	• very costly / difficult purchase and demolition of REA, SEC and Kaiser buildings	• little benefit for rail operations	• requires 'undergrounding' WMATA to the north beyond NoMA Metro Stop which would be very disruptive to Metro services and very costly	• requires 'undergrounding' WMATA to the north beyond NoMA Metro Stop which would be very disruptive to Metro services and very costly • very costly / difficult purchase and demolition of REA, SEC and Kaiser buildings

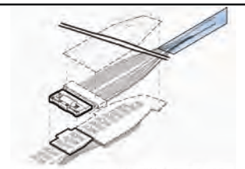
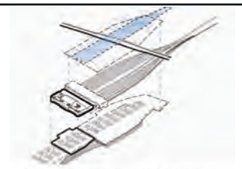
COMPONENTS EVALUATION - HIGH SPEED RAIL

	01	02	03	04	05
	RAIL ALL ON ONE LEVEL	**OFF-SITE**	**OFF-SITE**	**OFF-SITE**	**UNDER WUT**
	 Shared Tracks & Platforms		 Allow for HSR East Between Railyard and 2nd St., Demolish Existing REA & Station PL III Bldg, Access Through DCUS or New Portals	 Allow for HSR Perpendicular, Box Below Columbus Circle, Access Through DCUS and/or Columbus Circle	 Allow for HSR Centered, Box Below Par Land and Columbus Circle, Access Through DCUS, Columbus Circle, & Nev Portals at Park Land
TRANSPORTATION	• no new run-through tracks built so no increase to capacity for run-through trains which is at capacity already • limits future capacity to the number of platforms that can fit within the existing rail yard • mixed HSR and local/ regional not recommended for security, access, and operations	• alignment to and from HSR station would need to be studied and validated • Postal Building is large enough that an efficient new HSR facility should be able to be planned within it • the main public entrance would be on Massachusetts Ave NE • intermodal transfers could use the (redesigned) current bridge linking the Postal Building to WUT or a new more conveniently located bridge further south could be built (with the existing bridge redesigned as a service only route) • service access would be via existing ramps on North Capitol Street leading up and down to two levels that can accomodate cars and trucks	• alignment to and from HSR station would need to be studied and validated • allows much more flexibility in planning as run-throughs would not be threading through the foundations of the historic station • HSR trains could live in their own train shed with daylight and views out (similar to Waterloo International in London adjacent to Waterloo Station) • HSR station would have its own front door on F St (SEC front door at present)	• alignment to and from HSR station would need to be studied and validated • allows much more flexibility in planning as run-throughs would not be threading through the foundations of the historic station • HSR trains could get access and daylight down through portals in Columbus Plaza • HSR station would be accessed directly from historic station basement level on the building axis so would need to plan for that future connection now	• needs further study to verify that HSR tunnels could be lowered a little to be below the foundations of the historic station • HSR trains could get access and daylight down through portals in Columbus Plaza • HSR station would be accessed directly from historic station basement level on the building axis so would need to plan for that future connection now
EXPERIENCE	• all trains within one great expansive train hall is best for wayfinding	• short transfer to Metro • exisiting central daylit covered courtyard could be the heart of the passenger concourse taking daylight all the way down to the trains below	• HSR train shed could be a world class transit space	• underground HSR box would be centered on the historic station axis and have a primary entrance directly on this axis • other pop-up entrances and daylight monitors would be placed on Columbus Plaza and off Massachusets Ave for greater flexibility and connection ot the city grid	• underground HSR box would be centered on the historic station axis and have a primary entrance directly on this axis • other pop-up entrances and daylight monitors would be placed on Columbus Plaza and off Delaware Ave NE for greater flexibility and connection ot the city grid
FEASIBILITY	• does not meet capacity requirements	• requires acquiring Postal Building when HSR is funded • WUT plan would allow for this future eventuality but there should be little impact or cost associated with it now • above ground concourse and passenger facilities are likely less expensive than below ground ones • potential other major uses proposed on sites controlled by other agencies, required additional layers of time and design coordination • Postal facility already has ramps off North Capitol Street for trucks and other vehicles leading to internal vehicular loading and parking areas on two levels making servicing a large transit operation easier • provides HSR facility outside of station footprint so project site capacity can support other requirements needed now	• requires acquiring and demolishing SEC and Kaiser buildings in the future when HSR is funded • WUT plan would allow for this future eventuality but there should be little impact or cost associated with it now • provides HSR facility outside of station footprint so project site capacity can support other requirements needed now	• impacts NPS property and potentially AOC property at the time HSR is funded • requires Section 4(f) process with potential schedule impacts at the time HSR is funded • potential other major uses proposed on sites controlled by other agencies / private owners, required additional layers of time and design coordination • provides HSR facility outside of station footprint so project site capacity can support other requirements	• impacts NPS property and potentially AOC property at the time HSR is funded • requires Section 4(f) process with potential schedule impacts at the time HSR is funded • potential other major uses proposed on sites controlled by other agencies / private owners, required additional layers of time and design coordination • provides HSR facility outside of station footprint so project site capacity can support other requirements
URBAN CONTEXT	• no impact until additional capacity is needed and then potentially negative impacts so best to plan now	• it's great to find a new important use for such a large historic structure and has precedents such as Moynihan Station NYC • potential negative impact to a historic landmark • triggers Section 4(f)	• would have its own front door on F St activating the neighborhood to the east • would run along 2nd St from F all the way back to K St and completely revitalise that street	• potential for greater pedestrian activation of Columbus Circle with further traffic calming and streetscape upgrades • triggers Section 4(f)	• potential for greater pedestrian activation of Columbus Circle with further traffic calming and streetscape upgrades • triggers Section 4(f)
PASS / FAIL	**FAIL** • does not meet capacity requirements	**PASS** • potentially great re-use of the historic Postal Building with good connectivity to WUT and no cost or impact now	**FAIL** • would be a great modern rail station if the authorities rallied around the idea	**PASS** • flexible planning and great connectivity to WUT and no cost or impact now	**PASS** • flexible planning and great connectivity to WUT and no cost or impact now

COMPONENTS EVALUATION - HIGH SPEED RAIL

	06	07			08
	UNDER WUT	**UNDER WUT**	**UNDER WUT**	**UNDER WUT**	**UNDER WUT**
	 Allow for HSR Terminal Tracks at Railyard, HSR Run Through Track Below Railyard	 Allow for HSR (2012 MP Test Fit, May 2015) - Below Tracks, Centered	 Allow for HSR below 2nd Street, 4 Platforms on 2 Levels, 2 on each between H and F Streets	 Allow for HSR below 2nd Street, 4 Side by side platforms with current station footprint.	 Double rail deck; 21 (or less) tracks on surface & same or less down below
TRANSPORTATION	• limits the scale and future capacity of the tunnel below the existing tracks • mixed HSR and local/ regional not recommended for security, access, and operations	• HSR and local/regional have separate facilities which is best practice for security, access and operations • Amtrak servicing spaces can be located and sized now so that they can be easily adjusted later to service HSR directly below for better operational efficiencies			• provides track & platform capacity significantly beyond 2012 MP on day one • HSR tracks & platforms are built and operational from day one • mixed HSR and local / regional not recommended for security, access and operations so lower level should be all-Acela • greater flexibility than 2012 MP as additional tracks can be run-through • platforms are 30' wide (industry best practice) or more • portal issues may mean not feasible
EXPERIENCE	• strong likelihood of over-utilization that does not end up achieving the desired redundancy	• will be difficult to get daylight down to the HSR box under the stub-end tracks • should be able to get good generous vertical circulation down from Concourse A and from H St Concourse for very efficient modal transfers			• upper tracks could be 21 total or less allowing for even more daylight penetration than 2012 MP achieves
FEASIBILITY	• increased cost and schedule to WUT project as WUT / Burnham Place piles will need to go some significant further distance down now to accommodate the future station box	• increased cost and schedule to WUT project as WUT / Burnham Place piles will need to go some significant further distance down now to accommodate the future station box			• rail tunnel to lower level of tracks needs to be built now which is very costly • high cost of building basement to full extent of railyard footprint • may be difficult to get stakeholder consensus to do it all at once • greatest return of capacity for cost of deep basement • alternative bus and parking locations will need to be built before existing garage can be demolished • portal issues may mean not feasible
URBAN CONTEXT	• very compact design totally integrated within WUT footprint without any new entrances or external impacts	• very compact design totally integrated within WUT footprint without any new entrances or external impacts			• upper tracks could be 21 total or less allowing for generous vertical circulation access between under-track concourses and overbuild development
PASS / FAIL	**FAIL** • does not meet capacity requirements	**PASS** • significant design, cost and schedule impacts on WUT now regardless of how HSR is implemented in the future			**FAIL** • if portal issues can be resolved then rail and HSR capacity are all operational at end of MDP construction

COMPONENTS EVALUATION - HIGH SPEED RAIL

	09	10
	RAIL ALL ON ONE LEVEL	**OFF-SITE**
	 Allow for Elevated HSR Above Railyard at North of H Street Bridge (Run Through at Existing Tracks)	 Allow for Elevated HSR Above Railyard at Burnham Place (H Street at Grade)
TRANSPORTATION	• alignment to elevated HSR station would need to be studied and validated • would still need an underground run-through HSR facility so overall a complex and costly solution • simple vertical connection from front of trains down to H St Concourse below • very end loaded option with limited desire for passengers to exit north or at mid-platform	• alignment to elevated HSR station would need to be studied and validated • would still need an underground run-through HSR facility so overall a complex and costly solution • simple vertical connection from front of trains down to Concourse A and H St Concourse below
EXPERIENCE	• would be a magnificent train hall fronting onto the H St Bridge	• would be a magnificent train hall above the current tracks
FEASIBILITY	• would still need an underground run-through HSR facility so overall a complex and costly solution • elevated HSR has little impact to WUT MDP • Burnham Place north of H St Bridge would have a train hall down the middle so overbuild opportunities would be to the east and west sides	• eliminates H St Bridge • would still need an underground run-through HSR facility so overall a complex and costly solution • Burnham Place would have a train hall down the middle so overbuild opportunities would be to the east and west sides
URBAN CONTEXT	• elevated tracks approaching Union Station would need to be very sensitively designed and even then will not be loved by all	• elevated tracks approaching Union Station would need to be very sensitively designed and even then will not be loved by all
PASS / FAIL	**FAIL** • would still need an underground run-through HSR facility so overall a complex and costly solution	**FAIL** • would still need an underground run-through HSR facility so overall a complex and costly solution

A-5 Compendia of Relevant Planning Studies

Rail

Track & Platform Study

Track & Platform Study

To examine the consequences of Tracks and Platforms layouts on the concourse planning below, a series of studies were conducted previously to test-fit different Tracks and Platforms layouts and their associated concourse configurations.

The following five categories of Tracks and Platforms layouts were tested and their plans can be found in the following pages.

Equally-distributed platforms (MDP2/MDP2B)

These 20-track layouts focused on maximizing the width of all platforms (35’-6” wide) across the site. This was done to achieve an evenly-distributed platform layout that would allow for the greatest consistency in the structural grid. The layouts would enable maximized distributed light-wells on the platforms that would best-serve the concourses below.

Central Mega-Platform (MDP4/MDP4A/MDP4B)

These 20-track layouts entailed a widened central platform (45’ to 52’ wide) for an enhanced experience for the Acela train users. The widened platforms also would allow for widened light-wells that would appropriately serve the central concourse below. An opening on the west side would also provide daylight down to the First Street concourse.

Tapered Schemes with Central Mega-Platform (MDP4C/ MDP4C-a/MDP4C-b/MDP4D)

These layouts (mostly 20 tracks) entailed the tapering of the Stub End platforms and the central mega-platform to allow Run-Through tracks to fit within the site while reaching north of H Street. This is important, as it would allow access to Run-Through platforms from both the south and north sides of the H Street concourse. The light-wells on the widened central platform and the opening on the west side would allow for adequate daylighting of the Central and First Street concourses below.

Central Concourse Schemes (Opt 7 On-Axis/Opt 7 Off-Axis)

These 20-track layouts entailed a large opening (30’ or wider) at the platform level to provide full day-lighting of the Central Concourse below. An opening on the west side would also provide day-light down to the First Street concourse below.

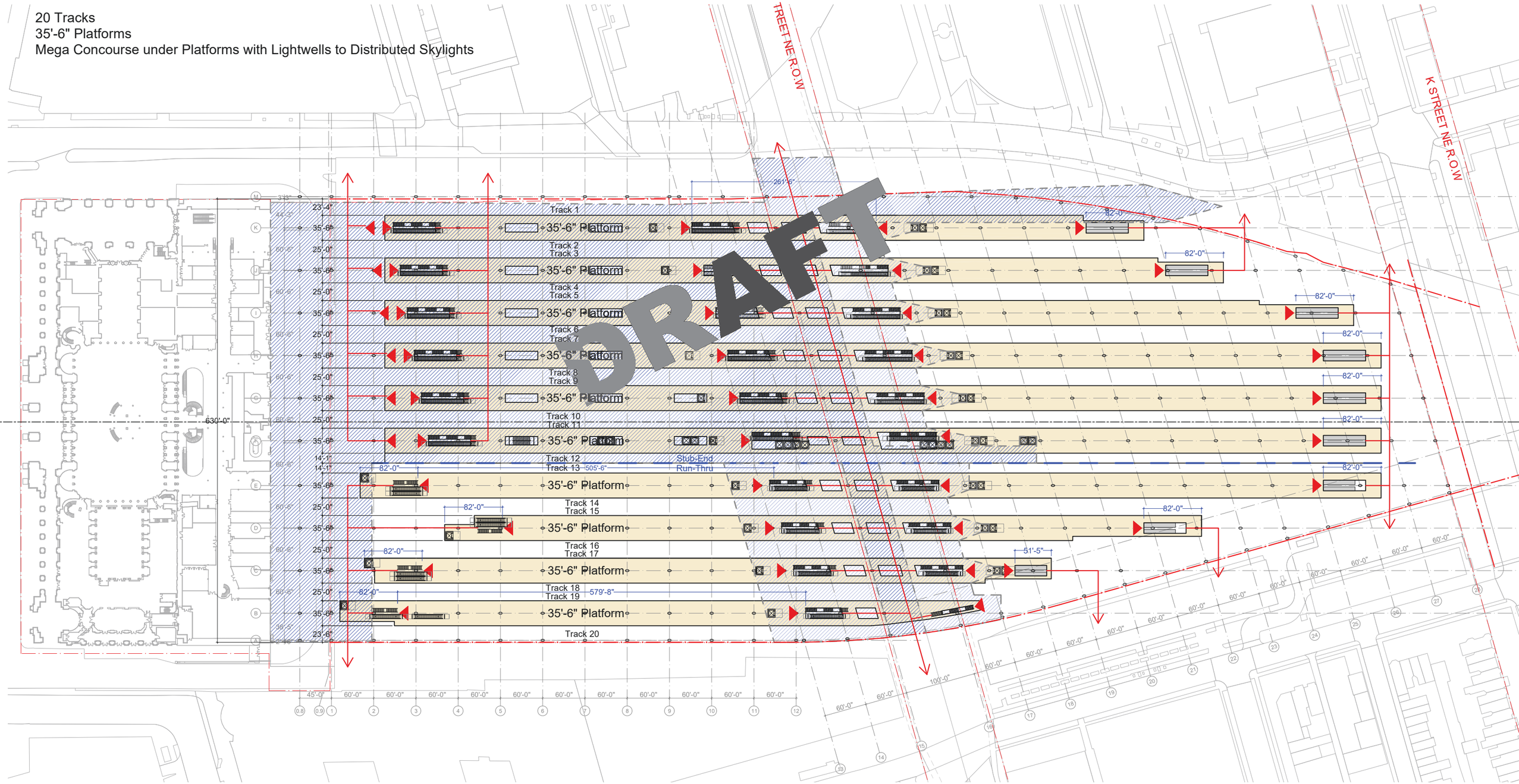
Maximized Tracks (Opt 9 Mod./Opt 9B/Opt 9B Mod.)

These layouts entailed maximizing the number of tracks (up to 22 tracks), while maintaining the minimum platform widths to comply with ADA standards.

Extended Tracks (Ext. A/Ext. B)

These layouts studied lengthening the tracks further south, more akin to the historic condition of the WUS when it was first in operation. The first considers this in conjunction with using the area for concourse A. The second also considers the implications of not including a lower concourse level.

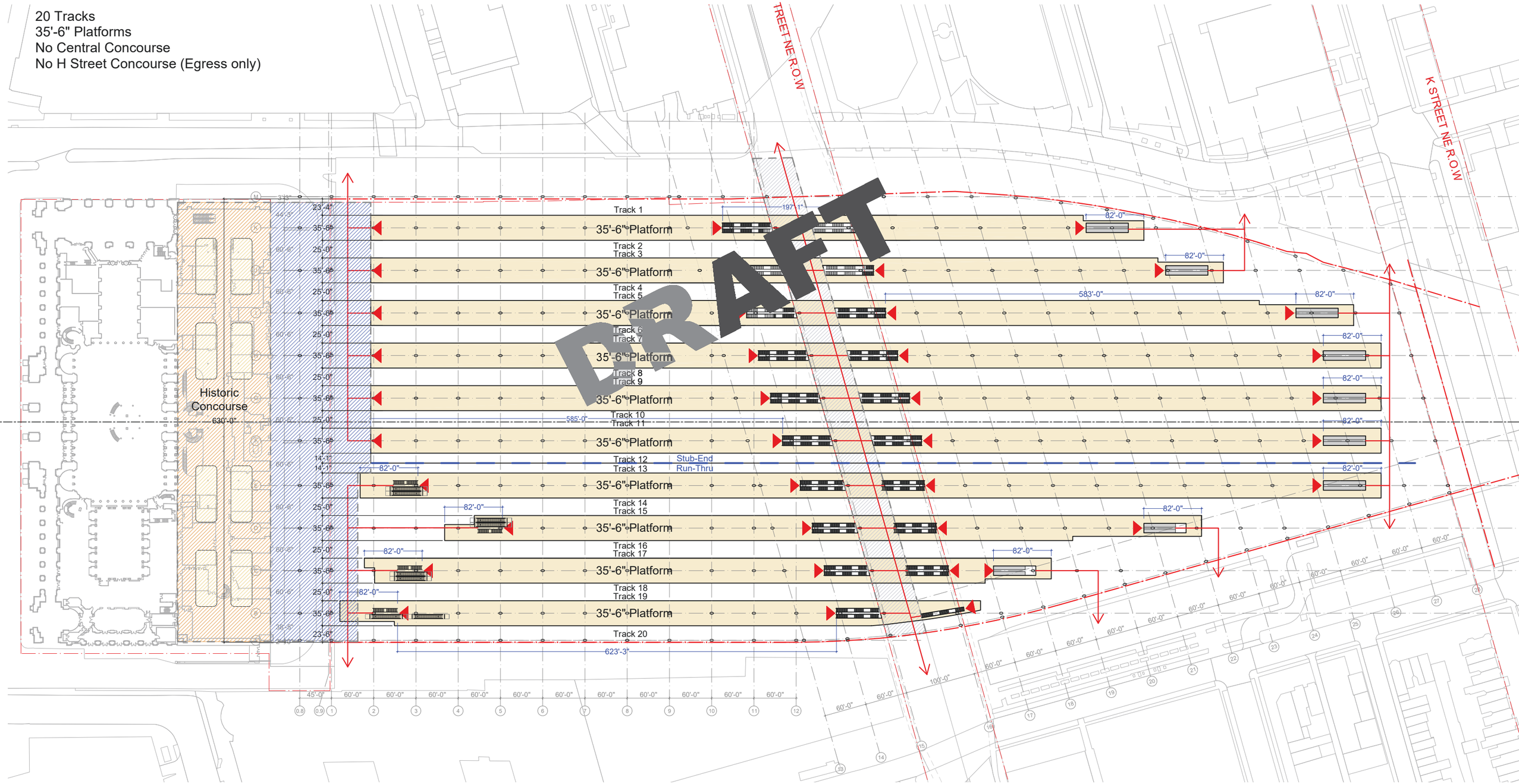
20 Tracks
35'-6" Platforms
Mega Concourse under Platforms with Lightwells to Distributed Skylights



TRACK AND PLATFORM STUDY

MDP2

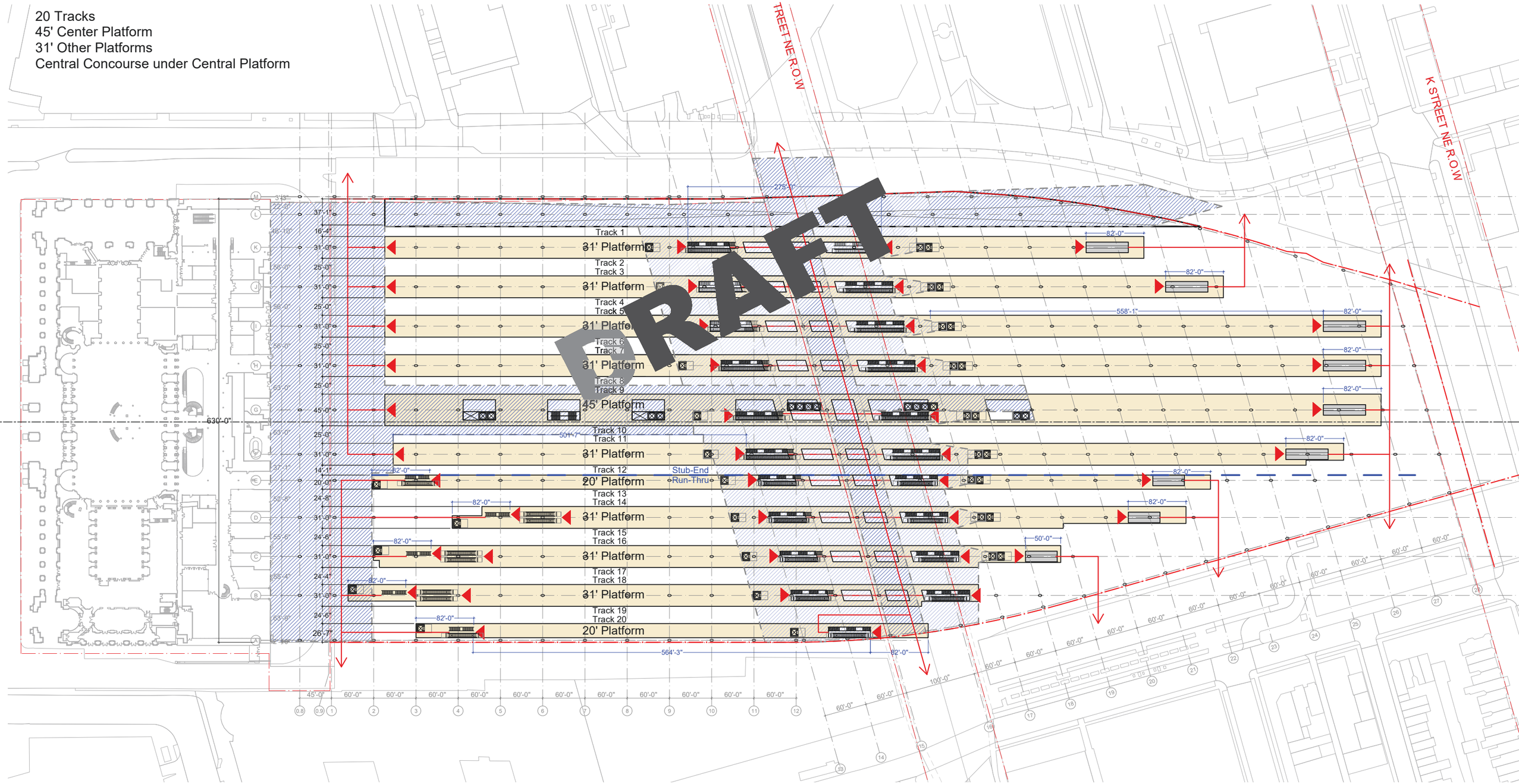
20 Tracks
35'-6" Platforms
No Central Concourse
No H Street Concourse (Egress only)



TRACK AND PLATFORM STUDY

MDP2B

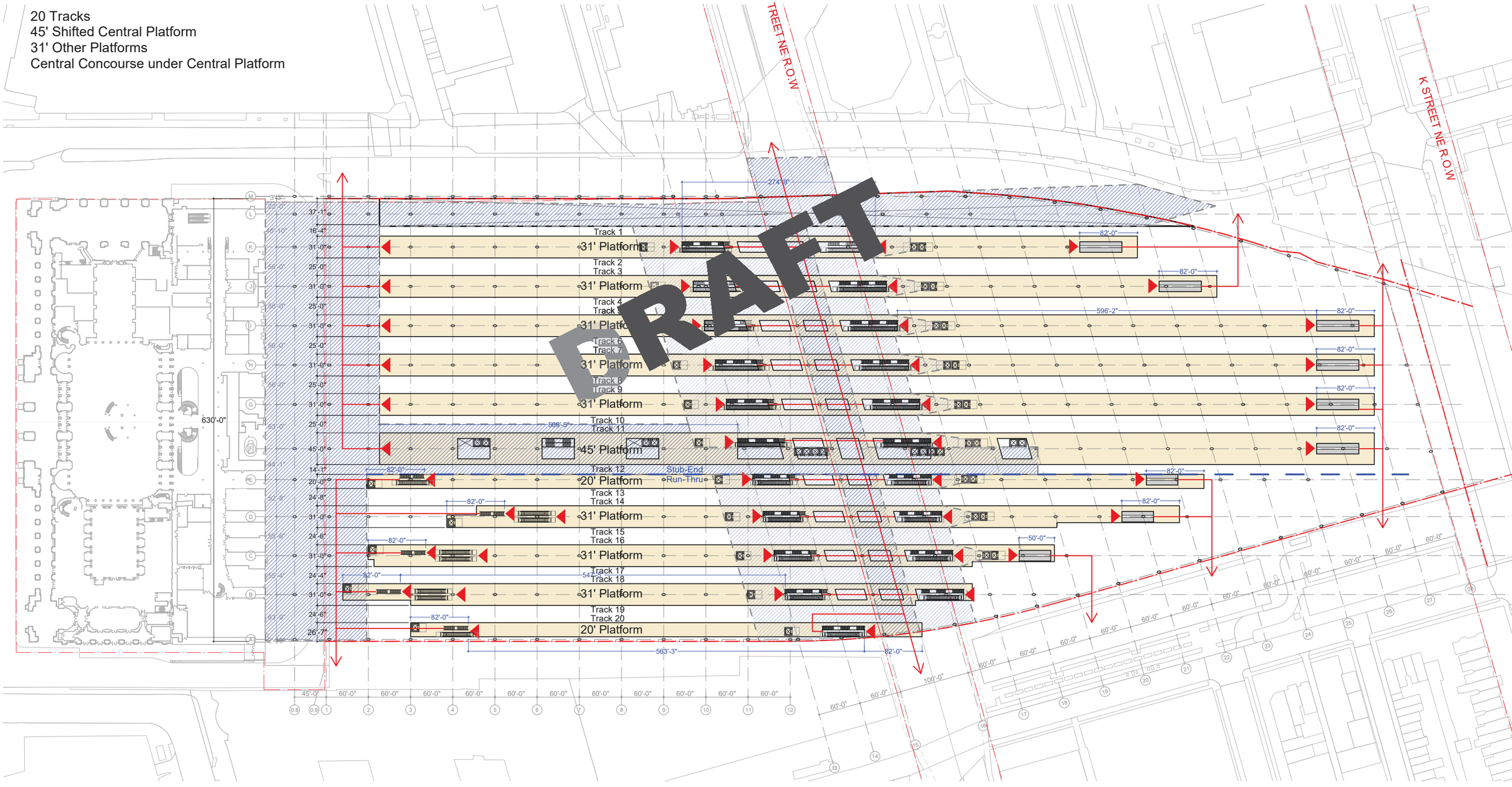
20 Tracks
45' Center Platform
31' Other Platforms
Central Concourse under Central Platform



TRACK AND PLATFORM STUDY

MDP4

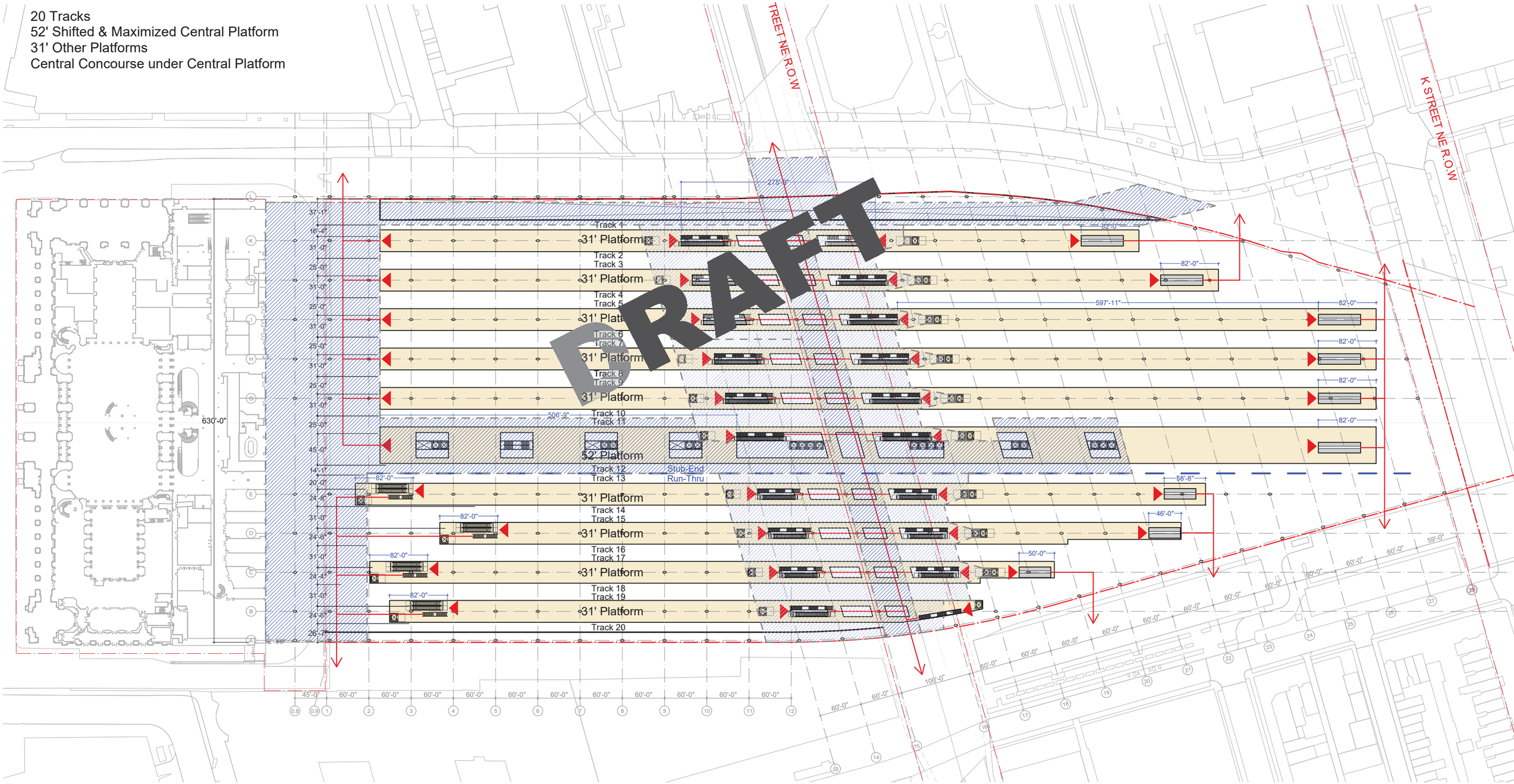
20 Tracks
45' Shifted Central Platform
31' Other Platforms
Central Concourse under Central Platform



TRACK AND PLATFORM STUDY

MDP4A

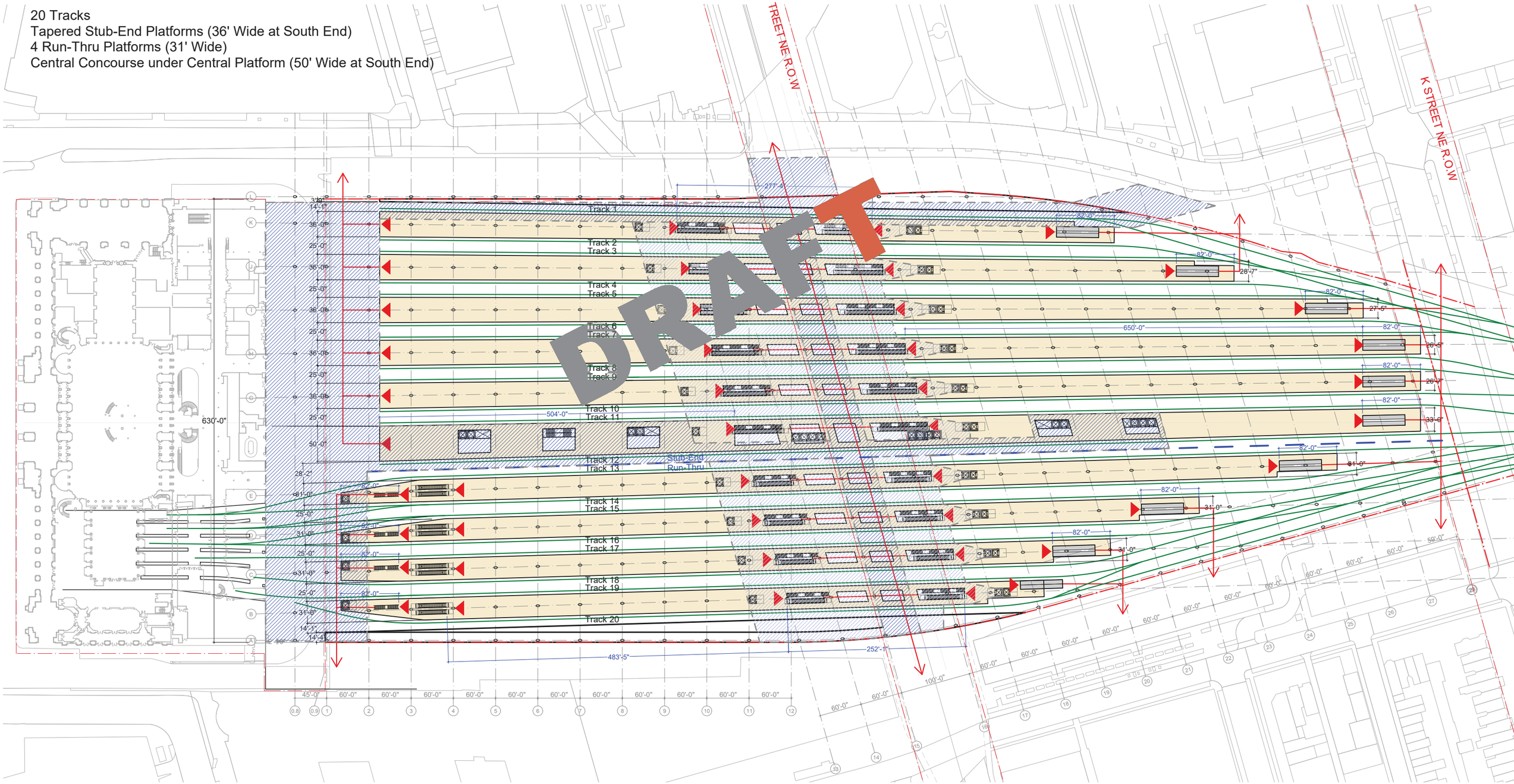
20 Tracks
52' Shifted & Maximized Central Platform
31' Other Platforms
Central Concourse under Central Platform



TRACK AND PLATFORM STUDY

MDP4B

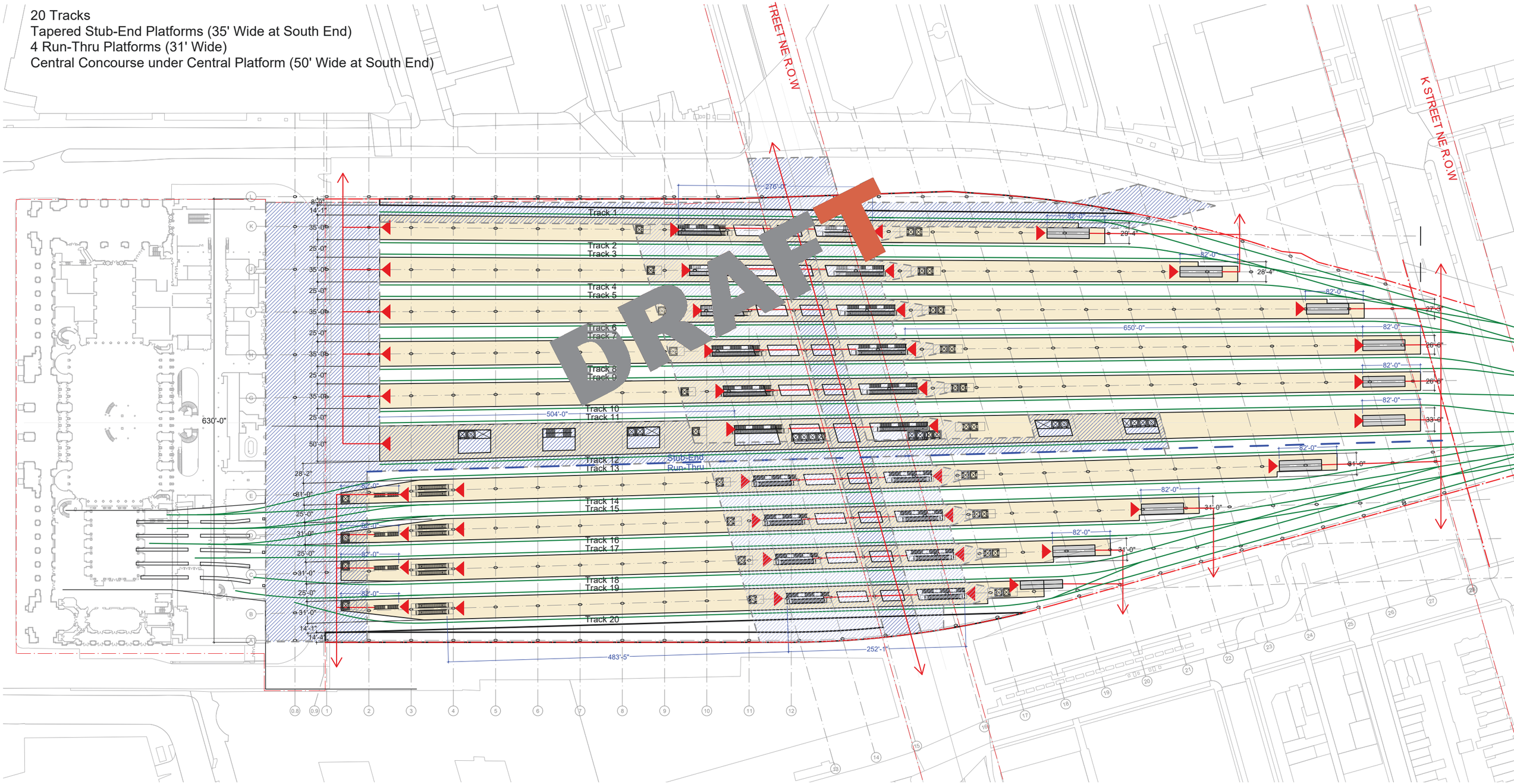
20 Tracks
Tapered Stub-End Platforms (36' Wide at South End)
4 Run-Thru Platforms (31' Wide)
Central Concourse under Central Platform (50' Wide at South End)



TRACK AND PLATFORM STUDY

MDP4C

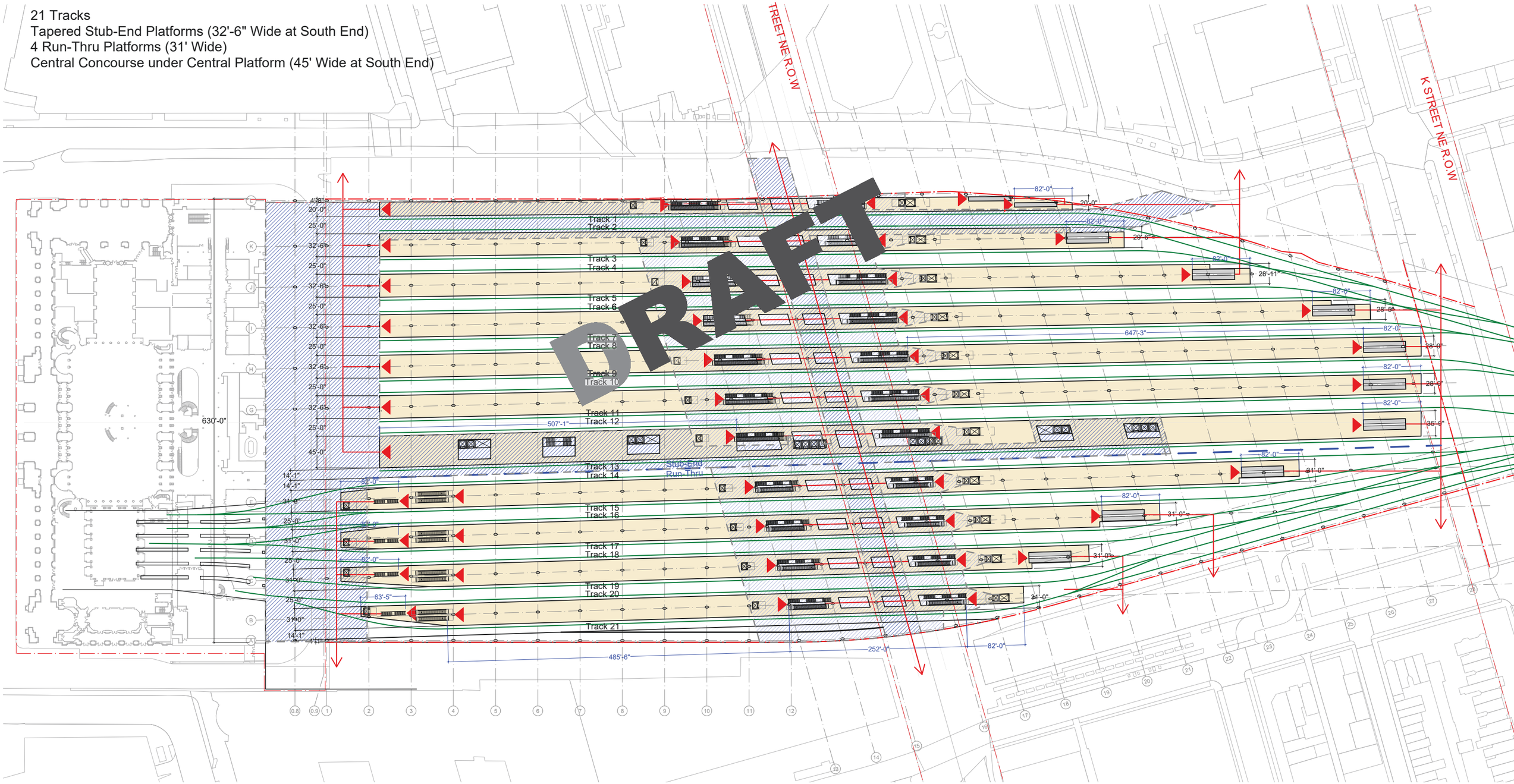
20 Tracks
Tapered Stub-End Platforms (35' Wide at South End)
4 Run-Thru Platforms (31' Wide)
Central Concourse under Central Platform (50' Wide at South End)



TRACK AND PLATFORM STUDY

MDP4C-A

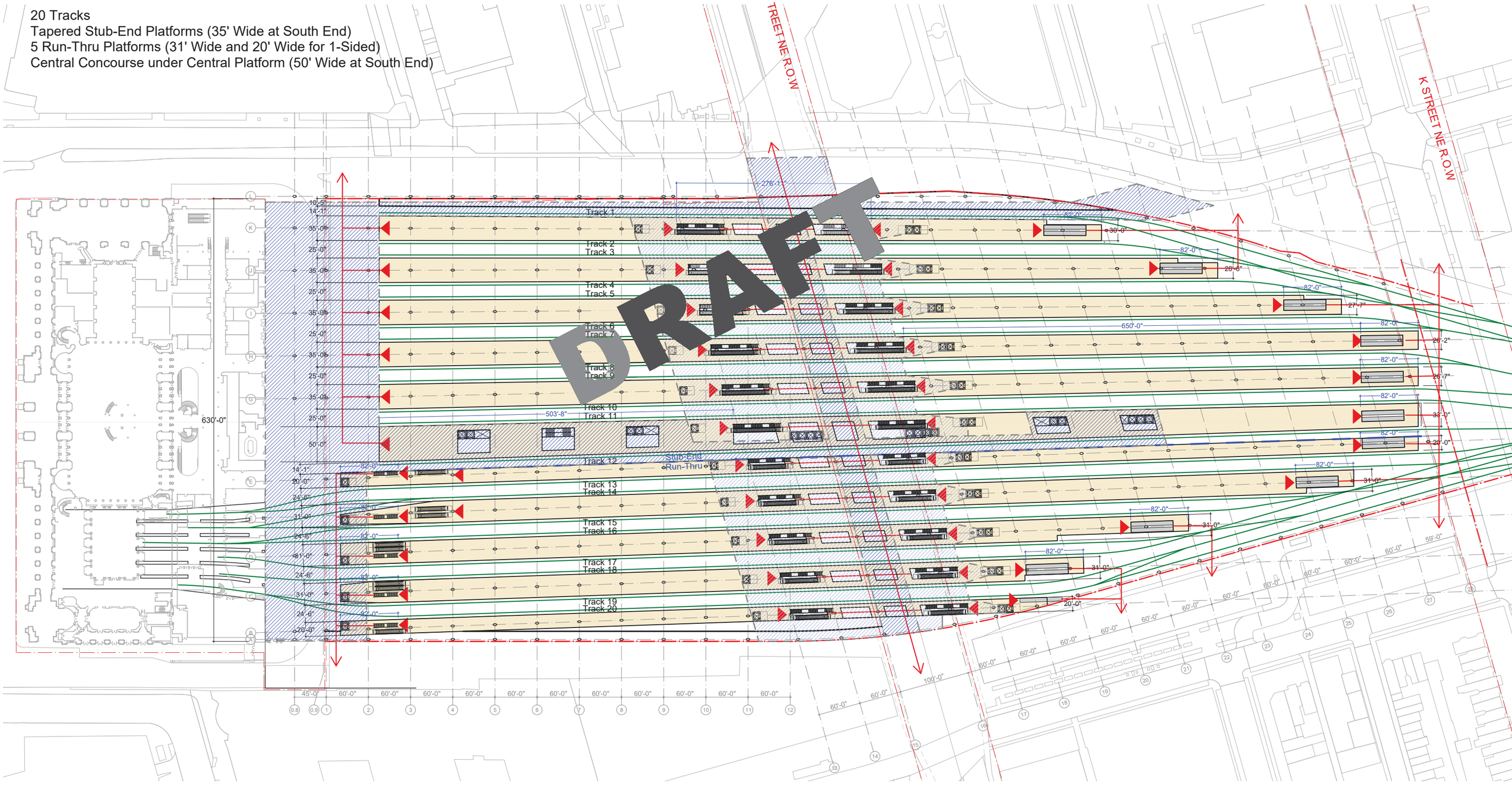
21 Tracks
Tapered Stub-End Platforms (32'-6" Wide at South End)
4 Run-Thru Platforms (31' Wide)
Central Concourse under Central Platform (45' Wide at South End)



TRACK AND PLATFORM STUDY

MDP4C-B

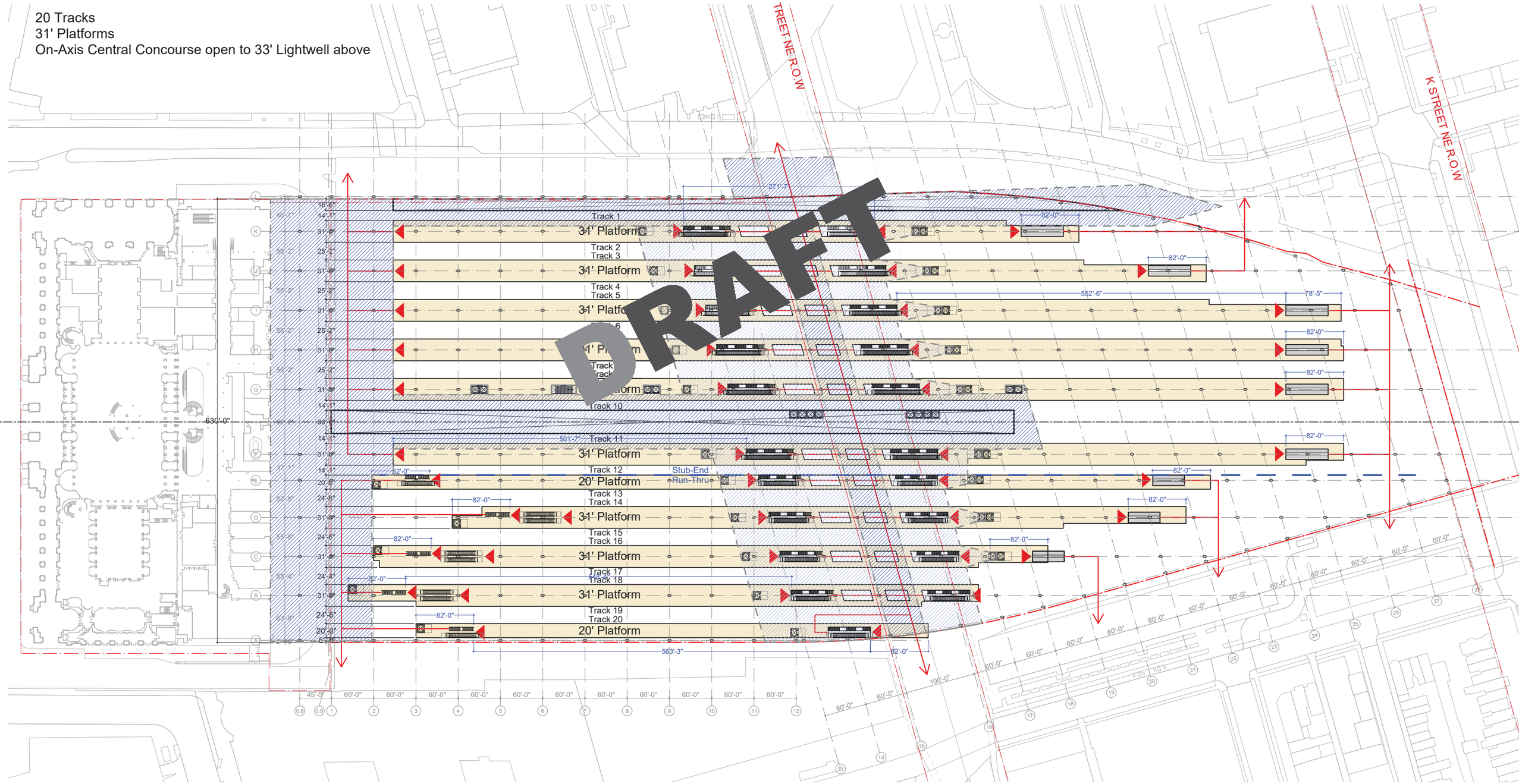
20 Tracks
Tapered Stub-End Platforms (35' Wide at South End)
5 Run-Thru Platforms (31' Wide and 20' Wide for 1-Sided)
Central Concourse under Central Platform (50' Wide at South End)



TRACK AND PLATFORM STUDY

MDP4D

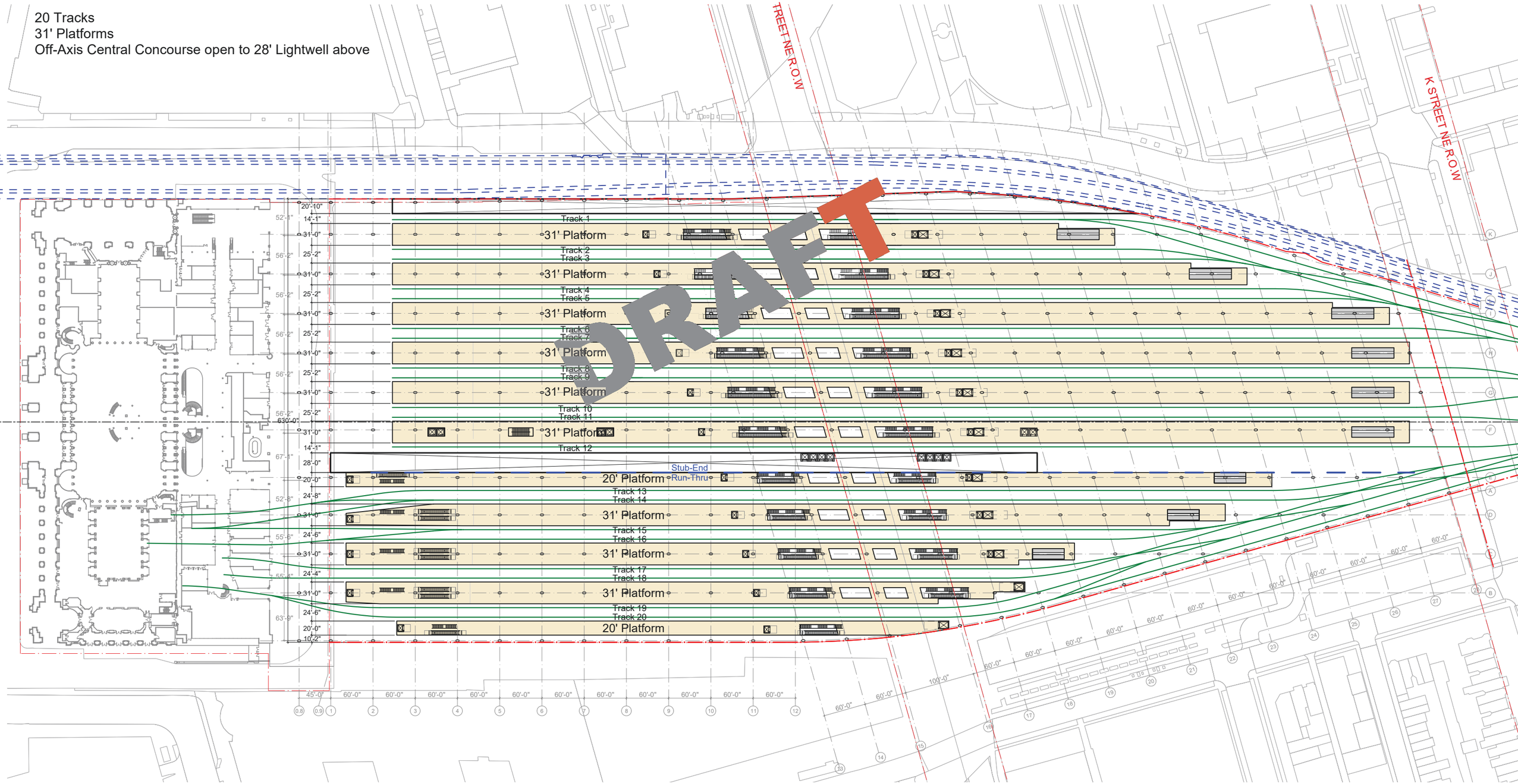
20 Tracks
31' Platforms
On-Axis Central Concourse open to 33' Lightwell above



TRACK AND PLATFORM STUDY

OPT 7 ON-AXIS

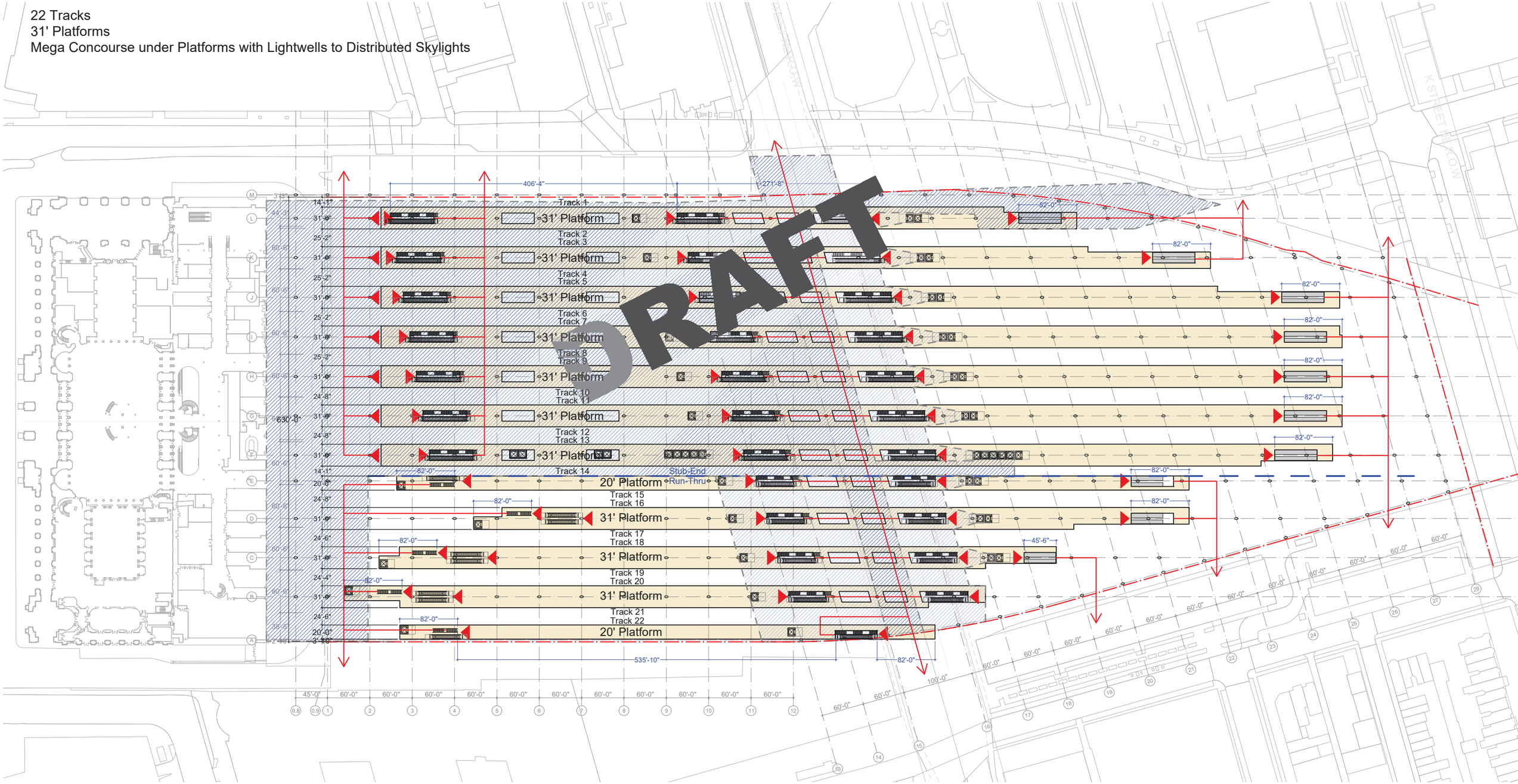
20 Tracks
31' Platforms
Off-Axis Central Concourse open to 28' Lightwell above



TRACK AND PLATFORM STUDY

OPT 7 OFF-AXIS

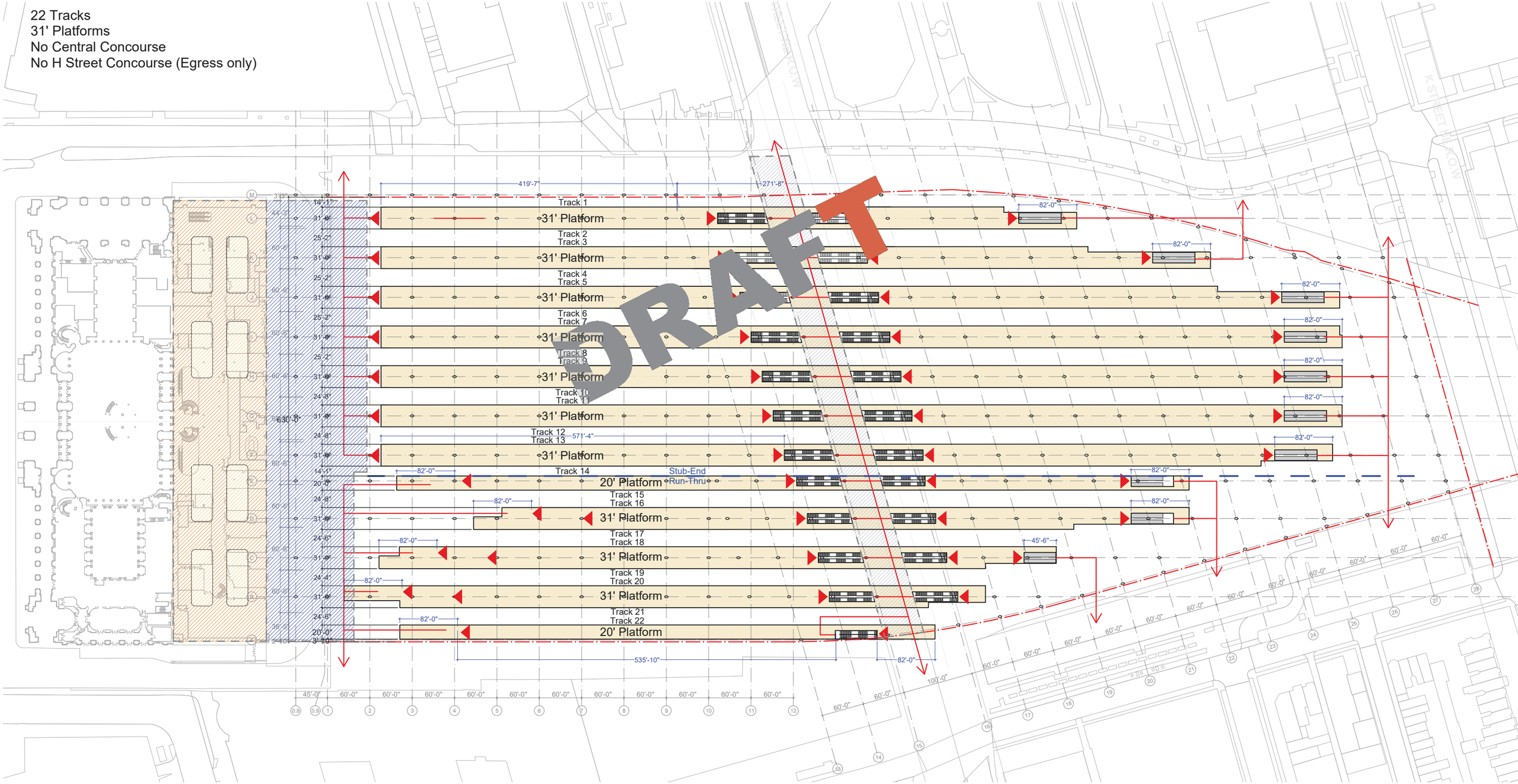
22 Tracks
31' Platforms
Mega Concourse under Platforms with Lightwells to Distributed Skylights



TRACK AND PLATFORM STUDY

OPT 9 MODIFIED

22 Tracks
31' Platforms
No Central Concourse
No H Street Concourse (Egress only)

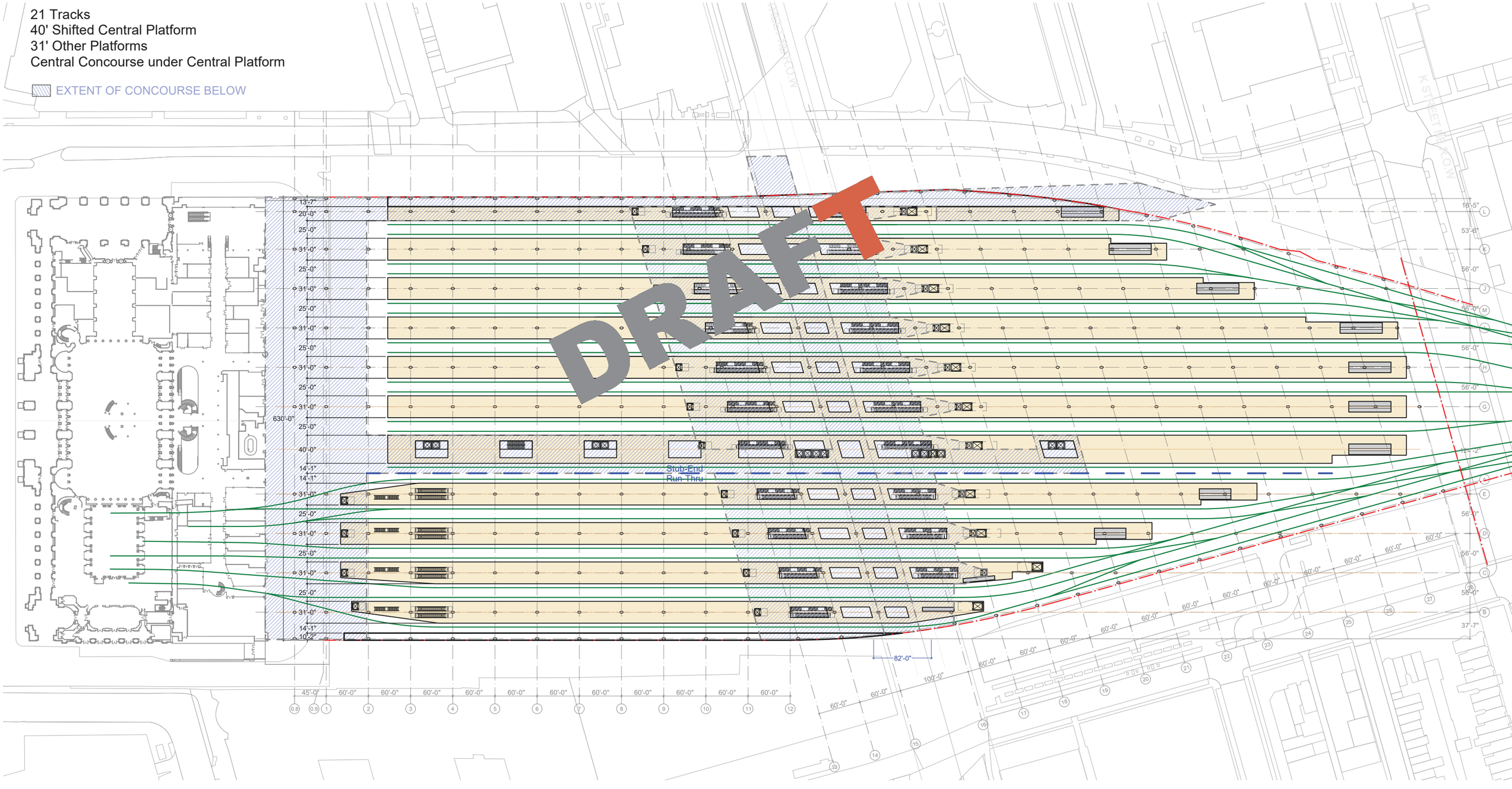


TRACK AND PLATFORM STUDY

OPT 9B

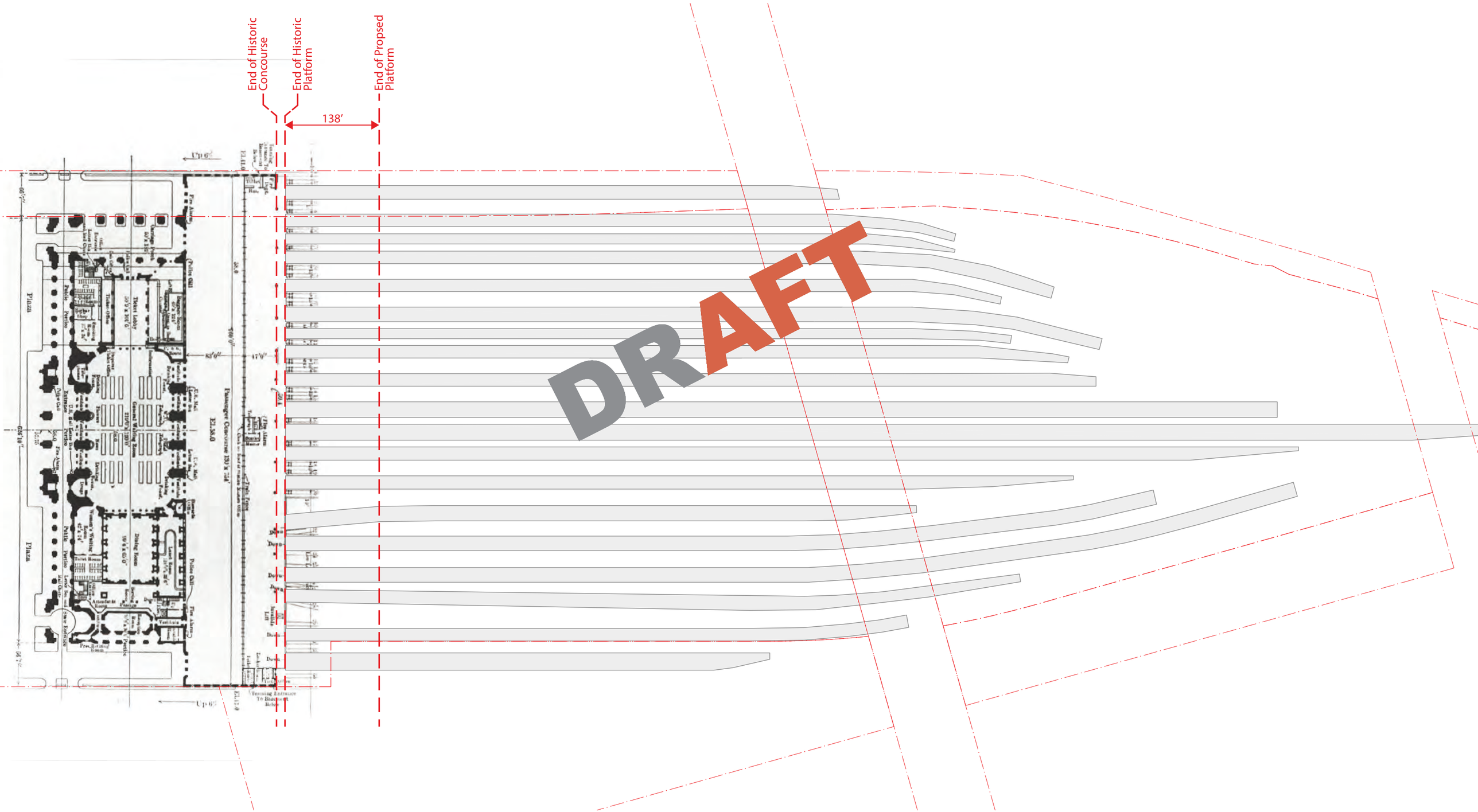
21 Tracks
40' Shifted Central Platform
31' Other Platforms
Central Concourse under Central Platform

EXTENT OF CONCOURSE BELOW



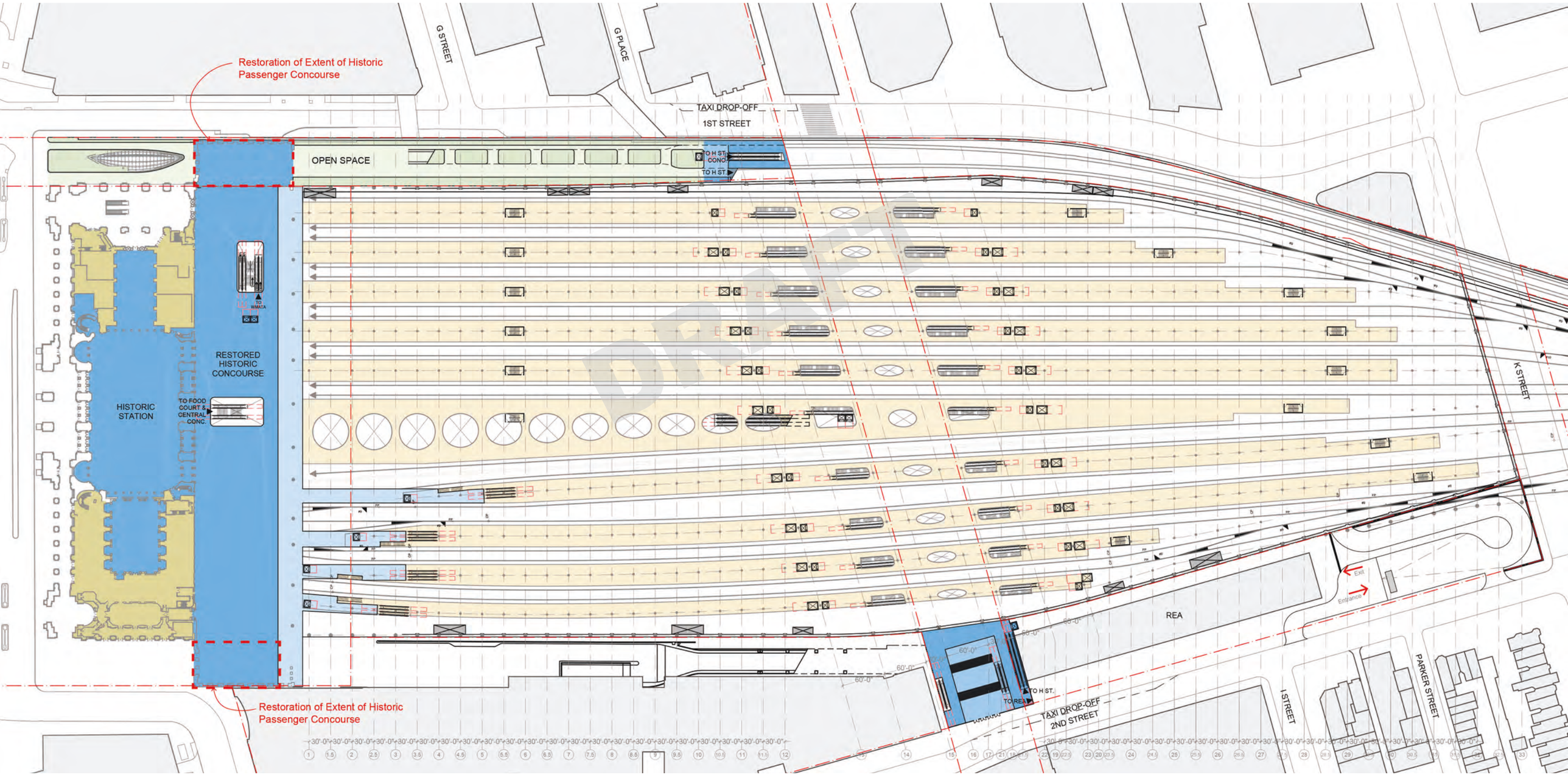
TRACK AND PLATFORM STUDY

OPT 9B MODIFIED



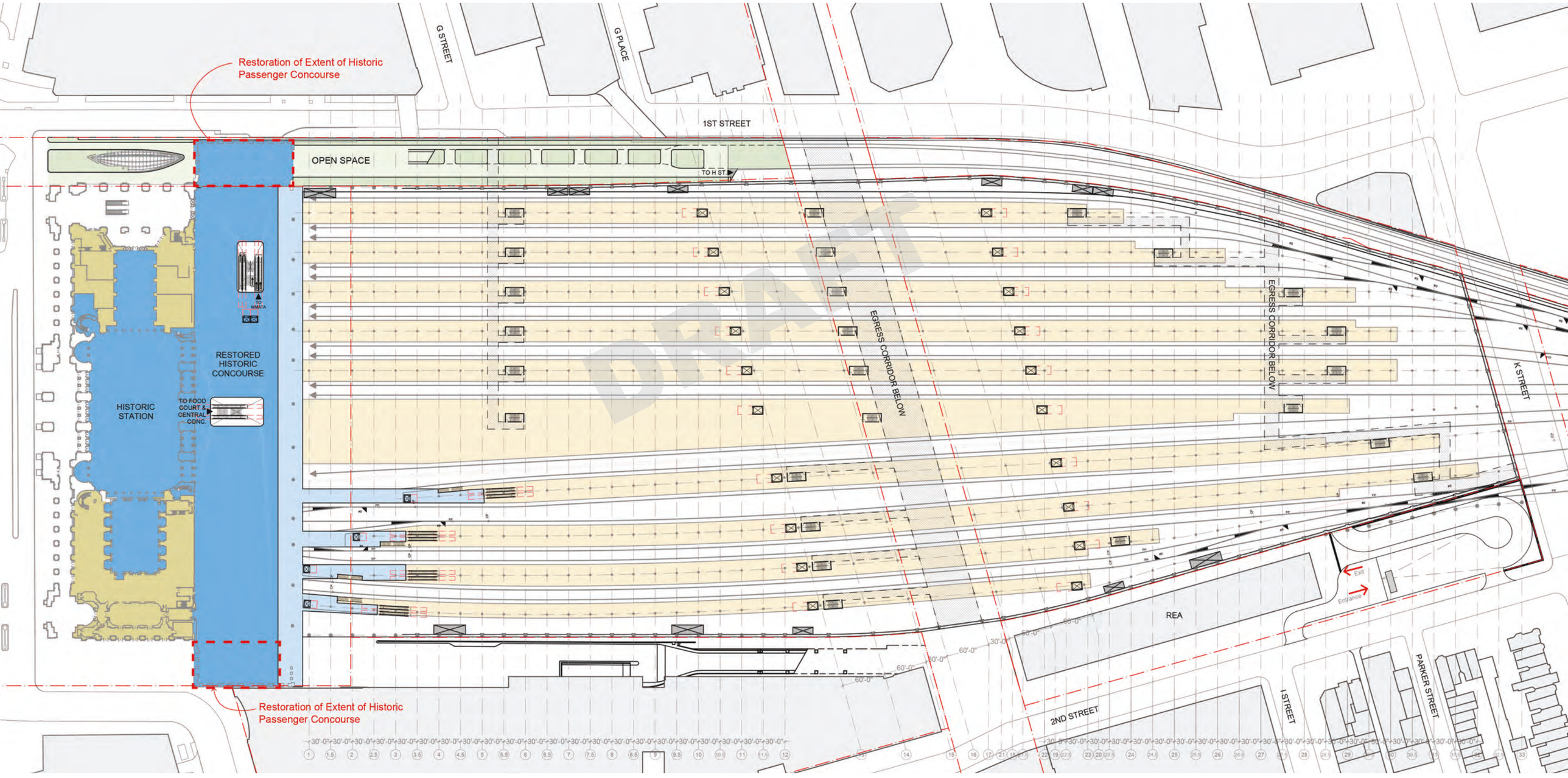
TRACK AND PLATFORM STUDY

1910 HISTORIC PLAN OF MAIN LEVEL



TRACK AND PLATFORM STUDY

EXT A



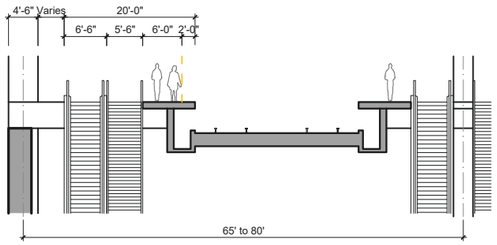
TRACK AND PLATFORM STUDY

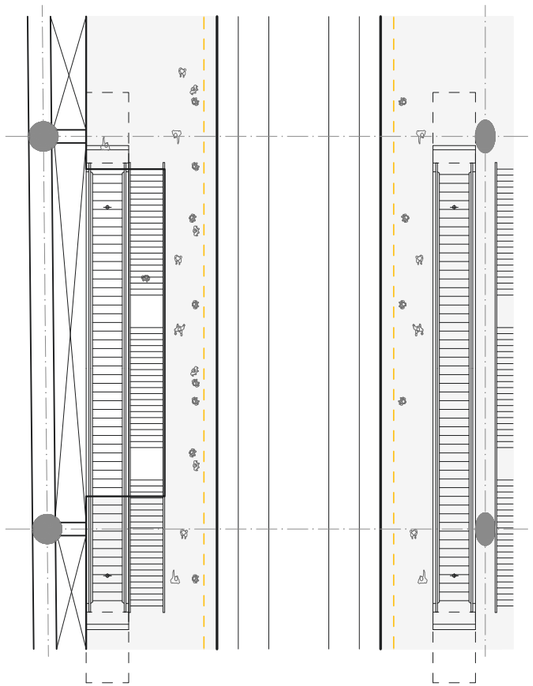
EXT B

Platform Width Studies

20' Wide One-Sided Platforms at Edges (Integrated with Edge Structures)

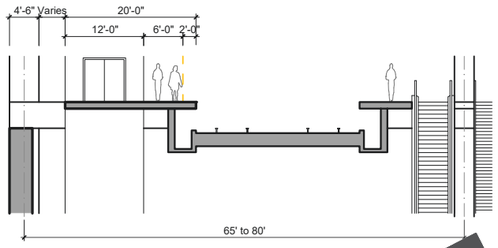
Escalators & Stairs (Double)

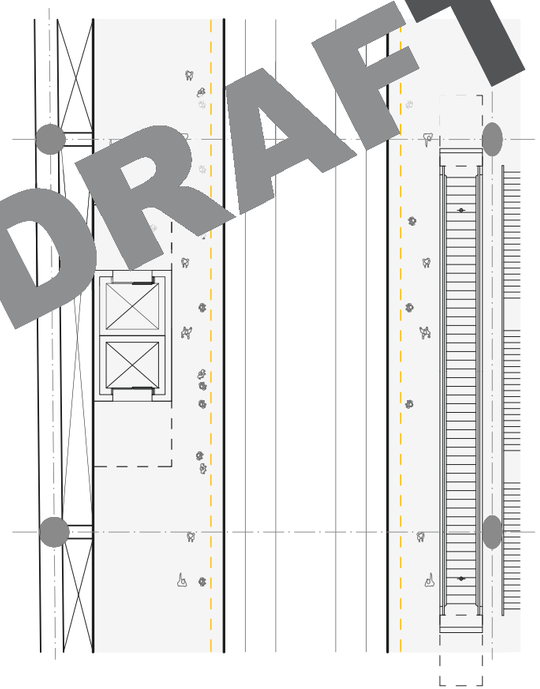




✓ ADA Compliant

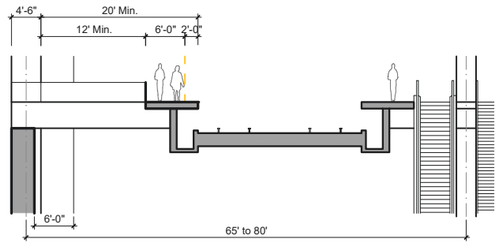
Elevator

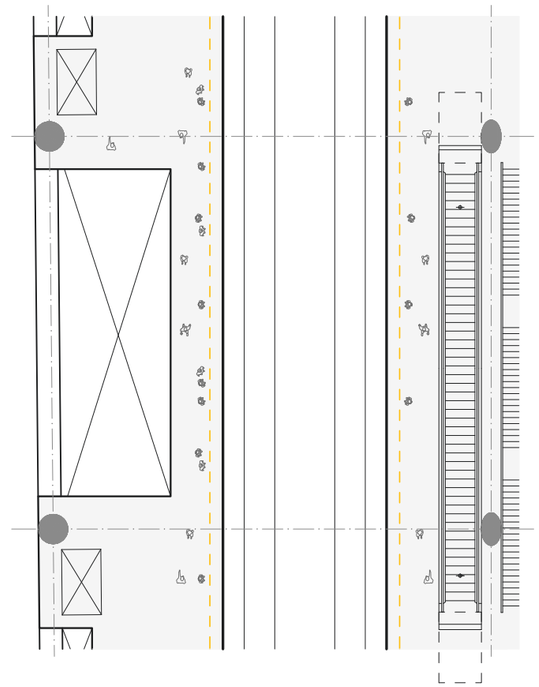




✓ ADA Compliant

Daylight Opening & Mech. Risers





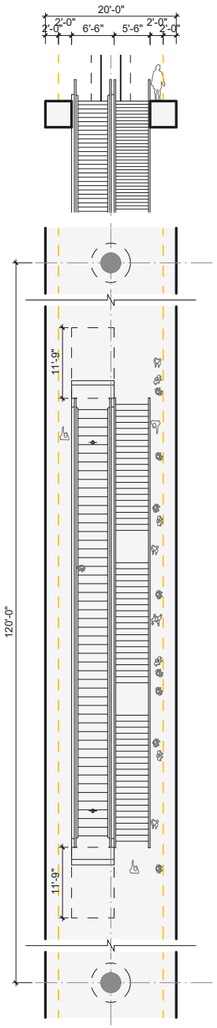
✓ ADA Compliant

PLATFORM WIDTH STUDY

20’ WIDE ONE-SIDED PLATFORMS AT EDGES

20' Wide Platforms

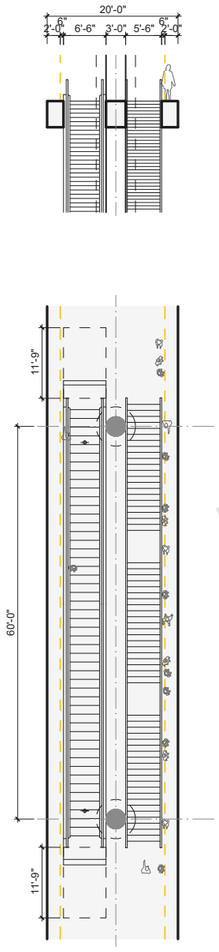
Escalators & Stairs (Double)



Not ADA Compliant
Walking surface below 36" clear width minimum

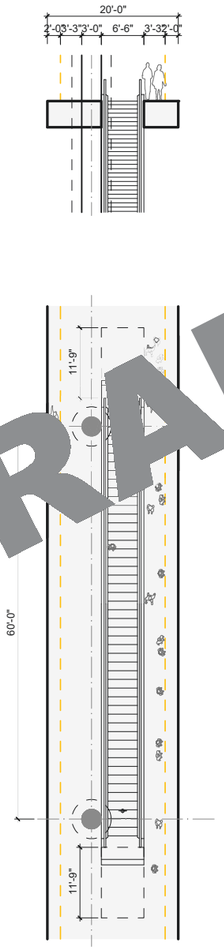
Structural Span Exceeds Overbuild Req'

Escalators & Stairs (Double, Adj'ed. for Columns)



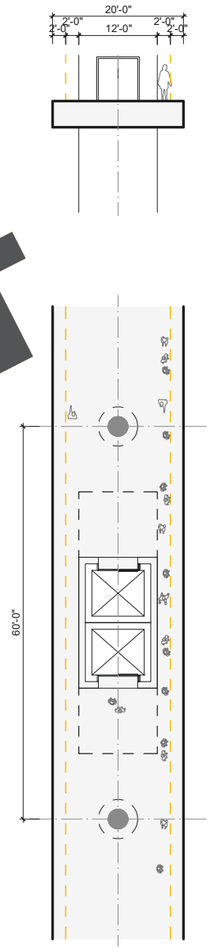
Not ADA Compliant
Walking surface below 36" clear width minimum

Escalators & Stairs (Single)



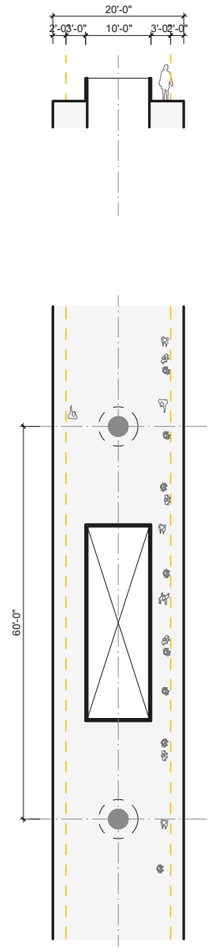
Extents of VT zones shall be limited to allow 60" ADA passing space at 200' intervals

Elevator



Not ADA Compliant
Walking surface below 36" clear width minimum

Daylight Opening



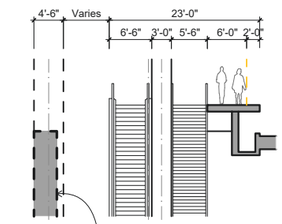
Extents of VT zones shall be limited to allow 60" ADA passing space at 200' intervals

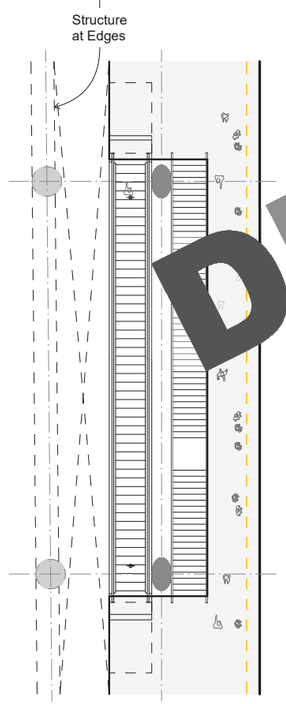
PLATFORM WIDTH STUDY

20’ WIDE PLATFORMS

23' Wide One-Sided Platforms

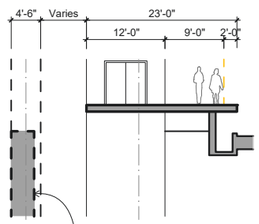
Escalators & Stairs (Double)

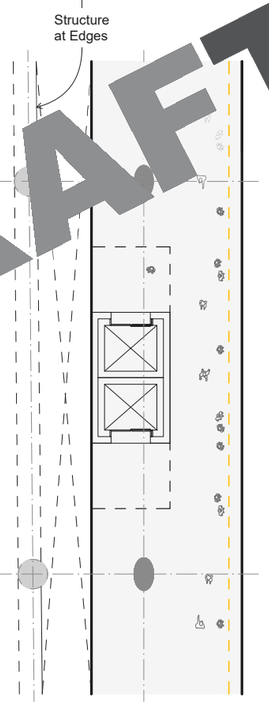




ADA Compliant

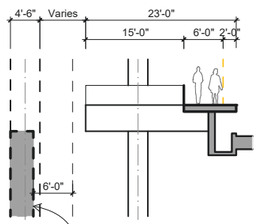
Elevator

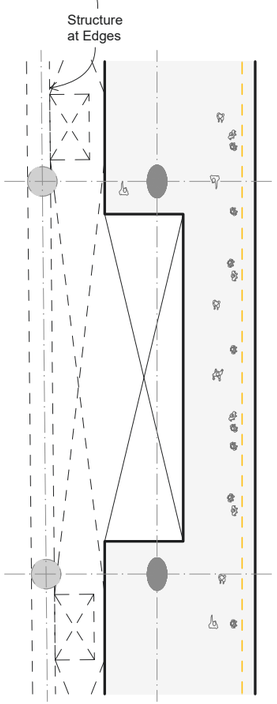




ADA Compliant

Daylight Opening & Mech. Risers

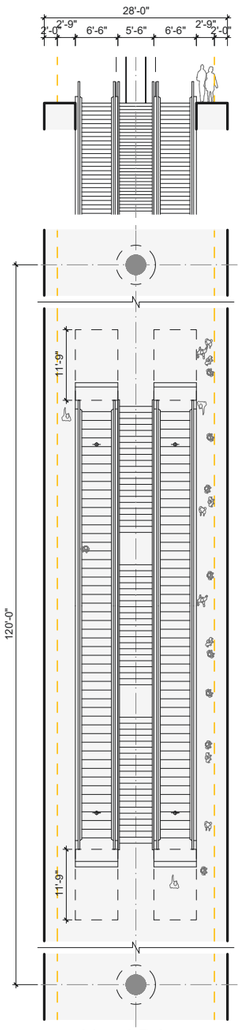




ADA Compliant

28' Wide Platforms

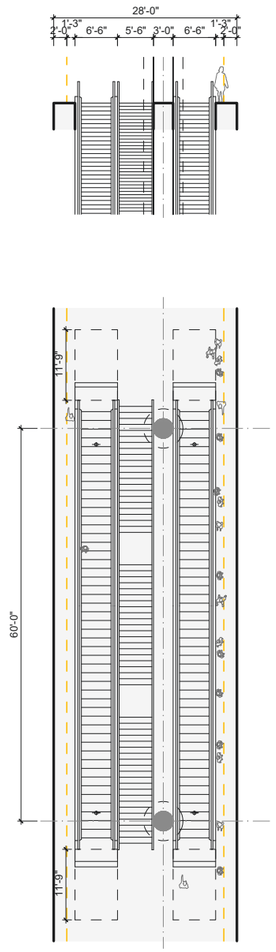
Escalators & Stairs (Triple)



Not ADA Compliant
Walking surface below 36" clear width minimum

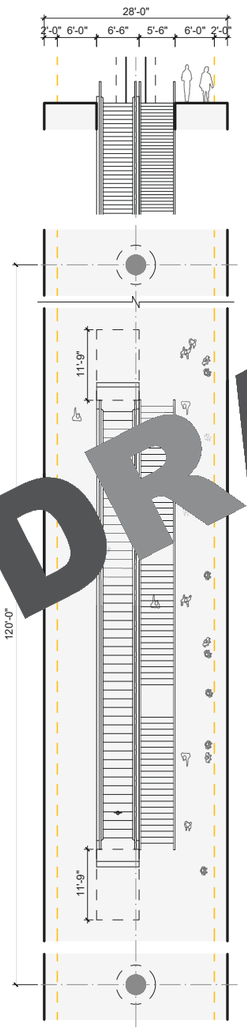
Structural Span Exceeds Overbuild Req'

Escalators & Stairs (Triple, Adj'ed. for Columns)



Not ADA Compliant
Walking surface below 36" clear width minimum

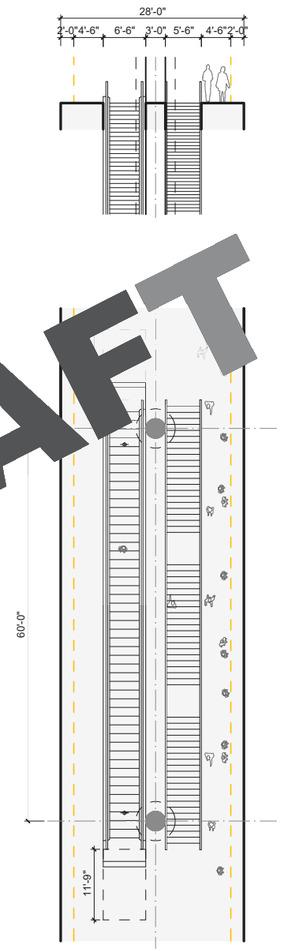
Escalators & Stairs (Double)



ADA Compliant

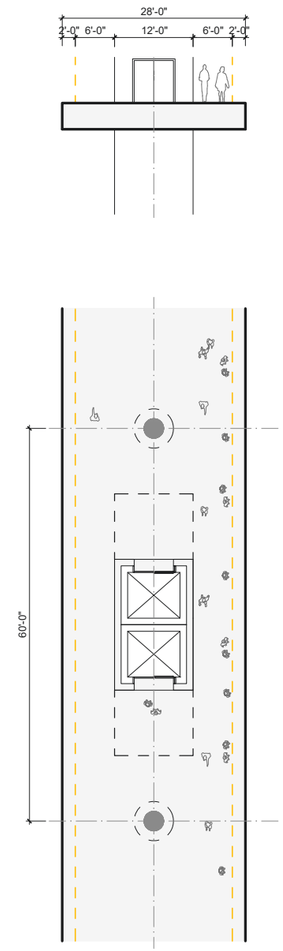
Structural Span Exceeds Overbuild Req'

Escalators & Stairs (Double, Adj'ed. for Columns)



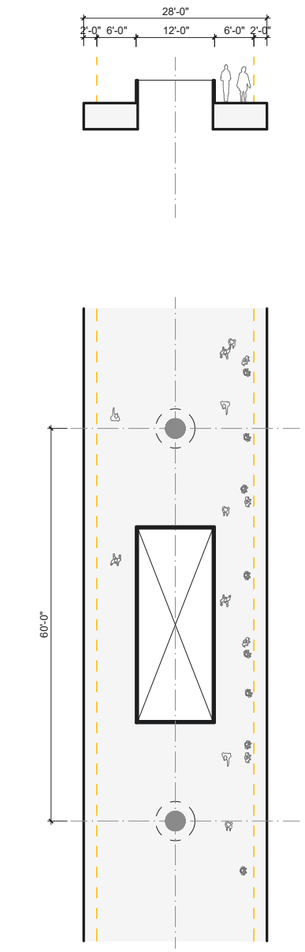
Extents of VT zones shall be limited to allow 60" ADA passing space at 200' intervals

Elevator



ADA Compliant

Daylight Opening



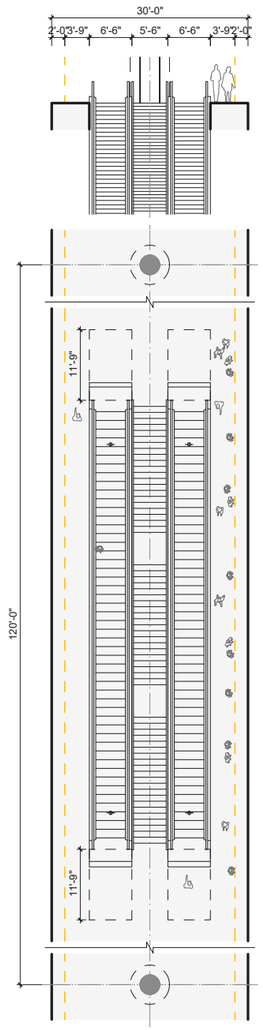
ADA Compliant

PLATFORM WIDTH STUDY

28’ WIDE PLATFORMS

30' Wide Platforms

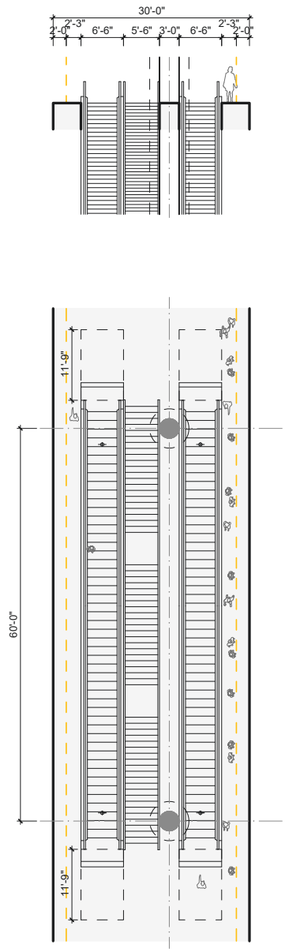
Escalators & Stairs (Triple)



Extents of VT zones shall be limited to allow 60" ADA passing space at 200' intervals

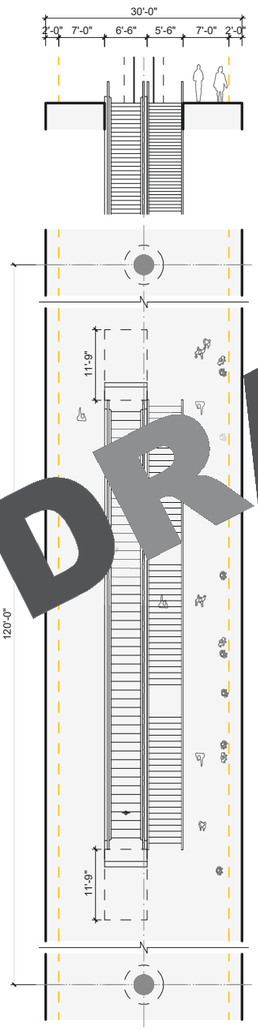
Structural Span Exceeds Overbuild Req'

Escalators & Stairs (Triple, Adj'ed. for Columns)



Not ADA Compliant
Walking surface below 36" clear width minimum

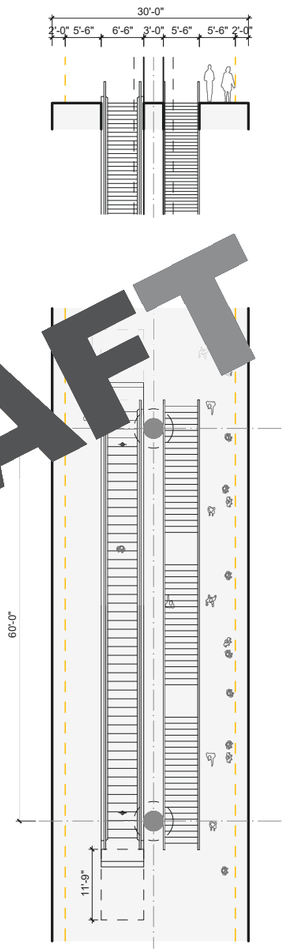
Escalators & Stairs (Double)



ADA Compliant

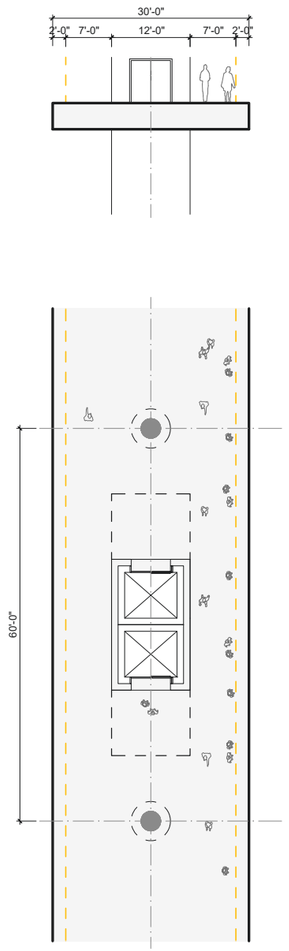
Structural Span Exceeds Overbuild Req'

Escalators & Stairs (Double, Adj'ed. for Columns)



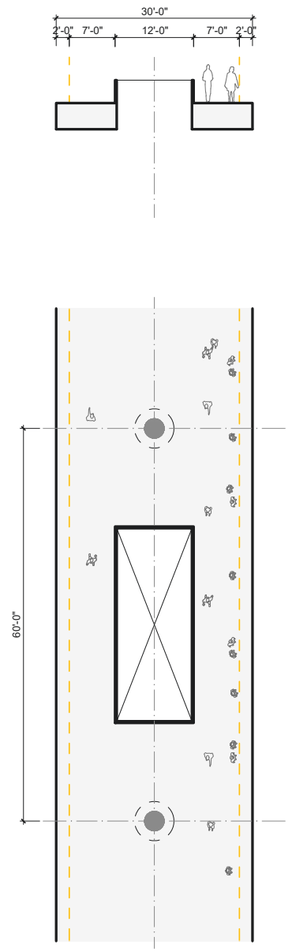
ADA Compliant

Elevator



ADA Compliant

Daylight Opening



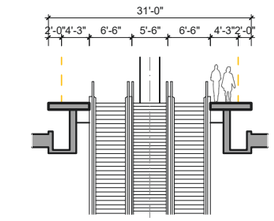
ADA Compliant

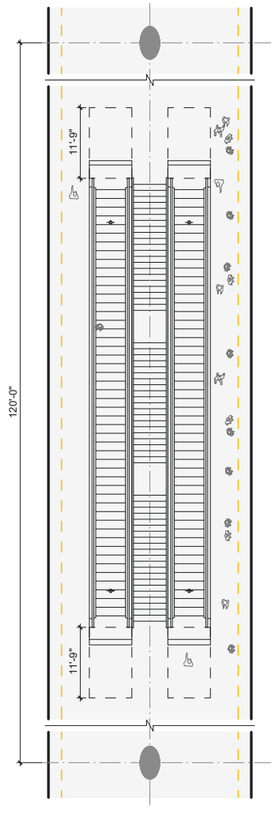
PLATFORM WIDTH STUDY

30’ WIDE PLATFORMS

31' Wide Platforms

Escalators & Stairs (Triple)

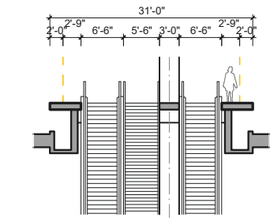


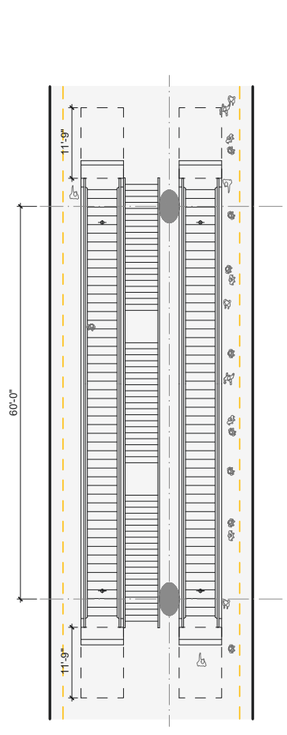


Extents of VT zones shall be limited to allow 60" ADA passing space at 200' intervals

Structural Span Exceeds Overbuild Req'

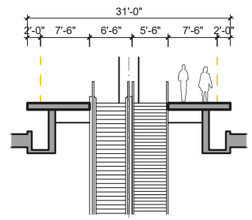
Escalators & Stairs (Triple, Adj'ed. for Columns)

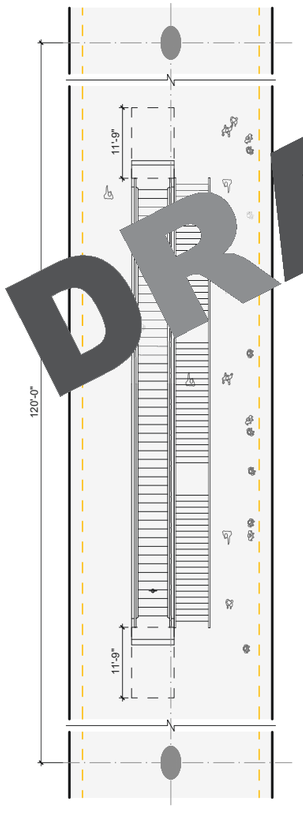




Not ADA Compliant
Walking surface below 36" clear width minimum

Escalators & Stairs (Double)

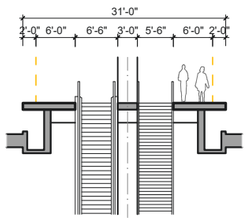


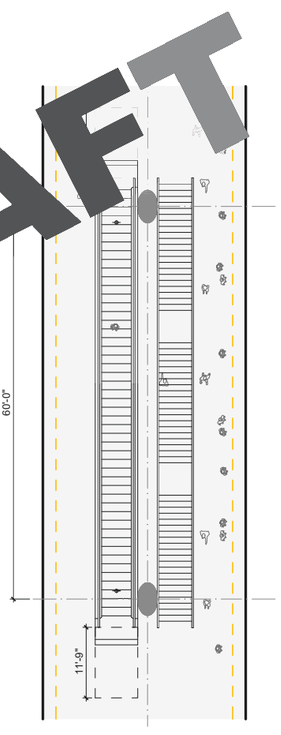


ADA Compliant

Structural Span Exceeds Overbuild Req'

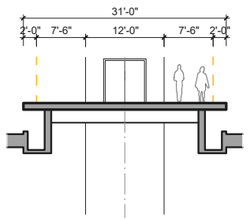
Escalators & Stairs (Double, Adj'ed. for Columns)

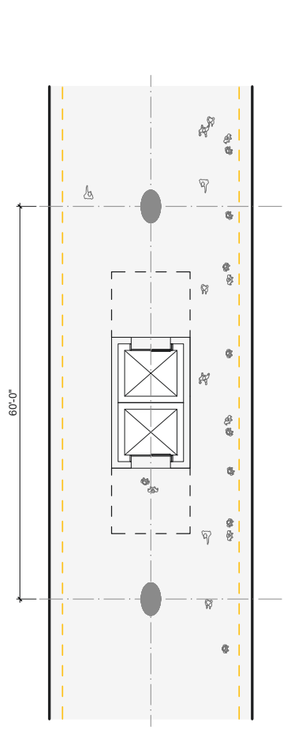




ADA Compliant

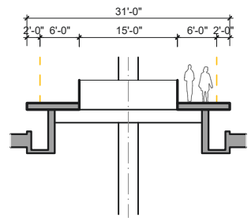
Elevator

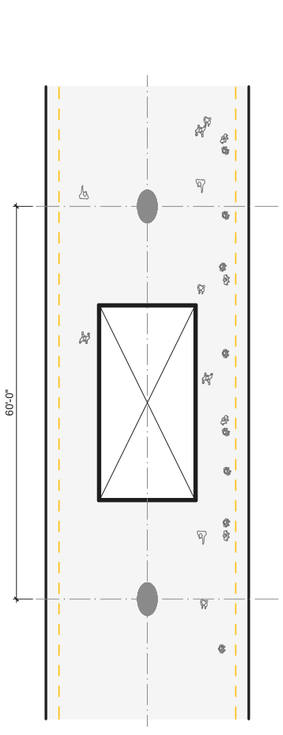




ADA Compliant

Daylight Opening



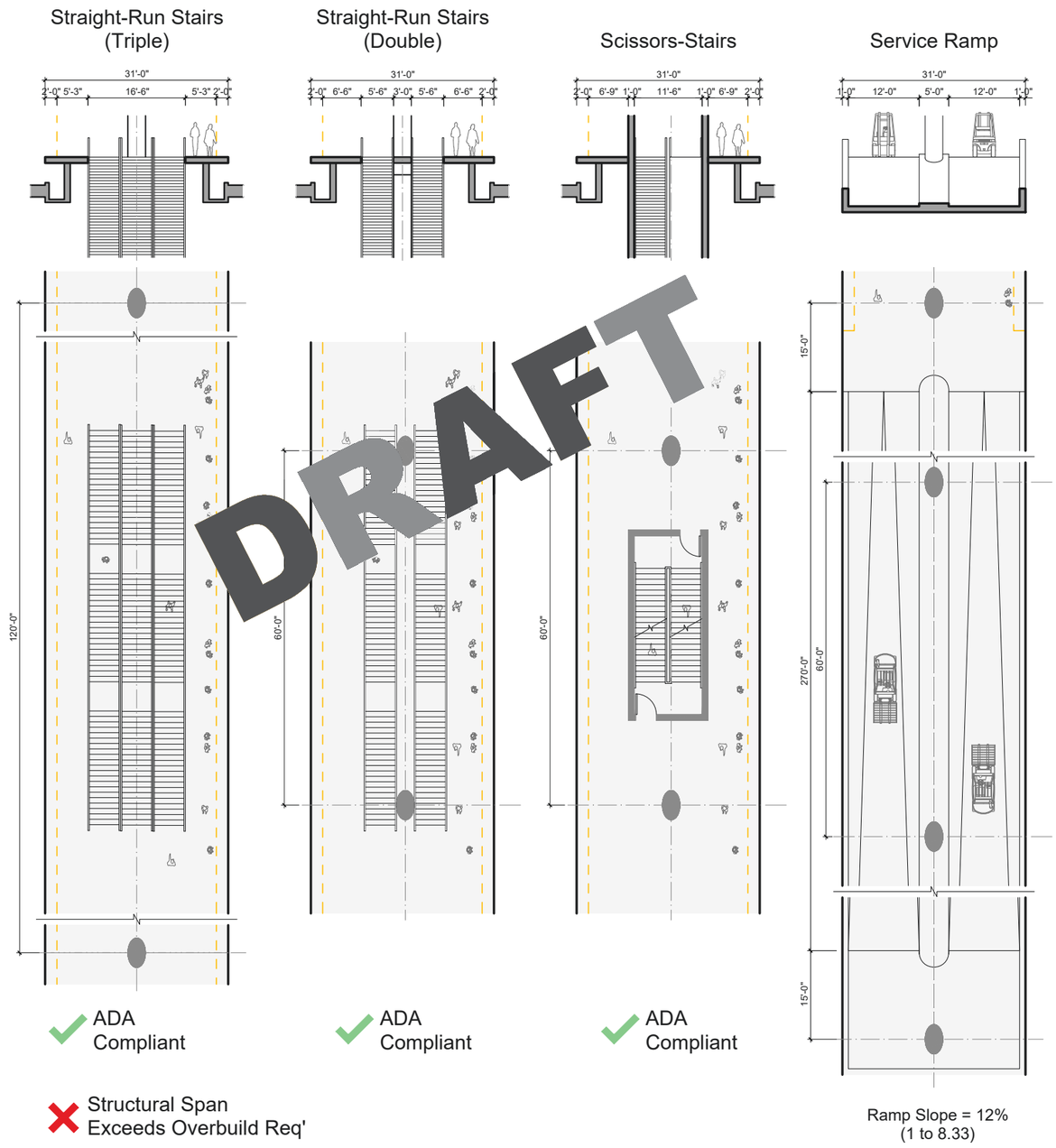


ADA Compliant

PLATFORM WIDTH STUDY

31' WIDE PLATFORMS

31' Wide Platforms - End Conditions

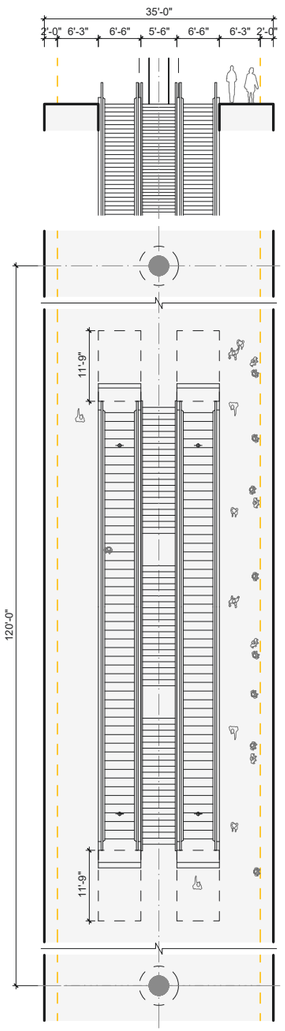


PLATFORM WIDTH STUDY

31’ WIDE PLATFORMS - END CONDITIONS

35' Wide Platforms

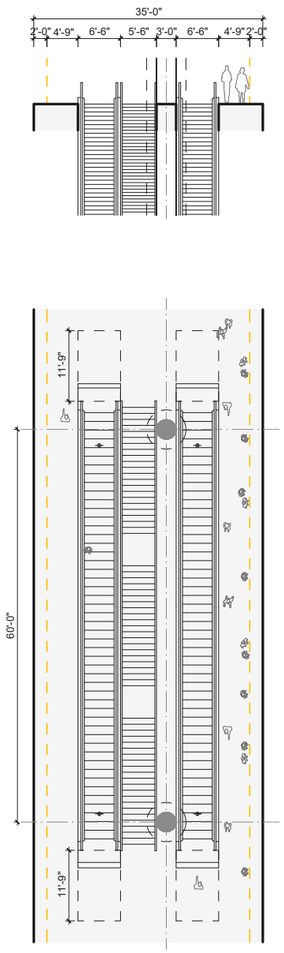
Escalators & Stairs (Triple)



✓ ADA Compliant

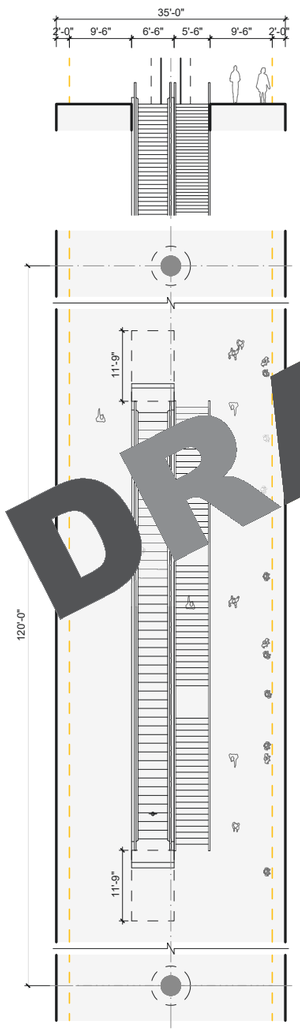
✗ Structural Span Exceeds Overbuild Req'

Escalators & Stairs (Triple, Adj'ed. for Columns)



✓ Extents of VT zones shall be limited to allow 60" ADA passing space at 200' intervals

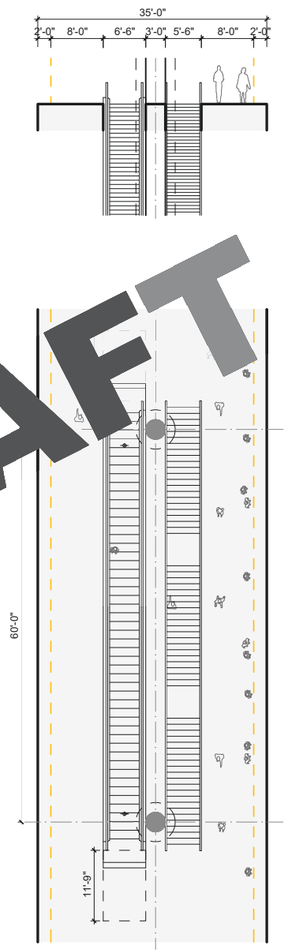
Escalators & Stairs (Double)



✓ ADA Compliant

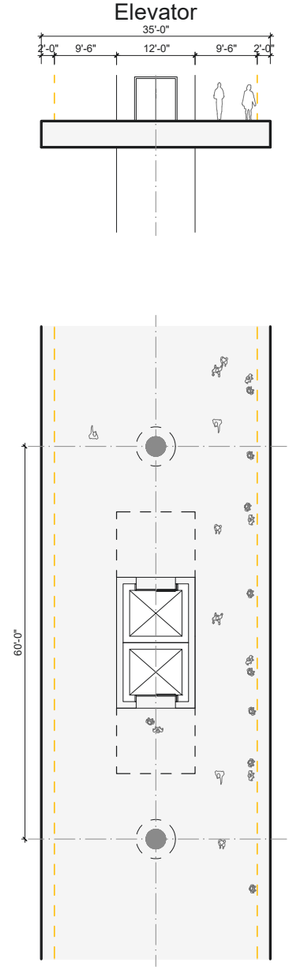
✗ Structural Span Exceeds Overbuild Req'

Escalators & Stairs (Double, Adj'ed. for Columns)



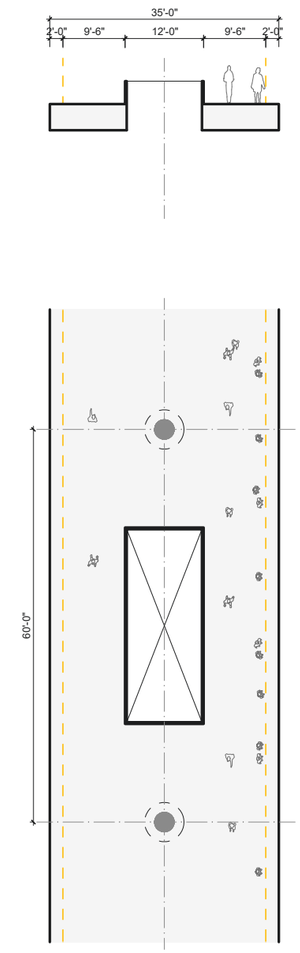
✓ ADA Compliant

Elevator



✓ ADA Compliant

Daylight Opening



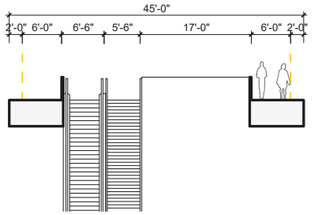
✓ ADA Compliant

PLATFORM WIDTH STUDY

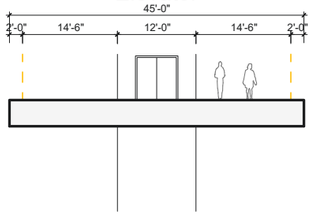
35’ WIDE PLATFORMS

45' Wide Platforms

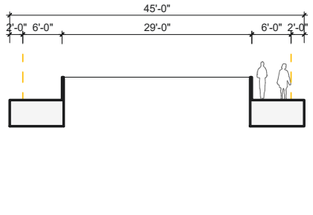
Escalators & Stairs
(Double, Adj'ed. for Columns)

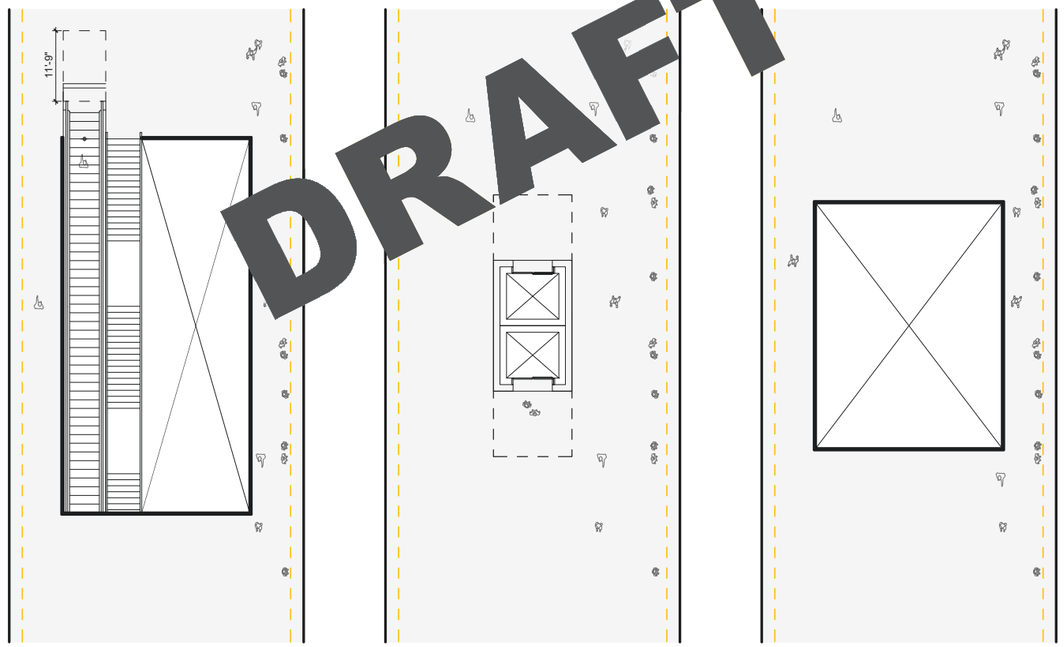


Elevator



Daylight Opening





DRAFT

✔ ADA Compliant

✔ ADA Compliant

✔ ADA Compliant

TI Evaluation Report (March 25, 2016)

WASHINGTON UNION STATION
STATION EXPANSION

Memo

DATE: 03/21/2016

REFERENCE#: WUS 2cMDP 6228

SUBJECT: Preliminary TI Evaluation

Purpose

The purpose of this Preliminary TI Evaluation is to identify potential coordination issues and design implications arising from Amtrak's three currently preferred TI options 14, 15, and 16 relative to the passenger concourse planning below the tracks as well as other elements of the station expansion project. This evaluation analyzes the compatibility and connectivity of the TI options with:

i) pedestrian circulation space,

ii) the arrangement of passenger access and control areas,

iii) and the capacity of building system spaces and service area related to the passenger concourses.

Although it is not within the current project scope, the evaluation also attempts to project the additional coordination issues relative to the integration of the not-to-preclude provisions for the structure of any potential future air-rights development over the station expansion project, relative to the proposed TI options.

Note this review does not address the specific planning of the platform areas themselves with respect to operational and ADA and other accessibility criteria specific to them.

WASHINGTON UNION STATION
STATION EXPANSION

Memo

DATE: 03/21/2016

REFERENCE#: WUS 2cMDP 6228

SUBJECT: Preliminary TI Evaluation

Evaluation Criteria

In addition to identifying any potential coordination issues, the evaluation criteria discussed here are based on the broader purpose, which is to expand and modernize Washington Union Station as a principal intermodal transportation hub of the Capital region. The new station will support current and future rail services and operational needs as well as those related to buses, streetcars and other vehicles.

The main criteria proposed for evaluation of the TI options relative to the station expansion project options are the following (refer to Preliminary TI Evaluation Summary page):

1. CONCOURSE PLANNING COMPATIBILITY
   a. 1st Street concourse
   b. H-Street concourse
   c. Central concourse

2. CONNECTIVITY
   a. 1st Street concourse to and from H-Street
   b. H-Street concourse to and from new streetcar stop
   c. Concourse A to and from run-through track platforms
   d. Single-sided platform to and from concourses

3. PASSENGER ACCESS AND CONTROL ARRANGEMENT
   a. Waiting areas

4. OTHER CRITERIA
   a. Potential use of existing REA parking space
   b. Integration of future air-rights development structure

Preliminary TI Evaluation

TI Option 14 (Refer to Diagrams 1.0-1.6)

- *19 Revenue Tracks*
- *12 Stub-End Tracks and 7 Run-Through Tracks*
- *30' Platforms, 20' Platform at the western-most, Max 51' narrows to 16' at the north-end central platform*

1. CONCOURSE PLANNING COMPATIBILITY
   a. 1st Street Concourse (Refer to Diagram 1.1)
      - MARC waiting areas intrude into 1st Street Concourse, constricting N-S transfers to WMATA.
      - Track structure is in the middle of the Concourse, with implications for sightlines and passenger movement.
      - Space for 6' – 8' of mechanical risers (depending on program below) is not included.
      - Daylight access availability is highly limited.
   b. H-Street Concourse (Refer to Diagram 1.0)
      - Space for H-Street Concourse is provided.
   c. Central Concourse (Refer to Diagram 1.0)
      - Space for Central Concourse open to above is provided, with an irregular geometry.

2. CONNECTIVITY
   a. 1st Street concourse to and from H-Street (Refer to Diagram 1.1)
      - Space allowed for VCE's (Vertical Circulation Elements) connecting entrance at 1st Street Concourse and H-Street bridge is limited: area to the south is insufficient, and the area to the north of 1st Street entrance accommodates two escalators and one elevator in a limited way. Space available farther to the south is approximately 150' in distance from H-Street bridge ROW.
   b. H-Street concourse to and from new streetcar stop (Refer to Diagram 1.2)
      - Space allowed for VCE's connecting H-Street Concourse and the new street car stop on the bridge above is limited: The area south of H-Street concourse can accommodate three escalators and two elevators, but with the consequence of narrowing the central concourse passage to 10'. The area north of H-Street Concourse accommodates either two escalators or two elevators, but not both.
   c. Concourse A to and from run-through track platforms (Refer to Diagram 1.3)
      - Due to the distance between the southern ends of Run-Through track platforms and Concourse A, additional bridge structures will be required.
      - Due to the stepped layout of four Run-Through track platforms at the southern ends, the length of the additional bridge structure will vary.
   d. Single-Sided platform to and from concourse (Refer to Diagram 1.4)
      - The eastern-most platform is 20' and does not allow for VCE's as well as the structure for the future air-rights development. It is anticipated that this would require approximately 22.5 to 23 feet. Additionally this zone needs to consider 6-8' of mechanical risers.

3. PASSENGER ACCESS AND CONTROL ARRANGEMENT
   a. Waiting areas (Refer to Diagram 1.0)
      - MARC, Acela, and VRE waiting areas are provided.

4. R CRITERIA
   a. Potential use of existing REA parking space as truck screening facility (Refer to Diagram 1.5)
      - The proposed track layout intrudes into the existing REA Parking. This is one of the few potential truck screening facility locations as well as major equipment location areas related to the station expansion project.
   b. Integration of future air-rights development structure (Refer to Diagram 1.6)
      - Integration between the structural layouts of the tapered Run-Through tracks and any future air-rights development will be complex.
      - The amount of space allowed for any future air-rights development structure is preliminary and requires further evaluation as part of the TVRA process.

TI Option 15 (Refer to Diagrams 2.0-2.7)

- *20 Revenue Tracks*
- *13 Stub-End Tracks and 7 Run-Through Tracks*
- *30' Platforms, 20' Platforms at the eastern-most and western-most, Max 74' narrows to 20' at the north-end central platform*

1. CONCOURSE PLANNING COMPATIBILITY
   a. 1st Street concourse (Refer to Diagram 2.1)
      - MARC waiting areas intrude into 1st Street Concourse, constricting N-S transfers to WMATA.
      - Track structure is in the middle of the Concourse, with implications for sightlines and passenger movement.
      - Space allowed for 6' – 8' of mechanical risers (depending on program below) is not included.
      - Daylight access availability is limited.
   b. H-Street concourse (Refer to Diagram 2.0)
      - Space for H-Street Concourse is provided.
   c. Central concourse (Refer to Diagram 2.0)
      - Space for Central Concourse under a larger central platform of limited length and irregular width is provided.

2. CONNECTIVITY
   a. 1st Street concourse to and from H-Street (Refer to Diagram 2.1)
      - Space available for VCE's connecting the entrance at 1st Street Concourse and H-Street bridge is approximately 150'-185' in distance from H-Street bridge ROW.
   b. H-Street concourse to and from new streetcar stop (Refer to Diagram 2.2)
      - Space allowed for VCE's connecting H-Street Concourse and the new streetcar stop is limited: The area south of H-Street concourse accommodates two escalators and two elevators approximately 155' in distance from the southern end of H-street bridge ROW. The area north of H-Street Concourse does not accommodate VCE's.
   c. Concourse A to and from run-through track platforms (Refer to Diagram 2.3)
      - Due to the distance between the southern ends of Run-Through track platforms and Concourse A, additional bridge structures will be required.
      - Due to the stepped layout of four Run-Through track platforms at the southern ends, the length of the additional bridge structures will vary.
   d. Single-Sided Platform to and from concourse (Refer to Diagrams 2.4, 2.7)
      - The eastern-most platform is 20' and does not allow for VCE's as well as the structure for the future air-rights development. It is anticipated that this would require approximately 22.5 to 23 feet. Additionally this zone needs to consider 6-8' of mechanical risers.
      - The western-most platform is 20' and is sufficient assuming integration with edge structure.

3. PASSENGER ACCESS AND CONTROL ARRANGEMENT
   a. Waiting areas (Refer to Diagram 2.0)
      - MARC, Acela, and VRE waiting areas are provided.
      - MARC waiting areas would be divided and discontinuous.

4. OTHER CRITERIA
   a. Potential use of existing REA parking space as truck screening facility (Refer to Diagram 2.5)
      - The proposed track layout intrudes into the existing REA Parking. This is one of the few potential truck screening facility locations as well as major equipment location areas related to the station expansion project.
   b. Integration of future air-rights development structure (Refer to Diagram 2.6)
      - Integration between the structural layouts of the tapered Run-Through tracks and any future air-rights development will be complex.
      - The amount of space allowed for any future air-rights development structure is preliminary and requires further evaluation as part of the TVRA process.

TI Option 16 (Refer to Diagrams 3.0-3.6)

- *19 Revenue Tracks*
- *12 Stub-End Tracks and 7 Run-Through Tracks*
- *30' Platforms, 20' Platform at the western-most, Max 101' narrows to 20' at the north-end central platform*

1. CONCOURSE PLANNING COMPATIBILITY
   a. 1st Street Concourse (Refer to Diagram 3.1)
      - MARC waiting areas intrude into 1st Street Concourse, constricting N-S transfers to WMATA.
      - Track structure is in the middle of the Concourse, with implications for sightlines and passenger movement.
      - Space allowed for 6' – 8' mechanical risers (depending on program below) is limited.
      - Daylight access availability is limited.
   b. H-Street Concourse (Refer to Diagram 3.0)
      - Space for H-Street Concourse is provided.
   c. Central Concourse (Refer to Diagram 3.0)
      - Space for Central Concourse under a larger central platform of limited length and irregular width is provided.

2. CONNECTIVITY
   a. 1st Street Concourse to and from H-Street (Refer to Diagram 3.1)
      - Space allowed for VCE's (Vertical Circulation Elements) connecting entrance at 1st Street Concourse and H-Street bridge is limited: area to the south is insufficient, and the area to the north of 1st Street entrance accommodates two escalators and one elevator in a limited way. Space available farther to the south is approximately 150' in distance from H-Street bridge ROW.
   b. H-Street Concourse to and from New Street Car Stop (Refer to Diagram 3.2)
      - Space is provided for VCE's connecting H-Street Concourse and the new streetcar stop: South of H-Street concourse accommodates three escalators and two elevators. North of H-Street Concourse accommodates two escalators and two elevators.
   c. Concourse A to and from Run-Through Track Platforms (Refer to Diagram 3.3)
      - Due to the distance between the southern ends of Run-Through track platforms and Concourse A, additional bridge structures will be required.
      - Due to the stepped layout of four Run-Through track platforms at the southern ends, the length of additional bridge structures will vary.
   d. Single-Sided Platform to and from Concourse (Refer to Diagram 3.4)
      - The eastern-most platform is 20' and does not allow for VCE's as well as the structure for the future air-rights development. It is anticipated that this would require approximately 22.5 to 23 feet. Additionally this zone needs to consider 6-8' of mechanical risers.

3. PASSENGER ACCESS AND CONTROL ARRANGEMENT
   a. Waiting areas (Refer to Diagram 3.0)
      - MARC, Acela, and VRE waiting areas are provided.

4. [illegible]ER CRITERIA
   a. Potential use of existing REA parking space as truck screening facility (Refer to Diagram 3.5)
      - The proposed track layout intrudes into the existing REA Parking. This is one of the few potential truck screening facility locations as well as major equipment location areas related to the station expansion project.
   b. Integration of future air-rights development structure (Refer to Diagram 3.6)
      - Integration between the structural layouts of the tapered Run-Through tracks and any future air-rights development will be complex.
      - The amount of space allowed for any future air-rights development structure is preliminary and requires further evaluation as part of the TVRA process.

Summary

	CONCOURSE PLANNING COMPATIBILITY			CONNECTIVITY				PASSENGER ACCESS AND CONTROL	OTHER CRITERIA			DAYLIGHTING AND VISUAL ACCESS		
	1ST STREET CONCOURSE	H-STREET CONCOURSE	CENTRAL CONCOURSE	1ST STREET CONCOURSE TO AND FROM H-STREET	H-STREET CONCOURSE TO AND FROM NEW STREETCAR STOP	SINGLE-SIDED PLATFORM TO AND [illegible]	C[illegible]URSE A TO [illegible] RUN-[illegible] [illegible]ACK[illegible]	WAITING AREAS	POTENTIAL USE OF EXISTING REA PARKING SPACE	INTEGRATION OF STATION EXPANSION PROJECT SYSTEMS AND RISERS	INTEGRATION OF AIR-RIGHTS DEVELOPMENT STRUCTURE & UTILITIES	1ST STREET CONCOURSE	H-STREET CONCOURSE	CENTRAL CONCOURSE
OPT 14 (19 TRACKS)	Limited	High	Limited	Insufficient	Limited	Insufficient	Limited	High	Insufficient	Insufficient	Limited	Insufficient	Insufficient	Limited
OPT 15 (20 TRACKS)	Limited	High	Insufficient	Limited	Insufficient	Insufficient	Limited	Limited	Insufficient	Insufficient	Limited	Insufficient	Insufficient	Limited
OPT 16 (19 TRACKS)	Limited	High	Limited	Insufficient	High	Insufficient	Limited	High	Insufficient	Insufficient	Limited	Insufficient	Insufficient	Limited

- High Compatibility
- Limited Compatibility
- Insufficient Compatibility

TI EVALUATION REPORT (MARCH 25, 2016)

Diagram 1.0: Option 14 (19 Tracks)

	CONCOURSE PLANNING COMPATIBILITY			CONNECTIVITY				PASSENGER ACCESS AND CONTROL	OTHER CRITERIA			DAYLIGHTING AND VISUAL ACCESS		
	1ST STREET CONCOURSE	H-STREET CONCOURSE	CENTRAL CONCOURSE	1ST STREET CONCOURSE TO AND FROM H-STREET	H-STREET CONCOURSE TO AND FROM NEW STREETCAR STOP	SINGLE-SIDED PLATFORM TO AND FROM CONCOURSES	CONCOURSE A TO AND FROM RUN-THROUGH TRACK PLATFORMS	WAITING AREAS	POTENTIAL USE OF EXISTING REA PARKING SPACE	INTEGRATION OF STATION EXPANSION PROJECT SYSTEMS AND RISERS	INTEGRATION OF AIR-RIGHTS DEVELOPMENT STRUCTURE & UTILITIES	1ST STREET CONCOURSE	H-STREET CONCOURSE	CENTRAL CONCOURSE
OPT 14 (19 TRACKS)														

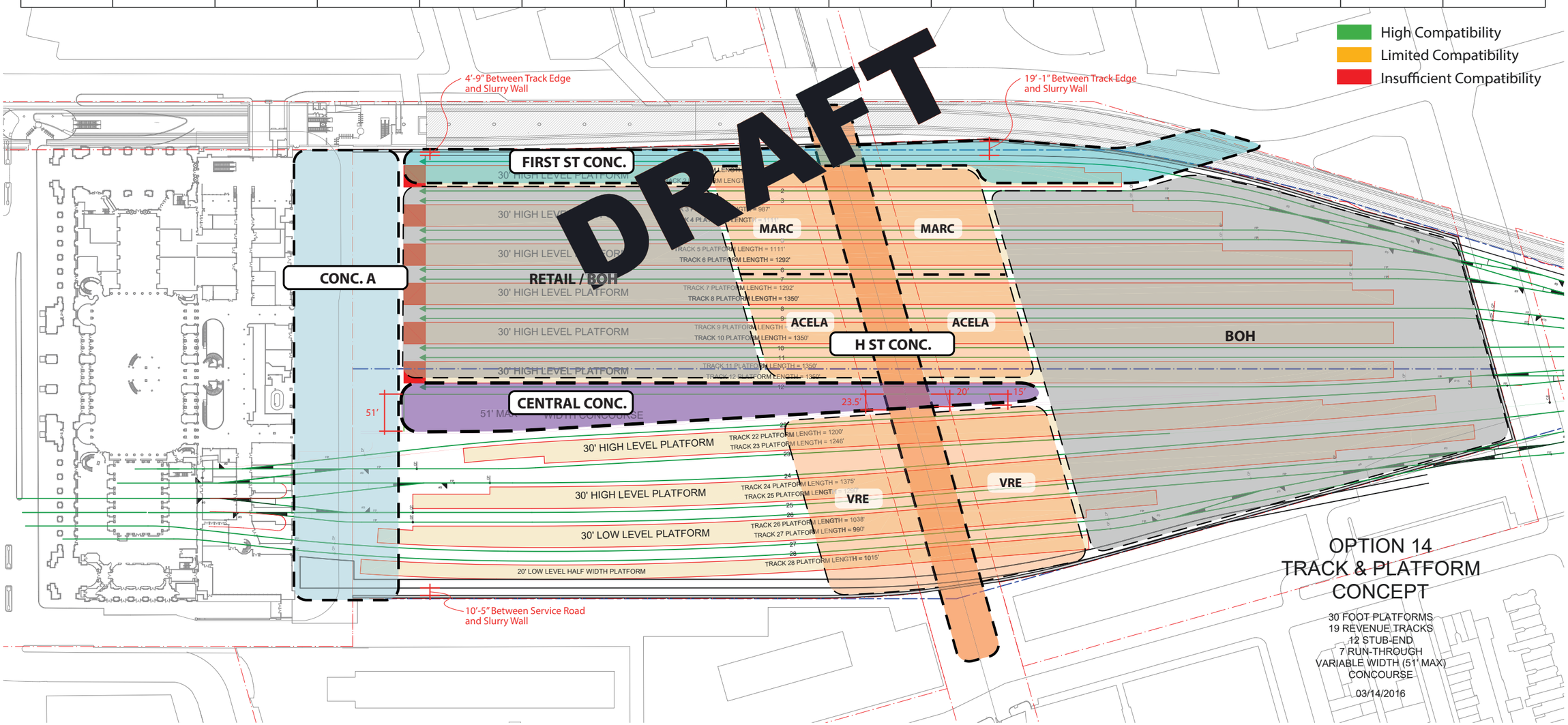
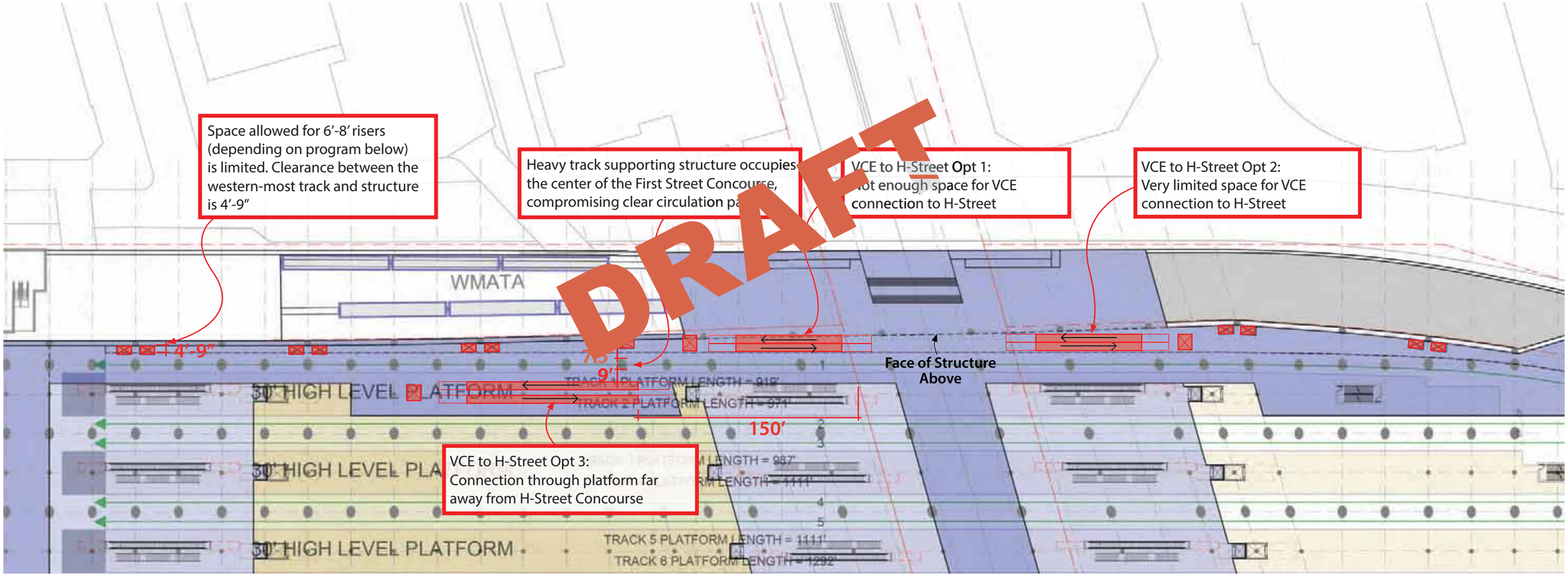


Diagram 1.1: Option 14 - First Street Concourse



TI EVALUATION REPORT (MARCH 25, 2016)

Diagram 1.2: Option 14 - H-Street Concourse and Central Concourse

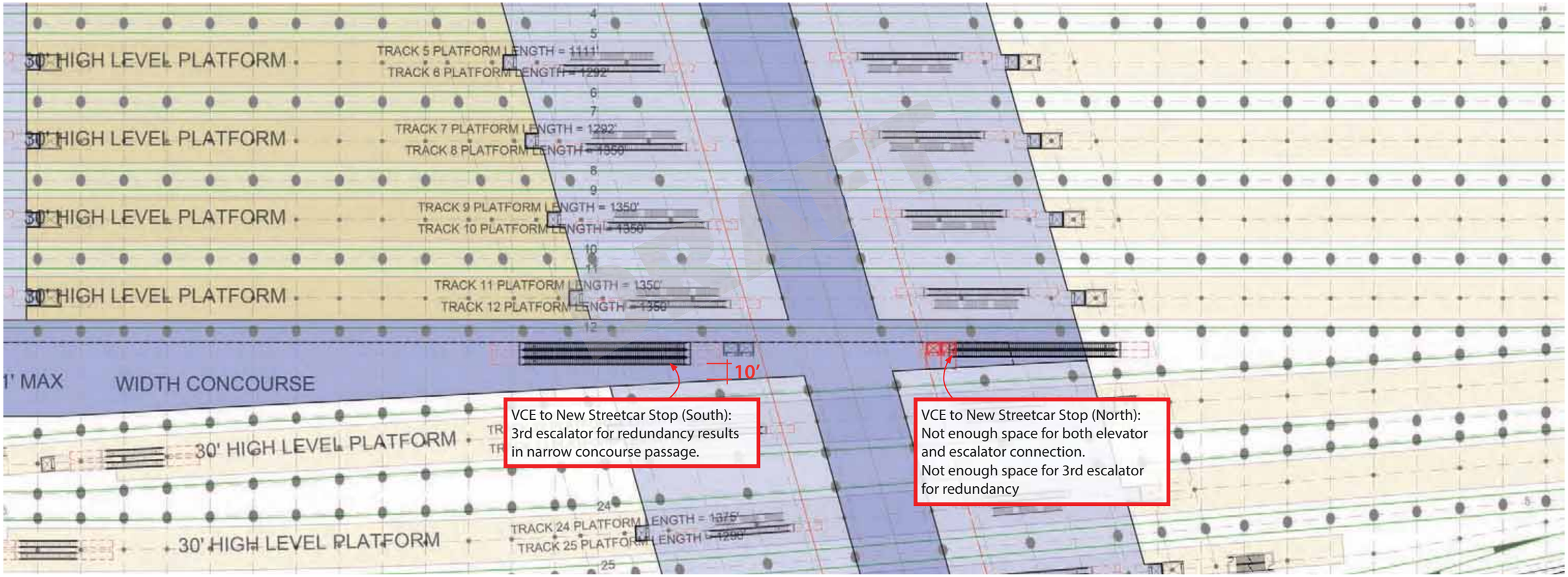
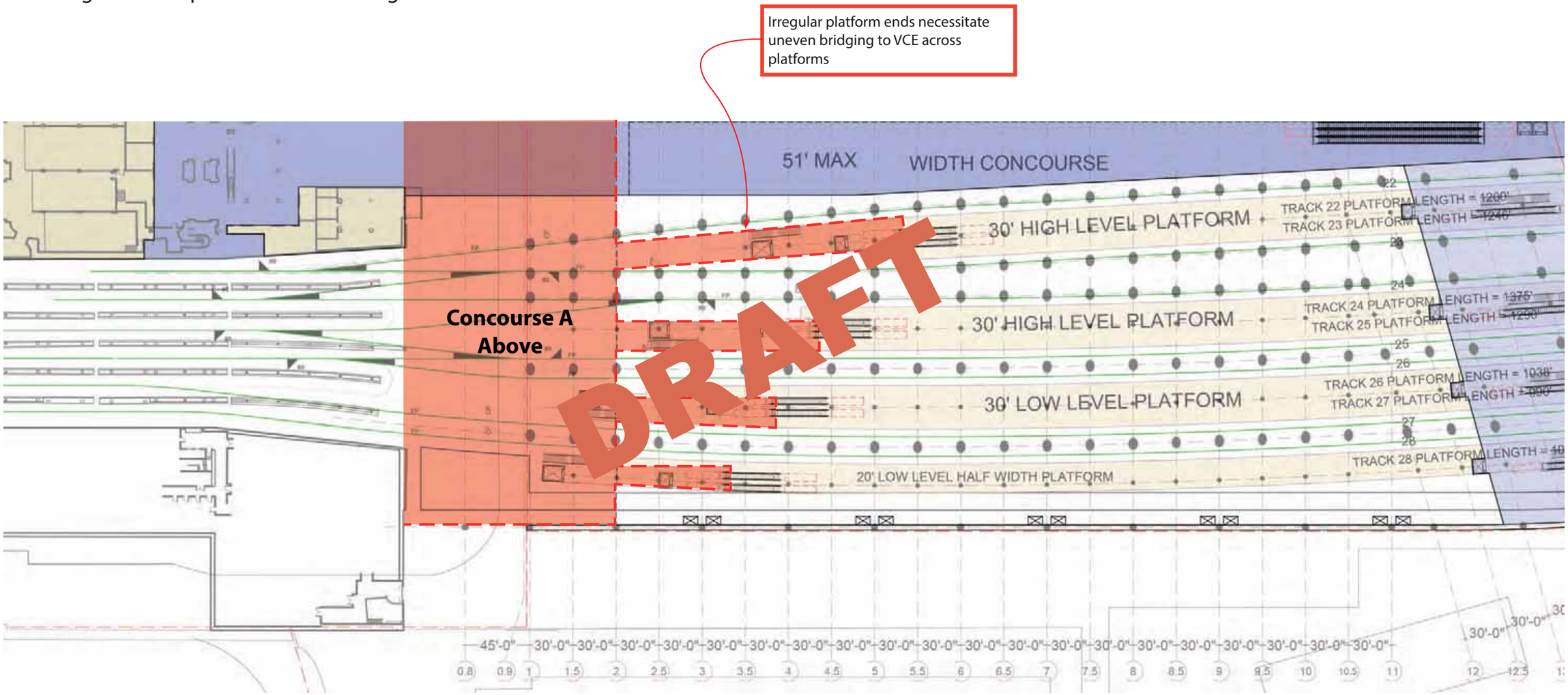
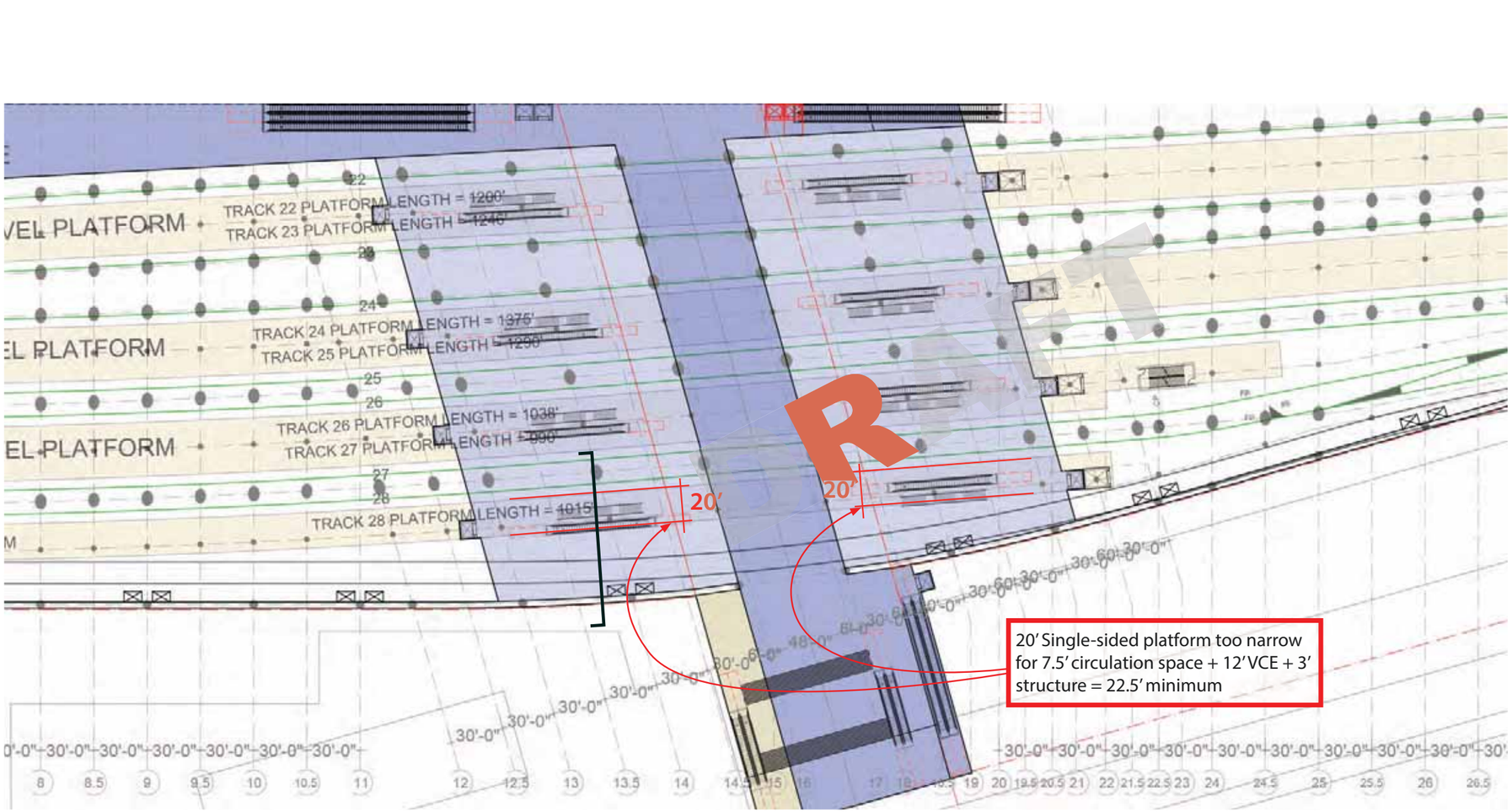


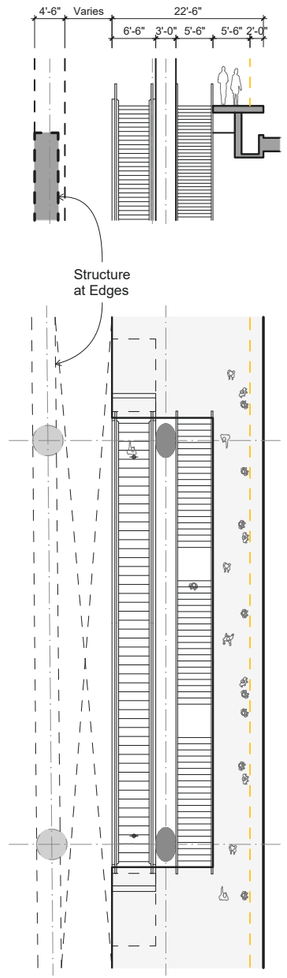
Diagram 1.3: Option 14 - Run-Through Track Platforms



TI EVALUATION REPORT (MARCH 25, 2016)

Diagram 1.4: Option 14 - Eastern-Most Single-Sided Platform





TI EVALUATION REPORT (MARCH 25, 2016)

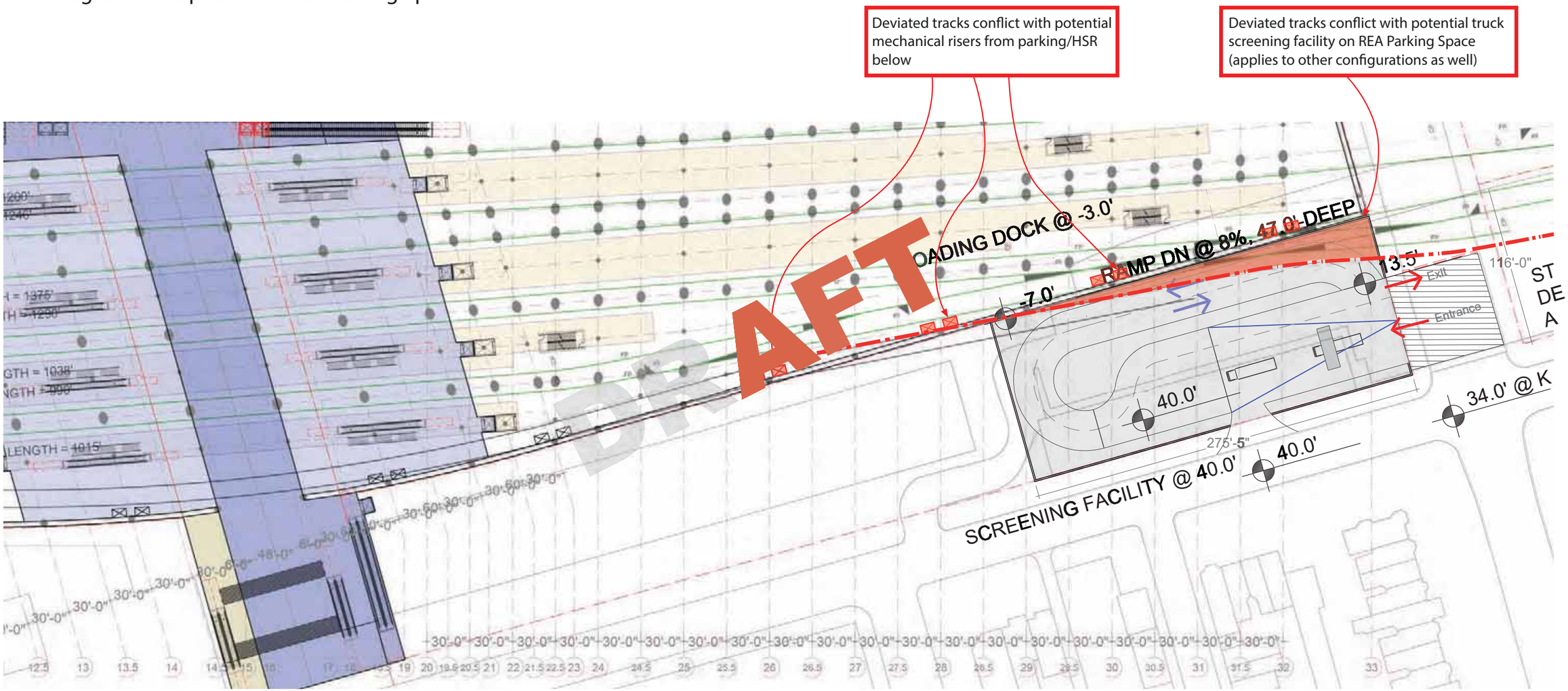


Diagram 1.5: Option 14 - REA Parking Space

Deviated tracks conflict with potential mechanical risers from parking/HSR below

Deviated tracks conflict with potential truck screening facility on REA Parking Space (applies to other configurations as well)

TI EVALUATION REPORT (MARCH 25, 2016)

Diagram 1.6: Option 14 - Air Rights Development Column Grid

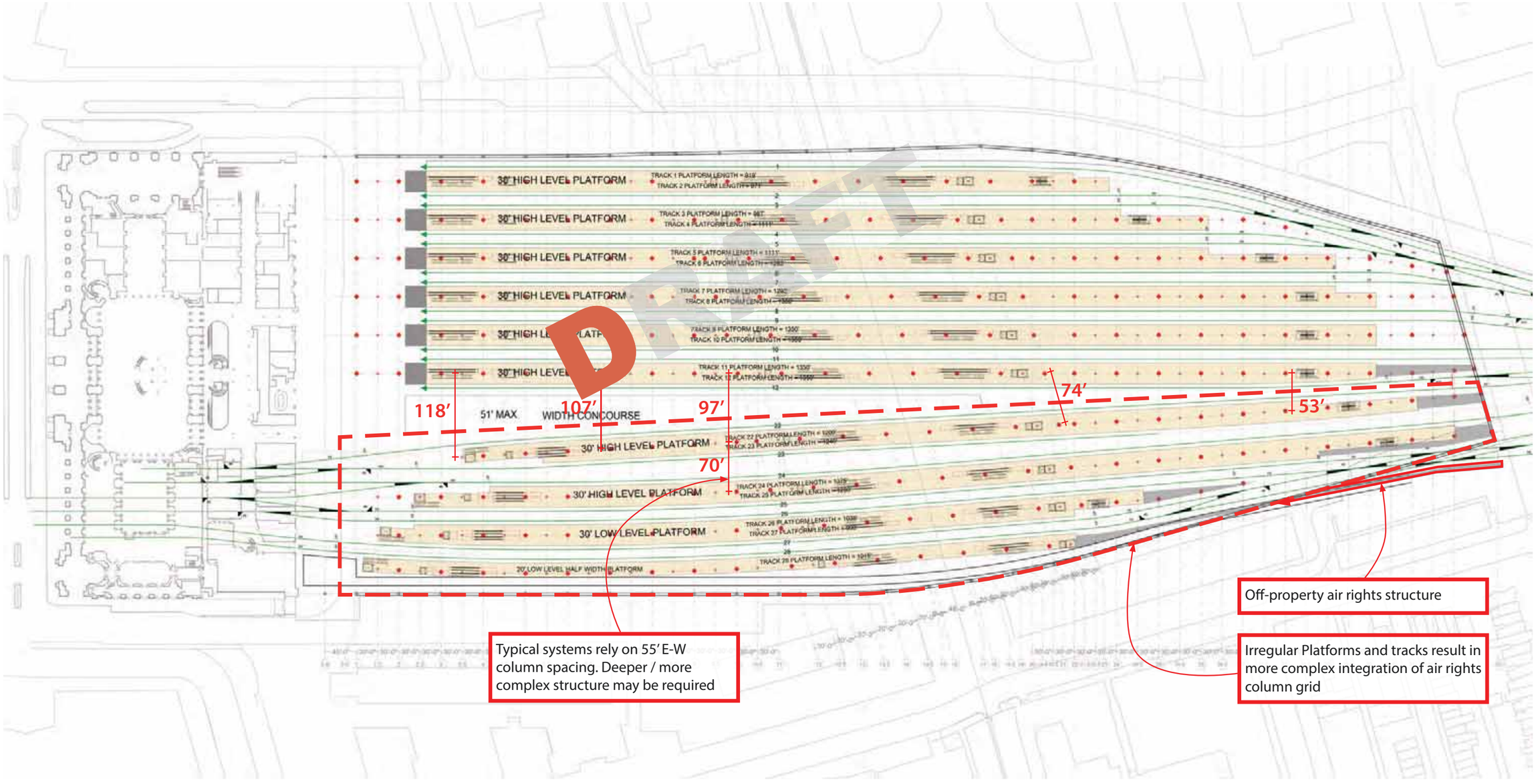
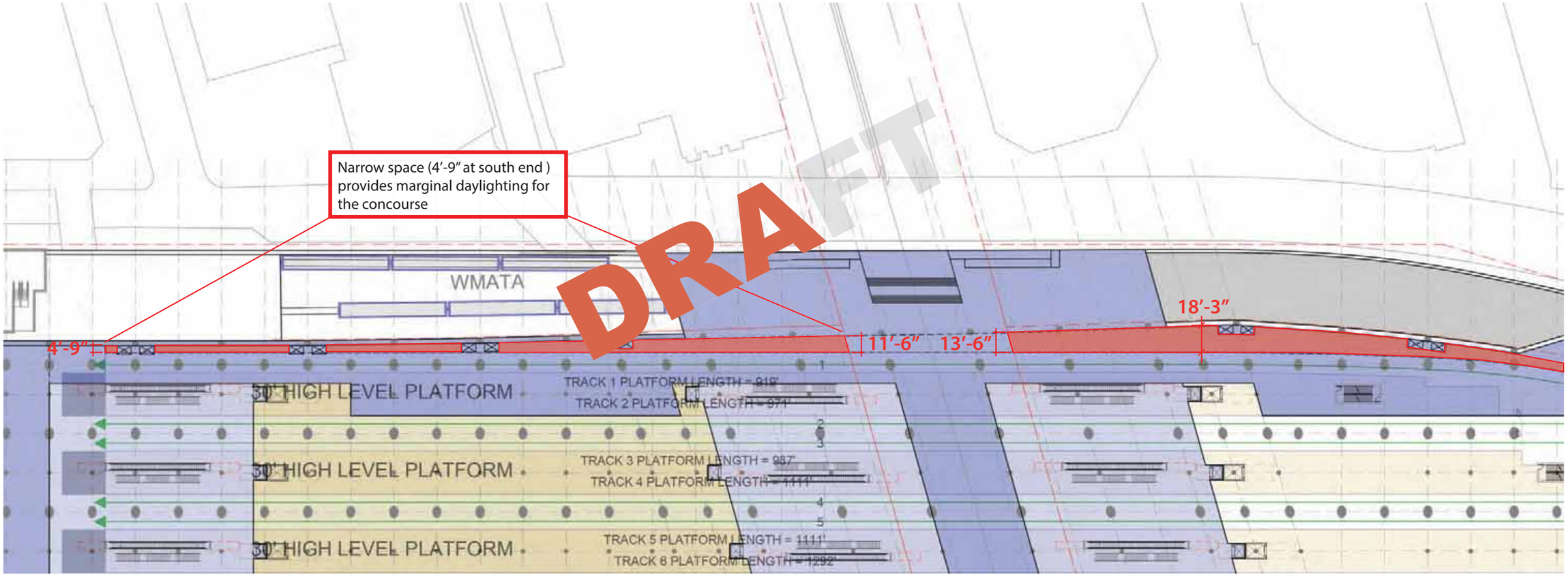
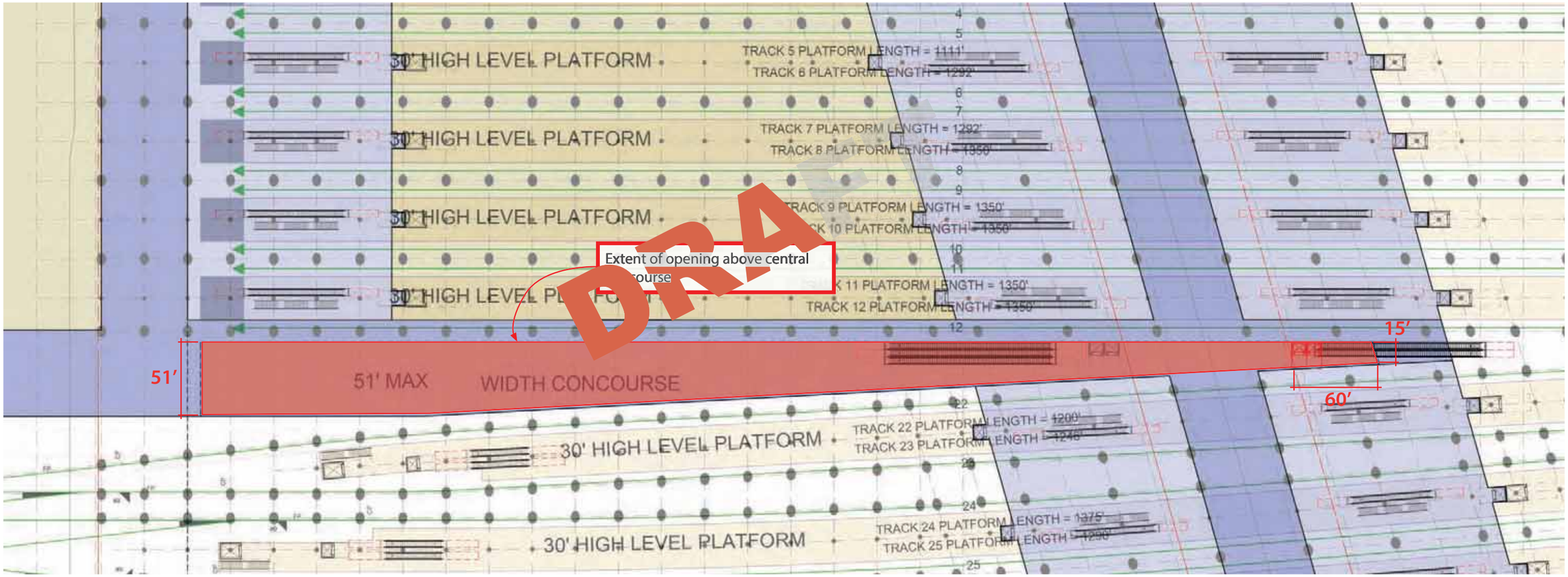


Diagram 1.7: Option 14 - First Street Concourse - Daylighting



TI EVALUATION REPORT (MARCH 25, 2016)

Diagram 1.8: Option 14 - Central Concourse - Daylighting



TI EVALUATION REPORT (MARCH 25, 2016)

Diagram 2.0: Option 15 (20 Tracks)

	CONCOURSE PLANNING COMPATIBILITY			CONNECTIVITY				PASSENGER ACCESS AND CONTROL	OTHER CRITERIA			DAYLIGHTING AND VISUAL ACCESS		
	1ST STREET CONCOURSE	H-STREET CONCOURSE	CENTRAL CONCOURSE	1ST STREET CONCOURSE TO AND FROM H-STREET	H-STREET CONCOURSE TO AND FROM NEW STREETCAR STOP	SINGLE-SIDED PLATFORM TO AND FROM CONCOURSES	CONCOURSE A TO AND FROM RUN-THROUGH TRACK PLATFORMS	WAITING AREAS	POTENTIAL USE OF EXISTING REA PARKING SPACE	INTEGRATION OF STATION EXPANSION PROJECT SYSTEMS AND RISERS	INTEGRATION OF AIR-RIGHTS DEVELOPMENT STRUCTURE & UTILITIES	1ST STREET CONCOURSE	H-STREET CONCOURSE	CENTRAL CONCOURSE
OPT 15 (20 TRACKS)														

High Compatibility
Limited Compatibility
Insufficient Compatibility

DRAFT

4'-8" Between Platform and Slurry Wall
19' Between Track Edge and Slurry Wall
10'-5" Between Service Road and Slurry Wall

FIRST ST CONC.
CONC. A
RETAIL / BOH
CENTRAL CONC.
H ST CONC.
BOH
MARC
ACELA
VRE
59'
25'
20'

30' HIGH LEVEL PLATFORM
30' LOW LEVEL PLATFORM
20' LOW LEVEL HALF WIDTH PLATFORM

TRACK 6 PLATFORM LENGTH = 1201'
TRACK 7 PLATFORM LENGTH = 1350'
TRACK 8 PLATFORM LENGTH = 1350'
TRACK 9 PLATFORM LENGTH = 1350'
TRACK 10 PLATFORM LENGTH = 1350'
TRACK 11 PLATFORM LENGTH = 1350'
TRACK 12 PLATFORM LENGTH = 727'
TRACK 13 PLATFORM LENGTH = 727'
TRACK 22 PLATFORM LENGTH = 1170'
TRACK 23 PLATFORM LENGTH = 1246'
TRACK 24 PLATFORM LENGTH = 1375'
TRACK 25 PLATFORM LENGTH = 1250'
TRACK 26 PLATFORM LENGTH = 1038'
TRACK 27 PLATFORM LENGTH = 990'
TRACK 28 PLATFORM LENGTH = 1015'

OPTION 15
TRACK & PLATFORM CONCEPT

30 FOOT PLATFORMS
20 REVENUE TRACKS
13 STUB-END
7 RUN-THROUGH
NO CONCOURSE
03/14/2016

TI EVALUATION REPORT (MARCH 25, 2016)

Diagram 2.1: Option 15 - First Street Concourse

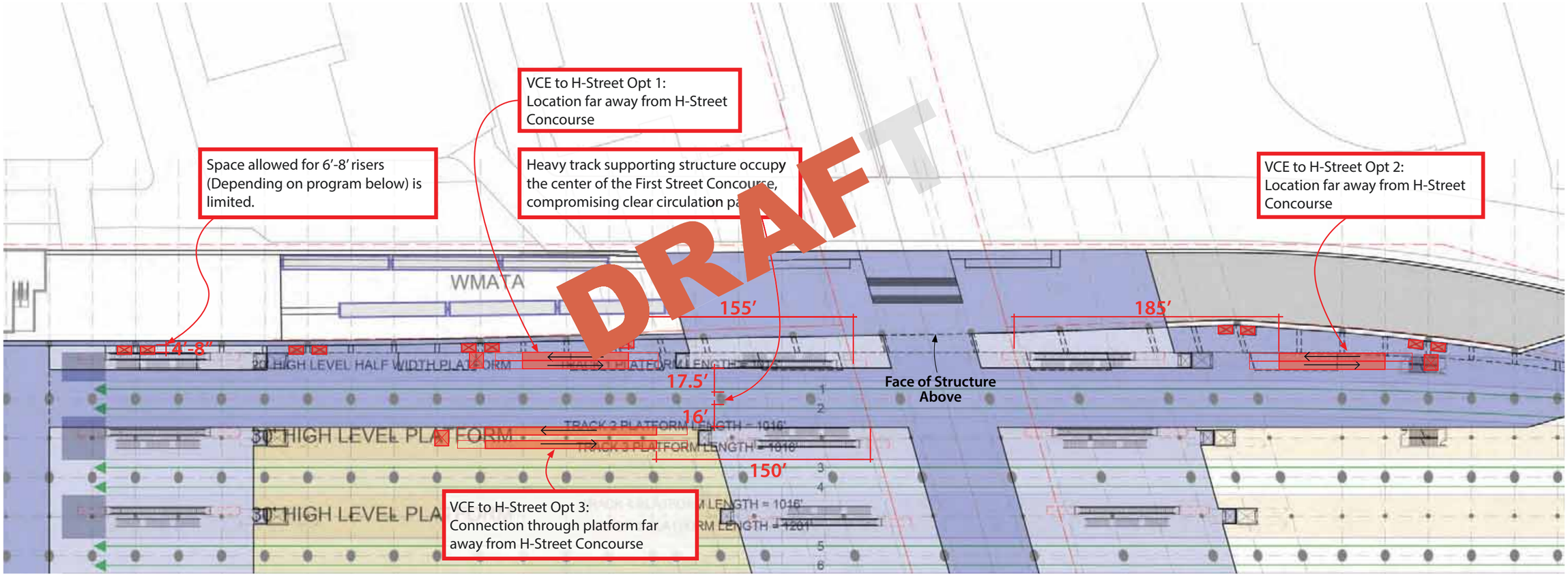
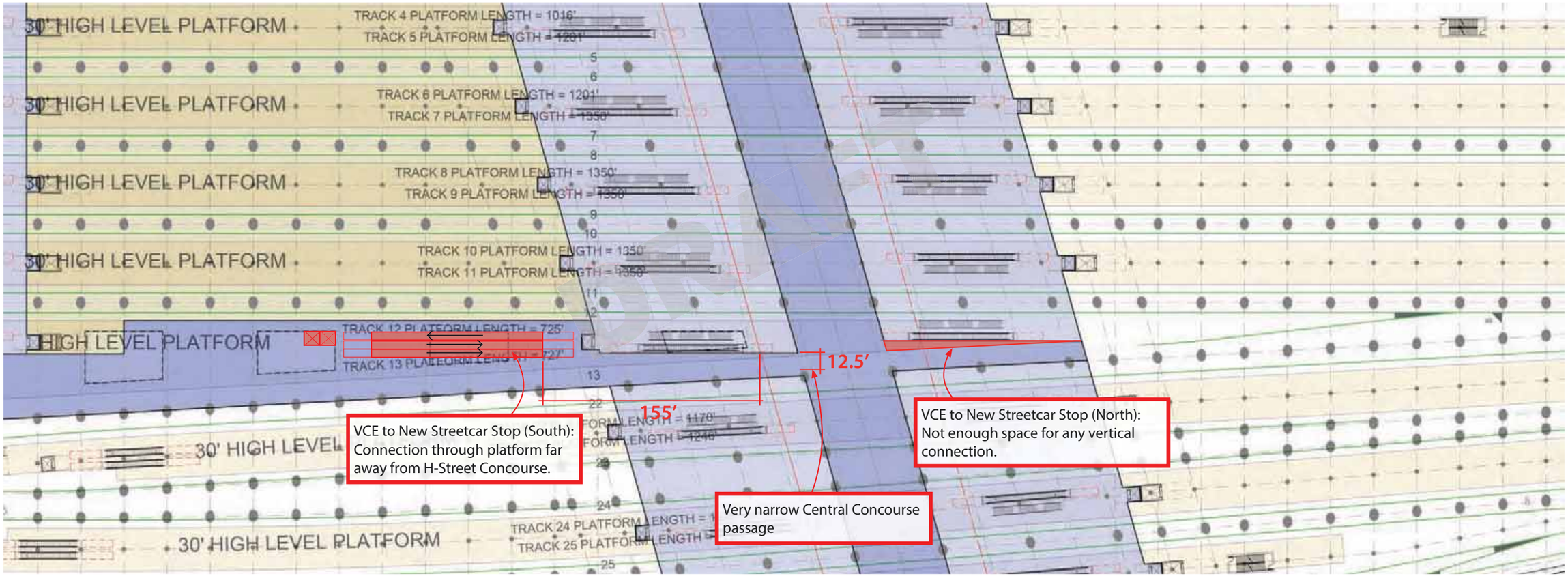


Diagram 2.2: Option 15 - H-Street Concourse and Central Concourse



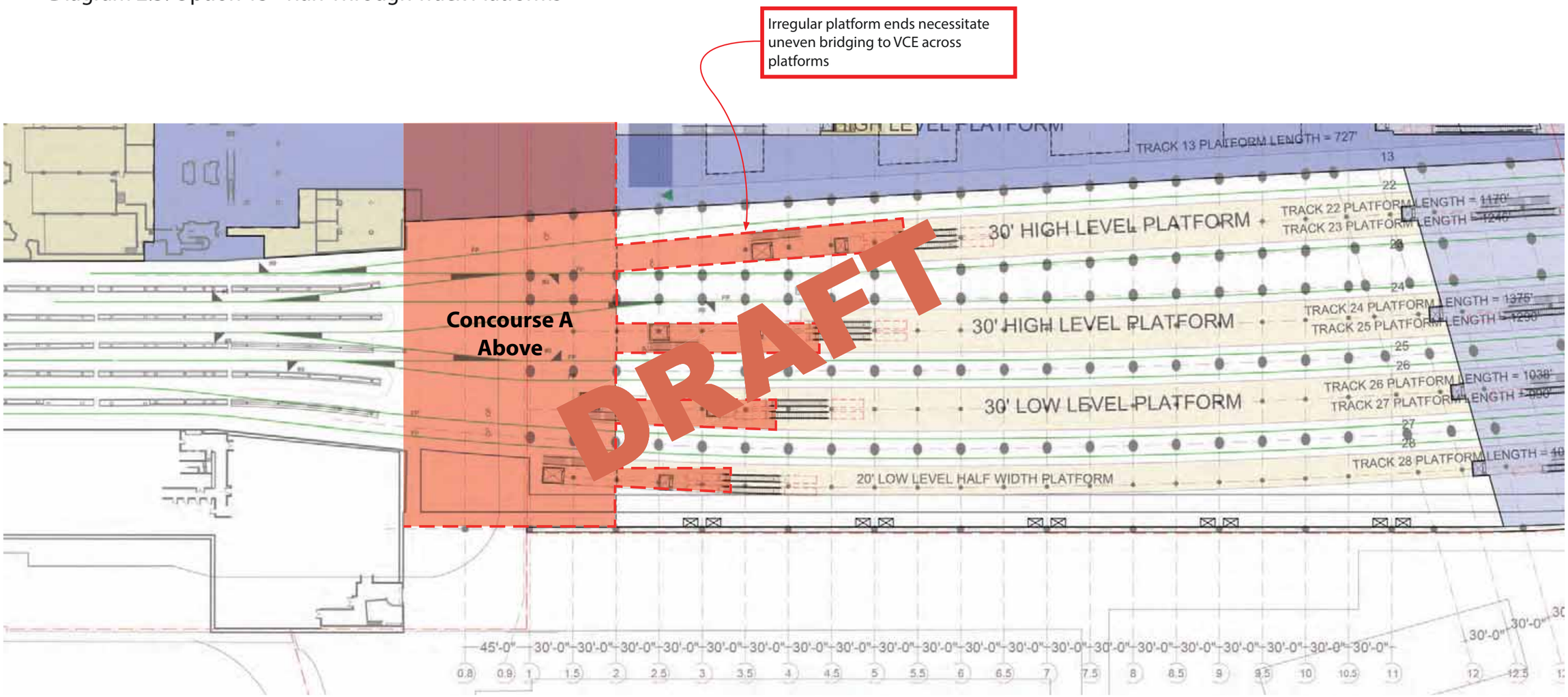
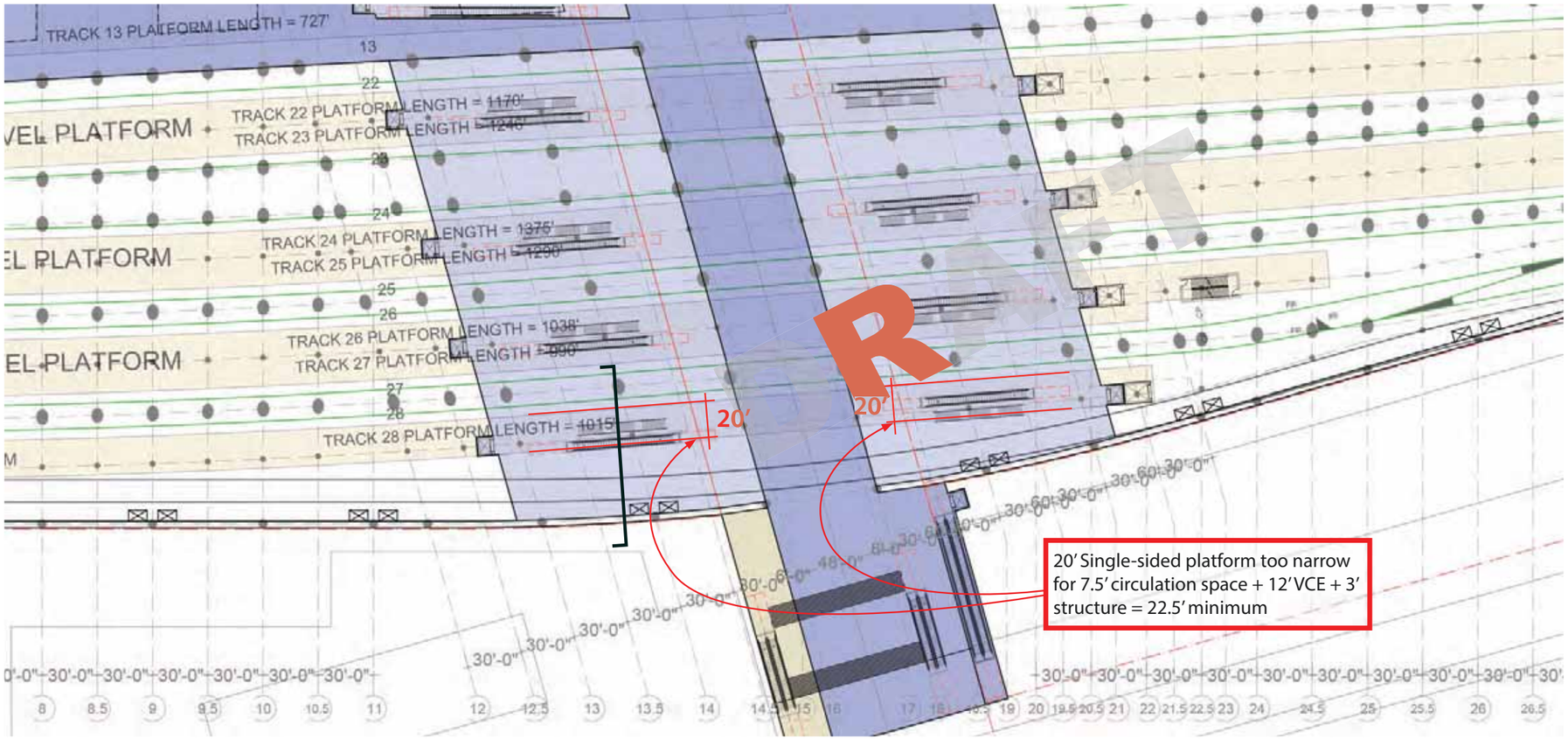


Diagram 2.3: Option 15 - Run-Through Track Platforms

Irregular platform ends necessitate uneven bridging to VCE across platforms

Diagram 2.4: Option 15 - Eastern-Most Single-Sided Platform



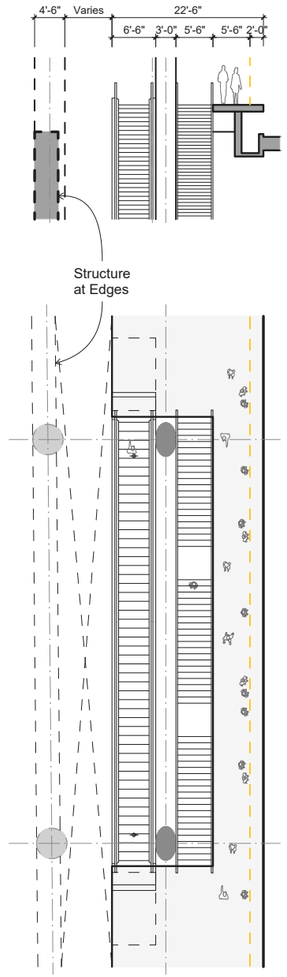


Diagram 2.5: Option 15 - REA Parking Space

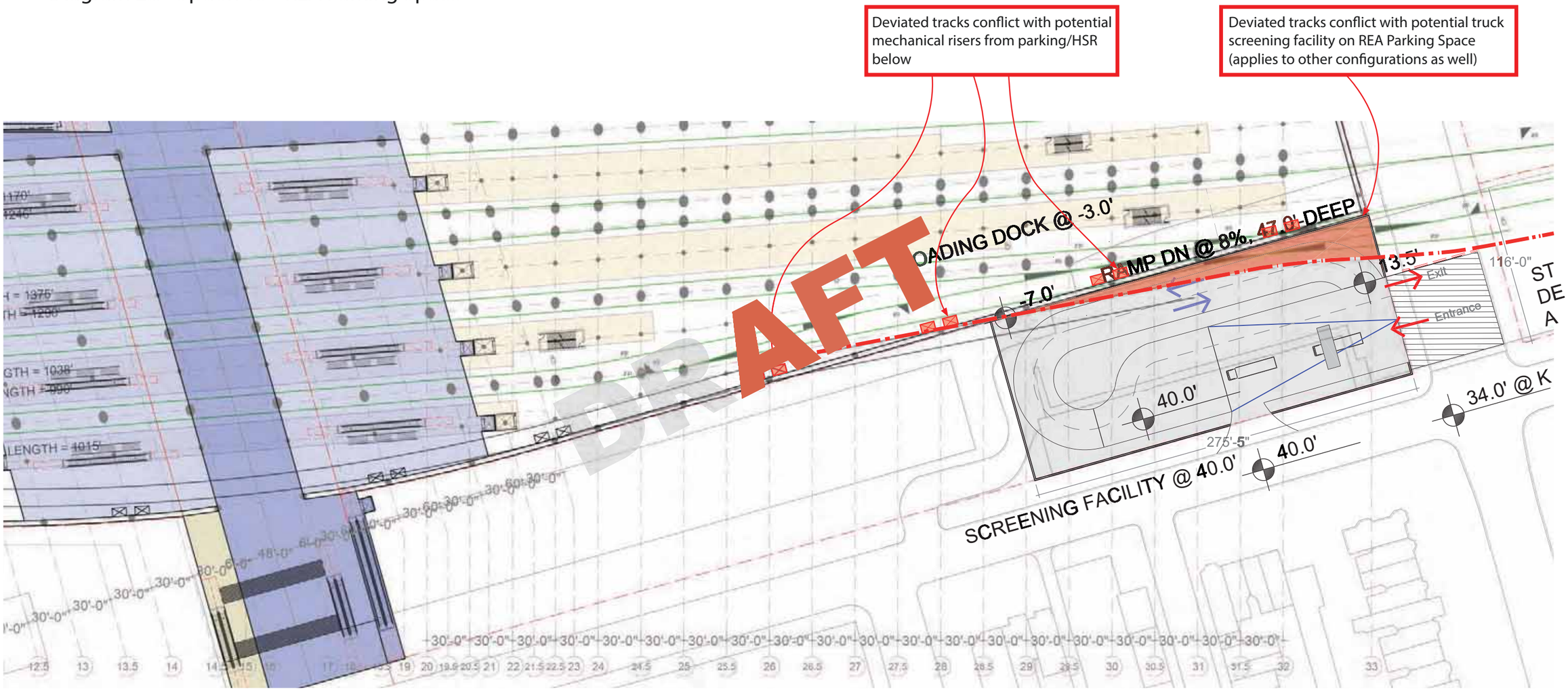


Diagram 2.6: Option 15 - Air Rights Development Column Grid

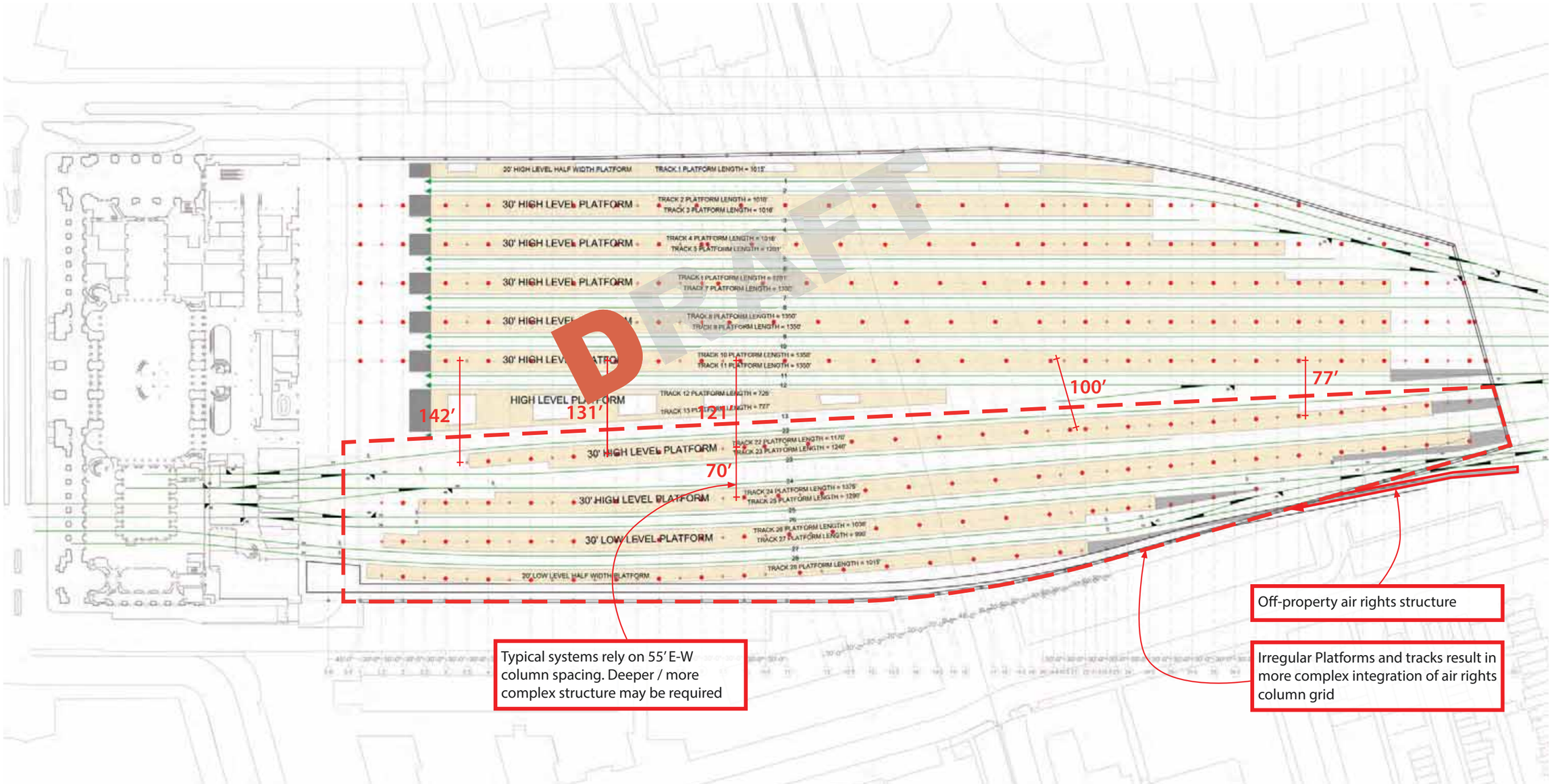
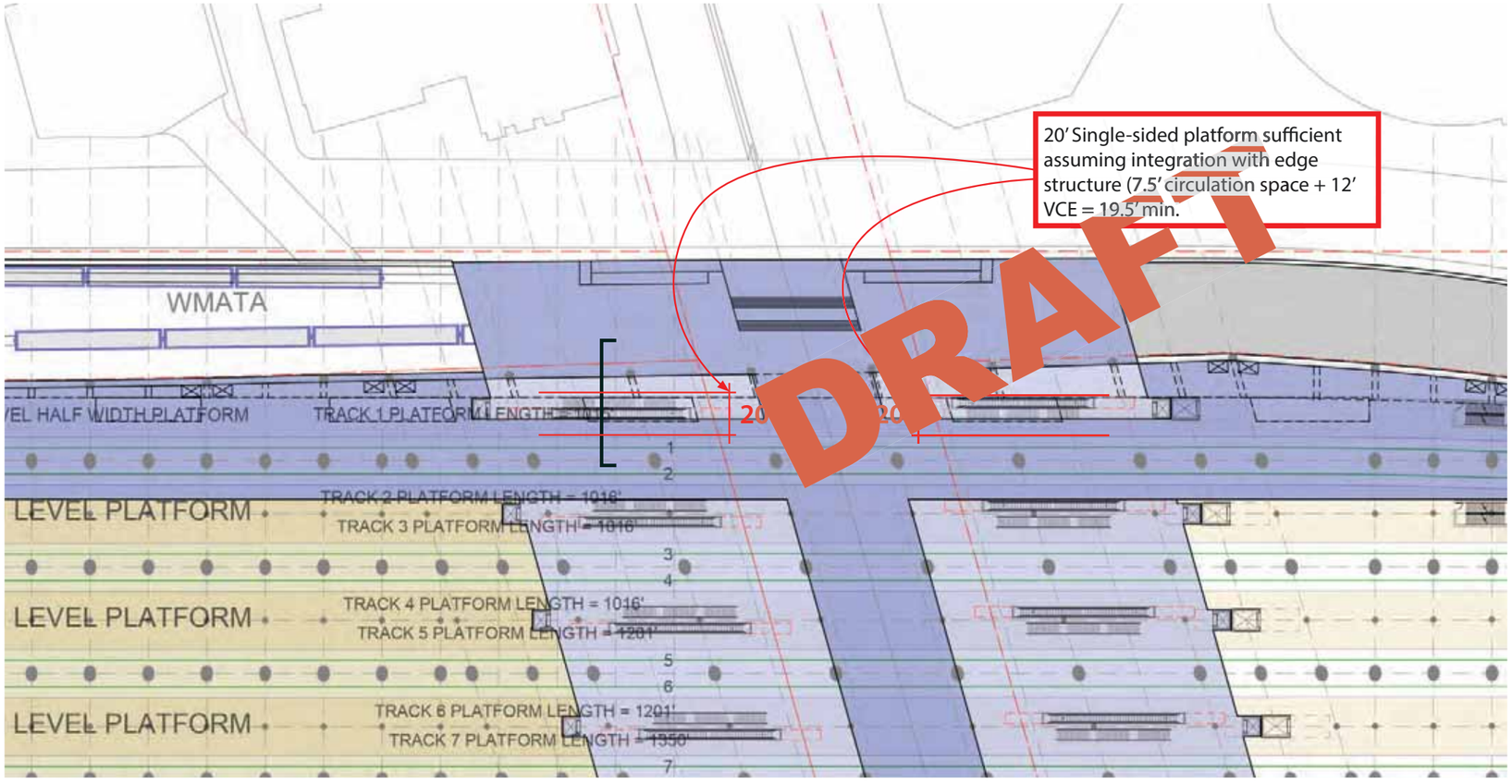
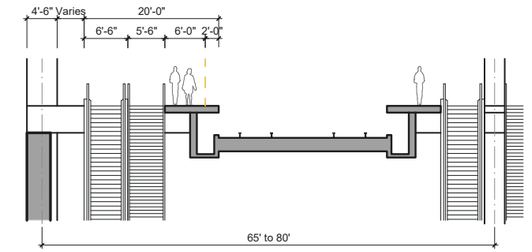


Diagram 2.7: Option 15 - Western-Most Single-Sided Platform





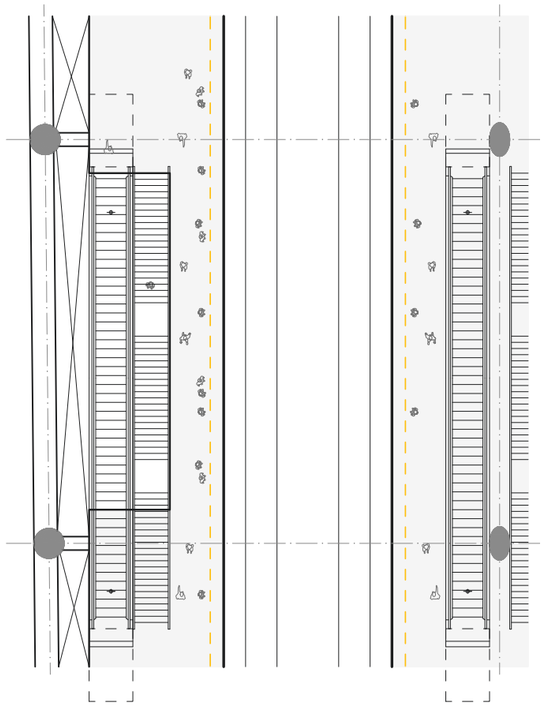
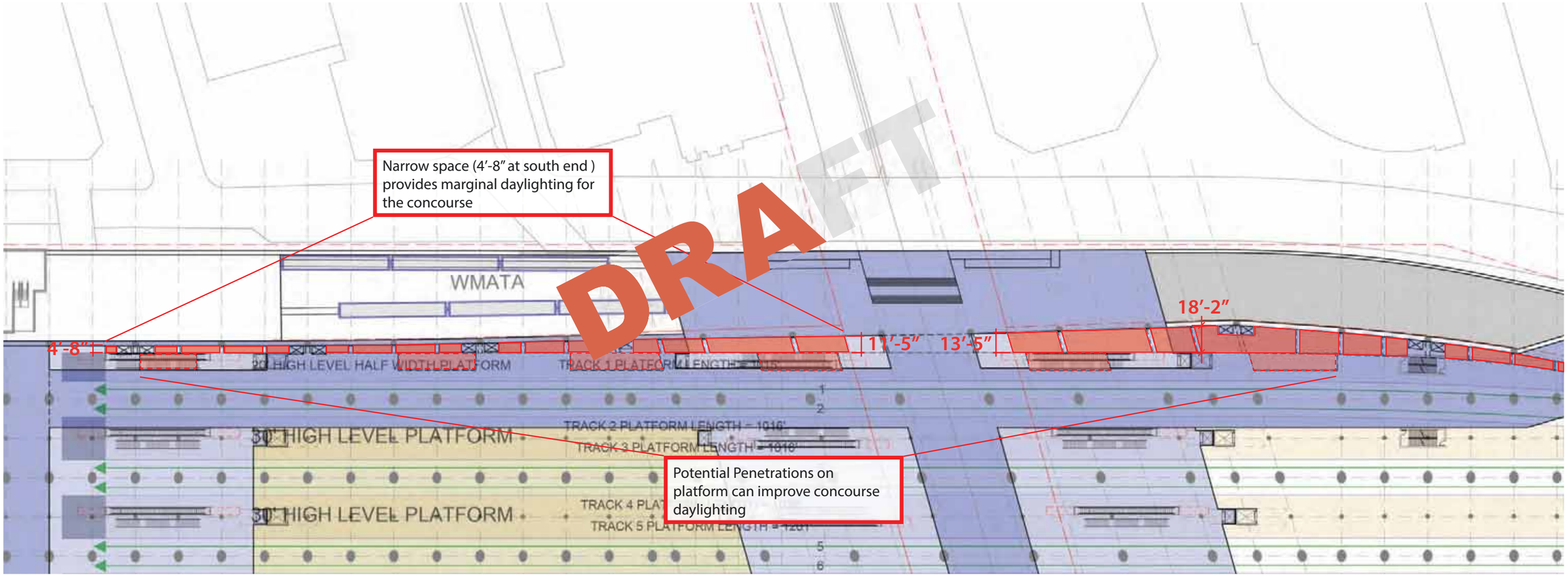


Diagram 2.8: Option 15 - First Street Concourse



TI EVALUATION REPORT (MARCH 25, 2016)

Diagram 2.9: Option 15 - Central Concourse - Daylighting

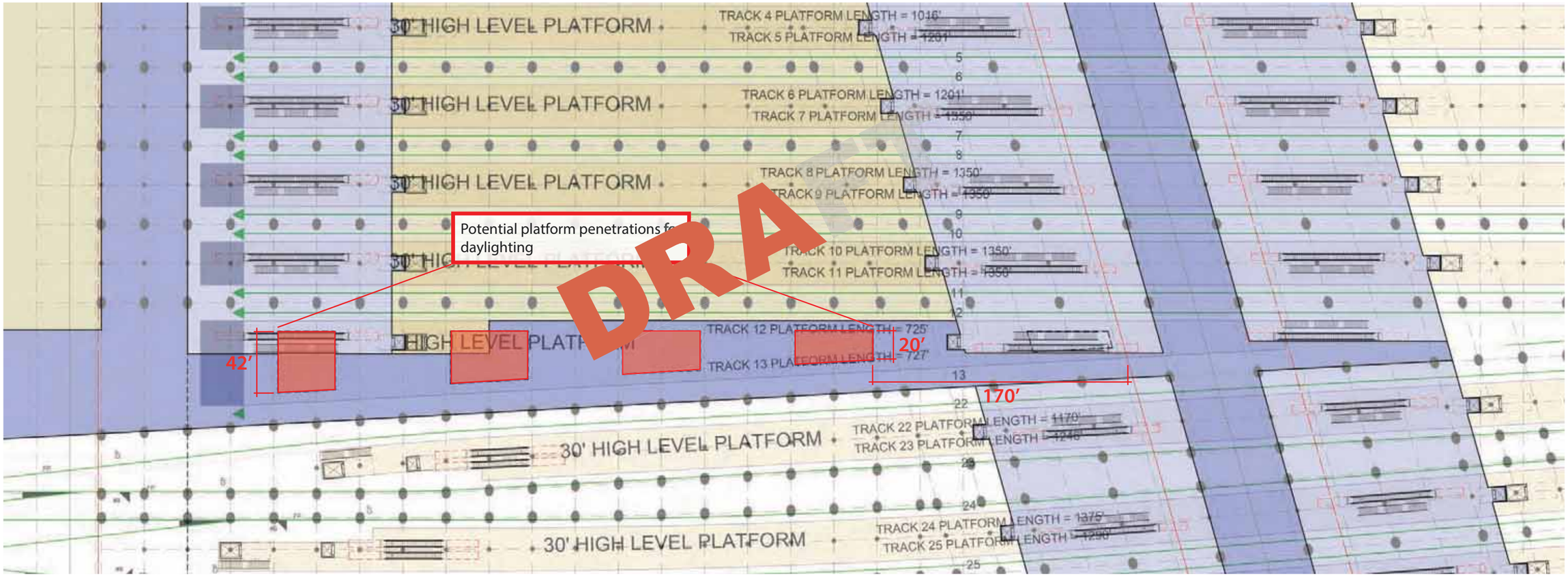
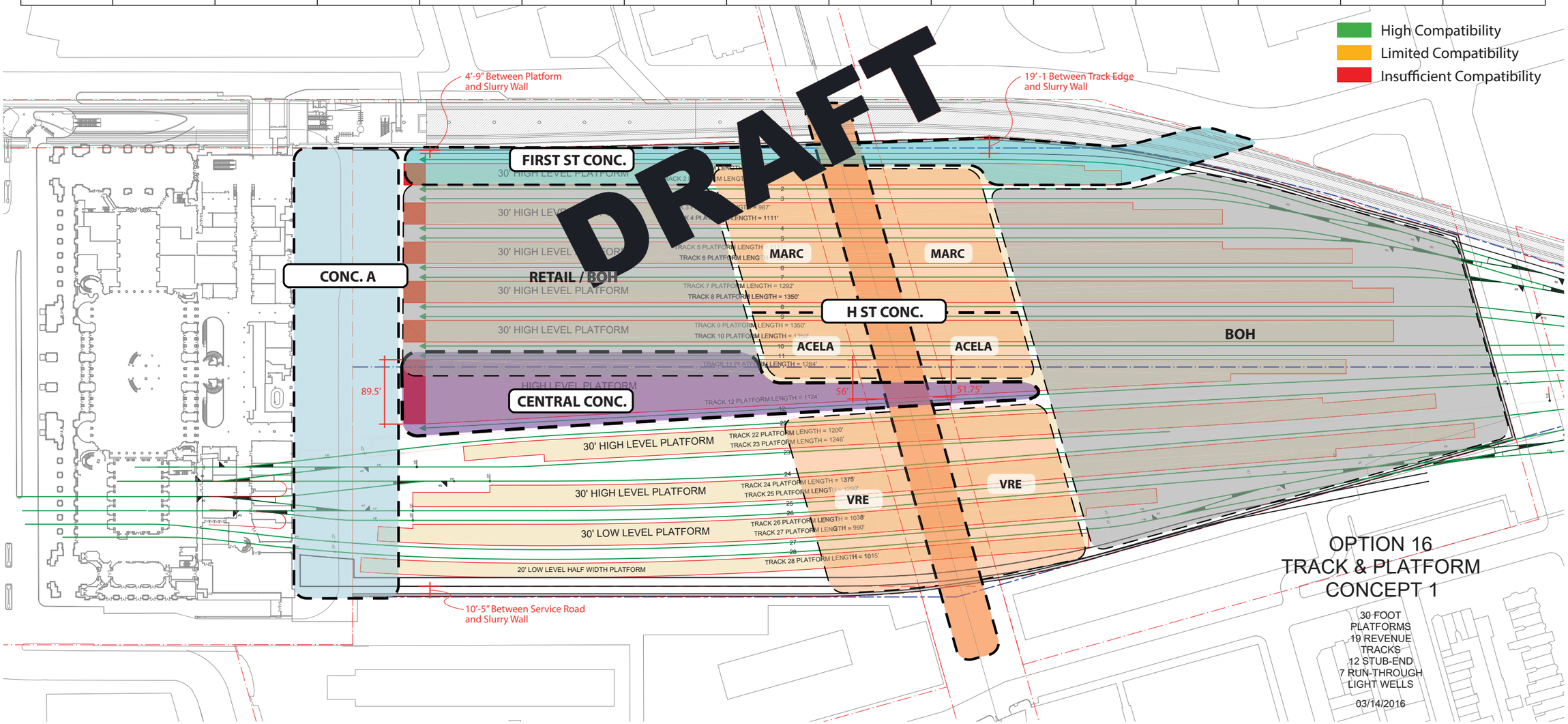


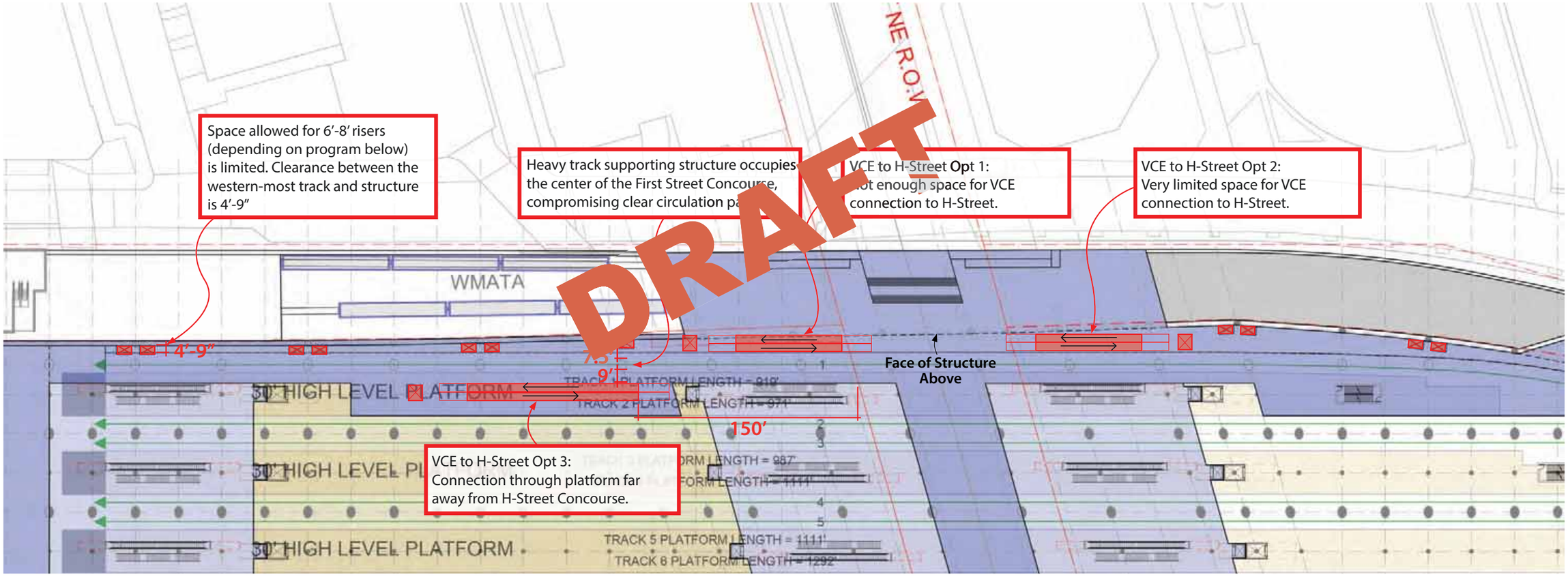
Diagram 3.0: Option 16 (19 Tracks)

	CONCOURSE PLANNING COMPATIBILITY			CONNECTIVITY				PASSENGER ACCESS AND CONTROL	OTHER CRITERIA			DAYLIGHTING AND VISUAL ACCESS		
	1ST STREET CONCOURSE	H-STREET CONCOURSE	CENTRAL CONCOURSE	1ST STREET CONCOURSE TO AND FROM H-STREET	H-STREET CONCOURSE TO AND FROM NEW STREETCAR STOP	SINGLE-SIDED PLATFORM TO AND FROM CONCOURSES	CONCOURSE A TO AND FROM RUN-THROUGH TRACK PLATFORMS	WAITING AREAS	POTENTIAL USE OF EXISTING REA PARKING SPACE	INTEGRATION OF STATION EXPANSION PROJECT SYSTEMS AND RISERS	INTEGRATION OF AIR-RIGHTS DEVELOPMENT STRUCTURE & UTILITIES	1ST STREET CONCOURSE	H-STREET CONCOURSE	CENTRAL CONCOURSE
OPT 16 (19 TRACKS)														



TI EVALUATION REPORT (MARCH 25, 2016)

Diagram 3.1: Option 16 - First Street Concourse



TI EVALUATION REPORT (MARCH 25, 2016)

Diagram 3.2: Option 16 - H-Street Concourse and Central Concourse

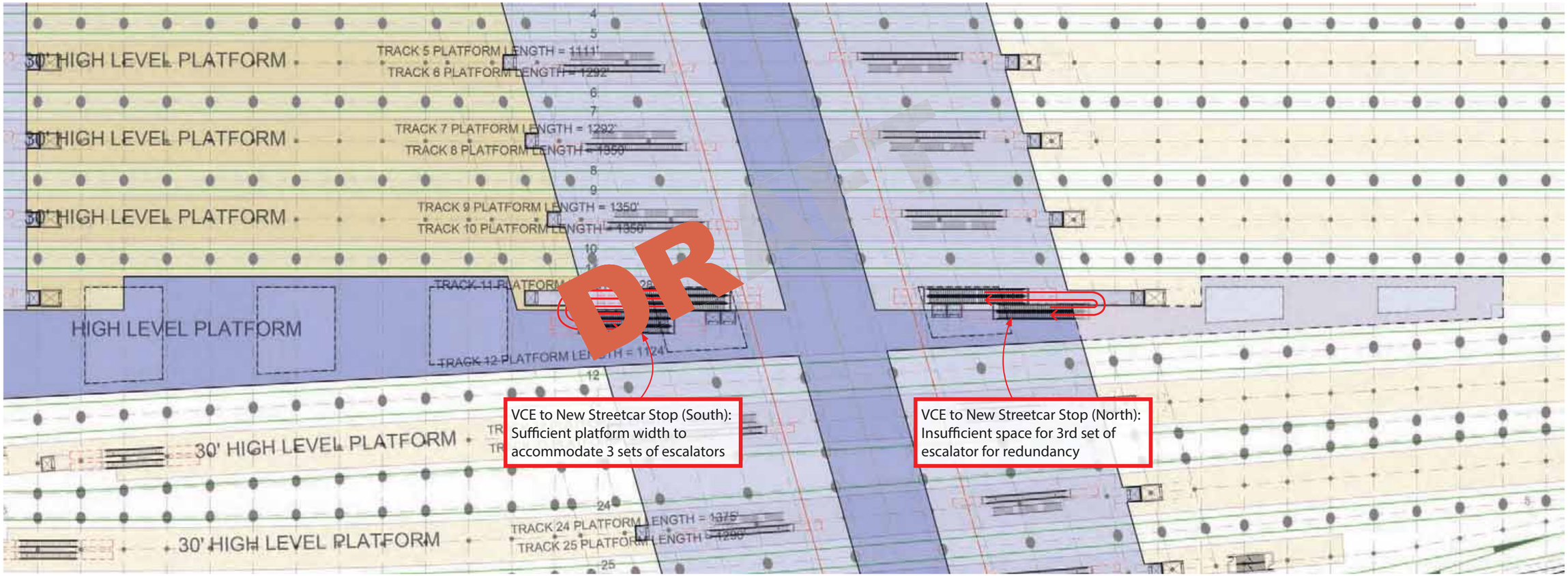


Diagram 3.3: Option 16 - Run-Through Track Platforms

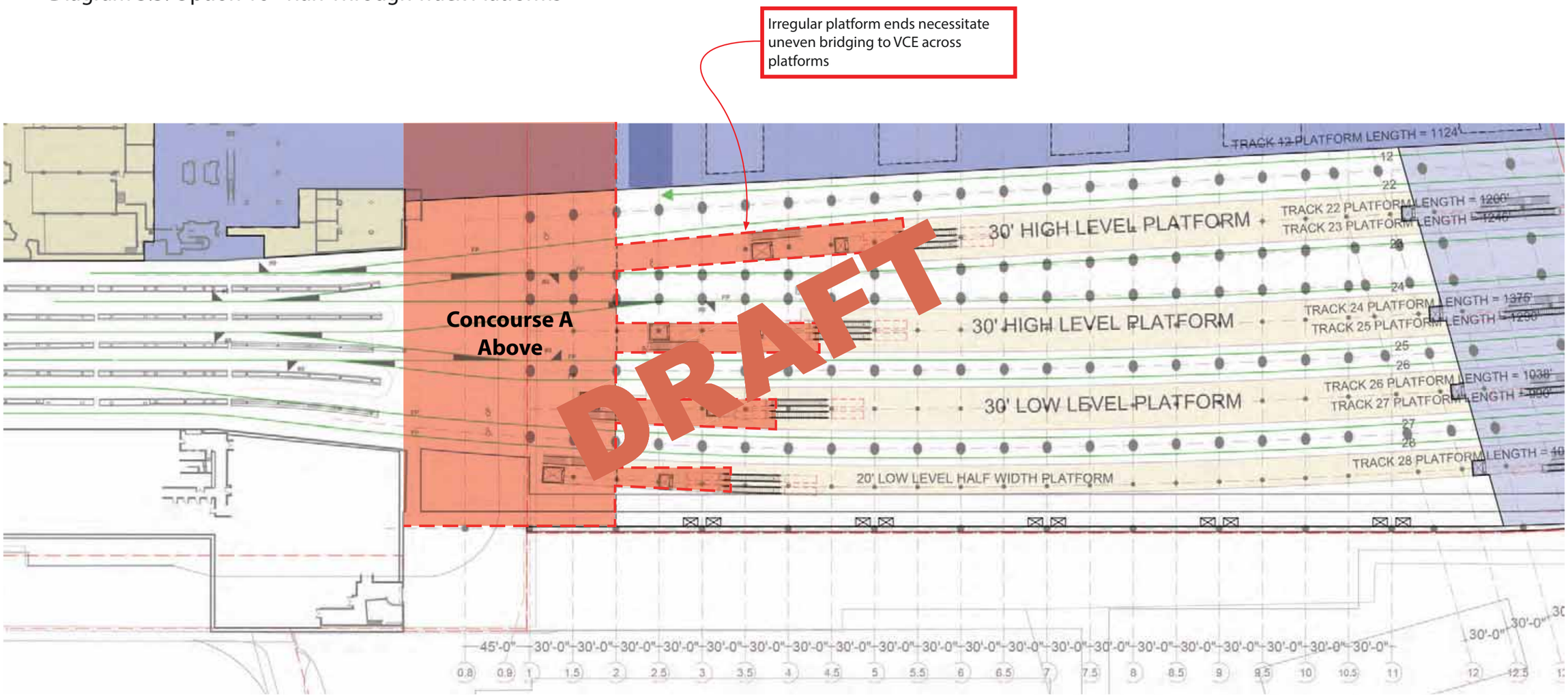
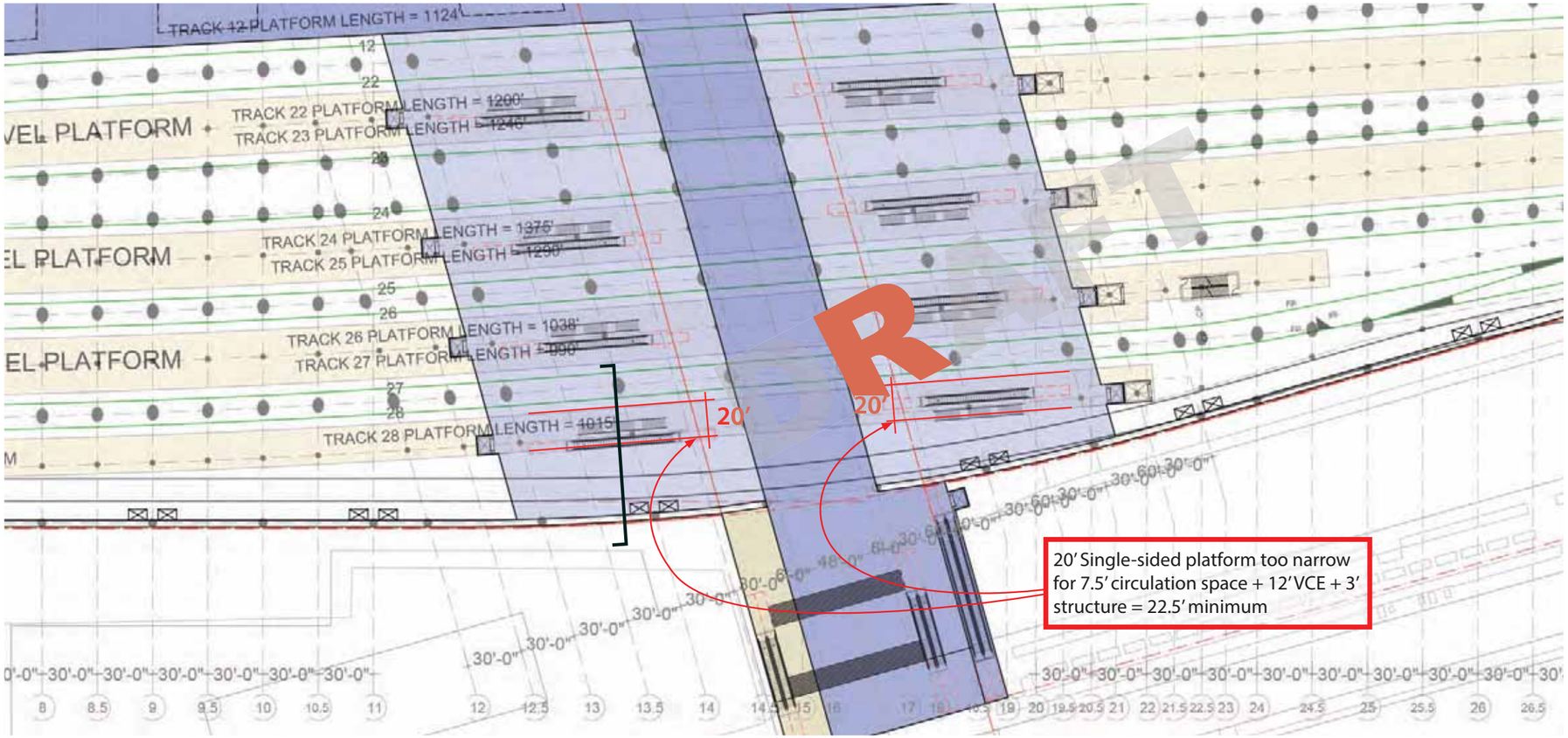
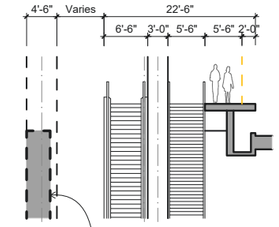


Diagram 3.4: Option 16 - Eastern-Most Single-Sided Platform



Escalators & Stairs (Double)



Structure at Edges

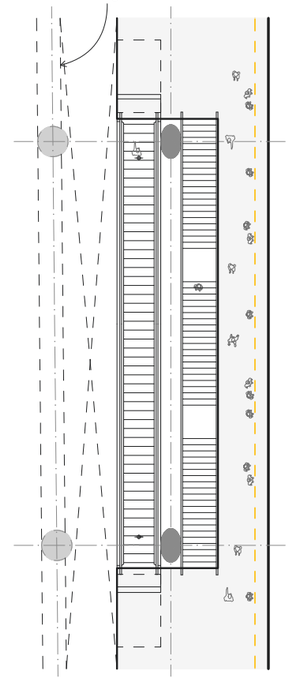


Diagram 3.5: Option 16 - REA Parking Space

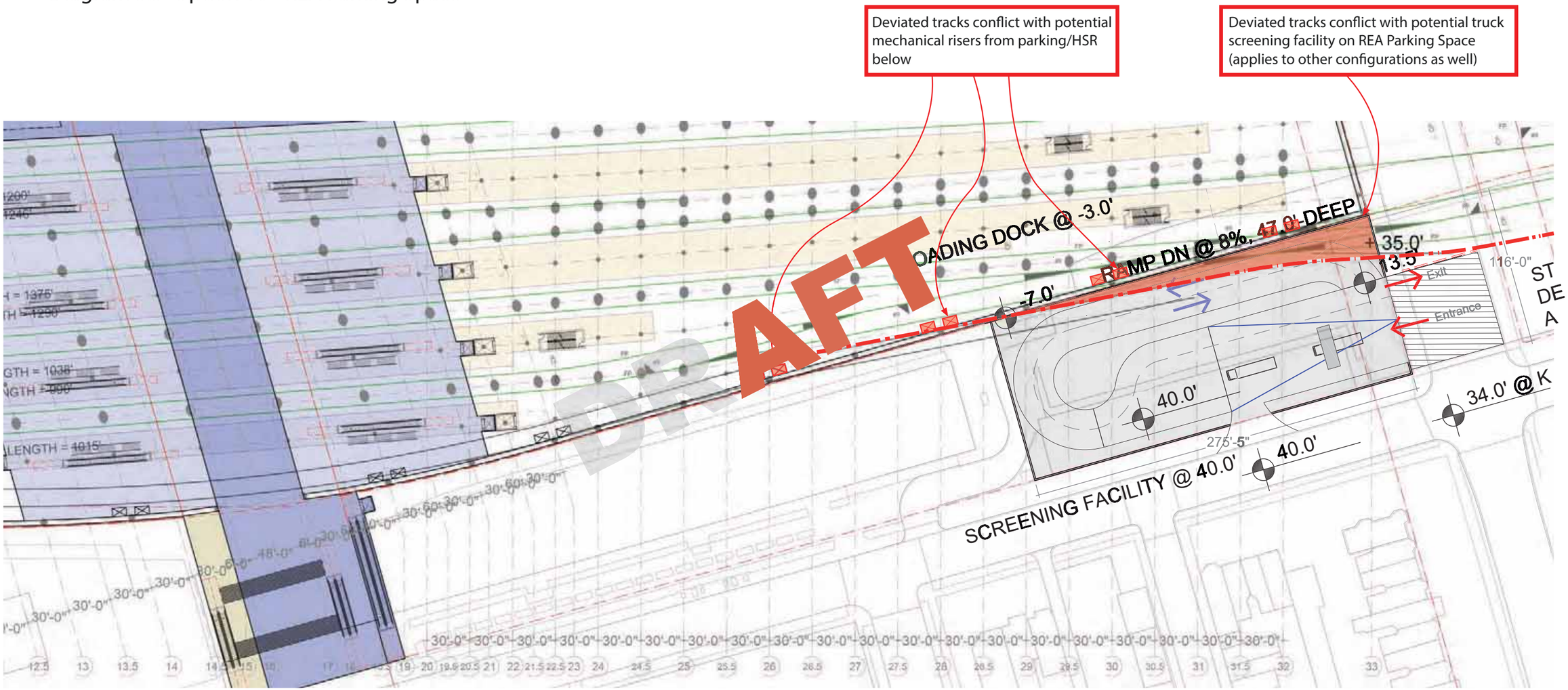


Diagram 3.6: Option 16 - Air Rights Development Column Grid

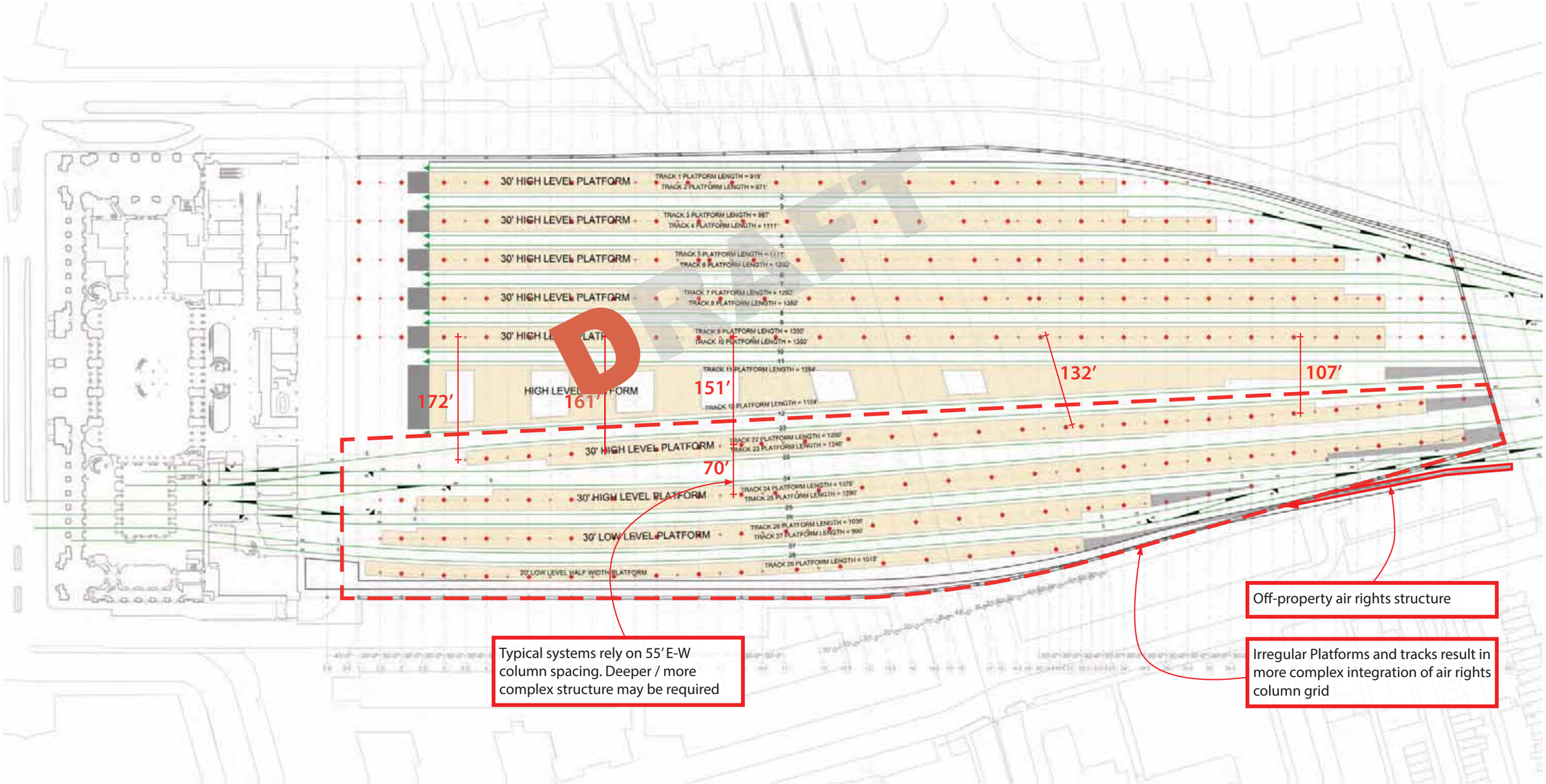


Diagram 3.7: Option 16 - First Street Concourse - Daylighting

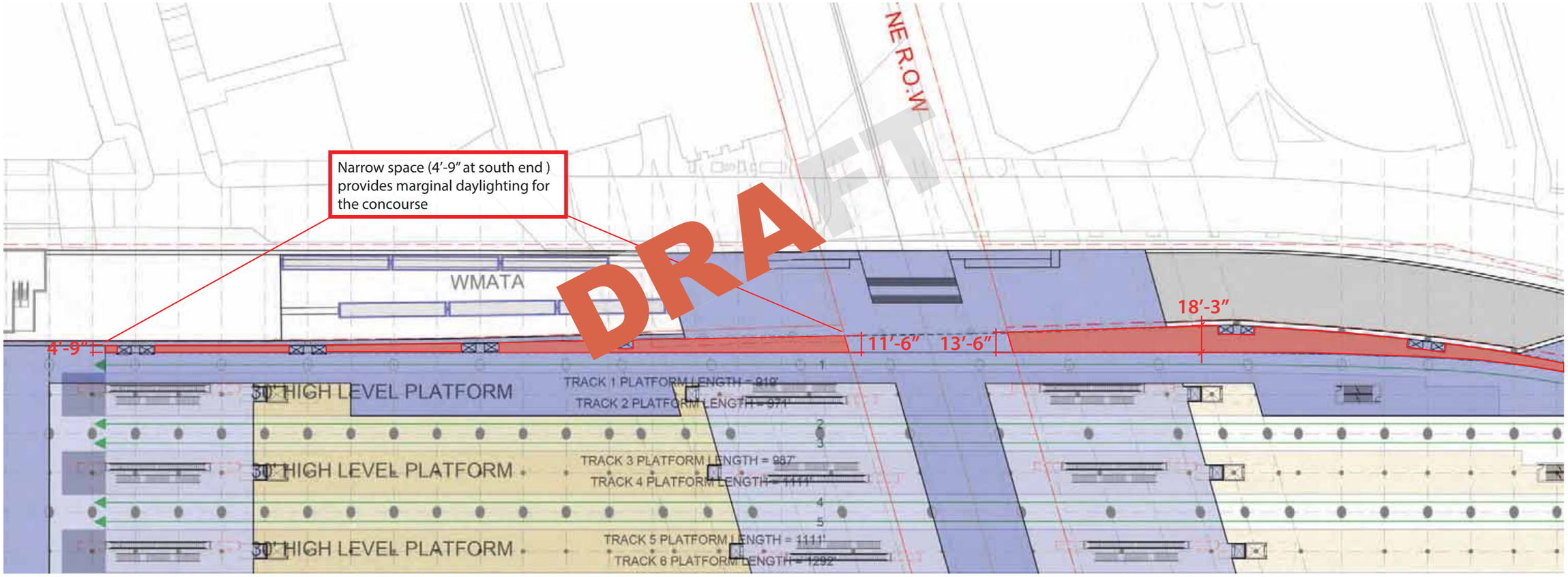
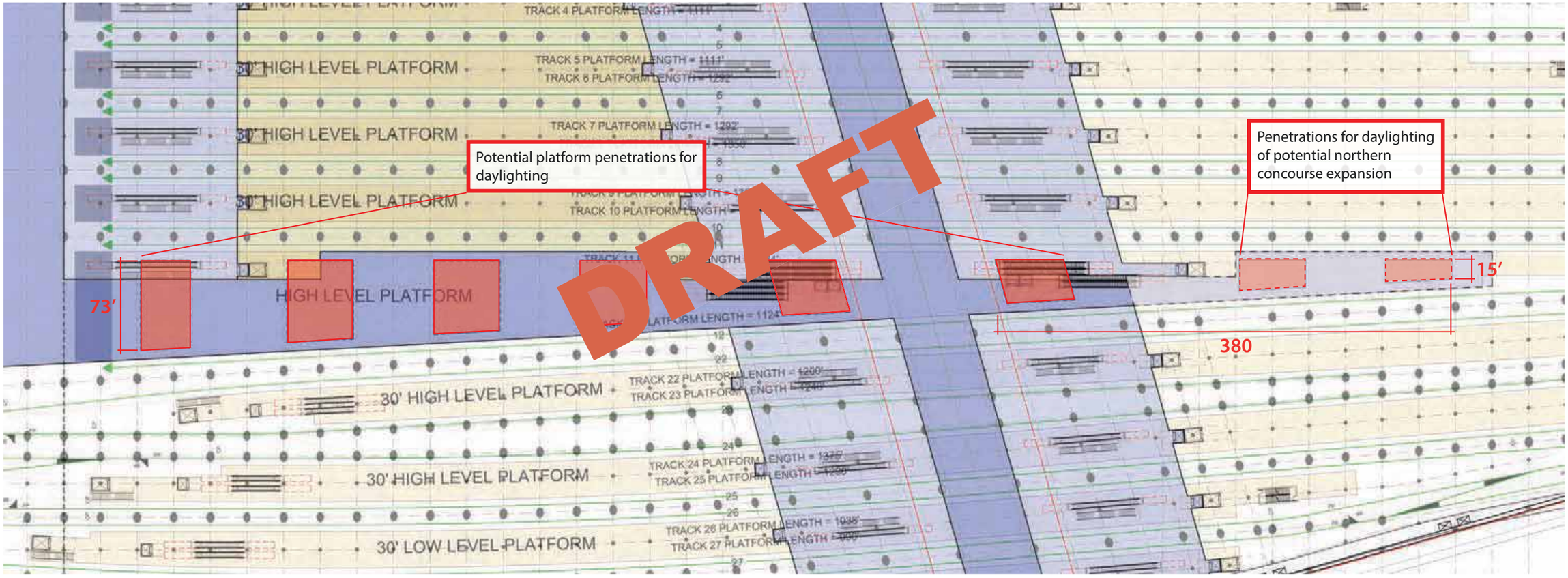
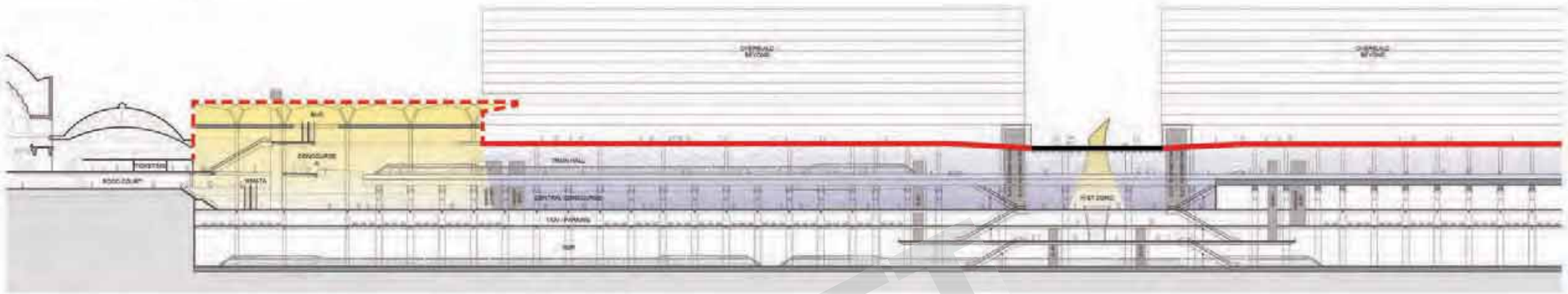


Diagram 3.8: Option 16 - Central Concourse - Daylighting

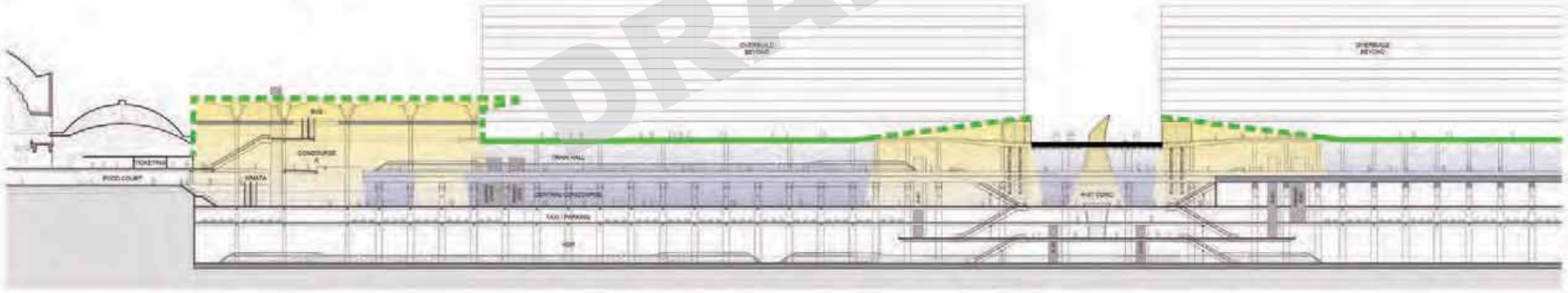


TI OPTION 14

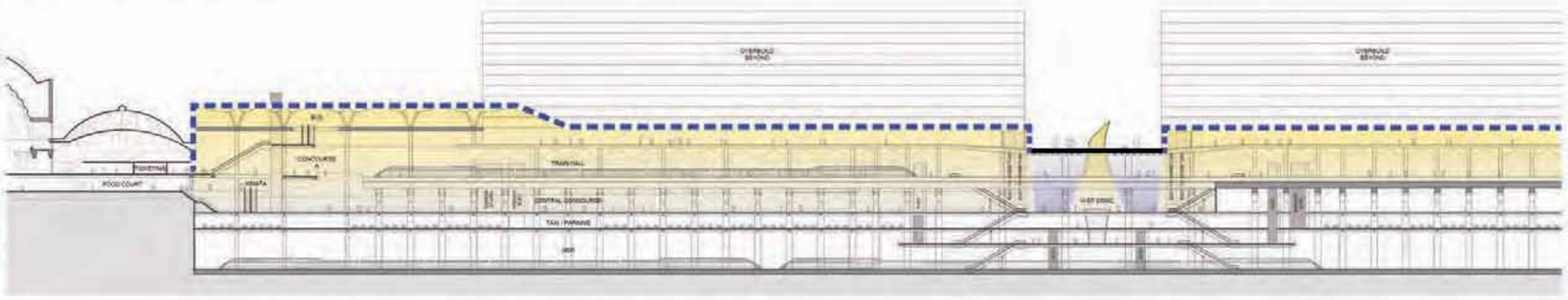
SOLID DECK ABOVE CENTRAL CONCOURSE



SOLID DECK ABOVE CENTRAL CONCOURSE (WITH SKYLIGHTS ON BOTH SIDES OF H-STREET)



TRAIN HALL ABOVE CENTRAL CONCOURSE

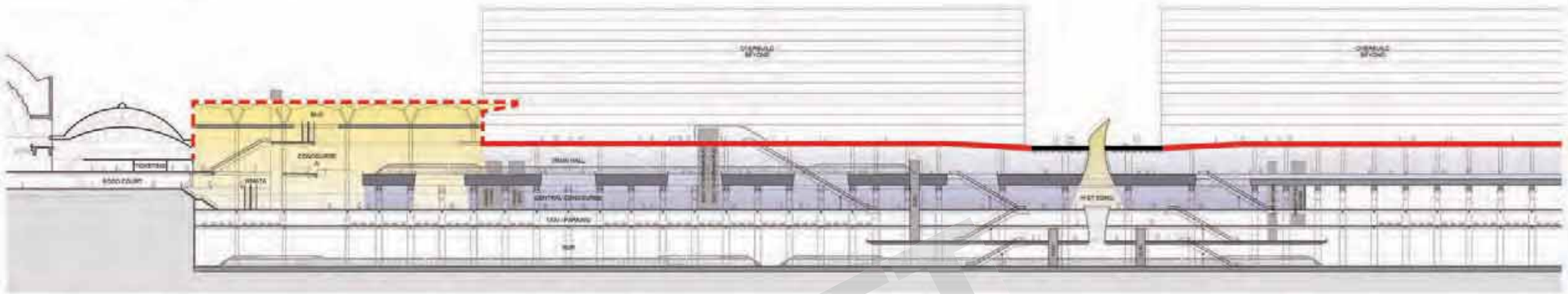


TI EVALUATION REPORT (MARCH 25, 2016)

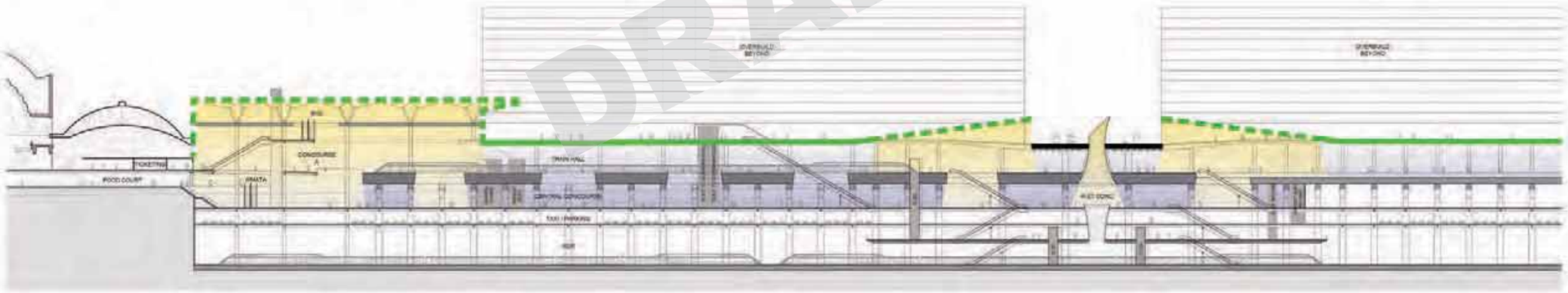
SECTIONS - TI OPTION 14

TI OPTION 15

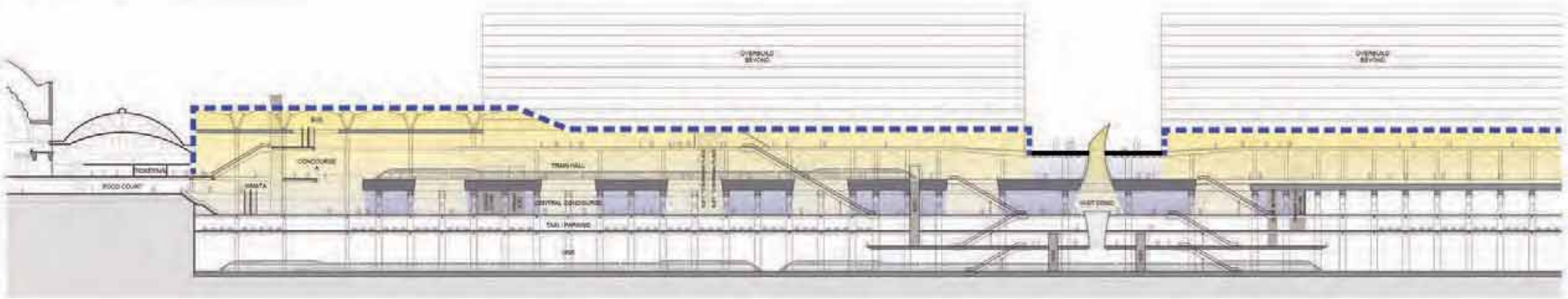
SOLID DECK ABOVE CENTRAL CONCOURSE



SOLID DECK ABOVE CENTRAL CONCOURSE (WITH SKYLIGHTS ON BOTH SIDES OF H-STREET)



TRAIN HALL ABOVE CENTRAL CONCOURSE



TI EVALUATION REPORT (MARCH 25, 2016)

SECTIONS - TI OPTION 15

TI OPTION 16

SOLID DECK ABOVE CENTRAL CONCOURSE

SOLID DECK ABOVE CENTRAL CONCOURSE (WITH SKYLIGHTS ON BOTH SIDES OF H-STREET)

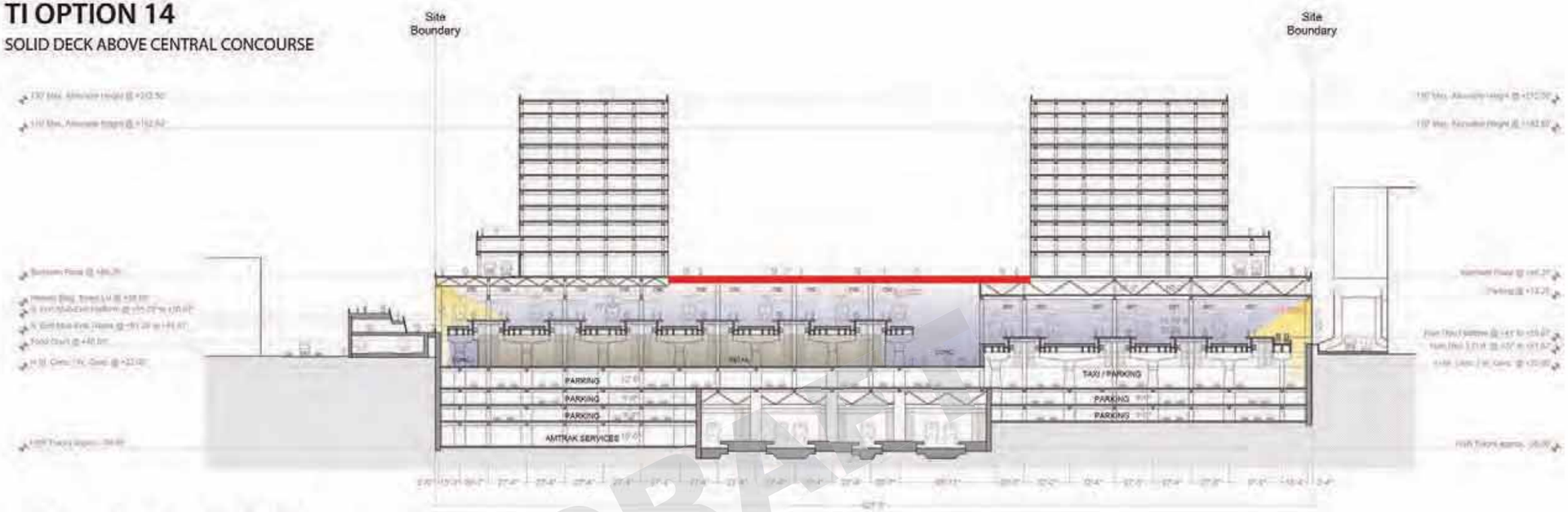
TRAIN HALL ABOVE CENTRAL CONCOURSE

TI EVALUATION REPORT (MARCH 25, 2016)

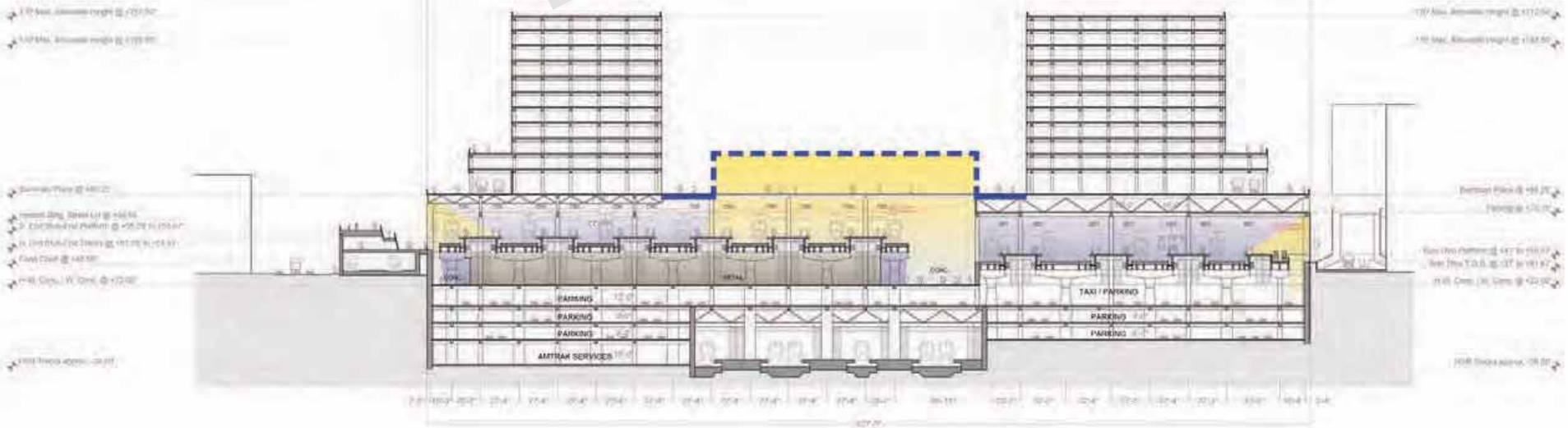
SECTIONS - TI OPTION 16

TI OPTION 14

SOLID DECK ABOVE CENTRAL CONCOURSE



TRAIN HALL ABOVE CENTRAL CONCOURSE

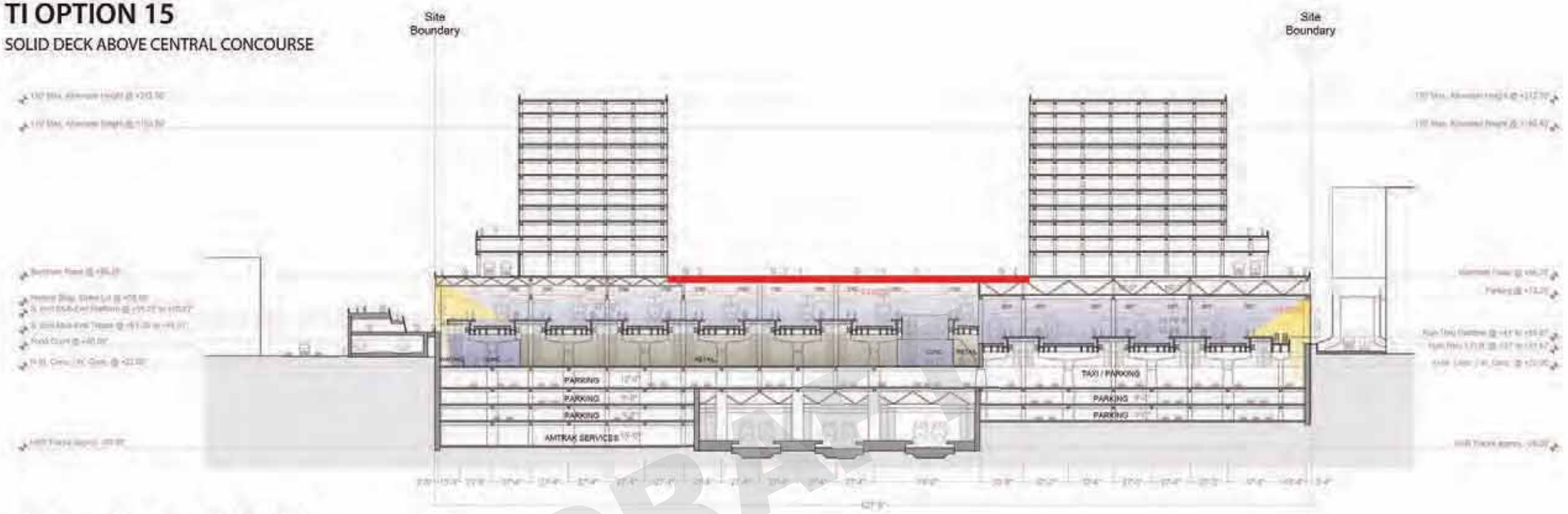


TI EVALUATION REPORT (MARCH 25, 2016)

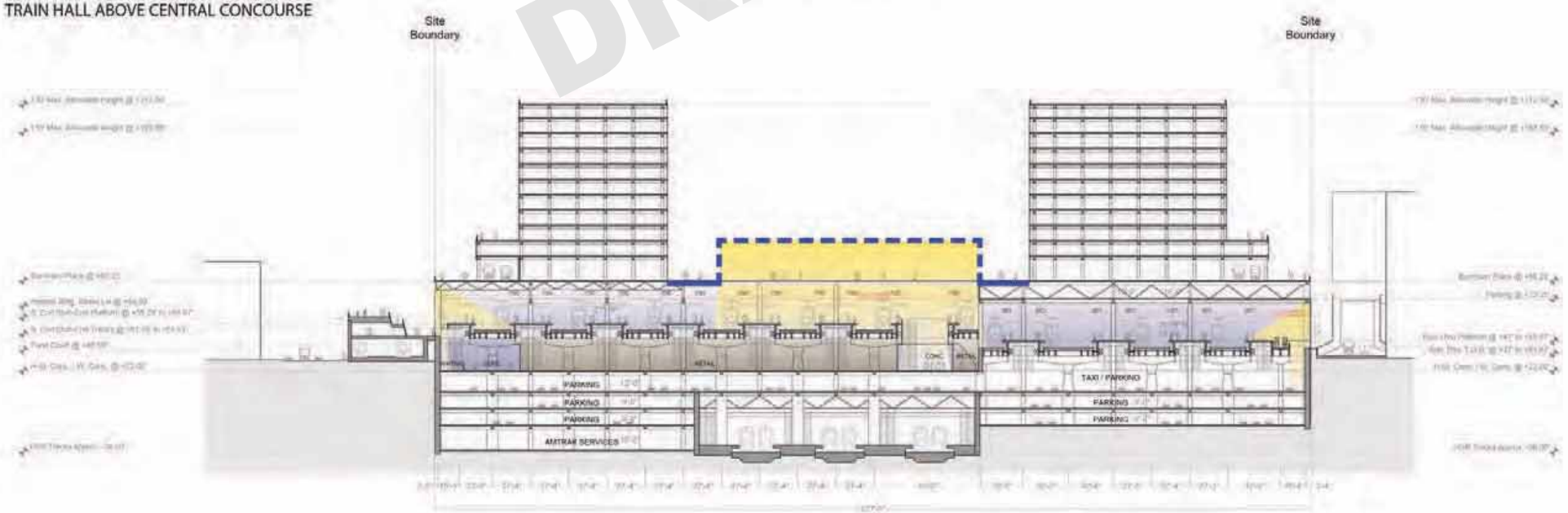
SECTIONS - TI OPTION 14

TI OPTION 15

SOLID DECK ABOVE CENTRAL CONCOURSE



TRAIN HALL ABOVE CENTRAL CONCOURSE

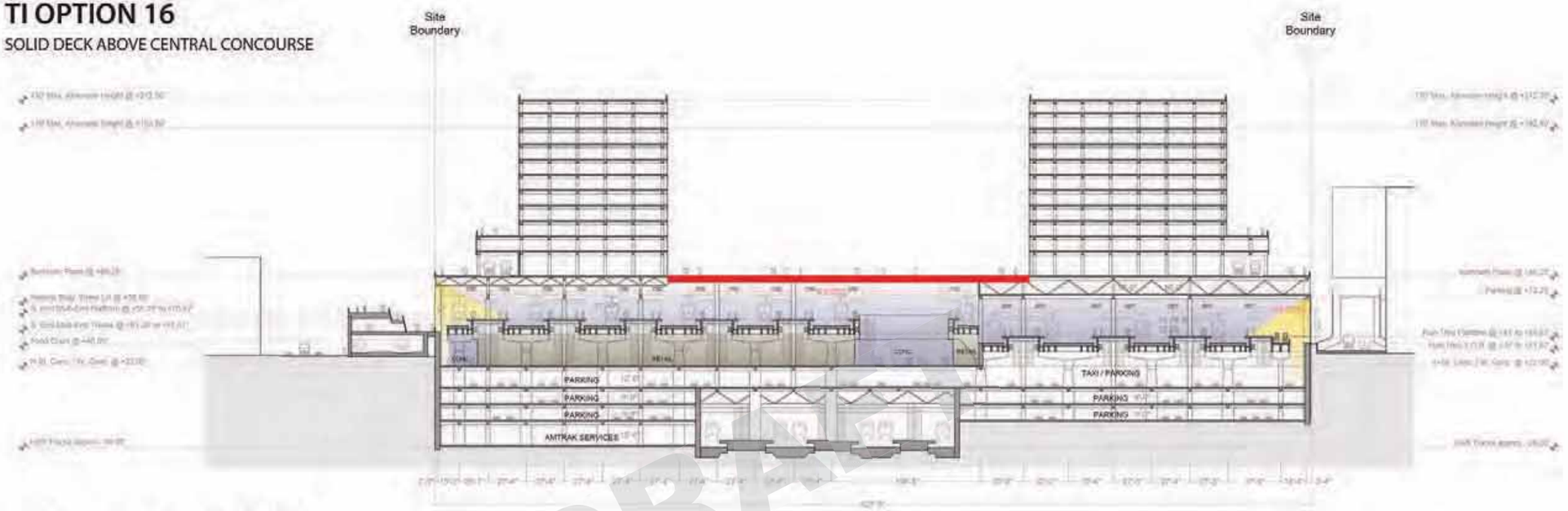


TI EVALUATION REPORT (MARCH 25, 2016)

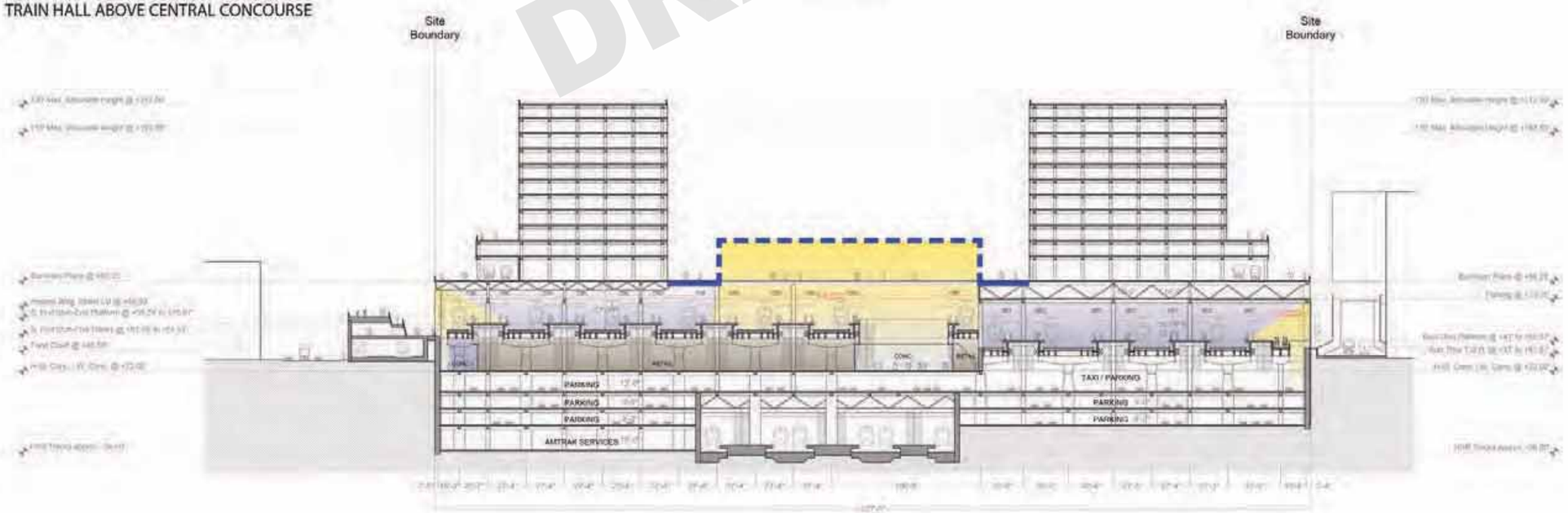
SECTIONS - TI OPTION 15

TI OPTION 16

SOLID DECK ABOVE CENTRAL CONCOURSE



TRAIN HALL ABOVE CENTRAL CONCOURSE

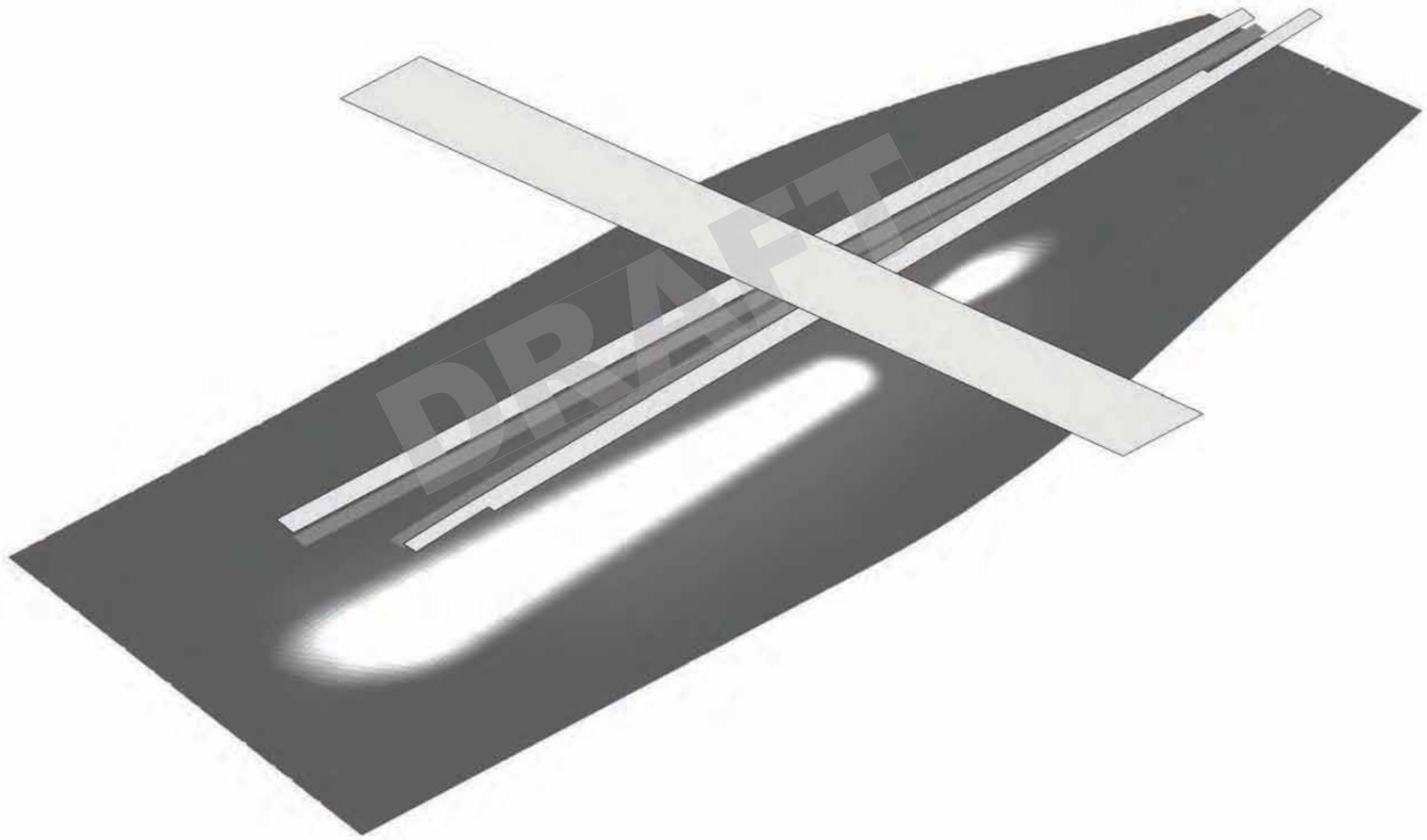


TI EVALUATION REPORT (MARCH 25, 2016)

SECTIONS - TI OPTION 16

TI Option 14

OPENING: **51' (MAX) X 1000'**

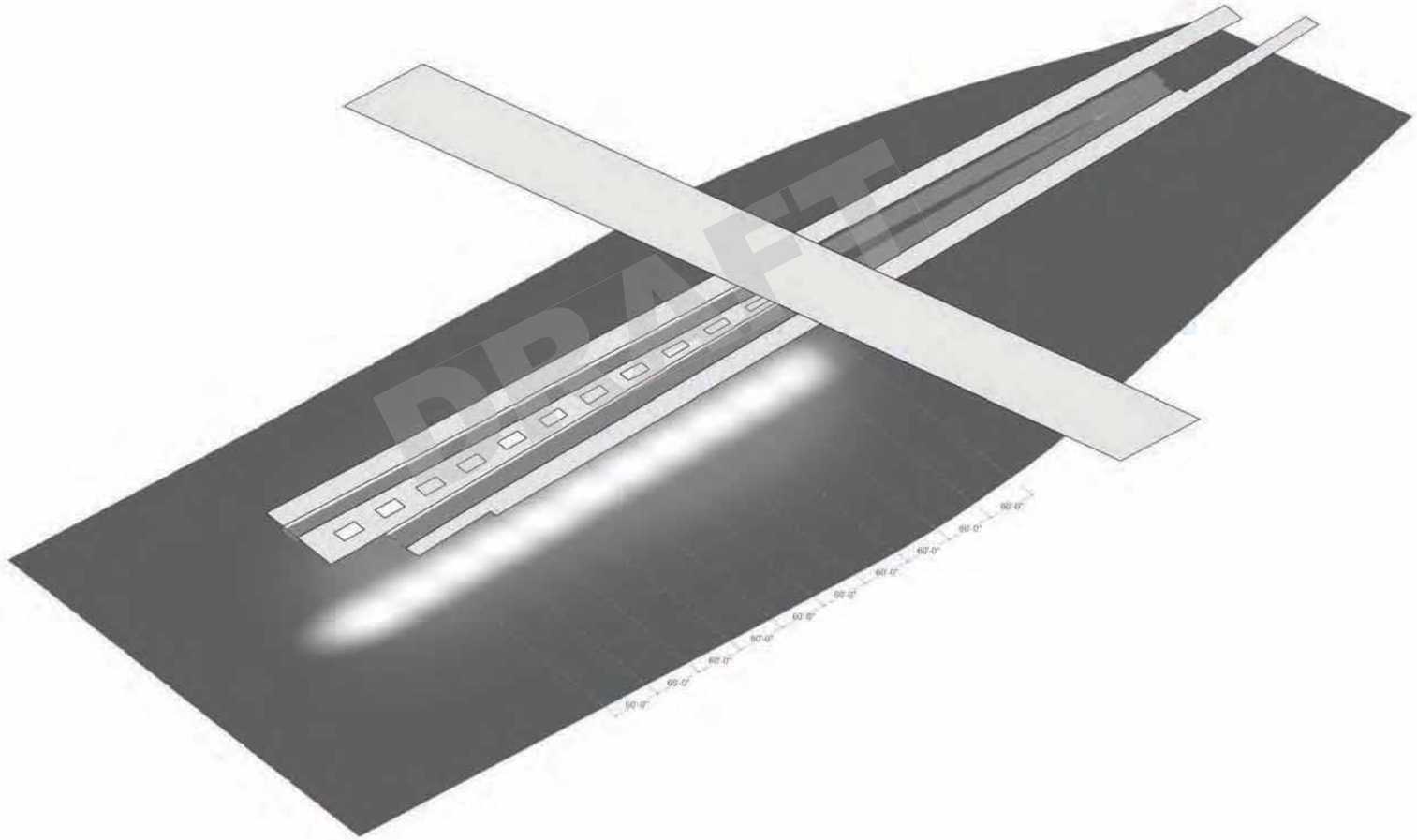


TI EVALUATION REPORT (MARCH 25, 2016)

DAYLIGHTING STUDY - TI OPTION 14

TI Option 15

OPENINGS: **18'(MAX) X 30'** to **8' X 30'**

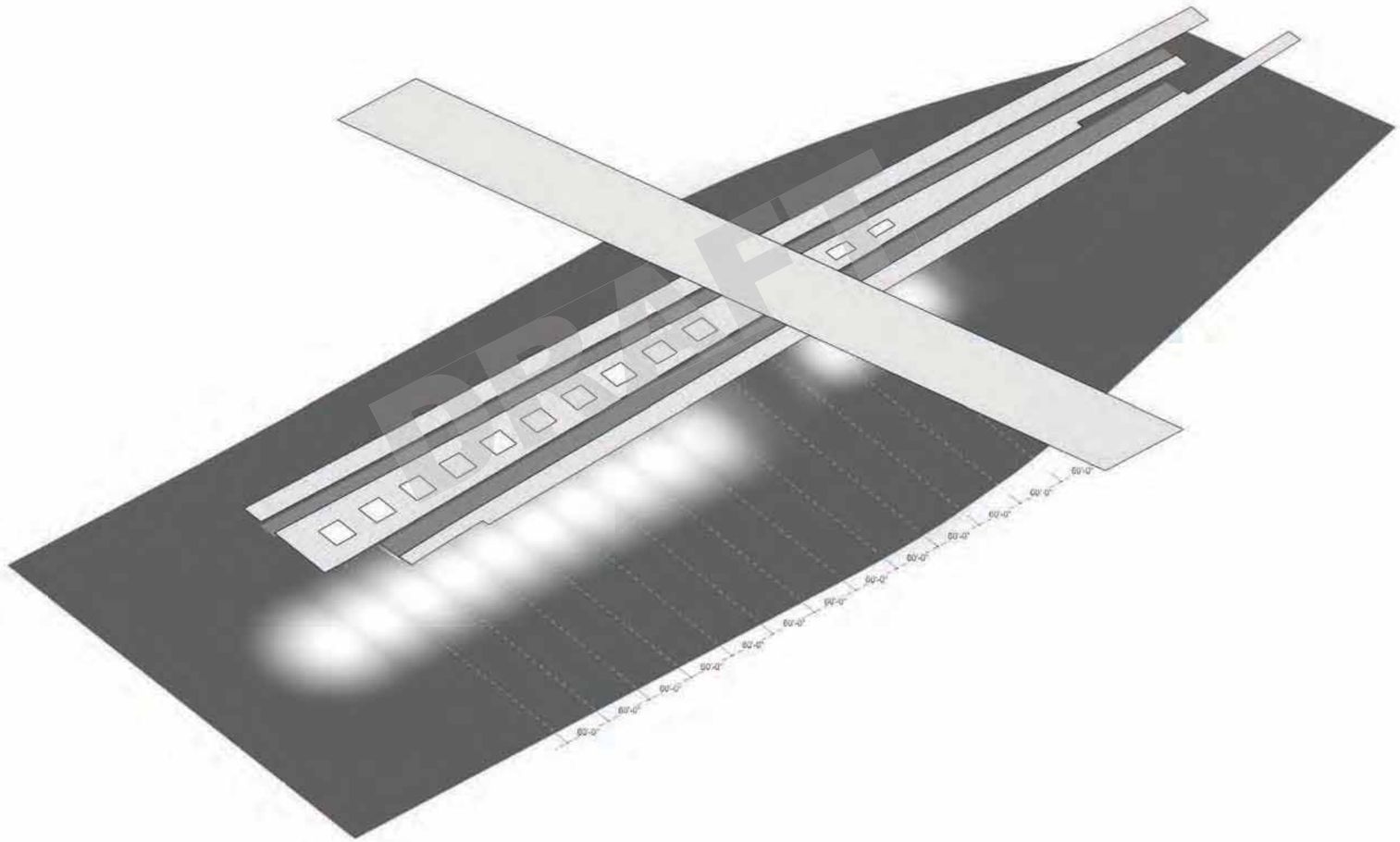


TI EVALUATION REPORT (MARCH 25, 2016)

DAYLIGHTING STUDY - TI OPTION 15

TI Option 16

OPENINGS: **30'(MAX) X 30'** to **15' X 30'**



TI EVALUATION REPORT (MARCH 25, 2016)

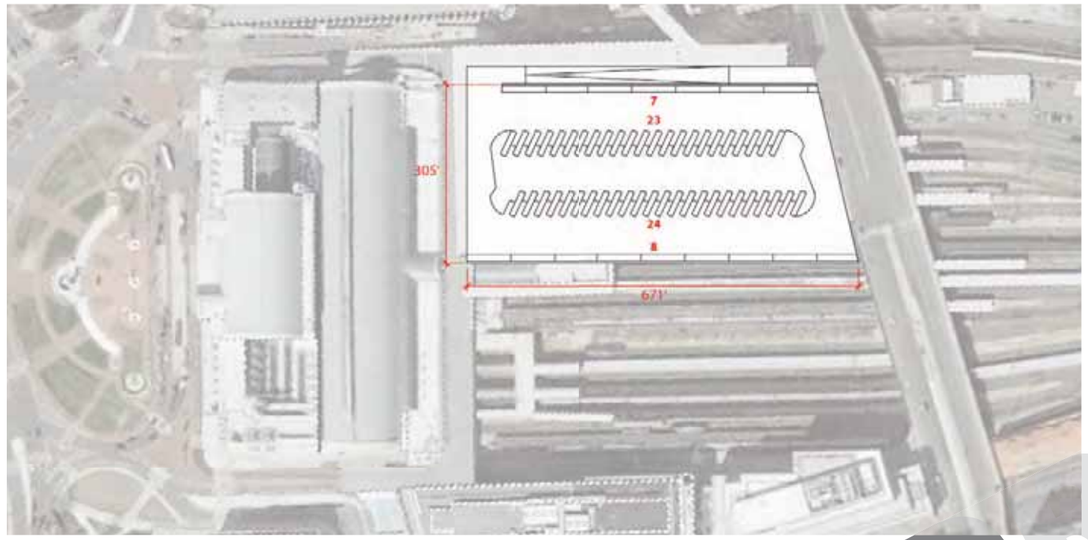
DAYLIGHTING STUDY - TI OPTION 16

A-5 Compendia of Relevant Planning Studies

Bus

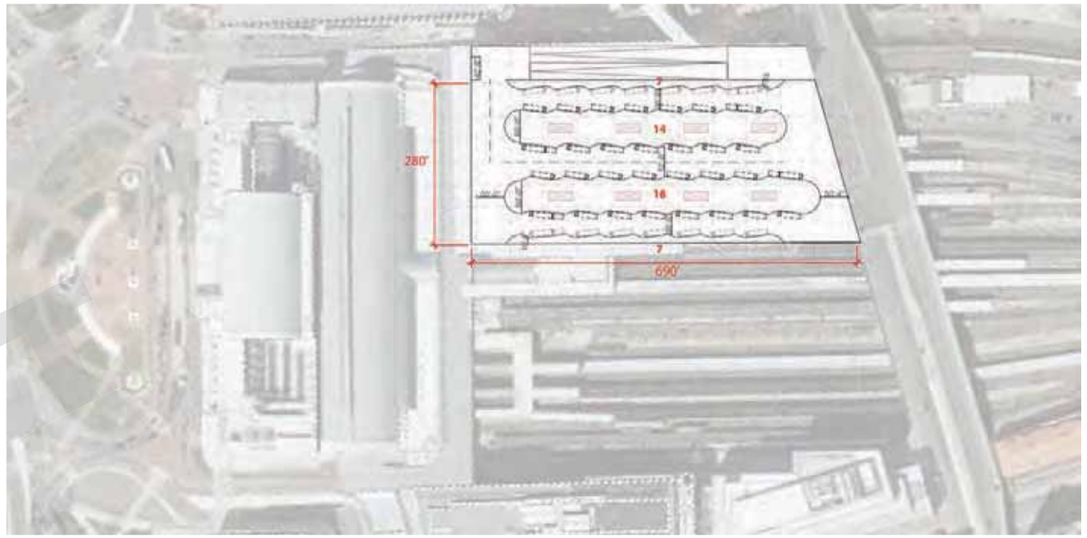
Existing Bus Terminal - Parallel Configuration with Loading Slips

62 Spaces (162,170 S.F. / 62 Spaces = 2,615 S.F. per Space)



Existing Bus Terminal - Sawtooth Configuration

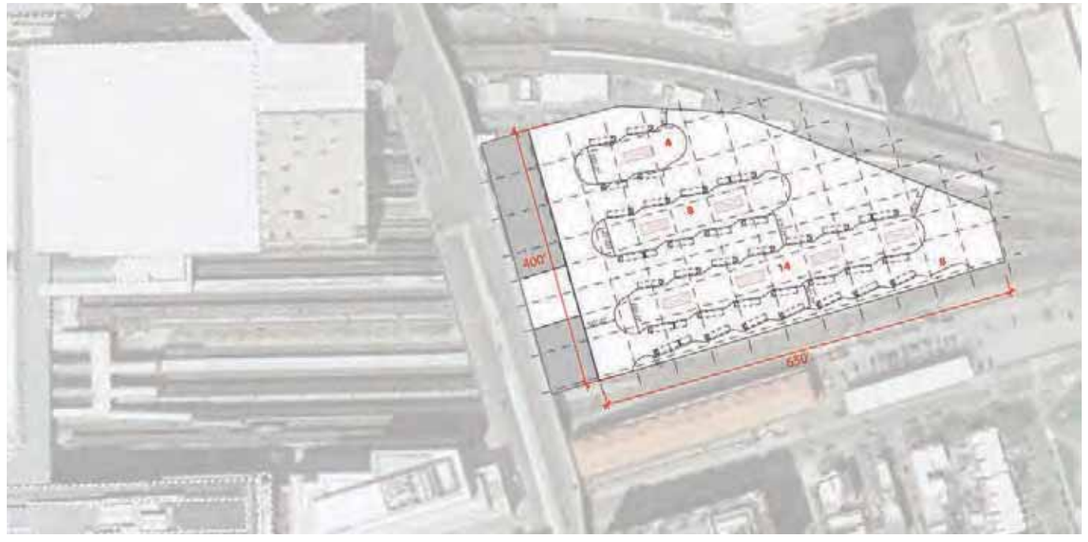
14 ACTIVE
30 LAYOVERS
44 TOTAL



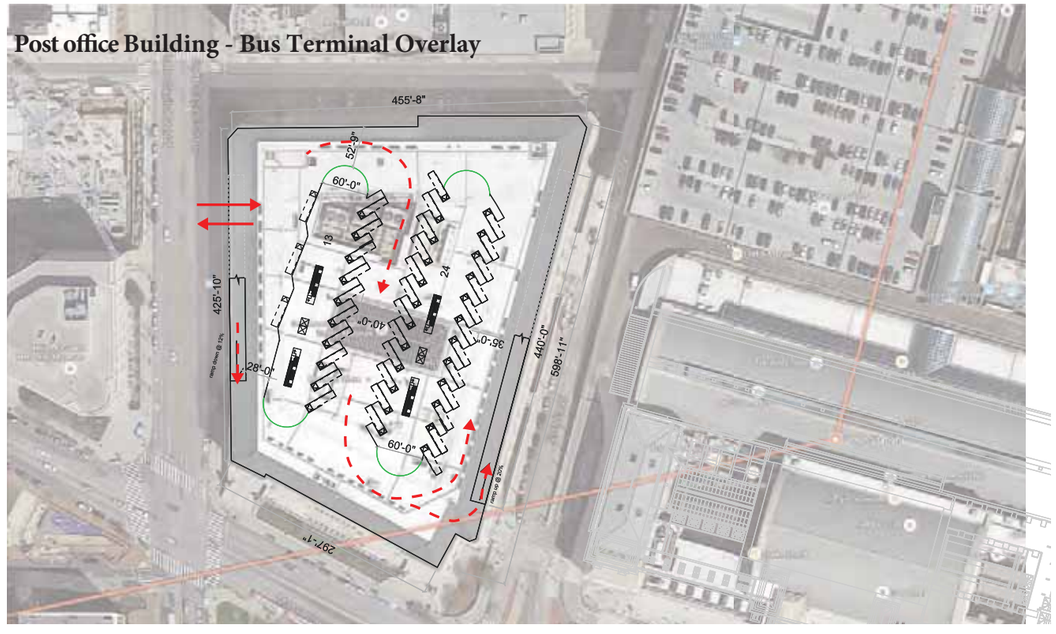
1 2
3 4

North of H Street - Sawtooth Configuration

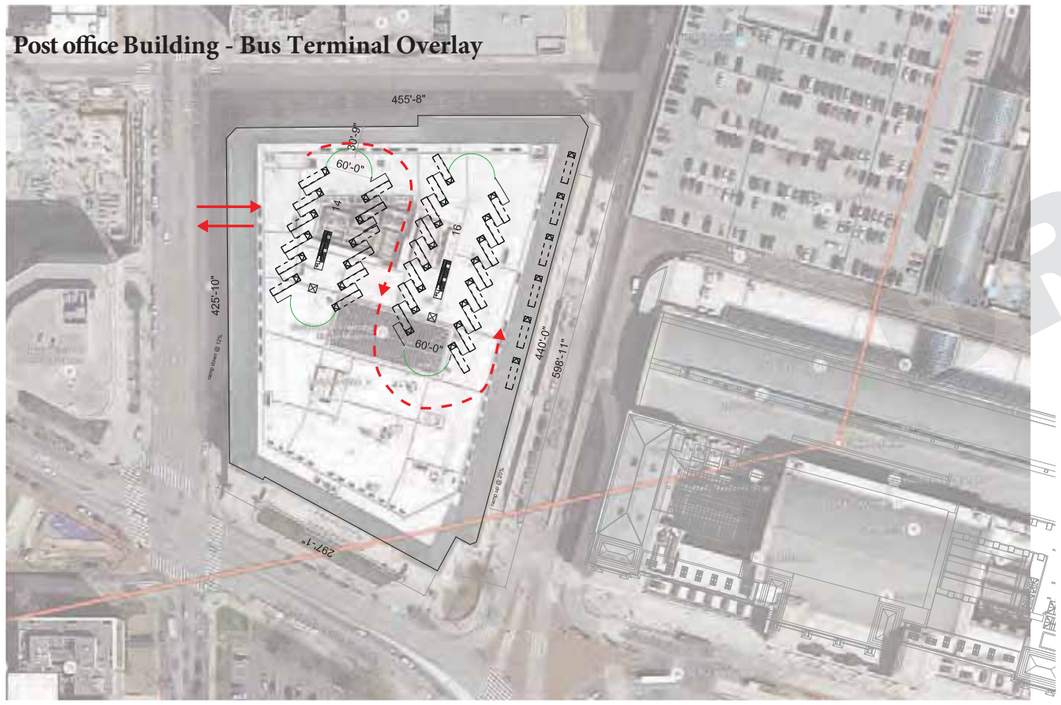
26 ACTIVE
8 LAYOVERS
34 TOTAL



Post office Building - Bus Terminal Overlay



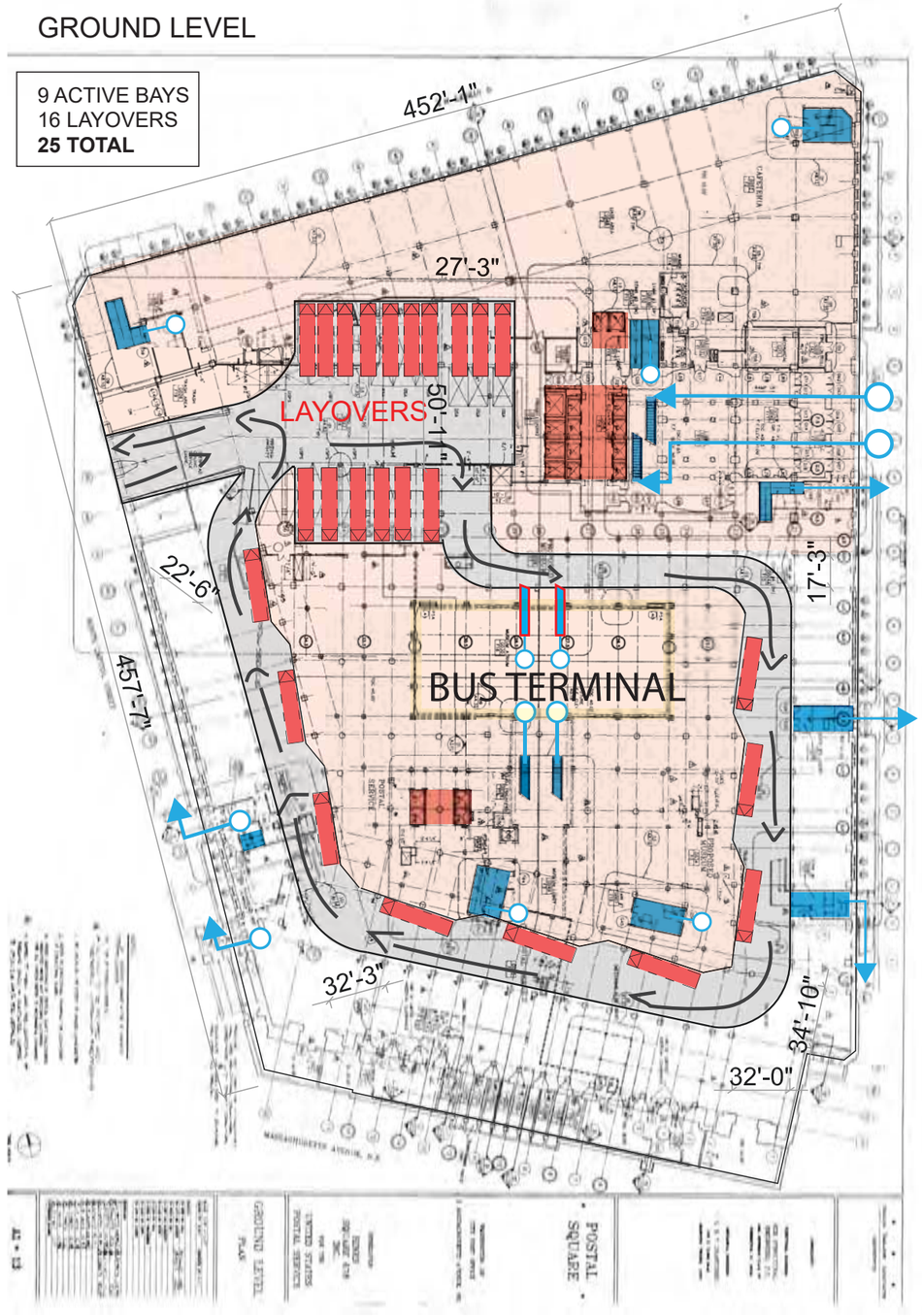
BUS STUDY



1 2

GROUND LEVEL

9 ACTIVE BAYS
16 LAYOVERS
25 TOTAL



BUS STUDY

PREVIOUS GREYHOUND SITE

ALL SAWTOOTH ISLAND LOADING

8 Active Buses
13 Overlays
21 Total

21 ACTIVE
25 LAYOVERS
46 **TOTAL**

PREVIOUS GREYHOUND SITE

ALL ANGLED ISLAND LOADING

17 Active Buses
13 Overlays
30 Total

ACTIVE
25 LAYOVERS
55 **TOTAL**

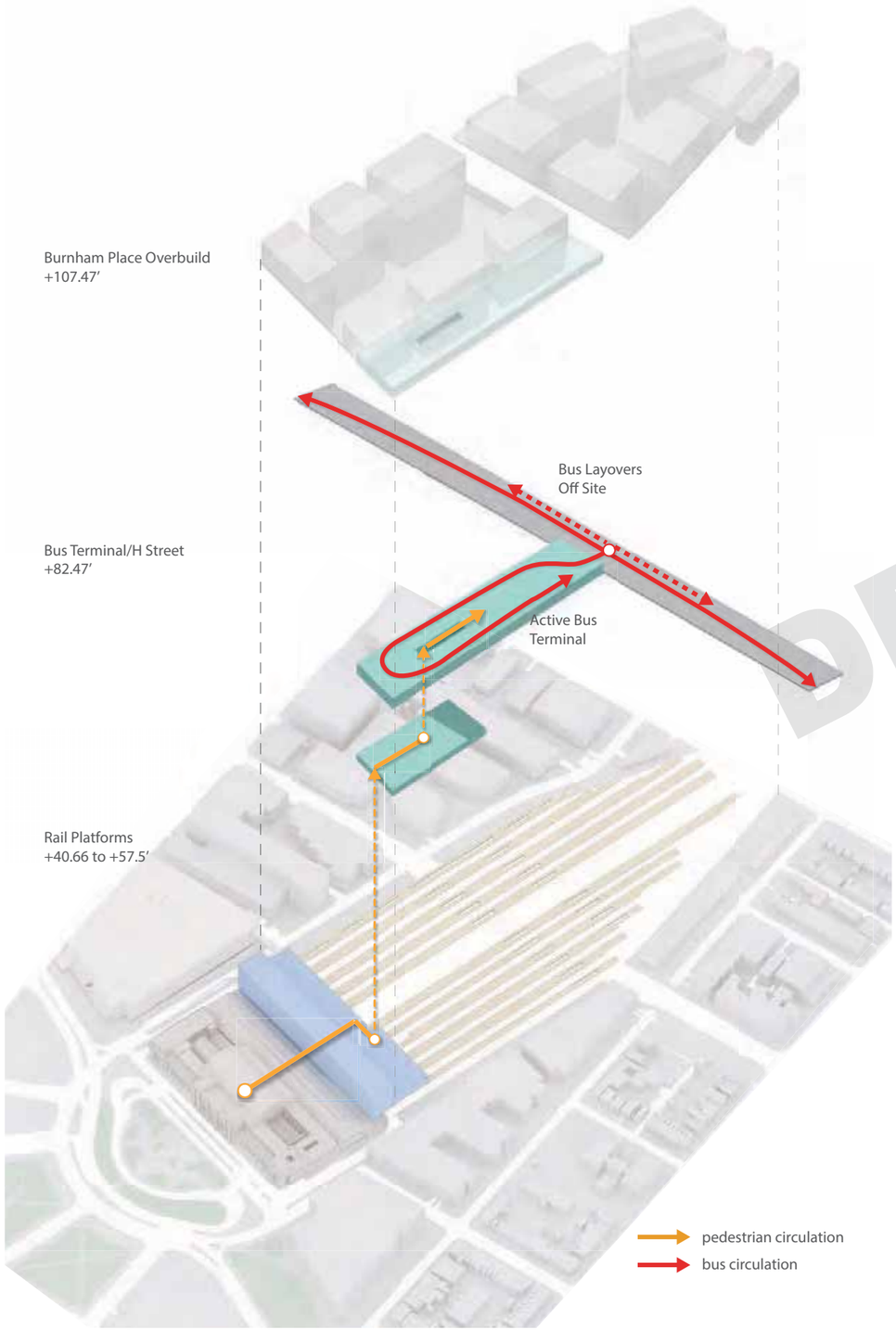
1 2
3 4

PREVIOUS GREYHOUND SITE

ALL ANGLED PERIMETER LOADING

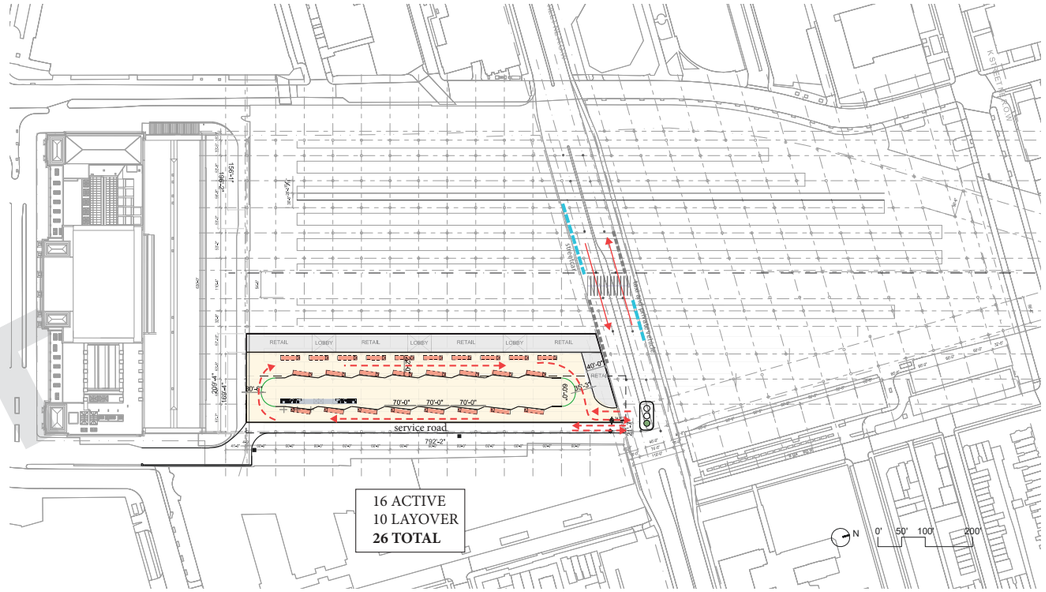
16 Active Buses
0 Overlays
16 Total

16 ACTIVE
25 LAYOVERS
41 **TOTAL**

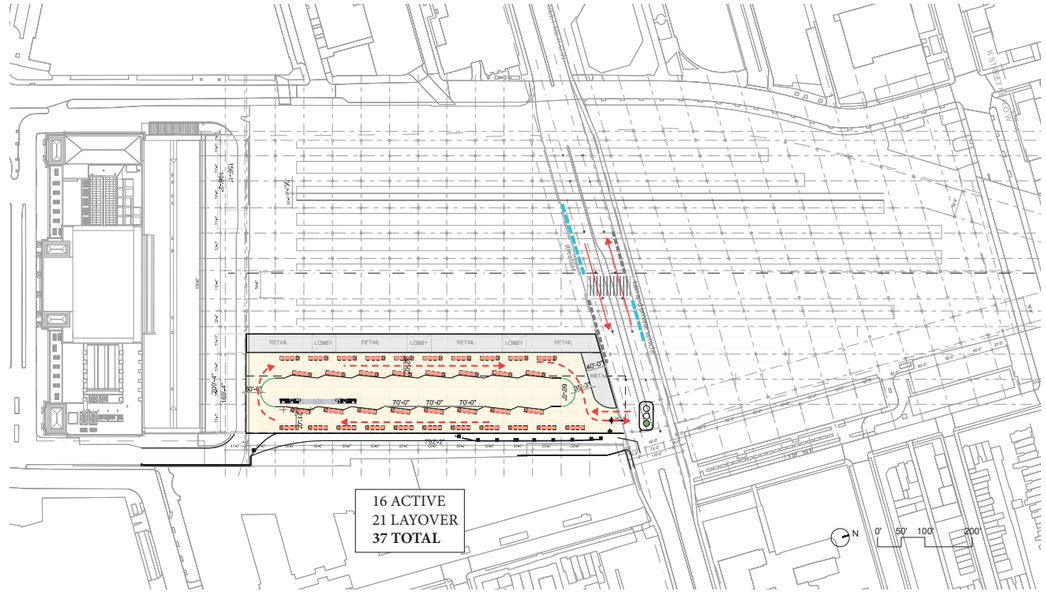


1 2 3

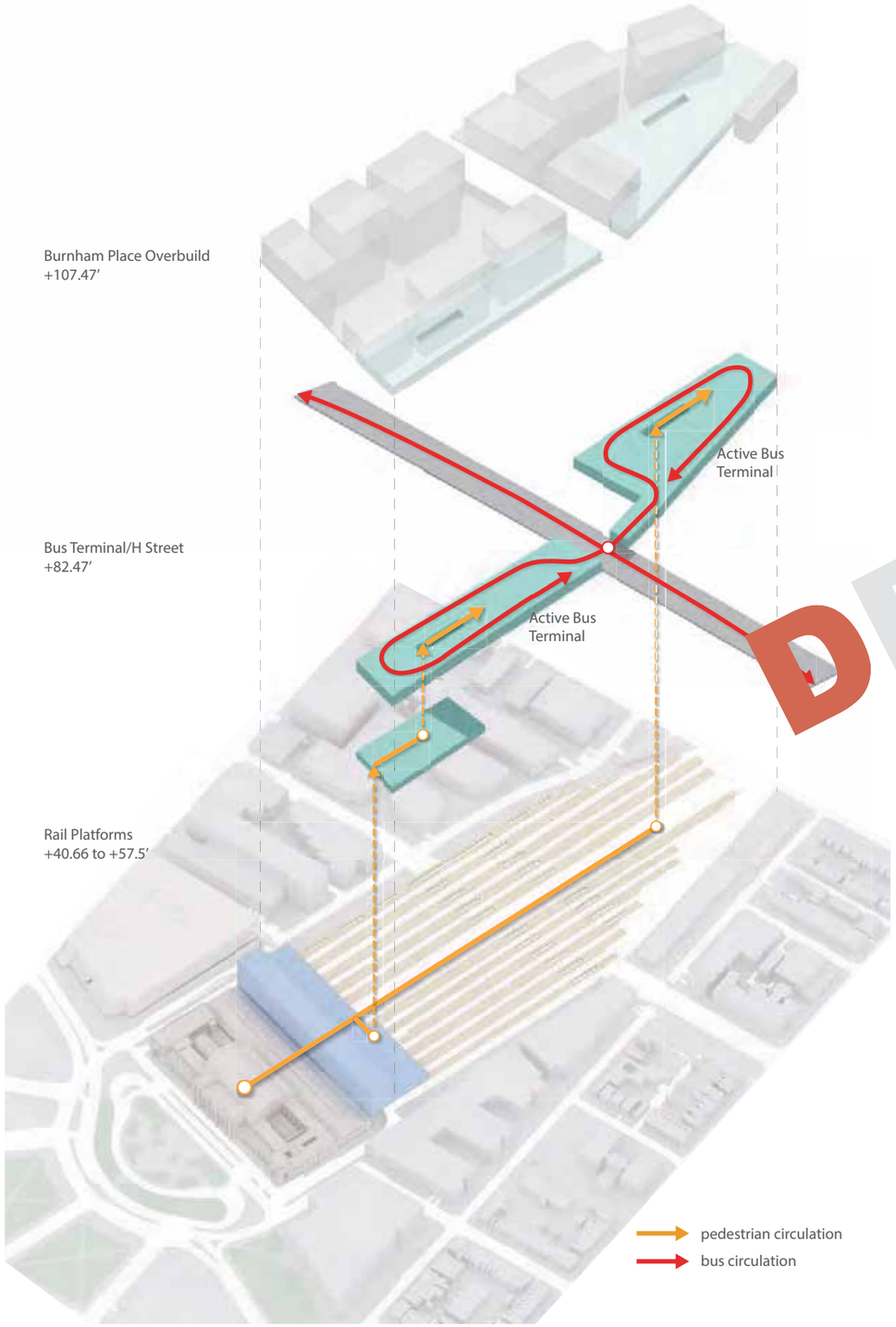
Option 3: Southeast Bus Terminal (with service road) Layovers Off-Site - Test Fit Overlay



Option 3b: Southeast Bus Terminal (no service road) Layovers Off-Site - Test Fit Overlay



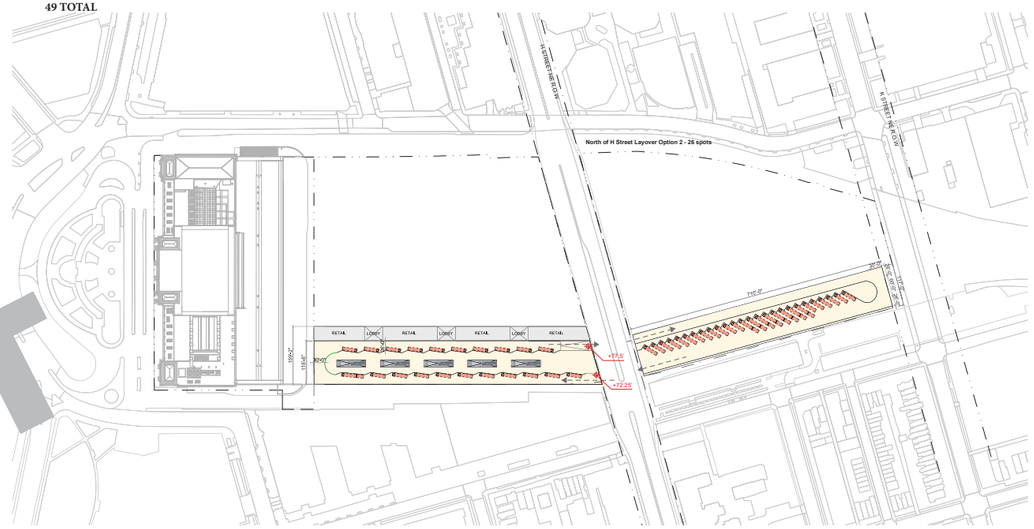
BUS STUDY



1 2 3

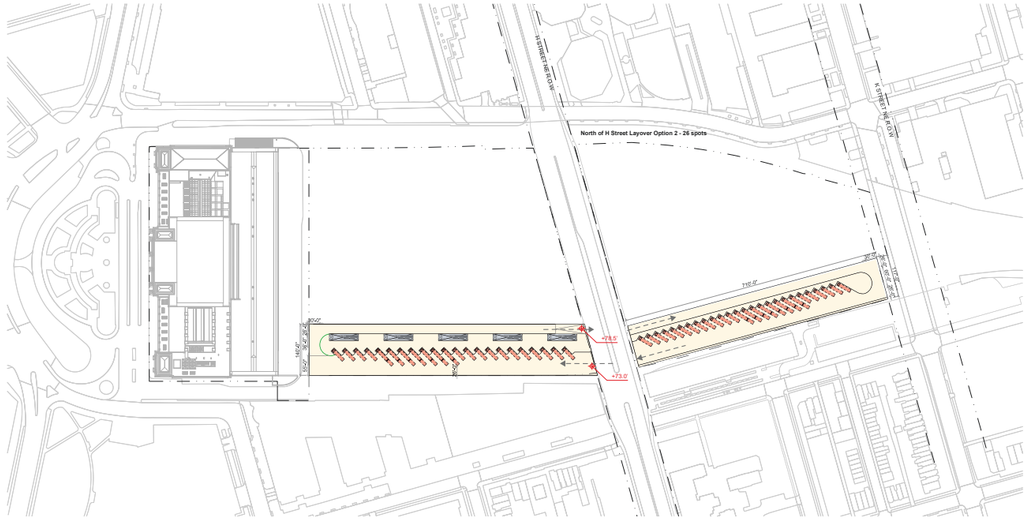
C1

22 ACTIVE
26 LAYOVERS
49 TOTAL



C2

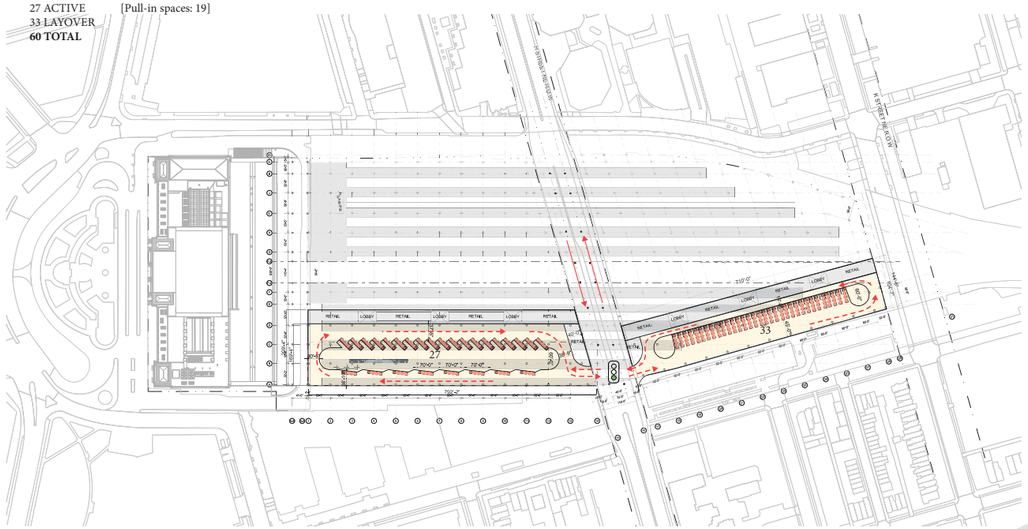
28 ACTIVE
26 LAYOVERS
54 TOTAL



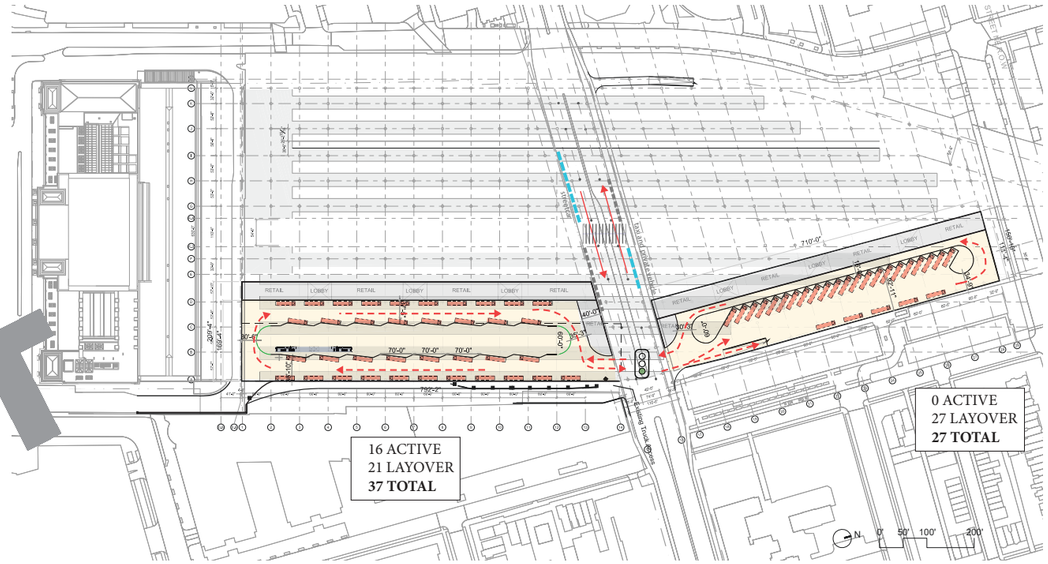
BUS STUDY

Temporary D2 - Test Fit Overlay

27 ACTIVE [Pull-in spaces: 19]
33 LAYOVER
60 TOTAL



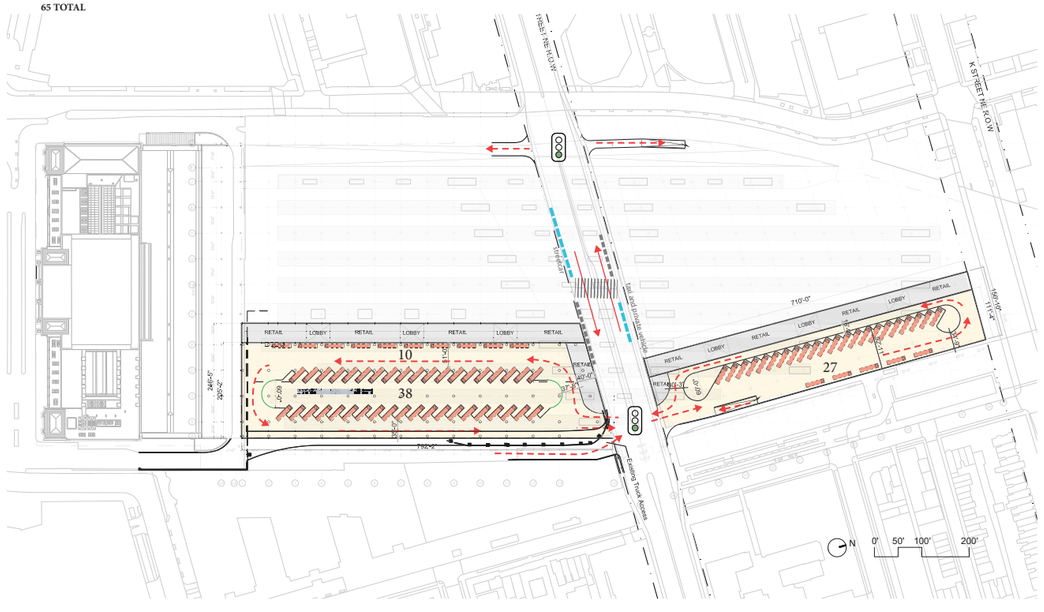
Option 1c: Active Bus Terminal Southeast of H Street and Layovers on Northeast- Test Fit Overlay



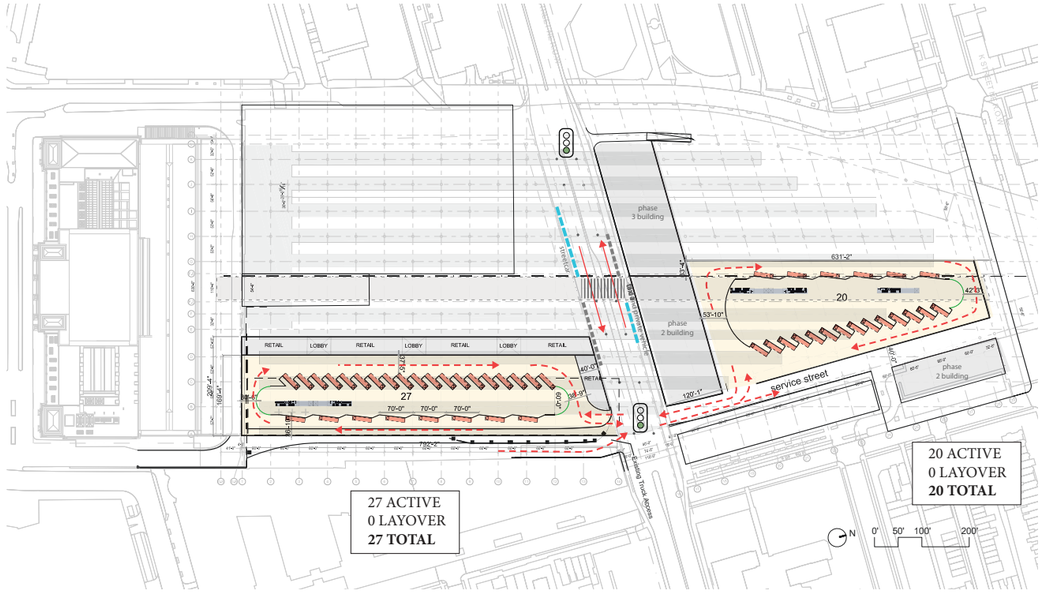
1 2
3 4

All Pull-In Bays - MDP 3 Overlay

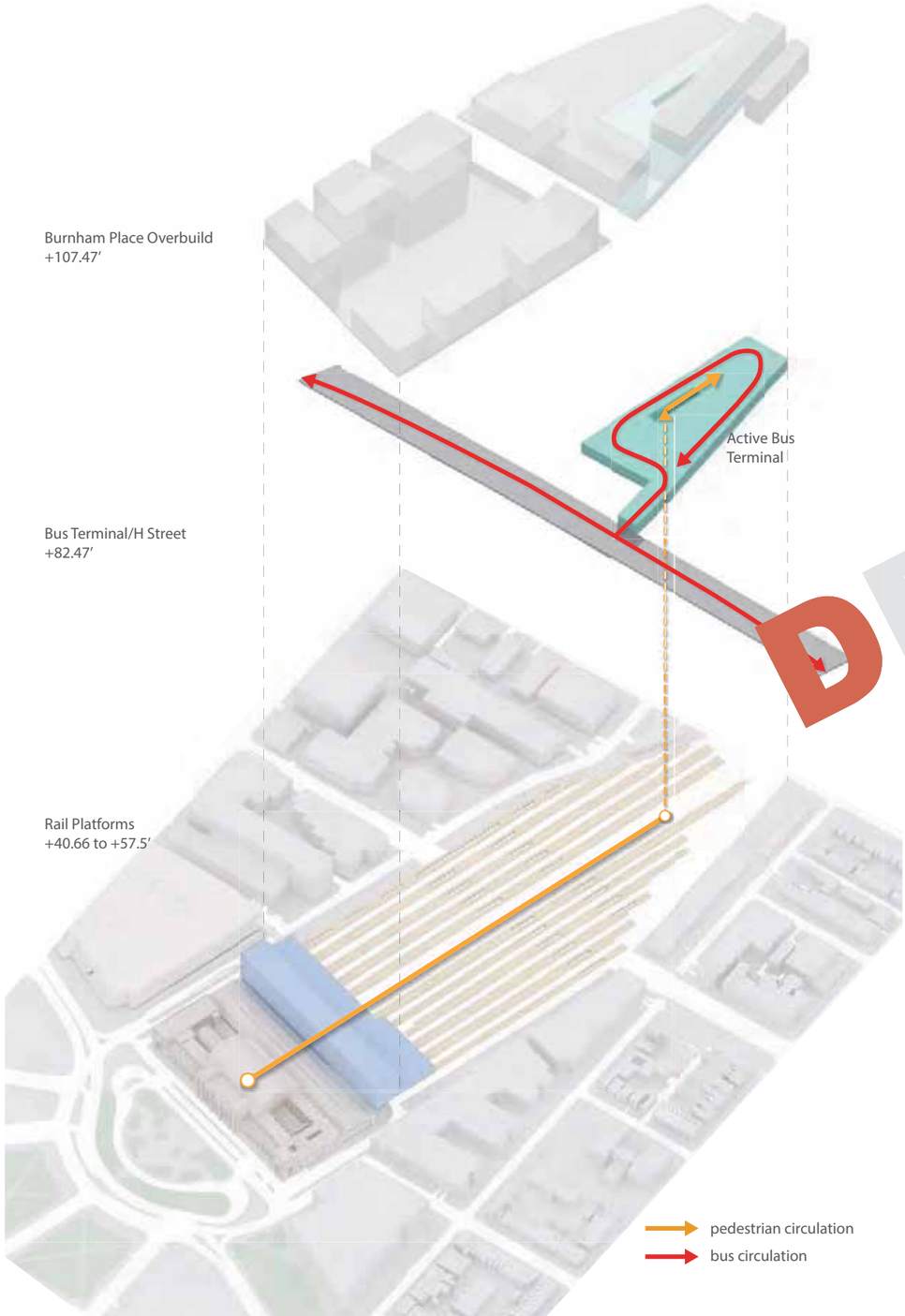
38 ACTIVE [Pull-in spaces: 38]
27 LAYOVER
65 TOTAL



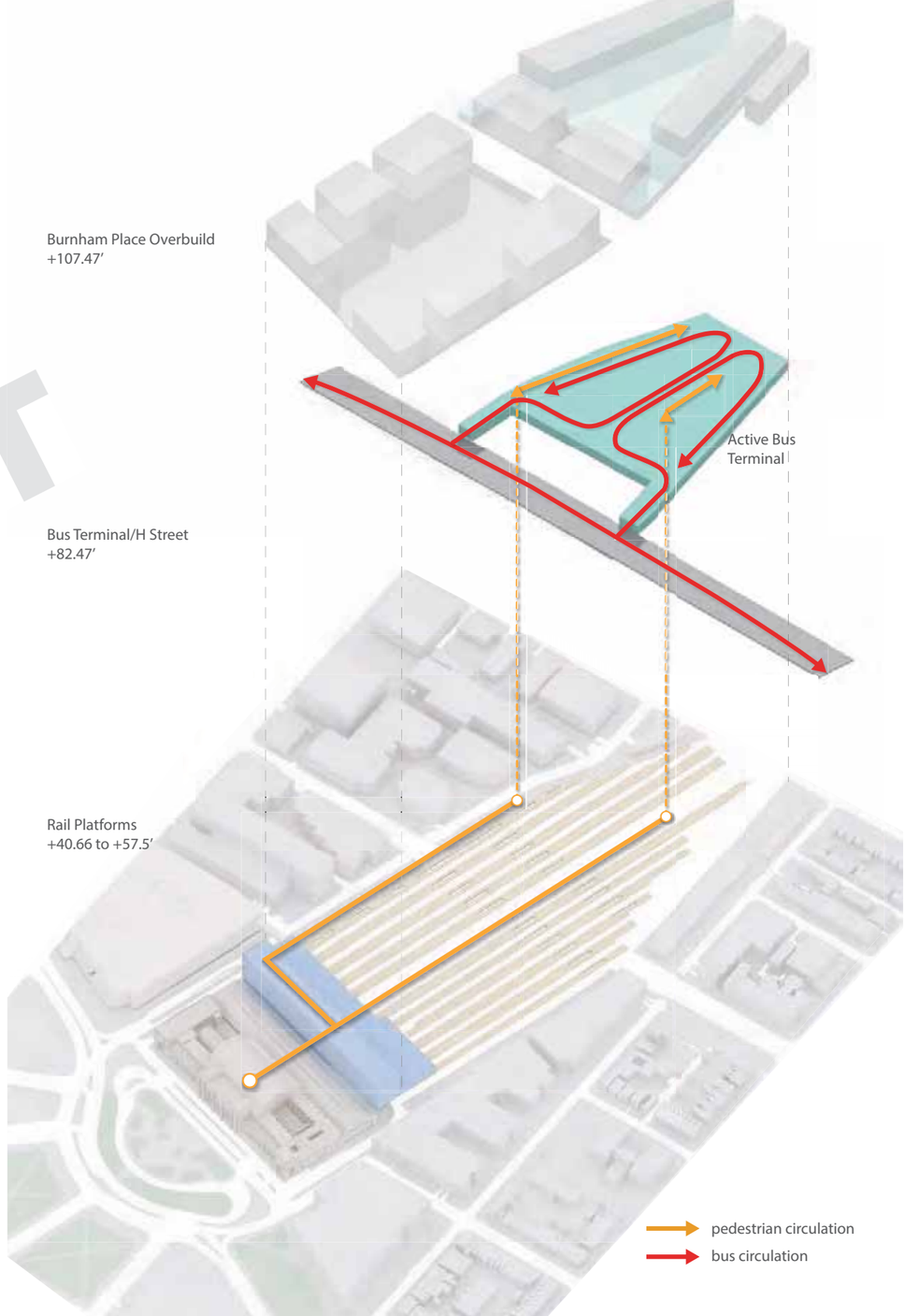
Half Sawtooth Option 3 - Test Fit Overlay



BUS STUDY



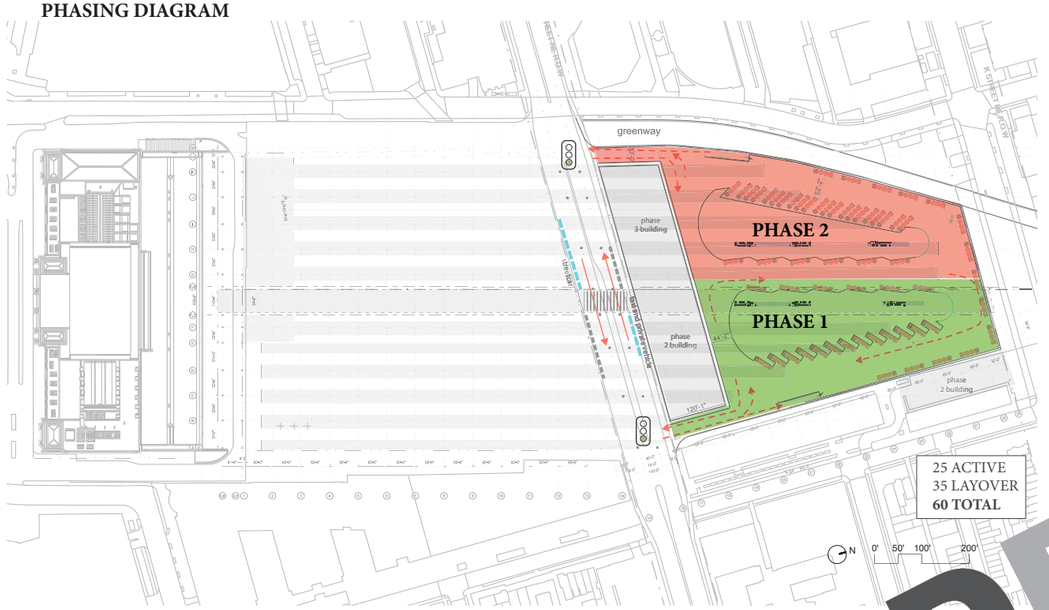
1 2



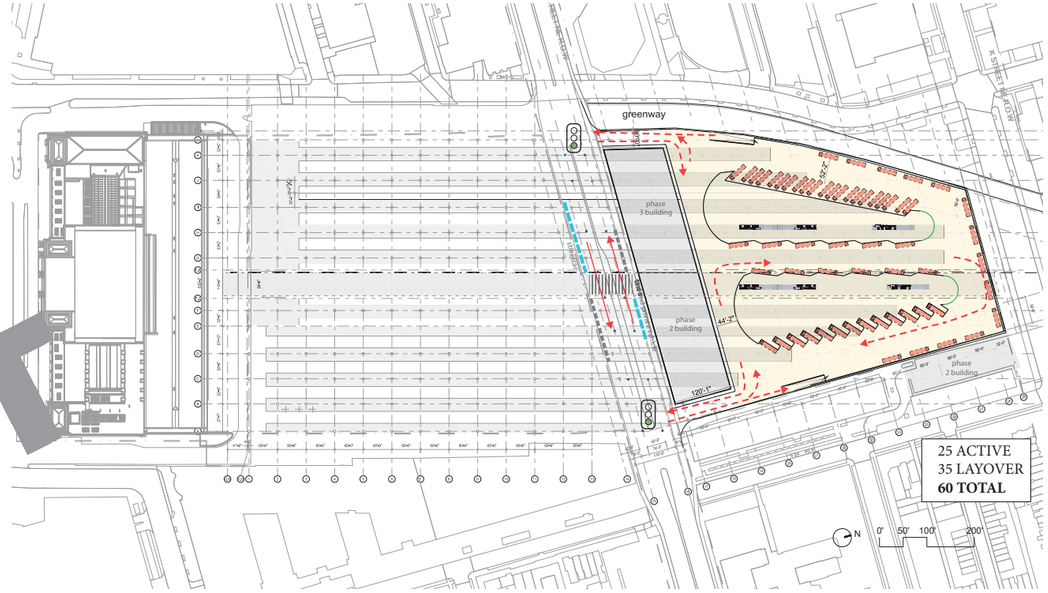
BUS STUDY

Option 2: All North of H Street Bus Terminal - Test Fit Overlay

PHASING DIAGRAM

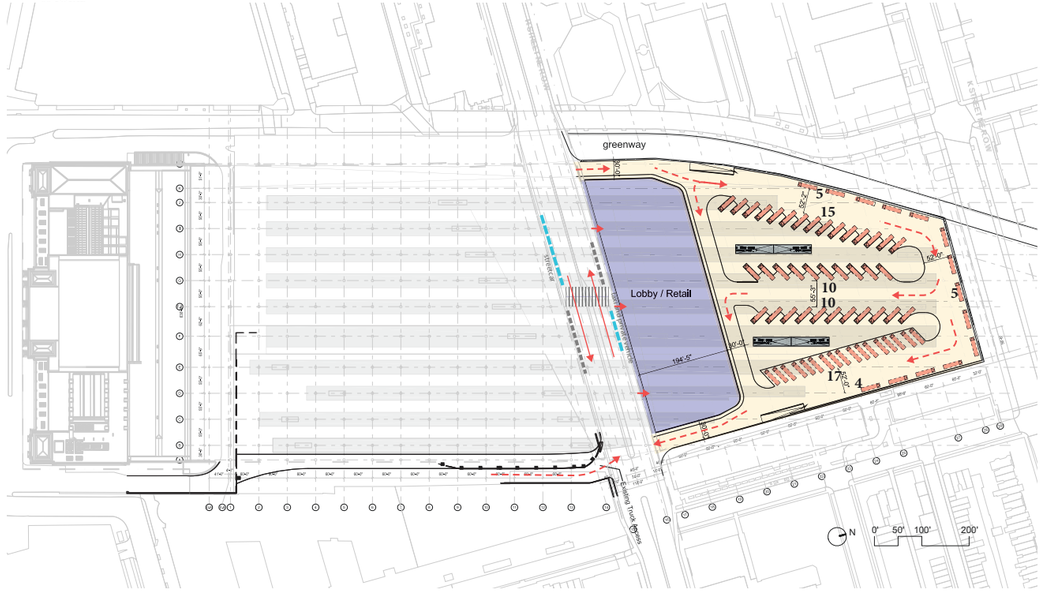


Option 2: All North of H Street Bus Terminal - Test Fit Overlay



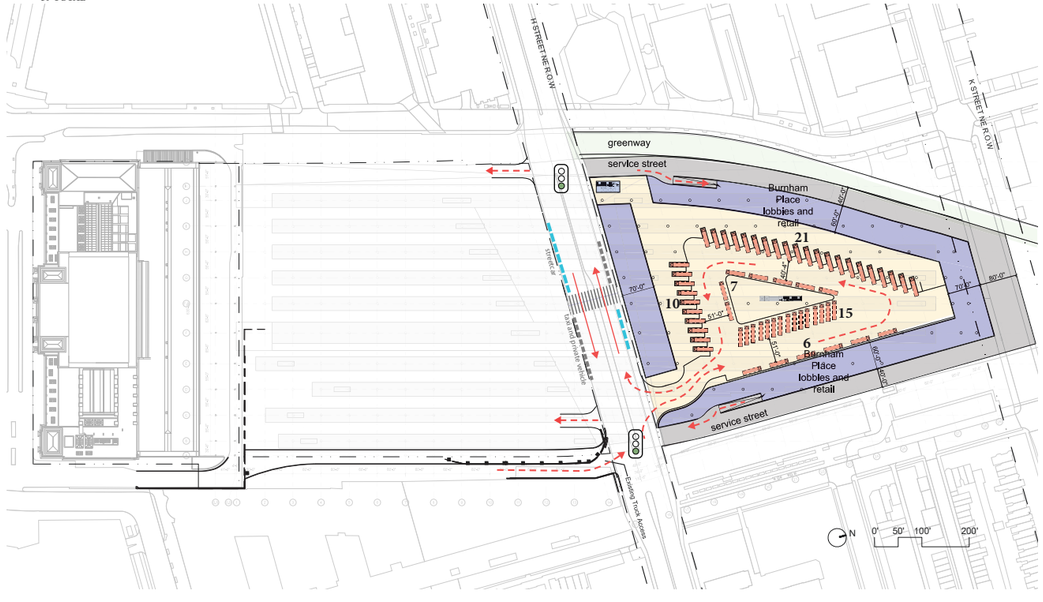
North of H Street Option 4 - MDP 3 Overlay

35 ACTIVE [Pull-in spaces: 35]
31 LAYOVER
66 TOTAL



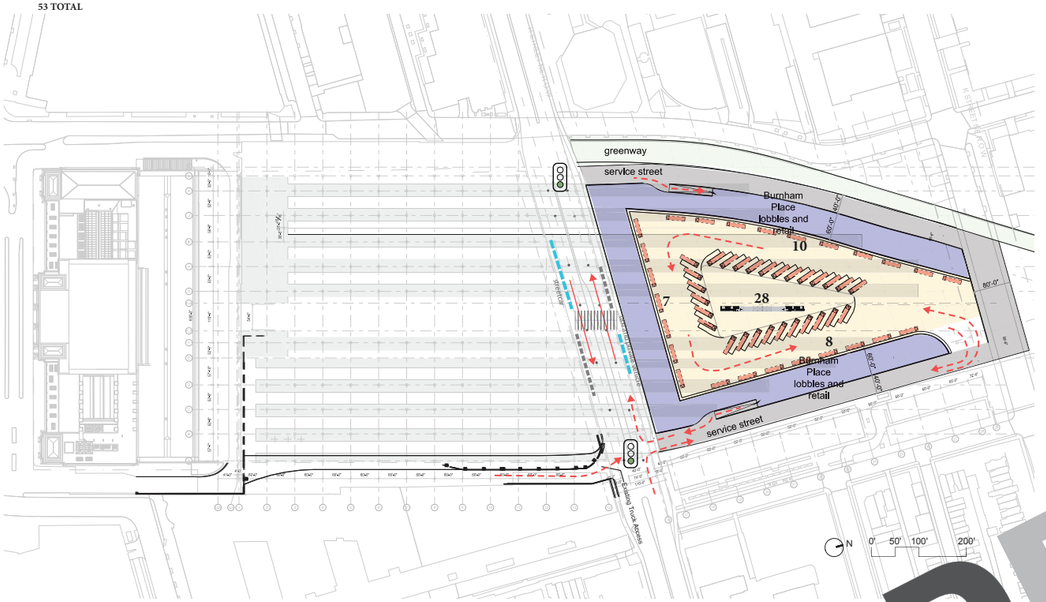
North of H Street Option 5 - MDP 3 Overlay

31 ACTIVE [Pull-in spaces: 31]
28 LAYOVER
59 TOTAL



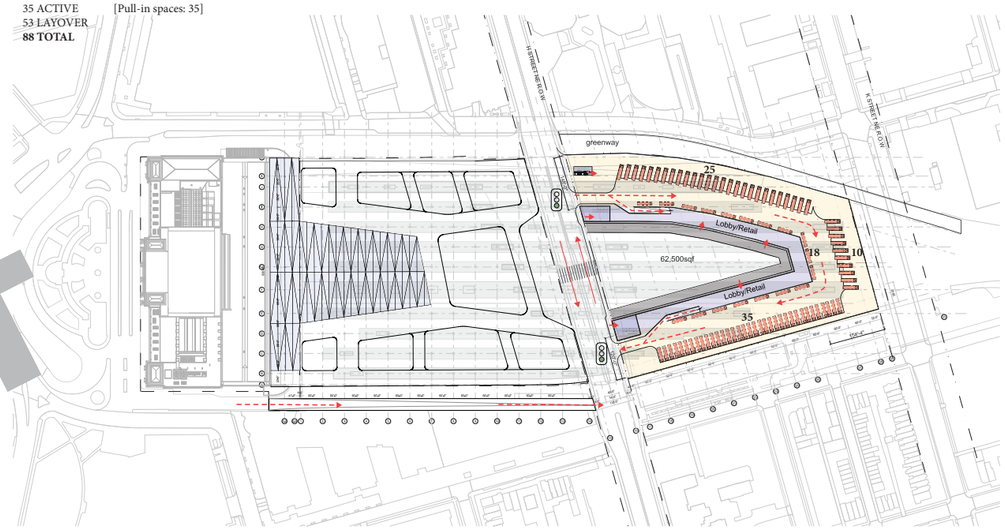
North of H Street Option 7 - Test Fit Overlay

28 ACTIVE [Pull-in spaces: 28]
25 LAYOVER
53 TOTAL



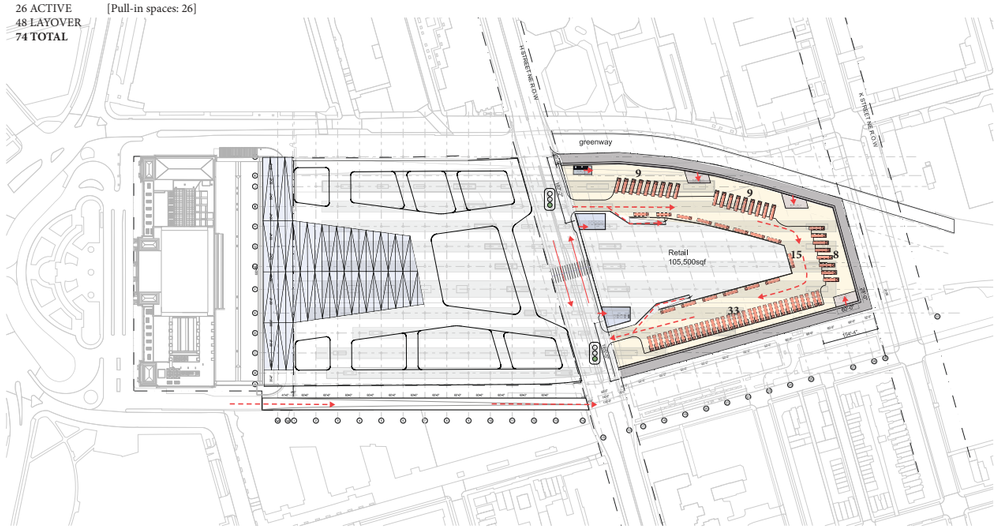
North of H Street Option 2 - MDP 3 Overlay

35 ACTIVE [Pull-in spaces: 35]
53 LAYOVER
88 TOTAL



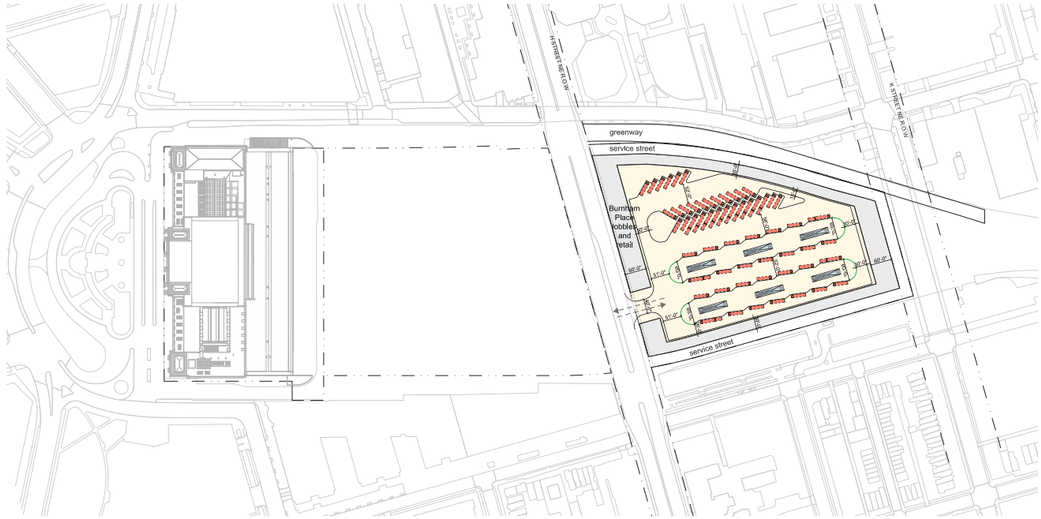
North of H Street Option 3 - MDP 3 Overlay

26 ACTIVE [Pull-in spaces: 26]
48 LAYOVER
74 TOTAL



D1

28 ACTIVE
31 LAYOVERS
59 TOTAL

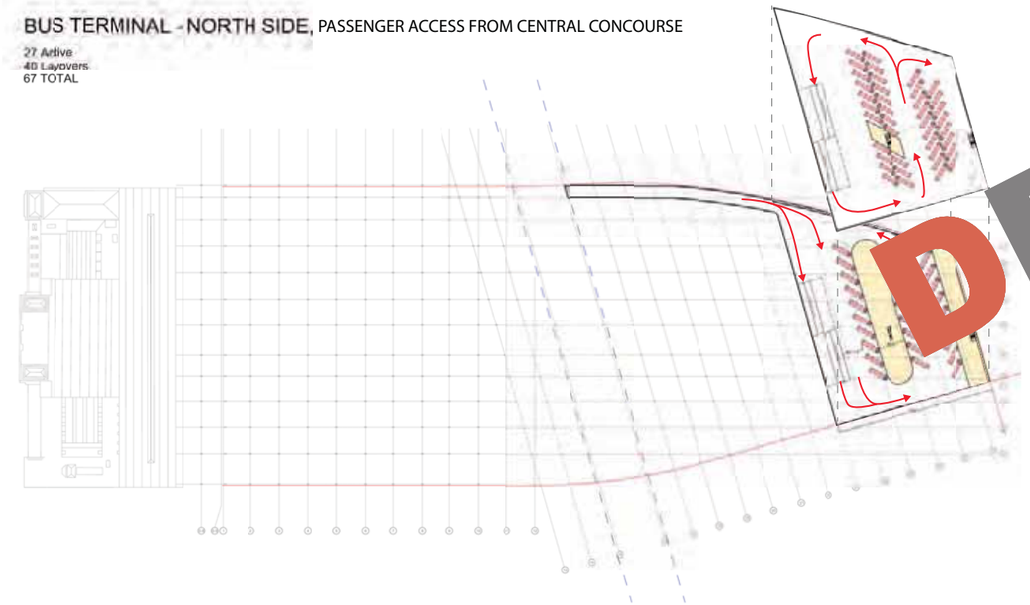


1 2
3 4

BUS STUDY

BUS TERMINAL - NORTH SIDE, PASSENGER ACCESS FROM CENTRAL CONCOURSE

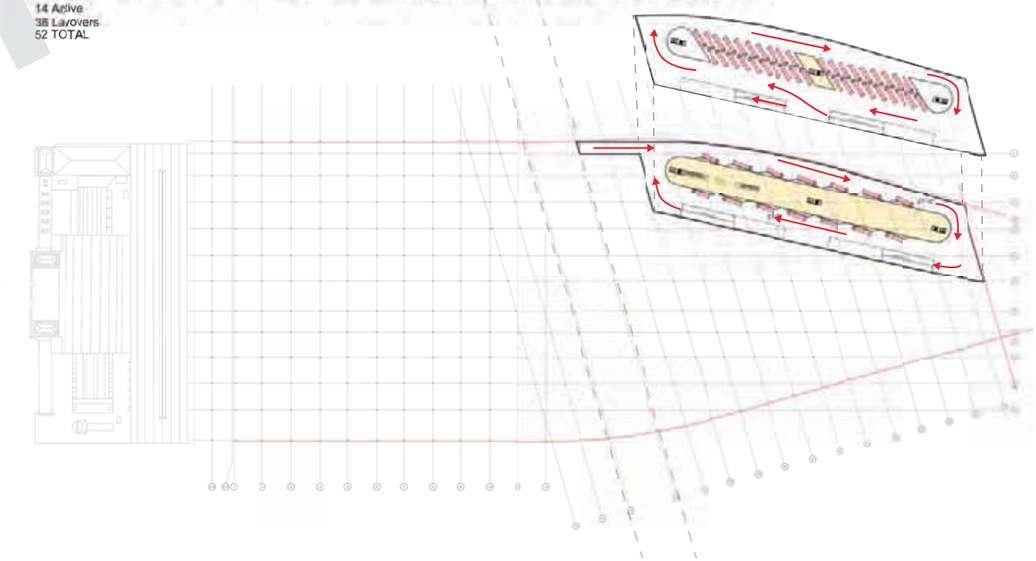
27 Active
40 Layovers
67 TOTAL



1 | 2

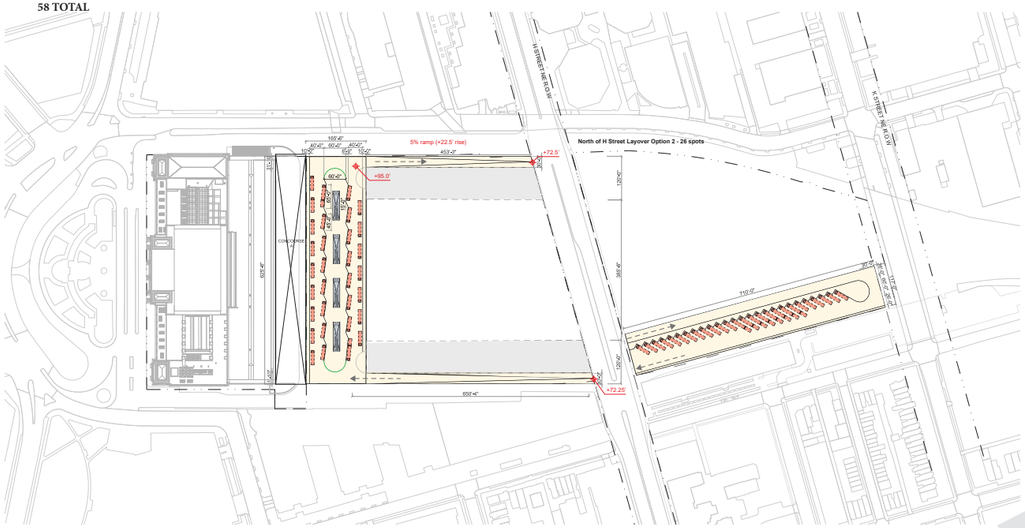
BUS TERMINAL - NORTHWEST SIDE, PASSENGER ACCESS FROM MEZZANINE

14 Active
38 Layovers
52 TOTAL



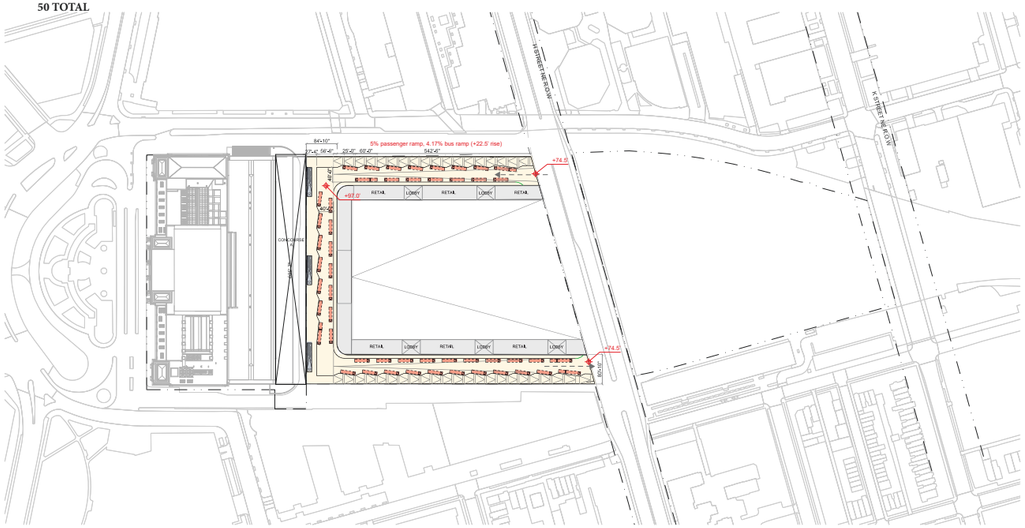
A1

16 ACTIVE
42 LAYOVERS
58 TOTAL



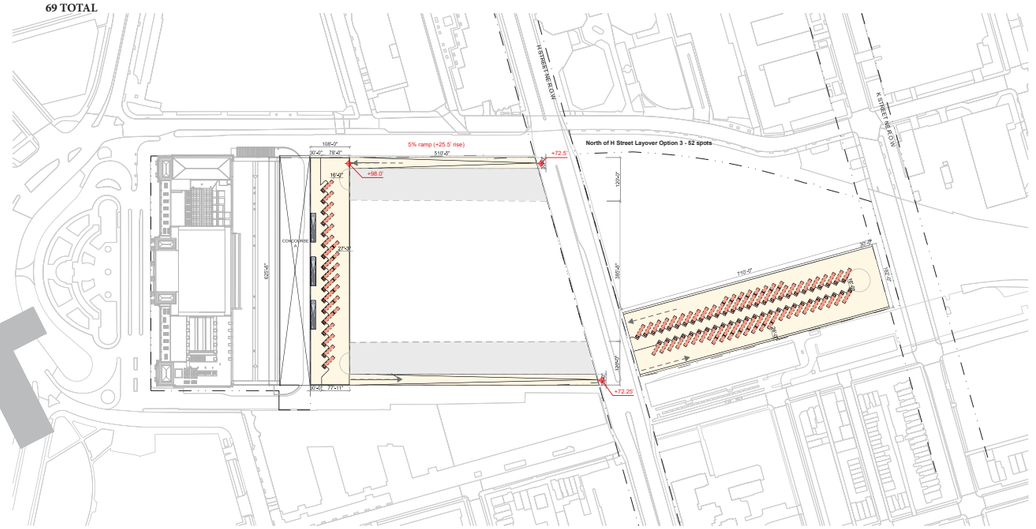
B1

26 ACTIVE
24 LAYOVERS
50 TOTAL



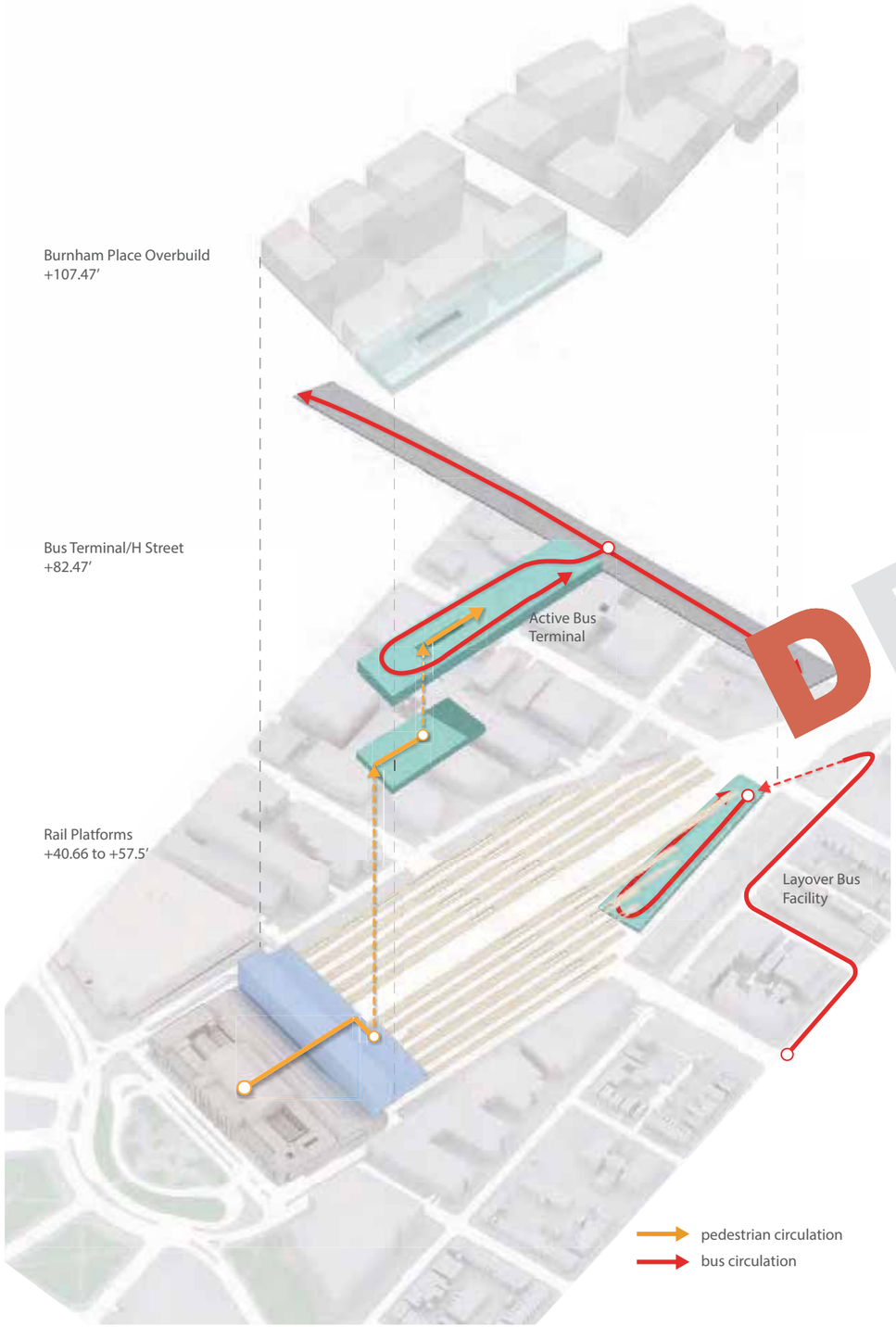
A3

17 ACTIVE
52 LAYOVERS
69 TOTAL



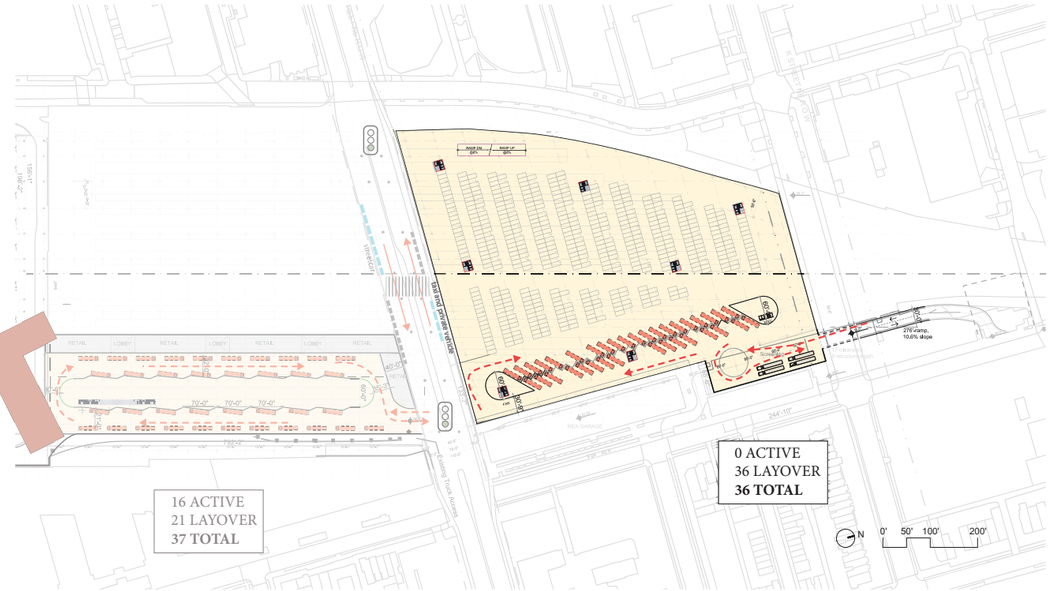
1 2
3 4

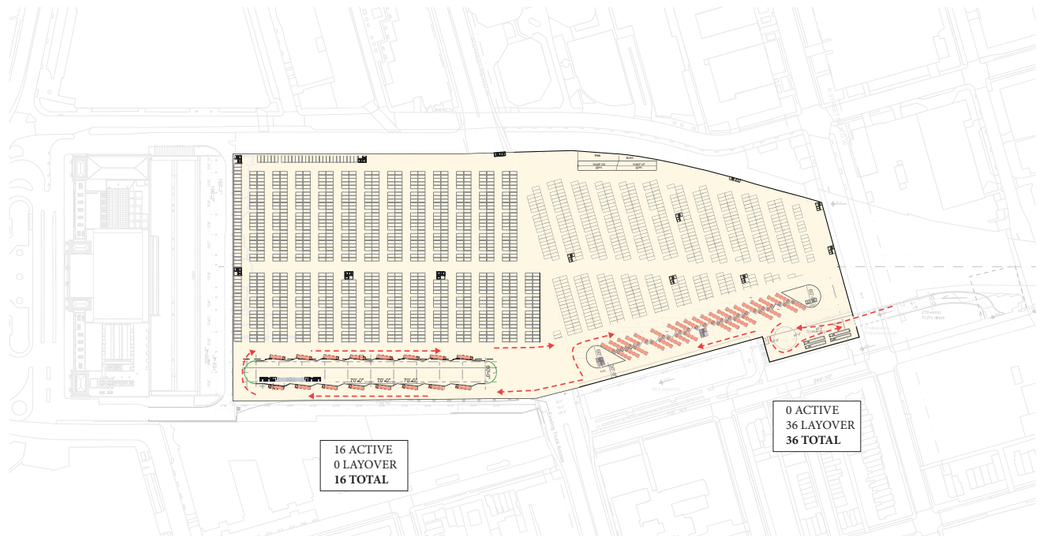
BUS STUDY



1 2 3

Option 4: Southeast Bus Terminal, Layovers North of H Street on Level +12 - Test Fit Overlay





BUS STUDY

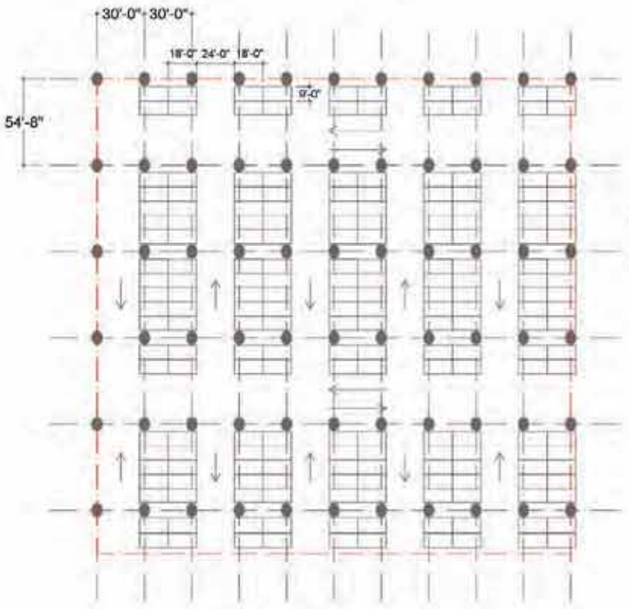
A-5 Compendia of Relevant Planning Studies

Parking

Structure Spacing and Parking Estimate

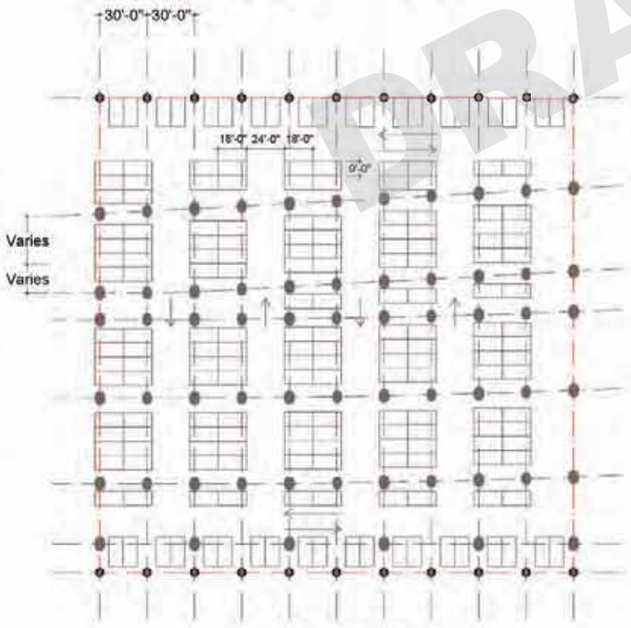
Below Track Structure Spacing
WITHOUT Overbuild Structure

Below Track Structure Spacing
(54'8" x 30')



450 S.F. / Parking Space

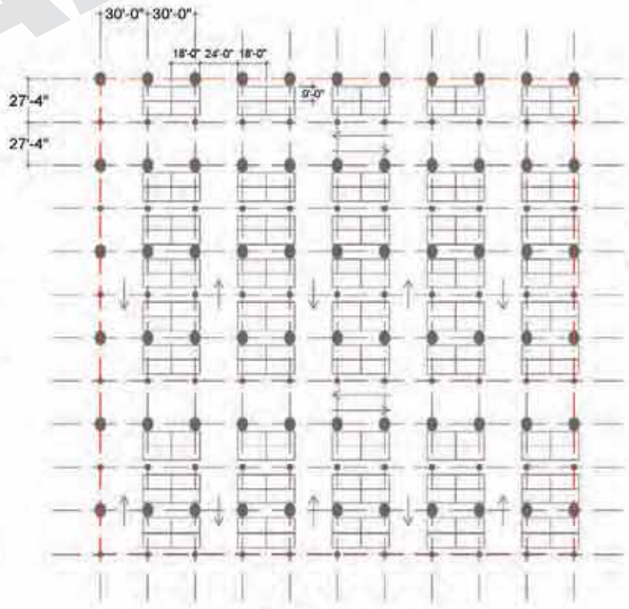
Below Run-Through
(Varying Dim. x 30')



459 S.F. / Parking Space

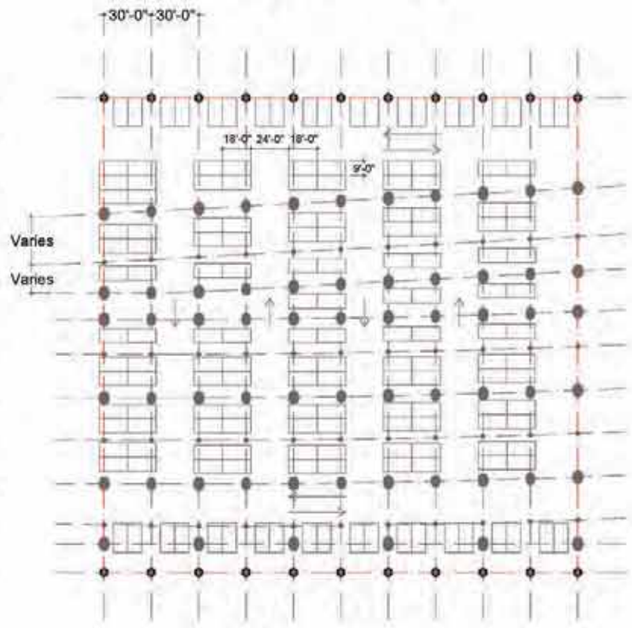
Below Track Structure Spacing
WITH Overbuild Structure

Below Stub-End
(27'-4" x 30')



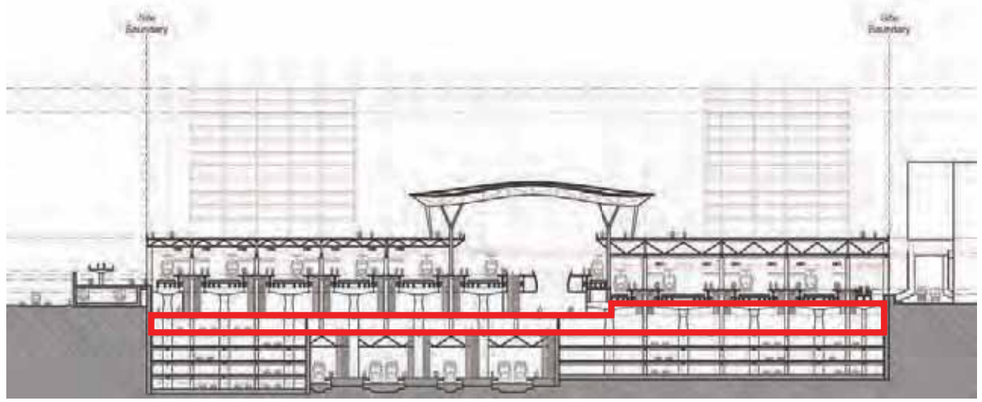
500 S.F. / Parking Space

Below Run-Through
(Varying Dim. x 30')



555 S.F. / Parking Space

Level B2 Plan (no ABGT)



S.F. Program Area
(### S.F.) 20% Reduction for Ramps, VCE, Revenue Control, Mechanical

Egress Corridor

Parking
363,600 S.F.
(290,900 S.F.)

Taxi OR Parking
82,800 S.F.
(66,200 S.F.)

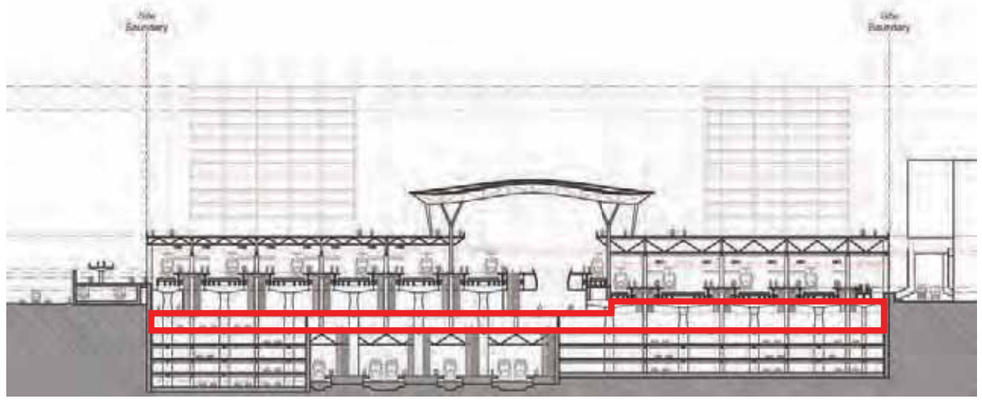
Distribution Corridor

Loading OR Parking
79,600 S.F.
(63,700 S.F.)

Amtrak Service OR Parking
247,500 S.F.
(198,000 S.F.)

Egress Corridor

Level B2 Plan (with ABGT)



S.F. Program Area
(### S.F.) 20% Reduction for Ramps, VCE, Revenue Control, Mechanical

Egress Corridor

ABGT Service

ABGT Mezzanine

Taxi

ABGT Mezzanine

Parking
70,100 S.F.
(56,100 S.F.)

ABGT Service

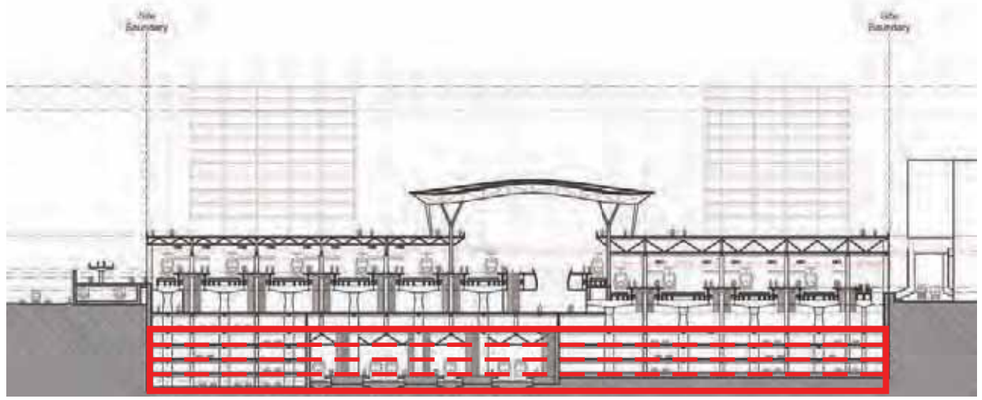
Distribution Corridor

Loading

Amtrak Service

Egress Corridor

Level B3/B4/B5/B6 Plan (no ABGT)



S.F. Program Area
(### S.F.) 20% Reduction for Ramps, VCE, Revenue Control, Mechanical

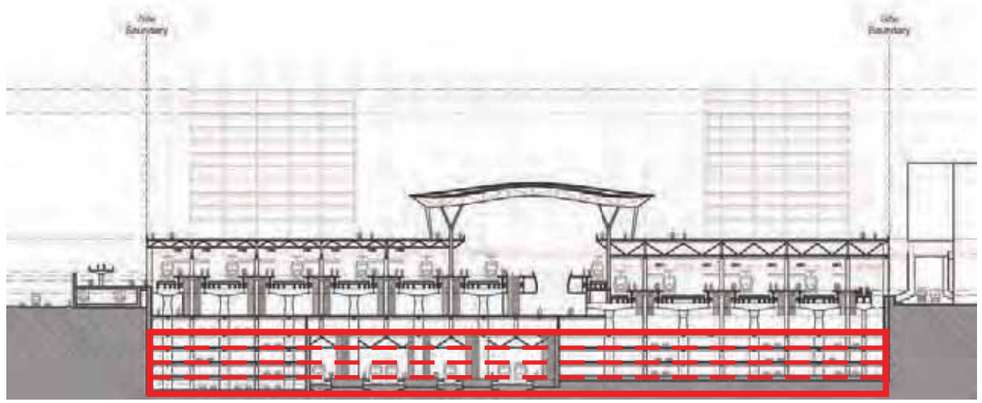
Egress Corridor

Parking
423,800 S.F. (339,000 S.F.)

Parking
434,900 S.F. (347,900 S.F.)

Egress Corridor

Level B3/B4/B5/B6 Plan (with ABGT)



S.F. Program Area
(### S.F.) 20% Reduction for Ramps, VCE, Revenue Control, Mechanical

Egress Corridor

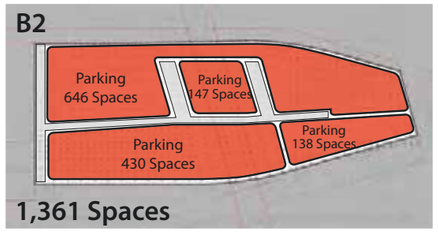
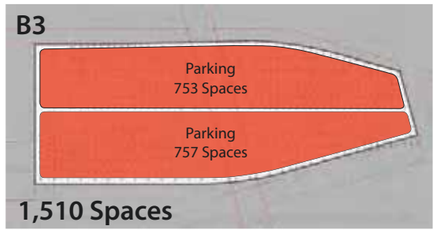
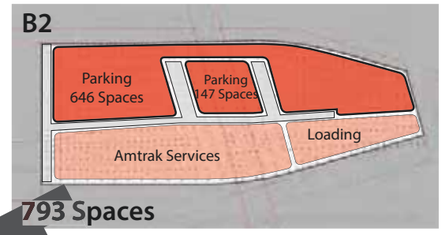
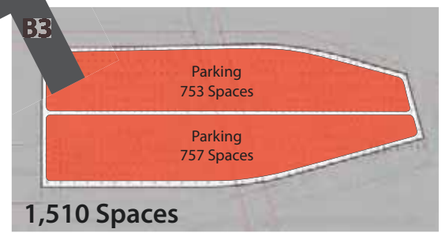
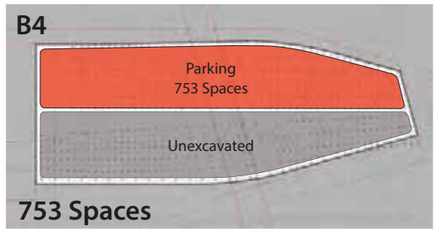
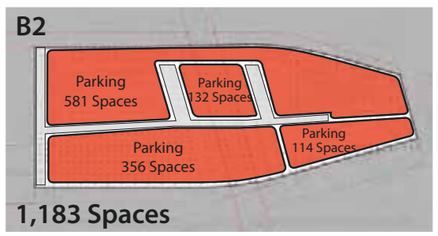
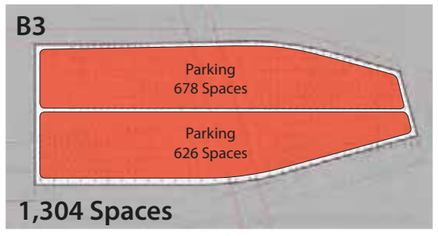
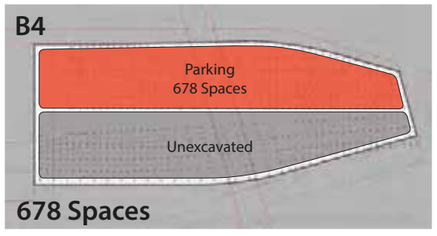
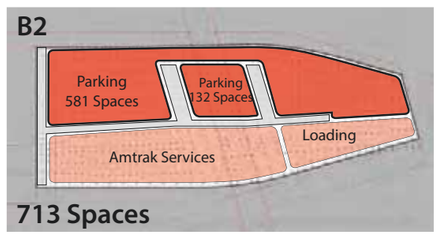
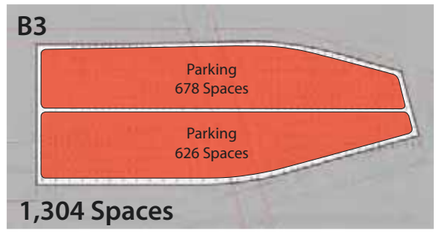
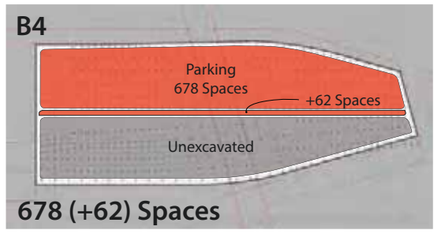
Parking 210,300 S.F. (168,200 S.F.)

ABGT OR Parking
287,900 S.F. (230,300 S.F.)

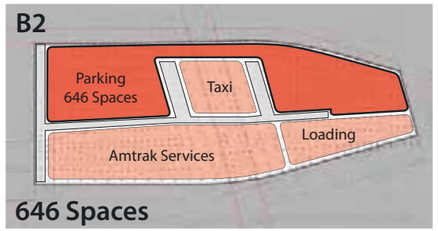
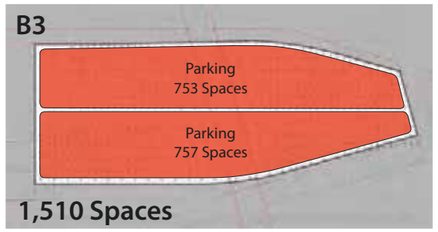
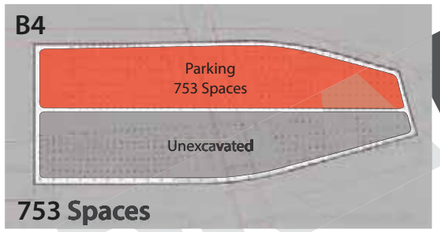
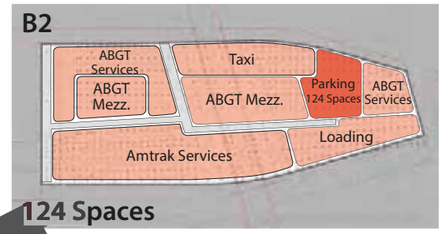
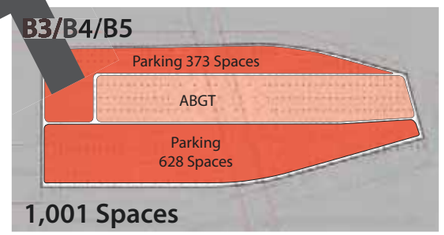
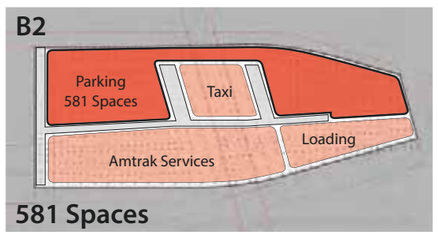
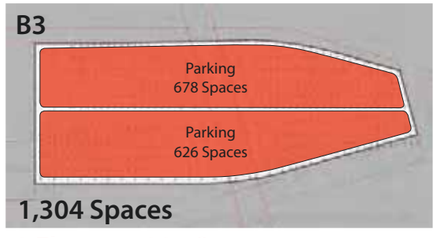
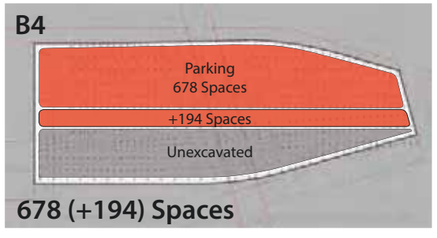
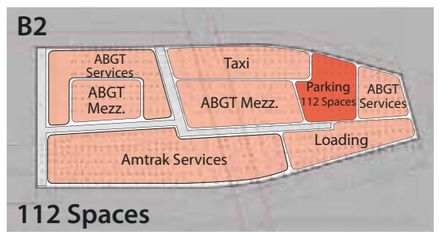
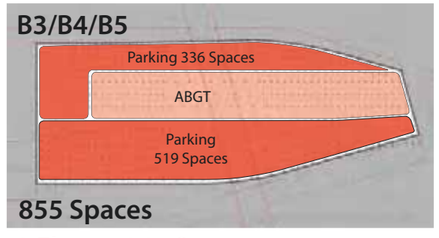
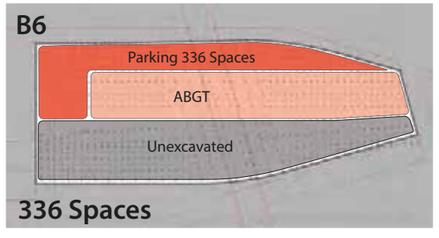
Parking
360,500 S.F. (288,400 S.F.)

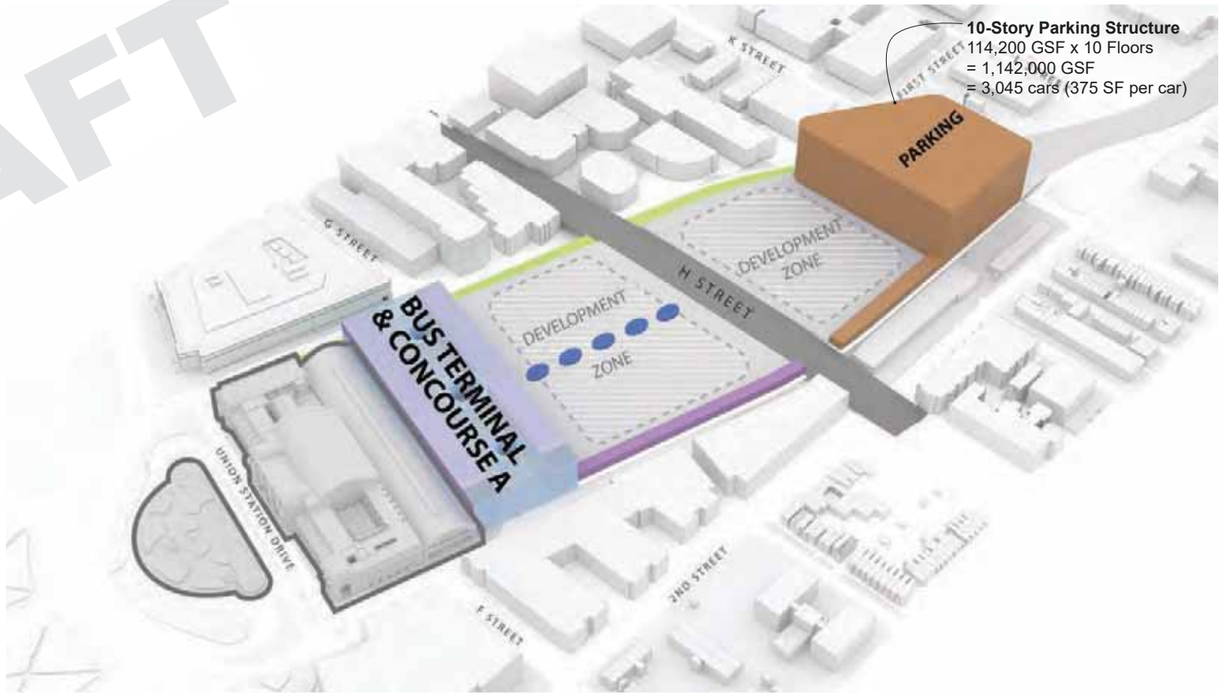
Egress Corridor

Current Target: 2,757 Spaces (Existing Count 2,205 Spaces x 125%)

Structure Spacing	All Parking	Add Loading & Amtrak Service on B2
Below Track Structure Only	  2 Floors: 2,871 Spaces	   2 Floors: 2,303 Spaces 2.5 Floors: 3,056 Spaces
Below Track and Overbuild Structure	   2 Floors: 2,487 Spaces 2.5 Floors: 3,165 Spaces	   2 Floors: 2,017 Spaces 2.5 Floors: 2,757 Spaces

Current Target: 2,757 Spaces (Existing Count 2,205 Spaces x 125%)

Structure Spacing	Add Taxi on B2	Add ABGT on B3/B4/B5/B6
Below Track Structure Only	   **2 Floors: 2,156 Spaces** **2.5 Floors: 2,909 Spaces**	  **2 Floors: 1,125 Spaces** **3 Floors: 2,126 Spaces** **4 Floors: 3,127 Spaces**
Below Track and Overbuild Structure	   **2 Floors: 1,885 Spaces** **2.5 Floors: 2,757 Spaces**	   **2 Floors: 967 Spaces** **3 Floors: 1,822 Spaces** **4 Floors: 2,677 Spaces** **4.5 Floors: 3,013 Spaces**

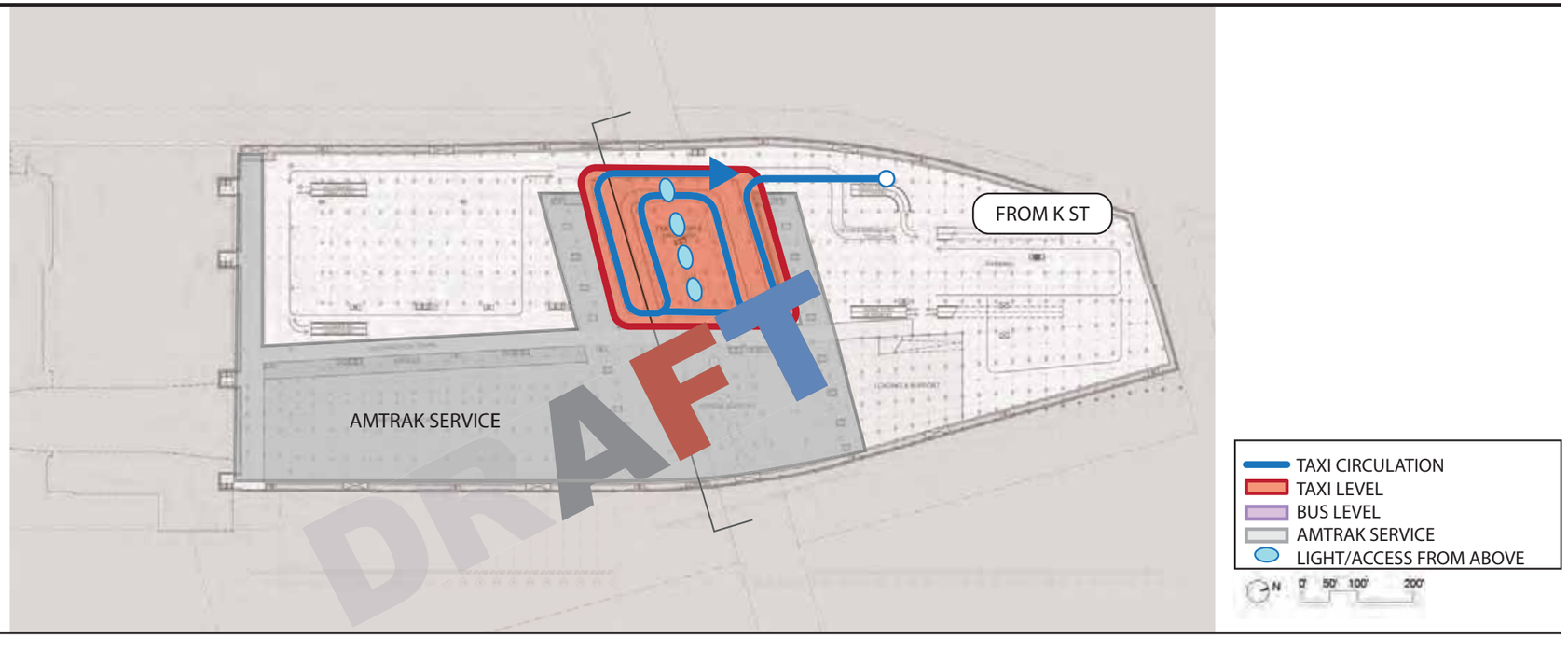


STANDALONE PARKING STRUCTURE NORTH OF H STREET

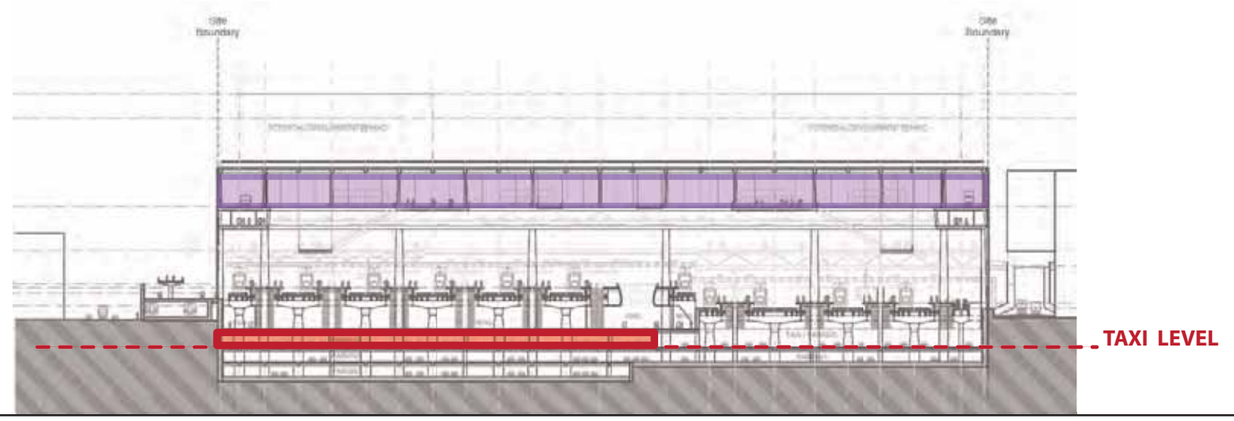
A-5 Compendia of Relevant Planning Studies

Taxi

TAXI QUEUE, PICK-UP AND DROP-OFF BELOW H STREET CONCOURSE

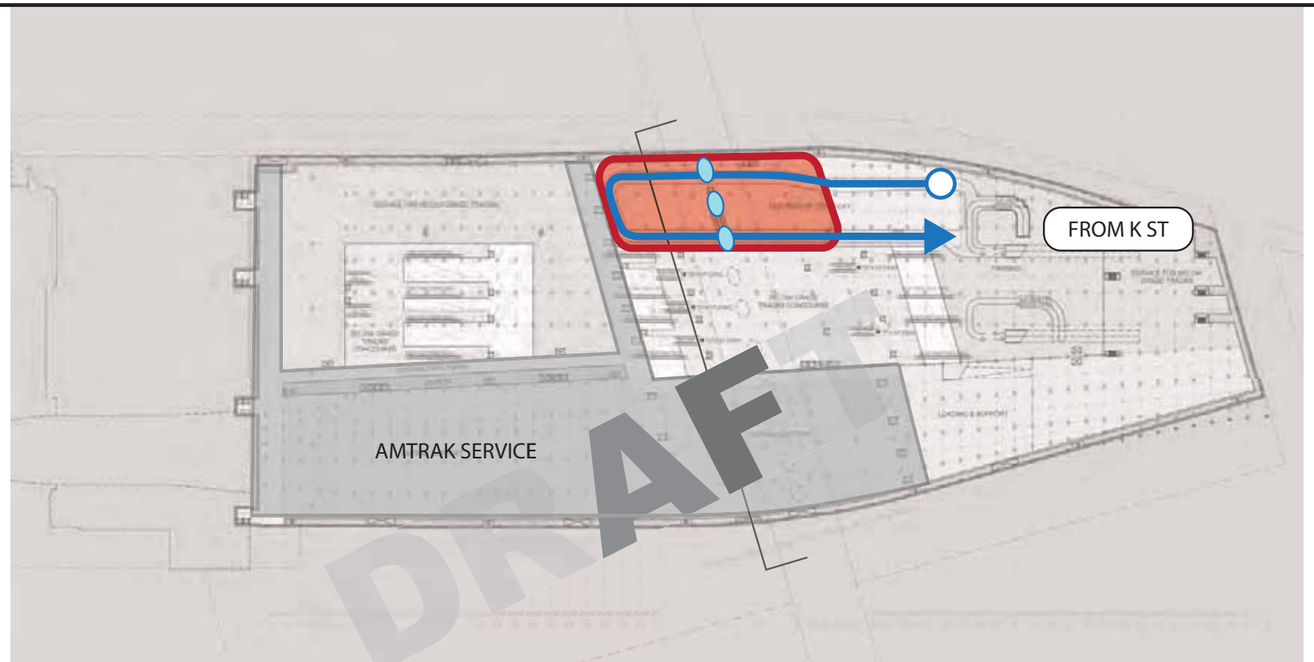


B2 LEVEL

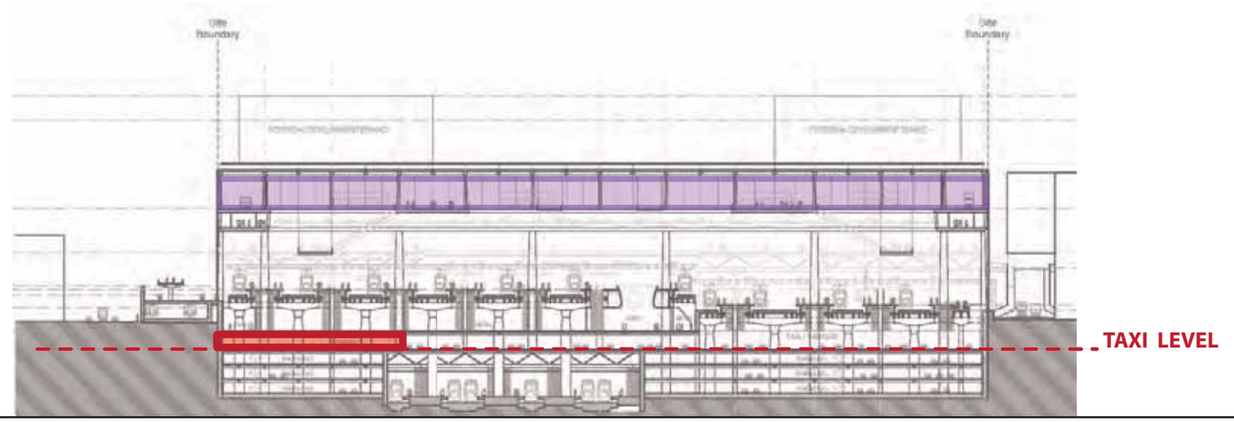


TRANSVERSE SECTION

TAXI QUEUE, PICK-UP AND DROP-OFF BELOW H STREET CONCOURSE - WITH ADDITIONAL BELOW GRADE TRACKS

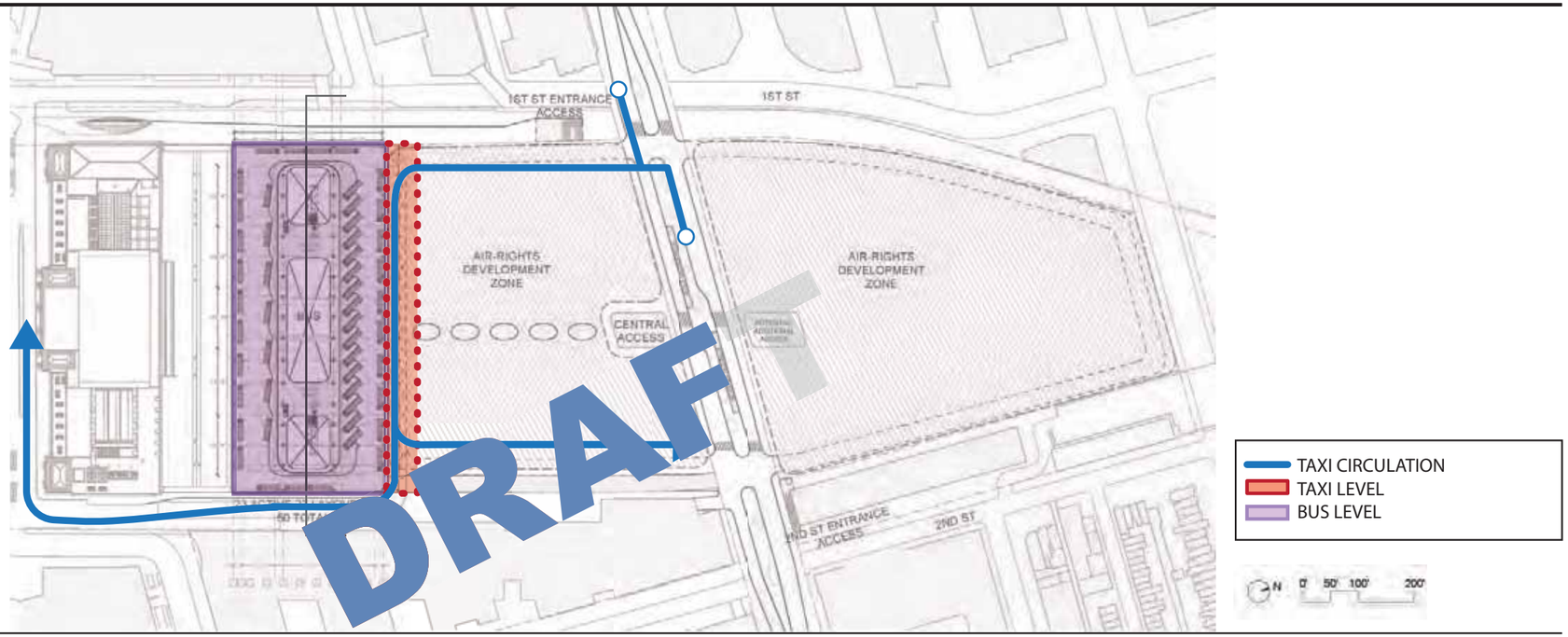


B2 LEVEL



TRANSVERSE SECTION

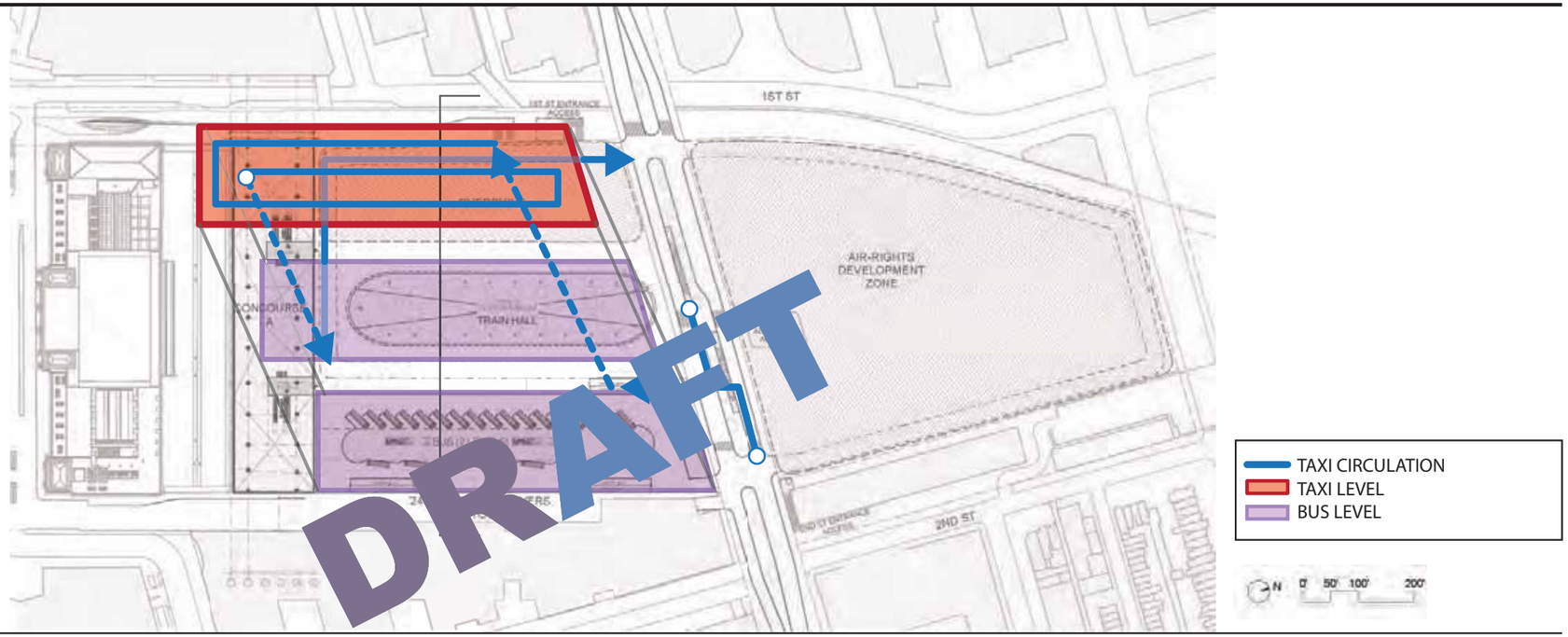
BUS TERMINAL AT SOUTH - TAXI ON DECK



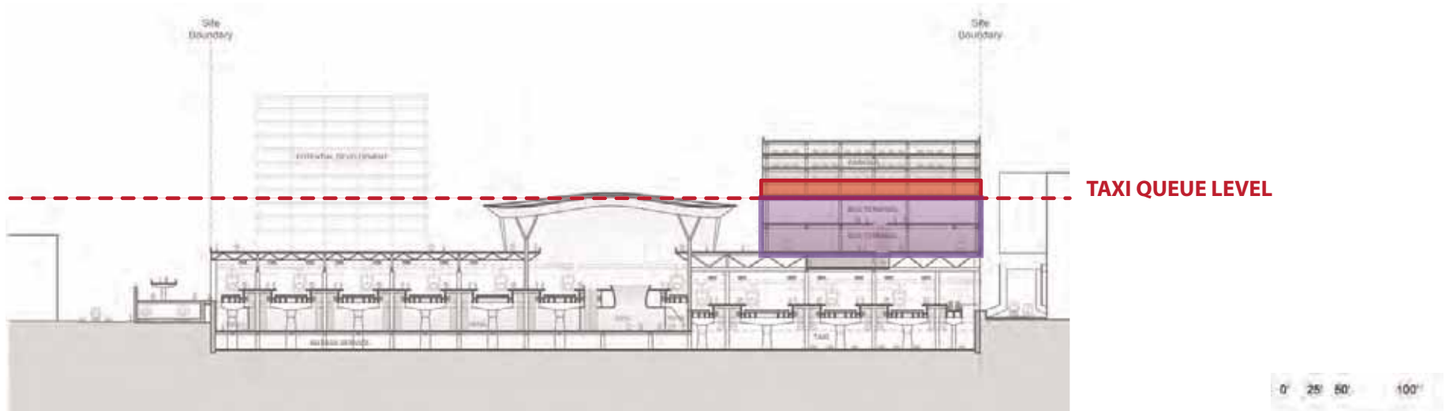
DECK LEVEL

TRANSVERSE SECTION

BUS TERMINAL AT SOUTHEAST - TAXI ABOVE

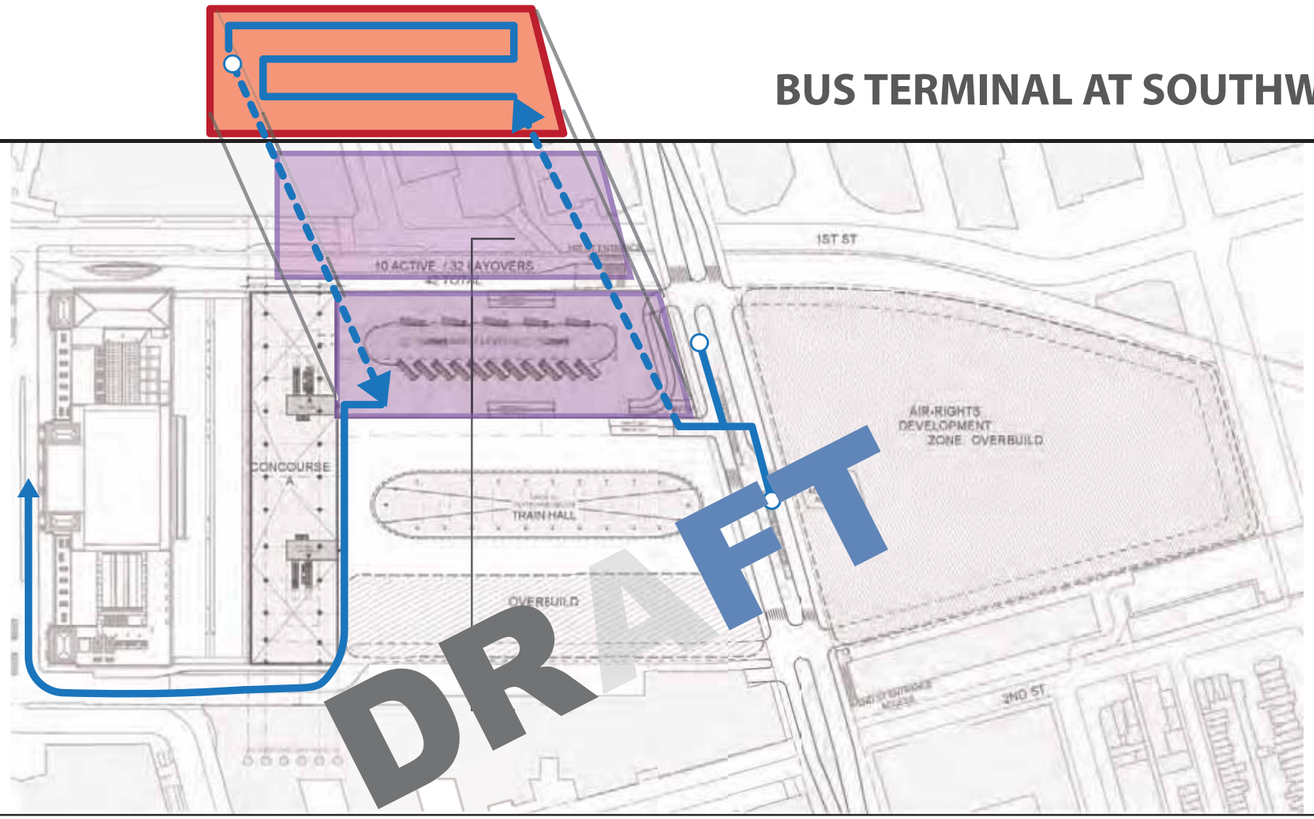


LEVEL 3 - SOUTHEAST BUS TERMINAL

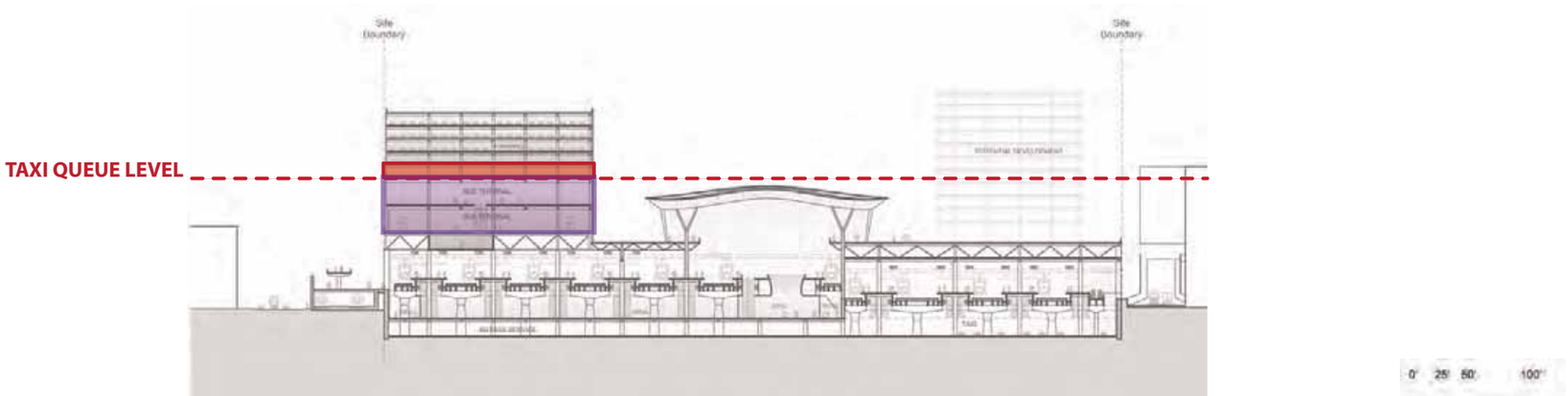


TRANSVERSE SECTION

BUS TERMINAL AT SOUTHWEST - TAXI ABOVE

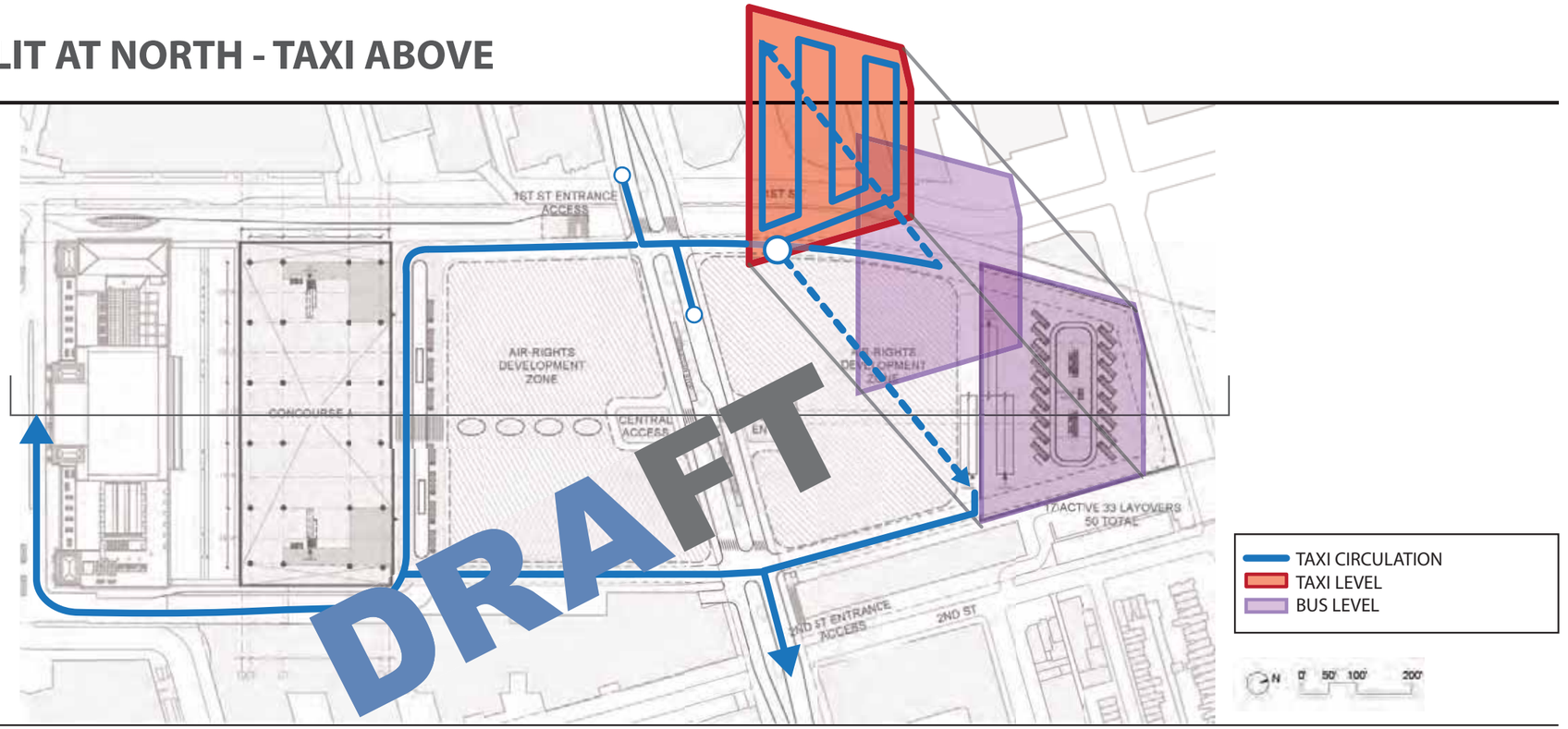


LEVEL 3 - SOUTHWEST BUS TERMINAL

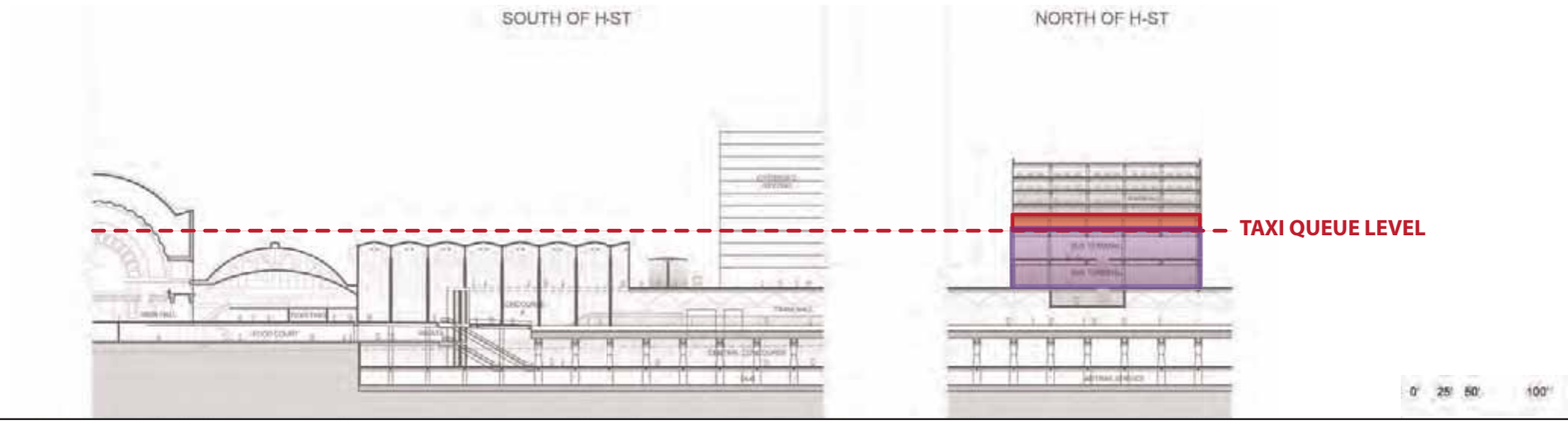


TRANSVERSE SECTION

BUS TERMINAL SPLIT AT NORTH - TAXI ABOVE



LEVEL 3 - BUS TERMINAL AT NORTH



LONG SECTION

A-5 Compendia of Relevant Planning Studies

Access & Loading

Service Access / Loading

A number of options have been developed that could accommodate the localization of service access, screening facility, and loading dock with varying degress of efficiency, to service both retail and rail-based loading operations.

After entering the screening facility, trucks would be screened and then proceed to the loading dock. Alternatively, trucks would be rejected after screening and quickly redirected away from the premises. Smaller trucks where visual screening would be performed continue to operate at the existing east and west loading docks, while large trucks are screened off-site away from the tracks and platforms.

Option 1. Southwest Corner of K and 2nd Street

Located on the southwest corner of K and 2nd Street, trucks enter through the existing REA building drive and get screened in open air at elevation +51.5'. The facility slopes down in order to meet street level for rejection at K Street and clearance requirements under the tracks prior to entering the loading dock area. While the rejection travel distance is short, rejected trucks presenting a threat to the station are discharged into a residential neighborhood by the screening facility. In addition, large truck queues are expected during peak hours, creating undesirable pollution, noise, and traffic levels to the adjacent residential neighborhood.

- Clearance: Enough clearance is provided under the tracks leading to the loading dock
- Rejection ease: Easy truck discharge into K Street
- Traffic Planning: Truck traffic and rejected trucks cause a detrimental impact on the adjacent residential neighborhood.
- Operational Compliance: Truck turning radius is sufficient for entering, exiting, and rejecting trucks

Option 2. Truck Entrance on 2nd and L Street

Located underground below the northwest corner of K and 2nd Street, trucks enter one block north through 2nd Street, sloping down to the screening facility underground at elevation +6.0'. The facility is at grade with the loading dock, and rejected trucks need to travel though the 415-foot-long ramp to exit back into 2nd Street. While the rejection travel distance is long, rejected trucks presenting a threat to the station are discharged into a street zone with no adjacent buildings at the moment.

- Clearance: Enough clearance is provided under the tracks leading to the loading dock
- Rejection ease: Long travel distance for truck discharge into 2nd Street
- Traffic Planning: Truck traffic and rejected trucks travel through 2nd and L Street surrounded by empty lots
- Operational Compliance: Truck turning radius is sufficient for entering, exiting, and rejecting trucks

Option 3. Truck entrance on L Street

Located on the southeast corner of 1st and L Street, trucks enter a combined screening and loading facility through L Street at elevation +38.0'. The facility is at grade and rejected trucks exit to 1st Street. Given the spacious area of the lot, the facility can easily accommodate for larger loading requirements and multiple trucks. Once sorted, forklifts or other small vehicles take the loads down a ramp under the tracks to the northwest corner of the station below the concourse level where they enter a network of service circulation paths that service rail and retail throughout the station.

- Clearance: Enough clearance is provided for forklifts passing under the tracks at K Street
- Rejection ease: Easy truck discharge into 1st Street
- Traffic Planning: Truck traffic and rejected trucks travel through 1st and L Street surrounded by a parking lot to the north and commercial buildings to the west
- Operational Compliance: Truck turning radius is met for entering, exiting, and rejecting trucks

Option 4. Southwest Corner of K and 2nd Street - Entrance from K Street

Located on the southwest corner of K and 2nd Street, trucks enter from K Street and get screened in open air at elevation +40.0'. This entrance requires demolition of a portion of the K Street Bridge above. The facility initially slopes up in order to meet street level for rejection at K Street. Once passed the rejection exit, the facility slopes down in order to meet clearance requirements under the tracks prior to entering the loading dock area. While the rejection travel distance is short, rejected trucks presenting a threat to the station are discharged into a residential neighborhood by the screening facility. In addition, large truck queues are expected during peak hours, creating undesirable pollution, noise, and traffic levels to the adjacent residential neighborhood.

- Clearance: Enough clearance is provided under the tracks leading to the loading dock
- Rejection ease: Easy truck discharge into K Street
- Traffic Planning: Truck traffic and rejected trucks cause a detrimental impact on the adjacent residential neighborhood and intersection.
- Operational Compliance: Truck turning radius is sufficient for entering, exiting, and rejecting trucks

Option 5. Screening and loading at REA Building

Located at the existing REA building, trucks enter from 2nd Street and back into the loading bays. The loads get screened inside the building as trucks are unloaded, at elevation +51.5'. Forklifts or other small vehicles take the loads down a ramp adjacent to the tracks to the northwest corner of the station below the concourse level where they enter a network of service circulation paths that service rail and retail throughout the station. While the rejection travel distance is short, rejected trucks presenting a threat to the station are discharged into a residential neighborhood by the screening facility. In addition, large truck queues are expected during peak hours, creating undesirable pollution, noise, and traffic levels to the adjacent residential neighborhood.

- Clearance: Enough clearance is provided under the tracks leading to the loading dock
- Rejection ease: Easy truck discharge into K Street
- Traffic Planning: Truck traffic and rejected trucks cause a detrimental impact on the adjacent residential neighborhood.
- Operational Compliance: Truck turning radius is sufficient for entering, exiting, and rejecting trucks

Option 6. Truck entrance between 3rd and L Street

Located on the southeast corner of 2st and L Street, trucks enter a combined screening and loading facility through L Street at elevation +42.0'. The facility slopes down in order to meet clearance requirements under the tracks prior to entering the loading dock area. Given the spacious area of the lot, the facility can easily accommodate for larger loading requirements and multiple trucks. Once sorted, forklifts or other small vehicles take the loads down a ramp under the tracks to the northwest corner of the station below the concourse level where they enter a network of service circulation paths that service rail and retail throughout the station.

- Clearance: Enough clearance is provided for forklifts passing under 2nd and K Street
- Rejection ease: Easy truck discharge into L Street
- Traffic Planning: Truck traffic and rejected trucks travel east of L Street, where small scale commercial buildings are located
- Operational Compliance: Truck turning radius is met for entering, exiting, and rejecting trucks

Existing Loading Facilities

Existing Loading Facilities

While large trucks are screened off-site, smaller trucks may potentially continue to operate at the existing east and west loading docks where a visual screening can be performed. If this scnario meets the project security criteria, then the planning of the existing loading docks within its new context would be the following:

Existing west loading dock

While the existing west loading dock services historic station retail and AMTRAK services for the stub end tracks, the reconfigured loading dock services the historic station loading and removals only, with direct access to a back-of-house corridor behind the food court. A visual screening is performed prior to pulling into the loading dock.

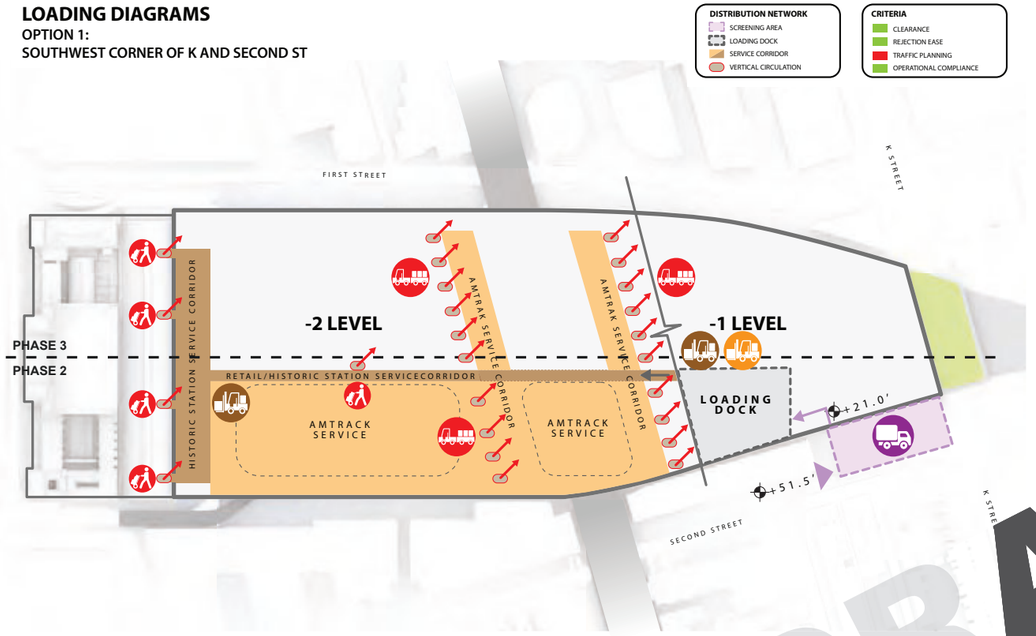
With the new TI plan, large trucks servicing rail do not have a direct connection to AMTRAK areas on the historic level servicing the stub end tracks from below. In addition, rail loading requires truck screening, which cannot be accommodated in the existing west loading dock. The existing condition therefore allows for an efficient loading and removal facility for the historic station retail and food court.

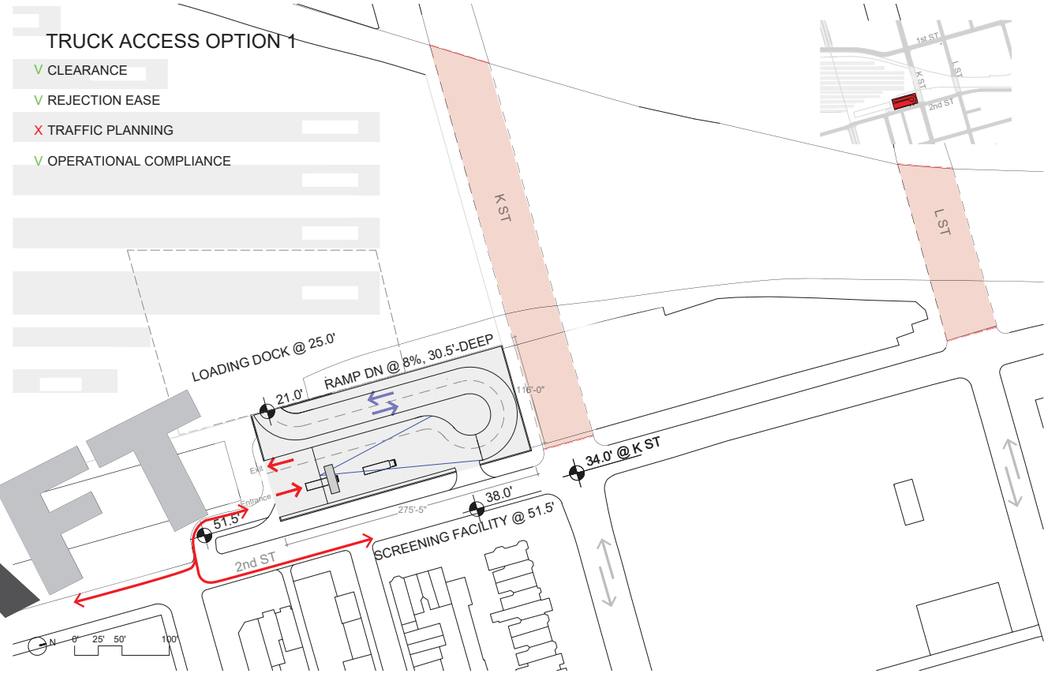
Existing east loading dock

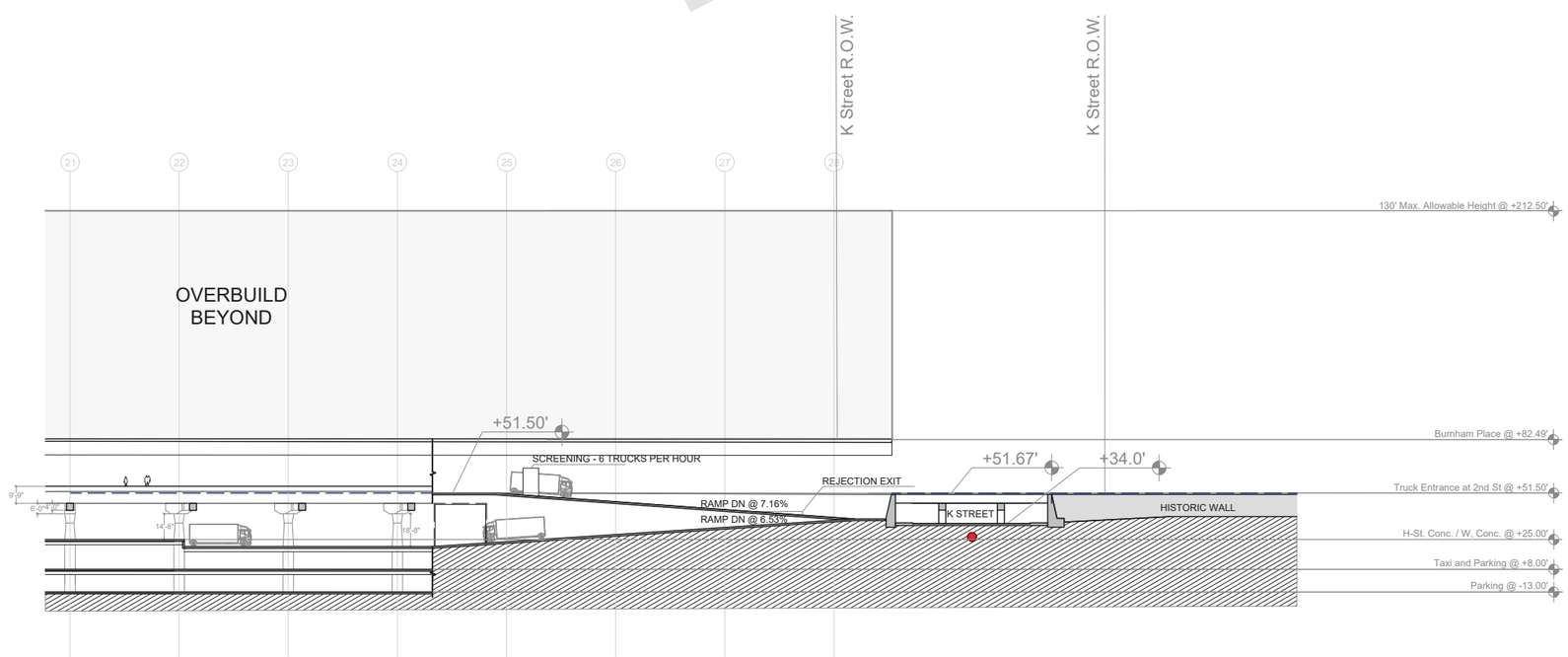
While the existing east loading dock services historic station retail and AMTRAK services for the run thru tracks, the reconfigured loading dock services the historic station loading and removals only, with direct access to a back-of-house area servicing the historic station. A visual screening is performed at the H Street Bridge before trucks enter the service road to the loading dock.

With the new concourse level, large trucks servicing rail do not have a direct connection to AMTRAK areas distributing the loads to the run thru tracks from below. In addition, rail loading requires truck screening, which cannot be accommodated in the existing east loading dock. The existing condition therefore allows for an efficient loading and removal facility for the historic station retail.

LOADING DIAGRAMS
OPTION 1:
SOUTHWEST CORNER OF K AND SECOND ST





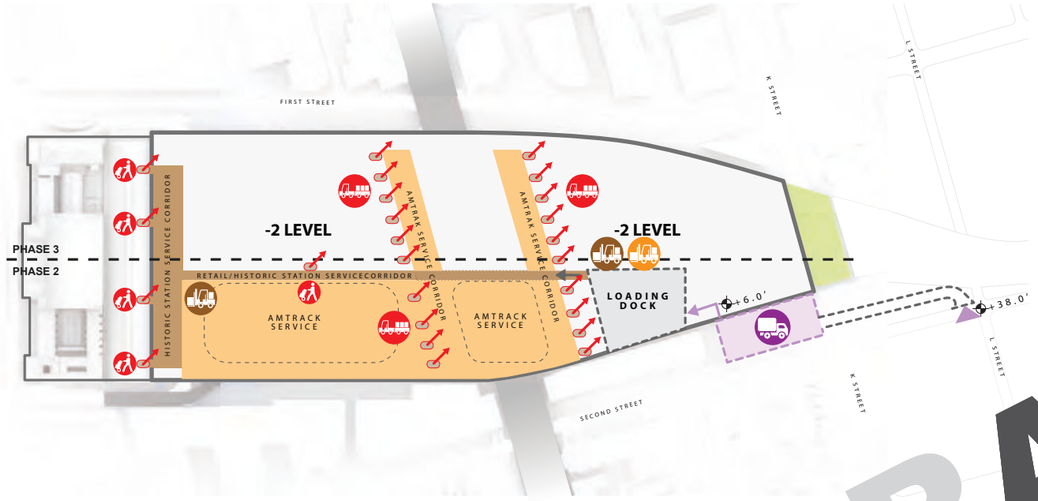


LOADING STUDY
OPTION 1

LOADING DIAGRAMS
OPTION 2:
TRUCK ENTRANCE ON SECOND AND L STREET

DISTRIBUTION NETWORK
- SCREENING AREA
- LOADING DOCK
- SERVICE CORRIDOR
- VERTICAL CIRCULATION

CRITERIA
- CLEARANCE
- REJECTION EASE
- TRAFFIC PLANNING
- OPERATIONAL COMPLIANCE



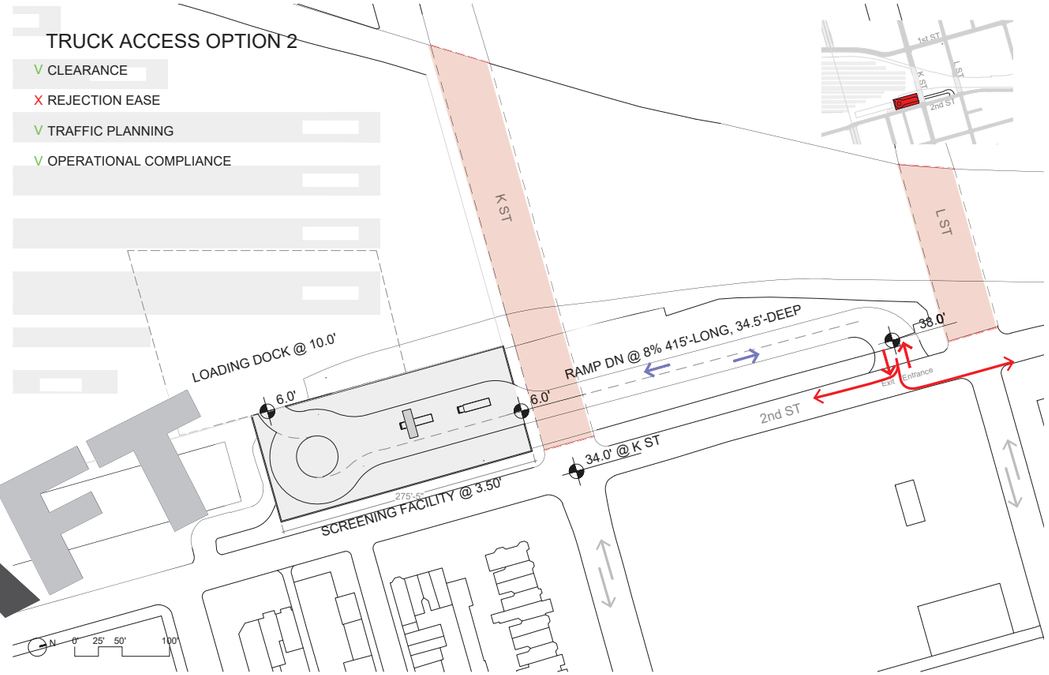
TRUCK ACCESS OPTION 2

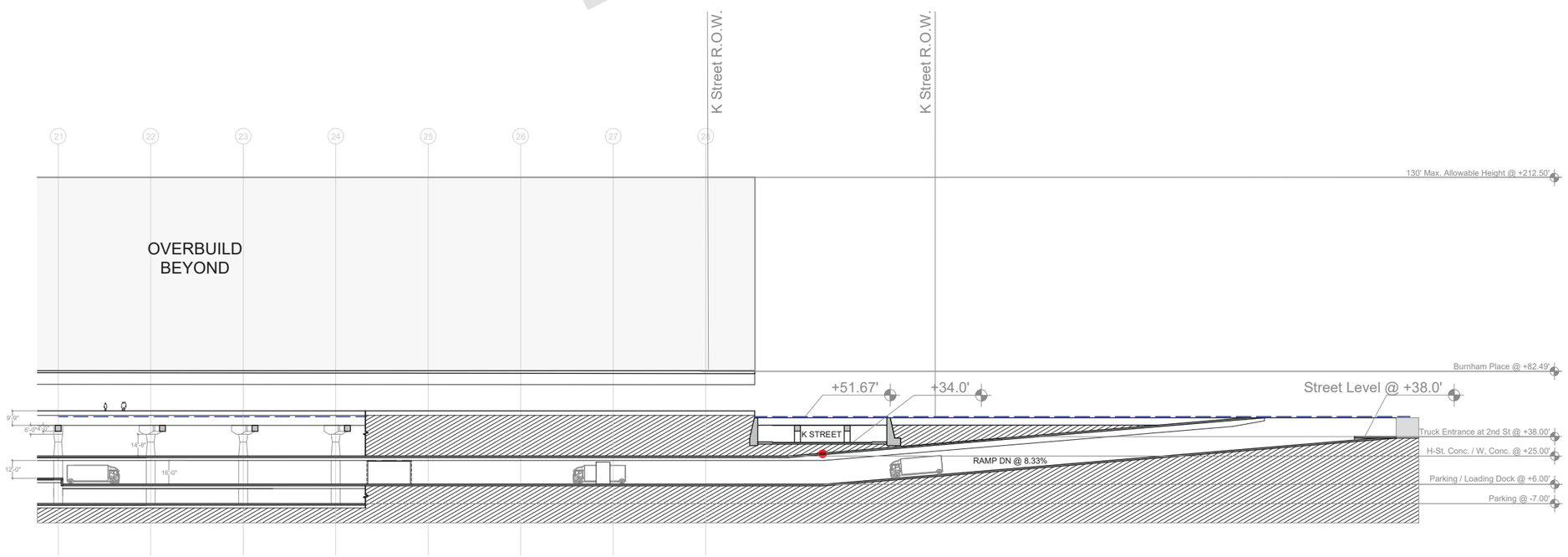
V CLEARANCE

X REJECTION EASE

V TRAFFIC PLANNING

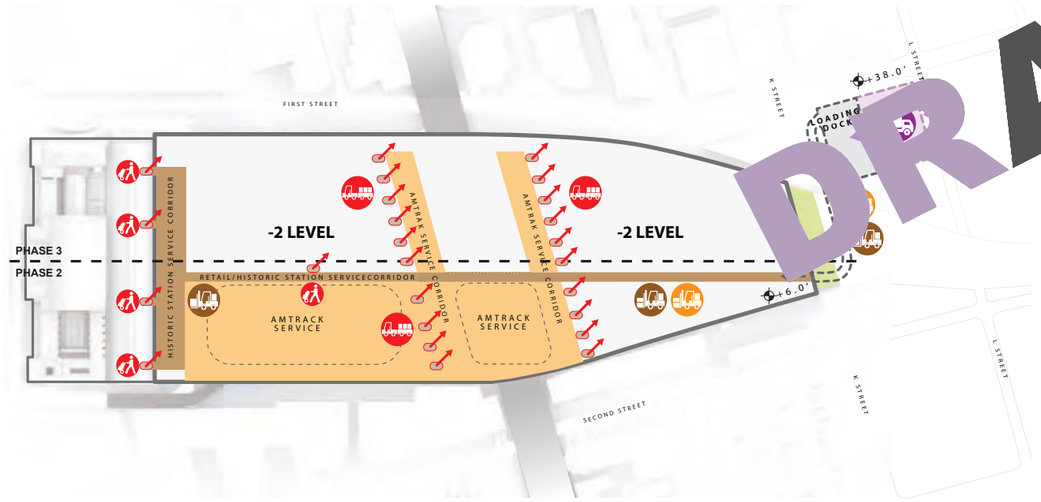
V OPERATIONAL COMPLIANCE

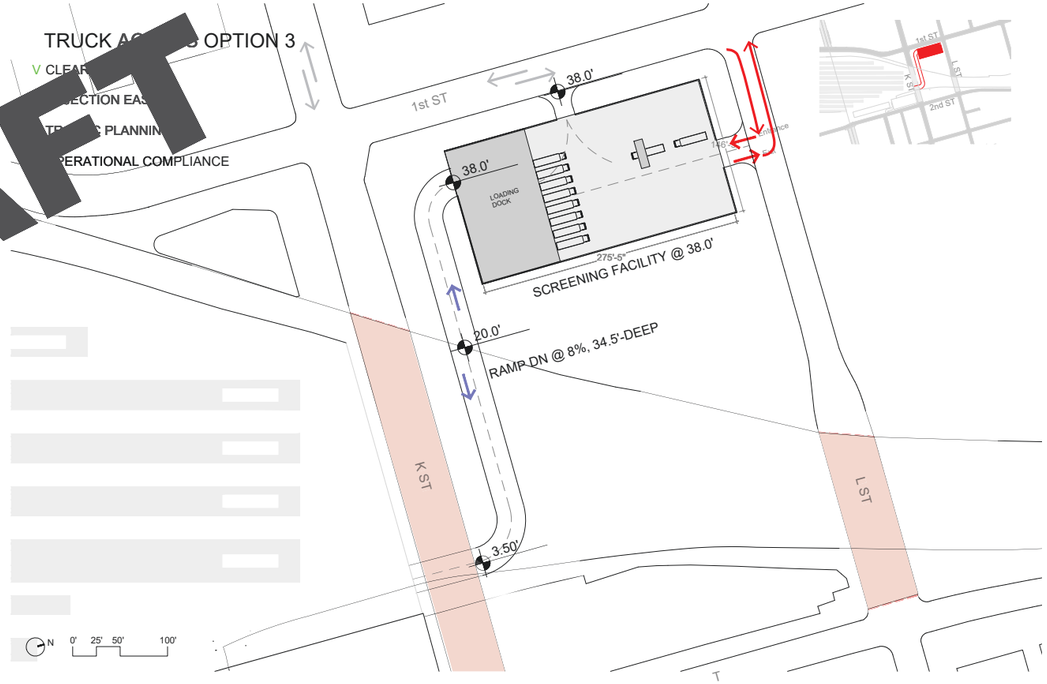




LOADING STUDY
OPTION 2

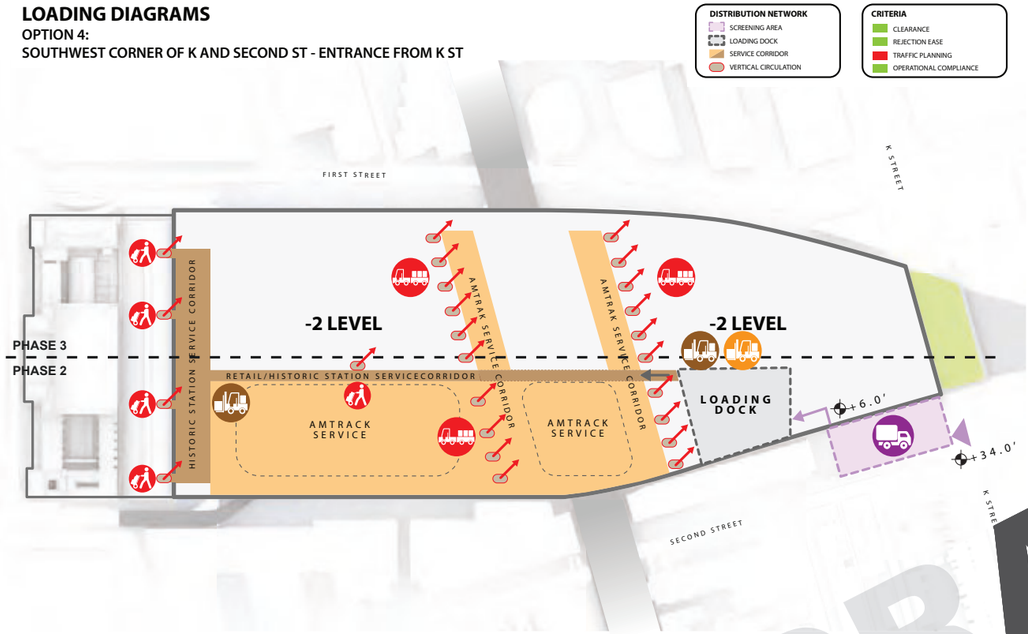
LOADING DIAGRAMS
OPTION 3:
TRUCK ENTRANCE ON SECOND AND L STREET

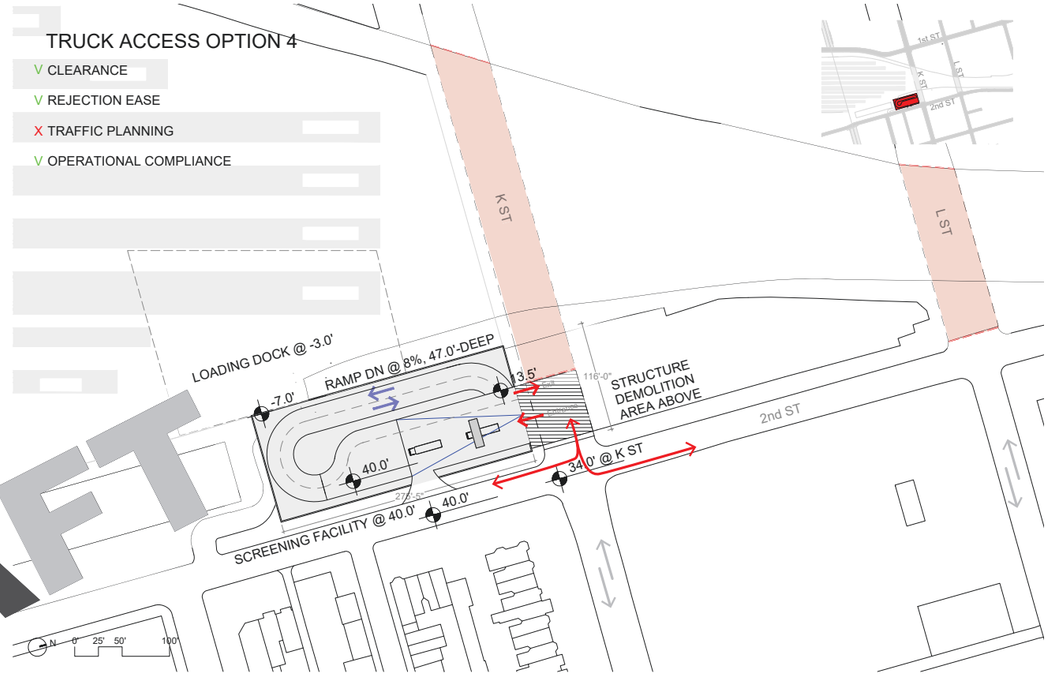


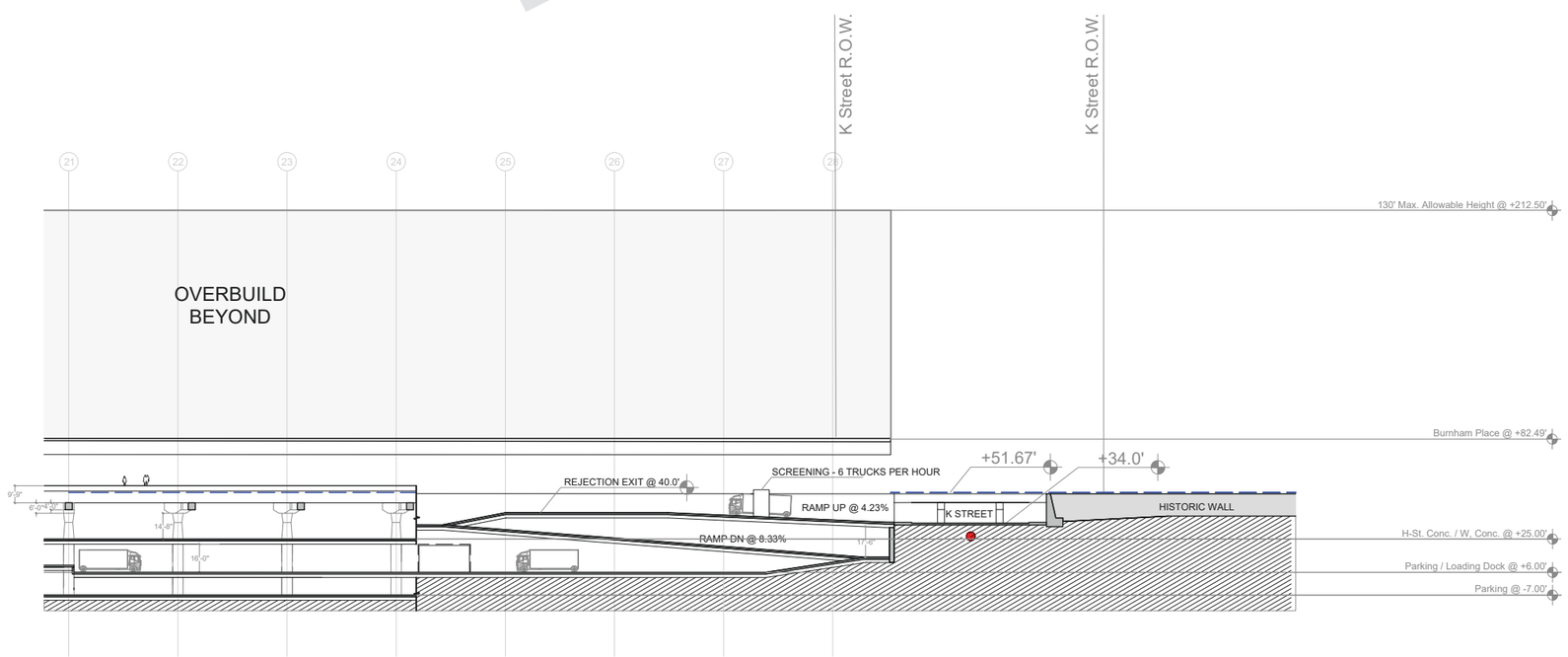


LOADING STUDY
OPTION 3

LOADING DIAGRAMS
OPTION 4:
SOUTHWEST CORNER OF K AND SECOND ST - ENTRANCE FROM K ST

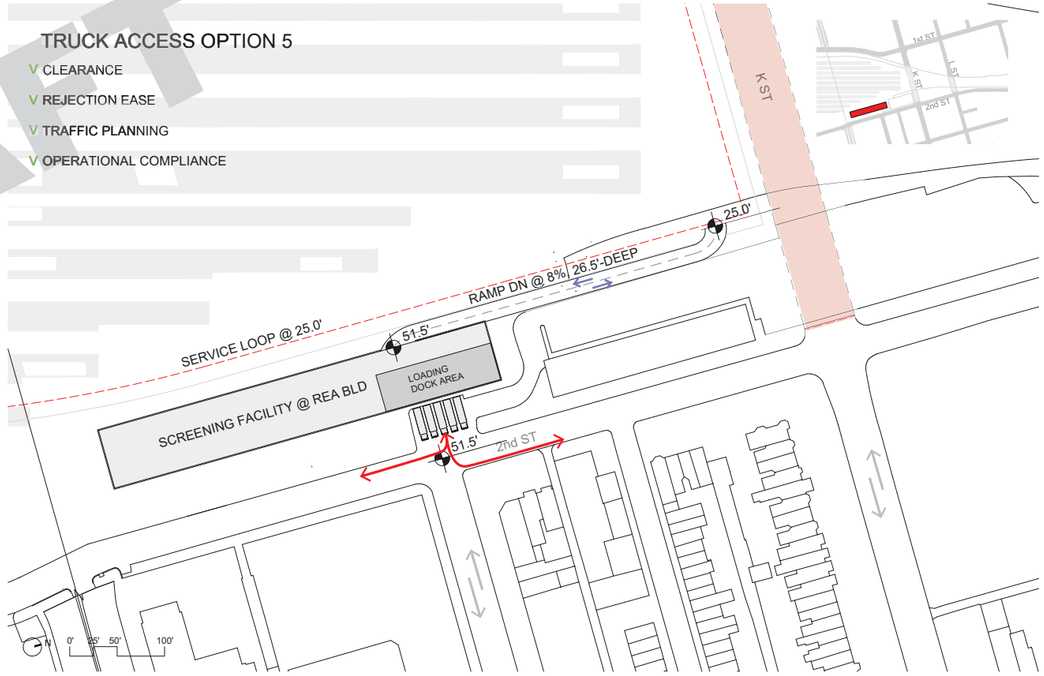






LOADING STUDY
OPTION 4

LOADING DIAGRAMS
OPTION 5:
SCREENING AND LOADING AT REA BUILDING

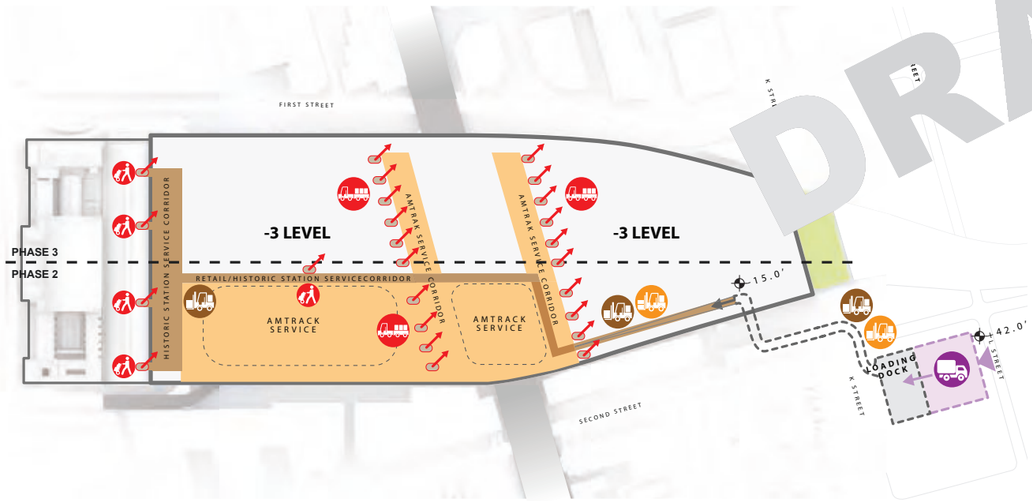


LOADING STUDY
OPTION 5

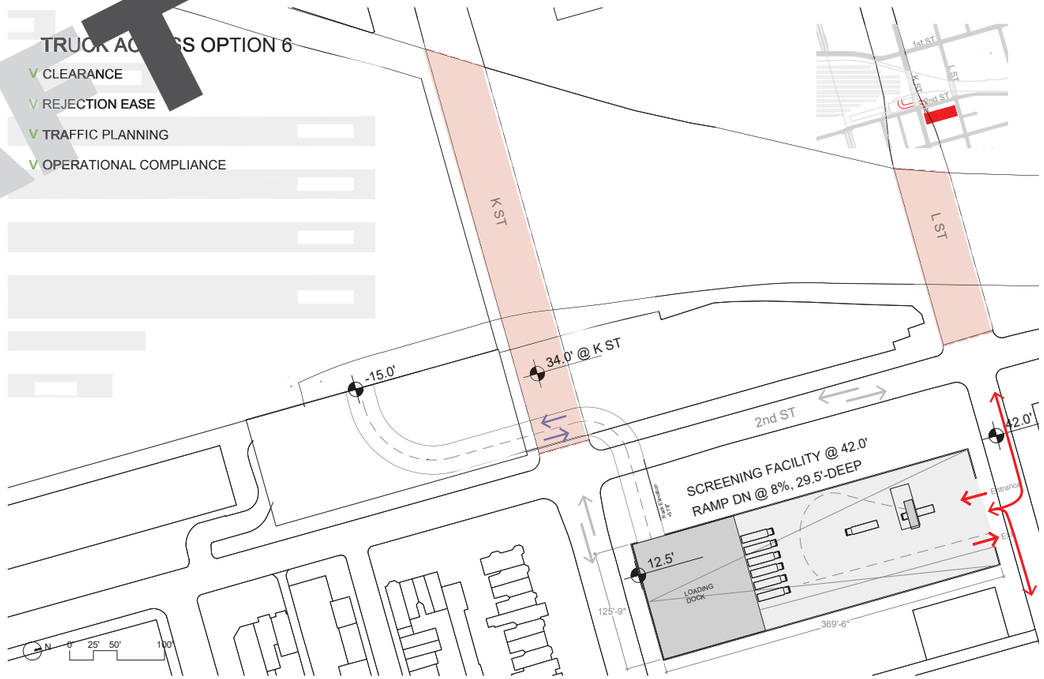
LOADING DIAGRAMS
OPTION 6:
TRUCK ENTRANCE BETWEEN THIRD AND L STREET

DISTRIBUTION NETWORK
- SCREENING AREA
- LOADING DOCK
- SERVICE CORRIDOR
- VERTICAL CIRCULATION

CRITERIA
- CLEARANCE
- REJECTION EASE
- TRAFFIC PLANNING
- OPERATIONAL COMPLIANCE



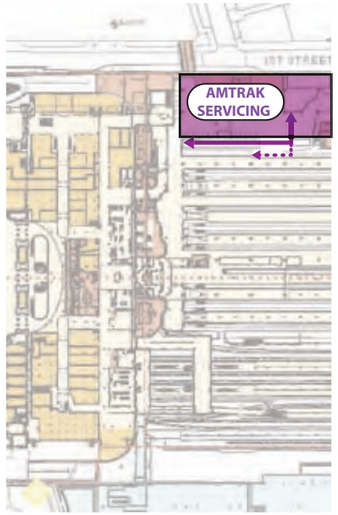
TRUCK ACCESS OPTION 6
- V CLEARANCE
- V REJECTION EASE
- V TRAFFIC PLANNING
- V OPERATIONAL COMPLIANCE



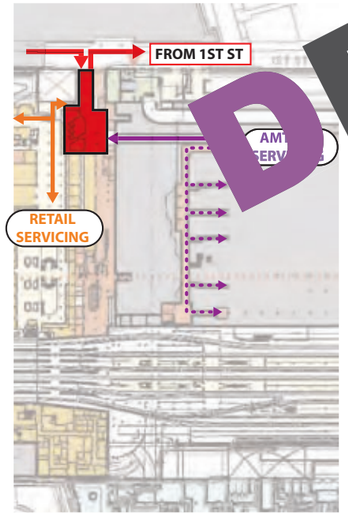
LOADING STUDY
OPTION 6

LOADING DOCK - WEST

EXISTING CONDITIONS AND OPERATIONS



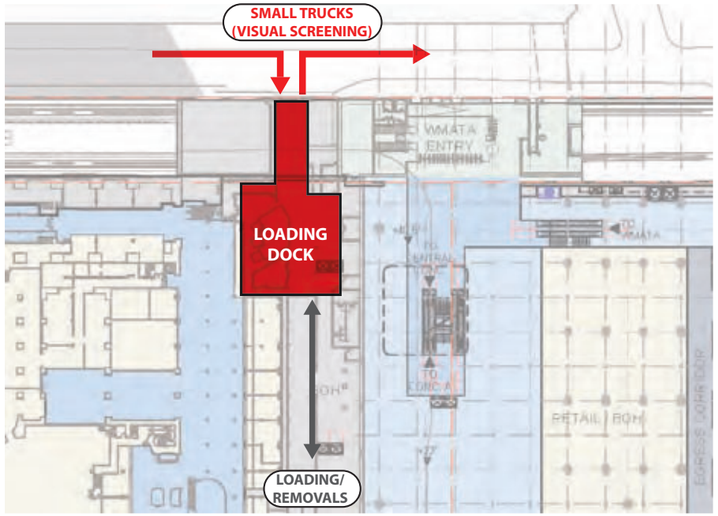
LEVEL 0 (+58.5’)



LEVEL - 1 (+42.5’)

LOADING DOCK - WEST

PROPOSED OPERATIONS



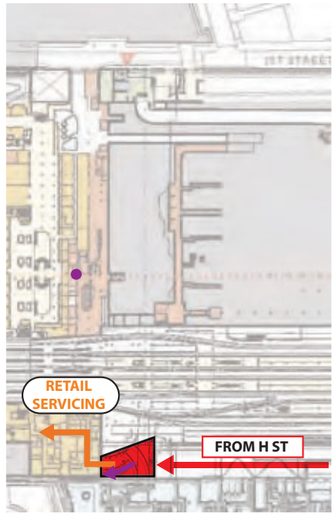
LEVEL - 1 (+42.5’)

LOADING STUDY

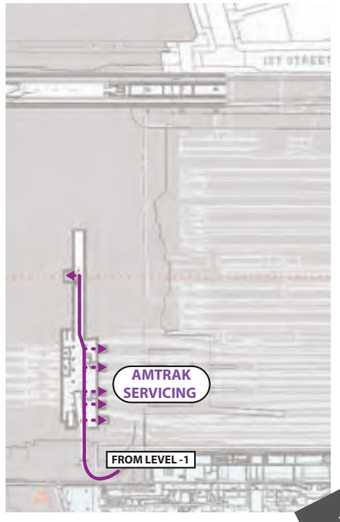
LOADING DOCK - WEST

LOADING DOCK - EAST

EXISTING CONDITIONS AND OPERATIONS



LEVEL - 1 (+42.5')



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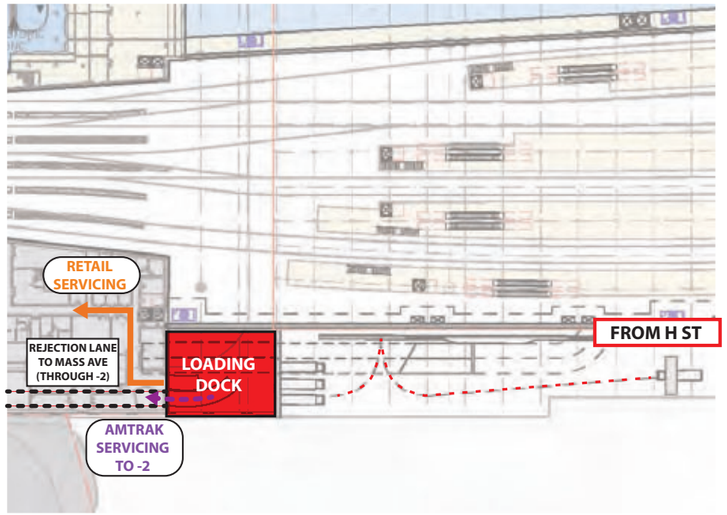
LOADING DOCK - EAST

PROPOSED OPERATIONS

OPTION 1



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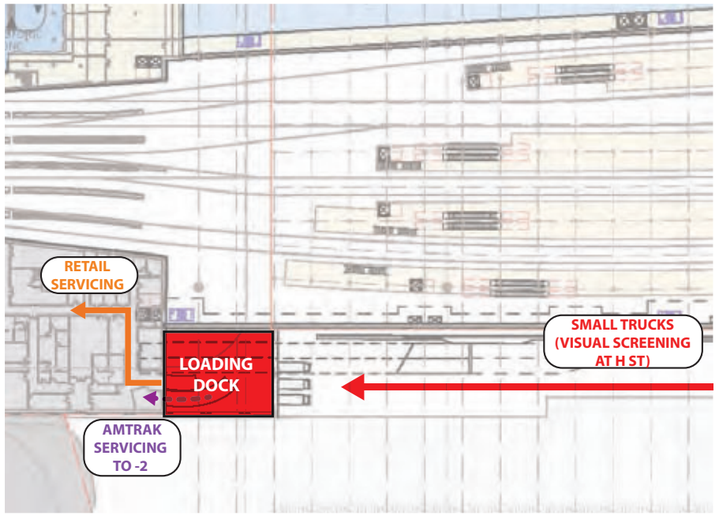
LOADING DOCK - EAST

PROPOSED OPERATIONS

OPTION 2

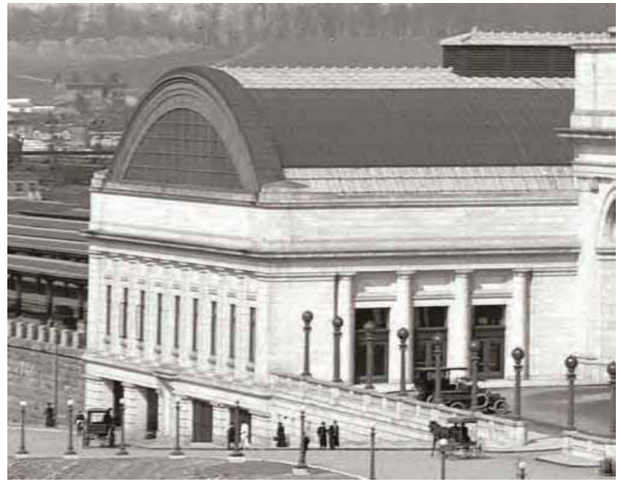


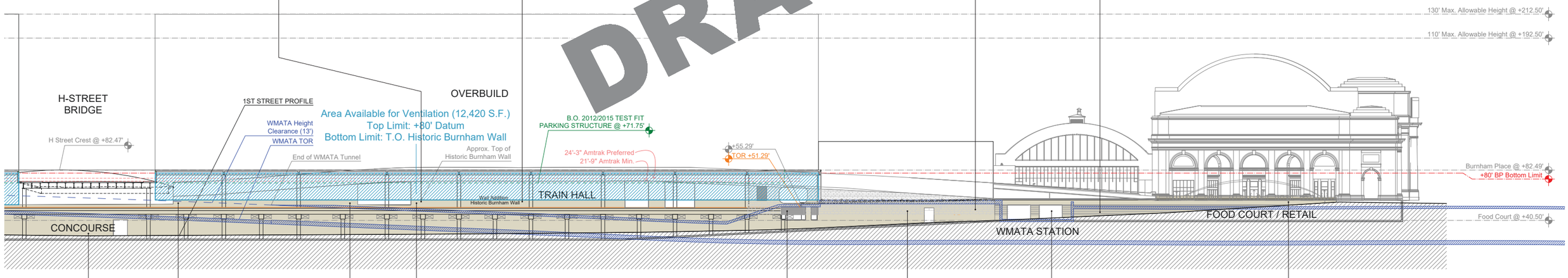
LEVEL - 1 (+42.5')

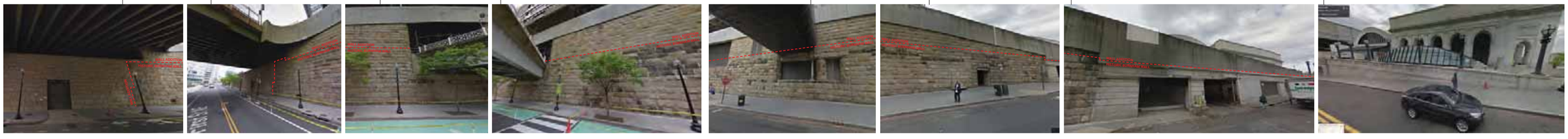
LOADING STUDY
LOADING DOCK - EAST

A-5 Compendia of Relevant Planning Studies

Elevation Study

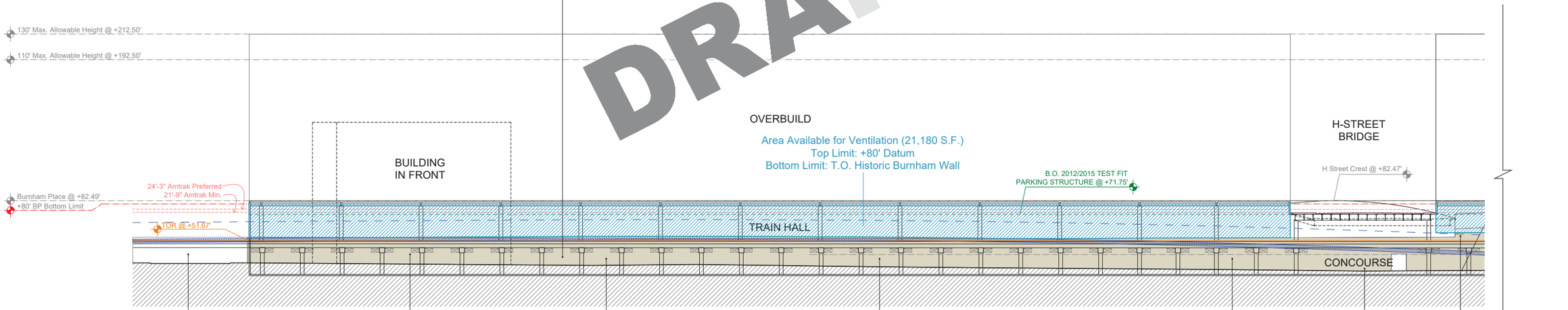






ELEVATIONS STUDY

WEST ELEVATION (SOUTHERN SECTION)



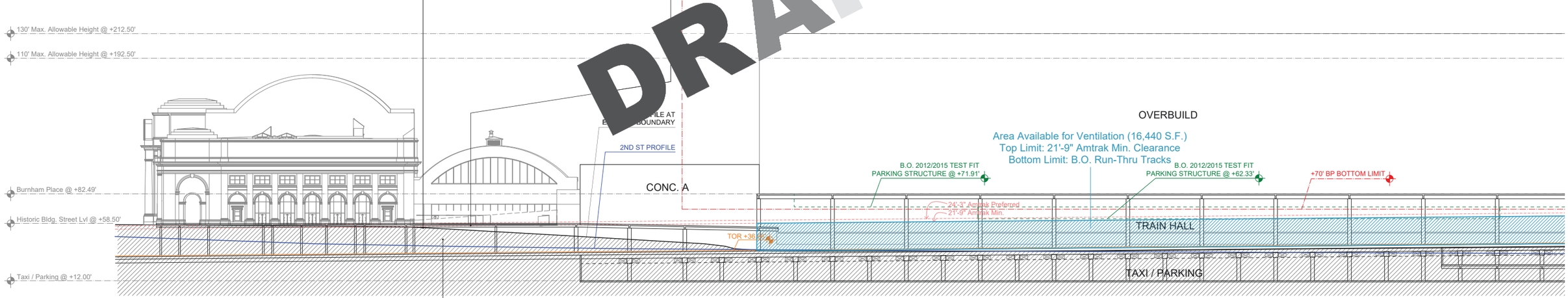






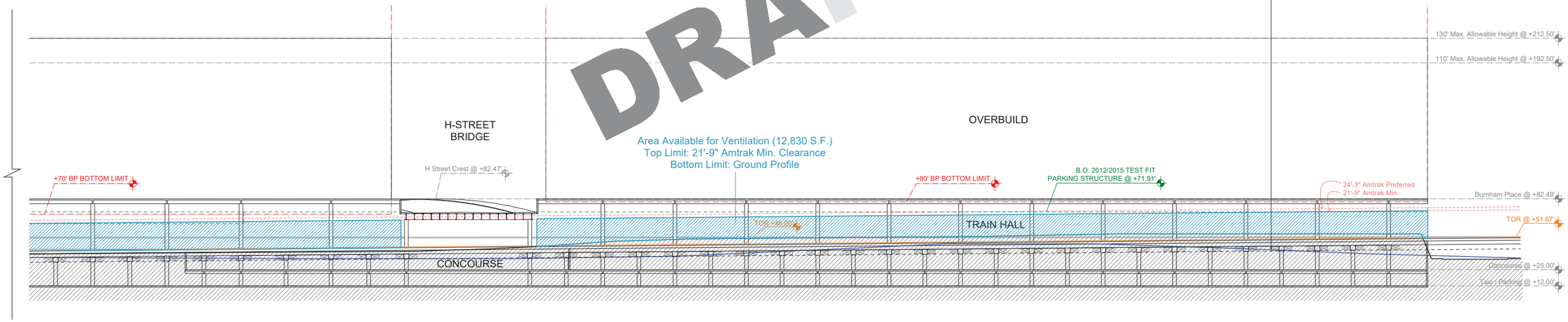
ELEVATIONS STUDY

WEST ELEVATION (NORTHERN SECTION)



ELEVATIONS STUDY

EAST ELEVATION (SOUTHERN SECTION)



ELEVATIONS STUDY

EAST ELEVATION (NORTHERN SECTION)

A-5 Compendia of Relevant Planning Studies
Adjacent Elements

H Street Bridge

H Street Bridge

As part of the concourse daylighting studies, the options coordinated with the H Street Bridge were considered. This included developing an understanding of different roadway configurations.

Access to H Street Bridge

Option 1 - ROW at 110’

This option proposes a seven-lane road, three lanes in each direction east and west-bound, with a shared turning lane at the center. Sidewalks are 16’6”-wide on each side, for a total of 110’ of right of way. Two traffic lights are positioned at each end of the station boundary, which control service road traffic and pedestrian crossing. Air-rights development front door access roads and right-in, right-out only, positioned towards the center of the bridge with a traffic light controlling pedestrian crossing. Streetcar stops are placed on both sides of the bridge in proximity to the vertical circulation cores near First and Second Streets, facilitating passenger flow between the streetcar, the station, and Burnham Place.

Option 2 - ROW at 130’ with light funnels on center

This option proposes a six-lane road, two lanes in each direction with a dedicated turning lane east and west-bound. A 30-foot wide median is introduced at the center with skylights placed according to the platform layout below, bringing down light to the tracks and H St. Concourse. Sidewalks are 20’-wide on each side, for a total of 130’ of right of way. Two traffic lights are positioned at each end of the station boundary, which control service road traffic and pedestrian crossing. Air-rights development front door access roads and right-in, right-out only, positioned towards the center of the bridge with a traffic light controlling pedestrian crossing. Streetcar stops are incorporated into the median on the center of the bridge in proximity to the vertical circulation cores near 1st and 2nd street, facilitating passenger flow between the streetcar, the station, and Burnham Place.

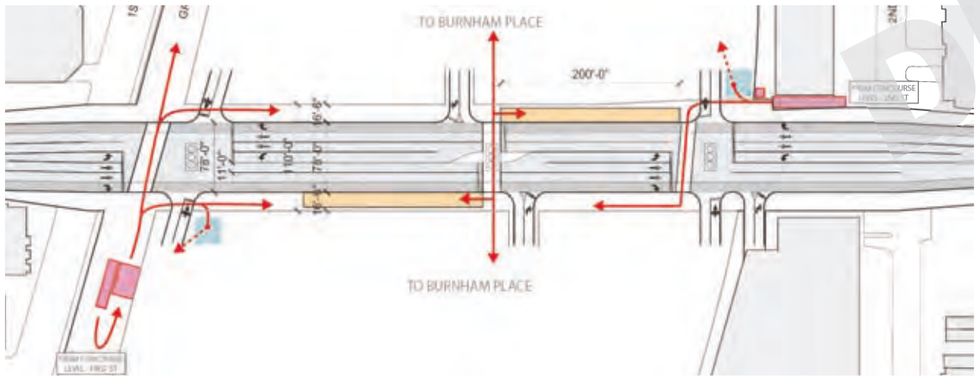
The introduction of skylights on the bridge level require two identical bridge structures supporting three lanes in each direction. The separation allows for skylights and sidewalks to be appropriated by the station and the surrounding development, respectively.

Option 3 - ROW at 135’ with light funnels on center

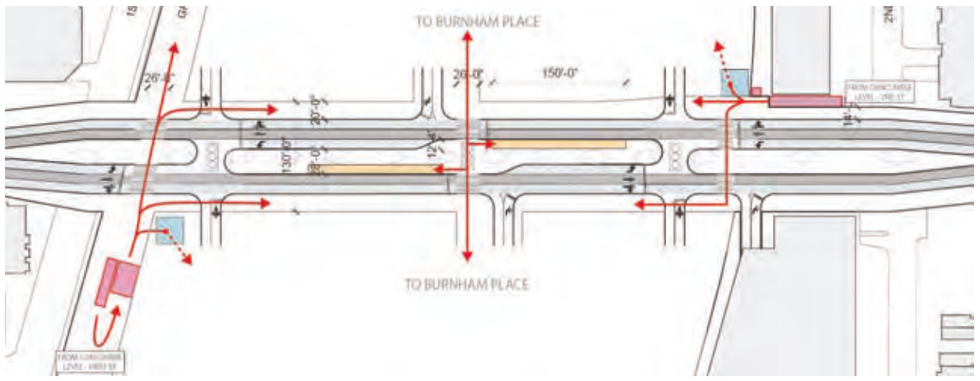
This option proposes an eight-lane road, three lanes in each direction with a dedicated turning lane east and west-bound. A 30-foot wide median is introduced at the center with skylights placed according to the platform layout below, bringing down light to the tracks and H St. Concourse. Sidewalks are 15’-wide on each side, for a total of 135’ of right of way. Two traffic lights are positioned at each end of the station boundary, which control service road traffic and pedestrian crossing. Air-rights development front door access roads and right-in, right-out only, positioned towards the center of the bridge with a traffic light controlling pedestrian crossing. Streetcar stops are incorporated into the median on the center of the bridge in proximity to the vertical circulation cores near 1st and 2nd street, facilitating passenger flow between the streetcar, the station, and BP development.

Option 4 - Center Offset Streetcar Stop and Split Access

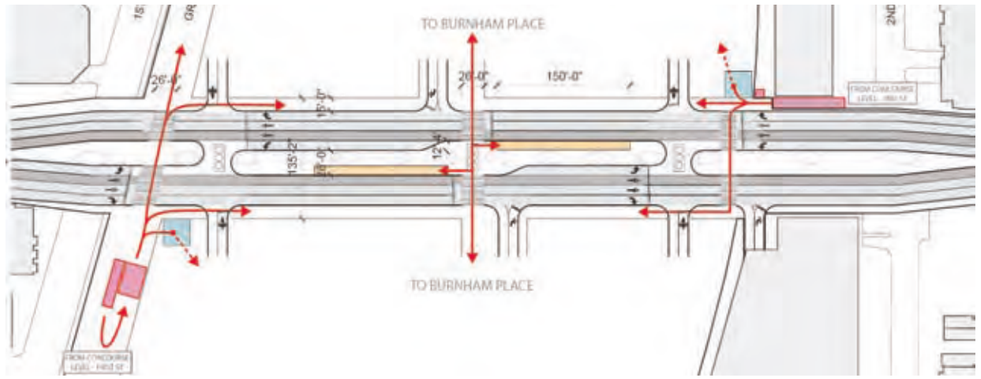
Base on initial conversations with DDOT, an option that allows for direct access between the middle of the H Street Bridge and the middle of the H Street Concourse was also considered. Although this option has some clearing issues, it will be studied further in the following stages of refinement.



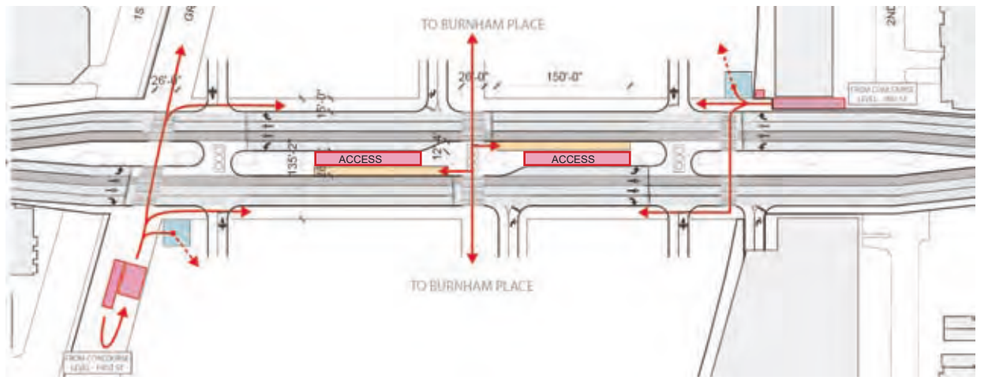
Plan Diagram with H Street Bridge R.O.W at 110’



Plan Diagram with H Street Bridge R.O.W at 130’



Plan Diagram with H Street Bridge R.O.W at 135’ with intergrated skylights



Plan Diagram with H Street Bridge R.O.W at 135’ with center island access from concourse below

Center Streetcar Stop and Centralized Access Options

One of the Streetcar Stop Concepts that arose during discussions with DDOT entails a Median Center Stop at the crest of H Street Bridge serving streetcars in both directions. To study this concept's potential with the SEP, several options have been explored to provide direct vertical connection between the streetcar stop and the Lower Level Concourse, to ensure intermodal connectivity between the rail, parking and streetcar functions and to provide centralized access to both sides of the Burnham Place (BP) development. In these options, the streetcar stop and the vertical connection elements (VCE's) are strategically located to allow sufficient pedestrian crossings across H Street Bridge and for the VCE's to be shared by both streetcars and BP users.

Option 1 – Elevators with Escalators/Stairs

This option links the Median Center Streetcar Stop to the Lower Concourse via escalators and elevators. Escalators located at the eastern end of the streetcar stop would bring pedestrians down to a mezzanine above the platform level, from which a second set of escalators would connect down to the Central Concourse. Two elevators - one at each end of the streetcar stop, connect pedestrians to the H Street Concourse and potentially to the Taxi and Parking Programs below. The escalators allows large carrying capacity of pedestrians; however, due to their large space requirement, careful coordination would be needed to ensure their locations do not conflict with the limited height clearance of the rail program below and the bridge structure above.

Option 2 – Elevators at each ends of the Streetcar Stop and Crosswalks

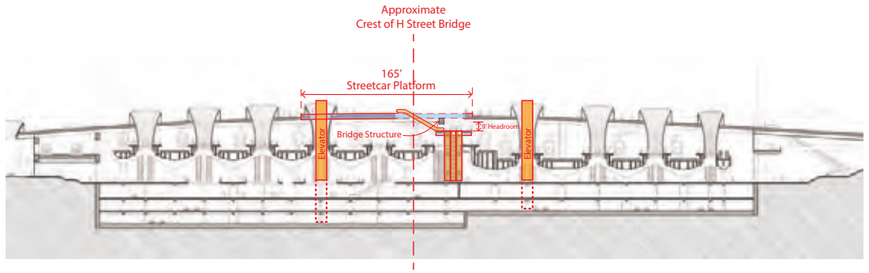
This option links the Median Center Streetcar Stop to the H Street Concourse and the programs below via four elevators located along the H Street Bridge median. Due to their distributed fashion, they could easily be shared amongst streetcar and BP users. Despite the longer wait time compared to escalators, the usage of elevators are advantageous as their small space requirement allow ease of coordination with the platform level below. Additionally, the elevators could be designed as part of the light funnels that could provide a memorable experience for pedestrians, as they are transported vertically through the multiple layers of the SEP.

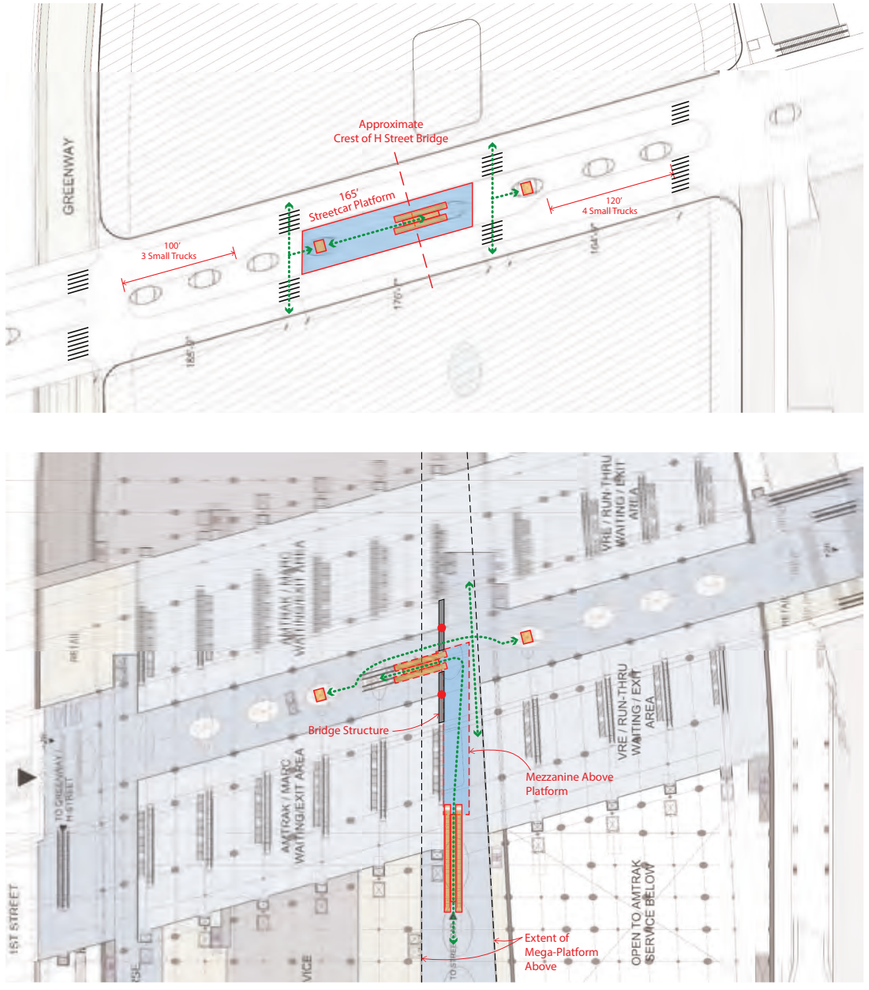
Option 3a/3b – Elevators on the Center and/or at each ends of the Streetcar Stop

Option 3a links the Median Center Streetcar Stop to the H Street Concourse via two centralized elevators on the streetcar stop. Option 3b entails two additional elevators- one at each end of the streetcar stop, which would provide increased capacity and ease of access for BP users. These options share the mentioned benefits of Option 2. Additionally, the centralized nature of the two central elevators improves wayfinding and allows ease of pedestrian queueing.

Access to Median Center Streetcar Stop

Option 1: Elevators with Escalators/Stairs

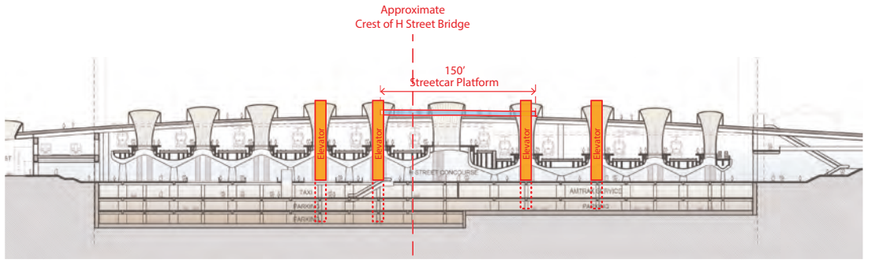


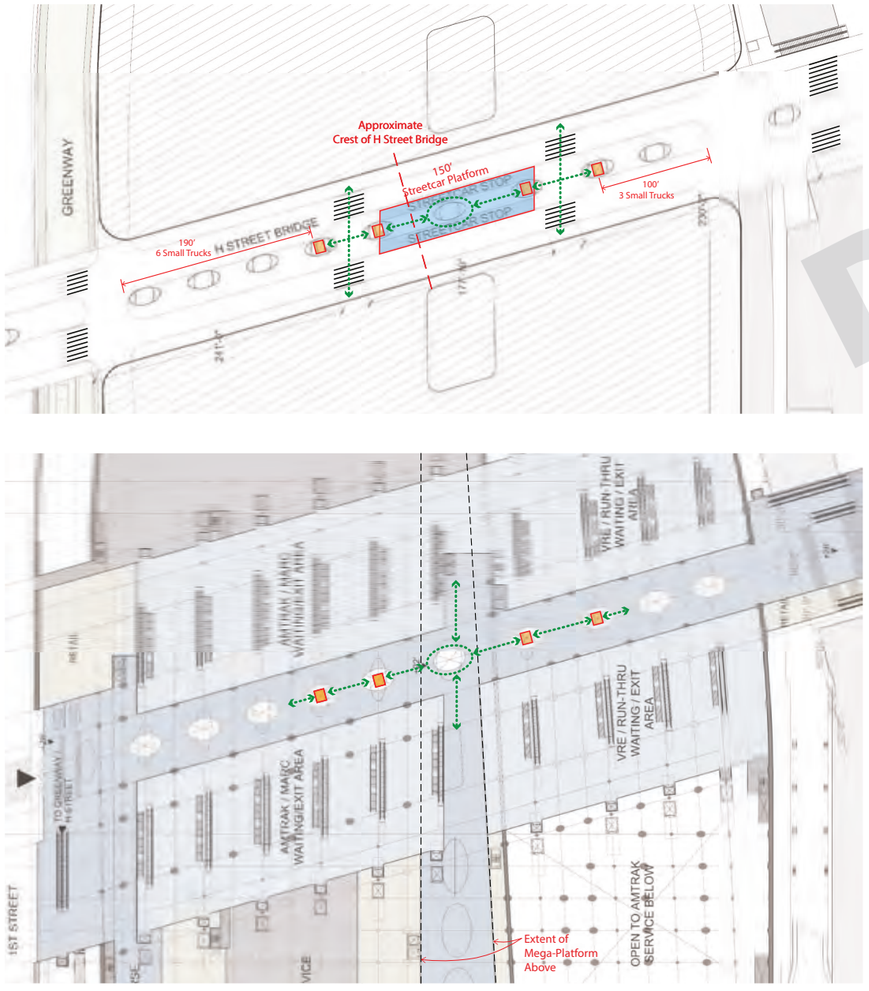


CENTER LOADING STREETCAR ACCESS OPTIONS

Access to Median Center Streetcar Stop

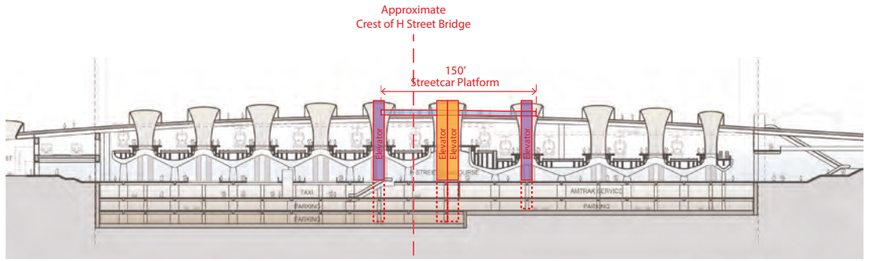
Option 2 - Elevators at each end of the Streetcar Stop and Crosswalks

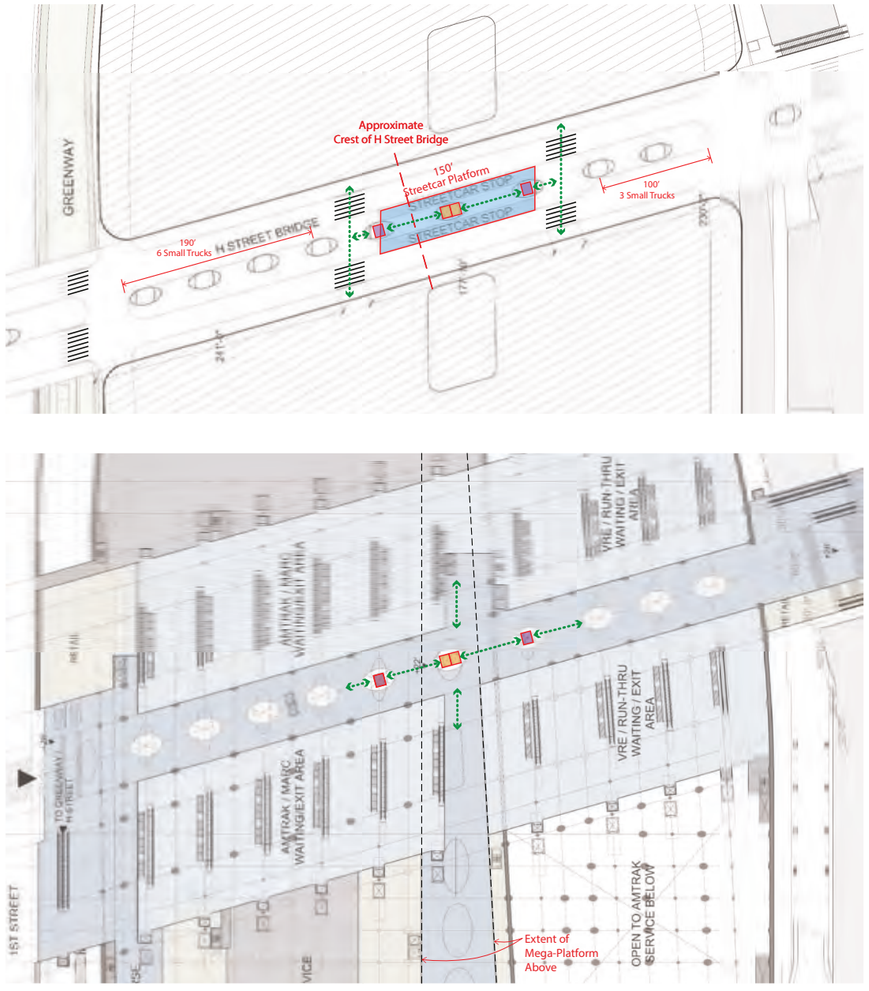




Access to Median Center Streetcar Stop

Option 3a/3b - Elevators on center and/or at each end of the Streetcar Stop





1 | 2

CENTER LOADING STREETCAR ACCESS OPTIONS