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## **APPENDIX H**

# **CONCEPT DEVELOPMENT**



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# Appendix H

## CONCEPT DEVELOPMENT

### H.1 INTRODUCTION

The following figures document the genesis and development of the Alternative D concept. The development of Alternative D was an iterative process that included LAWA senior management, and members of the consulting team.

### H.2 INITIAL CONCEPTS

In the initial concept classification category, five concepts were developed (**Figures H-1 through H-5**). These concepts were focused in the area defined as north of Imperial Highway, east of Aviation Boulevard, south of Arbor Vitae, and west of Interstate 405. The intent of the concepts were to:

- 1) Remove private and commercial vehicles from the CTA,
- 2) Create new permanent passenger pick-up and drop-off facilities,
- 3) Increase short and long term parking capacity;
- 4) Provide a direct APM system to connect to the CTA and the MTA Green Line Station.

The initial concepts were developed without consideration given to the following hard constraints:

- 1) Available land (not currently owned by LAWA),
- 2) FHWA coordination requirements,
- 3) Commercial, and industrial property acquisition limitations,
- 4) Environmental processing and mitigation requirements

It was determined through several meetings with LAWA senior management and members of the consulting team that the only viable locations for passenger pick-up and drop-off facilities were identified as Manchester Square and the land envelope defined as the area bounded north of Imperial Highway, east of Aviation Boulevard, south of 104<sup>th</sup> street, and west of La Cienega Boulevard.

It was concluded that these were the two most viable sites given the following factors:



- 1) Accessibility to the arterial street network,
- 2) Curbfront requirements,
- 3) Building height and use restrictions within the runway protection zone,
- 4) Commercial, and industrial property acquisition limitations

At the completion of the initial concept development it was determined that the land envelope defined as the area bounded north of Imperial Highway, east of Aviation Boulevard, south of 104<sup>th</sup> Street, and west of La Cienega Boulevard was not feasible because of significant access constraints due to close proximity to the Interstate 405 and 105 interchange and the limited space for queuing, circulation, and storing of vehicles on the surrounding roadways. In addition, the site area has several height restrictions due to FAA airspace criteria.

### **H.3      ALTERNATIVE DEVELOPMENT**

As Manchester Square emerged as the preferred location for passenger pick-up and drop-off facilities, six new alternatives were developed. These alternatives entailed various configurations to accommodate facilities that included:

- 1) Passenger pick-up and drop-off facilities
- 2) Terminal facilities
- 3) Parking facilities
- 4) APM stations
- 5) Access roadways
- 6) MTA facility

Alternative 1 (**Figure H-6**) – creates a multi-passenger pick-up and drop-off facility campus around a central parking core. While this concept met the curbfront demand it was determined that a closed ring roadway circulation system was a disadvantage and created similar congestion and vehicular circulation problems that currently exists within the CTA. In addition, the terminal configuration would require multiple APM stations causing longer transit times beyond acceptable standards.

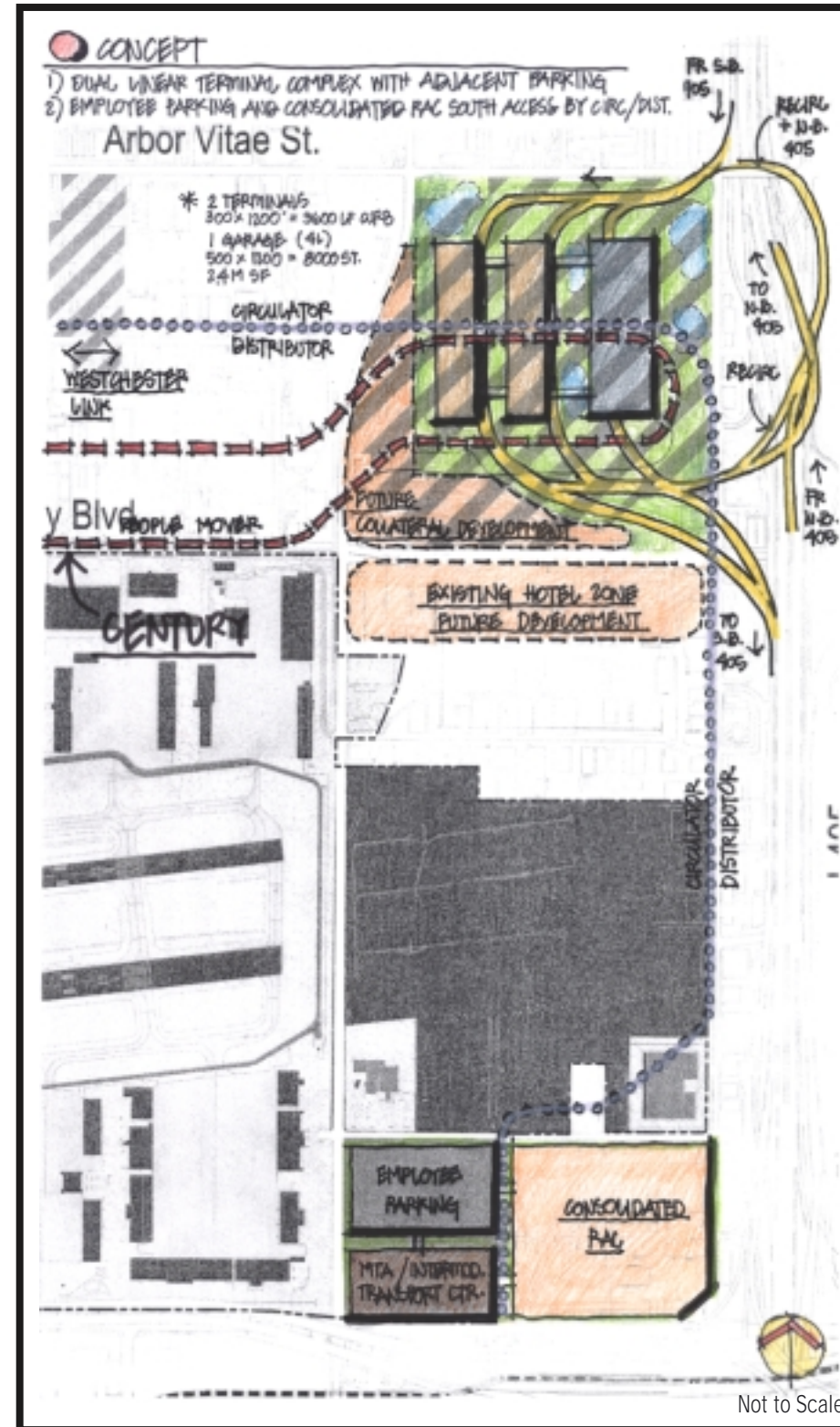


## MANCHESTER SQUARE FREE FLOW #1



### CONS

- Insufficient curbfront
- Triggers FHWA coordination
- Requires significant 405 infrastructure improvements
- Requires above or below ground baggage system to CTA



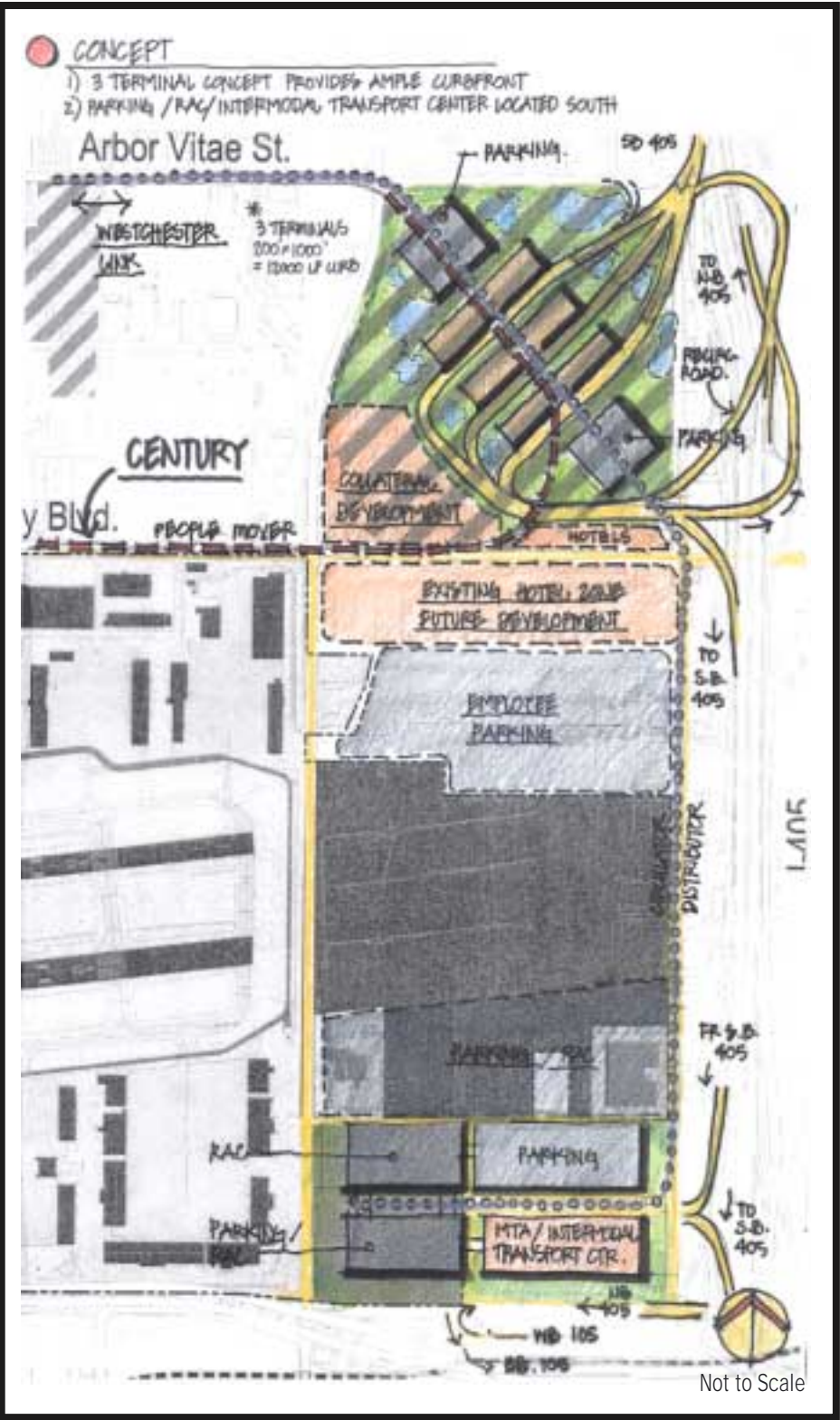


# MANCHESTER SQUARE PARALLEL TERMINALS

- PROS

  - Satisfies curbfront requirement
  - Minimal land acquisition
  - Provides flexibilitiy for funtional area location ie, RAC parking, short & long-term parking, intermodal transportation center
- CONS

  - Requires significant 405 infrastructure improvement
  - Requires above or below ground baggage system to CTA
  - Triggers FHWA coordination





## CENTURY CORRIDOR PROCESSOR



### CONS

- Requires significant land acquisition of commercial property south of Century
- Insufficient curbfront
- Requires 405 infrastructure improvement
- Approach surface to runway 25R
- Triggers FHWA coordination



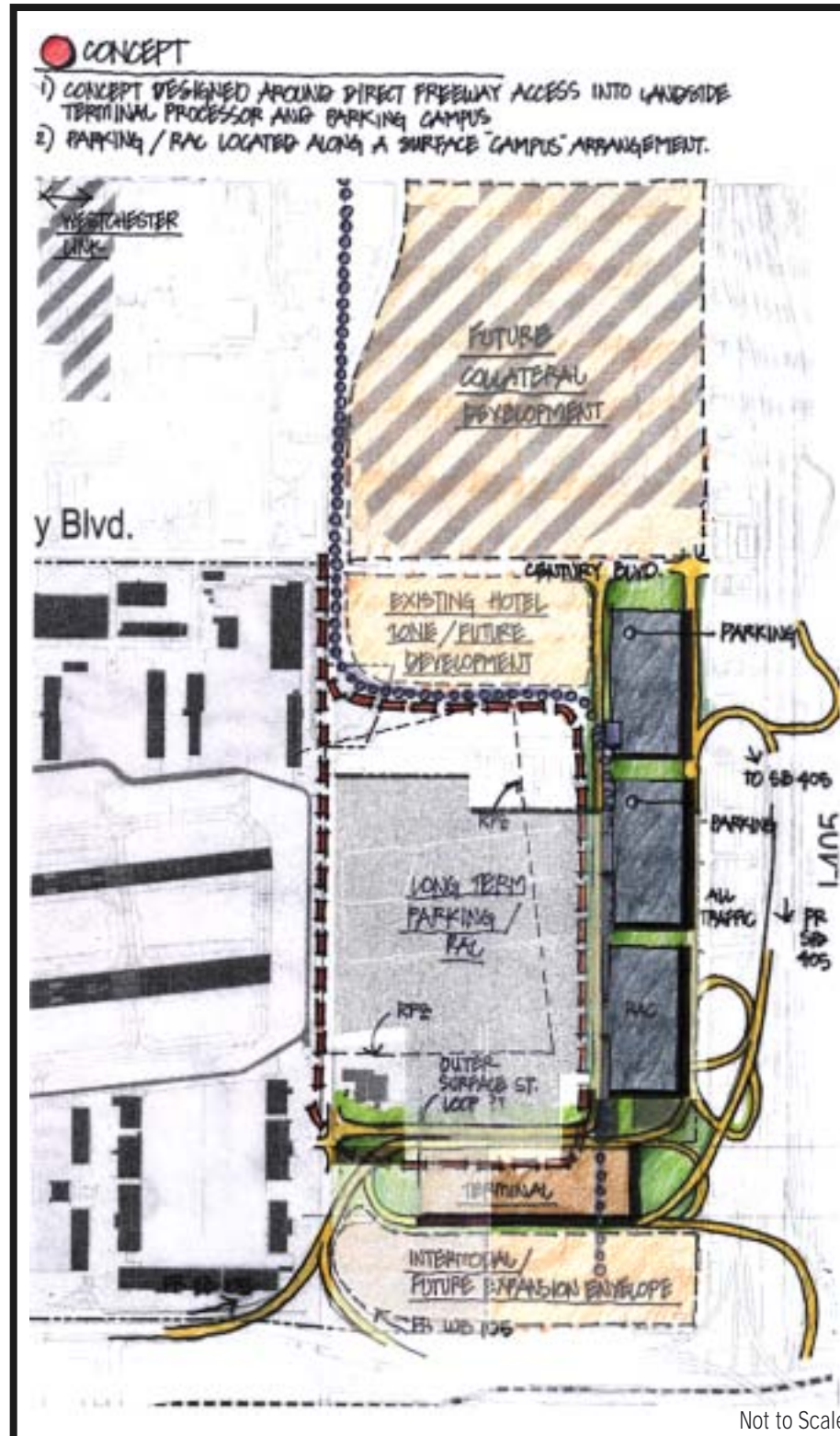


## SOUTH RPZ COMPLEX



### CONS

- Poor access
- Triggers FHWA coordination
- Approach **surface** to RWY 25L issues
- Approach surface to runway 25R issues
- Requires above or below baggage system to CTA
- Insufficient curbfront





## MANCHESTER SQUARE UNIT TERMINAL



### CONS

- Insufficient curbfront
- Triggers FHWA coordination
- Dual sided facility
- Requires 405 infrastructure improvement









Alternative 2 (**Figure H-7**) – creates a single passenger pick-up and drop-off facility with adjacent parking. To meet the curbside requirement, the facility would need to be three levels. This presented significant issues related to accessibility from arterial streets and vehicular flow within the access system.

Alternative 3 (**Figure H-8**) - attempted to de-centralize the passenger pick-up and drop-off facilities with adjacent parking in order to meet the curbside demand. The concept was deemed inefficient requiring multiple APM stops and considerable land area. Also, it was determined that passenger facilities located in the runway protection zone were not recommended. The de-centralization of facilities also created significant signage and passenger way finding challenges.

Alternatives 4 and 5 (**Figures H-9 and H-10**) - were two similar ideas of a concept to utilize Manchester Square as the primary location for passenger pick-up and drop-off facilities. No parking adjacent to these facilities was associated with this concept. All short and long-term parking would be located north of I-105, south of 104<sup>th</sup> Street, west of La Cienega Boulevard, and east of Aviation Boulevard. It was determined that separating long and short-term parking facilities from the primary passenger pick-up and drop-off areas was not advantageous.

Alternative 6 (**Figure H-11**) - was based on the ideas generated in Alternatives 4 and 5 including both long and short-term parking facilities associated with the passenger pick-up and drop-off facilities. Commercial and private vehicles would access these facilities with upper and lower level curbsides. In order to get the necessary curbside linear footage, parallel piers were developed. The arrangement was set at an angle to allow for proper turning radii for consistent vehicular flow in and out of the system. Initially the ITC connecting the MTA Green Line to the APM was located at the corner of Century Boulevard and Aviation Boulevard. Further refinement of Alternative 6 relocated this facility closer to the MTA Green Line at the northeast corner of Aviation Boulevard and I-105.

Alternative 6 was selected to move forward based on its ability to meet the curbside demand on a land envelope large enough to accommodate both parking and passenger facilities that was accessible to the arterial street network and not within a runway protection zone. The concept was refined into Alternative D based on significant landside analysis creating an access system capable of delivering the most efficient vehicular flow in and out of the facilities.



## **H.4 CTA SECURITY MODIFICATION ANALYSIS**

An analysis was conducted which looked primarily at the existing CTA evaluating opportunities which existed for modifications to the infrastructure to accommodate the primary APM component of Alternative D. The intent was to modify the existing CTA terminals to accommodate the need for expanded outbound baggage make-up areas for 100 percent Explosives Detection System (EDS) screening as well as increased areas for security screening and passenger processing. These options maintained the parking structures in the CTA and the existing road structures. In some cases additional roads were built at a third level to help with vehicular circulation.

While it was determined that the CTA could be modified to accommodate security mandated directives, these approaches failed to address the threat of private and commercial vehicles present to the facilities and gates. In addition, all of the approaches failed to make any significant changes to undersized and aging passenger processing facilities.

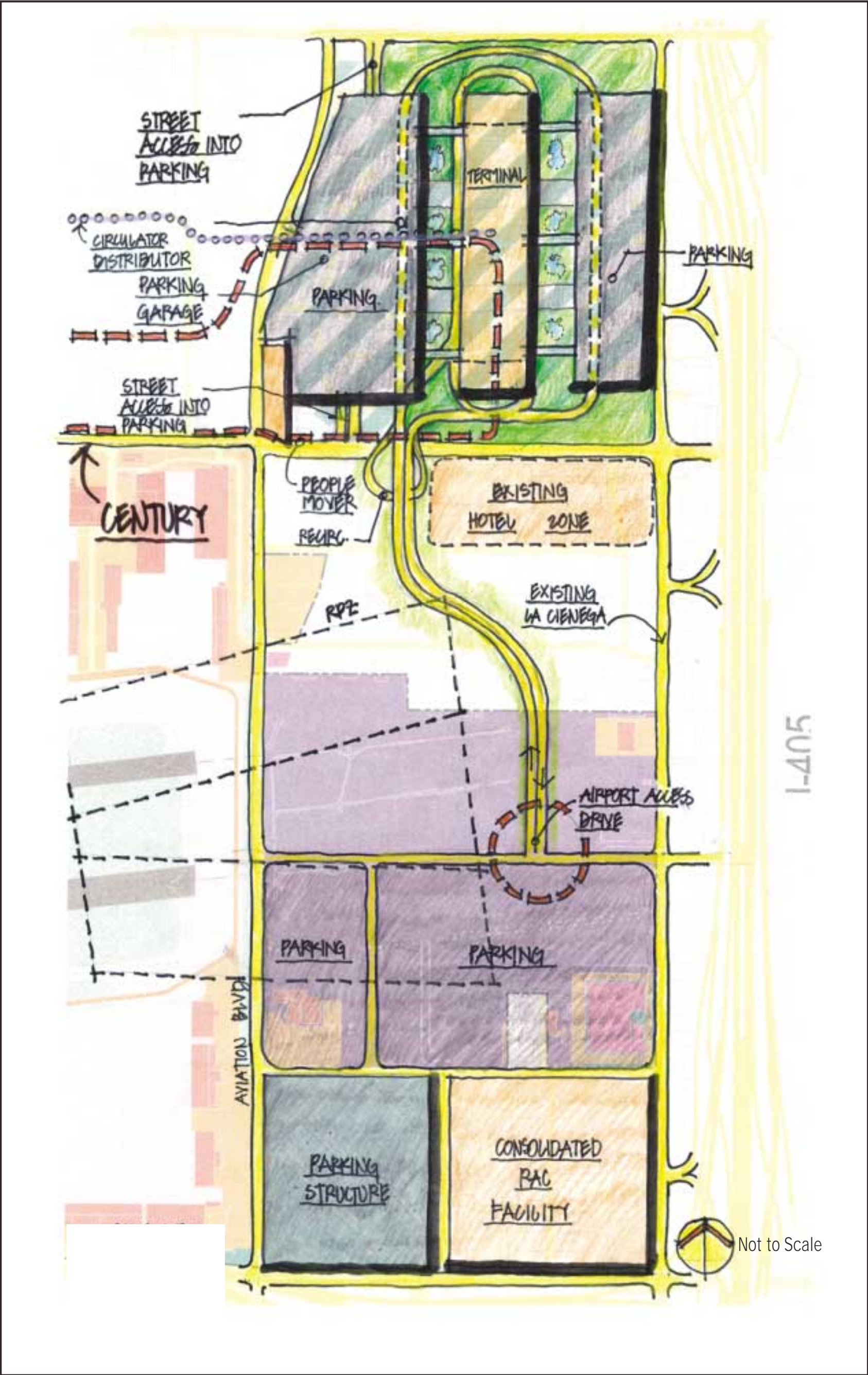
Option 1 (**Figures H-12 and H-13**) – shows in plan the components of Alternative D with an additional 50-foot bay built on to the backside of all terminals to help accommodate the additional areas needed for passenger security screening and the 100 percent EDS screening of all checked baggage. The APM would be located atop existing parking structures with pedestrian bridges connecting stations with the terminal facilities.

Option 2 (**Figures H-14 and H-15**) shows a modified CTA, which places new baggage claim facilities on the roof of existing or re-built parking garages. A new third level arrivals curb would be located adjacent to baggage claim with the APM at a level above. Moving baggage claim to a new facility would allow the lower level of the CTA to be utilized primarily for 100 percent automated EDS screening of all checked bags as well as opportunities for expansion of concessions and a limited amount of passenger processing.

Option 3 (**Figure H-16**) is a variation of Option 2 placing the third level arrivals curb on the opposite side of baggage claim in an elevated structure.

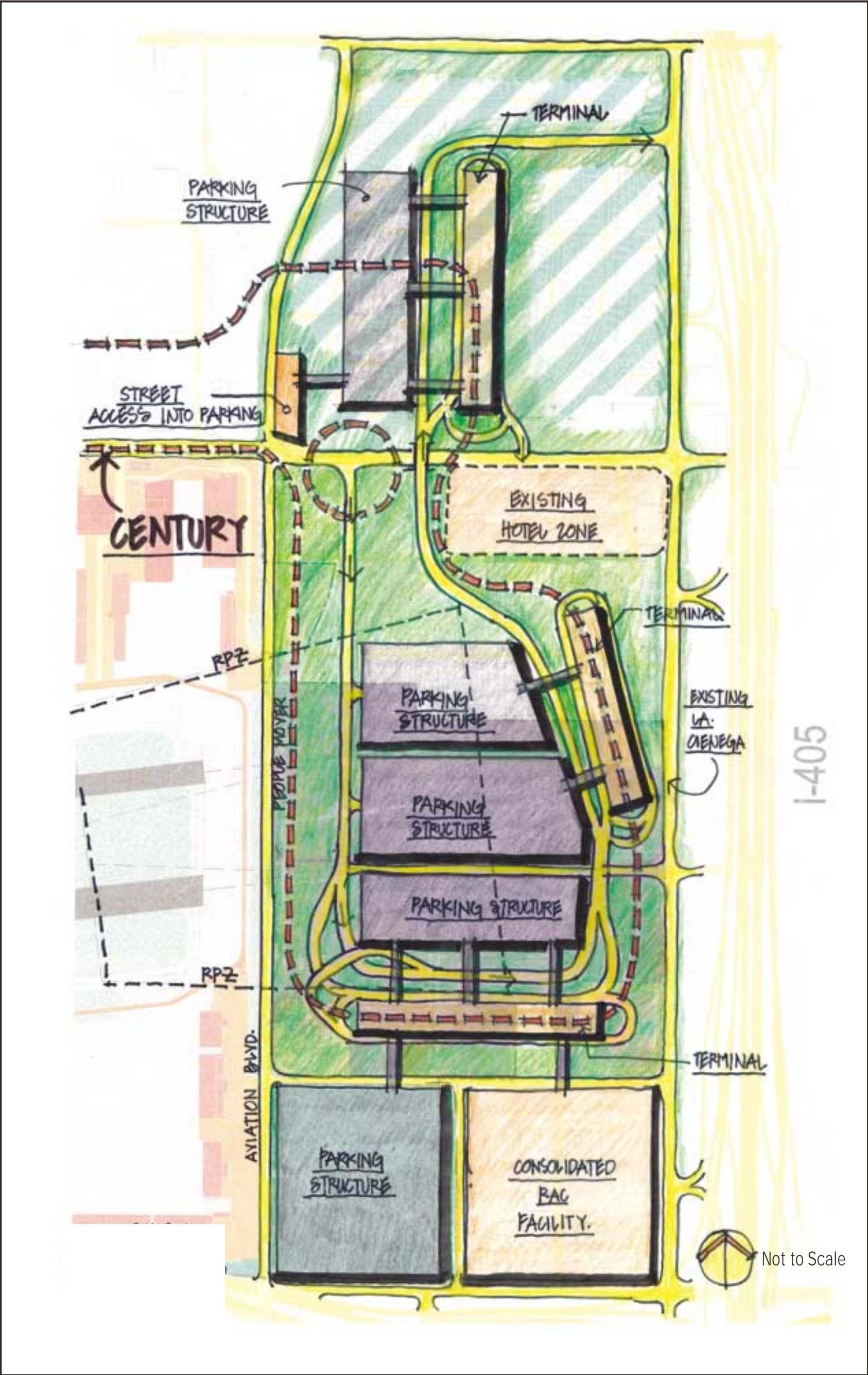
Option 4 (**Figure H-17**) is a variation of Option 2 that re-builds all the parking structures with an integrated arrivals hall, and a baggage claim facility at the second level. The existing open space between the existing arrivals curb and parking structures





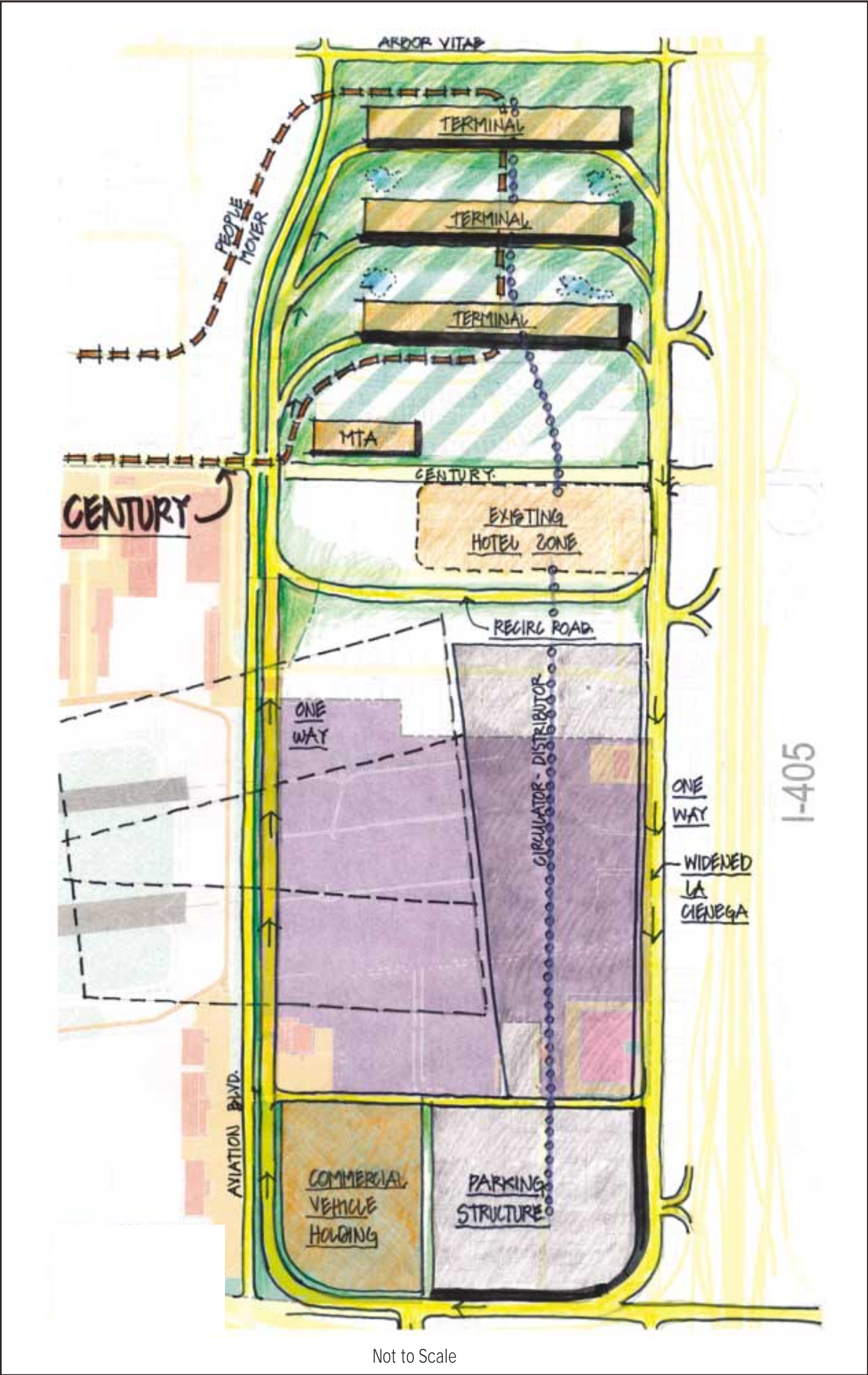
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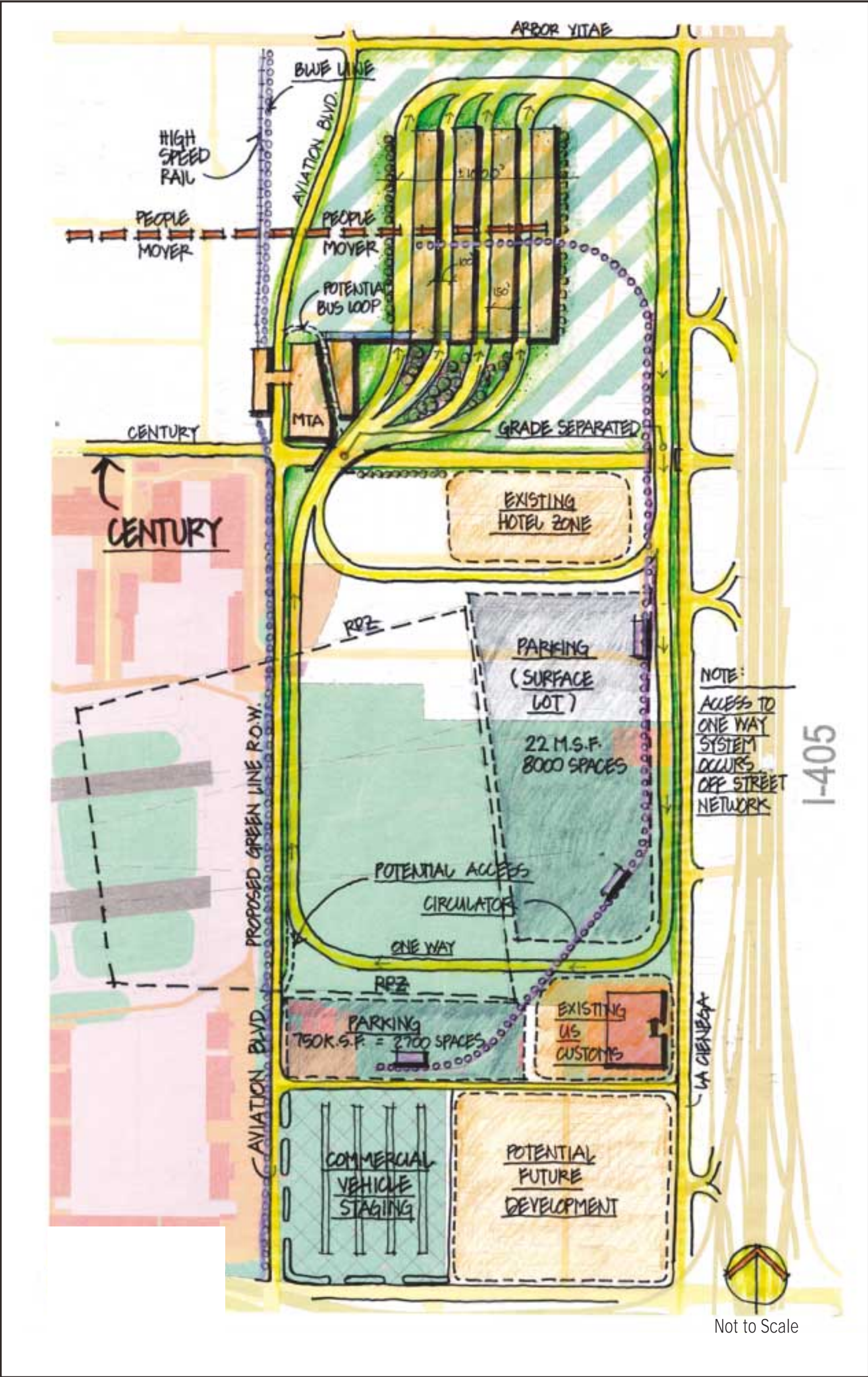
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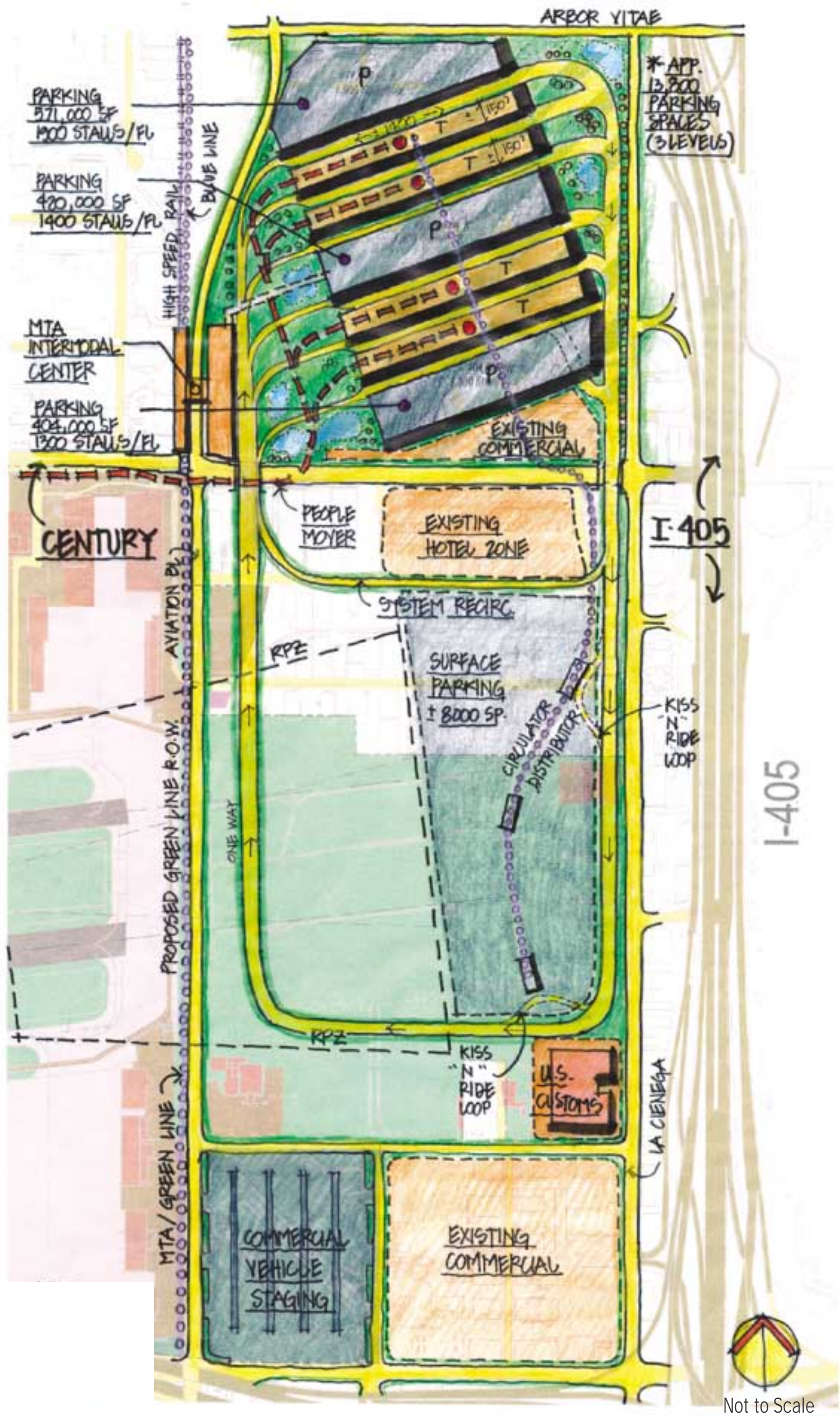


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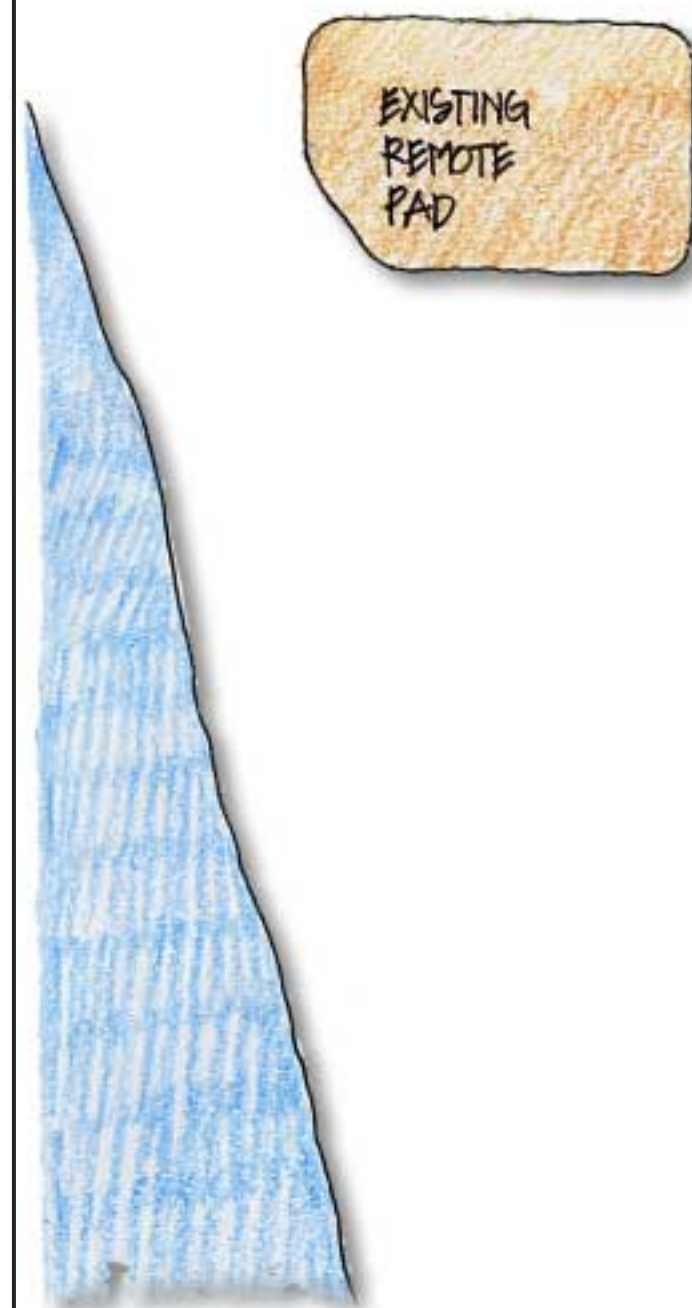






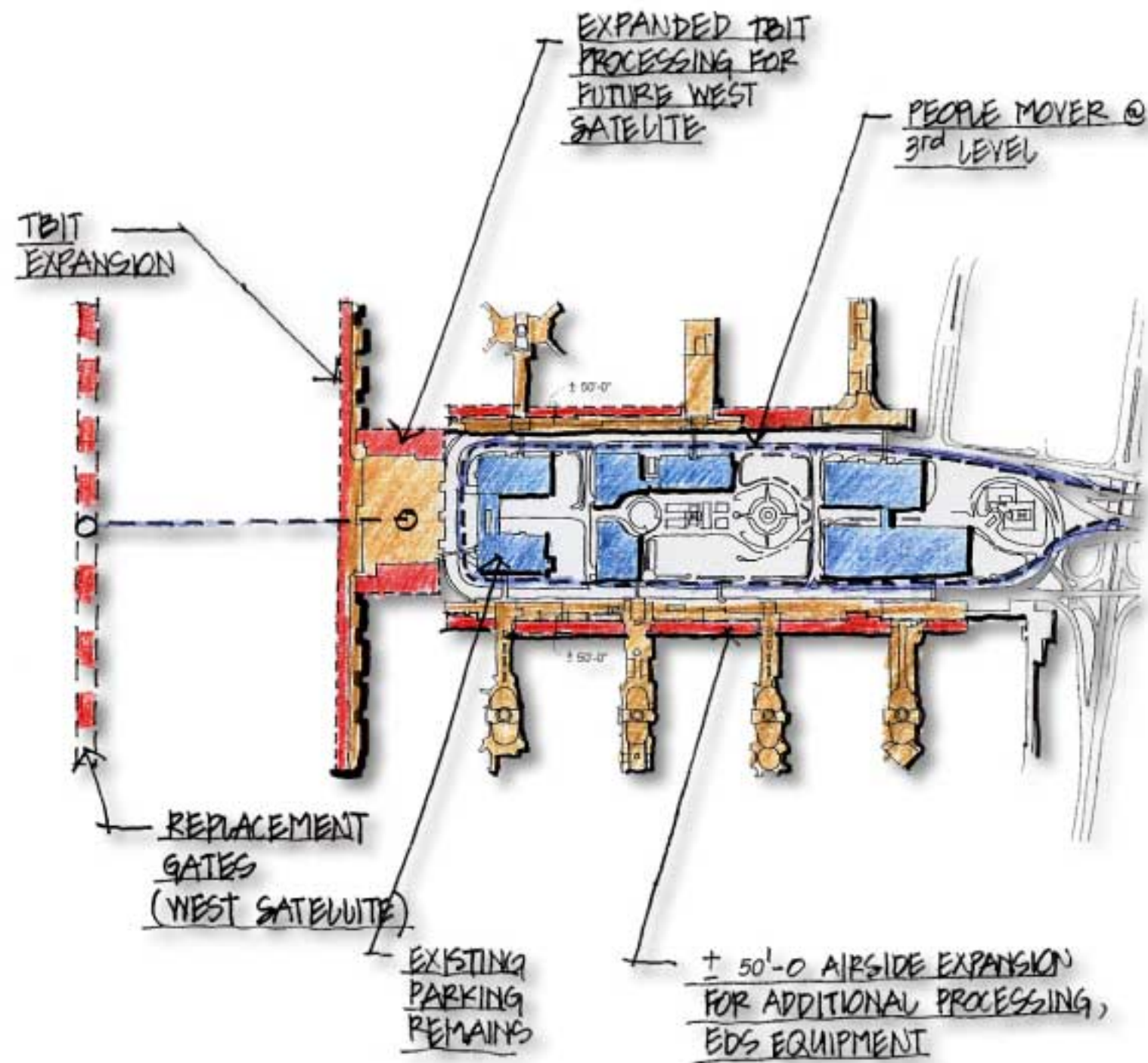




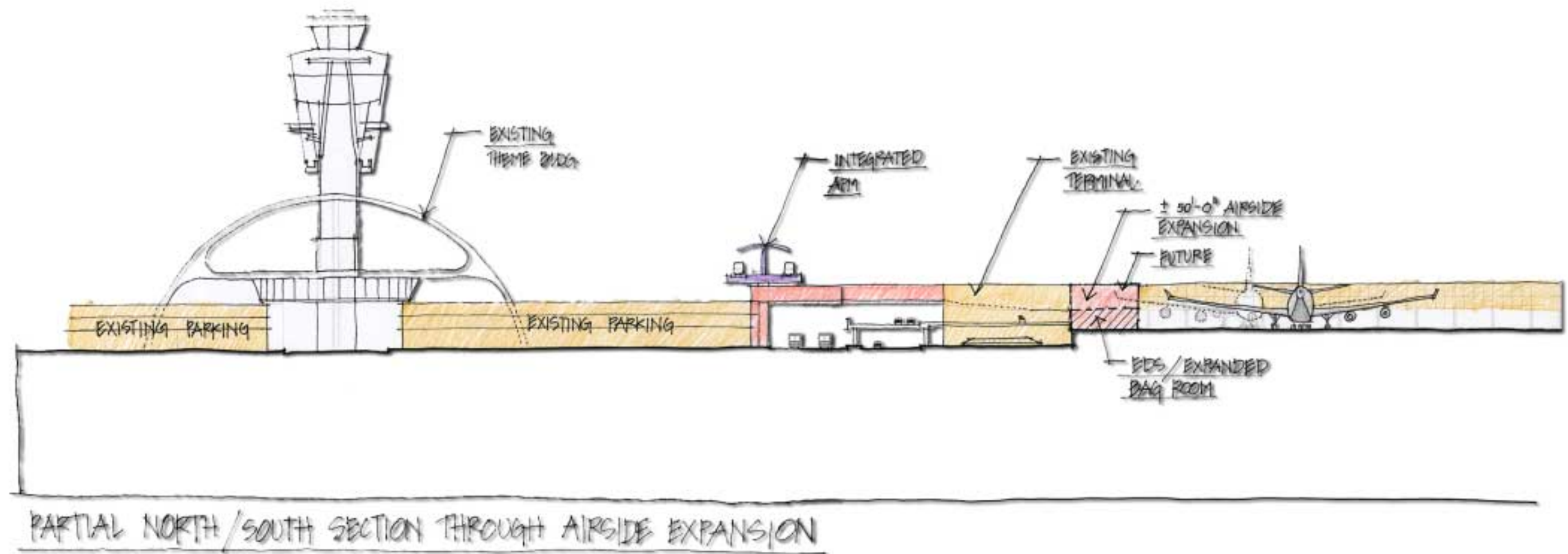


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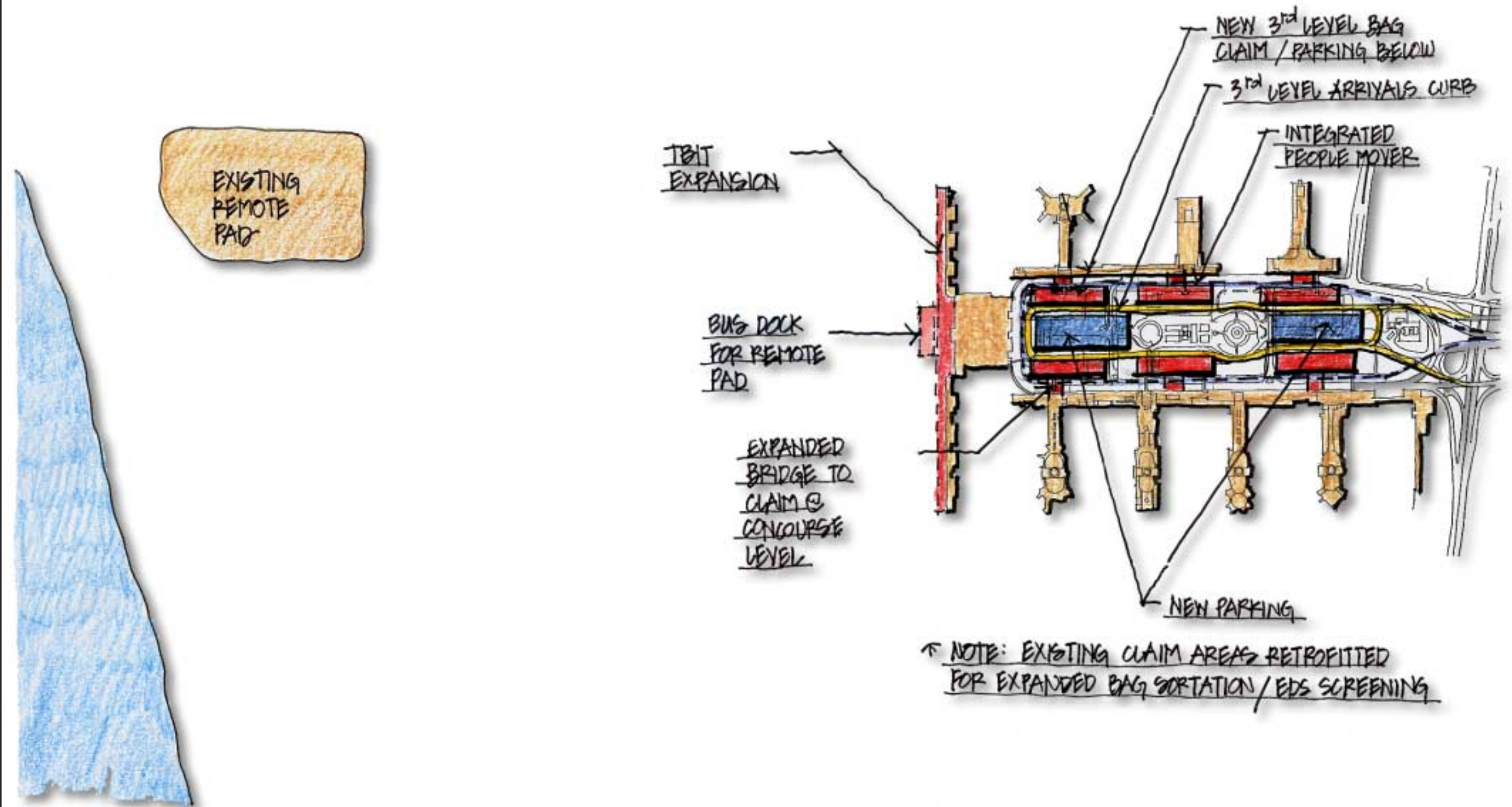




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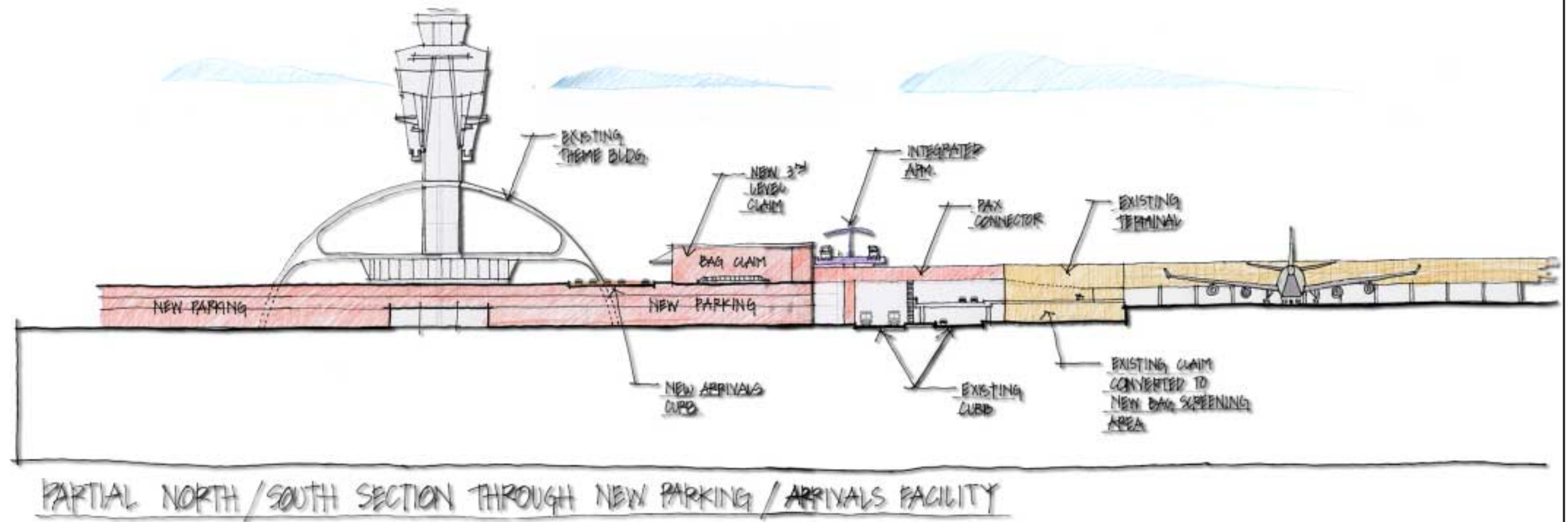




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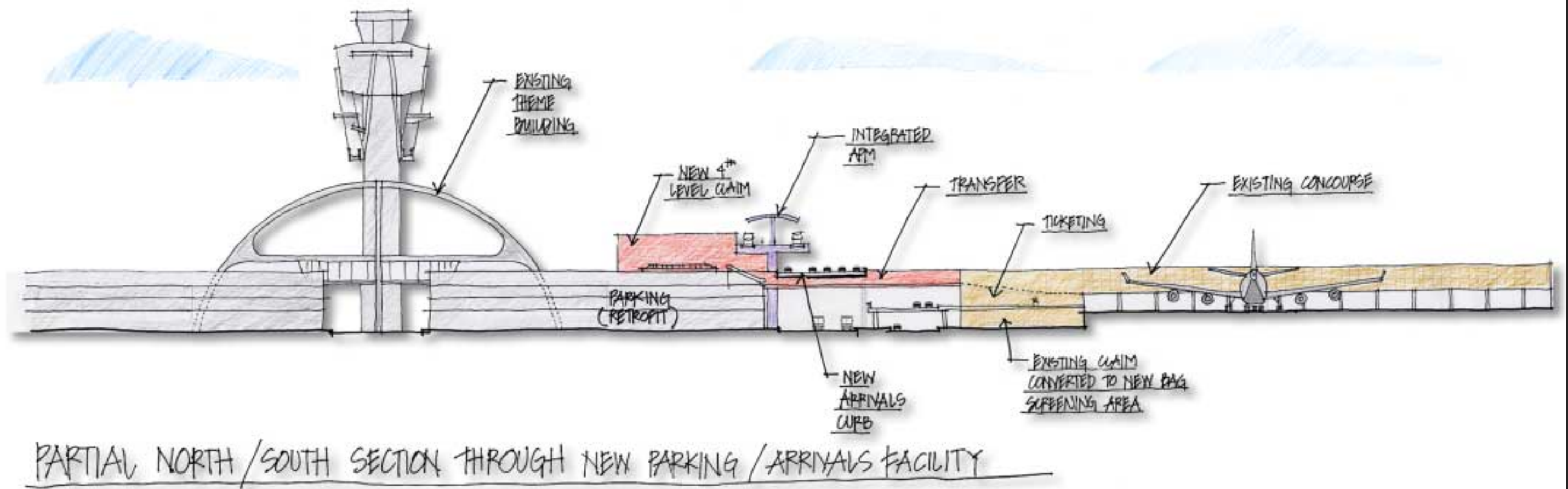




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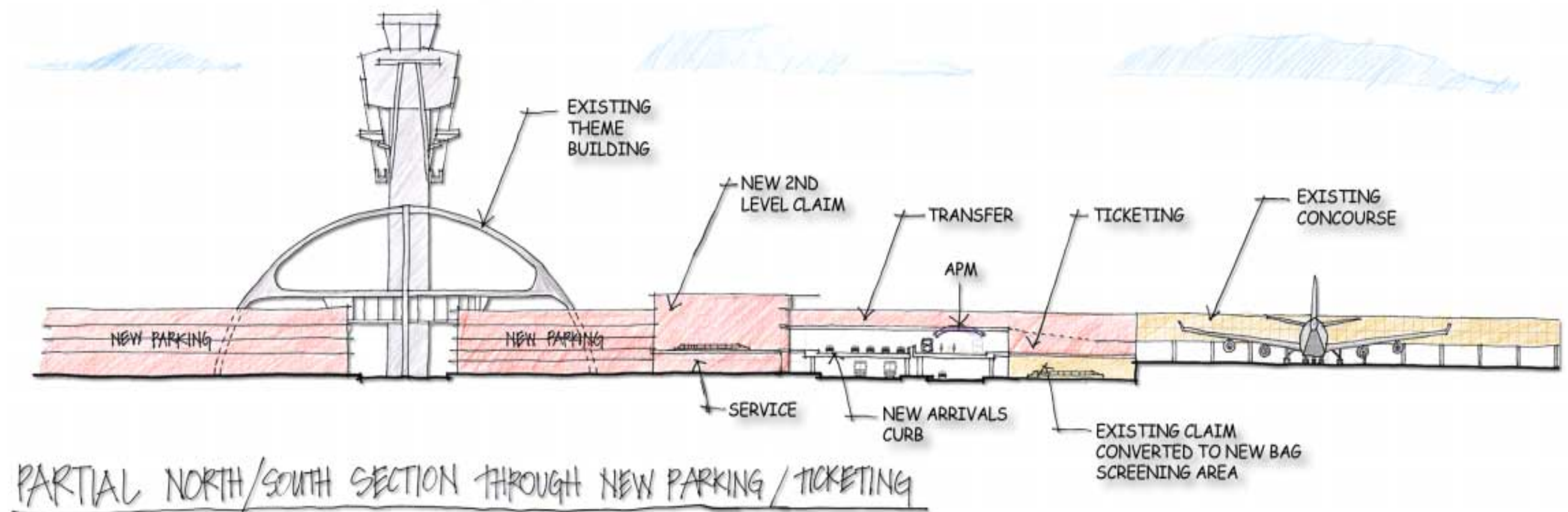




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would support an expanded second level roadway system for a new arrivals curb.

Option 5 (**Figures H-18 and H-19**) moves the APM to the upper level roadway of the existing CTA. The existing upper level roadway would be maintained for emergency vehicle access. A new departures curb and ticketing hall would be built atop of the reconfigured or rebuilt parking garages.

Option 6 (**Figures H-20 and H-21**) moves the APM to the upper level roadway of the existing CTA. A new ticketing hall and baggage screening system would be built at the second level of the existing or rebuilt parking structures. The upper level roadway access would be maintained for emergency vehicle access. The existing open space between the arrivals curb and the parking structure would support an expanded second level roadway system for a new departures curb. Departing passengers would use an overhead pedestrian bridge to access the gates. The area in the existing terminals previously used for ticketing and airline ticket offices would be converted to concession areas.

**Figures H-22 and H-23** show a recommended approach for modifications in the CTA including a renovation of the existing processors for expanded ticketing, security screening, and baggage screening by creating a third level accessible across the roadway system to the APM.

While the CTA can accommodate some changes in its infrastructure to adapt to future security and security related space expansion requirements, the landside will continue to be constrained. All of the options had considerable drawbacks related to cost/benefits, implementation and phasing. Each of these options considered allowing private and commercial vehicles into the CTA, a threat that Alternative D eliminates.

It was determined through meetings with LAWA senior staff and the consultant team that any recommended security modifications within the CTA be consistent with the long-term planning for all Master Plan alternatives.

## **H.5 ALTERNATIVE D REFINED CONCEPTS**

As part of the refinement of Alternative D, additional concepts were evaluated to determine which elements, and their corresponding configuration, warranted further analysis. The following figures depict several configurations that were considered for Alternative D.



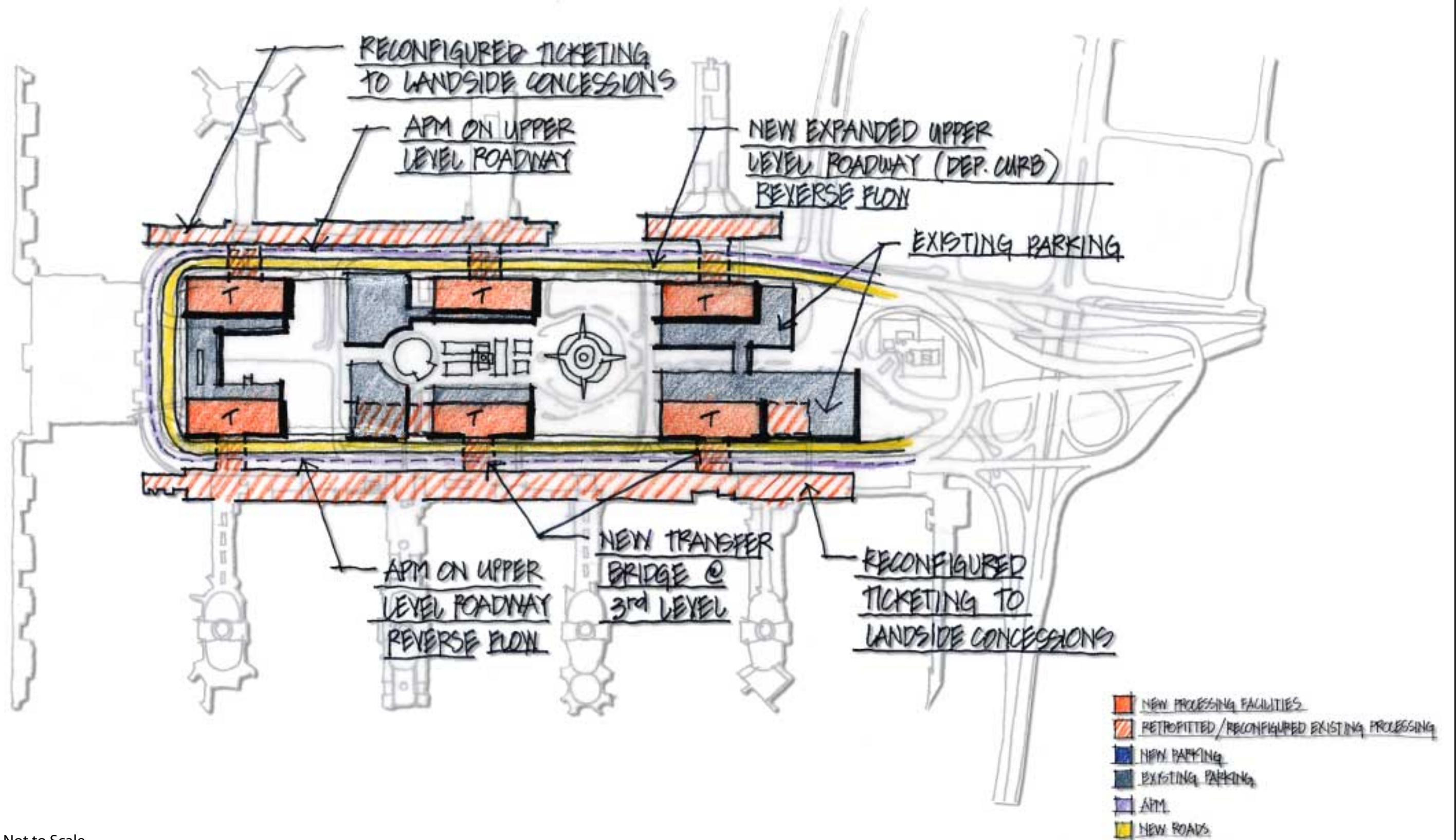
East Land Envelope Constraints Diagram (**Figure H-24**) – depicts the hard and soft constraints surrounding the east land envelope. The consultant team was given direction by senior LAWA staff as to which facilities were to be considered as hard constraints. Every attempt was made to avoid impacts to the following areas:

- ◆ Hotel and commercial area located at the northwest corner of Century and La Cienega Boulevard,
- ◆ Hotel, commercial, and industrial area located at the southwest corner of Century and La Cienega Boulevard
- ◆ U.S. Customs facility located at the northwest corner of La Cienega Boulevard and 111<sup>th</sup> Street, and
- ◆ Commercial area located at the northwest corner of La Cienega Boulevard and Imperial Highway, up to 111<sup>th</sup> Street.

Alternative D1 (**Figure H-25**) – “Alternative D Airfield” key features include:

- ◆ Relocation of existing Runway 24L to the south and lengthening to east over Sepulveda Boulevard
- ◆ New centerline taxiway between Runways 24L and 24R
- ◆ Taxiway Alpha extension
- ◆ New north CTA gates (removal of Terminals 1, 2, and 3)
- ◆ New Midfield Satellite and TBIT gates
- ◆ Primary curbside and consolidated rental car facility located in Manchester Square
- ◆ New parking structure located at the northeast corner of Imperial Highway and Aviation Boulevard (old Continental City property)
- ◆ APM connection between the CTA, Manchester Square, and parking structure at the old Continental City property
- ◆ Green Line connection

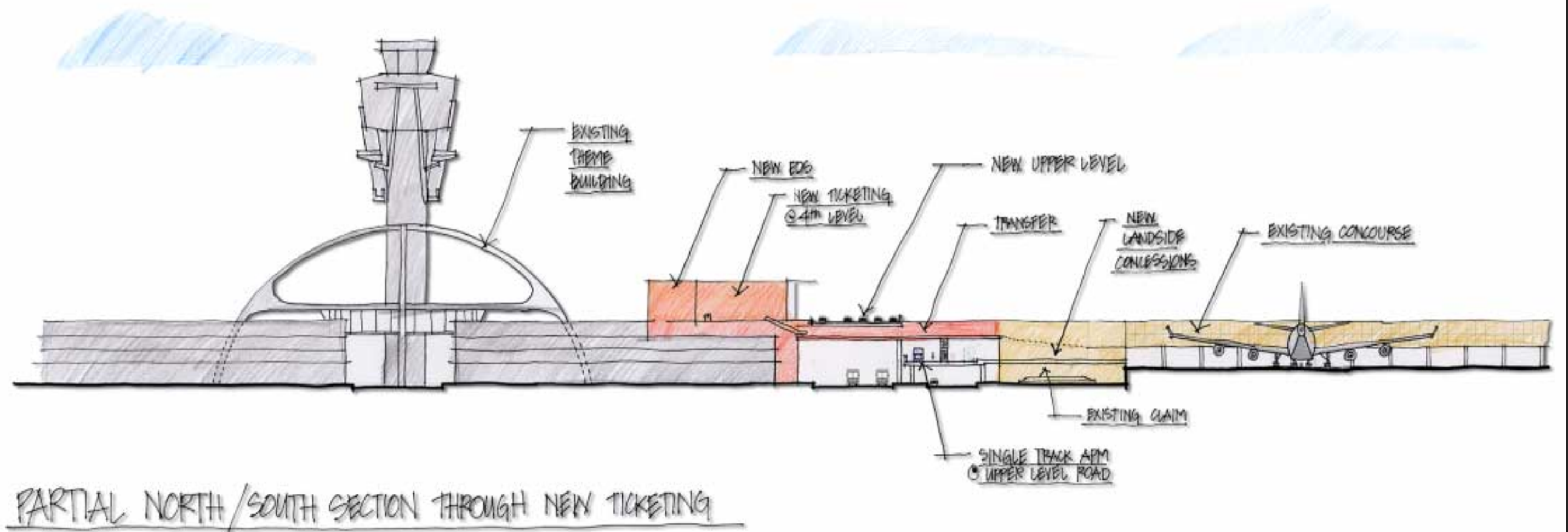




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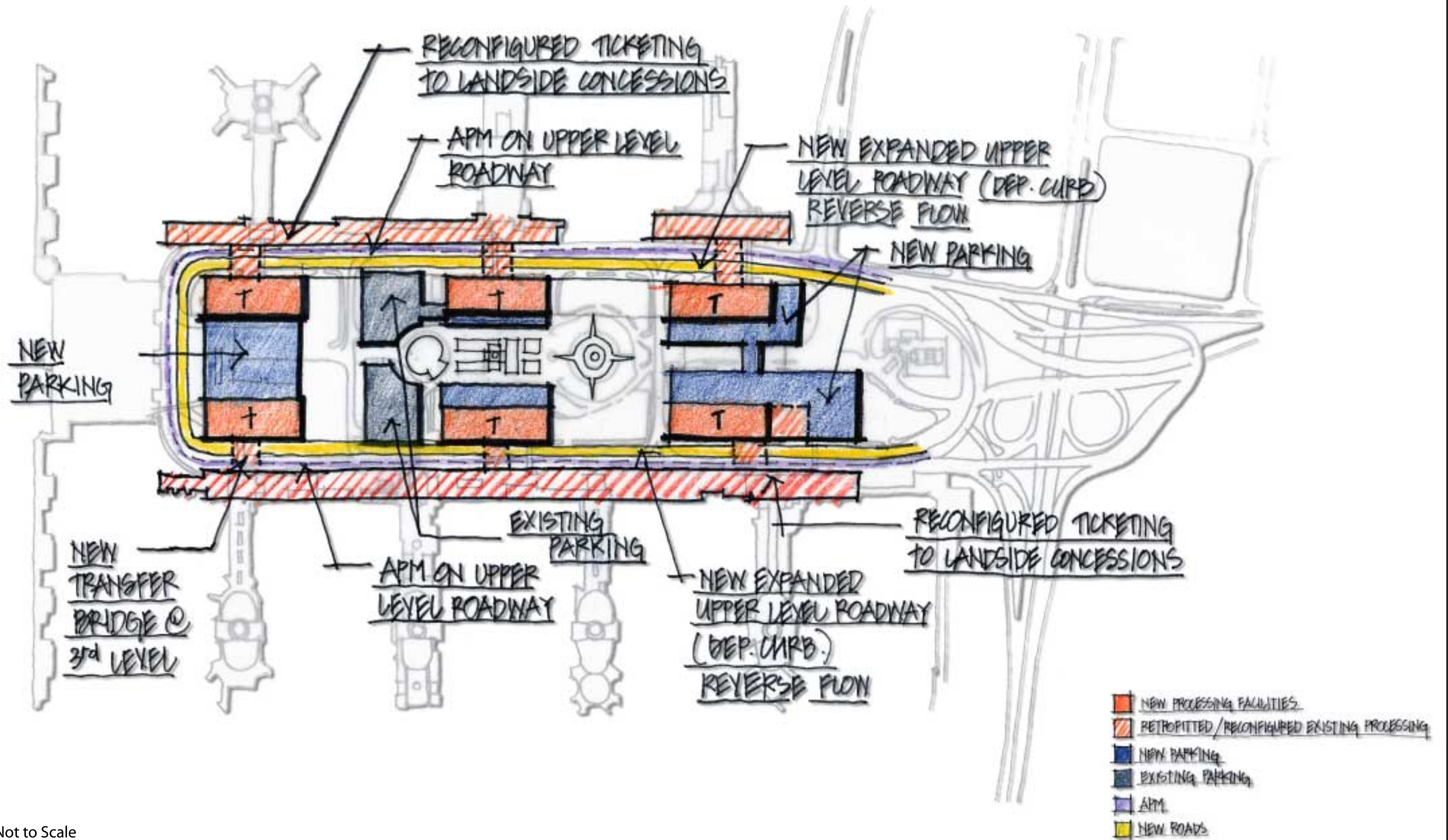




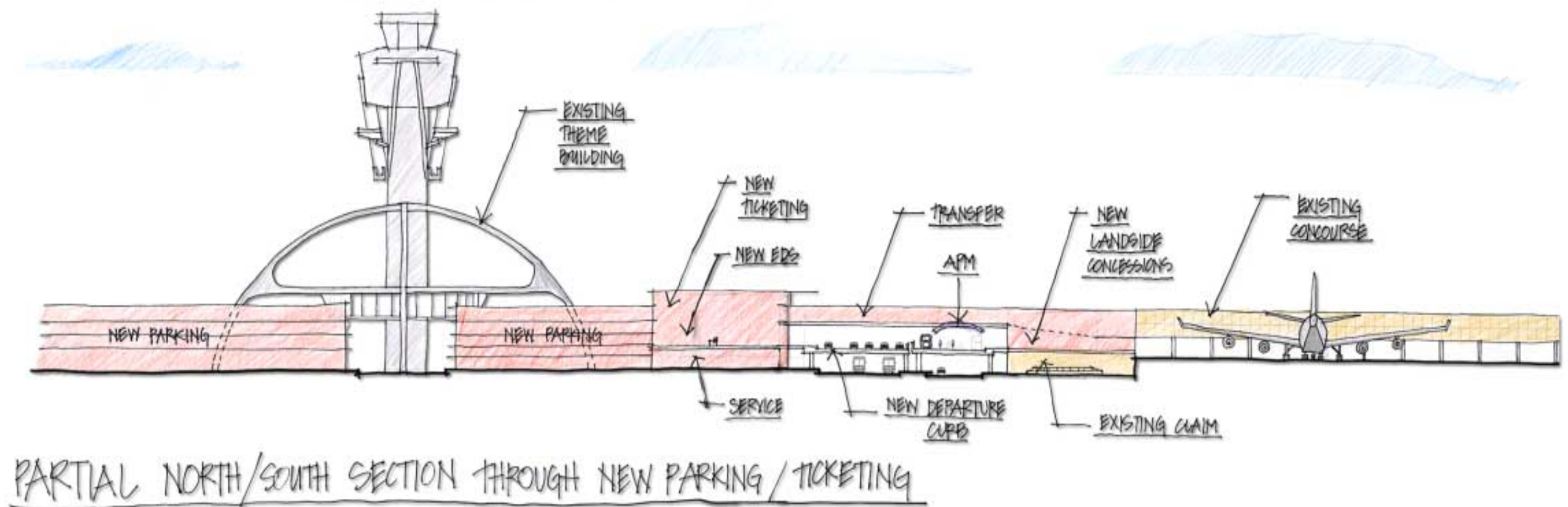
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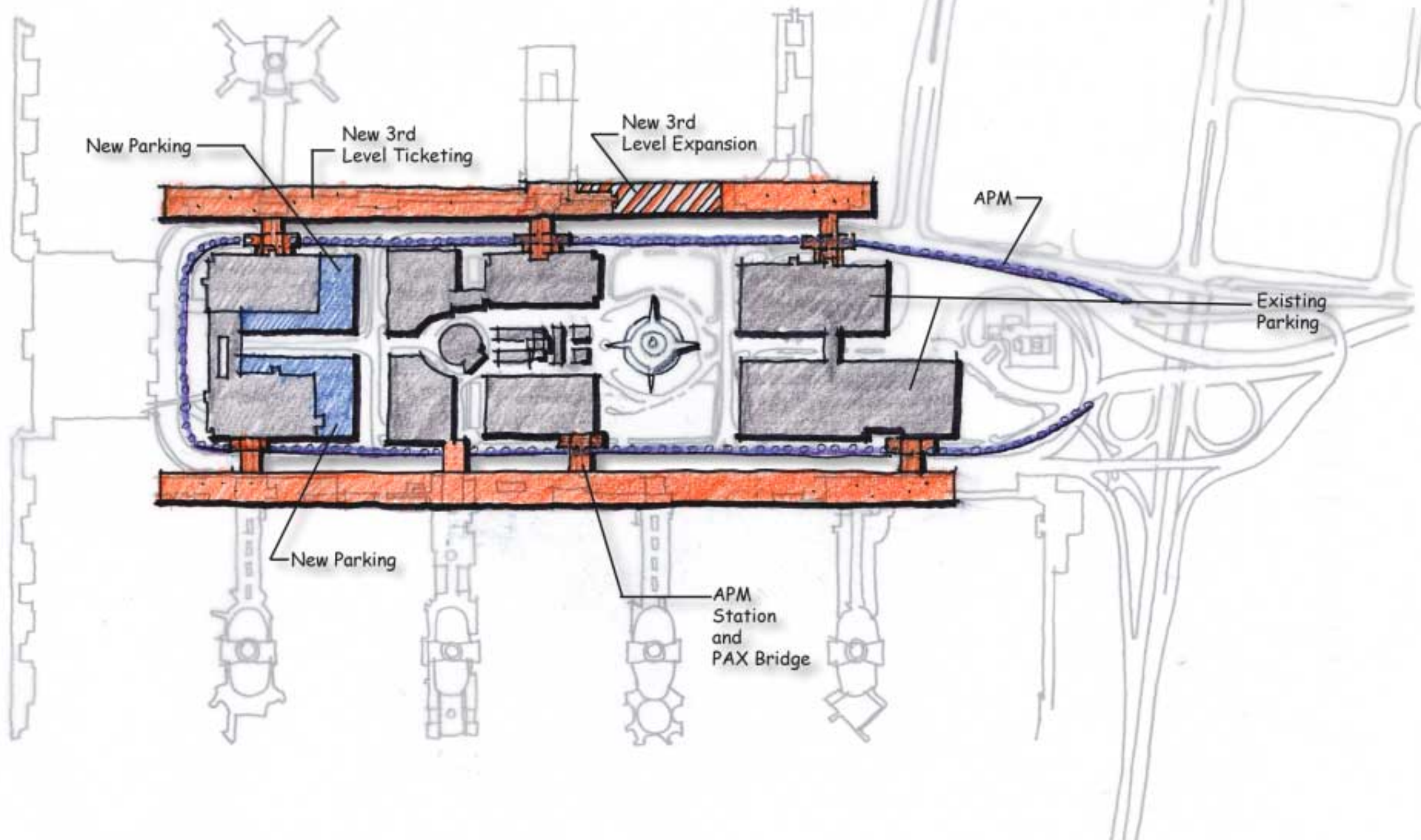




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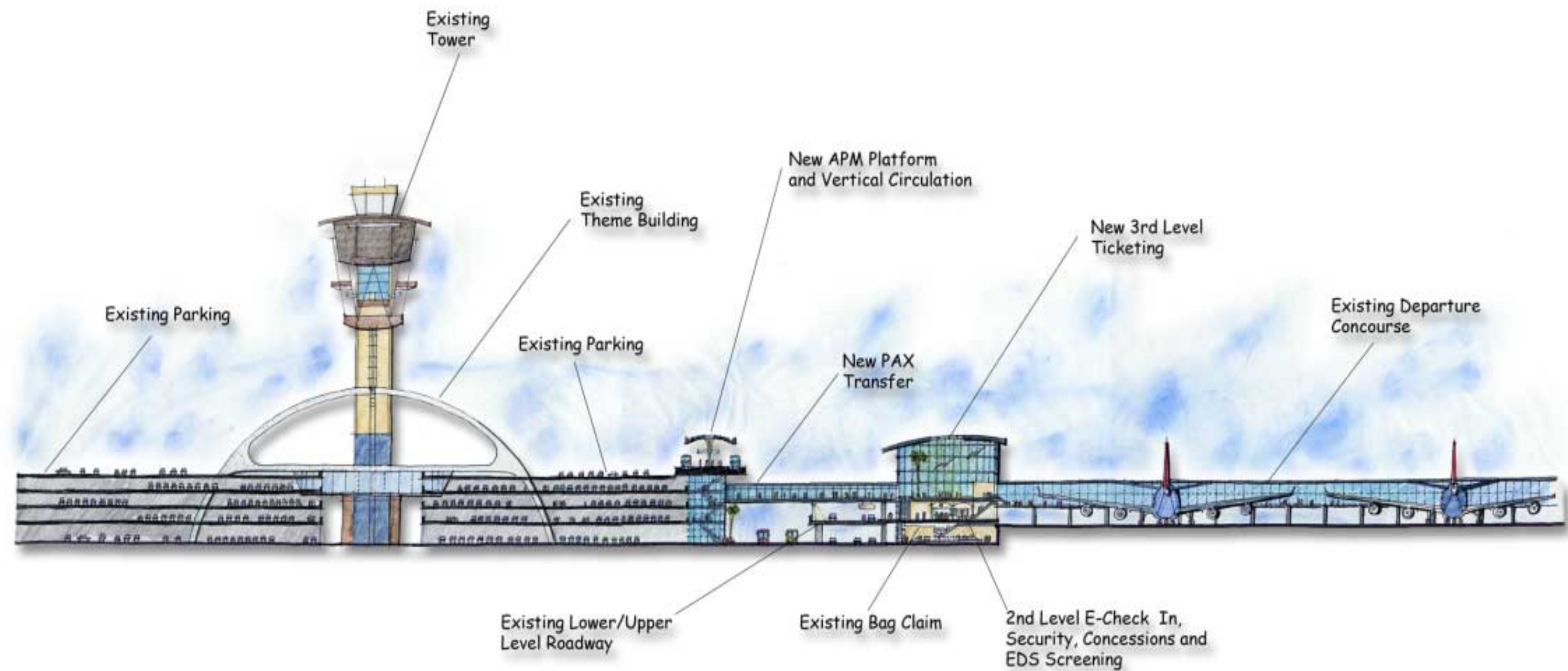




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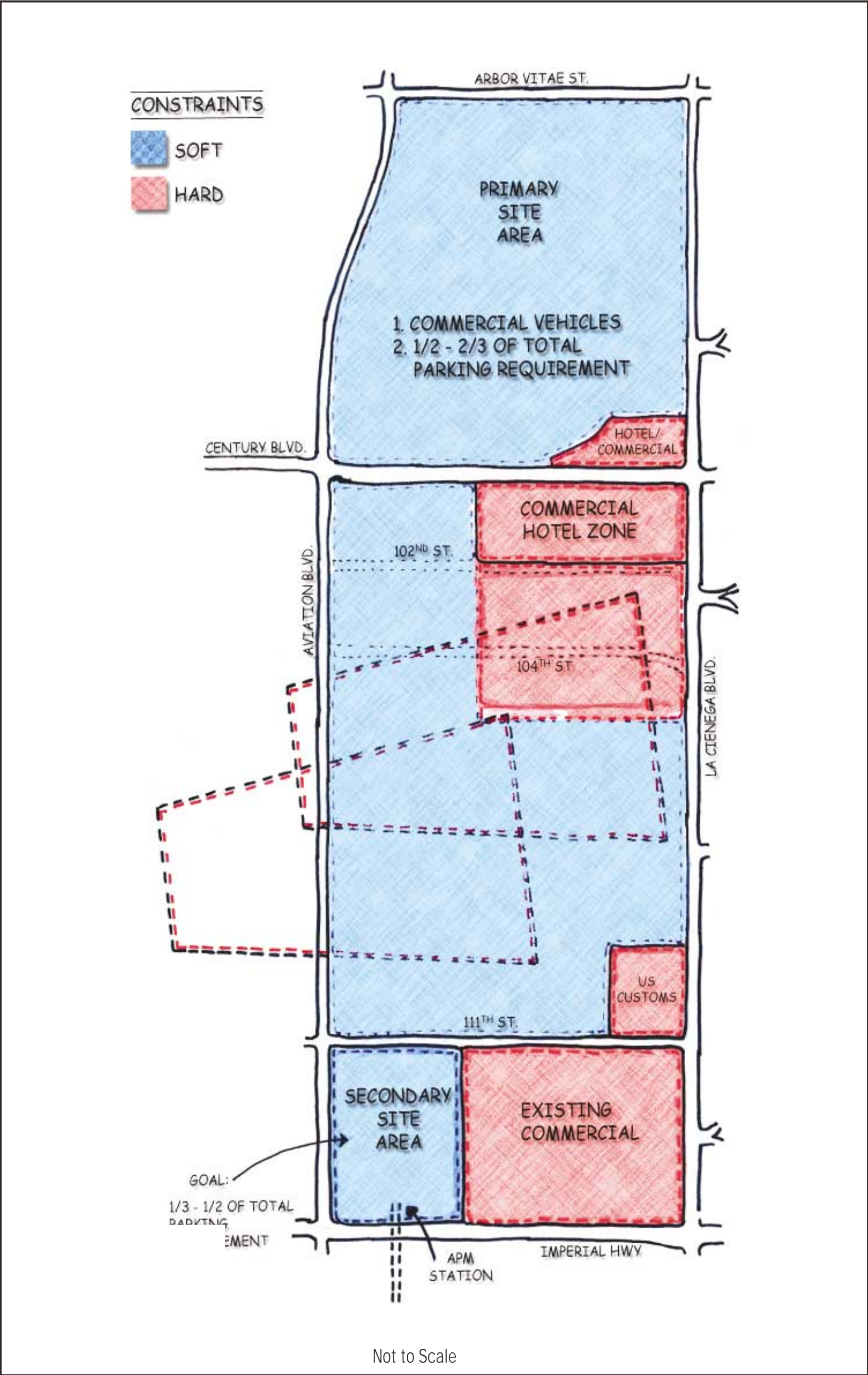
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Los Angeles International Airport Master Plan

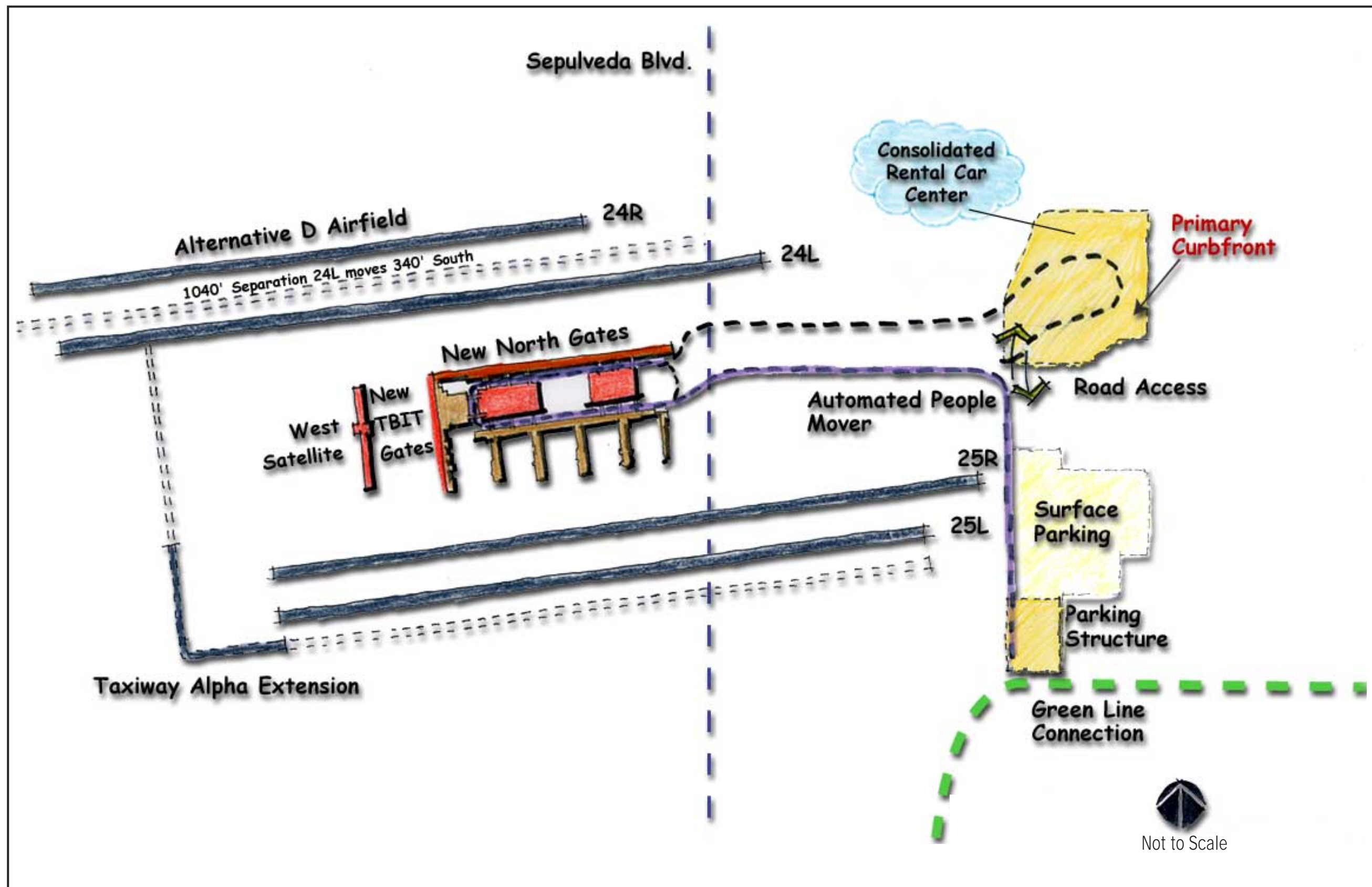
Recommended North/South Site Plan

Figure  
H-23









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Alternative D2 (**Figure H-26**) – “Alternative D Airfield (West)” key features include:

- ◆ Relocation of existing Runway 24L to the south and lengthening to the west
- ◆ New centerline taxiway between Runways 24L and 24R
- ◆ Taxiway Alpha extension
- ◆ New north CTA gates (removal of Terminals 1, 2, and 3)
- ◆ New Midfield Satellite and TBIT gates
- ◆ Consolidated rental car facility located in Lot C
- ◆ APM connection between the CTA, Lot C, and the Green Line Station
- ◆ Surface parking in the LAX north side area served with dedicated shuttle bus operation to terminal core

Alternative D3 (**Figure H-27**) – “Alternative C Airfield” key features include:

- ◆ Relocation of existing Runway 24L to the south and lengthening to east over Sepulveda Boulevard
- ◆ New centerline taxiway between Runways 24L and 24R
- ◆ Taxiway Alpha extension
- ◆ New TBIT gates
- ◆ Primary curbside and consolidated rental car facility located in Manchester Square
- ◆ APM connection between the CTA, Manchester Square, and the Green Line Station

Alternative D4 (**Figure H-28**) – “Alternative D Airfield (West)” key features include:

- ◆ Relocation of existing Runway 24L to the south and lengthening to the west
- ◆ New centerline taxiway between Runways 24L and 24R
- ◆ Taxiway Alpha extension

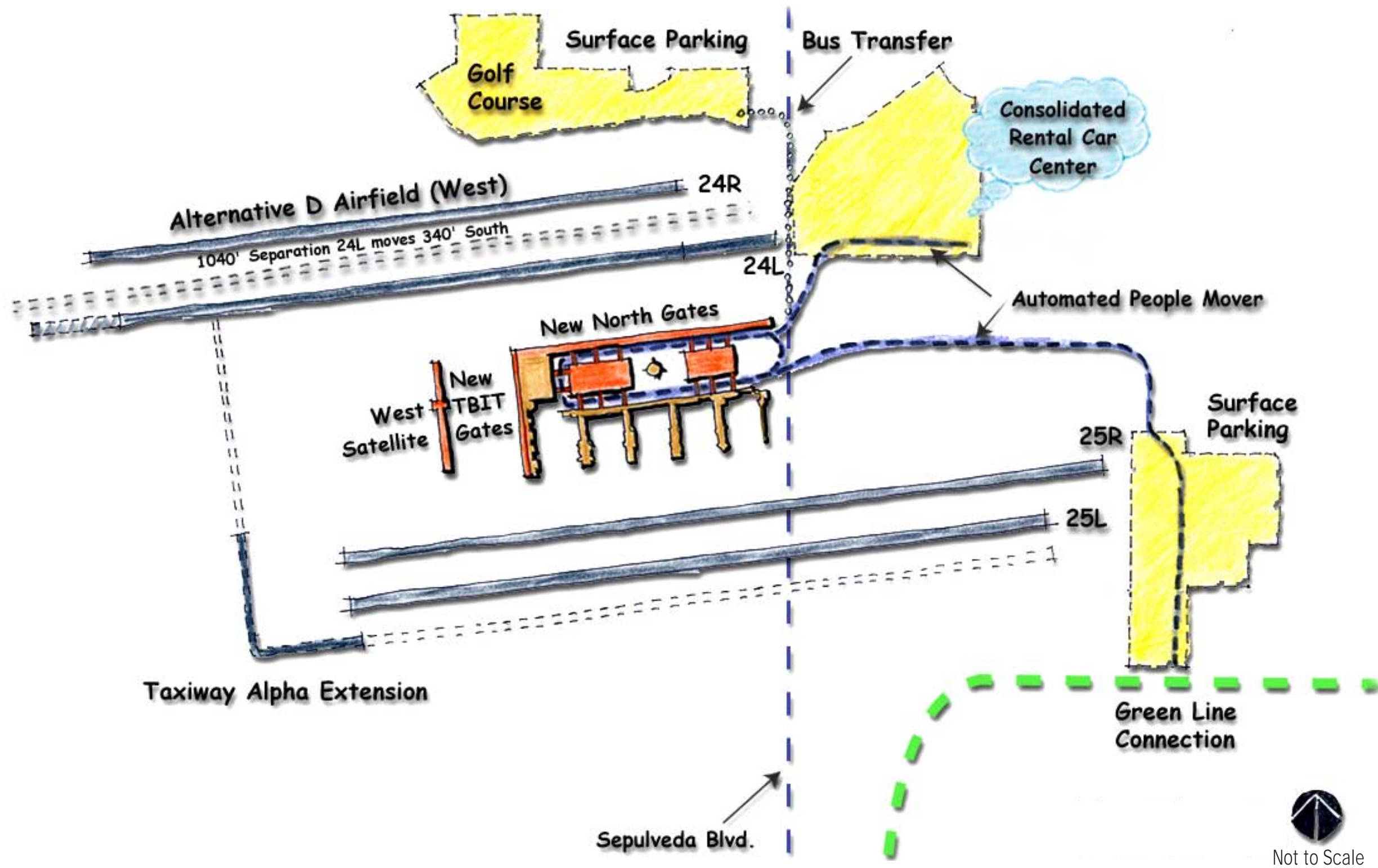


- ◆ New north CTA gates (removal of Terminals 1, 2, and 3)
- ◆ New Midfield Satellite and TBIT gates
- ◆ Primary curbside located in Lot C
- ◆ Consolidated rental car facility located in Manchester Square
- ◆ New parking structure located at the northeast corner of Imperial Highway and Aviation Boulevard (old Continental City property)
- ◆ APM connection between the CTA, Manchester Square, and parking structure at the old Continental City property
- ◆ Green Line connection

Alternative D5 (**Figure H-29**) – “Modified Alternative C” key features include:

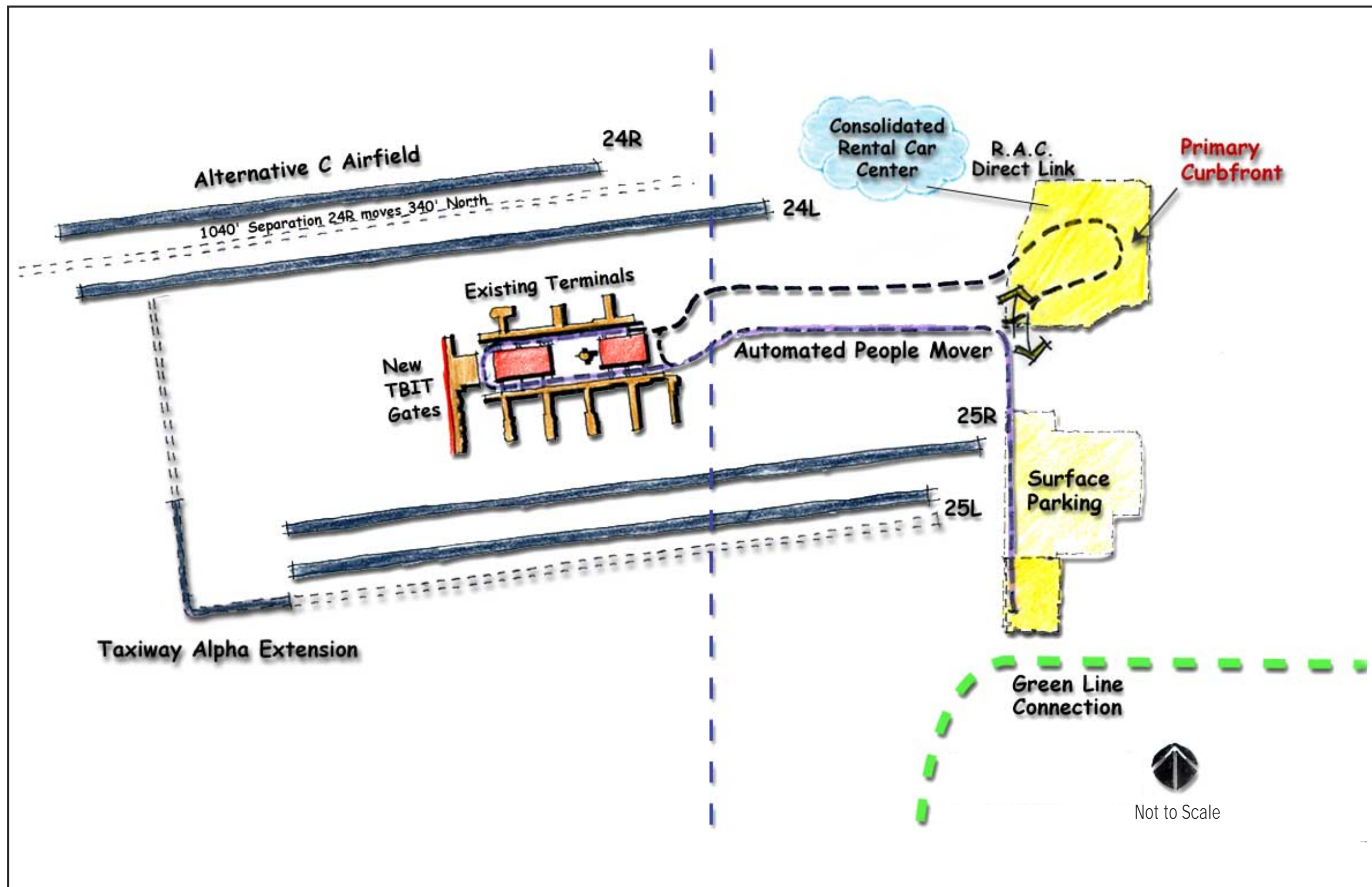
- ◆ Relocation of existing Runway 24R to the north
- ◆ New centerline taxiway between Runways 24L and 24R
- ◆ Taxiway Alpha extension
- ◆ New TBIT gates
- ◆ Consolidated rental car facility located in Lot C
- ◆ Manchester Square used for collateral airport use
- ◆ Primary curbside located in the northwest corner of La Cienega Boulevard and Imperial Highway
- ◆ APM connection between the CTA, Lot C, and primary curbside area located at the northwest corner of La Cienega Boulevard and Imperial Highway
- ◆ Green Line connection





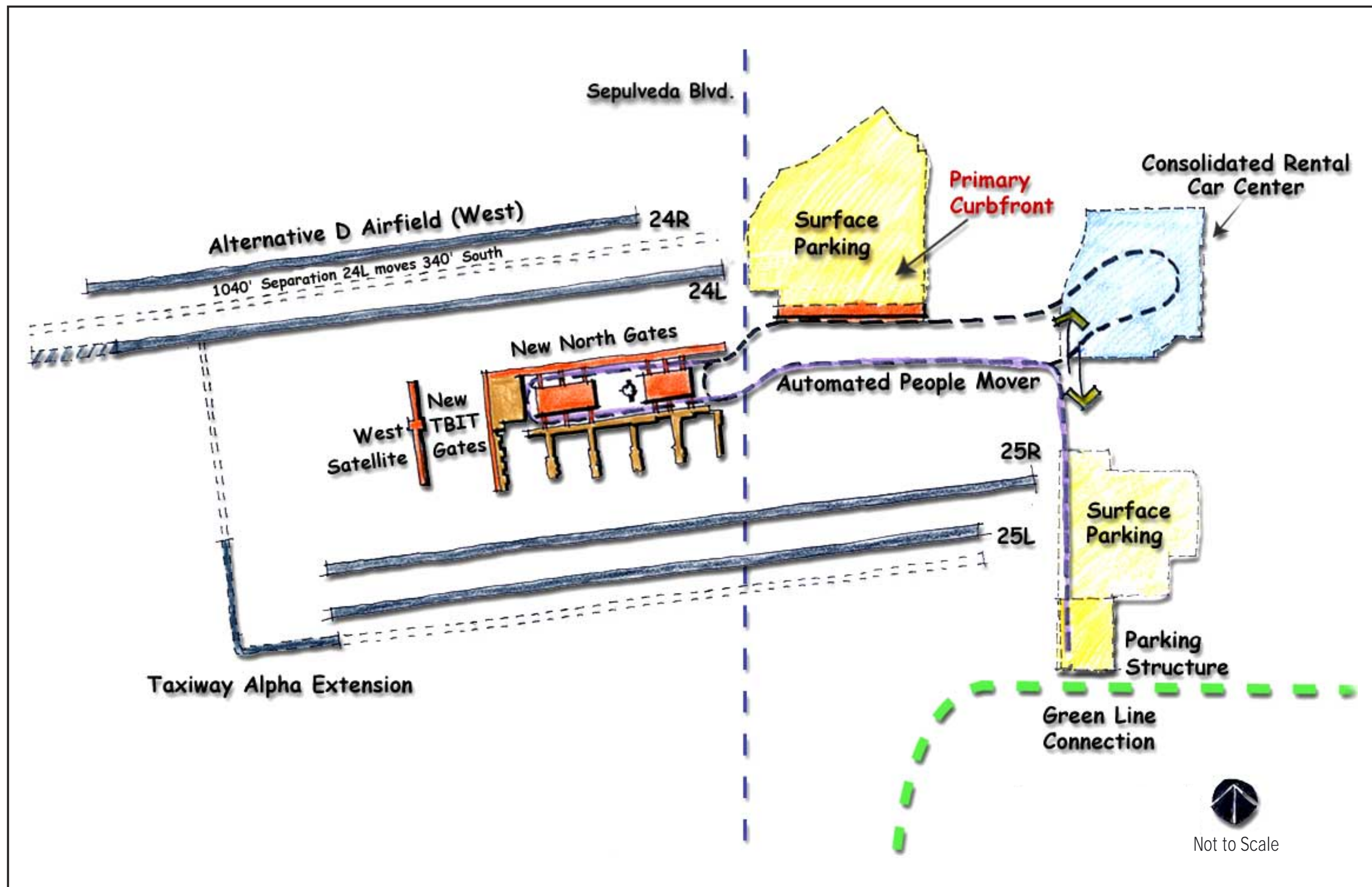
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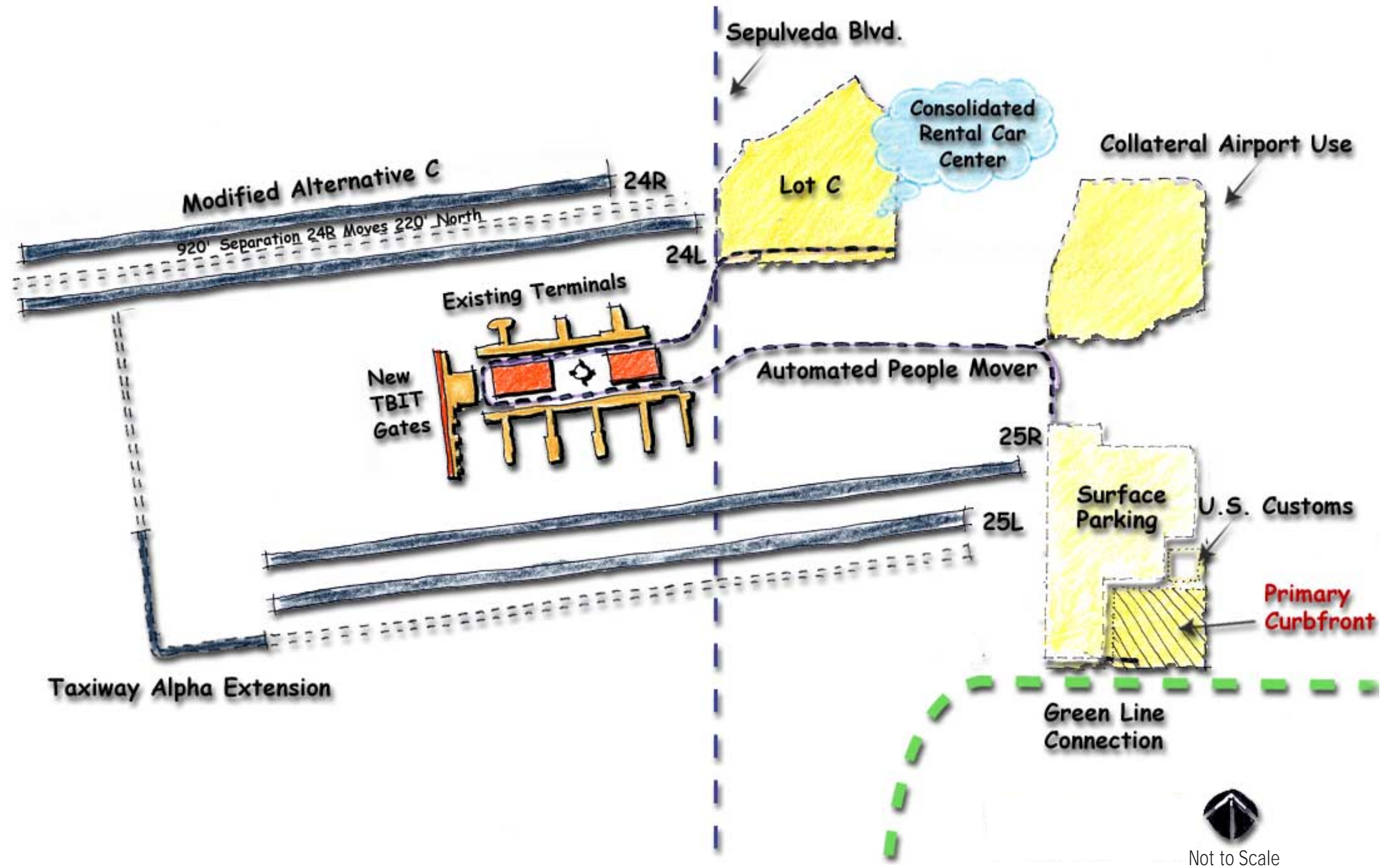
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Alternative D6 (**Figure H-30**) – “Alternative D Airfield” key features include:

- ◆ Relocation of existing Runway 24L to the south and lengthening to the west
- ◆ New centerline taxiway between Runways 24L and 24R
- ◆ Relocation of existing Runway 25L to the south
- ◆ New centerline taxiway between Runways 25L and 25R
- ◆ Taxiway Alpha extension (optional)
- ◆ New north CTA gates (removal of Terminals 1, 2, and 3)
- ◆ New Midfield Satellite and TBIT gates
- ◆ Primary curbside and consolidated rental car facility located in Manchester Square
- ◆ New parking structure located at the northeast corner of Imperial Highway and Aviation Boulevard (old Continental City property)
- ◆ APM connection between the CTA, Manchester Square, and parking structure at the old Continental City property
- ◆ Green Line connection

Alternative D7A (**Figure H-31**) – “Existing Airfield” key features include:

- ◆ Taxiway Alpha extension
- ◆ New TBIT gates
- ◆ Consolidated rental car facility located in Lot C
- ◆ Primary curbside located in Manchester Square
- ◆ New parking structure located at the northeast corner of Imperial Highway and Aviation Boulevard (old Continental City property)
- ◆ APM connection between the CTA, consolidated rental car facility, Manchester Square, and parking structure at the old Continental City property
- ◆ Green Line connection



- ◆ New employee parking area west of the existing Continental Airlines aircraft maintenance facility (east of Pershing Drive)

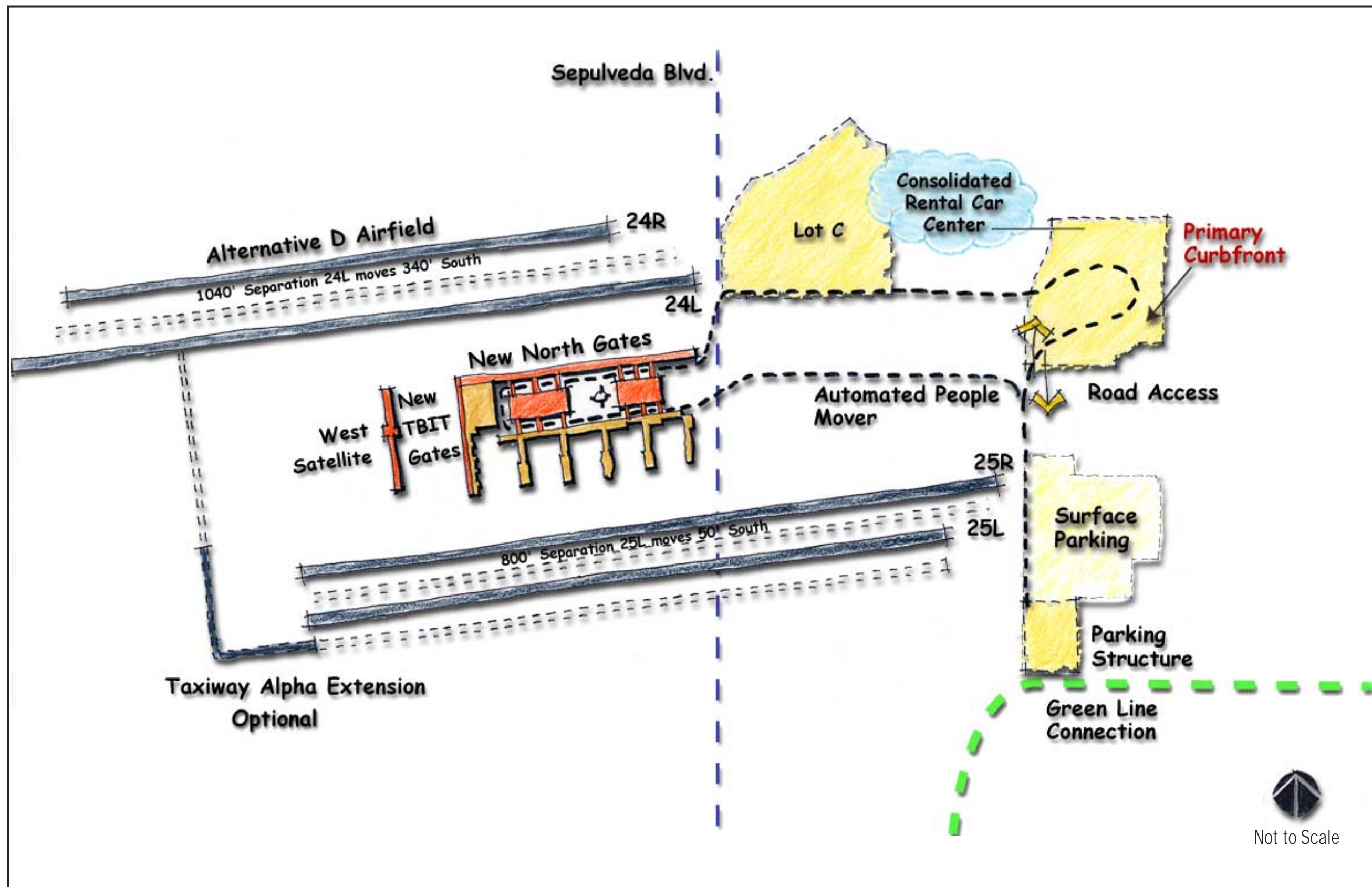
Alternative D7B (**Figure H-32**) – “Existing Airfield” key features include:

- ◆ Taxiway Alpha extension
- ◆ New TBIT gates
- ◆ Consolidated rental car facility located in Lot C
- ◆ Primary curbside remains in the CTA
- ◆ New ITC located at the northeast corner of Imperial Highway and Aviation Boulevard (old Continental City property)
- ◆ APM connection between the CTA, consolidated rental car facility, and the ITC at the old Continental City property
- ◆ Green Line connection
- ◆ New employee parking area west of the existing Continental Airlines aircraft maintenance facility (east of Pershing Drive)

Alternative D8 (**Figure H-33**) - “Alternative D Airfield” key features include:

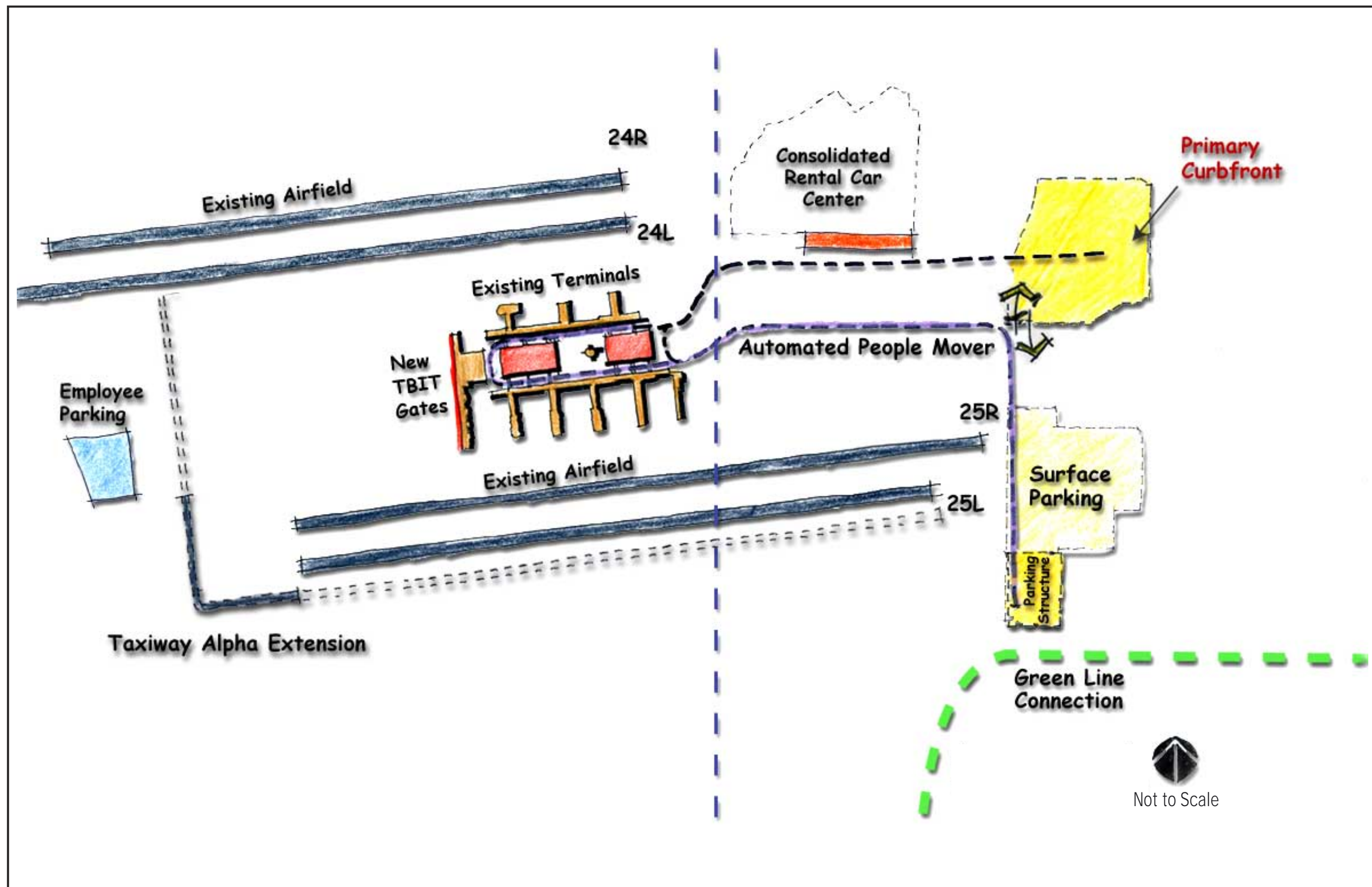
- ◆ Relocation of existing Runway 24L to the south,
- ◆ New centerline taxiway between Runways 24L and 24R
- ◆ Taxiway Alpha extension
- ◆ New north CTA gates (removal of Terminals 1, 2, and 3)
- ◆ New Midfield Satellite and TBIT gates
- ◆ Primary curbside located in Manchester Square
- ◆ Consolidated rental car facility located in Lot C
- ◆ New ITC located at the northeast corner of Imperial Highway and Aviation Boulevard (old Continental City property)





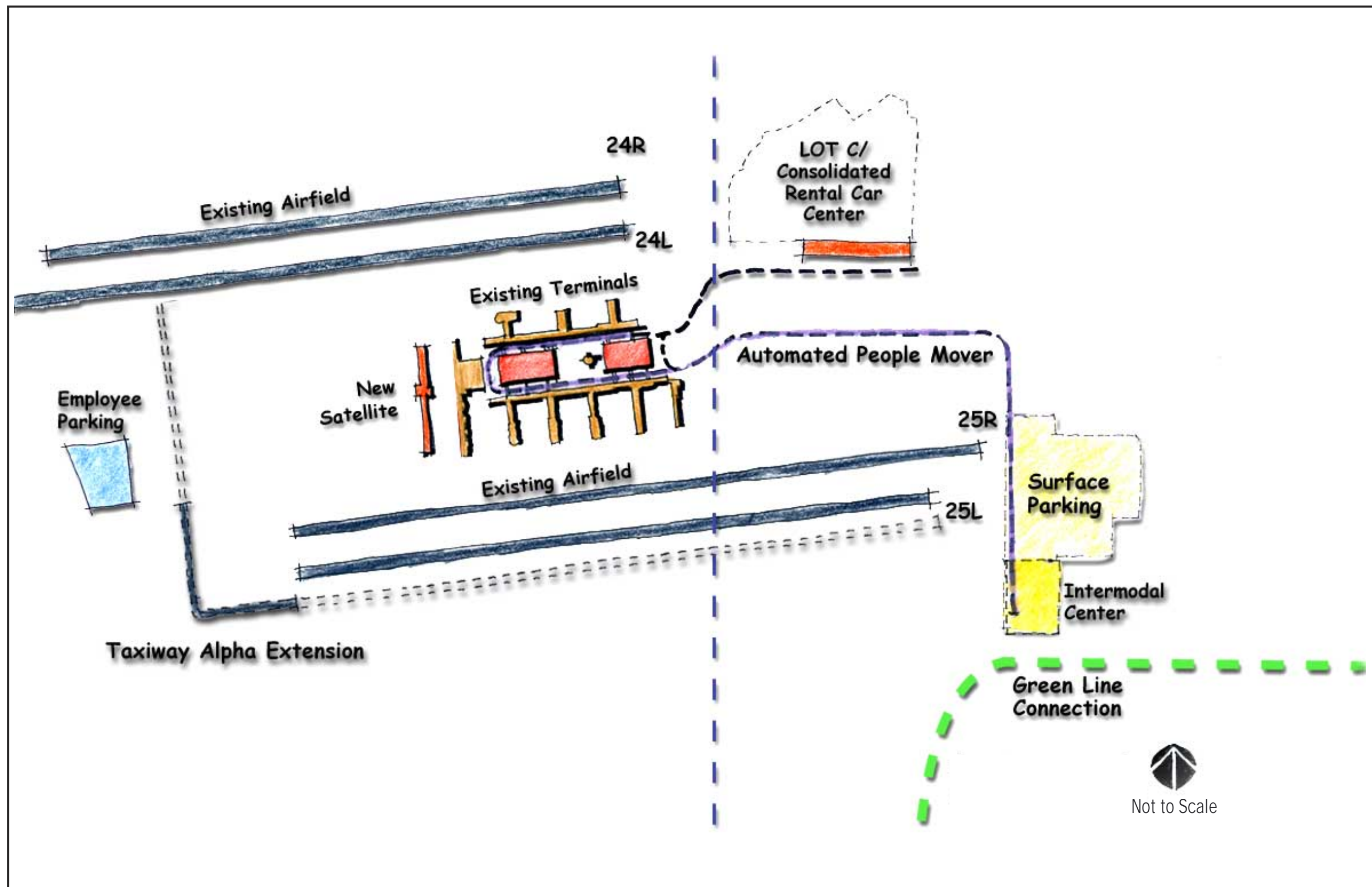
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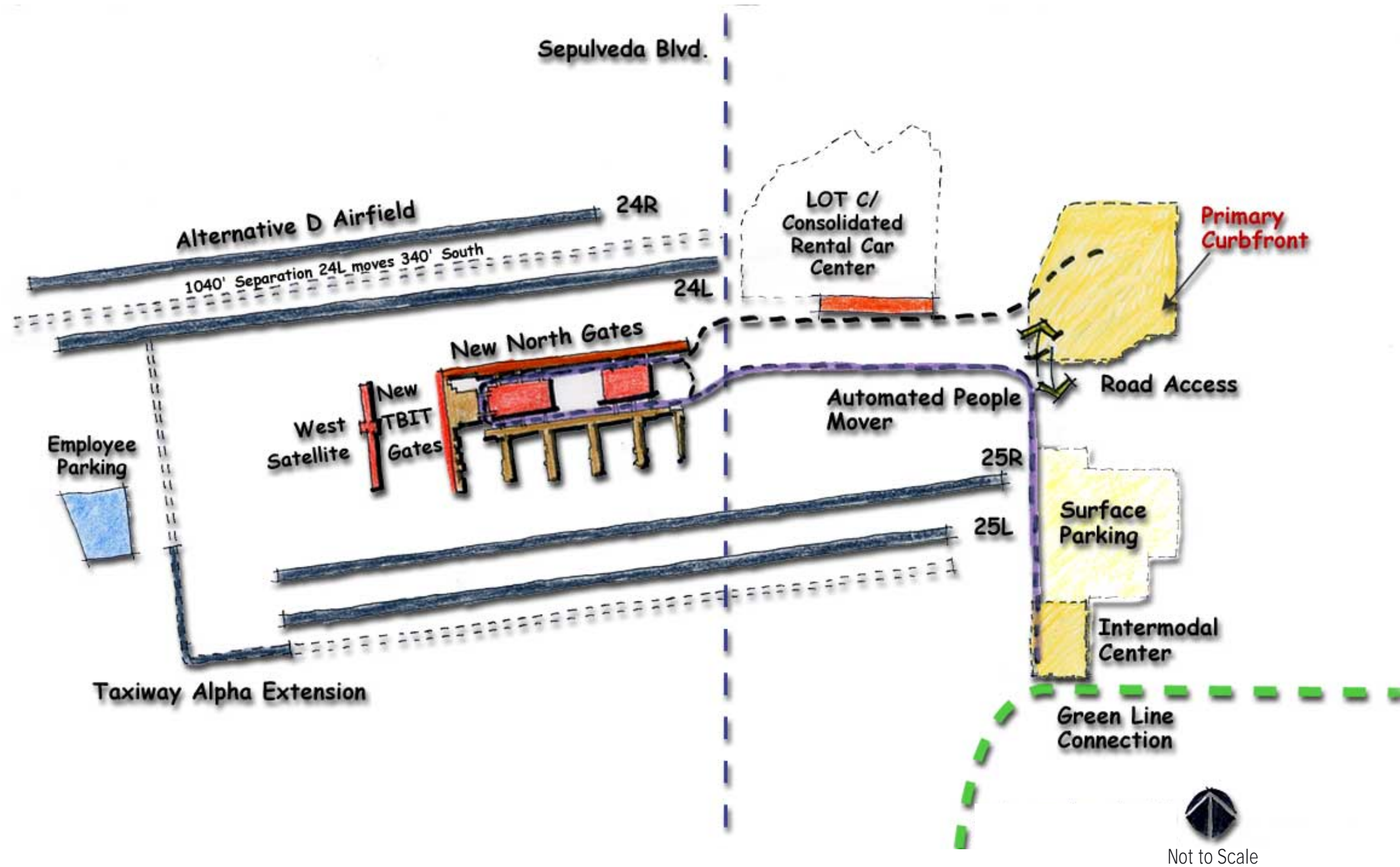
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- ◆ APM connection between the CTA, consolidated rental car facility, Manchester Square, and the ITC at the old Continental City property
- ◆ Green Line connection
- ◆ New employee parking area west of the existing Continental Airlines aircraft maintenance facility (east of Pershing Drive)

Alternative D8 was carried forward for further analysis.

## **H.6 PHASE 1 – CONSOLIDATED RENTAL CAR OPTIONS**

During the course of the development of Alternative D LAWA Administration requested that the Master Plan team investigate some near term interim Rental Car Facility improvements to help alleviate existing curbside congestion. The results of this investigation are represented in the following illustrations (**Figures H-34 through H-42**). Phase 1 was intended to be the interim solution leading to Phase 2 implementation of the recommended Master Plan Consolidated Rental Car Facility.

The objective of the Phase 1 Consolidated Rental Car Options is to develop facility plans that:

1. Enable LAWA to institute a common busing operation at the earliest possible date,
2. Maximize the use of existing available sites without changing the land use,
3. Institute a Customer Facility Charge (CFC), and
4. Transition efficiently into a long-term consolidated rental car facility

To achieve these objectives, eight (8) separate options were developed. These options are a logical step toward an eventual long-term consolidated rental car facility. They are sized to meet the current demand as opposed to the demand anticipated over 25 years. These options take advantage of a site area that is consistent with existing rental car operations. In fact, five rental car companies that make up 75% of the LAX market are located within one city block of the site area. Moreover, properly done, the Phase 1 facility will include infrastructure that will be necessary when the long-term consolidated facility is constructed.



From an operational and customer service perspective, the best design is Option 1. It involves constructing the customer service building and ready/return area on the current Budget, Avis and National sites. Though it would require relocating those companies to Lot C, there are a number of key advantages to this option:

1. The customer service building would be used in the final phase long-term consolidated rental car facility.
2. The ready/return area is located directly across the street from Hertz, Avis, National and Budget, which makes shuttling vehicles quick and easy. Those companies represent 66% of the LAX rental car market (based on 2000 figures).
3. The site could accommodate approximately 2,500 ready/return spaces. To increase capacity and reduce shuttling, it may also be possible to deck the site and construct a quick turn around facility (QTA) where vehicles can be quickly washed, vacuumed and fueled. This area could then be used as a storage site once the final phase long-term consolidated rental car facility is built.
4. Double busing is minimized which is beneficial from both a customer service and environmental perspective.

Ultimately, the biggest advantage to this option, and the others as well, is the fact that the all involve the use of a common busing operation. Common busing would drastically reduce curb congestion and traffic in the terminal core. At Houston George Bush Intercontinental Airport, for example, the rent-a-car (RAC) industry uses 125 vehicles to transport rental car customers. A common bus fleet of only 24 Gillig 40-foot low floor buses is replacing those vehicles. Logically, this also improves air quality. Dallas/Fort Worth International Airport estimates that the common busing operation at its consolidated rental car facility has reduced particulate emissions by more than 460 tons each year.

#### **Site Accessibility (Figure H-34)**

The general site area that was considered for the Phase 1 – Consolidated Rental Car Options includes Lot C, existing rental car areas west of Airport Boulevard, and the Belford Area (LAWA owned). Primary access to the site is via Sepulveda Boulevard, Airport Boulevard, 96<sup>th</sup> and 98<sup>th</sup> Street and Arbor Vitae Street.





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Draft: 05/28/03



**Option 1 (Figure H-35)**

Construct a customer service building that could ultimately be used as part of a long-term consolidated rental car facility and provide adjacent ready/return areas.

**Description:**

All rental car customers are transported from the terminal curb to a customer service building located on the proposed APM route. An adjacent ready/return area is provided for on-airport RACs on the current Budget, National and Avis service facility sites. The site is approximately 22 acres. It could hold approximately 2,500 ready/return spaces. To maximize efficiency, a QTA area could be constructed on the north end of the ready/return area. It may also be possible to double capacity by building a two level parking garage. Off-airport RACs double bus their customers from the customer service building to their service facilities. The National, Avis and Hertz service facilities would be relocated to the sites they would ultimately occupy when the long-term consolidated rental car facility is constructed (i.e. Belford, Lot C or Lot D).

**Pros:**

1. Dramatically reduces bus traffic in the terminal core
2. Does not require all rental car customers to double bus
3. Customer service building is easily phased into development of long-term consolidated rental car facility
4. Close proximity to existing service facilities minimizes shuttle distance
5. Maximum use of common busing (i.e. double busing limited to off-airport RACs) and minimal rental vehicle shuttling provides maximum environmental benefit
6. On-airport RACs will view more favorably than options that require all companies to double bus
7. Ready/return area easily converted to service facility in event long-term consolidated rental car facility is constructed
8. Consistent with existing land use

**Cons:**

1. Utilizes approximately 50 percent of Lot C
2. Displaces three service facilities
3. Airport does not currently own all needed land



**Option 2 (Figure H-36)**

Construct a customer service building that could ultimately be used as part of a long-term consolidated rental car facility and provide adjacent ready/return area located at Lot C.

**Description:**

All rental car customers are transported from the terminal curb to a customer service building located on the proposed APM route. An adjacent ready/return area is provided for on-airport RACs on the current Budget, National and Avis service facility sites. The site is approximately 22 acres. It could hold approximately 2,500 ready/return spaces. It may be possible to double capacity by building a two level parking garage. Vehicles would be returned at Lot C. Off-airport RACs double bus their customers from the customer service building to their service facilities. The common bus at Lot C would pick up all returning customers. The National, Avis and Hertz service facilities would be relocated to the sites they would ultimately occupy when the long-term consolidated rental car facility is constructed.

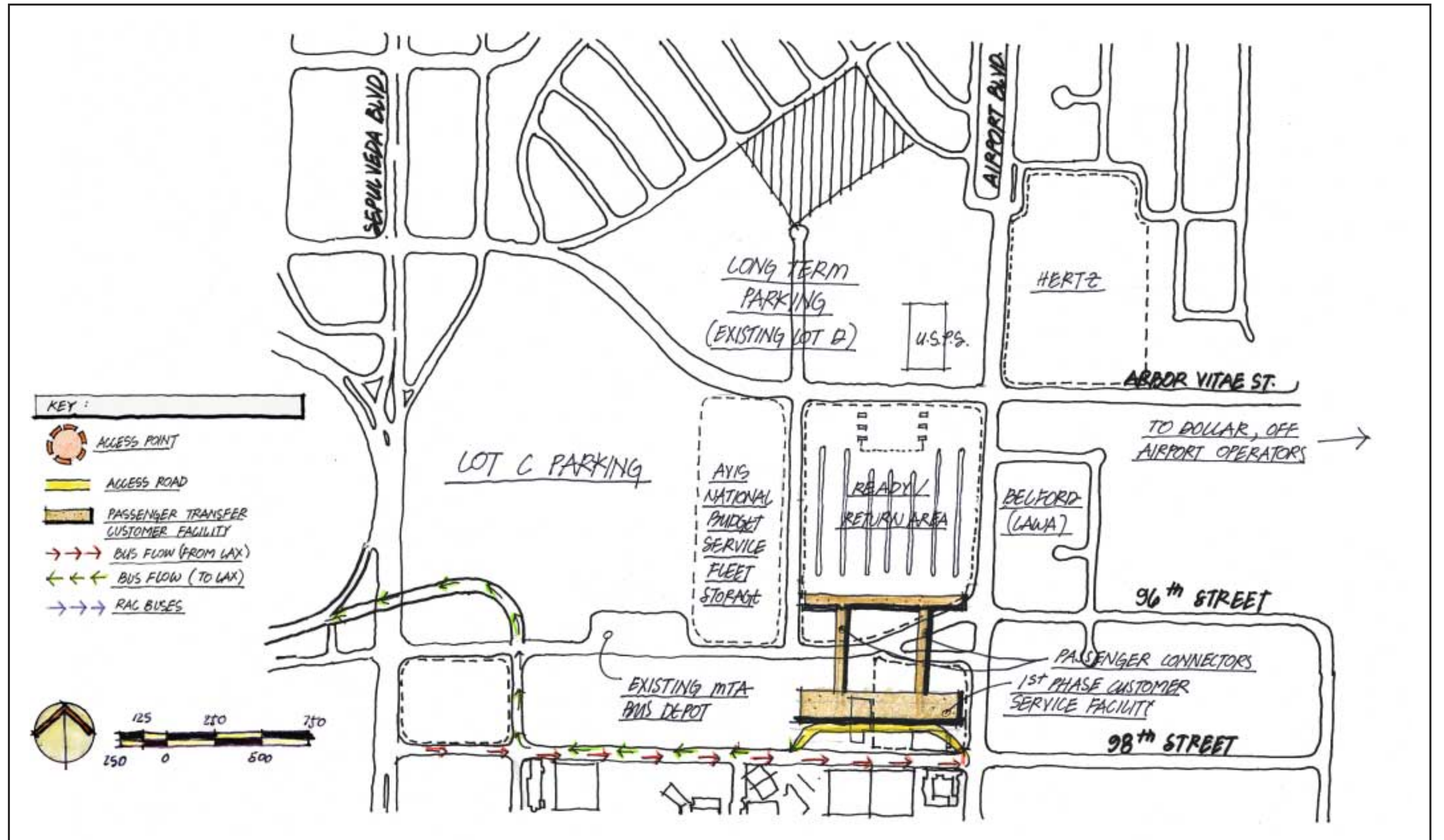
**Pros:**

1. Dramatically reduces bus traffic in the terminal core
2. Does not require all rental car customers to double bus
3. Customer service building is easily phased into development of long-term consolidated rental car facility
4. Close proximity to existing service facilities minimizes shuttle distance
5. Maximum use of common busing (i.e. double busing limited to off-airport RACs) and minimal rental vehicle shuttling provides maximum environmental benefit
6. On-airport RACs will view more favorably than options that require all companies to double bus
7. Ready/return area easily converted to service facility in event long-term consolidated rental car facility is constructed
8. Consistent with existing land use

**Cons:**

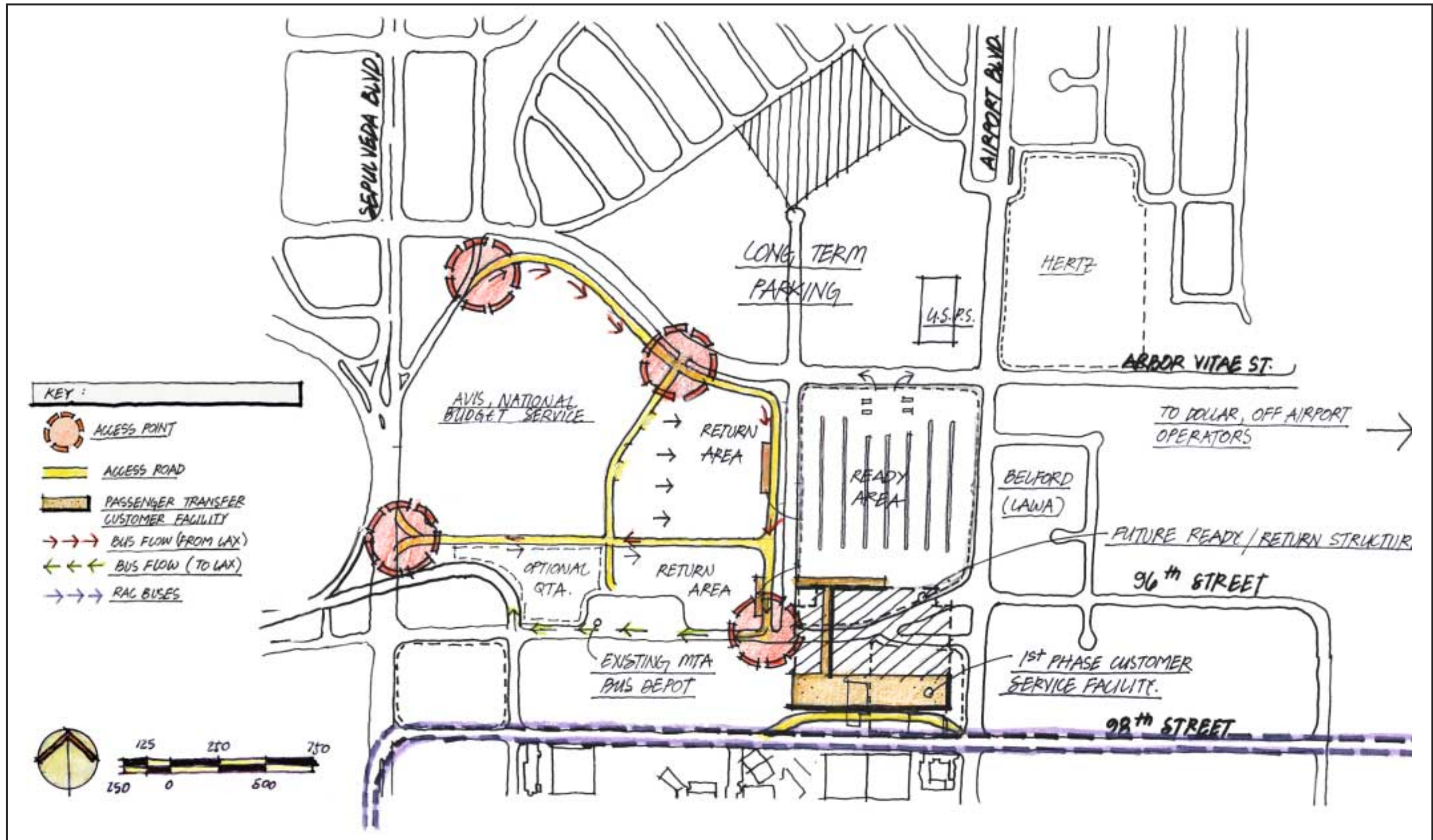
1. Utilizes all of Lot C
2. Would require construction of building at Lot C to handle returning customers
3. Displaces three service facilities
4. Airport does not currently own all needed land





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 Draft: 05/28/03





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**Option 3 (Figure H-37)**

Construct a customer service building that could ultimately be used as part of a long-term consolidated rental car facility and use the building to transfer rental car customers from the common busing operation to the RAC shuttles.

**Description:**

All rental car customers are transported from the terminal curb to a customer service building located on the proposed APM route. The customer service building would include rental car counters. Each RAC transports its customers from the customer service building to its service facility where vehicles are located. Customers return vehicles to individual service sites. Each RAC shuttles customers from its service facility to the customer service building. Customers then board the common bus for transport to the terminals. As part of this plan, Budget's service facility is relocated to either the Belford site or Lot C.

**Pros:**

1. Dramatically reduces bus traffic in the terminal core
2. Customer service building can easily be phased into development of long-term consolidated rental car facility
3. Little or no disruption to parking revenue from Lot C

**Cons:**

1. All rental car customers double bused
2. Significantly increases bus traffic in the area around Lot C
3. Eliminates distinction between on-airport and off-airport RACs
4. Could face strong opposition from RACs because of double busing element
5. Will relocate roving RAC shuttles, not eliminate them
6. Utilizes approximately 15 percent of Lot C for relocated Budget facility
7. Opponents may argue that it does not qualify as a consolidated rental car facility for purposes of Section 1936 of the California Civil Code
8. Airport does not currently own all needed land



**Option 4 (Figure H-38)**

Utilize a common busing operation that drops customers at two locations adjacent to existing on-airport RACs.

**Description:**

All rental car customers are picked up at the terminal curb by the common busing operation and transported to one of two locations: a transfer station near the existing Hertz service facility, or on a dedicated road constructed between the National and Avis service facilities. Off-airport RACs pick up and drop-off their customers at the transfer station near the Hertz service facility.

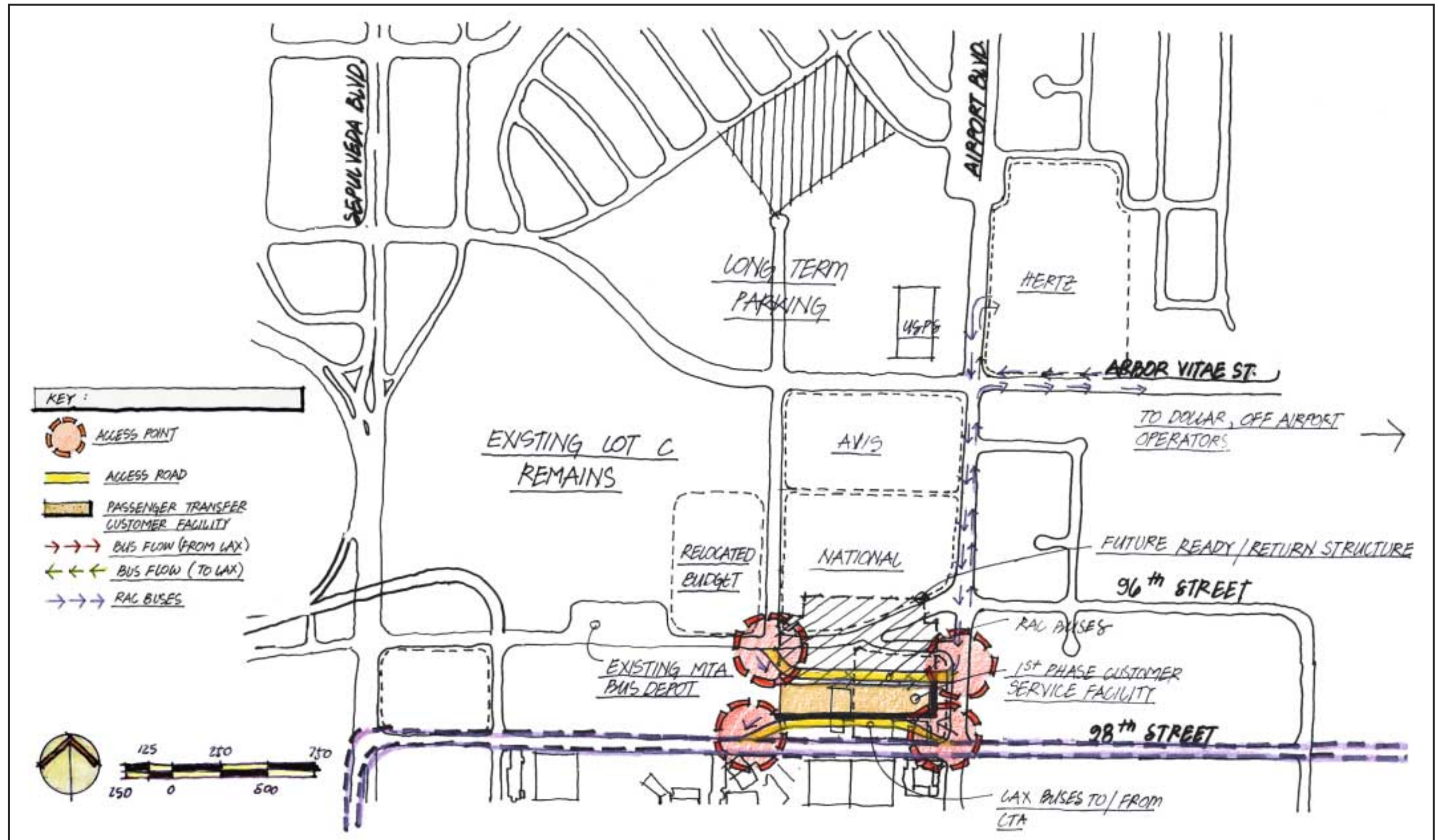
**Pros:**

1. Dramatically reduces bus traffic in the terminal core
2. Minimal cost
3. Minimizes double busing
4. Eliminates shuttling of rental cars
5. Does not require displacement of existing service facilities

**Cons:**

1. May require two common bus routes which could complicate passenger loading at the terminal curb
2. If single common bus route is used, it will face strong opposition from on-airport RACs that are located at the second stop
3. Not coordinated with potential development of long-term consolidated rental car facility.
4. Opponents may argue that it does not qualify as a consolidated rental car facility for purposes of Section 1936 of the California Civil Code





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**Option 5 (Figure H-39)**

Utilize the Belford site to transfer customers from a common transportation system to the individual rental car shuttles.

**Description:**

All rental car customers are transported from the terminal to a transfer station located on the Belford site. Customers then transfer to individual rental car shuttle vehicles and are transported to the RAC service facility. Vehicles are returned at the service facilities. RACs shuttle their customers back to the Belford site where the customers board the common bus and are transported to the terminals.

**Pros:**

1. Low cost
2. Will dramatically reduce bus traffic in the terminal core
3. Does not impact Lot C

**Cons:**

1. All customers are double bused
2. Significantly increases bus traffic in the area around Lot C
3. Eliminates distinction between on-airport and off-airport RACs
4. Will face strong opposition from RACs because of double busing element
5. Will relocate roving RAC shuttles, not eliminate them
6. Opponents may argue that it does not qualify as a consolidated rental car facility for purposes of Section 1936 of the California Civil Code



**Option 6 (Figure H-40)**

Utilize the Long-Term Parking site to transfer customers from a common transportation system to the individual rental car shuttles.

**Description:**

All rental car customers are transported from the terminal to a transfer station located on the Long-Term Parking site. Customers then transfer to individual rental car shuttle vehicles and are transported to the RAC service facility. Vehicles are returned at the service facilities. RACs shuttle their customers back to the Long-Term Parking site where the customers board the common bus and are transported to the terminals.

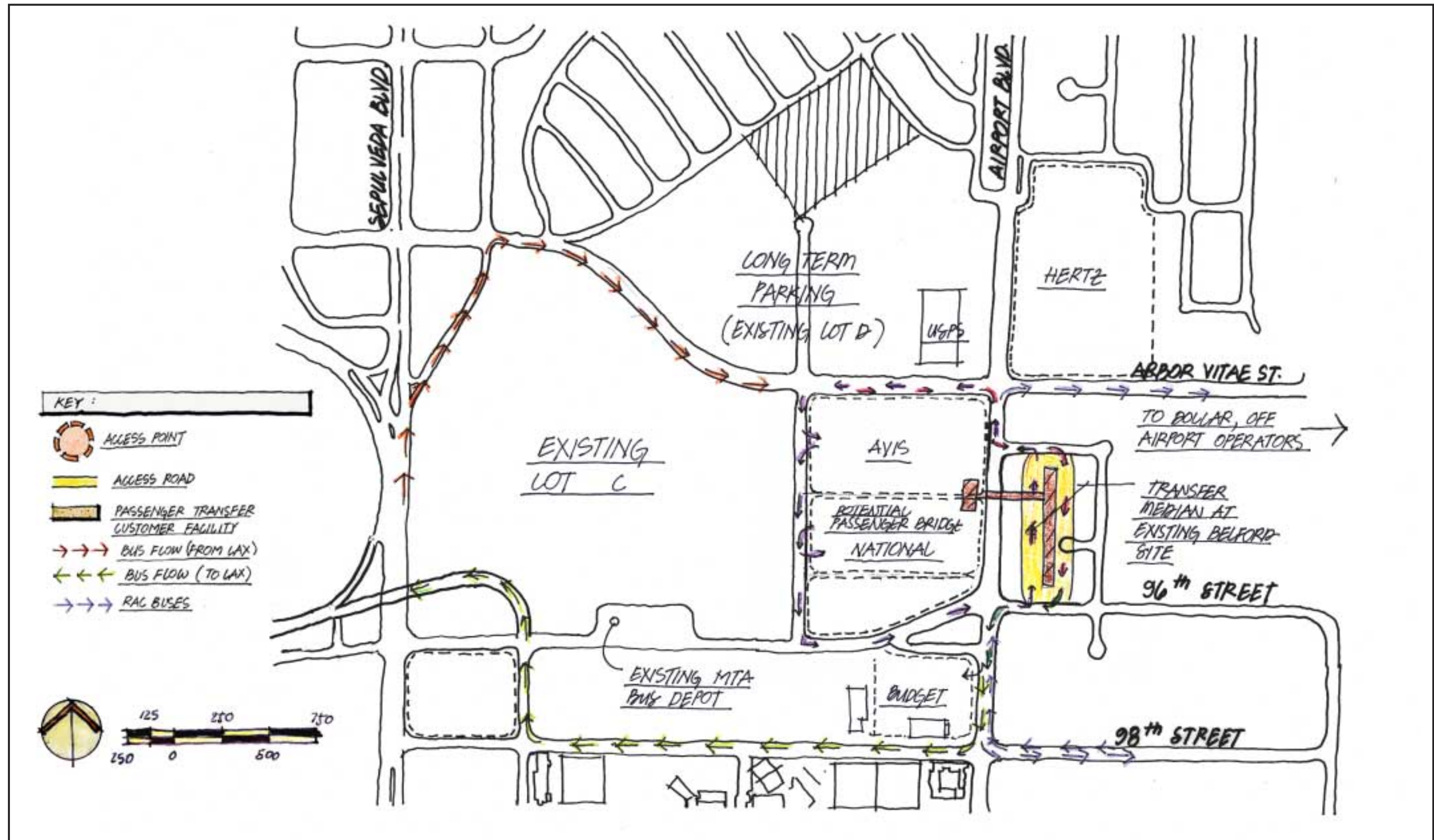
**Pros:**

1. Low cost
2. Will dramatically reduce bus traffic in the terminal core
3. Does not impact Lot C

**Cons:**

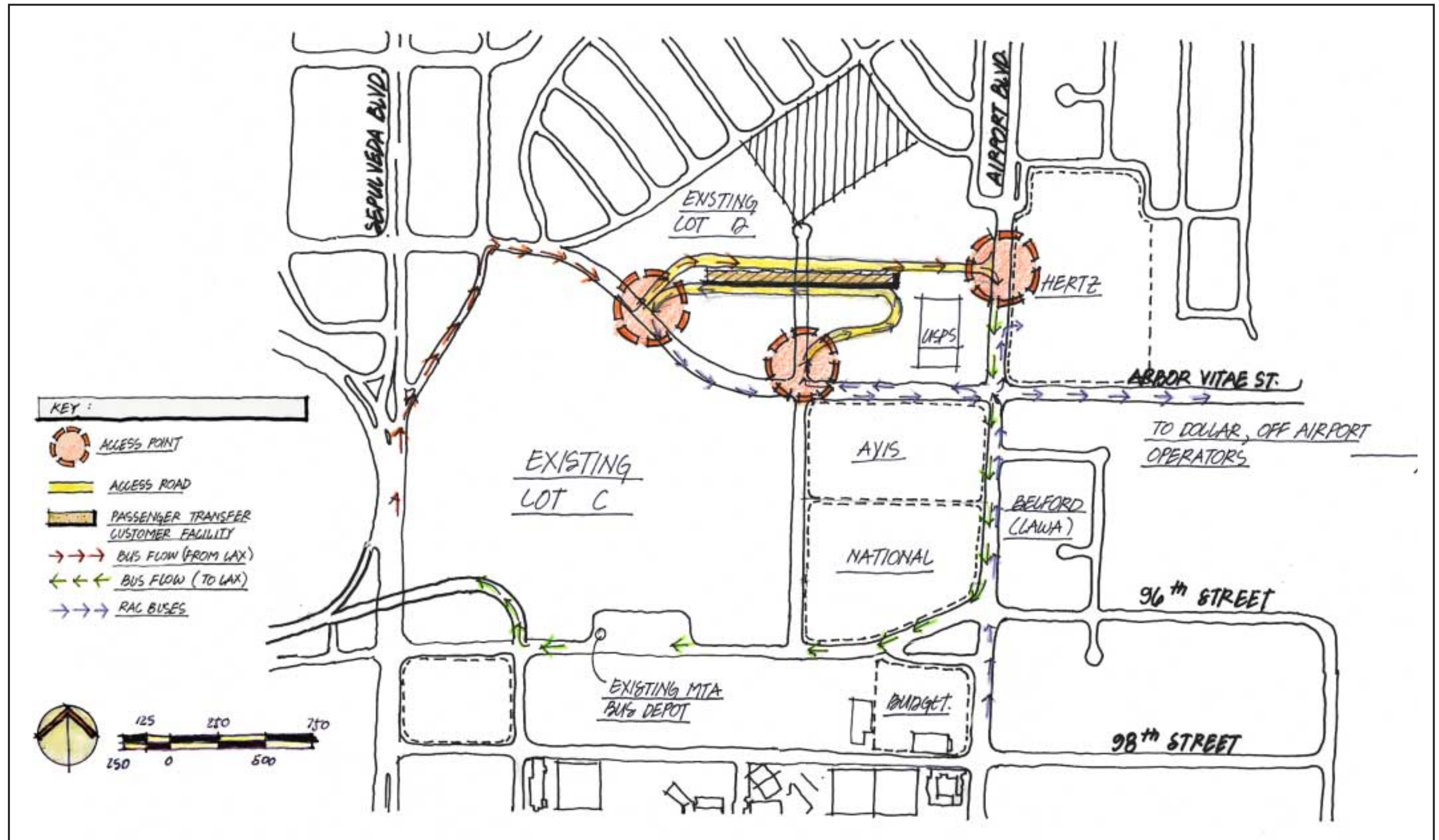
1. All customers are double bused
2. Significantly increases bus traffic in the area around Lot C
3. Eliminates distinction between on-airport and off-airport RACs
4. Will face strong opposition from RACs because of double busing element
5. Will relocate roving RAC shuttles, not eliminate them
6. Opponents may argue that it does not qualify as a consolidated rental car facility for purposes of Section 1936 of the California Civil Code
7. Displaces employee parking in Lot D





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**Option 7 (Figure H-41)**

Utilize Lot C to transfer all rental car customers from the common busing operation to the individual rental car shuttles. In addition, a portion of Lot C is used as the site where customers from on-airport RACs return their vehicles.

**Description:**

All rental car customers are transported from the terminal curbs to Lot C via a common busing operation. At Lot C, all rental car customers transfer to individual rental car shuttles. The RACs shuttle their customers to their existing facilities where vehicles are rented. Vehicles rented from on-airport RACs are returned at Lot C. Vehicles rented from off-airport RACs are returned at the off-airport RACs existing service facilities. Off-airport RACs shuttle their returning customers to Lot C. All customers are returned to the terminals via the common busing operation.

**Pros:**

1. Dramatically reduces bus traffic in the terminal core.
2. Eliminates double busing on return trip for customers of on-airport RACs
3. Maintains distinction between on-airport and off-airport RACs

**Cons:**

1. All arriving rental car customers double bused
2. Will require shuttling all rental vehicles from Lot C to individual service facilities
3. Could face strong opposition from RACs because of double busing element
4. Will relocate roving RAC shuttles, not eliminate them
5. May confuse returning customers (i.e. customers may try to return vehicle to the same location where it was rented)
6. Displaces all public and employee parking in Lot C. Displaced employee parking could potentially be accommodated in Lot D. Lost public parking could potentially be absorbed in Lot B and off-airport parking.



**Option 8 (Figure H-42)**

Utilize Lot C to transfer customers from a common transportation system to the individual rental car shuttles.

**Description:**

All rental car customers are transported from the terminals to a transfer median located in Lot C via a common busing operation. Customers then transfer to individual rental car shuttle vehicles and are driven to individual company rental car sites. The rental car transaction (i.e. vehicle pick-up and return) takes place at each company's existing service facility site. Returning customers take individual rental car shuttles from service facilities to transfer median in Lot C where they are then transported to the terminals via the common busing operation.

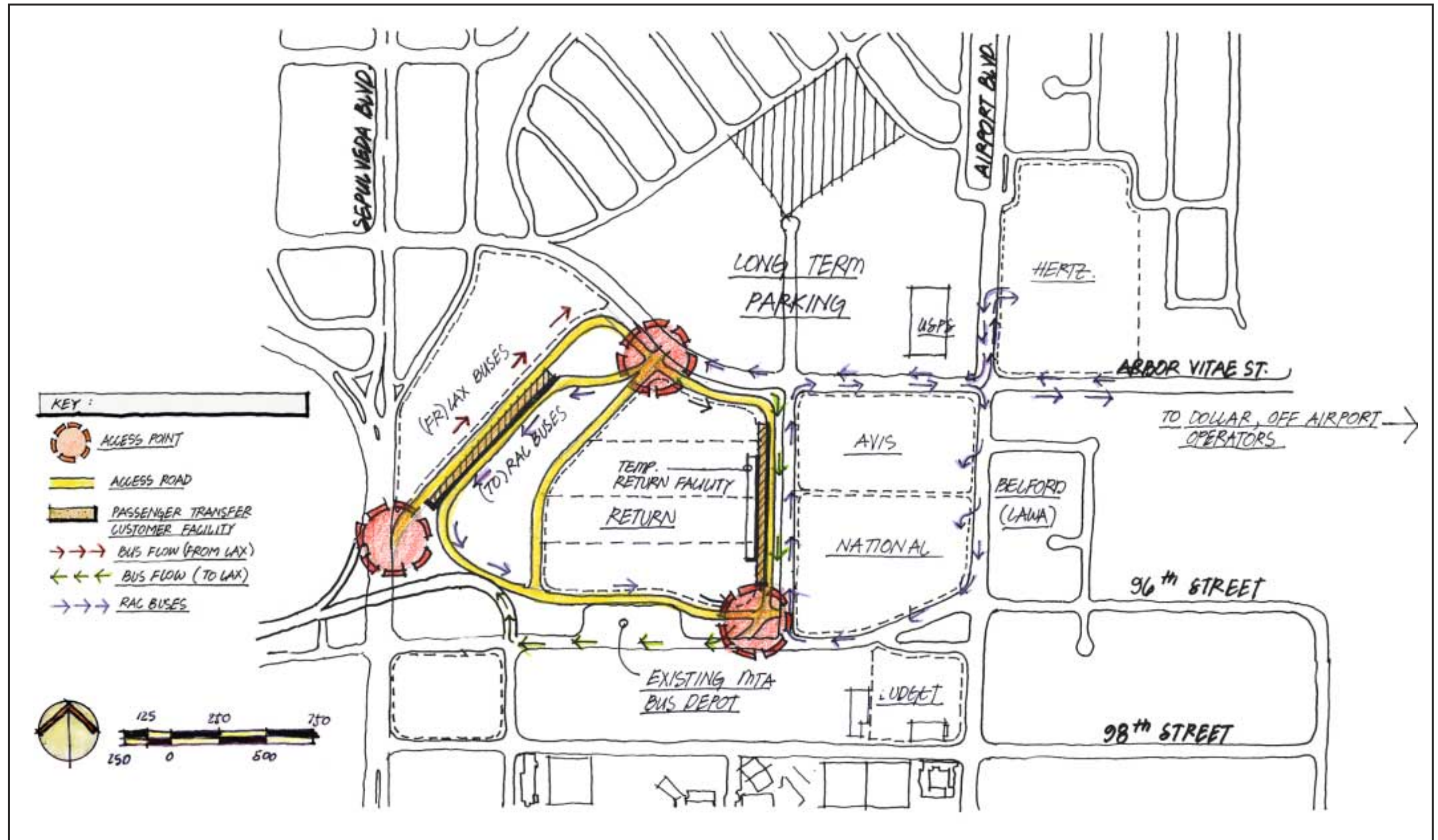
**Pros:**

1. Low cost
2. Will dramatically reduce bus traffic in the terminal core

**Cons:**

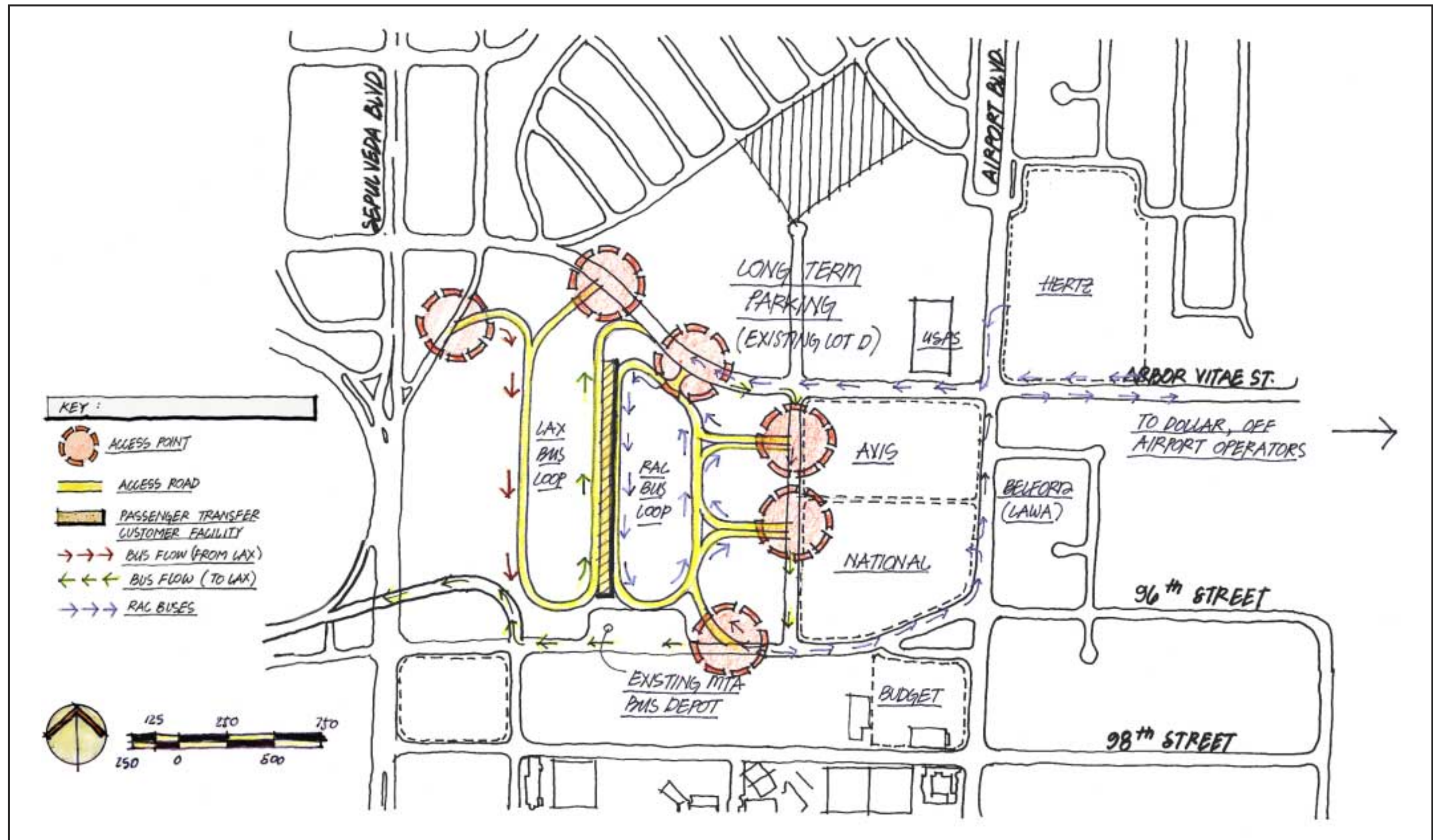
1. All customers are double bused
2. Significantly increases bus traffic in the area around Lot C
3. Eliminates distinction between on-airport and off-airport RACs
4. Could face strong opposition from RACs because of double busing element
5. Will relocate roving RAC shuttles, not eliminate them
6. Displaces all public and employee parking in Lot C. Displaced employee parking could potentially be accommodated in Lot D. Displaced public parking could potentially be absorbed in Lot B and off-airport parking.
7. Opponents may argue that it does not qualify as a consolidated rental car facility for purposes of Section 1936 of the California Civil Code





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## H.7 INTERMODAL TRANSPORTATION CENTER OPTIONS

The ITC (illustrated in **Figures H-43 through H-45**) is intended to serve as the premier short-term/business traveler parking option for the airport. The ITC also serves as the airport's connection to the MTA Green Line regional transportation system. In all of the options the APM maintenance facility is located in the basement of the ITC.

**Figure H-43** is a conceptual plan depicting potential Issues, Opportunities and Site Constraints for the ITC.

**Figure H-44** is a conceptual plan depicting the ITC with a curbfront for pick-up and drop-off located on Imperial Highway.

**Figure H-45** is a conceptual plan depicting the ITC with an east-west curbfront located between 111<sup>th</sup> Street and Imperial Highway.

## H.8 ALTERNATIVE D RECONFIGURED CTA AND COMPONENT ANALYSIS

The Alternative D refined sketch concepts illustrated in the following **Figures H-46 through H-61** represent a more detailed look at the potential interface for the APM at the ITC, GTC, RAC, and CTA. These refined sketch concepts are based upon the preferred site plan Alternative D8 previously illustrated in Figure H33. The figures are composite illustrations, which contain floor plans for the pertinent levels to understand the various horizontal relationships between functional components and the APM, and building sections to help understand the various vertical relationships between the functional components and the APM.

The Consolidated Rental Car Facility illustrated in **Figure H-46**, depicts a two level APM station on the south side of the RAC. The APM trains are separated vertically to facilitate passenger circulation and reduce the number of vertical movements for passengers and their baggage. A second more traditional APM station configuration is also included in the upper right hand corner of the sketch.



## **H.9 INTERMODAL TRANSPORTATION CENTER AND AUTOMATED PEOPLE MOVER OPTIONS**

ITC Concept 1 (**Figure H-47**) places the APM station and maintenance facility in the basement level of the ITC. MTA Green Line passengers would traverse a pedestrian bridge across Imperial Highway to the center of the ITC and make a two level vertical movement down to the APM station.

ITC Concept 2 (**Figure H-48**) places the APM platform on the second level of the ITC. MTA Green Line passengers would traverse a pedestrian bridge across Imperial Highway at the same level of the APM platform.

ITC Concept 3 (**Figure H-49**) is similar to Concept 2 however it places the APM station on the south side of the ITC thereby reducing the walking distance for the Green Line passengers to the station location.

ITC Concept 4 (**Figure H-50**) creates two APM stations at the second level of the ITC. One station would be elevated directly above Imperial Highway to reduce the walking distance for Green Line passengers and the second station would be located on the north side of the facility for the ITC passengers.

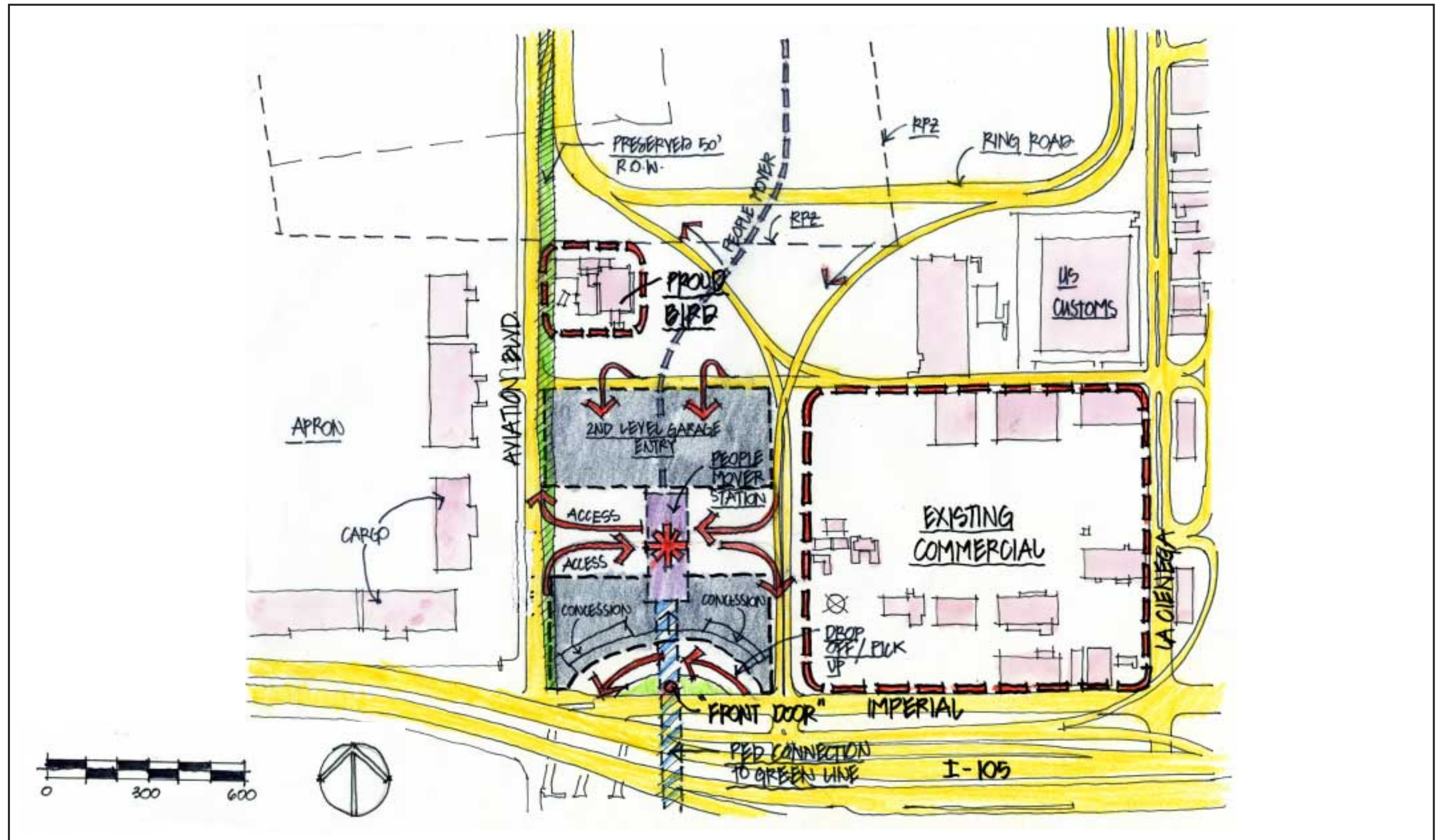
ITC Concept 5 (**Figure H-51**) places the APM station on the second level to the far west side of the facility along Aviation Boulevard. In this option the MTA Green Line has a spur extended across Imperial Highway adjacent to the ITC.

## **H.10 GROUND TRANSPORTATION CENTER AND AUTOMATED PEOPLE MOVER OPTIONS**

The GTC at Manchester Square (illustrated in **Figures H-52 through H-54**) serves as the main new curbside at the airport for Alternative D. All private and commercial vehicles going to the curbside would utilize this facility. Short and long-term parking would be provided.

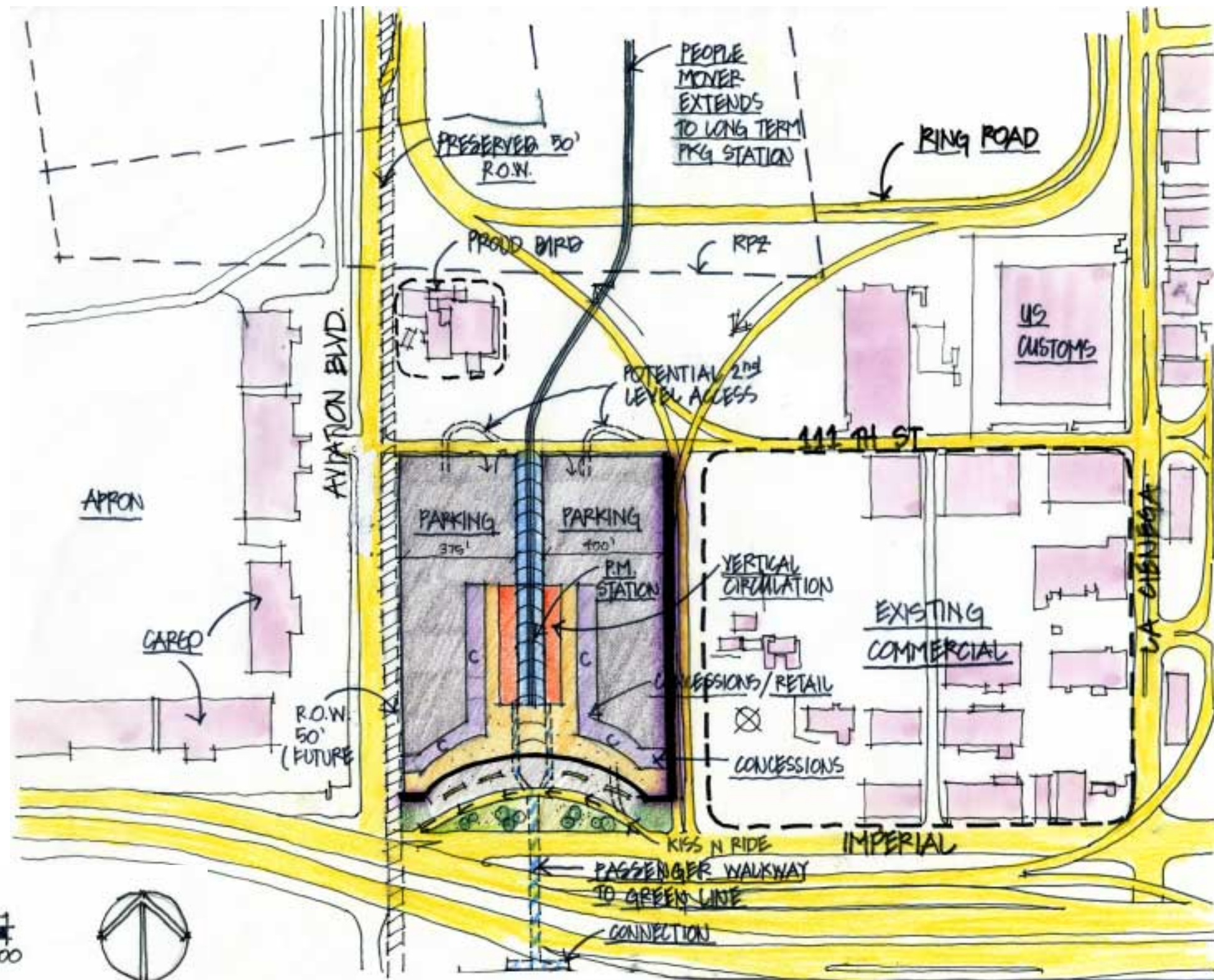
GTC Concept 1 (**Figure H-52**) is a two level GTC facility that places the APM station at an interstitial level between the upper and lower curbsides. There would be a pedestrian bridge at the interstitial level to facilitate passenger access to and from the parking garages.





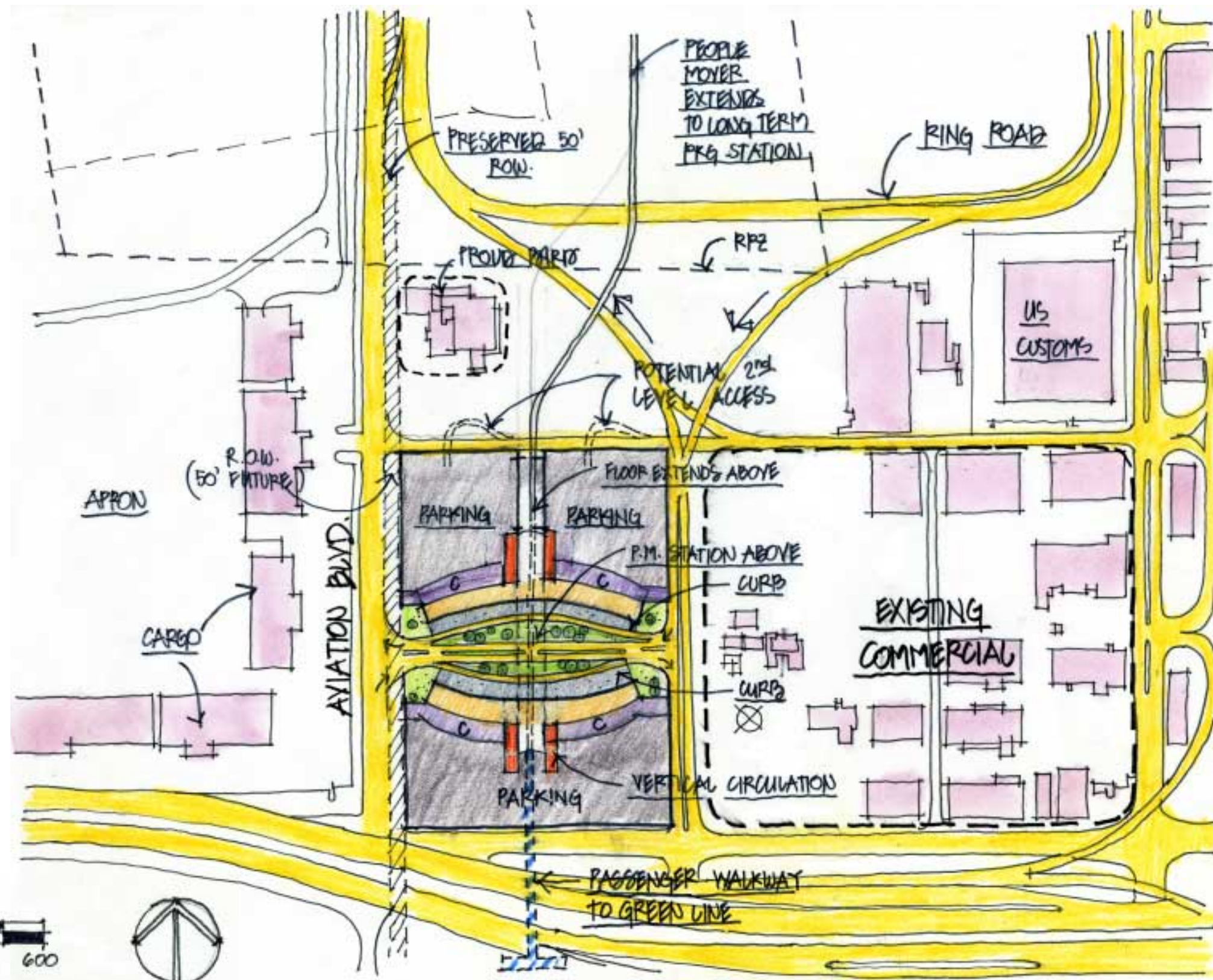
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Draft: 05/28/03





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Draft: 05/28/03



Alternate Plan: Consolidated RAC

Typical Plan: Consolidated RAC

- CONSOLIDATED RAC**
- APM ALIGNMENT OPTIONS:
    - STACKED FOR MULTI-LEVEL ACCESS/EGRESS
    - IN-LINE FOR SINGLE-LVL BRIDGE ACCESS
  - MULTI-LEVEL READY/RETURN FACILITY
  - GROUND-LVL HOTEL STOP

## CONSOLIDATED RAC

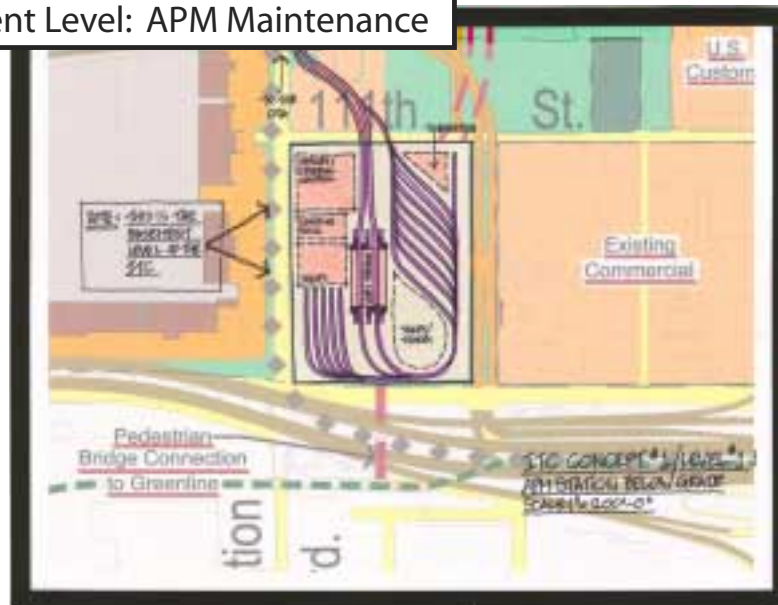
Alternative APM Station Alignments

Not to Scale

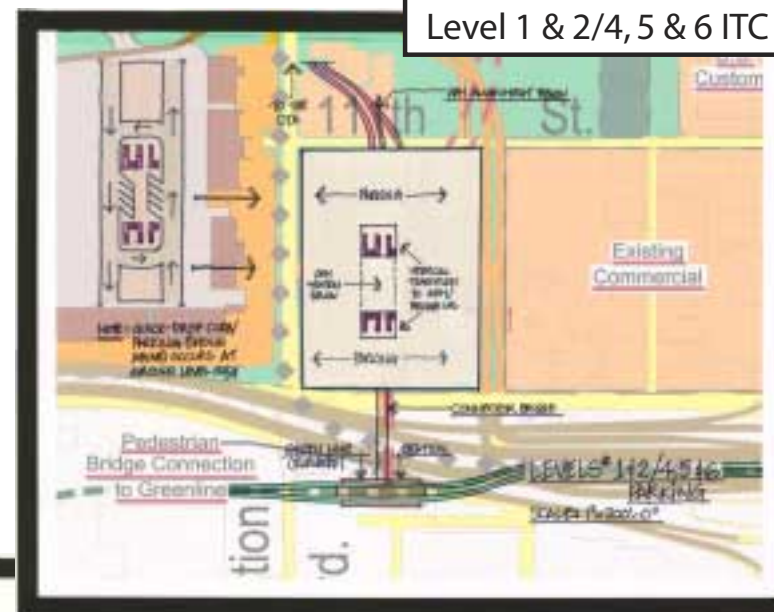
Prepared by: Landrum & Brown  
Draft: 05/28/03



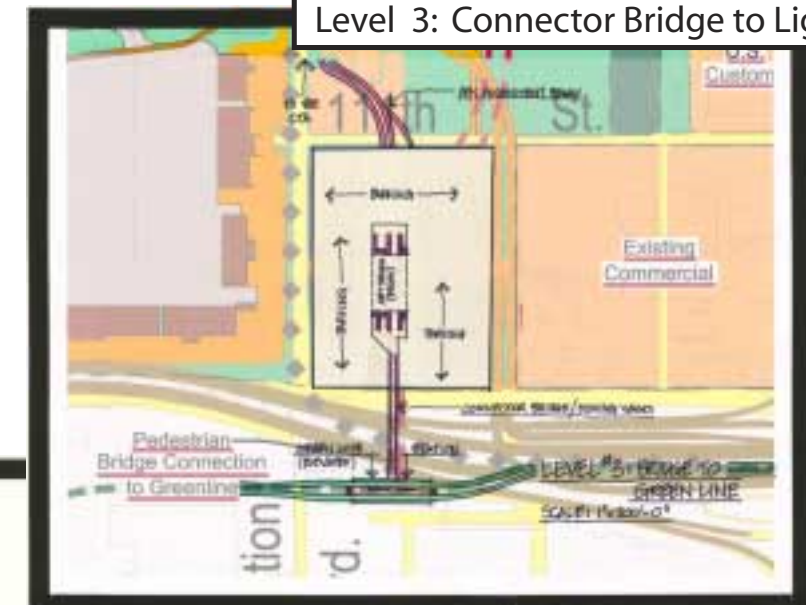
Basement Level: APM Maintenance



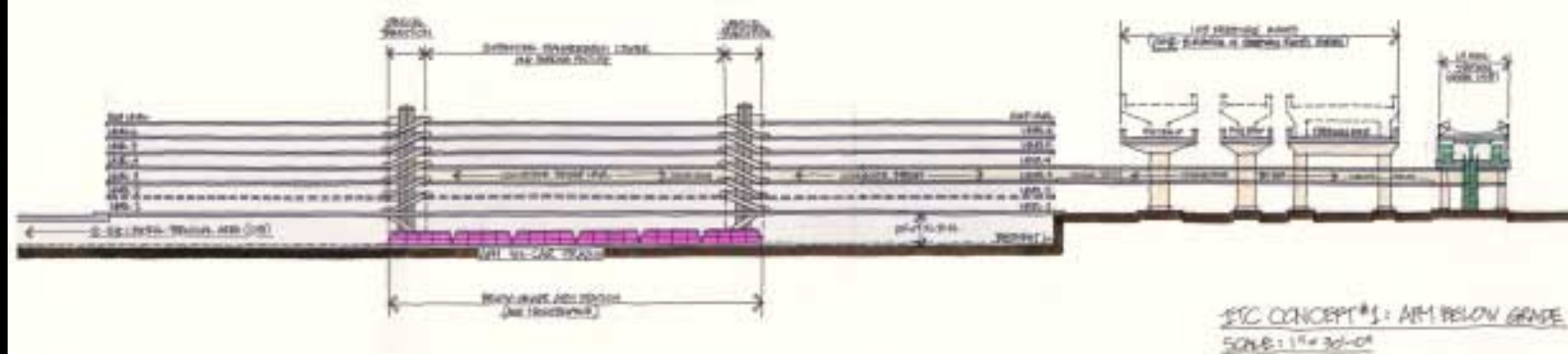
Level 1 & 2/4,5 & 6 ITC Parking



Level 3: Connector Bridge to Light Rail



- ITC CONCEPT #1**
- BELOW-GRADE APM STATION/HYCE. AREA
  - CONNECTOR BRIDGE TO GREEN LINE W/VERTICAL TRANSITION TO APM
  - QUICK PARK-DROP CURB IN PARKING STRUCTURE



ITC CONCEPT #1

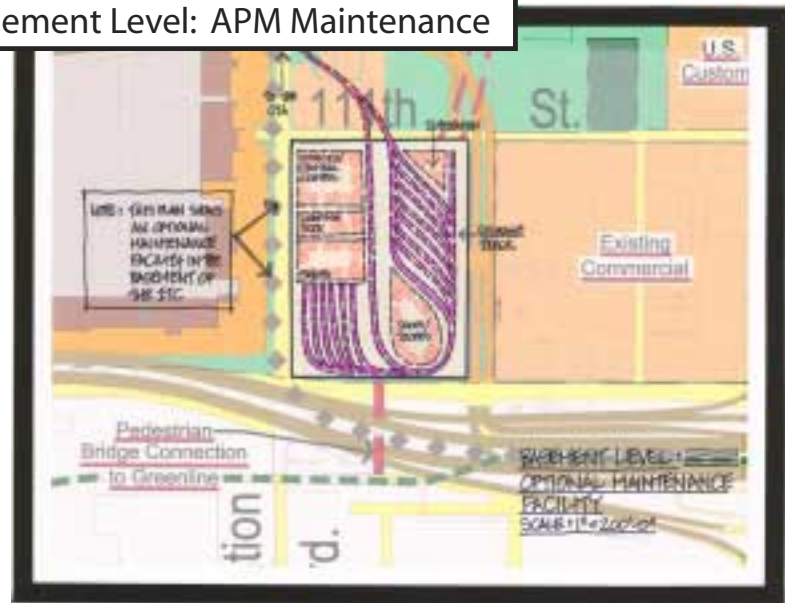
Below Grade APM Alignment/Station

Not to Scale

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Draft: 05/28/03



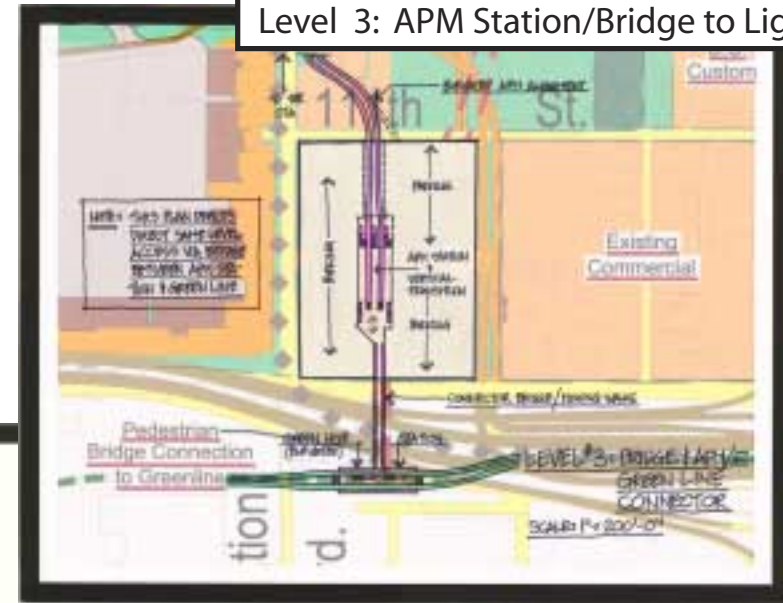
Basement Level: APM Maintenance



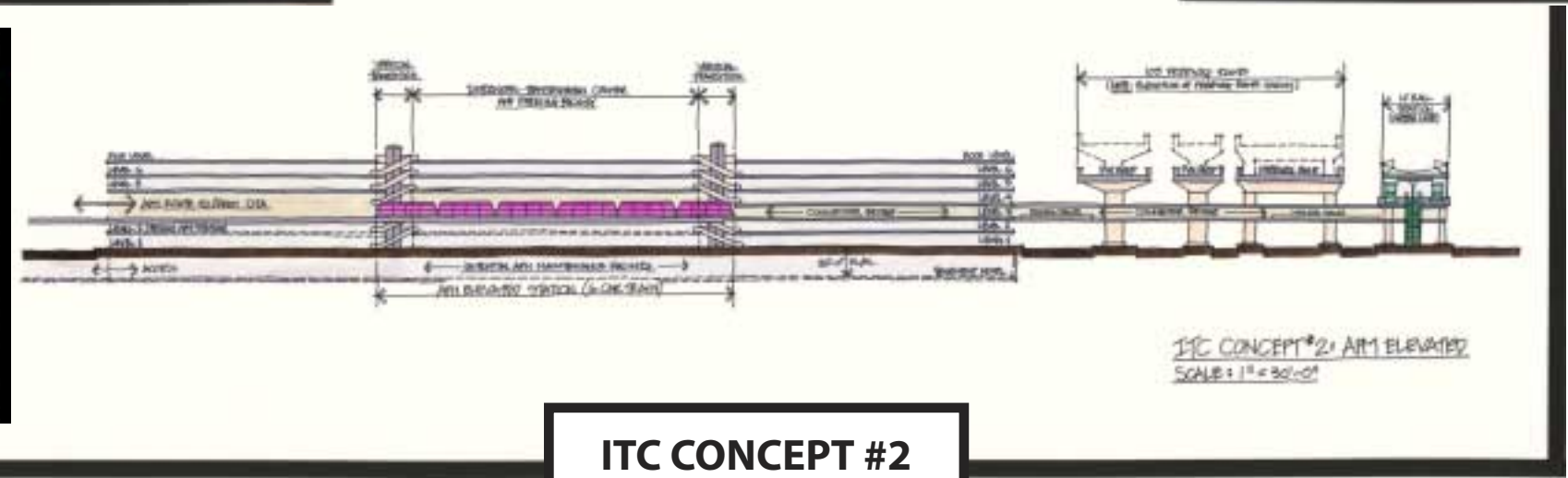
Level 1 & 2/4,5 & 6 ITC Parking



Level 3: APM Station/Bridge to Light Rail



- ITC CONCEPT #2**
- ELEVATED (3rd LV)
  - APM STATION
  - CONNECTOR BRIDGE APM/GREEN LINE (NO VERTICAL MOVE AT APM)
  - QUICK PARK DROP OFF CURB IN PARKING STRUCTURE



ITC CONCEPT #2

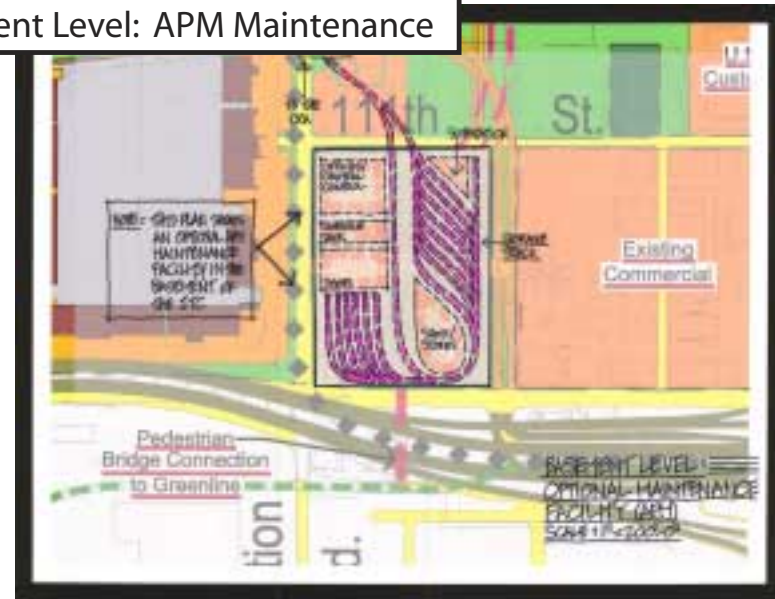
Elevated APM Alignment/Station

Not to scale

Prepared by: Landrum & Brown  
Draft: 05/28/03



Basement Level: APM Maintenance



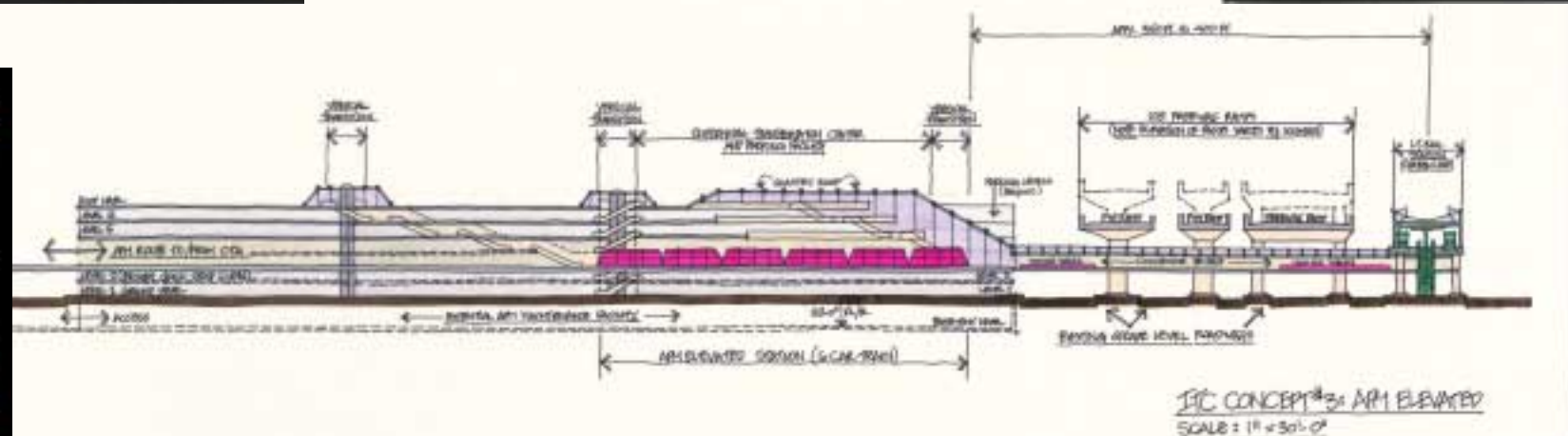
Level 1 & 2/4, 5 & 6 Parking/Curbs



Level 3: APM Station/Bridge Level



- ITC CONCEPT #3**
- ELEVATED (3RD LVL)
  - APM STATION MOVED CLOSER TO GREENLINE
  - SAME LEVEL CONNECT-OR BRIDGE
  - QUICK-PARK-DROP-OFF CURB IN PARKING STRUCTURE



ITC CONCEPT #3

APM Station Closer to Greenline

Not to Scale

Prepared by: Landrum & Brown  
Draft: 05/28/03



Basement Level: APM Maintenance



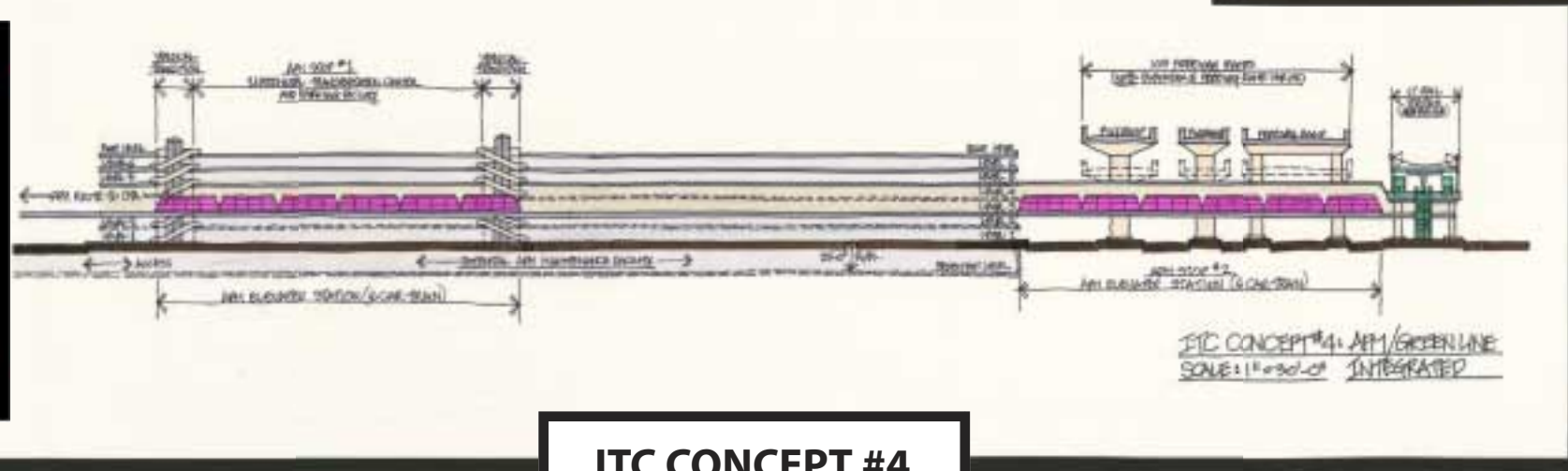
Level 1: Quick-Drop Curb & Parking



Level 3: APM & Greenline Interface



- ITC CONCEPT 4**
- APM EXTENDED SOUTH FOR DIRECT INTERFACE WITH GREEN LINE
  - TWO APM STATIONS NEEDED TO COVER PARKING AND GREEN LINE
  - TWO-WAY CURB FLOW ON CENTRAL APM ALGN.



ITC CONCEPT #4

APM Extension Direct to Greenline

Not to Scale

Prepared by: Landrum & Brown  
Draft: 05/28/03



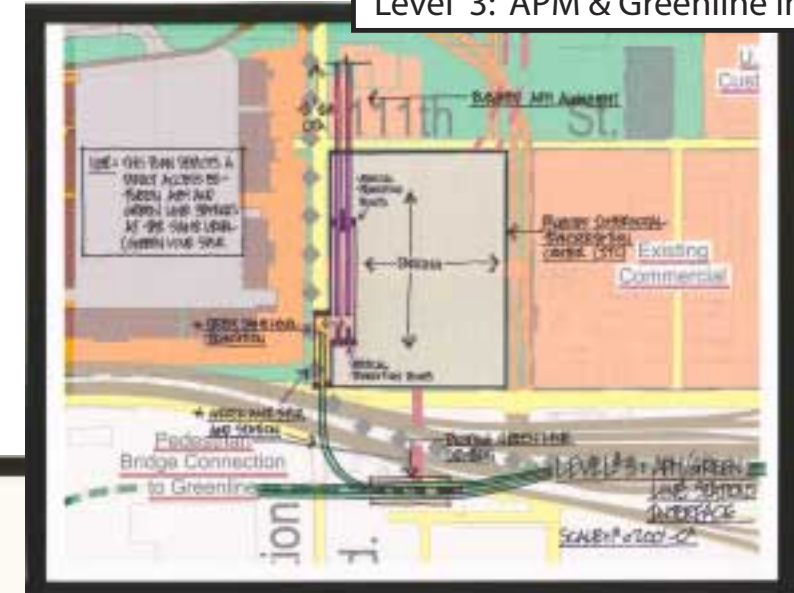
Basement Level: APM Maintenance



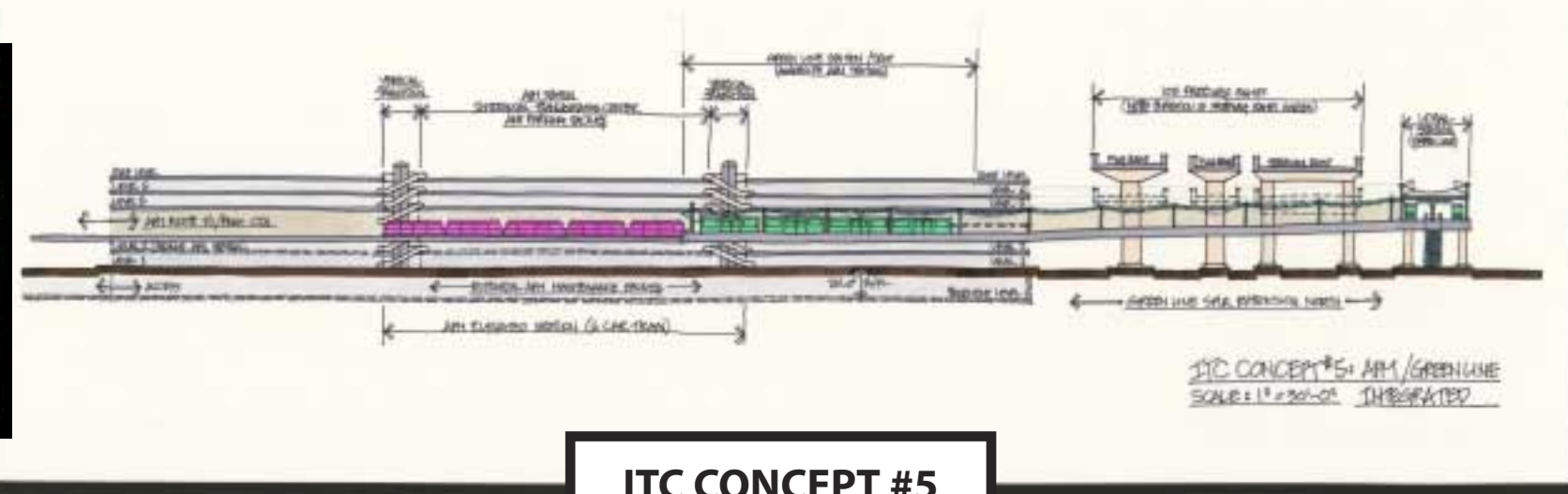
Level 1: Quick-Drop Curb & Parking



Level 3: APM & Greenline Interface



- ITC CONCEPT 5**
- GREEN LINE SPUR NORTH TO INTERFACE WITH APM
  - SAME LEVEL INTERCHANGE BETWEEN APM AND GREEN LINE STATIONS
  - APM ALIGNMENT AND STATION MOVED WEST
  - ONE-WAY CURB FLOW



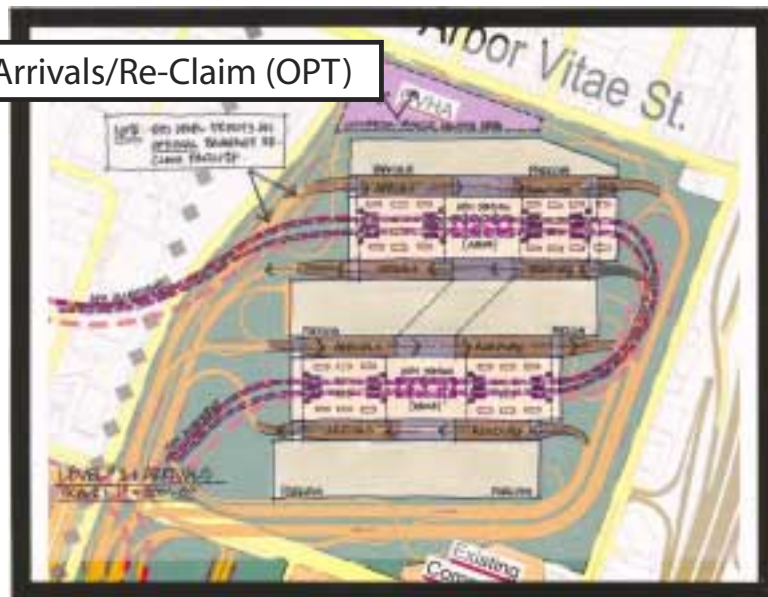
Greenline Spur North to APM Station

Not to Scale

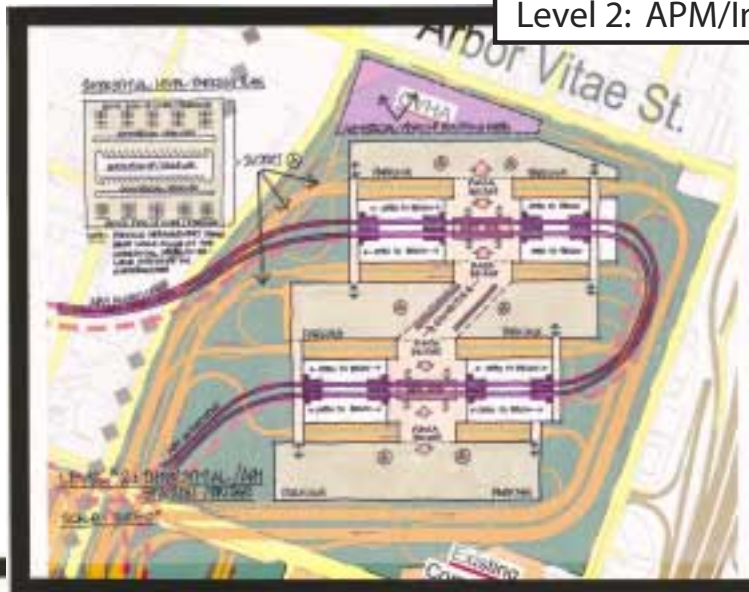
Prepared by: Landrum & Brown  
Draft: 05/28/03



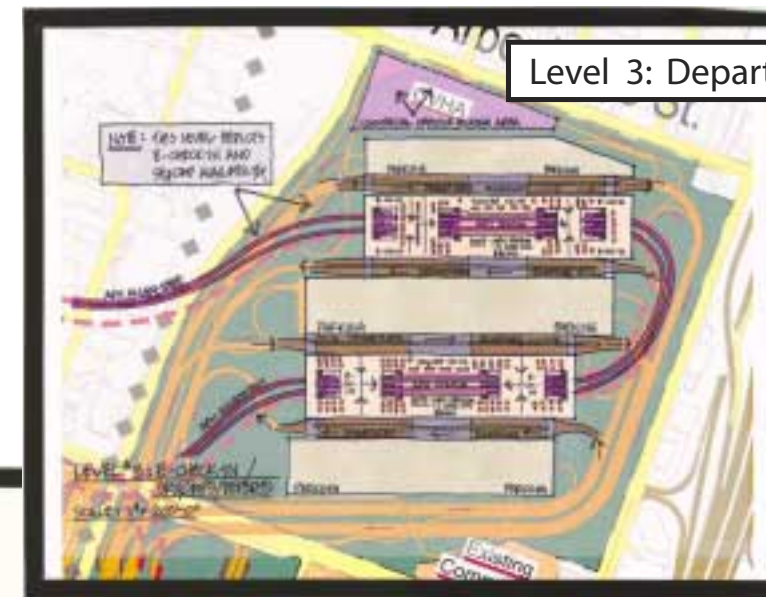
Level 1: Arrivals/Re-Claim (OPT)



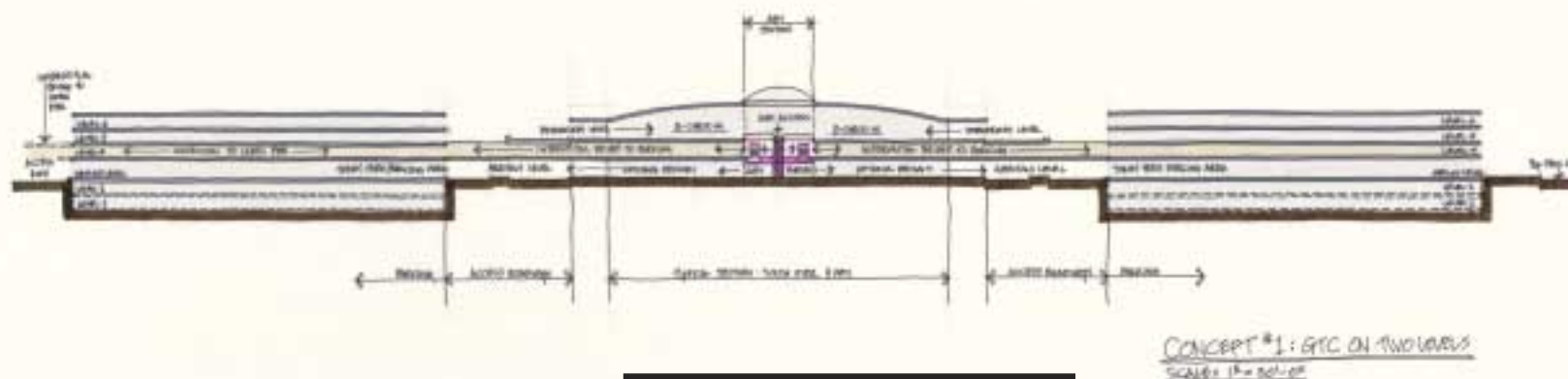
Level 2: APM/Interstitial Bridge



Level 3: Departures/E-CK-In



- GTC CONCEPT #1**
- DUAL-LEVEL ROADS
  - DUAL-LEVEL GTC W/ INTERSTITIAL BRIDGE TO PARKING/APM STA.
  - E-CHECK-IN AND SIX-CAPS FOR BAGGAGE PROCESSING (FEE)
  - CONNECTING PLAZA



**GTC CONCEPT #1**

Dual Level GTC/Interstitial APM

Not to Scale

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Draft: 05/28/03



GTC Concept 2 (**Figure H-53**) is a single level GTC with the APM located on the lowest level. The arrivals and departures functions would be located on the opposite sides of the GTC piers. There is a pedestrian bridge located above the terminal curbside for access to and from parking garages.

GTC Concept 3 (**Figure H-54**) is a dual level curbside and a single level GTC facility with the departures on the upper level and the arrivals on the lower level. The APM platform is located at the level of the pedestrian bridges that link the parking garages to the GTC pier.

In Alternative D the redeveloped CTA was originally envisioned to be a four-track people mover system served from the RAC, GTC and ITC. The next series of figures was intended to investigate how the APM may interface on a conceptual level with the redeveloped terminal area.

CTA Alternative 1 (**Figure H-55**) places the APM at the existing grade of the lower level roadway system. This level becomes the APM and baggage handling level within the redeveloped CTA. Passengers would make a vertical movement up one level to the ticketing and baggage claim levels.

CTA Alternative 2 (**Figure H-56**) elevates the APM to a level above the existing upper level roadway system. Passengers would traverse down one level to the security screening and concourse level, and two levels to the ticketing and baggage claim areas.

CTA Alternative 3 (**Figure H-57**) places the APM on an interstitial level between the third level baggage claim area and the second level ticketing check in area. This would allow passengers with baggage carts to utilize downhill ramps in the direction of travel to access to and from the APM platform.

CTA Alternative 4 (**Figure H-58**) is similar to Alternative 1 in that it places the APM at grade level however it separates the ticketing and baggage claim levels. Ticket counters and Airline Ticketing Offices (ATO) are located on the second level and baggage claim is located on the third level.

As the process of refinement of the alternatives moved forward there was a change in the direction regarding the strategy for the APM system. The new APM strategy called for two distinct APM routes. One system goes from the ITC and connects to the RAC and terminates at the CTA, and the second goes directly from the GTC to the CTA. The ITC-RAC-CTA route is a two-track system, and the GTC-CTA route is a two two-track systems. The following



**Figures H-59 through H-61** illustrate various alignments and vertical orientation for incorporating the APM alignments into the redeveloped CTA.

CTA Concept E (**Figure H-59**) locates the APM systems on the existing grade level within the CTA, and is collocated with the Baggage Claim area of the terminal. Baggage sortation and security screening would occur at a basement level. The ticket counters and the ATO functions would be located at the same elevation that existing ticketing are at.

CTA Concept F (**Figure H-60**) is similar to Concept E in locating the APM system on the existing grade level however, the baggage claim level is moved up to level two and the ticket counters and the ATO functions are on level three.

CTA Concept G (**Figure H-61**) is similar to Concept E in all regards with the exception that a new basement level baggage processing is not provided but the exiting terminals first level would be redeveloped for baggage sortation and security screening functions.

## **H.11 ALTERNATIVE D CTA DEVELOPMENT SKETCHES**

The refinement of Alternative D included developing and identifying a variety of architectural approaches to the existing CTA. LAX stands as the premier gateway into Los Angeles for both domestic and international travelers. In keeping with the iconographic significance of both the Theme Building and Air Traffic Control tower, concepts were explored which looked at ways to articulate the reconfigured CTA. The removal of all parking garages from the core to develop new passenger processing facilities creates the opportunity to develop dramatic spaces and views centered on the Theme Building and Control Tower Complex.

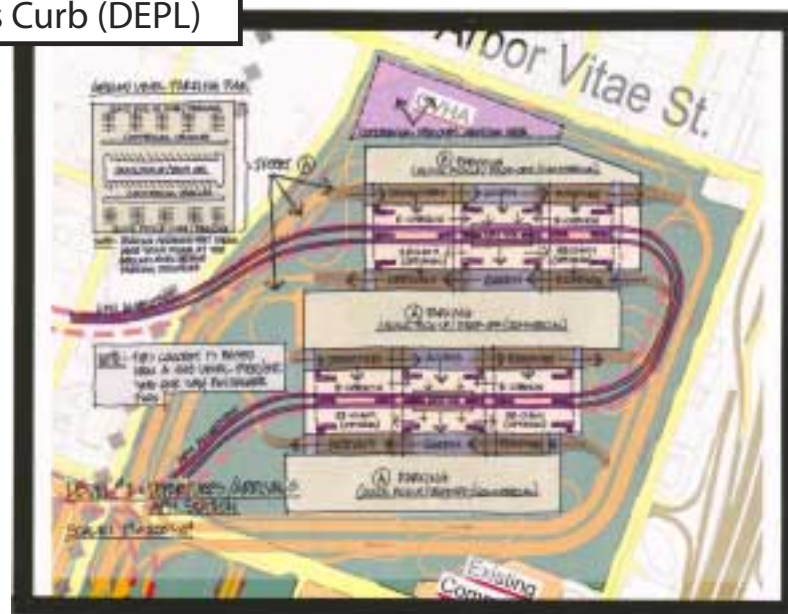
**Figure H-62** depicts a potential plan layout of four new terminal processing facilities in the central core. The buildings span the entire available area.

**Figure H-63** depicts a potential plan for the four new terminal processing facilities in the central core. The concept suggests a garden or outdoor park in between terminal blocks.

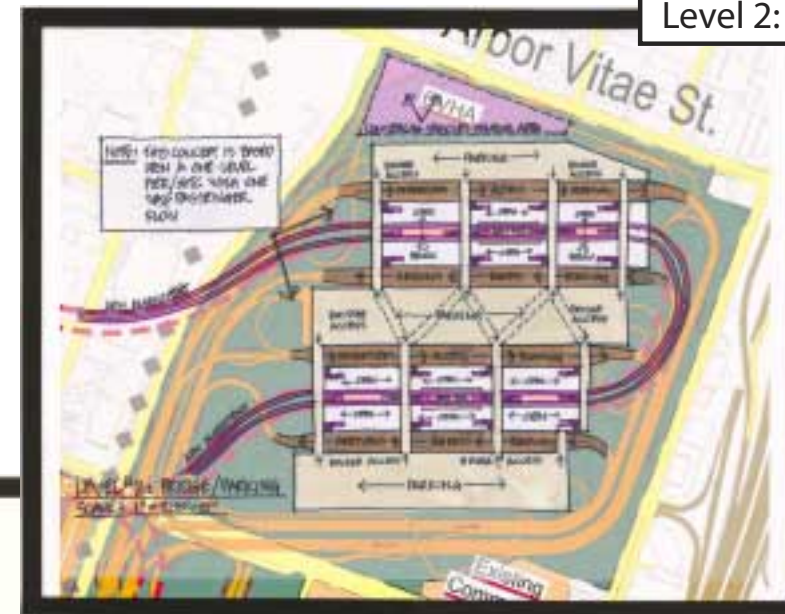
**Figure H-64** is a section sketch showing a potential architectural statement for the new processors and integration with the Theme Building.



Level 1: Arrivals Curb (DEPL)

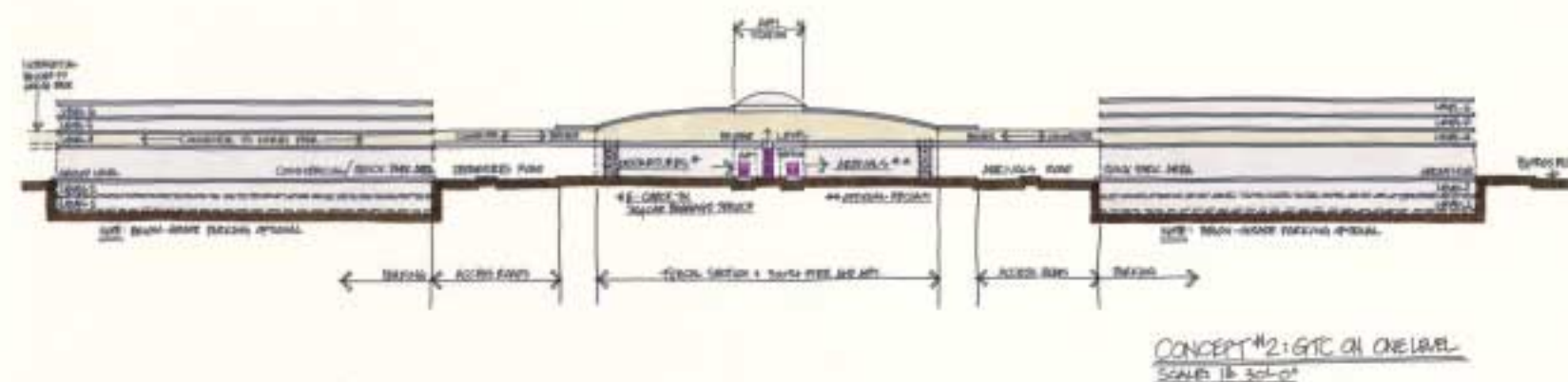


Level 2: Bridge Connector



**GTC CONCEPT #2**

- SINGLE LEVEL GTC (BACK-TO-BACK ARRIVALS/DEPARTURES).
- SINGLE LEVEL ROADWAY
- SUPPLEMENTAL QUICK-PARK CURB IN GARAGE
- BRIDGE LEVEL CONNECTS GTC/APM WITH PARKING



**GTC CONCEPT #2**

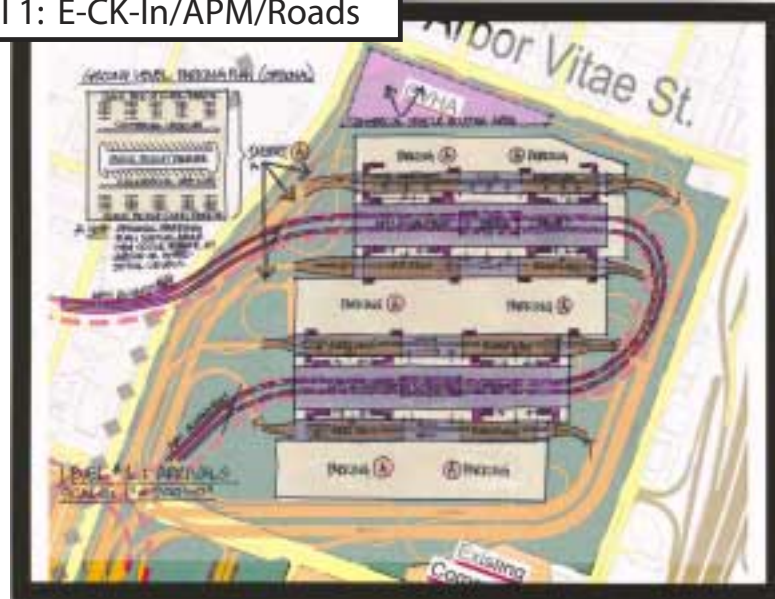
Single Level GTC/Grade Level APM

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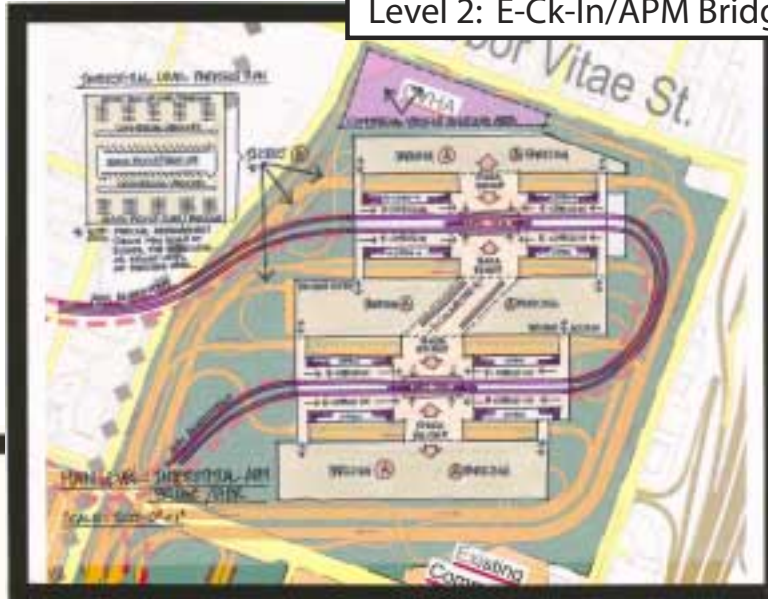
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Draft: 05/28/03



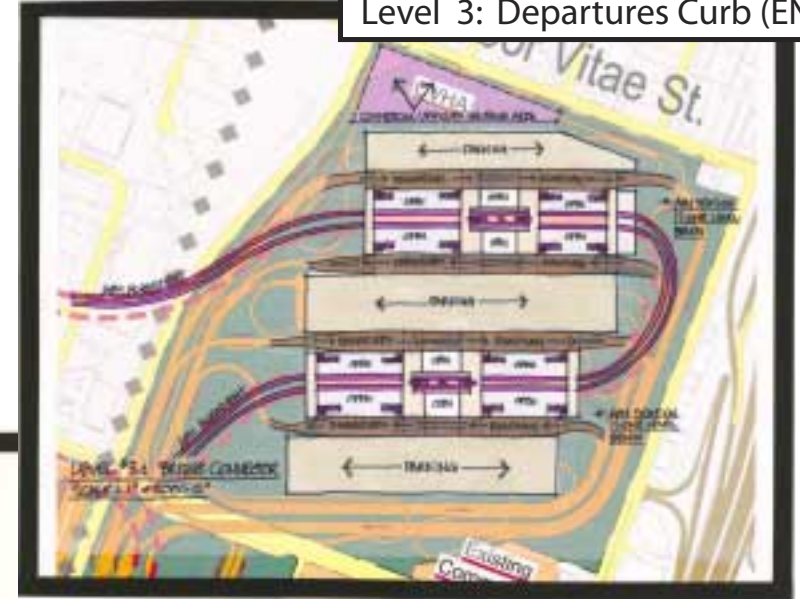
Level 1: E-CK-In/APM/Roads



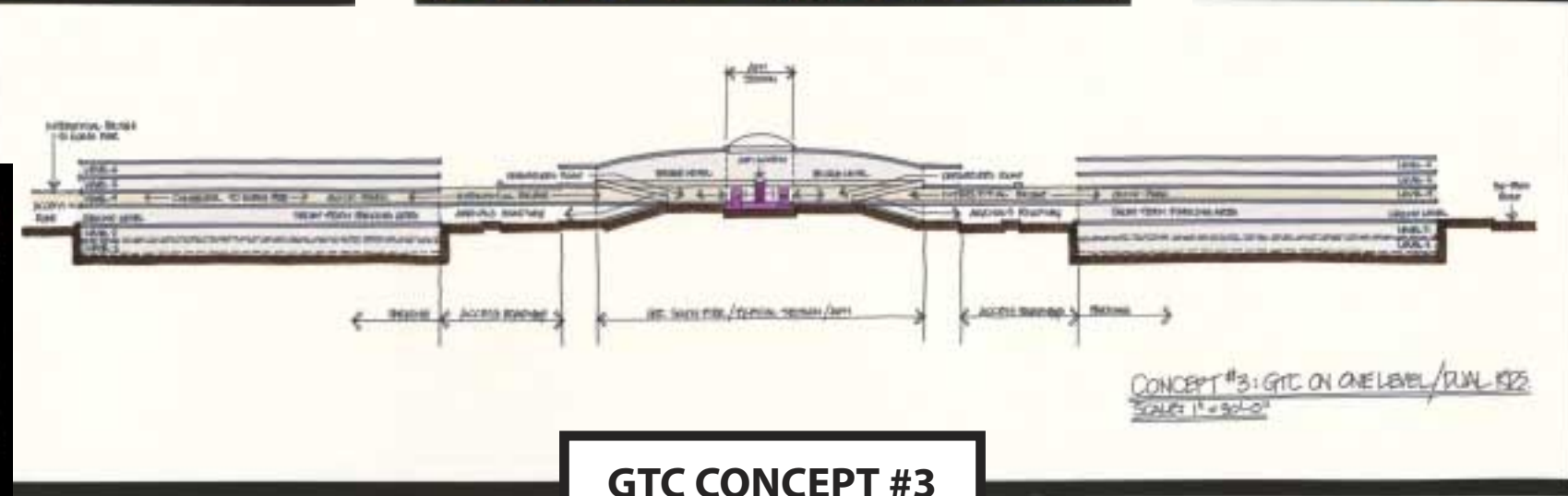
Level 2: E-CK-In/APM Bridge



Level 3: Departures Curb (ENPL)



- GTC CONCEPT #3**
- SINGLE LVL (INTERSTIA) WITH APM STATION
  - BRIDGE LVL CONNECTIONS TO PARKING
  - DUAL LVL ROADWAYS (ARRIVALS/DEPARTURES)
  - E-CHECK-IN AND SKY-CAPS FOR BAGGAGE



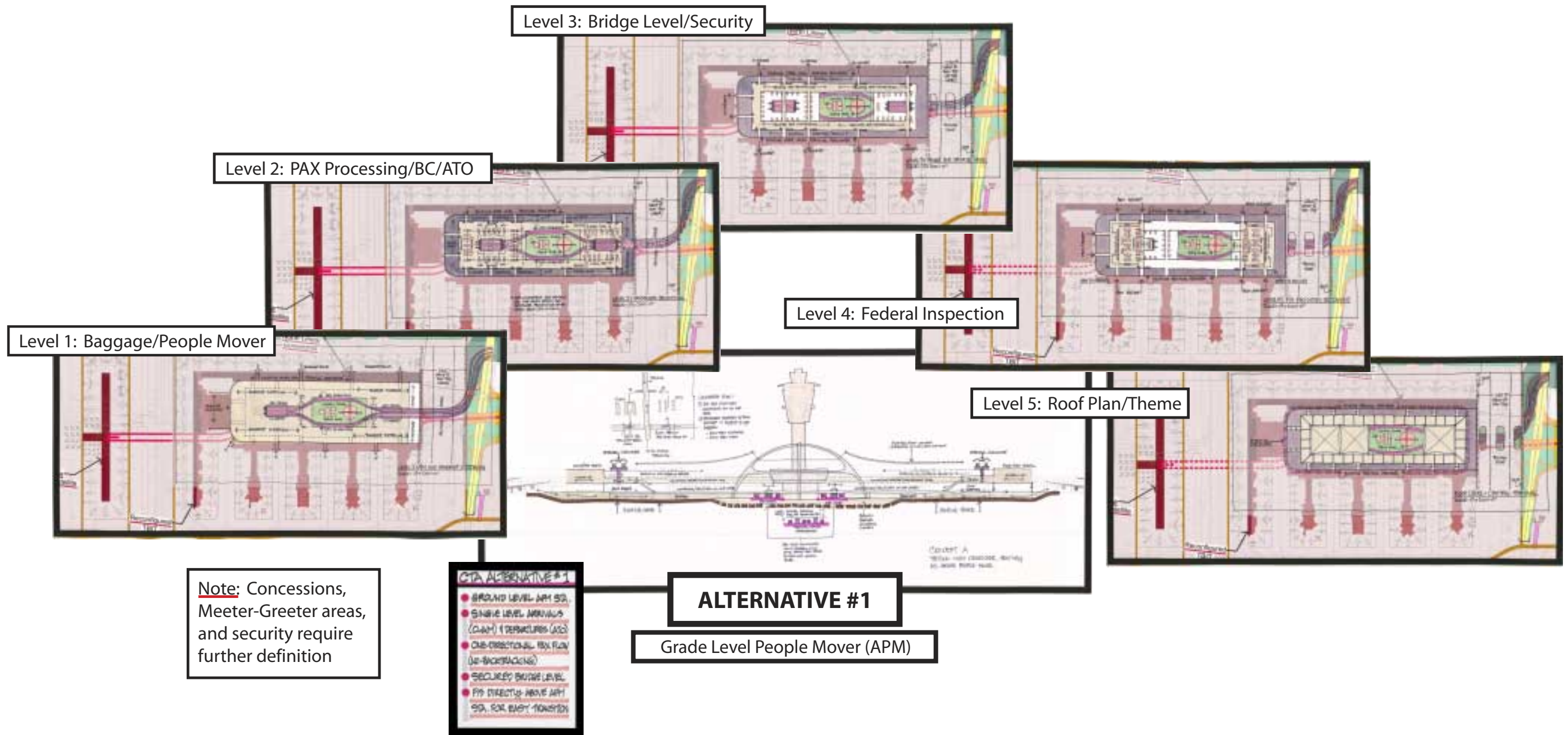
**GTC CONCEPT #3**

Dual Level Roads/Single Level GTC

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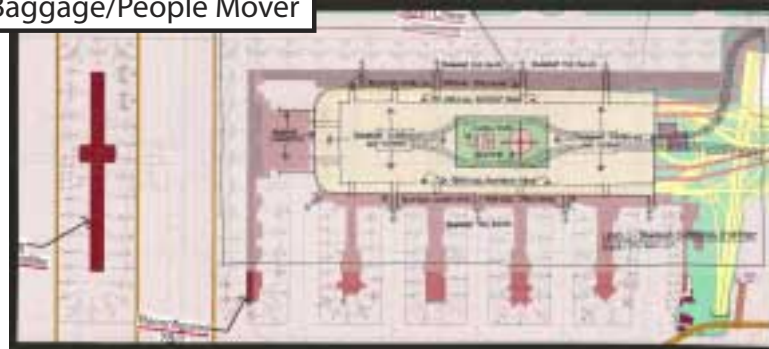
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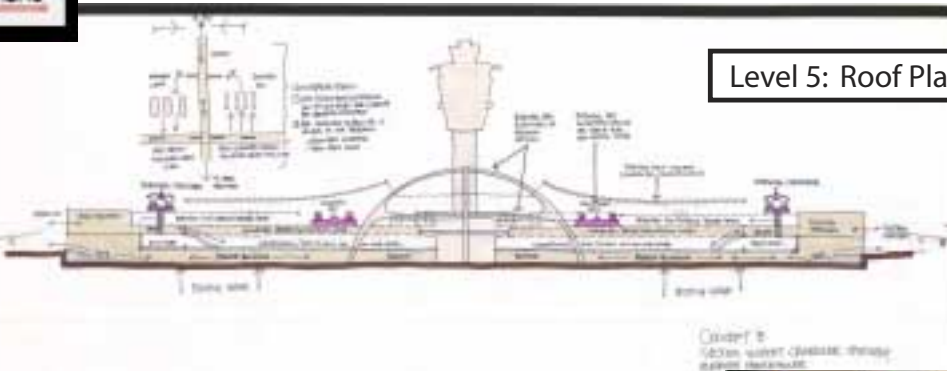


- CTA ALTERNATIVE #2**
- ELEVATED APM STATION
  - DUAL LEVEL PAX PROCESSING/SINGLE LEVEL WALKWAY
  - ONE DIRECTIONAL EX FLOW (NO BACKTRACKING)
  - SECURITY AT BRIDGE LEVEL
  - FIS ON SAME LEVEL AS APM STATIONS

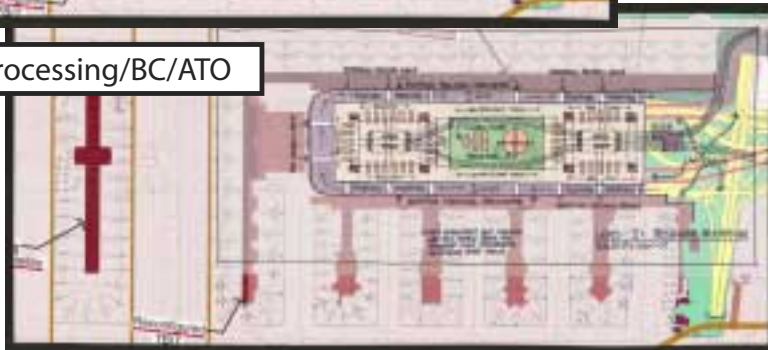
Level 1: Baggage/People Mover



Level 5: Roof Plan/Theme



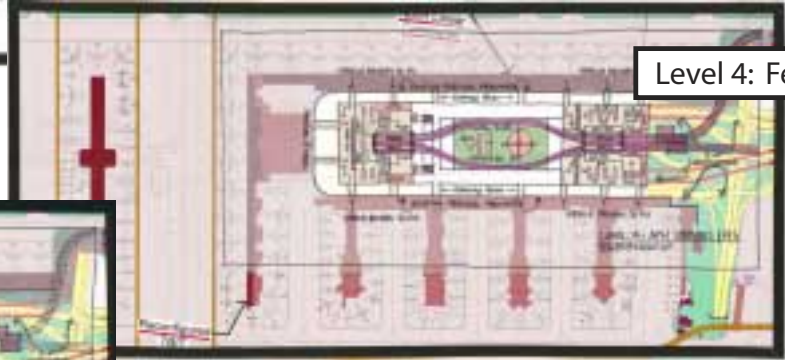
Level 2: PAX Processing/BC/ATO



**ALTERNATIVE #2**

Elevated People Mover (APM)

Level 4: Federal Inspection



Level 3: Bridge Level/Security

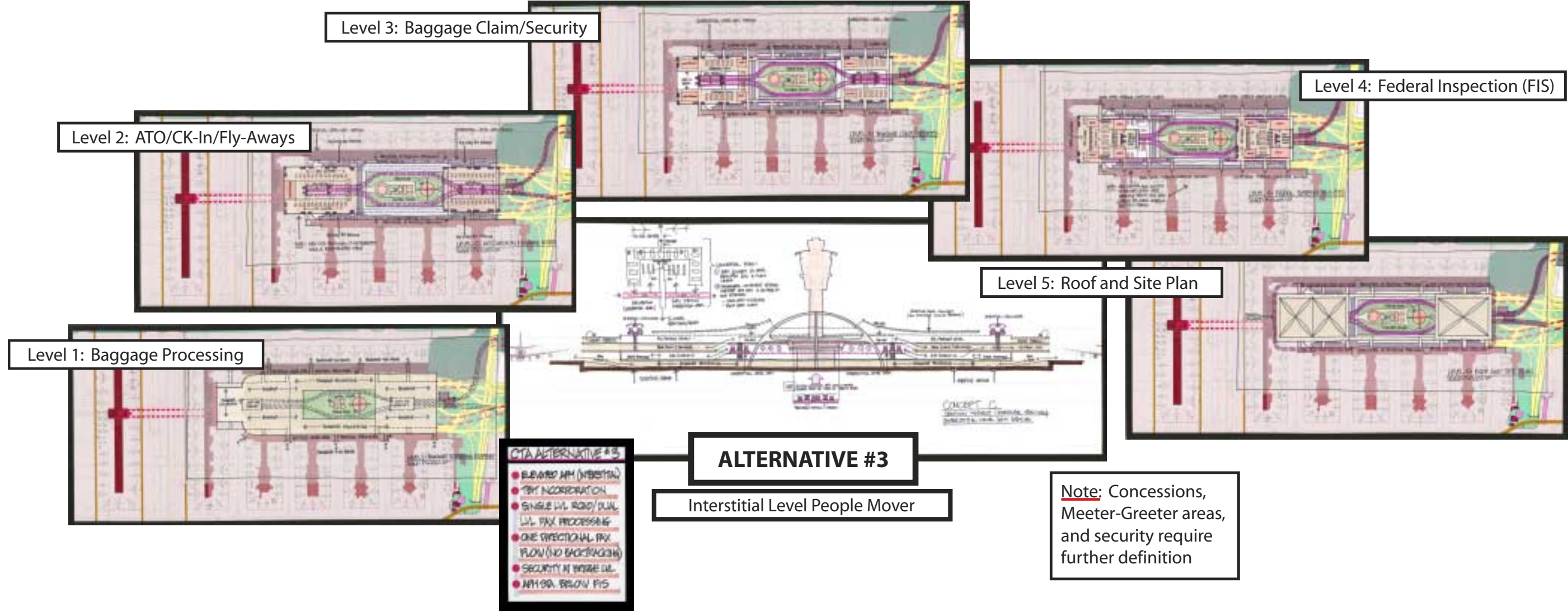


Note: Concessions, Meeter-Greeter areas, and security require further definition

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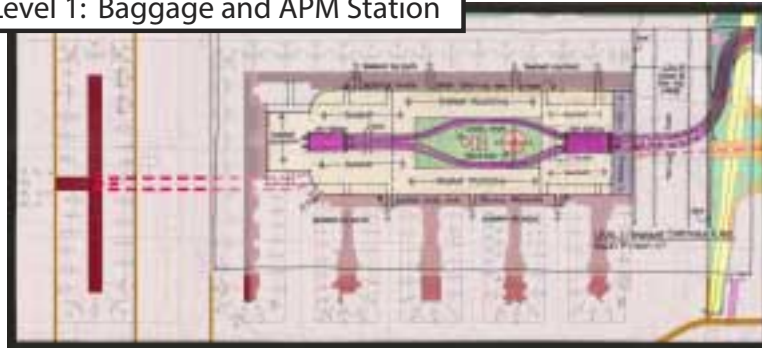
Prepared by: Landrum & Brown  
Draft: 05/28/03



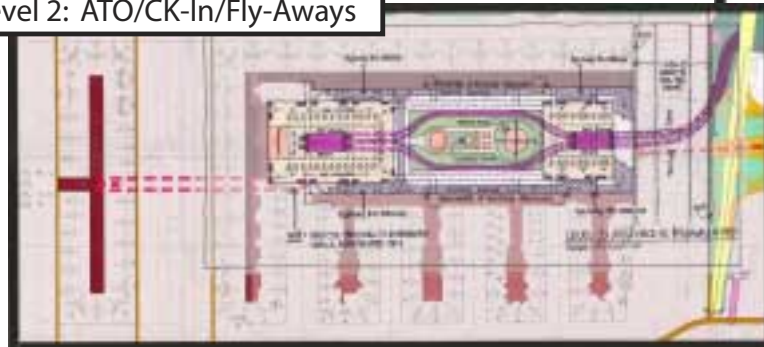
## ALTERNATIVE #4

At-Grade People Mover (APM)

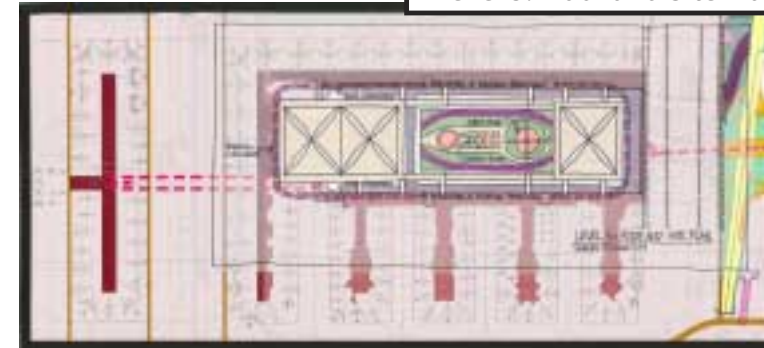
Level 1: Baggage and APM Station



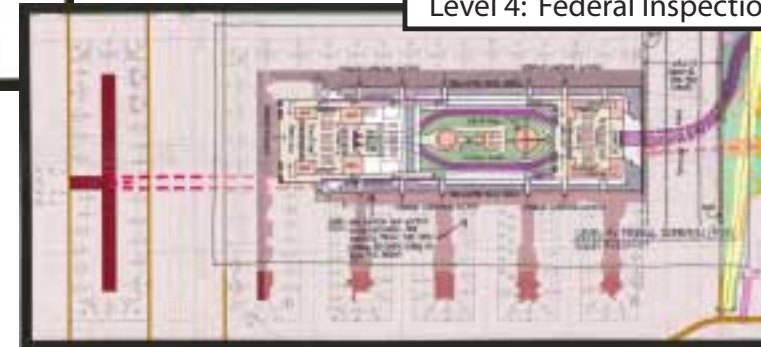
Level 2: ATO/CK-In/Fly-Aways



Level 5: Roof and Site Plan



Level 4: Federal Inspection (FIS)



- CTA ALTERNATIVE #4**
- GRADE LVL. APM STATION
  - TBT INCORPORATION
  - SINGLE LVL. MON/DUAL LVL. PAX PROCESSING
  - ONE DIRECTIONAL PAX FLOW (NO BACKTRACKING)
  - SECURITY AT BRIDGE LVL.
  - APM STA. BELOW FIS

Level 3: Baggage Claim/Security

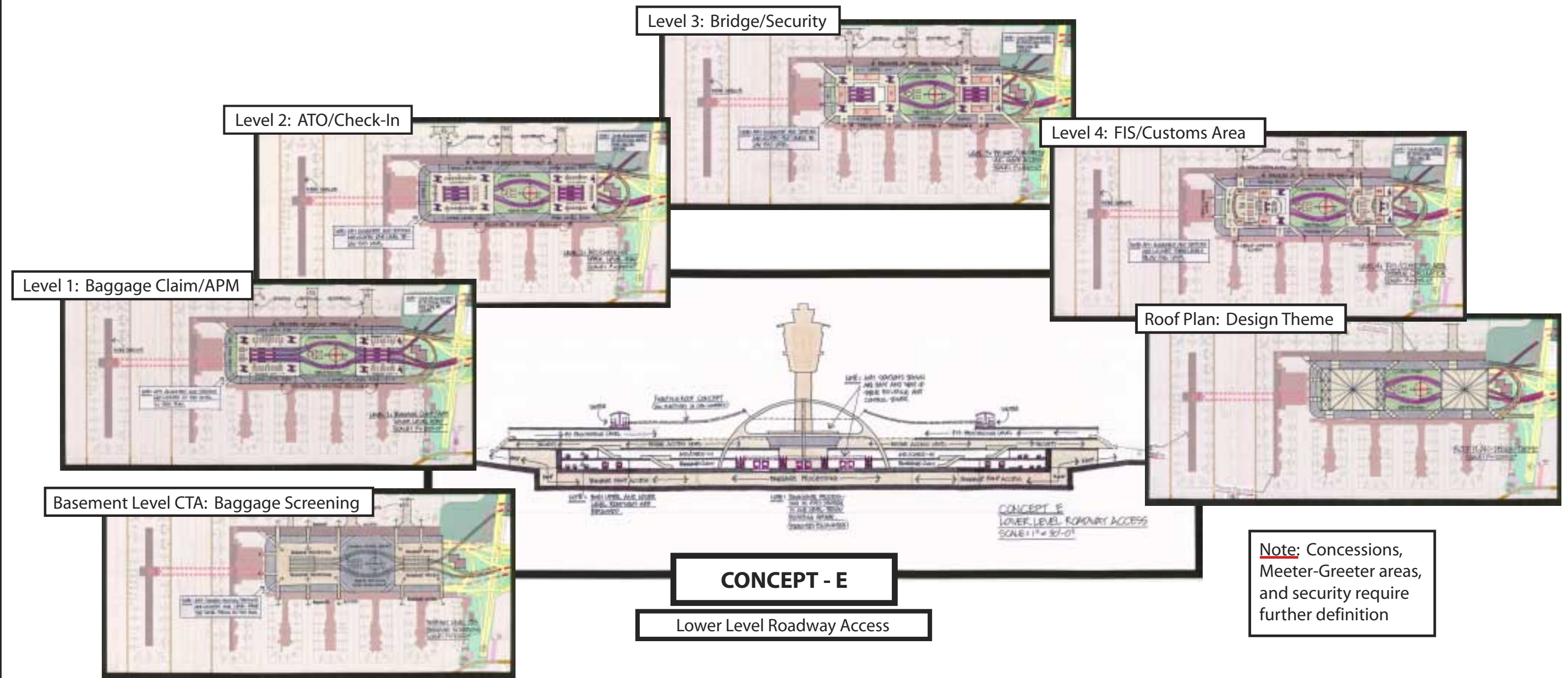


Note: Concessions, Meeter-Greeter areas, and security require further definition

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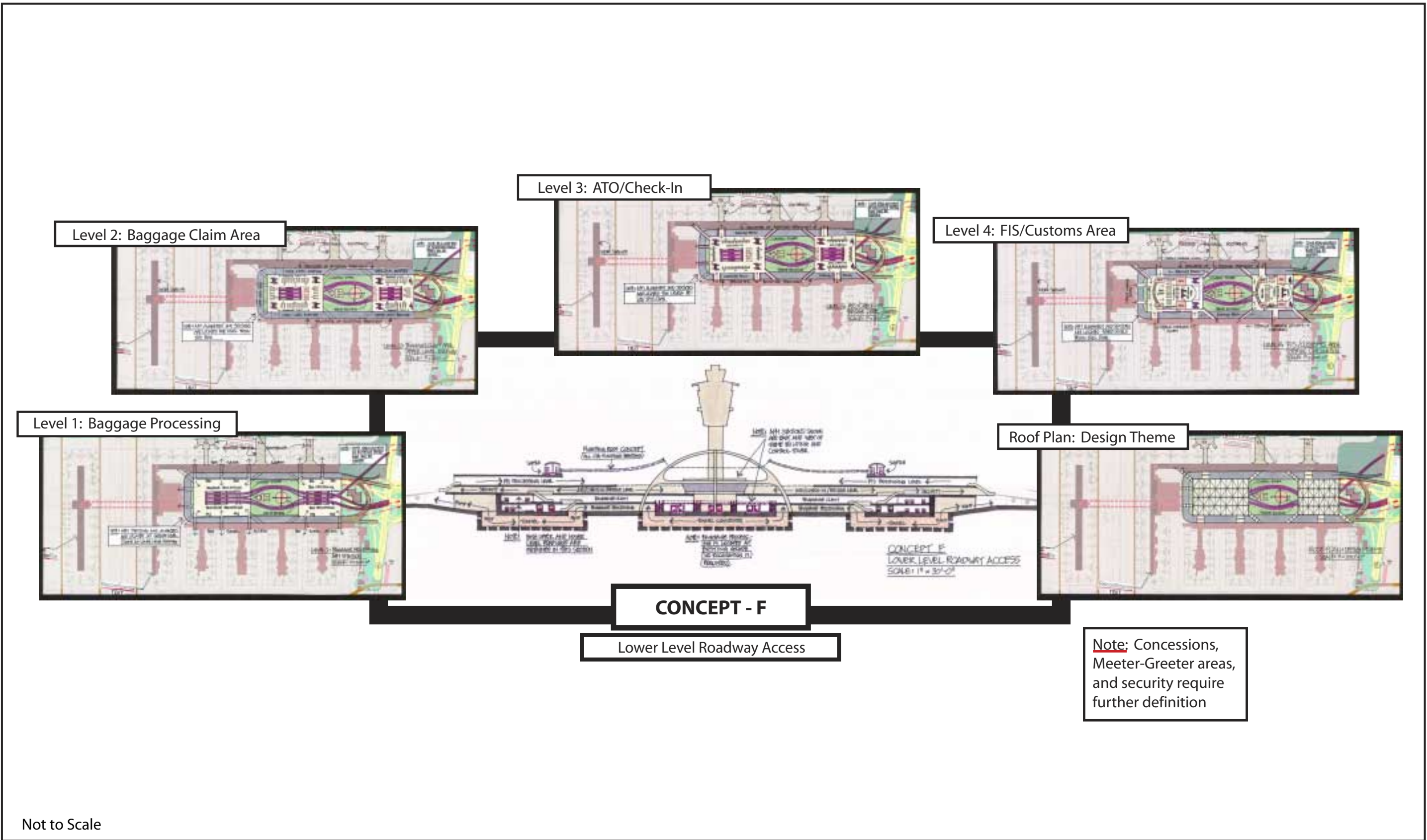




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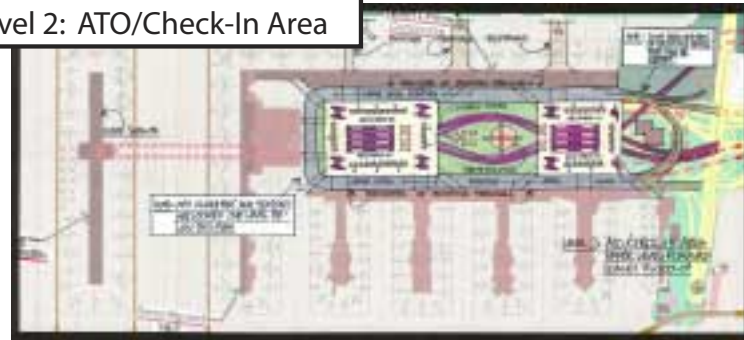
Prepared by: Landrum & Brown  
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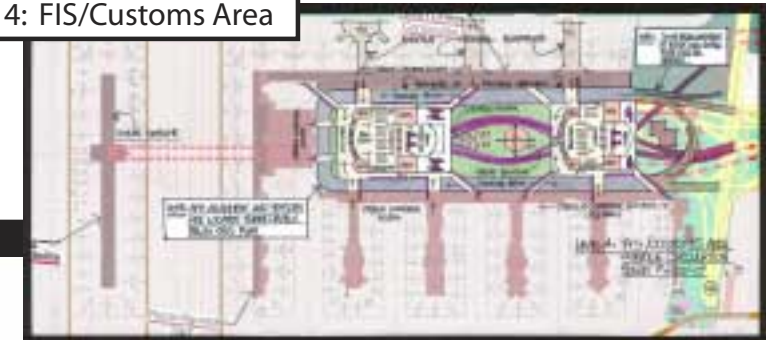
Level 2: ATO/Check-In Area



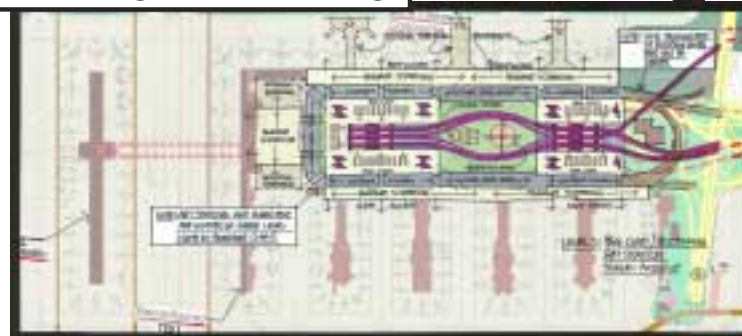
Level 3: Bridge Level/AC



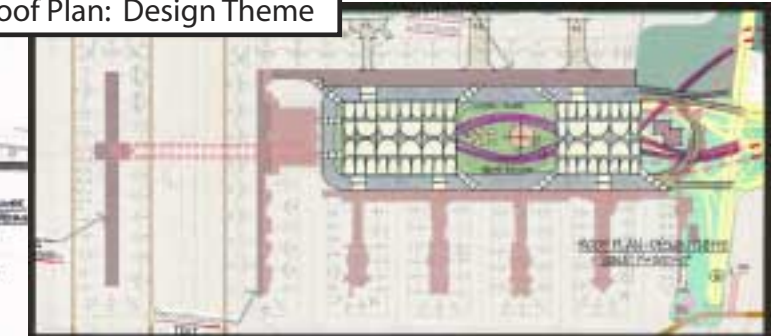
Level 4: FIS/Customs Area



Level 1: Bag Claim/Processing

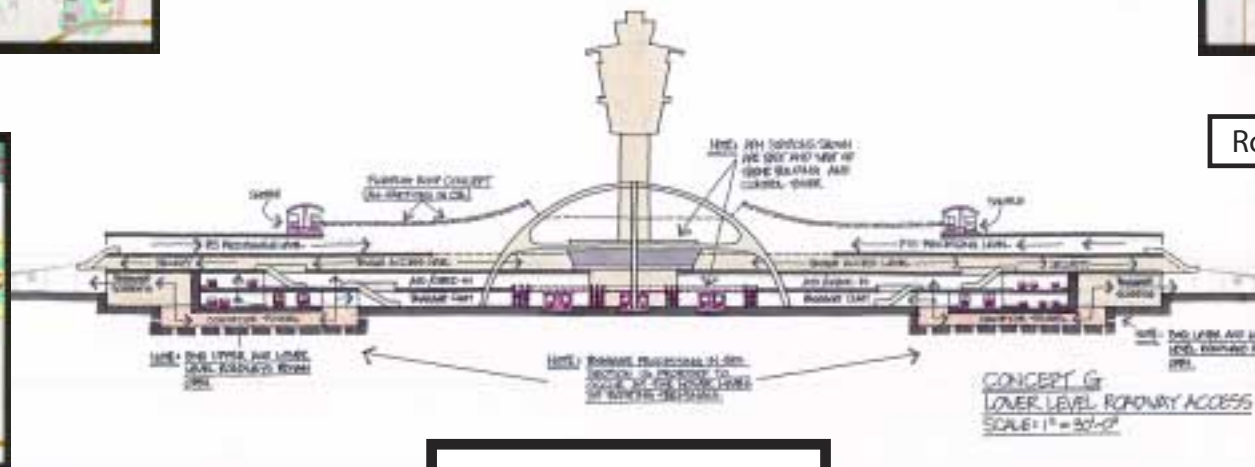


Roof Plan: Design Theme



## CONCEPT - G

Lower Level Roadway Access

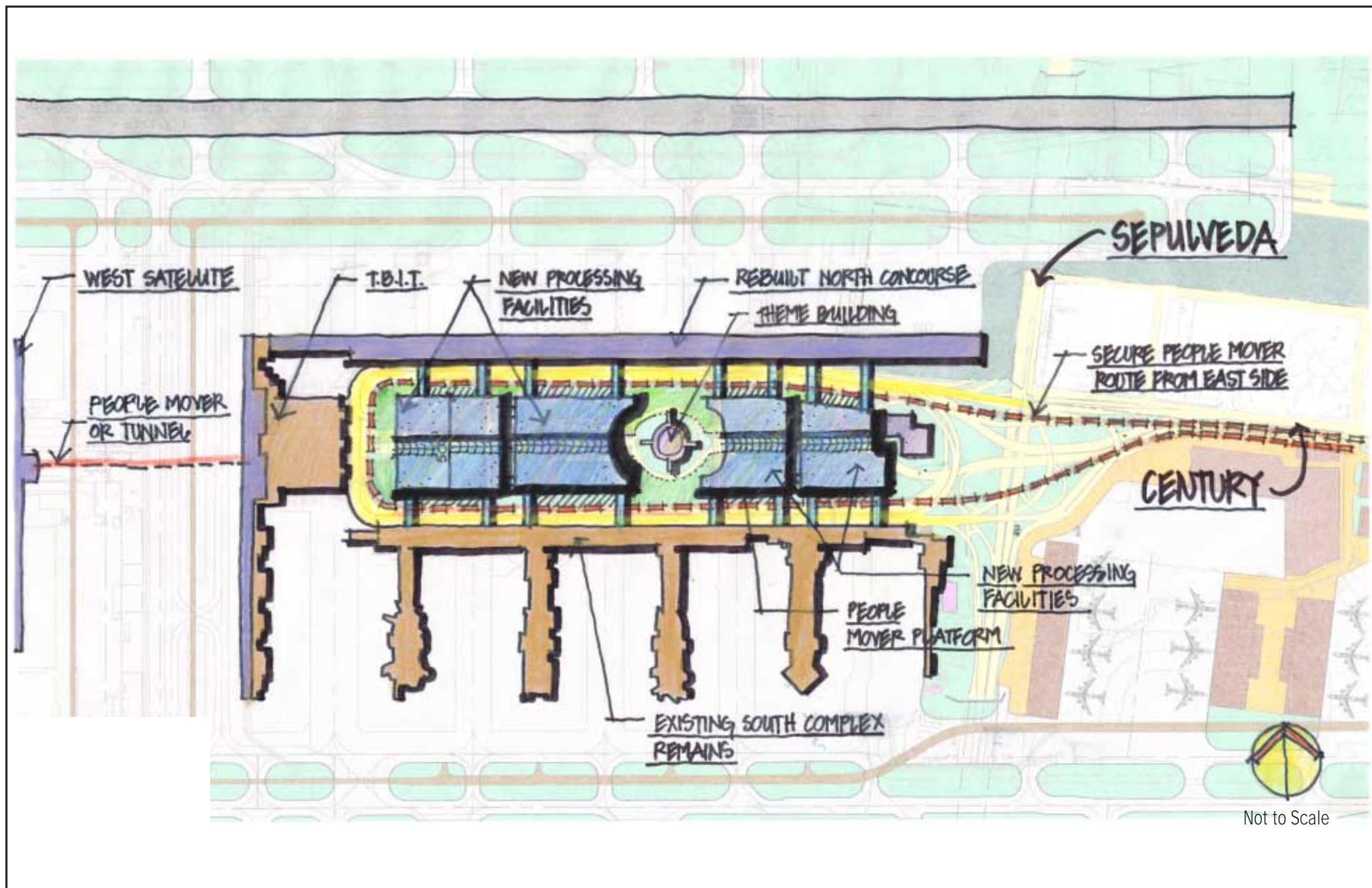


Note: Concessions, Meeter-Greeter areas, and security require further definition

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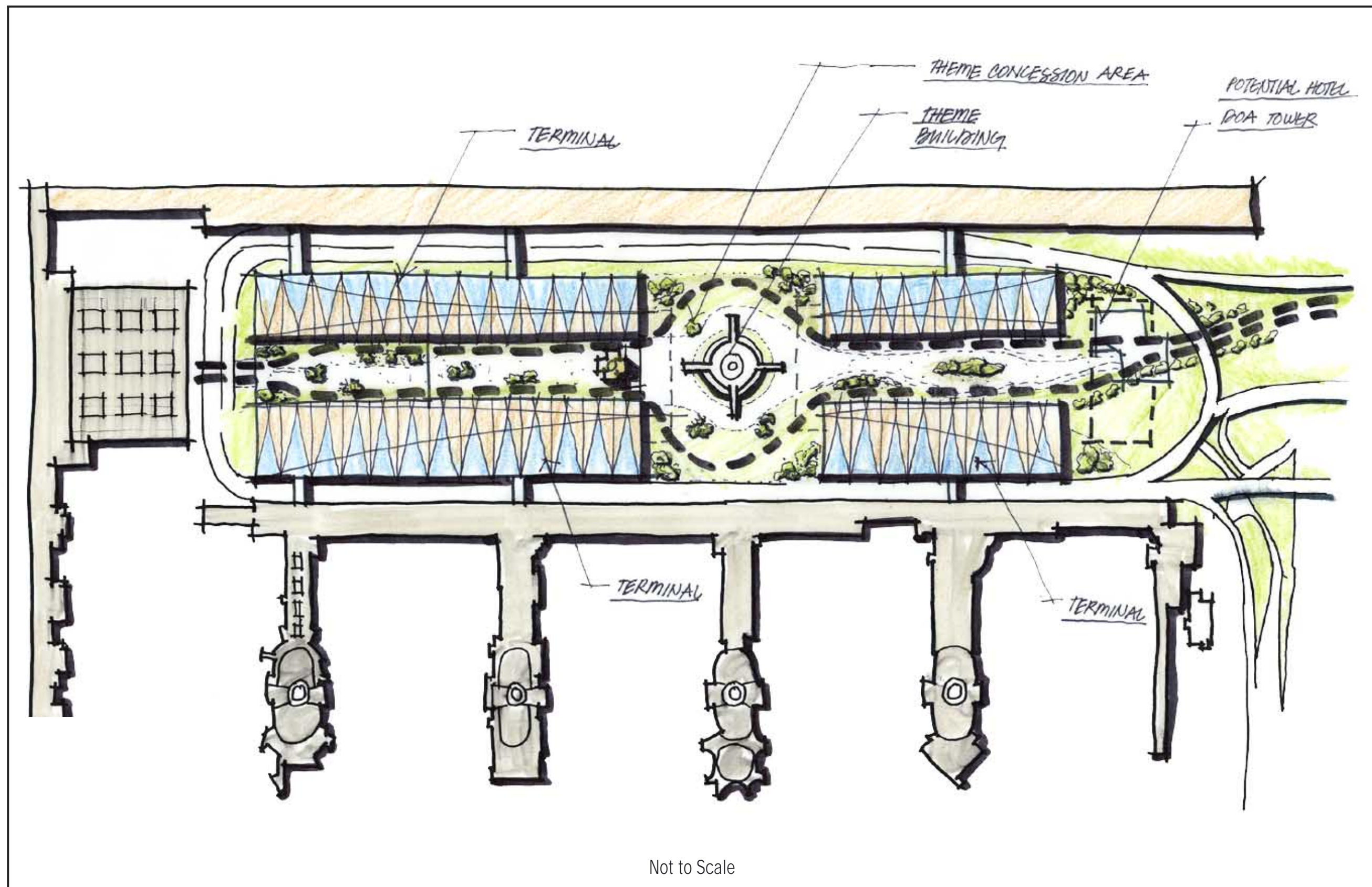
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Draft: June 2003

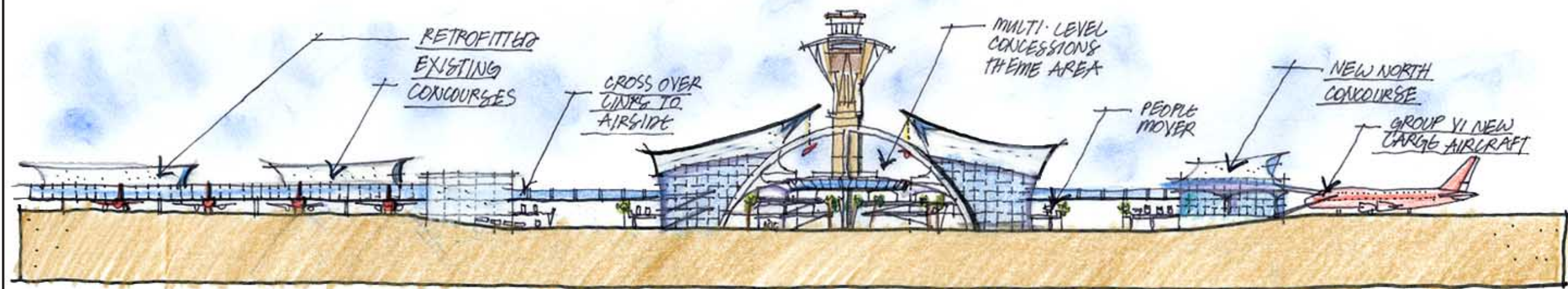




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Draft: June 2003





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**Figure H-65** is a section sketch depicting an idea for developing the area around the Theme Building as a multi-level concessions and entertainment area open to the sky.

**Figure H-66** depicts a potential plan for developing the entire land area of the central core essentially enclosing the Theme Building.

**Figures H-67** and **H-68** is a section depicting the plan for enclosing the entire land area of the central core.

**Figure H-69** is a conceptual plan and perspective of a ramping system from an APM platform to security screening areas and a concessions and entertainment complex around the Theme Building.

**Figure H-70** are conceptual ideas depicting a central core terminal processor and a concessions and entertainment complex around the Theme Building.

**Figure H-71** depicts additional conceptual ideas for the development of the terminal processor within the central core of the CTA.

**Figure H-72** is a preliminary section through a GTC pier. Subsequent revisions have altered the GTC concept allowing for a much more open and lightweight structure and relocated the APM to the interstitial level.

## **H.12 ALTERNATIVE D COMPARISON MODIFICATIONS**

The purpose of developing **Figure H-73** through **H-75** was to show that similar Alternative D security elements could be incorporated into Alternatives A, B, and C.

Alternative A Modification for Comparison to Alternative D (**Figure H-73**)

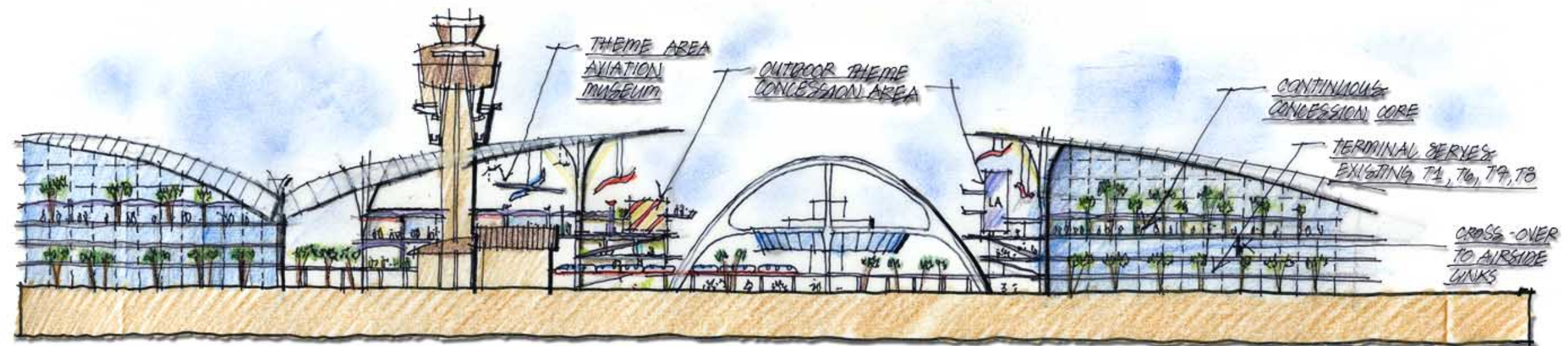
Alternative B Modification for Comparison to Alternative D (**Figure H-74**)

Alternative C Modification for Comparison to Alternative D (**Figure H-75**)



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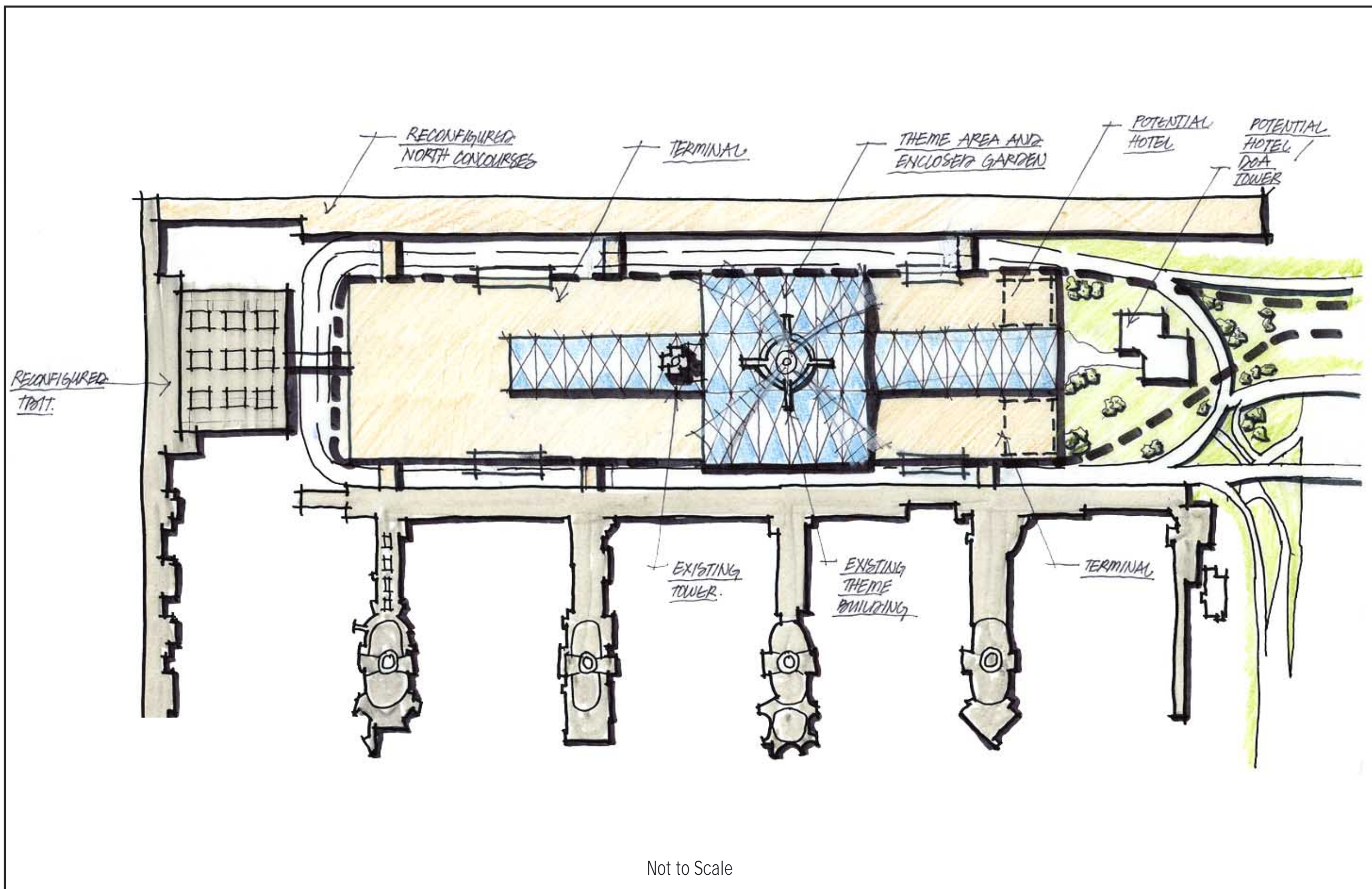




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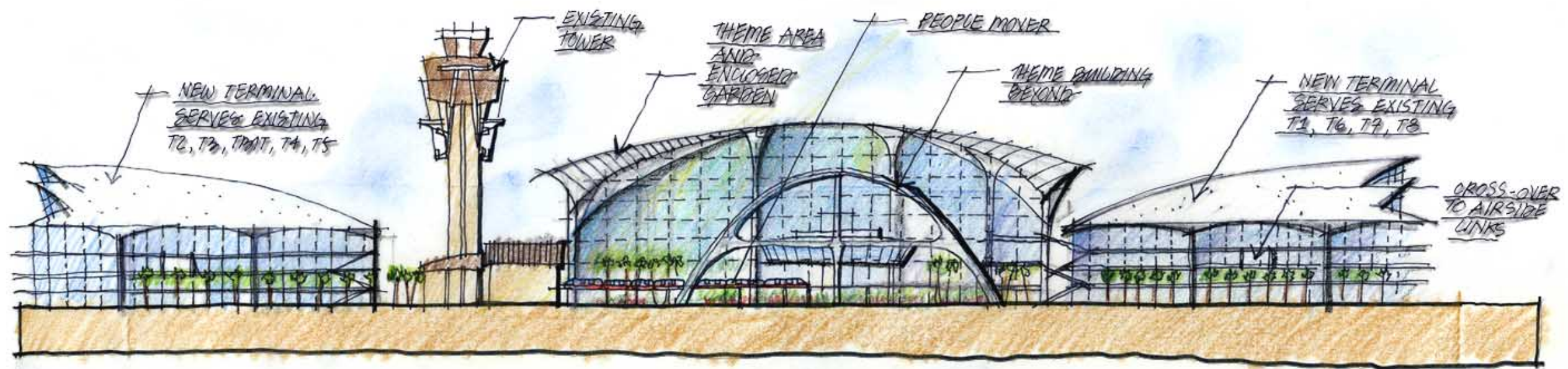




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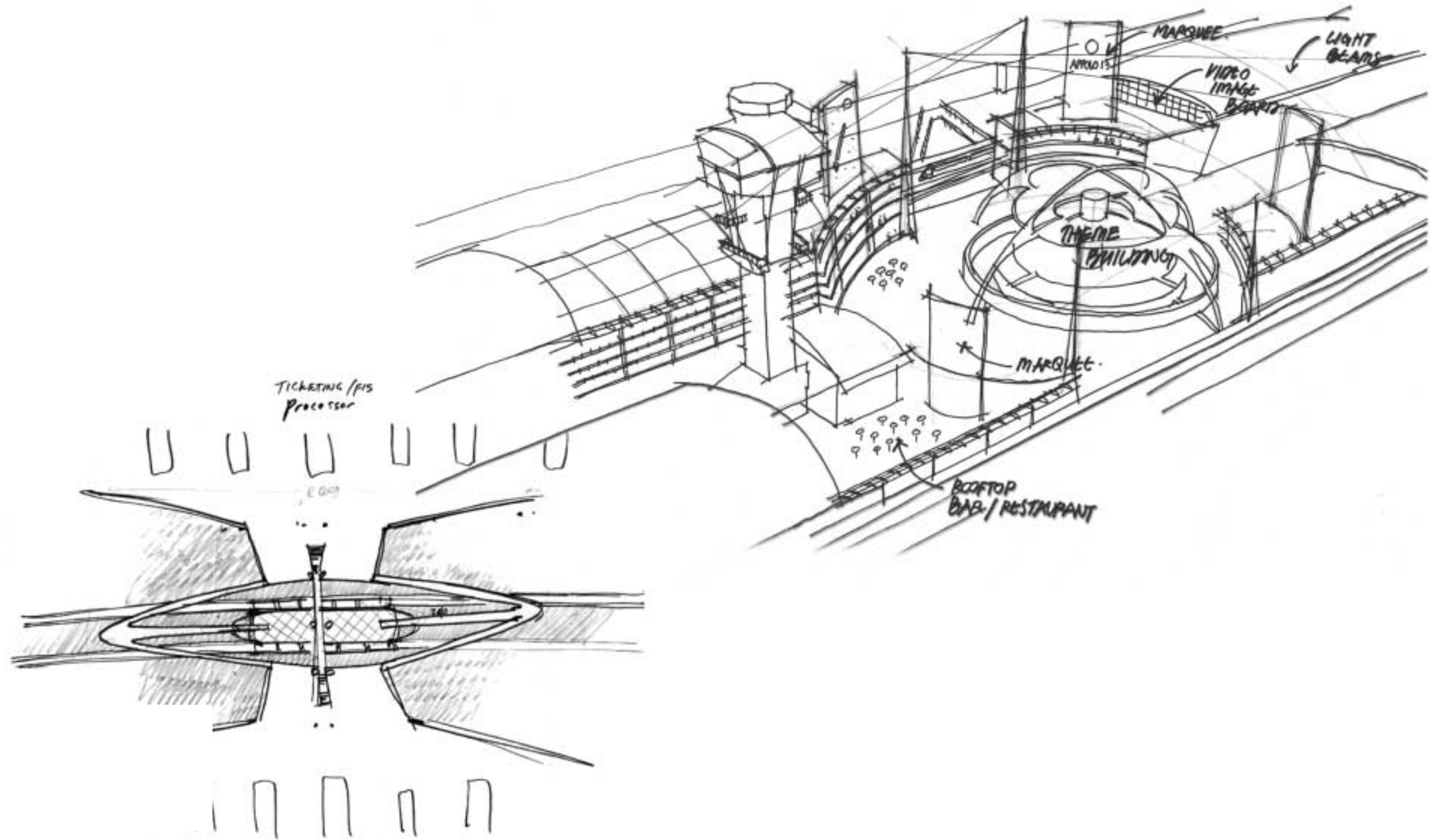




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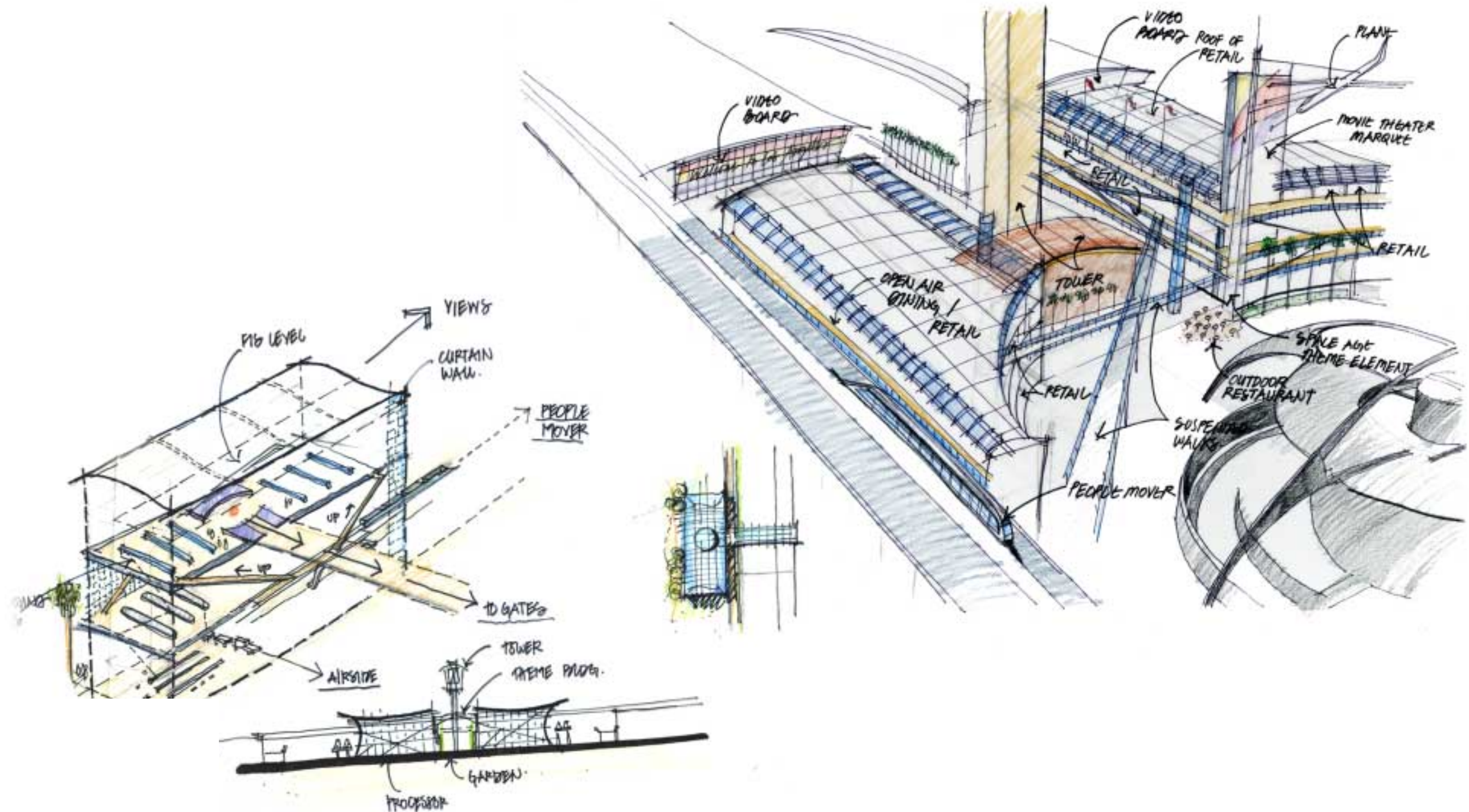
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Los Angeles International Airport Master Plan

Potential Terminal/Theme Building Environment

Figure  
H-69

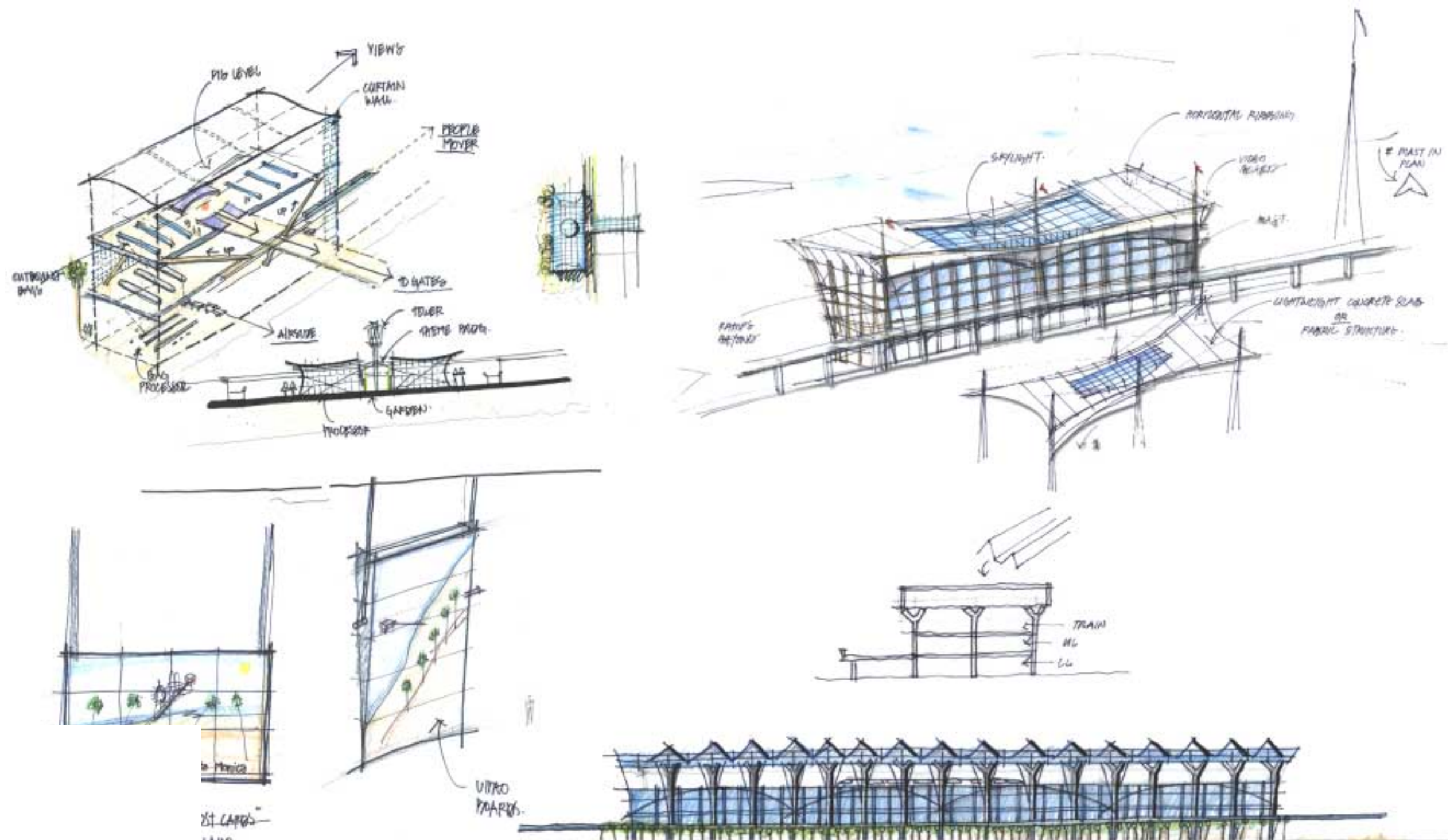




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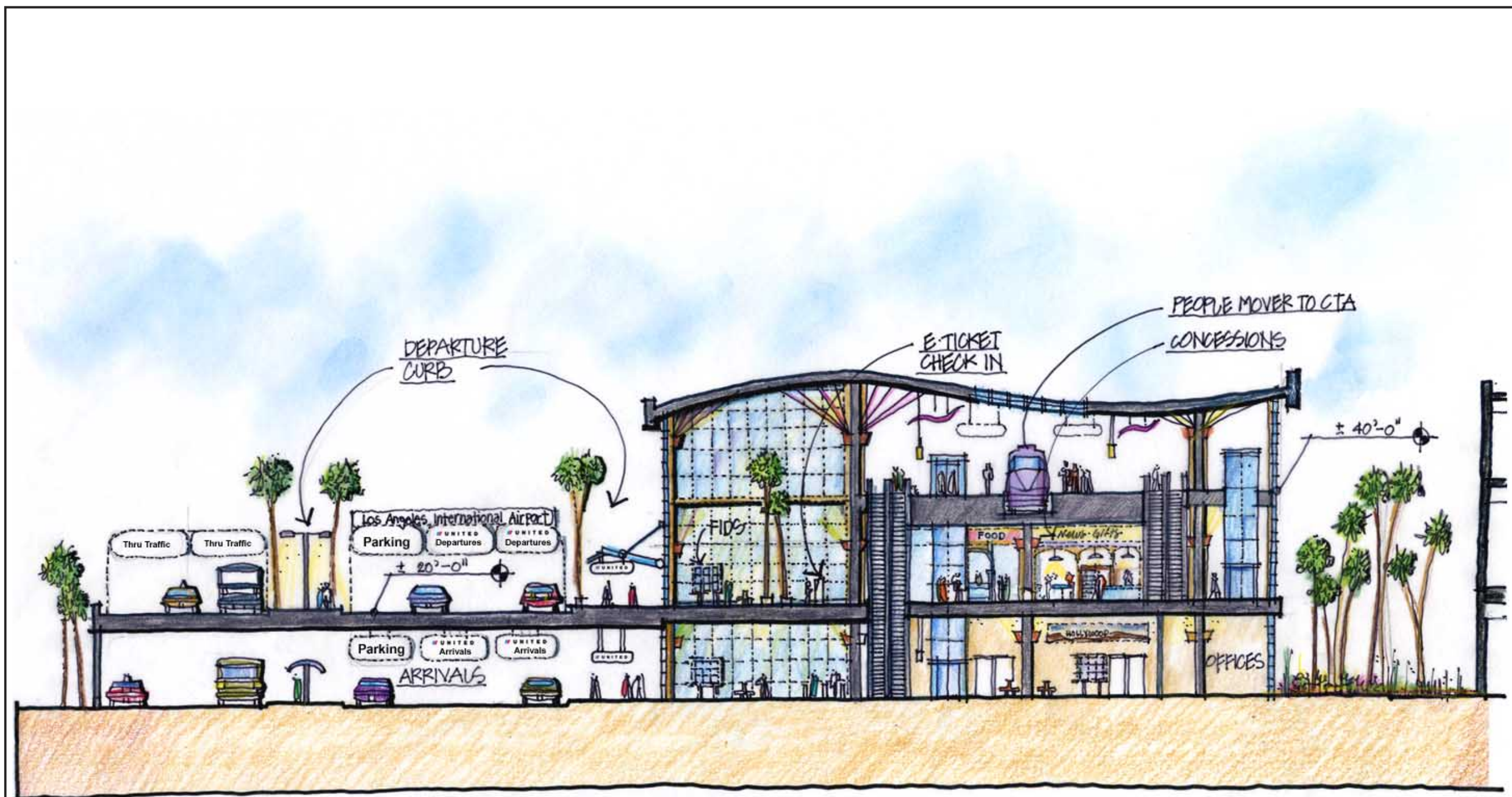




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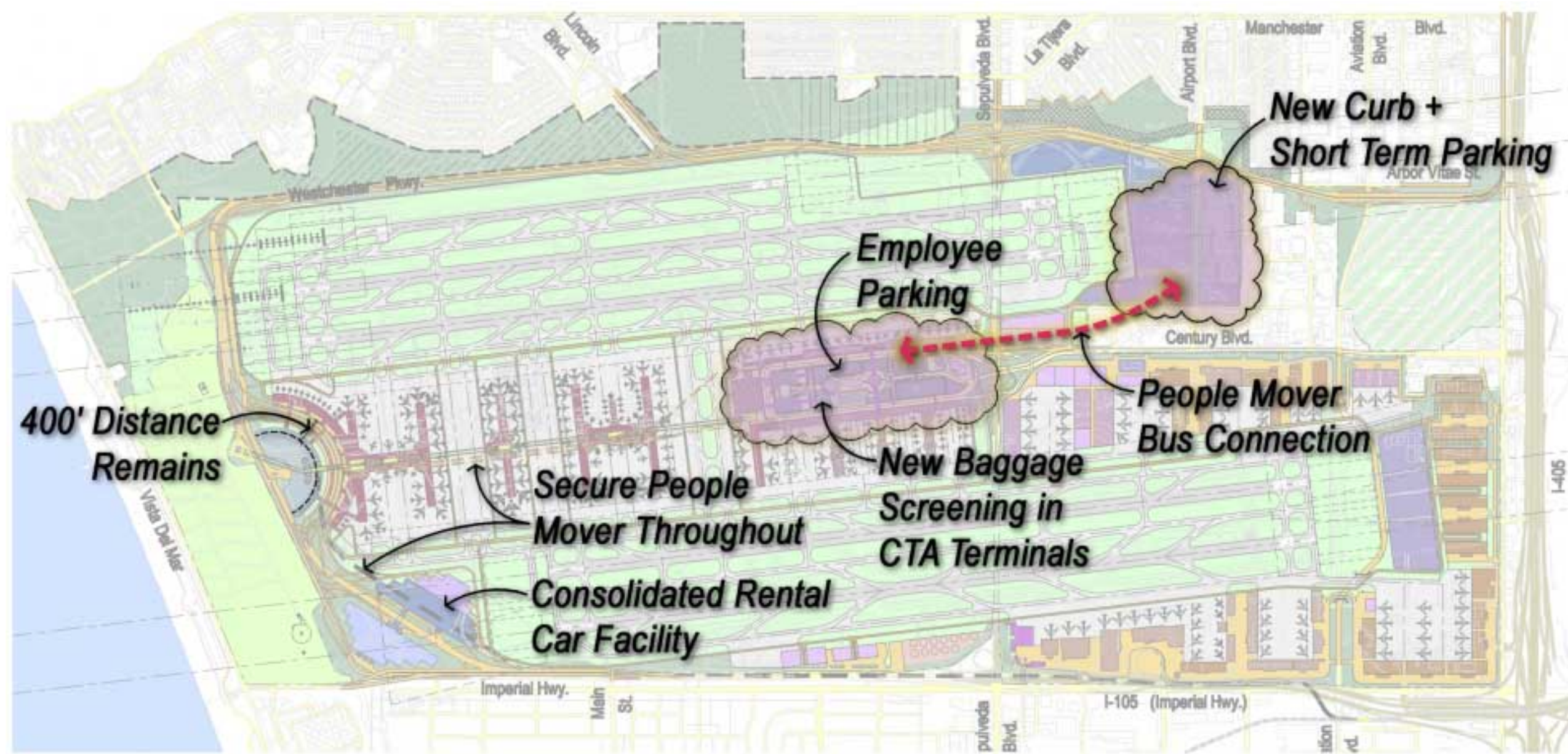


POTENTIAL CROSS SECTION THRU REMOTE CURBSIDE FACILITY AND PEOPLE MOVER STATION

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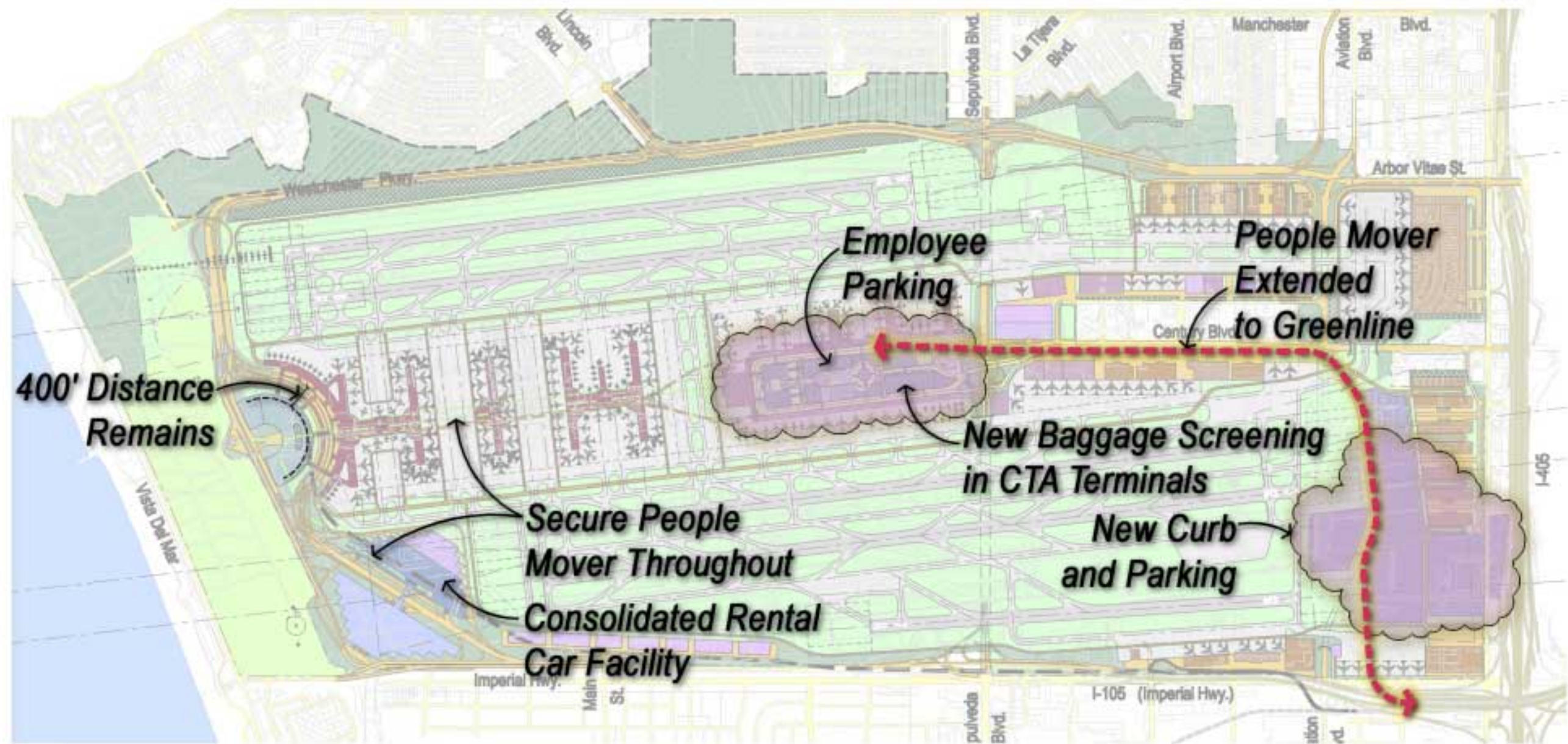




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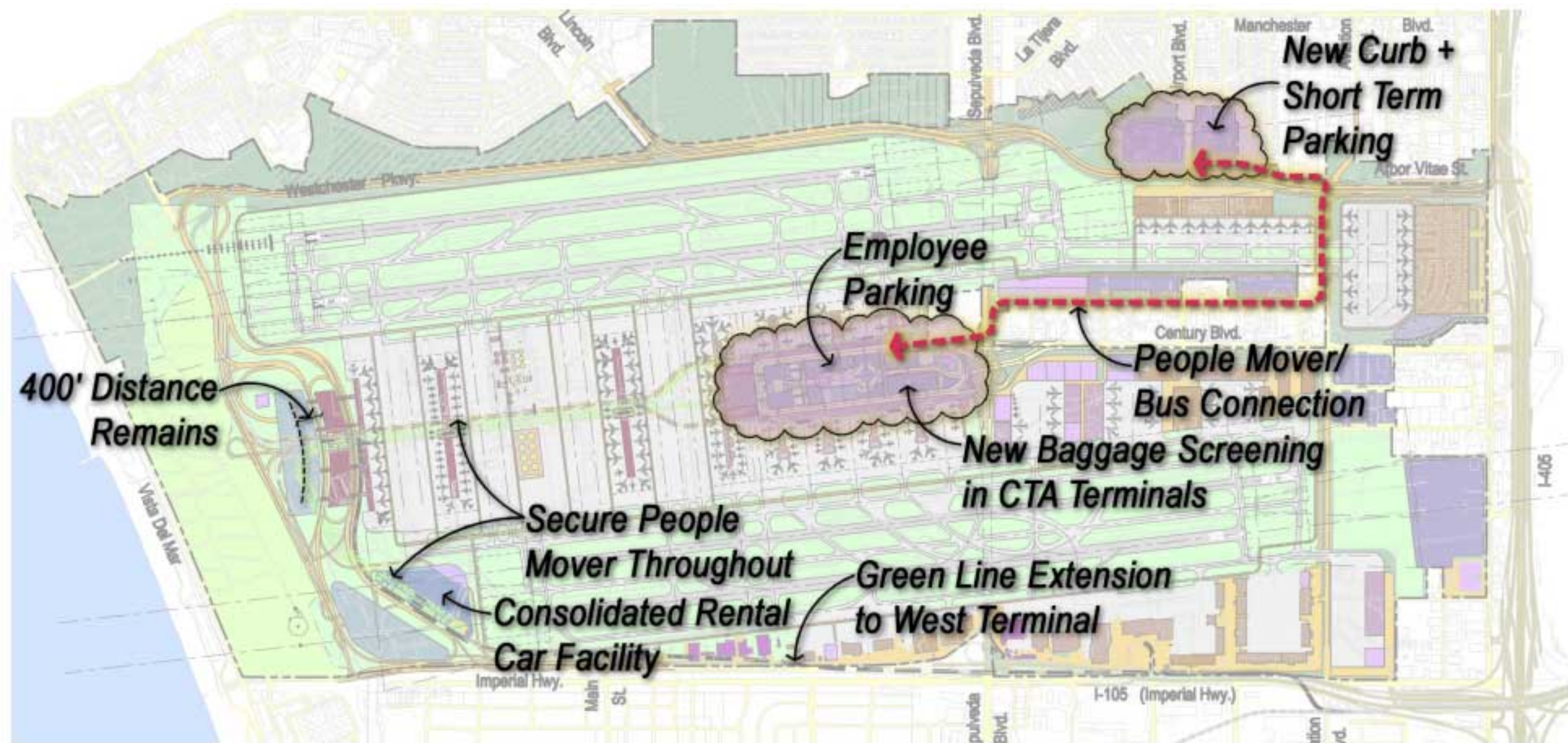




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Los Angeles International Airport Master Plan

Alt "C" Modifications for Comparison to Alt "D"

Figure  
H-75