SECTION 4
IDENTIFICATION AND EVALUATION OF ALTERNATIVES

The purpose of this section of the Airport Master Plan Update is to identify facility development alternatives for the Melbourne International Airport (MLB) that will satisfy the facility requirements outlined in Section 3. These requirements were determined for the existing Airport as well as the Strategic Planning Activity Levels (SPAL's) developed from the aviation demand forecasts in Section 2.

Four airport functional areas have been identified and examined: airfield, landside, surface access, and land use/land acquisition. Preliminary development alternatives have been created for those areas and were presented and evaluated in order to determine the preferred components of the overall development plan for MLB.

The "No Build" alternative (where applicable) is presented and discussed below as the base alternative. This alternative simply serves as a comparison for development in each alternative area.

4.1 AIRFIELD

Alternatives for airside development at MLB have been broken down into two areas: runways and taxiways. Several alternatives have been considered for each area, taking into consideration the current and projected design aircraft, as well as the demand forecasts presented in Section 2 and facility requirements development in Section 3. The estimated cost of each of these alternatives includes the appropriate new lighting and signage equipment as well as the necessary paving, grading and drainage improvements. These costs have been developed to provide an order of magnitude estimate for comparison of each alternative. These costs should not be considered as total project costs or construction estimates.

4.1.1 Runways.

Several alternatives are proposed for the improvement of the existing runway system, which is the primary component of the airfield.

"No Build" Alternative (Figure 4.1)

Simply maintaining the airfield, which would include bringing the existing paved surfaces up to current design standards, serves as the baseline alternative. The primary runway (Runway 9R-27L) is currently 10,181feet long, 150 feet in width, and maintains an ARC classification of D-IV. Future facility requirements and changing aircraft fleet mix will require that the runway be upgraded to D-V by the end of the planning period. Upgrading Runway 9R/27L to an ARC of D-V will require the following improvements:

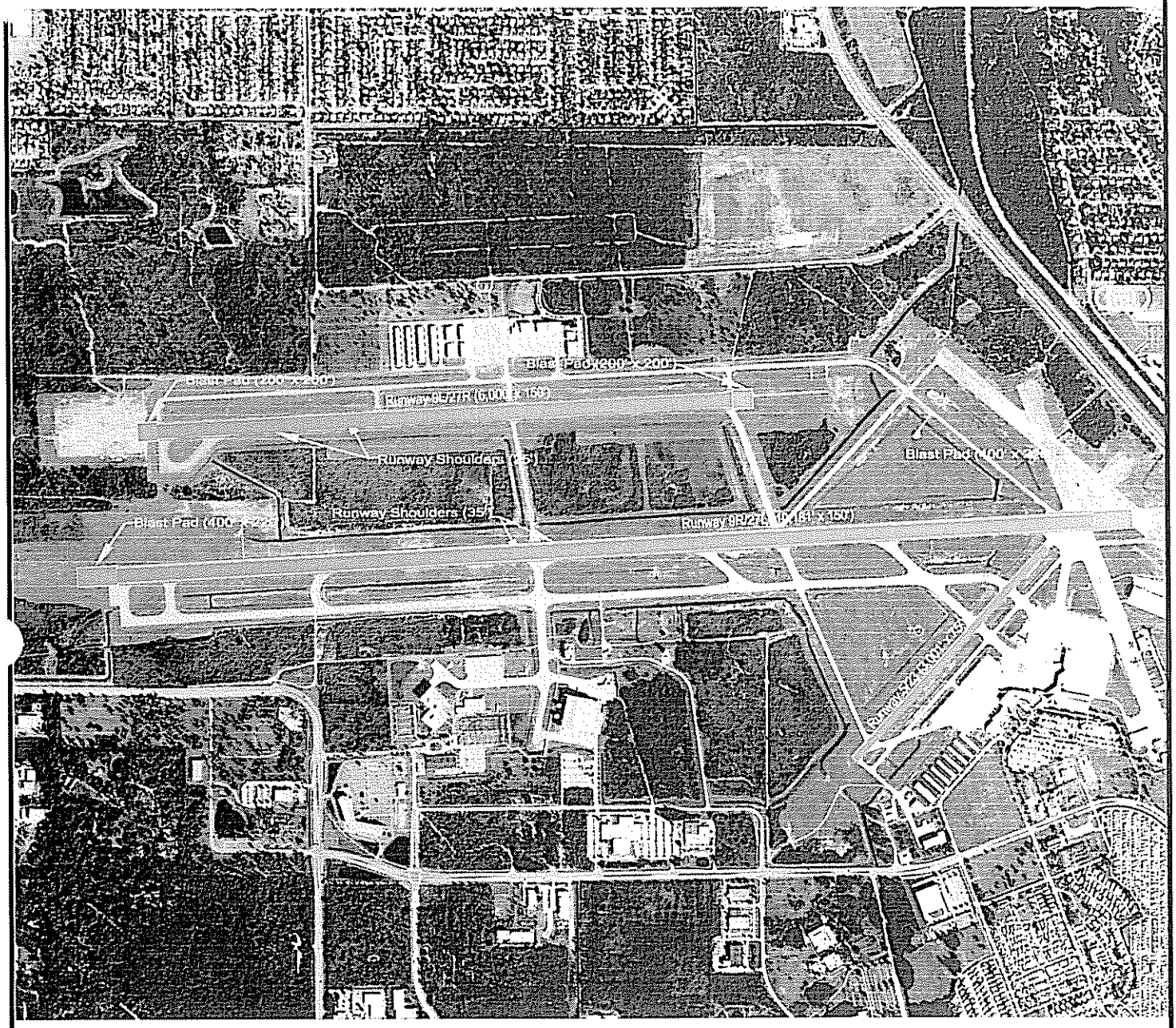
- 35 foot wide paved shoulders
- A blast pad at the end of each runway, 220 foot in width and 400 feet long.
- Runway strengthening as described in Section 3.

In order to accommodate D-V aircraft with stage lengths sufficient to serve long-haul international markets, the runway must be extended to an ultimate length of 11,600 feet. Alternative A-1 (discussed below) presents the recommended alternative for extending the runway. The estimated order of magnitude planning cost to bring Runway 9R/27L up to current FAA Design Standards for D-V aircraft (not including the runway strengthening or extension) is $500,000. Estimated order of magnitude cost to strengthen the runway to accommodate the future design aircraft is $15,000,000.

Runway 9L-27R is 6,000 feet in length, 150 feet in width, and maintains a current ARC of C-II. Section 3 identifies a need for the runway to accommodate D-IV aircraft by the end of the planning period. In order to accommodate these larger aircraft, runway dimensional criteria must be upgraded to current design standards, and additional runway length will be necessary to accommodate the stage length of aircraft in use. Bringing the runway up to D-IV standards requires the following improvements:

- 25 foot wide paved shoulders.
- Construction of blast pads at the runway ends measuring 200 feet in width by 200 feet in length.
- Runway strengthening as described in Section 3.
- Relocation of the parallel taxiway (as described below).

In order to accommodate D-IV aircraft with stage lengths sufficient to reach most domestic destination, the runway must be extended to an ultimate length of 7,200 feet. Alternative A-2 (discussed below) presents the recommended alternatives for extending



SCALE: 1"= 1,600'

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NORTH

Source: Melbourne International Airport

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Figure 4.1
No-Build Alternative (Runways)

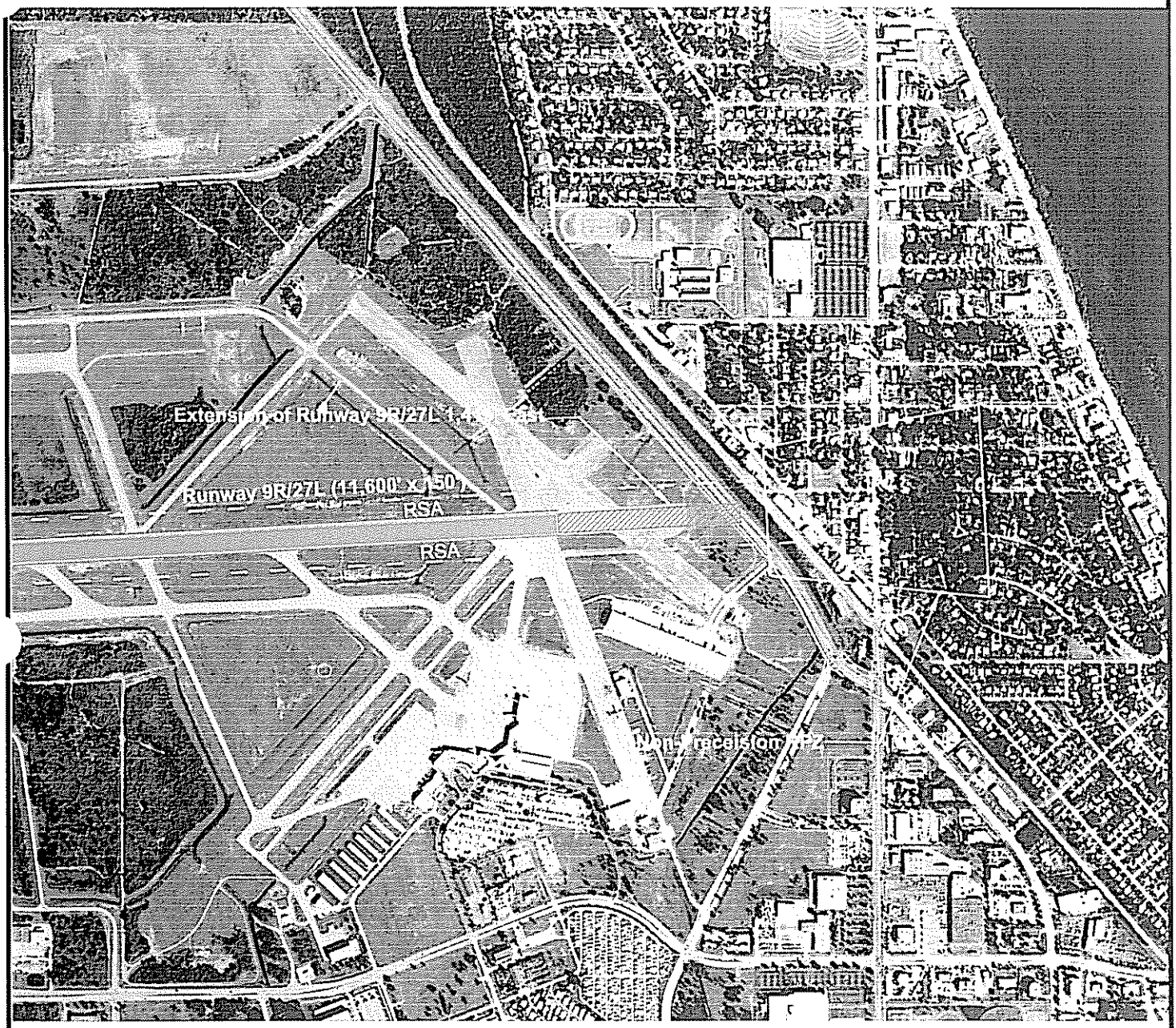
the runway. The estimated order of magnitude planning cost to bring Runway 9L/27R up to current FAA design standards for D-IV aircraft (not including runway strengthening or taxiway relocation) is $500,000. Estimated order of magnitude planning cost to strengthen the runway to accommodate the future design aircraft is $10,000,000.

Runway 5-23, which serves as a crosswind runway for small general aviation aircraft, is currently 3,000 in length and 75 feet in width. No modifications are required to this runway to maintain compliance with the applicable design standards. However, long-term (beyond the end of the planning period) expansion of the International Terminal Facility (discussed below) may affect the operation of the runway at some point in the future. Therefore, alternatives for relocating the runway within the existing airfield environment are presented and discussed in Alternative A-3 below.

Alternative A-1: Extend Runway 9R/27L

In order to accommodate the future design aircraft and adequately serve international destinations from MLB, Runway 9R/27L must be extended. As discussed in Section 3, the runway is currently 10,181 feet in length, and the maximum required to accommodate proposed international activity is 11,600 feet. Therefore, an extension of approximately 1,419 feet is proposed. Essentially two options exist to extend the runway. The first option is to extend the runway to the east, off the approach end of Runway 27L, see Figure 4.2. This option is not considered practical due to the location of Apollo Blvd., the future perimeter road, and the significant land acquisition that would be necessary to provide a standard Runway Safety Area (RSA) and Runway Protection Zone (RPA) in conjunction with any proposed extension.

The other option is to extend the runway to the west, off the approach end of Runway 9R, see Figure 4.3. A runway extension in this location can be constructed entirely within the existing boundaries of the Airport and accommodate a standard RSA. The landing threshold will remain at its current location and the 1,419 extension available for takeoff only (i.e., a displaced threshold). This configuration will permit the entire RPZ to be encompassed within the Airport boundary. This is also the location and configuration as proposed by the 1996 Master Plan and appears to remain a valid and viable planning option for the Airport. The estimated order to magnitude planning cost to extend Runway 9R/27L to 11,600 feet is $3,500,000.



SCALE: 1"= 1,200'

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NORTH

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Figure 4.2
Alternative A-1
Runway 9R/27L East End Extension

SCALE: 1"= 1,200'

1,200' 600' 0 1,200'

NORTH

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Figure 4-3

Alternative A-1

Runway 9R/27L West End Extension

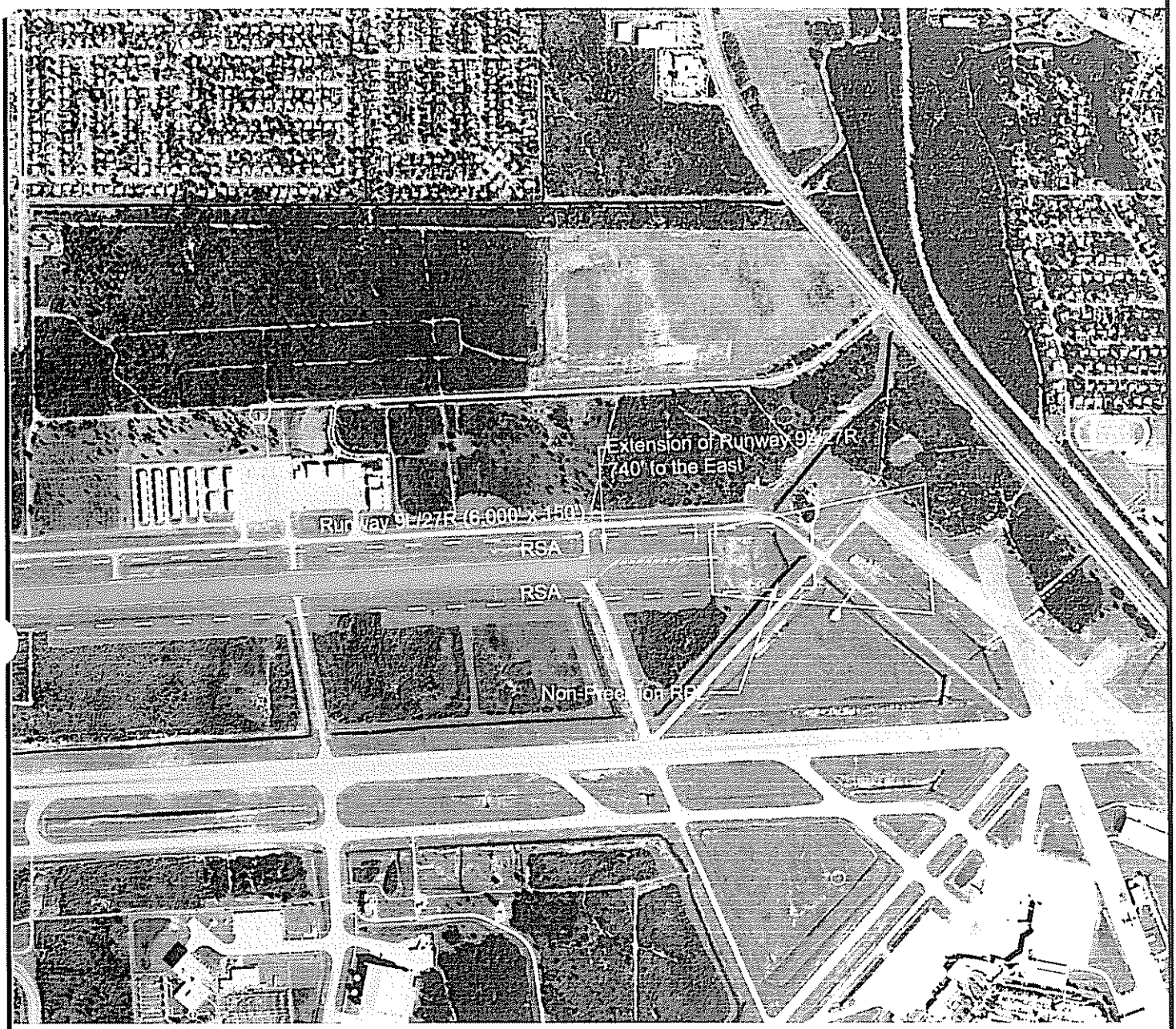
Alternative A-2: Extend Runway 9L-27R

In order to accommodate the future design aircraft, offer flexibility in the event Runway 9R/27L is closed, and allow aircraft to depart the runway to most domestic destinations, an extension to Runway 9L/27R is proposed. As discussed in Section 3, the runway is currently 6,000 feet in length and the recommended length to accommodate the future design aircraft is 7,200 feet. Therefore, an extension of 1,200 feet is required. Similar to the extension of Runway 9R/27L, there exist essentially two options for extending Runway 9L/27R. The first option is to extend the runway to the east. Any runway extensions to the east will be restricted due to the location of the "critical area" surrounding the TVOR and the extension of Taxiway "K". In order to maintain a standard RSA and keep the runway extension out of the TVOR critical area, a maximum of 740 feet can be added to the approach end of Runway 27R, see Figure 4.4. With the construction of an additional 740 feet in this location, the RPZ will remain entirely within the boundaries of the Airport.

The second option is to extend the runway to the west. Since it has been determined that an additional 740 feet may be added to the eastern end of the runway, an extension of only 460 feet will be necessary to the western end. By extending the runway 460 feet to the west, the RSA and existing RPZ will remain within the boundary of the Airport, see Figure 4.5. However, as discussed in Section 3, there is a future requirement to upgrade Runway 9L to precision approach capability. This will require an increase in the size of the RPZ and potentially require the acquisition of property along on the western boundary of the Airport (as discussed below). The estimated order of magnitude planning cost to extend Runway 9L/27R to 7,200 feet is $2,000,000.

Alternative A-3: Runway 5/23

As discussed in Section 3, in order to accommodate potential future expansion of the International Terminal Facility, it may require that Runway 5/23 be operationally restricted during certain periods of aircraft activity, closed and/or relocated. Since it is uncertain when the International Terminal Facility will require expansion or its' ultimate design and configuration, it is not possible at this time to completely ascertain the extent and nature of the impacts to Runway 5/23. Therefore, at this time no recommendations will be made concerning the future disposition of Runway 5/23 and it is recommended



SCALE: 1"= 1,200'

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NORTH

Source: Melbourne International Airport

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Figure 4.4
Alternative A-2
Runway 9L/27R East End Extension

SCALE: 1"= 1,200'

1,200' 600' 0 1,200'

NORTH

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Figure 4-5
Alternative A-2
Runway 9L/27R West End Extension

that when international terminal operations rise to the level of potential impact to Runway 5/23, operational impacts associated with this runway be fully evaluated.

4.1.2 Taxiways.

Several alternatives are proposed for the improvement of the existing taxiway system, which is the primary component in support of the runway environment.

"No Build" Alternative

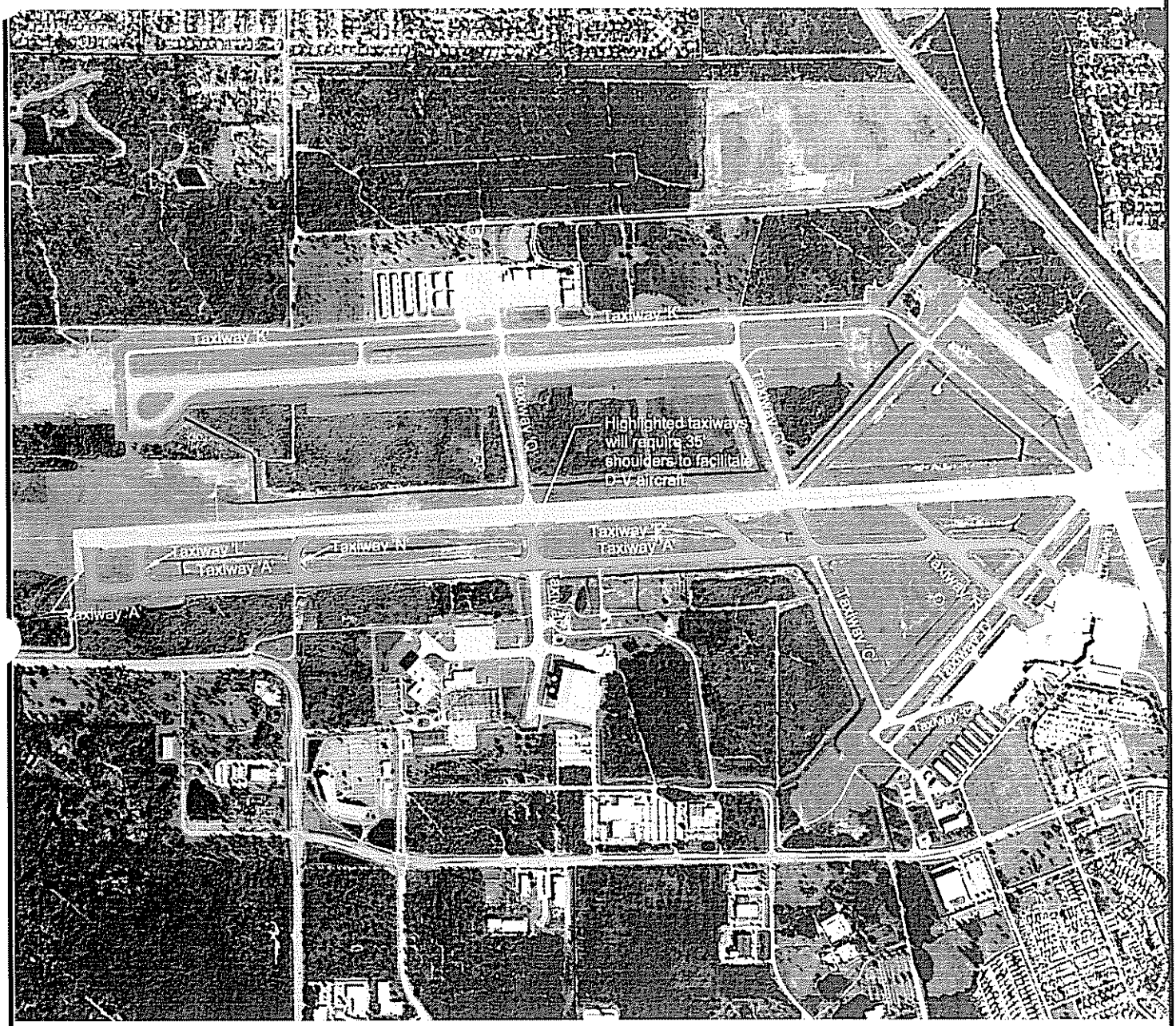
Simply maintaining the taxiway infrastructure, which would include bringing the existing paved surfaces up to current design standards, serves as the baseline alternative.

Taxiway "A" which serves as the parallel taxiway to Runway 9R/27L, and the supporting exit and crossover taxiways for this runway, will need to be upgraded prior to the end of the planning period to conform to the requirements of D-V aircraft, see Figure 4-6. This will involve the following improvements to these taxiways:

- 35 foot wide paved or stabilized shoulders.
- Increased pavement strength as discussed in Section 3.

The estimated order of magnitude planning cost to upgrade the taxiways associated with Runway 9R/27L to accommodate the future design aircraft (not including pavement strengthening) is $2,000,000. Estimated order of magnitude cost to strengthen the taxiways associated with Runway 9R/27L is $5,000,000.

Taxiway "K" which serves as the parallel taxiway to Runway 9L/27R, and the supporting exit and crossover taxiways for this runway, is designed to serve only C-II aircraft. In order for Runway 9L/27R to accommodate its' future D-IV design aircraft, this parallel taxiway must be relocated or abandoned. Another option would be to restrict the use of the taxiway to C-II aircraft once the runway design aircraft is upgraded to D-IV, and construct a new parallel taxiway south of the existing runway to accommodate D-IV aircraft. This will be examined in more detail in the discussion of Alternative A-4 below. However, Taxiway "K" and all the associated exit and crossover taxiways conform to current design standards for C-II aircraft and do not require any current improvements.



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NORTH

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Figure 4.6
Runway 9R/27L Taxiways

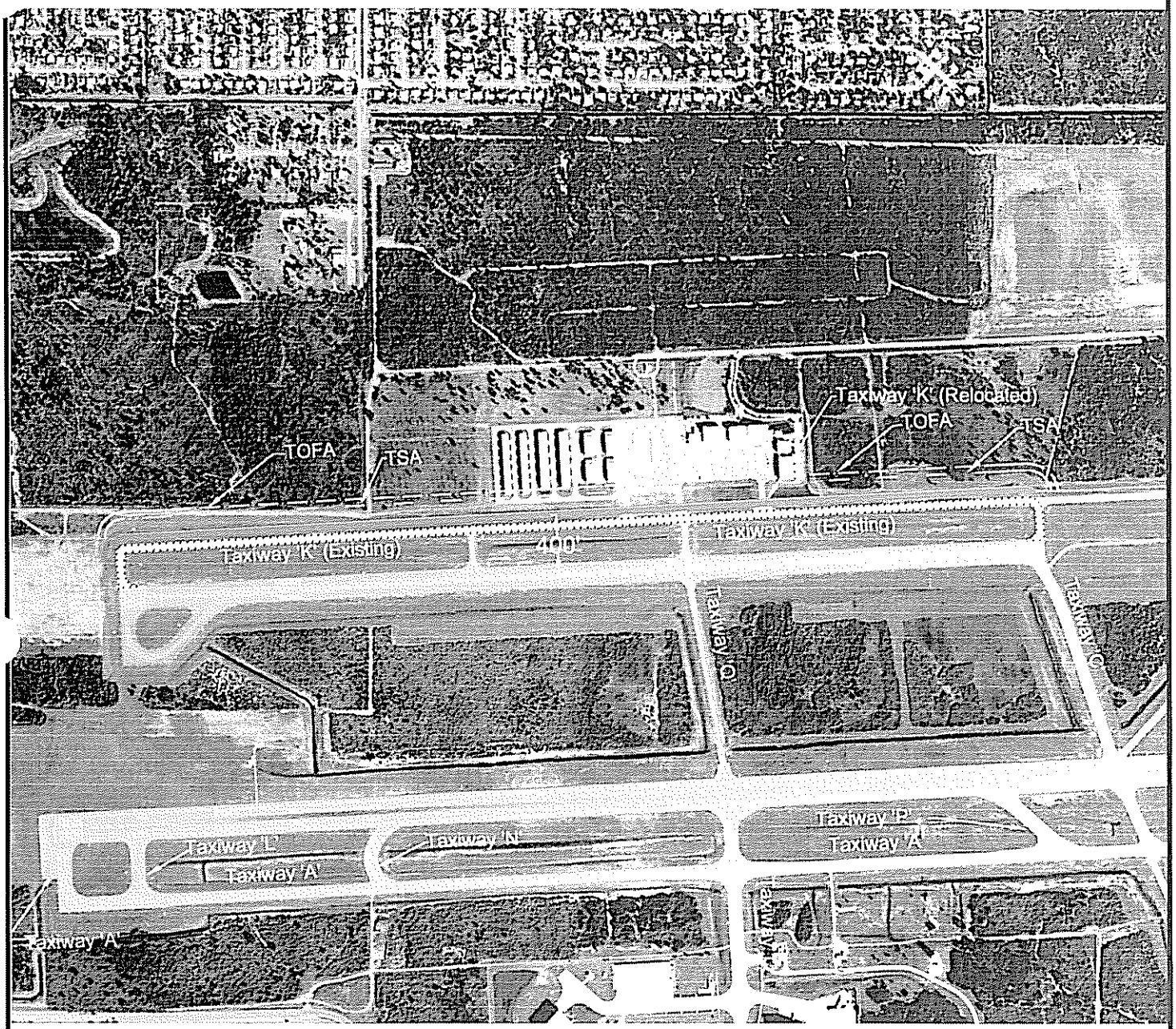
Alternative A-4: Construct new parallel taxiway to Runway 9L/27R

As discussed in Section 3, the future design aircraft for Runway 9l/27R is the MD-88, which maintains an ARC of D-IV. A runway with an ARC of D-IV must maintain a minimum of 400 feet separation between the runway centerline and parallel taxiway centerline. Current separation distance between Runway 9L/27R and Taxiway "K" is 325 feet. In order to accommodate D-IV aircraft as the future design aircraft for this runway, and conform to FAA design standards, Taxiway "K" must either be relocated, abandoned, or permanently restricted to C-II or smaller aircraft. The relocation of Taxiway "K" would require that it be shifted a minimum of 75 feet north, towards the existing general aviation area. In conjunction with the relocation, Taxiway "K" would need to be widened to 75 feet, and the associated taxiway safety and object free areas would need to conform to Airplane Design Group IV standards. Figure 4.7 depicts the relocation of Taxiway "K" and the associated impacts pertaining to the relocation. As noted in Figure 4.7, by relocating Taxiway "K" and upgrading to Airplane Design Group IV standards, several aircraft t-hangars and a large multi-use corporate hangar would fall within taxiway object free area. It would also require more precise definition of a taxilane on the general aviation apron associated with the Atlantic Jet Center, and implementation of more precise aircraft parking positions due to the constraints of the taxiway and taxilane object free areas. Due to these impacts on existing facilities, it is not recommended that Taxiway "K" be relocated to the north. It is however, recommended that Taxiway "K" be allowed to remain and function in accordance with Airplane Design Group II standards, and be restricted to aircraft that size or smaller.

A second option for accommodating D-IV aircraft in Runway 9L/27R would be to construct a parallel taxiway south of the runway. This would be a full-length parallel taxiway, constructed in accordance with Airplane Design Group IV standards, as depicted in Figure 4.8. The estimated order of magnitude planning cost to construct a new parallel taxiway south of Runway 9L/27R is $3,500,000.

Alternative A-5: Construct connector taxiway

In order to more efficiently move aircraft between the approach end of Runway 9L and 9R, it was introduced in Section 3 and recommended by the Technical Advisory Committee to examine construction of a crossover taxiway between the two runway thresholds. A proposed configuration of the taxiway is depicted in Figure 4.9. The



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NORTH

Source: Melbourne International Airport

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Figure 4.7
Alternative A-4
Taxiway 'K' Relocation

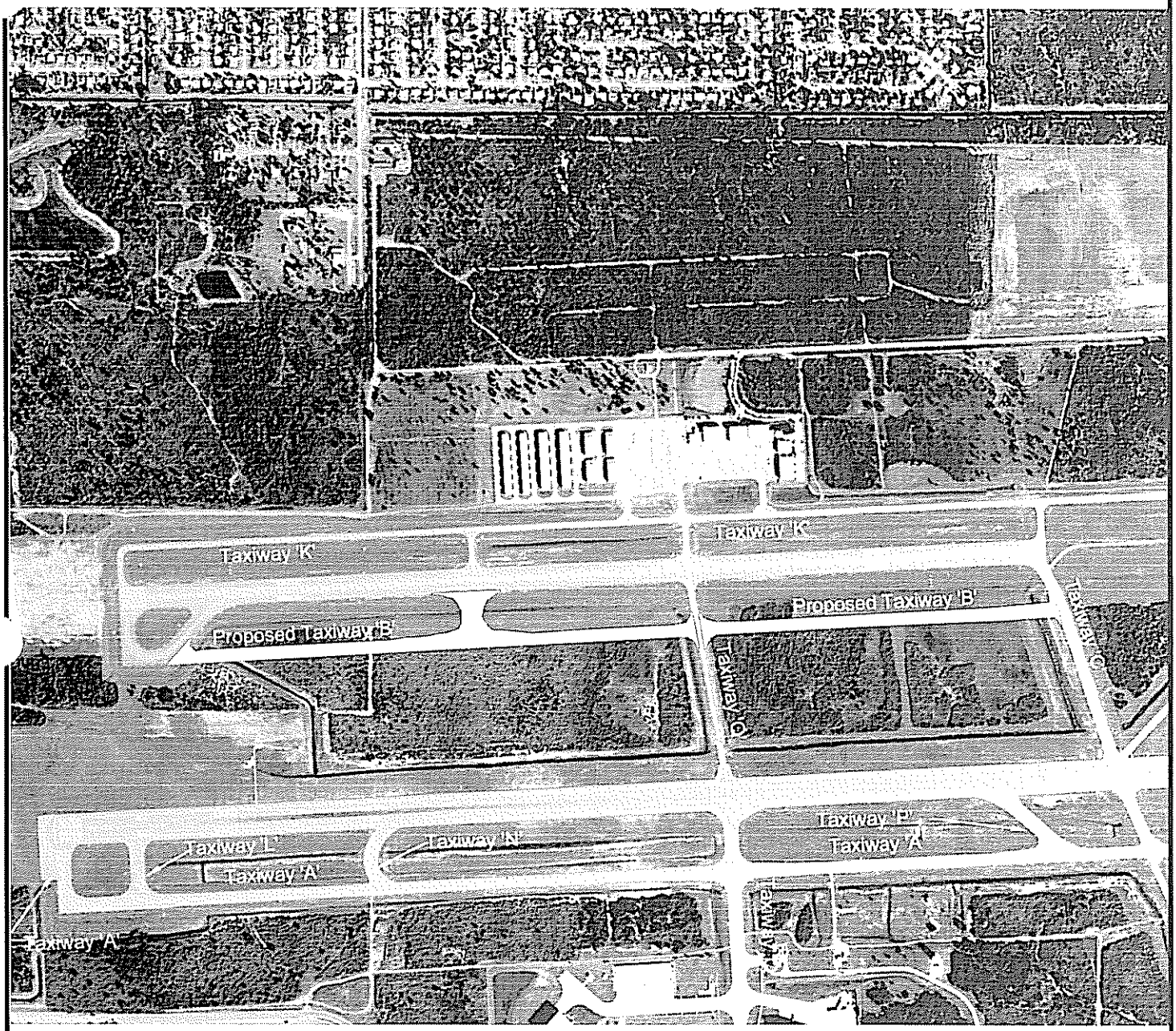

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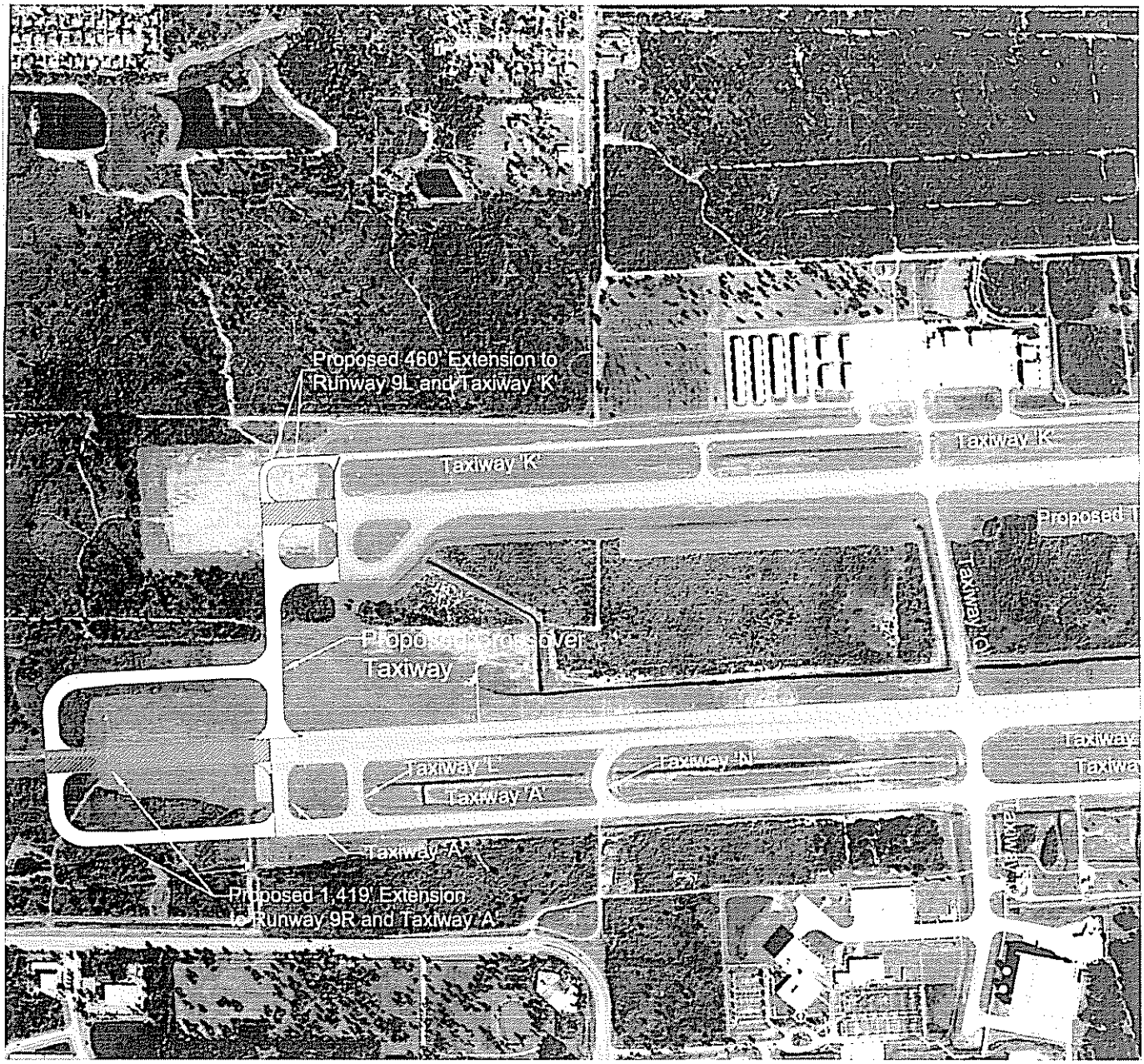
Figure 4.8
Alternative A-4
New Taxiway 'B'



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NORTH

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Figure 4.9
Alternative A-5
New Crossover Taxiway

estimated order of magnitude planning cost to construct a new crossover taxiway between the approach ends of Runway 9L and 9R is $1,500,000.

Alternative A-6: Widen Taxiway "C" between Runway 9L/27R and Taxiway "K"

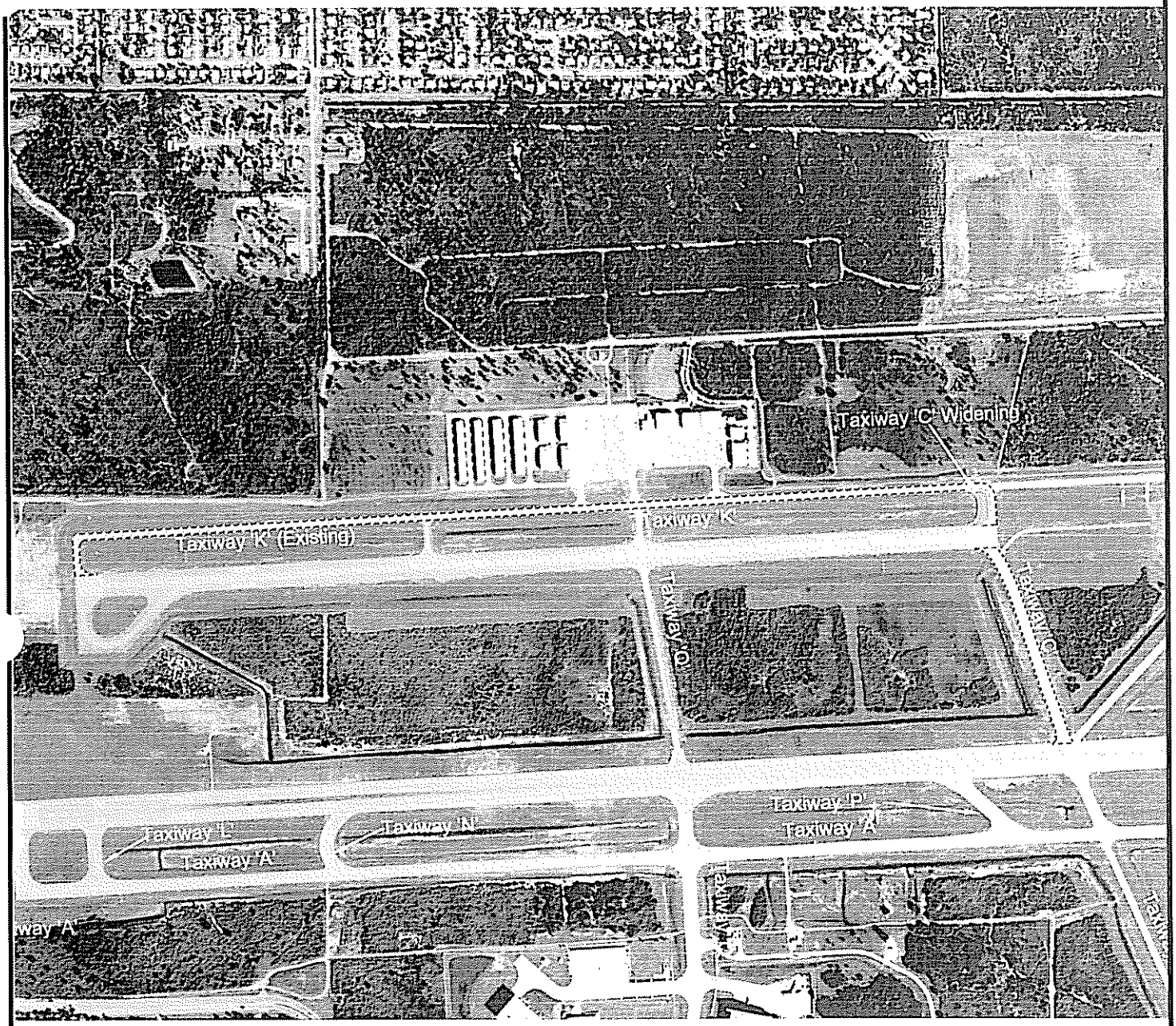
North of Taxiway "K" and east of the Atlantic Jet Center facility are two separate apron areas dedicated to future air carrier and possibly aircraft maintenance facility uses. In order for access to be provided to this facility in conformance with current design standards, Taxiway "C" between Runway 9L/27R and Taxiway "K" must be upgraded to Airplane Design Group IV standards. Figure 4.10 depicts the location and proposed improvements to this Taxiway. The estimated order of magnitude planning cost to upgrade Taxiway "C" between Runway 9L/27R and Taxiway "K" is $250,000.

4.2 LANDSIDE

Alternatives for landside development at MLB have been broken down into five areas: terminal, hotel/conference center, general aviation, cargo and support facilities. Several alternatives have been considered for each of these areas, taking into consideration the demand forecasts provided in Section 2, and the facility requirements developed in Section 3. As mentioned above, the costs developed for each of these alternatives are shown to provide an order of magnitude estimate.

4.2.1 Terminal Area

Alternatives within the terminal area include consideration for the passenger terminal building to include both domestic and international passenger operations, associated parking and car rental operations, location of an adjacent hotel/conference center, and access/circulation. Specific emphasis was placed in the Master Plan Update on analyzing the ability of existing terminal facilities to accommodate domestic service, as well as international scheduled/charter air service. During the development of these alternatives and this report, MLB staff entertained discussions with a European airport operator to provide international charter passenger service to Melbourne. The terminal alternatives presented in this section provide a basis for accommodating a projected level of domestic and international traffic, and will serve as a baseline for future terminal area planning efforts.



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NORTH

Source: Melbourne International Airport

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Figure 4.10
Widen Taxiway 'C' North of
Runway 9L/27R

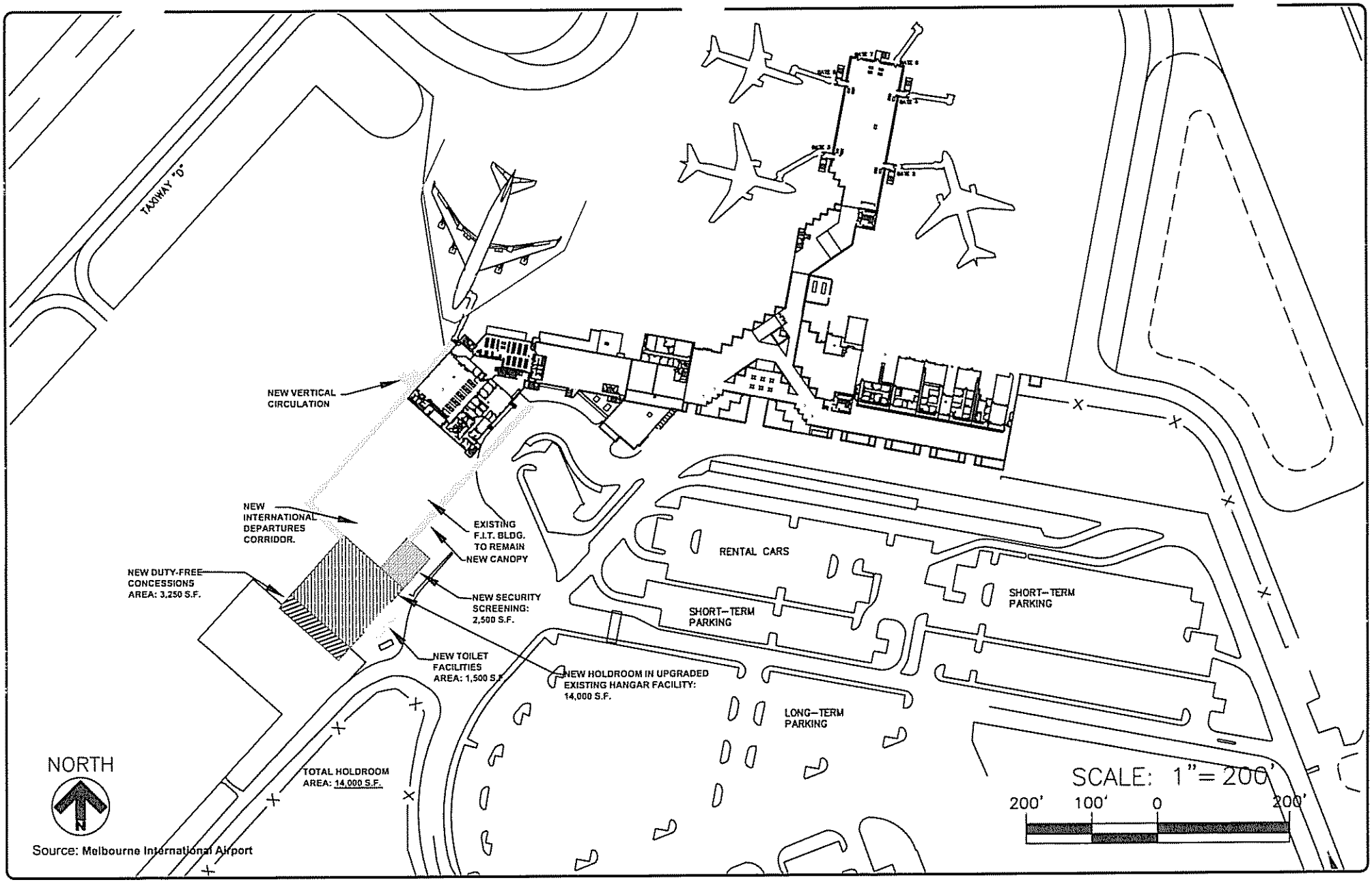
4.2.1.1 International Terminal Facilities

In the alternative analysis for the International Terminal Facility, an emphasis was placed on developing a workable solution to accommodate both the existing domestic air carrier operations, as well as the introduction of international charter or scheduled airline service. As presented in Section 3, the current federal inspection processing capacity of arriving international passengers is approximately 330 passengers per hour. This processing capacity should be sufficient to accommodate a single arrival of a large aircraft (i.e., 747/A-330/340 type) with a capacity of up to 500 passenger seats. However, the International Terminal is not adequately sized to accommodate concurrent aircraft arrivals, nor is there sufficient gate space to permit simultaneous unloading of arriving aircraft. Therefore, if international air carrier operations are introduced and grow to such a level that concurrent operations are forecast, then additional International Terminal processing capacity is warranted.

The departure lounge associated with the International Terminal is inadequate in size to accommodate large aircraft departures, lacks sufficient space for passenger screening operations, and has no space available for passenger amenities (i.e., food and beverage, duty free shopping, etc.). Therefore, in order to accommodate the introduction of international airline service at MLB, the existing international departure lounge must be expanded, or alternate facilities identified. Furthermore, due to the large influx of arriving passengers associated with international operations, an area for ground transportation processing (described in Section 3 as a "Reception Center") must be available to accommodate the necessary ground transportation demand. Several options were analyzed to accommodate any proposed international service, as discussed below.

Alternative I-1: Separate Domestic and International Terminal Facilities:

In this alternative the planning focus was to maintain a complete separation of the domestic and international terminal operations, and develop those facilities necessary (i.e., ticketing, check-in, baggage screening, passenger screening, departure lounge, "Reception Center" and concessions) to accommodate international passenger operations. As depicted in Figure 4.11, this alternative requires the immediate relocation of the Florida Institute of Technology (FIT) flight operations, and construction/renovation of airport facilities to accommodate passenger demand. While this alternative has the



Source: Melbourne International Airport

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Figure 4.11
Alternative I-1

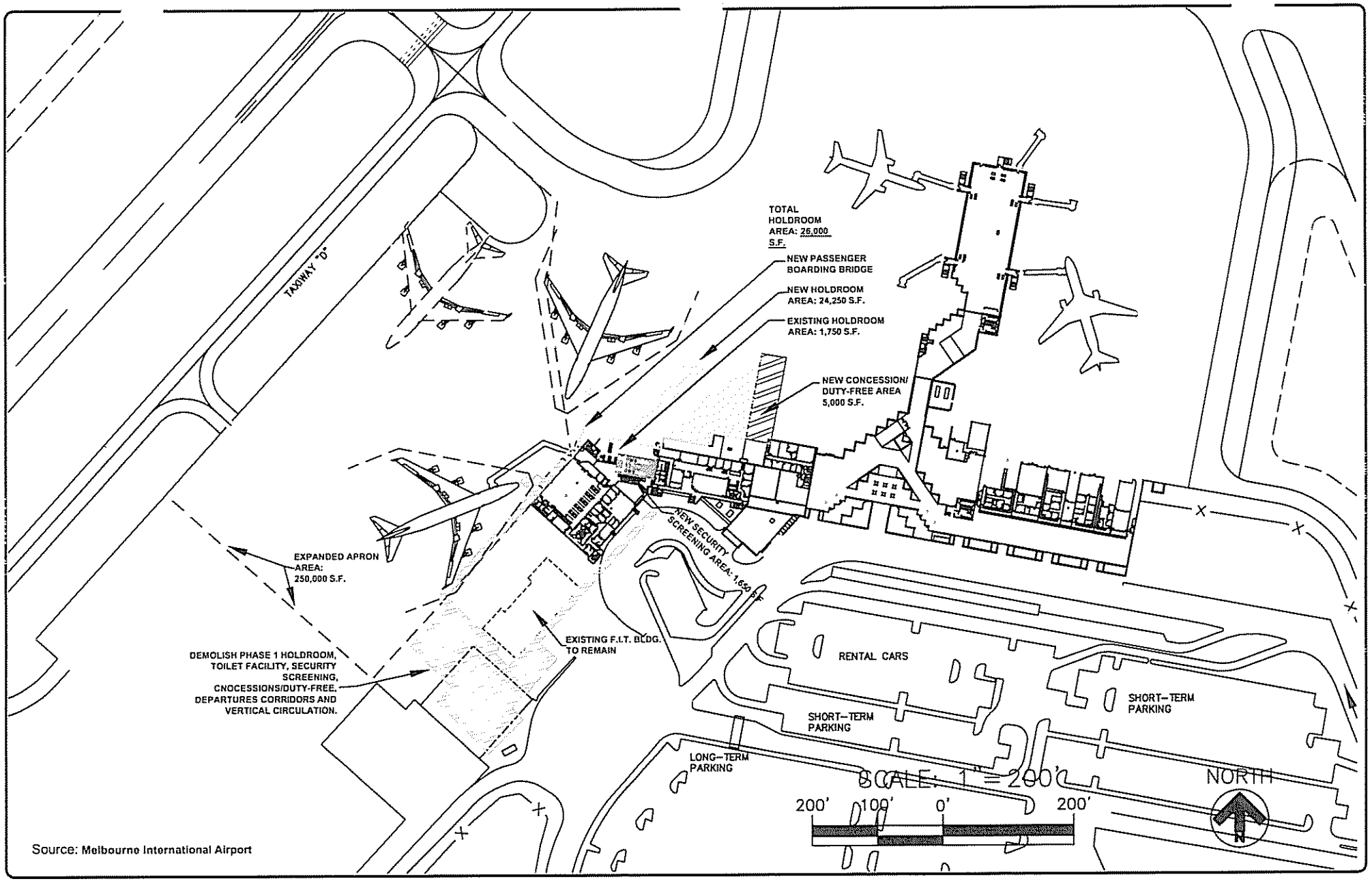
ability to accommodate a significant number of international passengers, it constrains the expansion ability of the International Terminal, must be removed in the near term to permit Terminal growth, and cannot be completed in the time frame required to accommodate the proposed introduction of international service. The estimated order of magnitude planning cost to implement this alternative is $3,800,000.

Alternative I-2: Expand International Terminal Departure Lounge:

In this alternative the planning focus was to maintain separation of the international and domestic passenger departure areas, while examining the possibility of expanding the existing international departure lounge, as well as utilizing existing domestic check-in facilities and baggage screening. As depicted in Figure 4.12, the existing international departure lounge would be enlarged to provide for additional seating area, concessions, and passenger screening. Check-in, ticketing and baggage screening functions would be performed in the domestic terminal lobby. Ground transportation and "Reception Center" activities would be accommodated in a temporary facility located adjacent to the FIT facilities. This alternative requires significant construction activities and cannot be completed in the time frame required for the proposed introduction of international service. However, this alternative is relevant for future analysis at the point where the International Terminal requires expansion to accommodate growth. The estimated order of magnitude planning cost to implement this alternative is $3,100,000.

Alternative I-3: Combined Domestic and International Terminal Operations:

In this alternative the planning focus was on utilizing the existing facility to the fullest extent possible to accommodate both international and domestic operations. As depicted in Figure 4.13, inbound arriving aircraft would park at the International Terminal and deplane arriving passengers for federal inspection. After federal inspection activity is complete, passengers would proceed to a ground transportation 'Reception Center" located adjacent to FIT facilities. The aircraft would then be relocated to the domestic terminal for departure operations. This alternative would utilize the available space in the domestic ticket lobby for check-in, ticketing, and baggage screening of departing passengers. This alternative would also utilize existing passenger screening services, and available domestic passenger departure lounge space. The ability of the existing passenger boarding bridges to service large aircraft must be analyzed, and it is recommended that additional concession and waiting space be constructed to



Source: Melbourne International Airport

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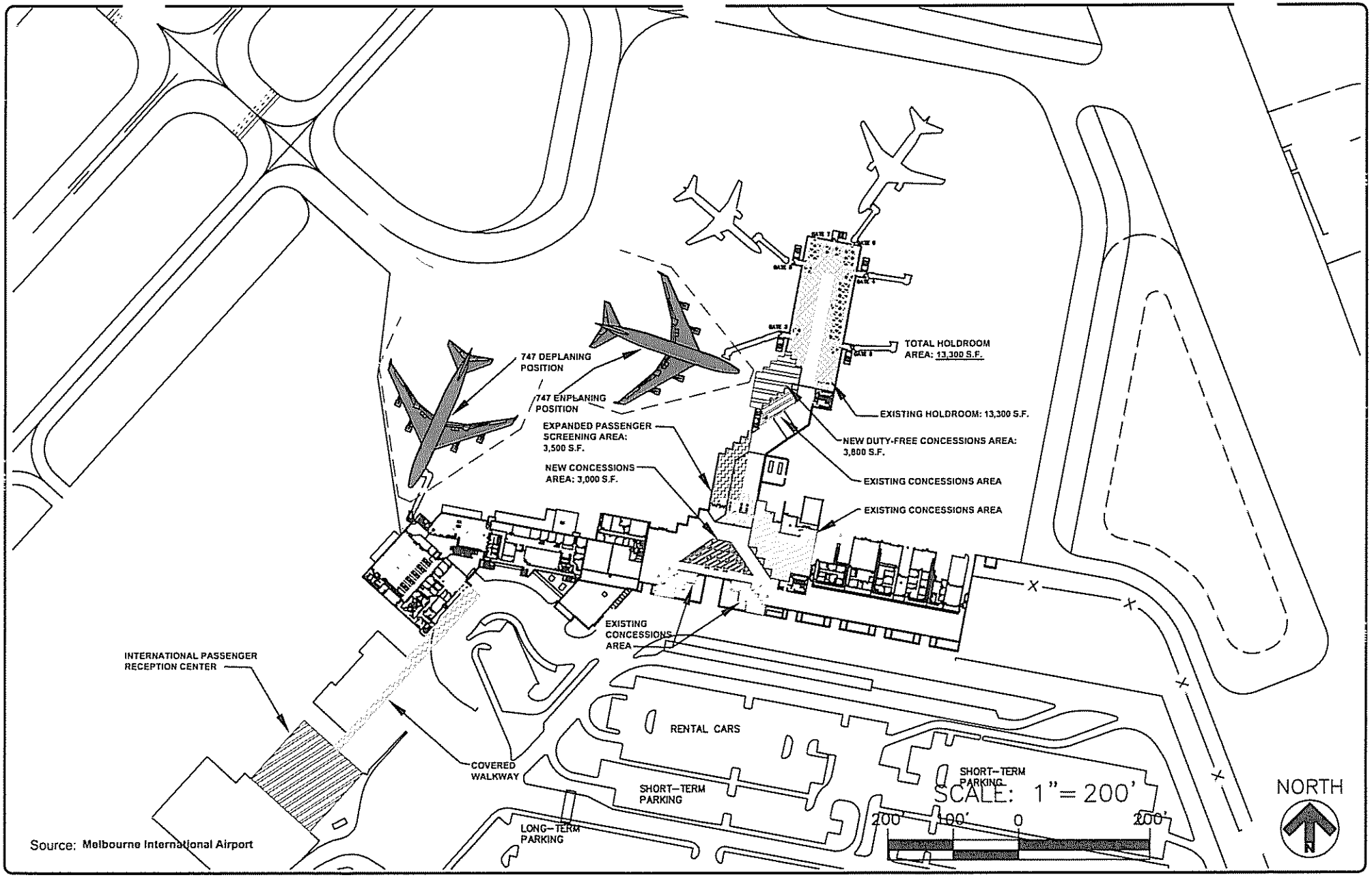
Figure 4.12
Alternative I-2



Source: Melbourne International Airport

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Figure 4.13
Alternative I-3

accommodate departing passengers. The benefits of this alternative include the ability to accommodate initial international service with minimal investment, and any investment would be beneficial to both international as well as domestic passenger groups. Furthermore, future expansion of the International Terminal to increase processing capacity can proceed virtually uninhibited. The estimated order of magnitude planning cost to implement this alternative is $2,500,000.

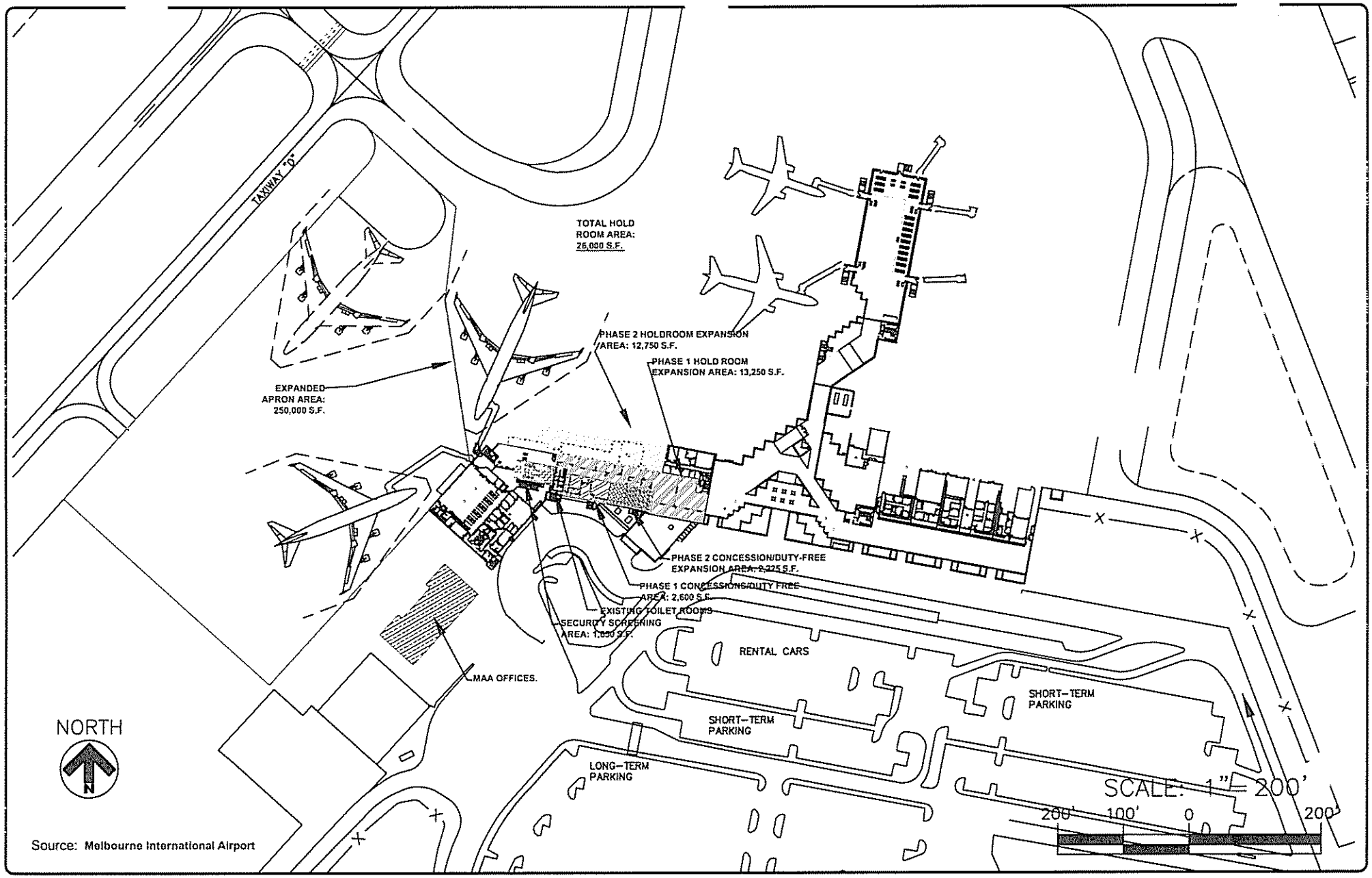
Alternative I-4: Combined Domestic and International Terminal Operations:

In this alternative the planning focus was on utilizing the existing facility to the fullest extent possible to accommodate both international and domestic operations. As depicted in Figure 4.14, the international departure lounge would be expanded to accommodate passenger demand for services. This expansion would also require the relocation of Melbourne Airport Authority offices into a new facility. This alternative would also utilize the available space in the domestic ticket lobby for check-in, ticketing, and baggage screening of departing passengers. Ground transportation and "Reception Center "services will be provided as previously described. The estimated order of magnitude planning cost to implement this alternative is $3,000,000.

Alternative I-5: International Terminal Expansion Alternatives:

In this alternative the planning focus was on identifying incremental long-term expansion options for handling both international arrival and departure functions. Alternative I-1 through I-4 focused specifically on handling the initial introduction of international service. This alternative will focus on the ability of MLB to accommodate international demand well beyond the end of the planning cycle identified in this report.

The previous master plan did not address expansion potential of the international arrival and departure facilities, but did however address long-term solutions for expansion of domestic passenger operations. Figure 4.15 depicts the previous master plan's alternative for terminal expansion, and will be discussed in greater detail below. This expansion alternative for domestic operations remains valid and feasible, since it would not be practicable to develop international facilities east of the existing terminal due to potential constraints and conflicts between parked and taxiing wide-body aircraft between the airfield environment, terminal and cargo areas. Therefore, the recommended alternative is the continued growth of the International Terminal, which



Source: Melbourne International Airport

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Figure 4.14
Alternative I-4

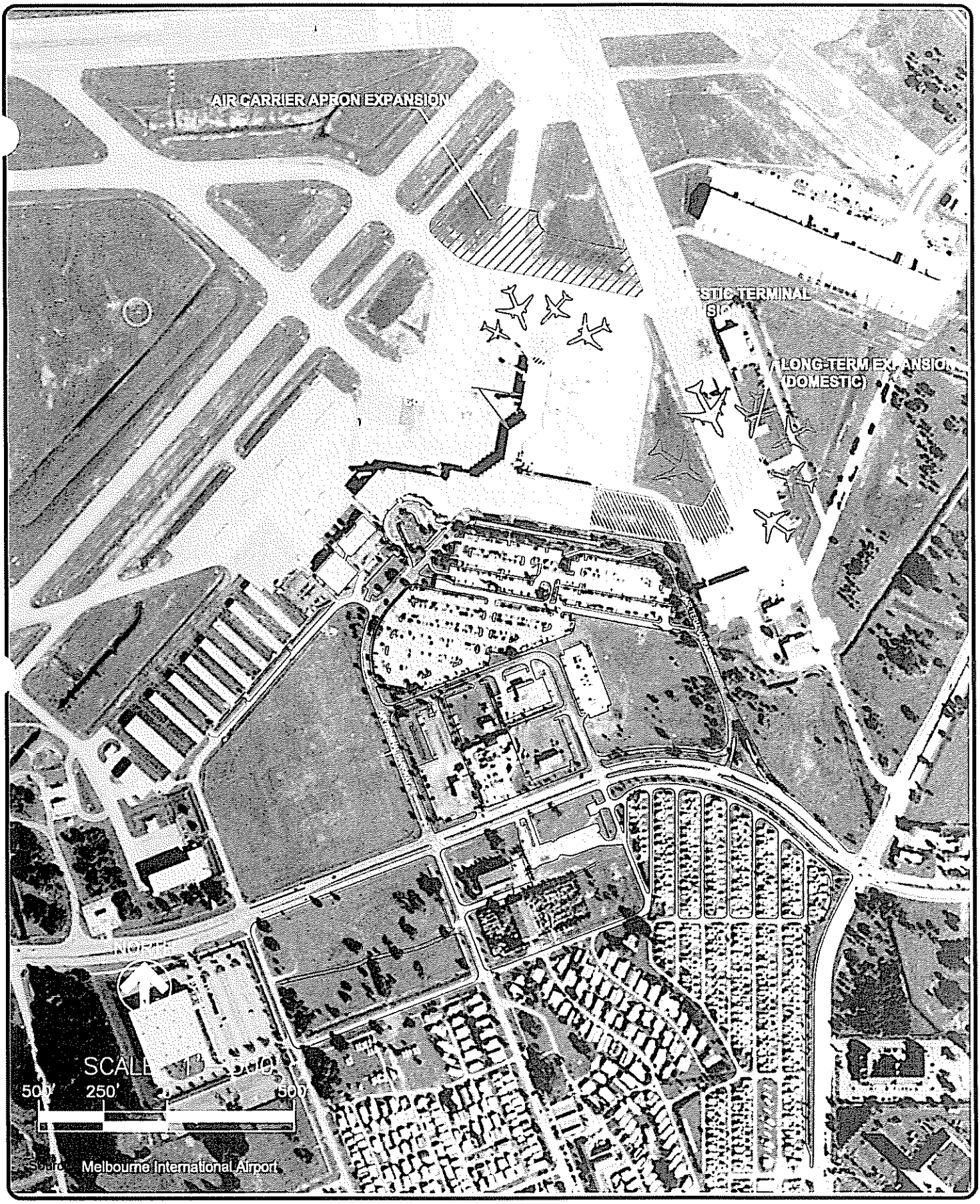

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Figure 4-15

Previous Master Plan Terminal Expansion

can be facilitated in the existing location. Future development of the International Terminal could proceed in a southwesterly and/or westerly direction virtually uninhibited, but will require the relocation of the FIT and ultimately the existing t-hangars. Incremental expansion of the International Terminal may also ultimately require that Runway 5/23 be operationally restricted during certain aircraft operations, or closed and/or relocated depending on the ultimate long-term configuration of the future terminal and associated landside components.

4.2.1.2 Domestic Terminal Facilities

In the alternatives analysis for domestic terminal operations an emphasis was placed on accommodating increasing passenger demand by relating terminal expansion options and triggering mechanisms to peak hour activity levels (identified in Section 3). Based on the analysis of Section 3, the following terminal expansion alternatives have been developed.

Alternative D-1: Airside Expansion Alternatives:

Based on the facility requirements presented in Section 3, prior to the end of the planning period expansion of the airside components of the terminal will be required to accommodate demand. Expansion of the airside components include development of additional aircraft gate space, airline operations space, circulation, departure lounge and concession areas. Figure 4.16 depicts an approximately 15,000 square foot expansion of the domestic concourse, and the possible addition of two aircraft gates. This expansion will accommodate approximately 700,000 enplaning passengers, which is sufficient to meet the overall demand projected through the end of the planning period. The estimated order of magnitude planning cost to construct this expansion to the domestic terminal facility is $4,500,000.

Alternative D-2: Landside Terminal Alternatives:

Based on the facility requirements presented in Section 3, prior to the end of the planning period expansion of the landside portions of the terminal facility will be required to accommodate demand. Expansion of the landside components includes development of additional ticket counter space, security screening area, airline space, concession and other public facilities. Enplaning and deplaning curbfront requirements are sufficient to accommodate the demand for ground transportation activity through the end of the

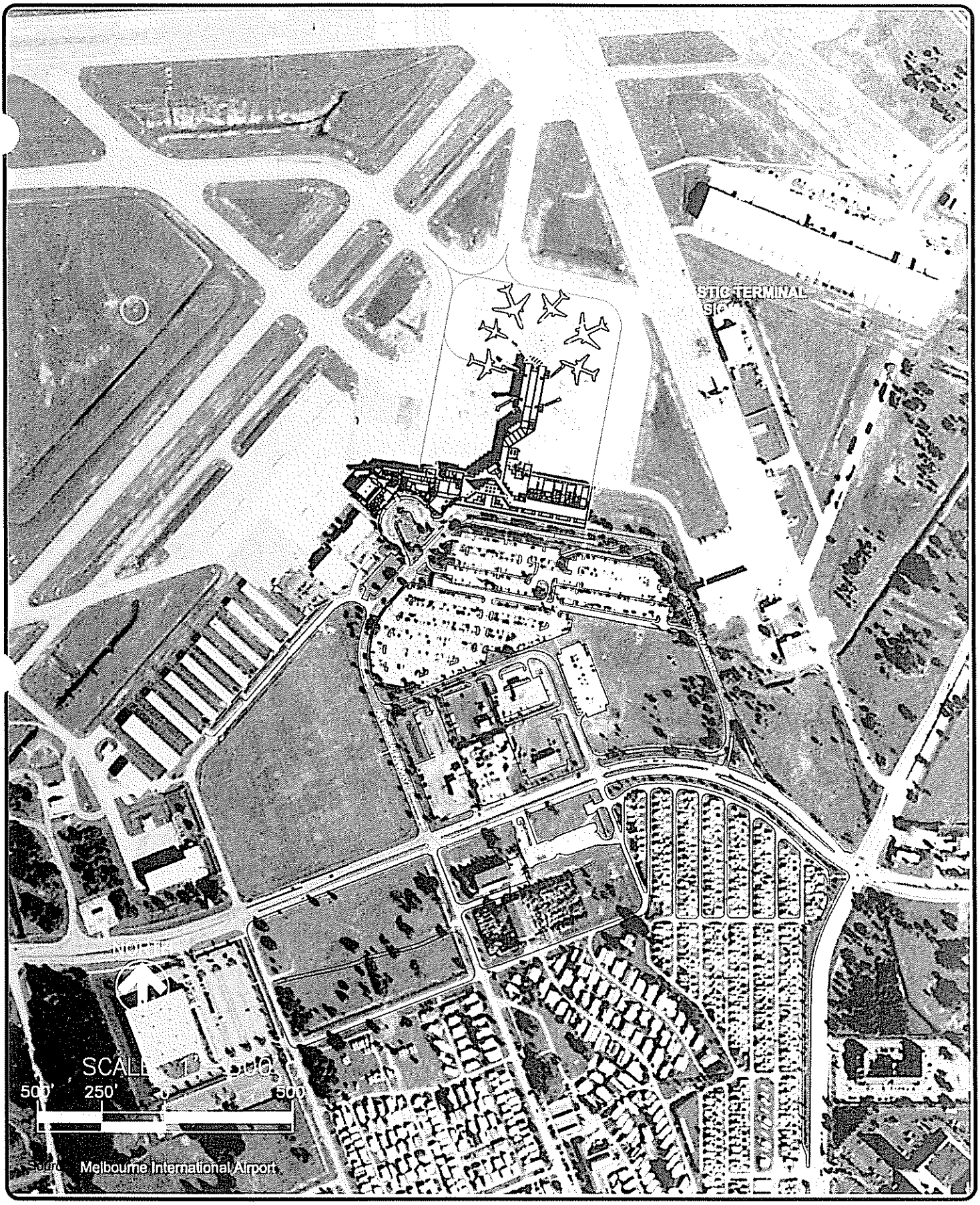

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Figure 4-16

Alternative D-1

planning period. However, by the end of the planning period demand for parking space (long/short-term, employee and rental car) at the Airport will virtually double. Due to space constraints adjacent to the terminal facility and the necessity to provide convenient parking for customers, this demand can only be accommodated with development of a parking garage facility (see discussion below). Figure 4.17 depicts an expansion of the landside portion of the terminal facility, which includes approximately 20,000 square feet of overall space for expanded ticketing. The estimated order of magnitude planning cost to construct this expansion to the domestic terminal facility is $6,000,000.

Alternative D-3: Long-term Domestic Terminal Expansion:

Although not required to meet forecast demand through the end of the planning period, conceptual alternatives were developed to expand both the airside and landside components of the domestic terminal to meet future growth. Figure 4.18 depicts ultimate terminal development at the existing location. It should be noted that further development of the domestic terminal facility as depicted in Figure 4.18 requires relocation of adjacent cargo and airport maintenance facilities. This will be addressed in greater detail below.

4.2.2 Parking Facilities

As discussed in Section 3, parking facilities at MLB consist of a total of 1,255 parking spaces, and include 292 short-term spaces; 699 long-term spaces; 120 rental car spaces; and 154 employee spaces. Short-term demand for passenger parking associated with domestic as well as international service will create an immediate need for the addition of approximately 500 spaces by 2006, and 1800 spaces by the end of the planning period. The largest immediate increase in any parking segment is for long-term and rental cars.

Based on the proposed initiation of international service in mid to late 2004, demand for rental car parking space will increase from the existing requirement of 120 spaces to over 350 in 2004. Rental car parking is presently provided in a surface lot adjacent to the domestic terminal, see Figure 4.19. The rental car lot is bordered on the north and west by the terminal circulation roadway and on the south and east by the Short-term lot. Expansion of the rental car lot at ground level will require relocation of a portion of the

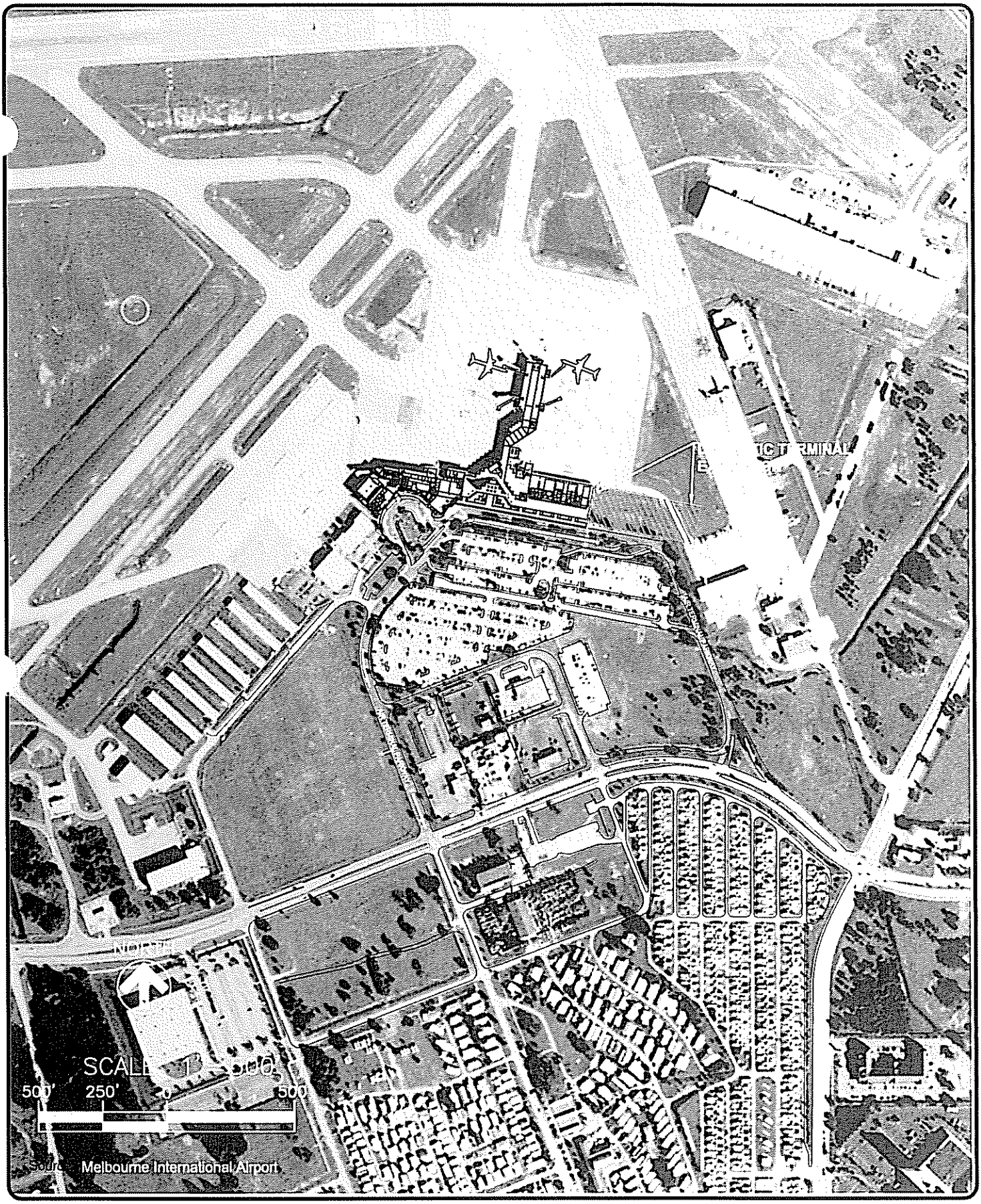

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Figure 4-17

Alternative D-2

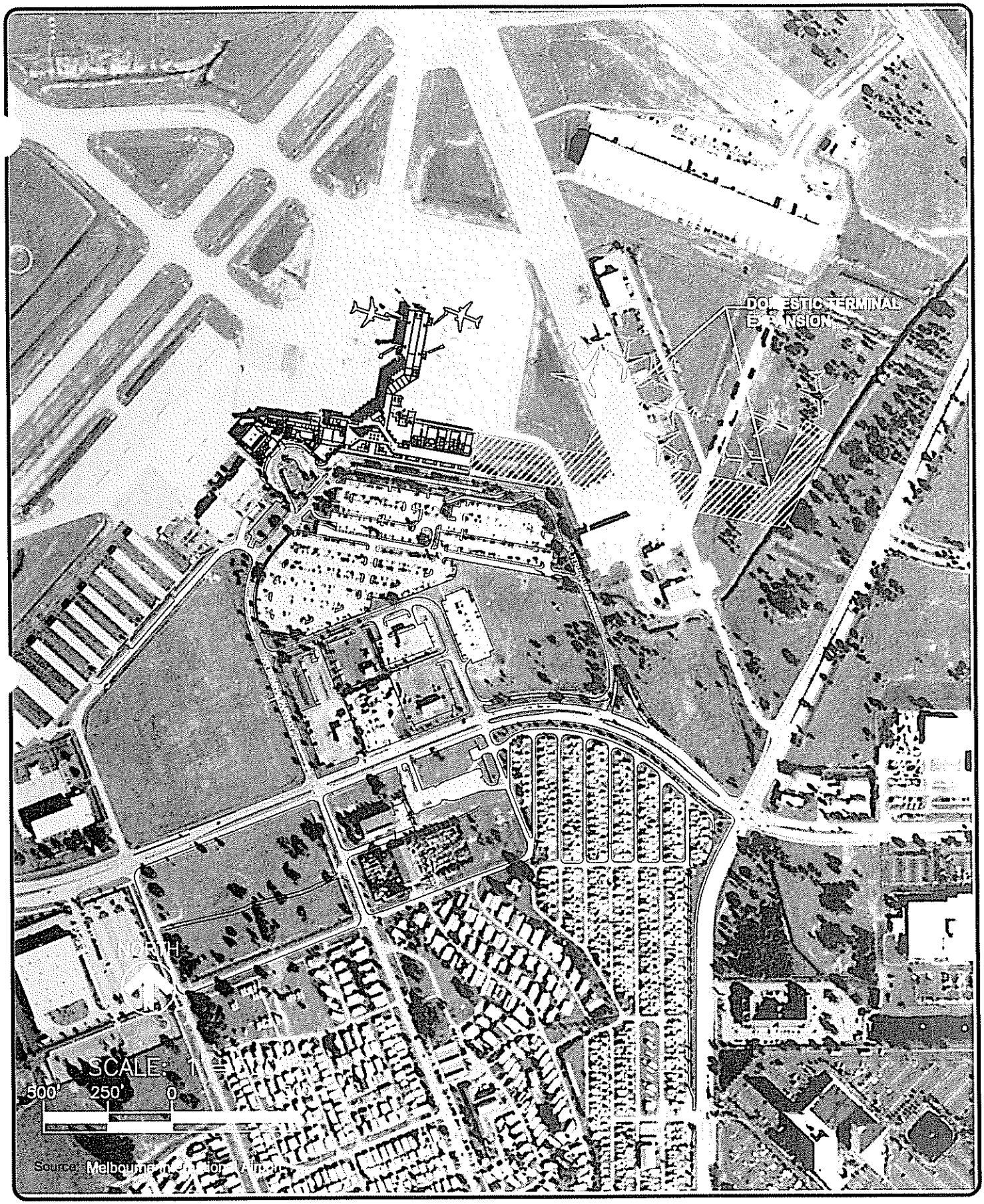

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Figure 4-18

Alternative D-3

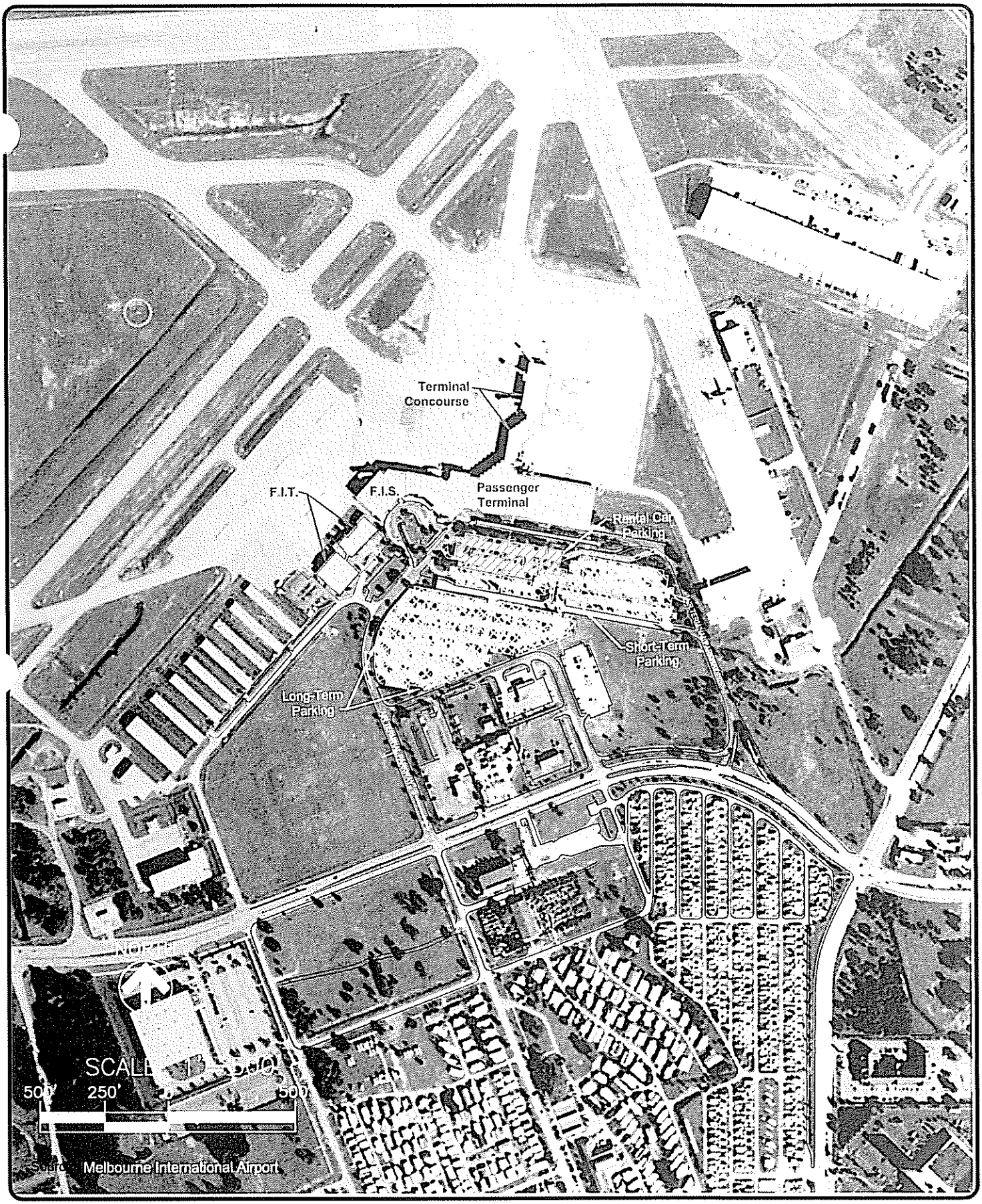

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Figure 4-19

Rental Car Parking Lot

short-term lot. Relocation of the lost short-term spaces is difficult due to space constraints associated with the site, and will require a longer walk to the terminal for customers. Therefore, the only prudent alternative is to allow expansion of the rental car lot at ground level, and develop a structured parking facility to accommodate short-term (and possibly long-term) parking on various levels. Figure 4.20 depicts a proposed location for the parking garage.

4.2.3 Rental Car Facilities

Presently, all on-airport rental car agencies have support facilities (wash and storage) located north of NASA Blvd., just east of Air Terminal Drive. Future development requirements in the terminal area dictate that these rental car wash and storage areas be relocated. Figure 4.21 depicts various options for relocation of the facilities. All three options offer similar levels of visibility for the companies, while Options 1 and 2 offer the most convenient location in terms of proximity to terminal operations. Option 1 is not recommended however due its adjacency to the airfield environment and the ability to develop the site as an aviation-related use. Option 2 is also not recommended due to the unique configuration of the site, and the limited visibility along NASA Blvd. Option 3 is recommended and will offer the companies superb visibility, available room for future expansion, and reasonably close access to the terminal area.

4.2.4 Hotel/Conference Center

As discussed in Section 3, development of a hotel/conference center facility on the Airport would provide increased revenue generation opportunities for MLB, attract additional business, and provide opportunities to increase travel and tourism for the entire region. During the Master Plan Update process the feasibility of developing a hotel/conference center on the Airport was analyzed, and proposed locations selected. Figure 4.22 depicts the proposed location of the development and a conceptual option for long-term expansion. The estimated order of magnitude cost for the development of Phase 1 of the Hotel/Conference Center of $30,000,000.00.

4.2.5 General Aviation

As described in Section 3, long-term facility requirements to accommodate general aviation demand include the relocation of FIT facilities to facilitate expansion of the

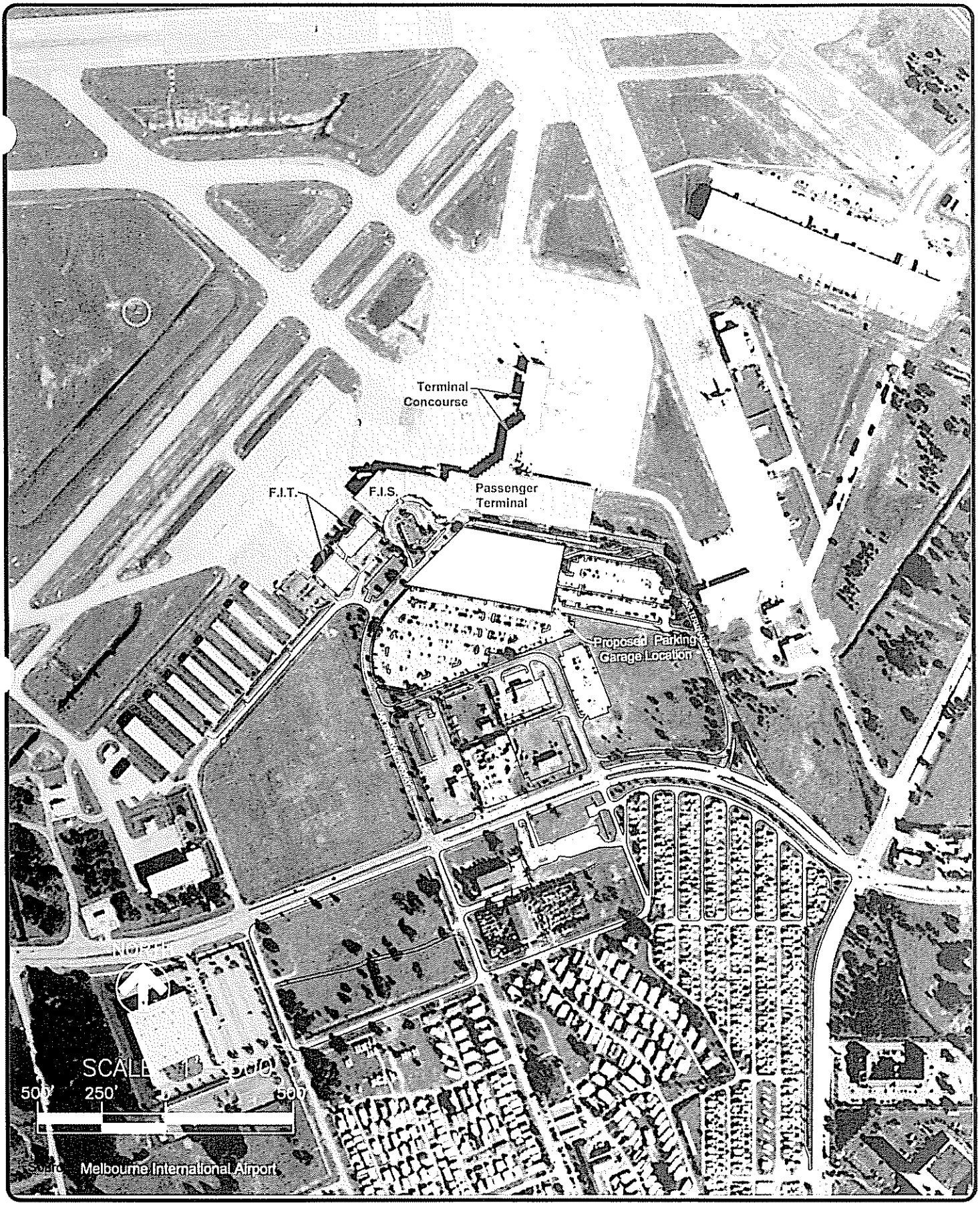

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Figure 4-20

Proposed Parking Garage Location

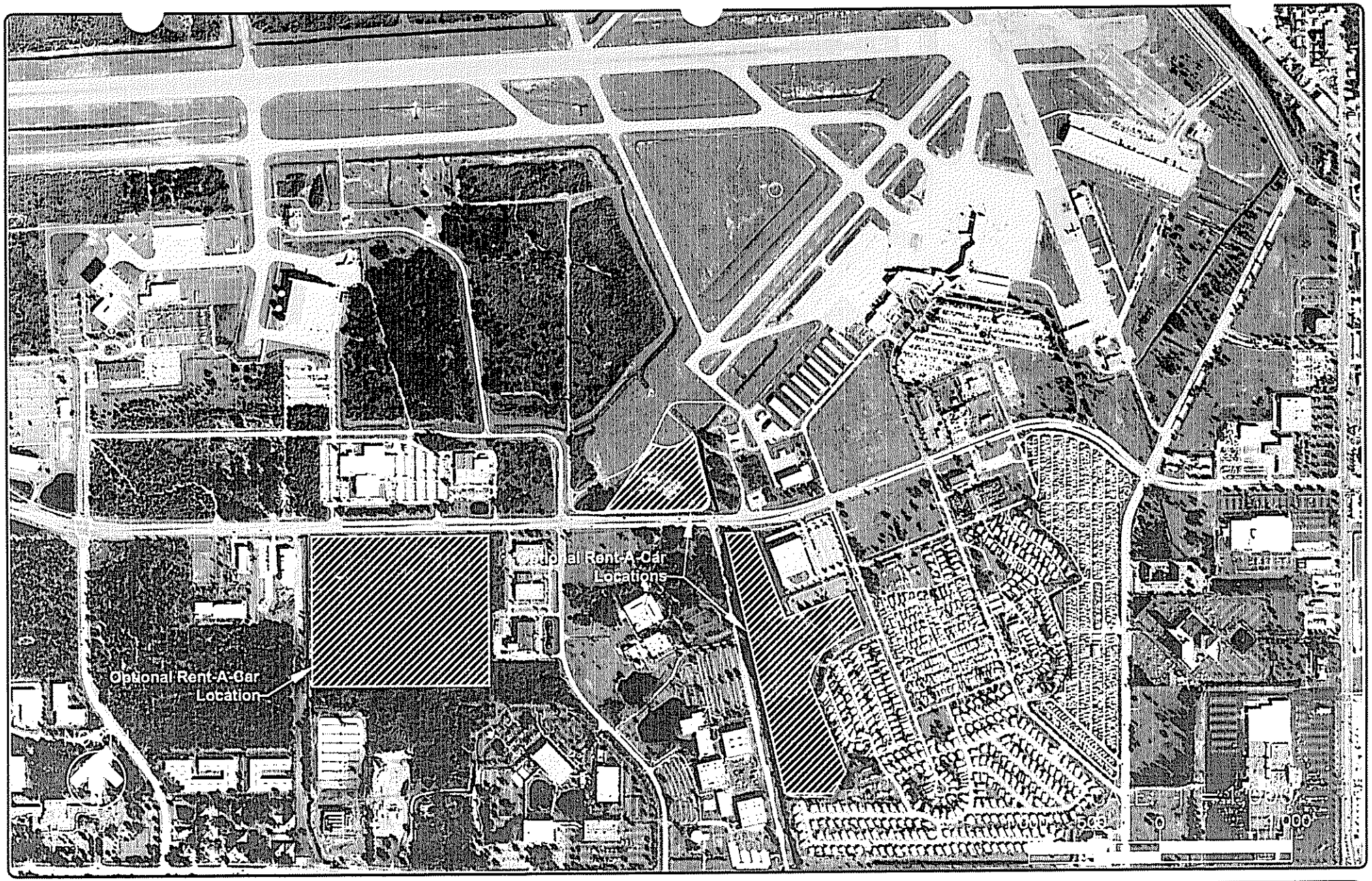

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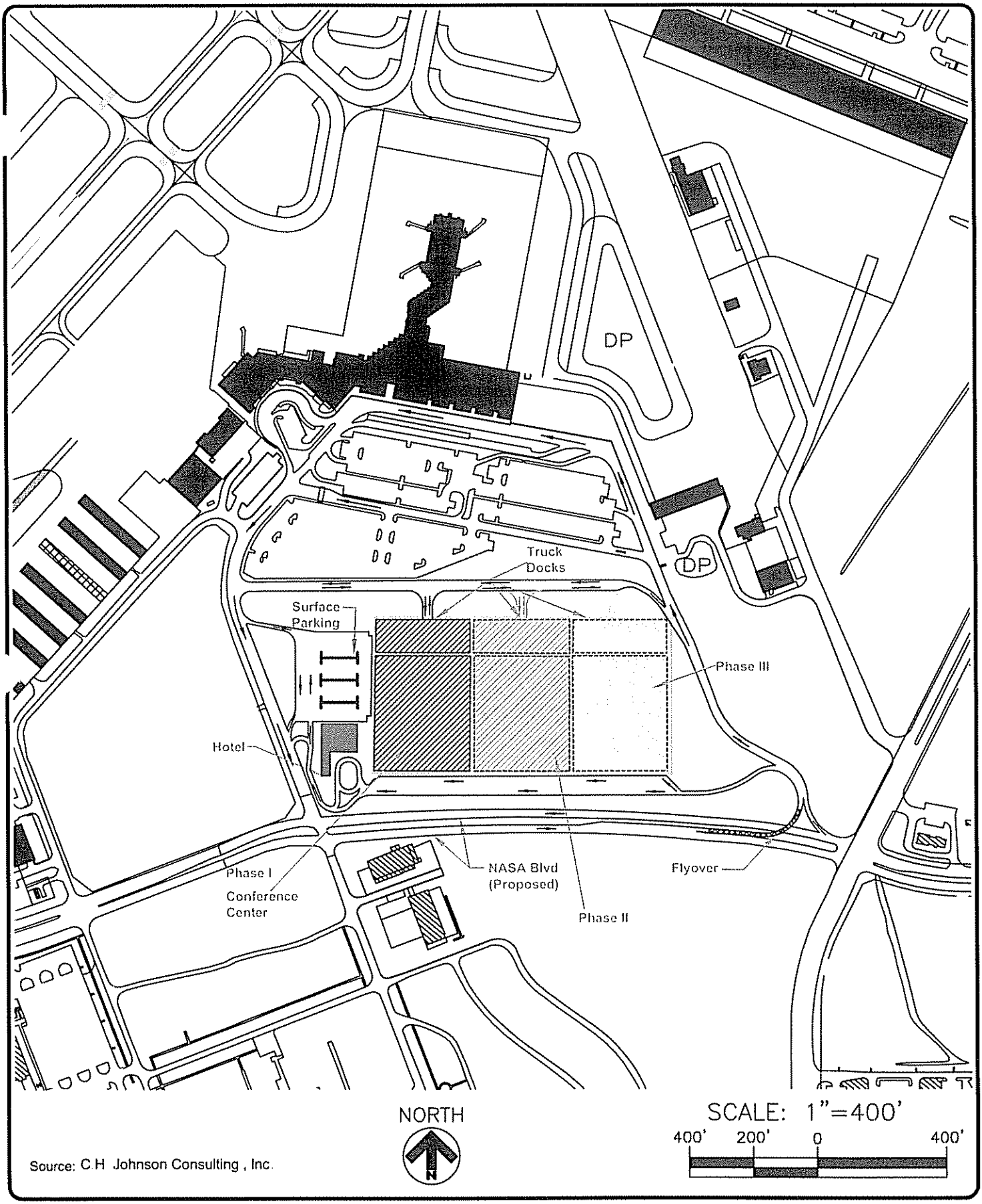
Figure 4.21
Rental Car Relocation Options



Source: C H Johnson Consulting , Inc.

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Figure 4-22
Hotel/Conference Center Alternative

International Terminal, development of additional apron area in support of FIT operations, and development of additional hangar facilities.

Alternative G-1: Relocate Florida Institute of Technology Facilities:

Several options exist for the relocation of FIT facilities. Figure 4.23 depicts a location west of Runway 5/23. Although sufficient land area is available in this location for the development, with the possibility of relocating Runway 5/23 in the long-term, and the need to separate general aviation from commercial air carrier operations, FIT should be relocated to the north side of the Airport. Therefore, the location as depicted in Figure 4.23 is not recommended.

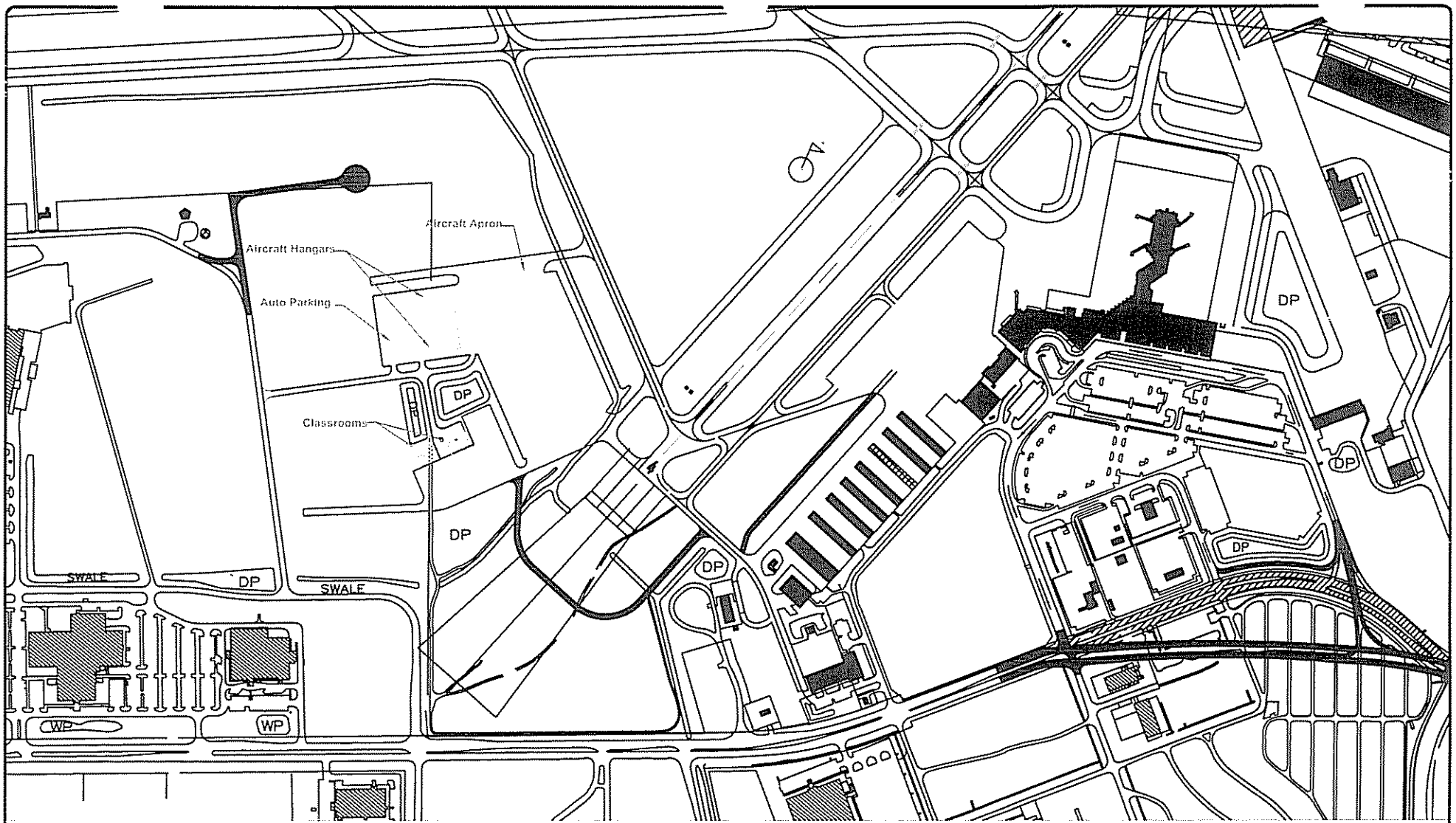
Figure 4.24 depicts two possible locations for FIT on the north side of the Airport. Option 1 is just east of the two new air carrier aprons, and would provide convenient access to Runway 9L/27R for training activity. Option 2 is located just west of Apollo Blvd., south of general aviation drive. This location provides somewhat longer taxi distances but would provide significant business visibility for the facility. Both options appear to be viable solutions for relocating the facilities, and since ultimate development of this facility will depend on the long-term requirements of FIT, order of magnitude costs were not developed.

Alternative G-2: Hangar Facilities:

As discussed in Section 3, increasing general aviation and corporate demand, as well as the expansion of the International Terminal, will require the relocation or new construction of additional aircraft hangars. Consistent with the direction of this Master Plan Update, all future general aviation development should occur on the north side of the Airport. Figure 4.25 depicts several alternatives for locating additional hangar facilities at MLB.

4.2.6 Cargo

Although air cargo is currently not a major contributor to Airport activity, alternatives for expansion of the cargo area have been analyzed to ensure compatibility between dedicated cargo areas and adjacent passenger terminal facilities. Figure 4.26 depicts cargo expansion alternatives.



Source: Melbourne International Airport

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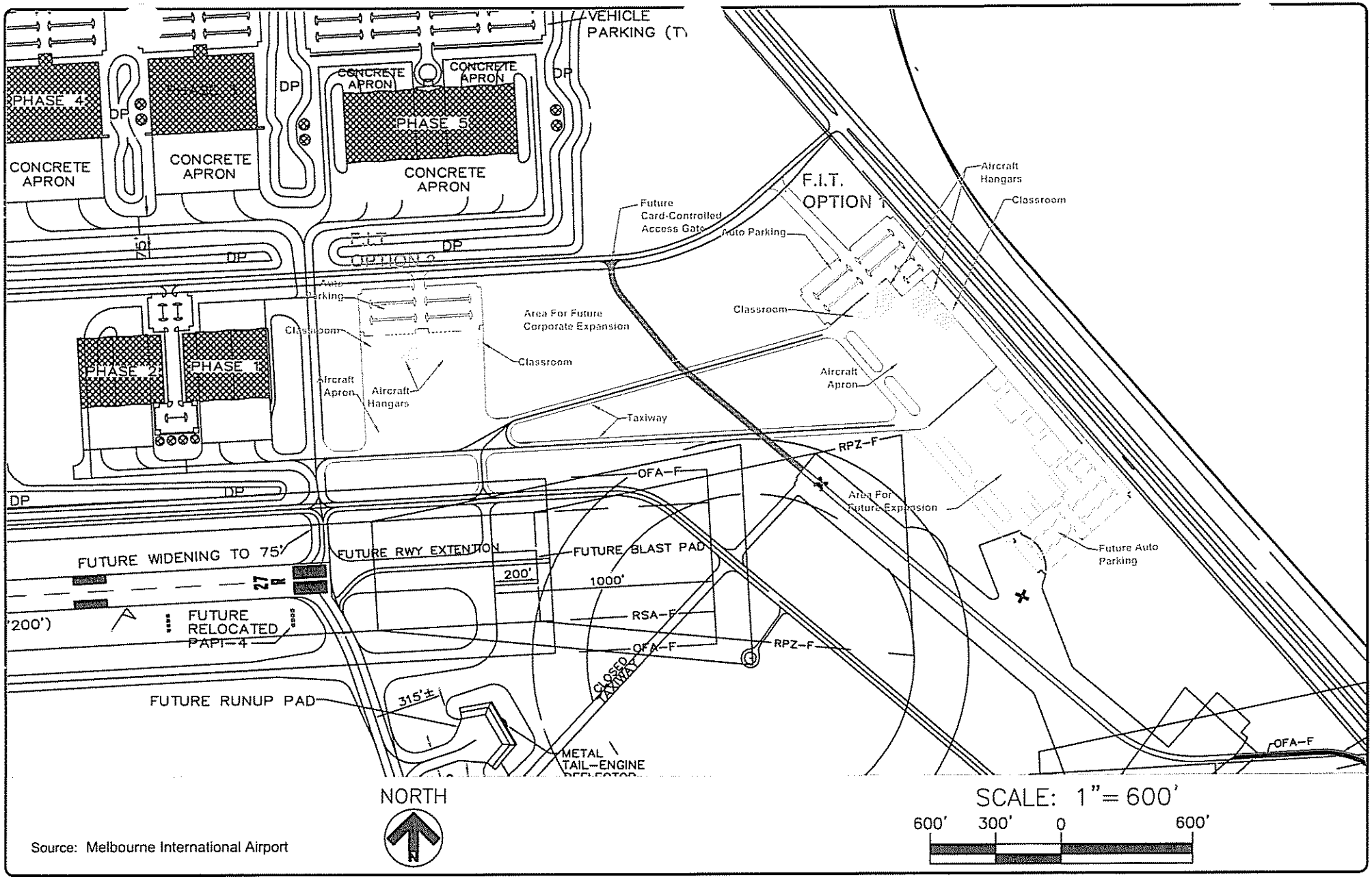
Figure 4-23
Alternative 1: Option 1



Source: Melbourne International Airport

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Figure 4-24
Alternative G-2: Option 2

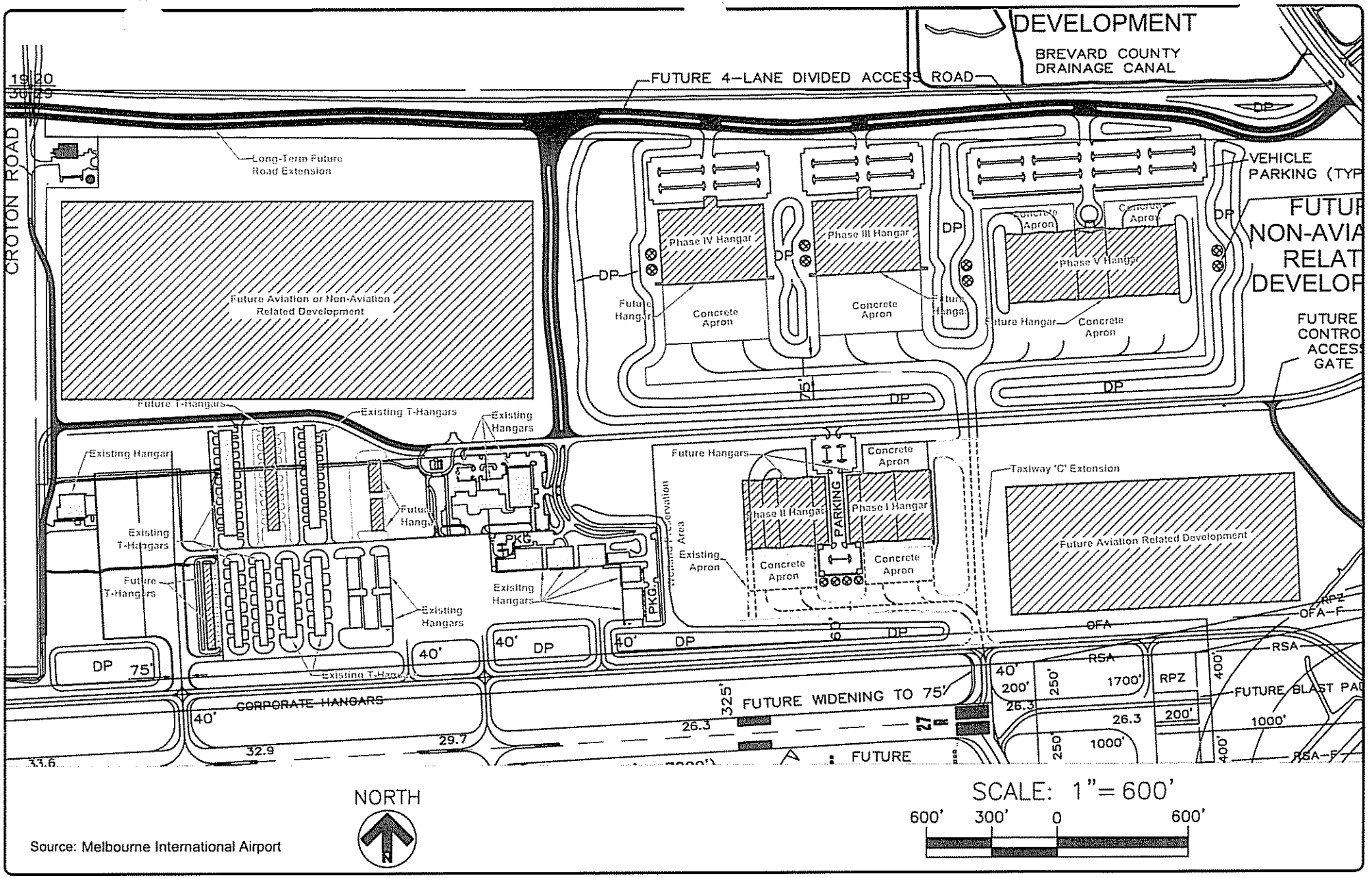

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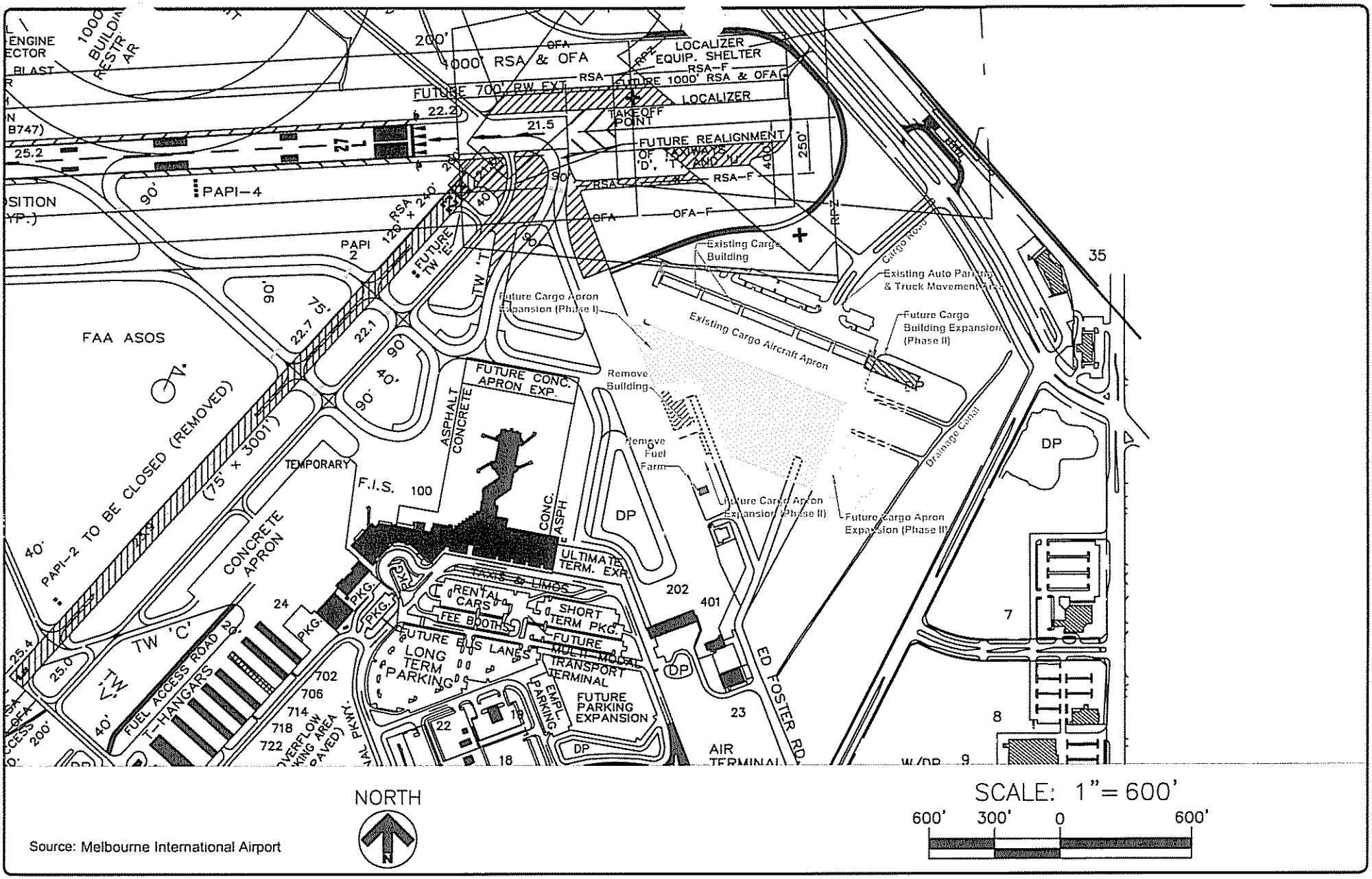
Figure 4-25
Alternative G-2
GA Hangar Facilities



Source: Melbourne International Airport

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Figure 4-26
Air Cargo Alternative

4.2.7 Support Facilities

Support facilities include such things as Air Traffic Control Tower (ATCT) facilities, airport maintenance facilities, and aircraft rescue and fire fighting facilities. Section 3 discusses the need for new and expanded ATCT facilities, and the previous Master Plan identified a location for development. Figure 4.27 depicts the proposed location, and this location remains viable and consistent with the planing efforts conducted under this Master Plan Update.

Airport maintenance facilities are currently located east of the domestic terminal facility. Although relocation of these facilities will not be necessary before the end of the planning cycle identified under this Master Plan Update, locations for future development were analyzed in order to identify and preserve an area for future use. Figure 4.28 depicts the proposed location of future airport maintenance facilities.

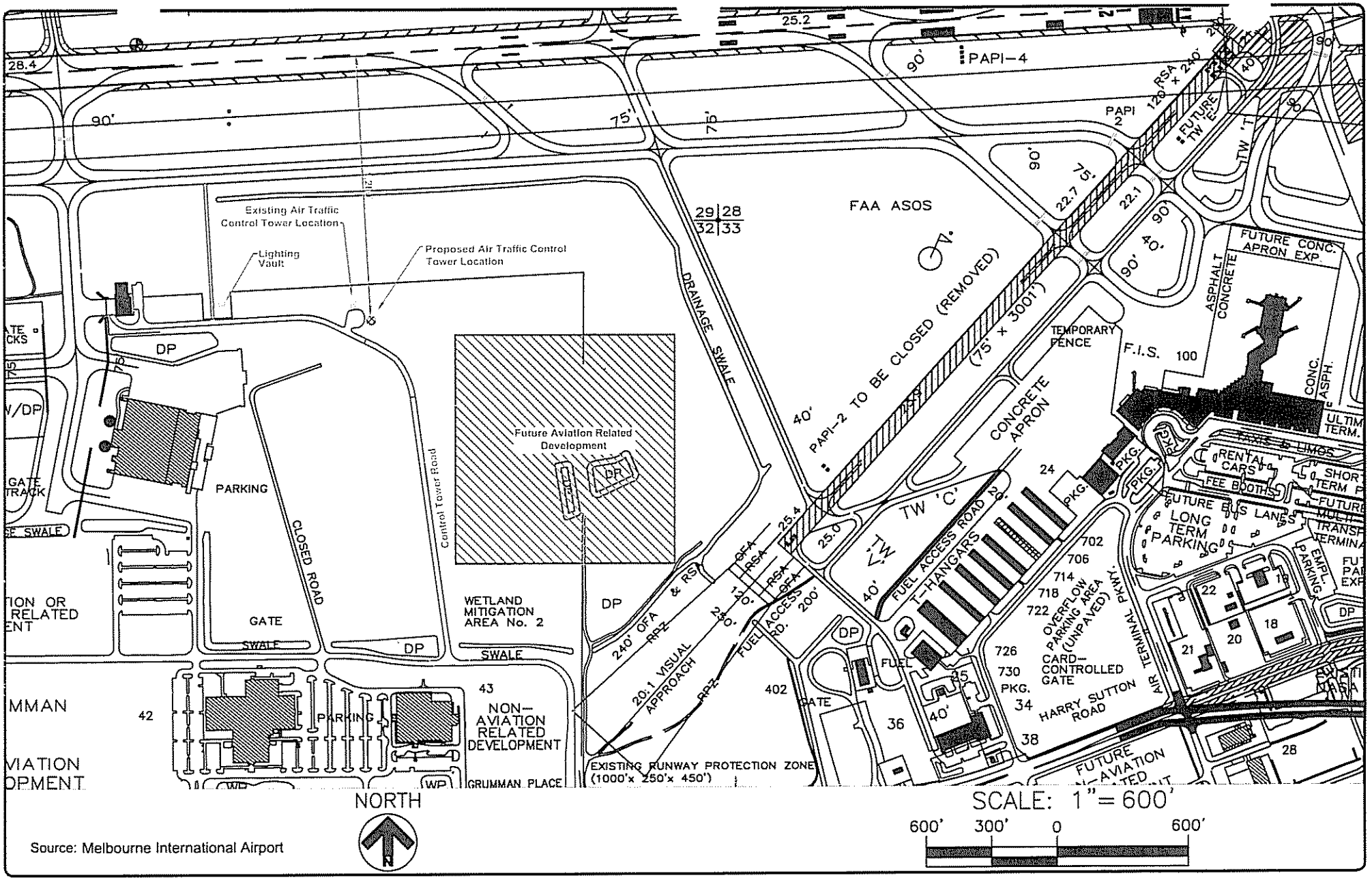
Aircraft Rescue and Fire Fighting (ARFF) facilities are currently located just west of the ATCT. The ARFF facility is centrally located and future expansion of the airfield environment will not significantly increase the response times from the facility. Changing aircraft fleet mix and the introduction of international passenger service will necessitate a need for additional ARFF equipment and staffing, which means additional space at the existing facility. Figure 4.29 depicts a facility expansion alternative that permits the facility to accommodate increasing equipment and staffing demand through the end of the planning period.

4.3 SURFACE ACCESS

Alternatives for surface access include development of a corridor to provide more direct access to the interstate highway system for the commercial/industrial developed areas on the south side of the Airport, as well as the general aviation and corporate areas on the north side. Figure 4.30 depicts the recommended access corridors for each portion of the Airport.

4.4 LAND USE/LAND ACQUISITION

Land use concepts for the airfield, terminal area, cargo, general aviation, surface access and support facilities have been previously presented in this Master Plan Update. Compatibility of the Airport with surrounding land uses in more fully addressed in Section



Source: Melbourne International Airport

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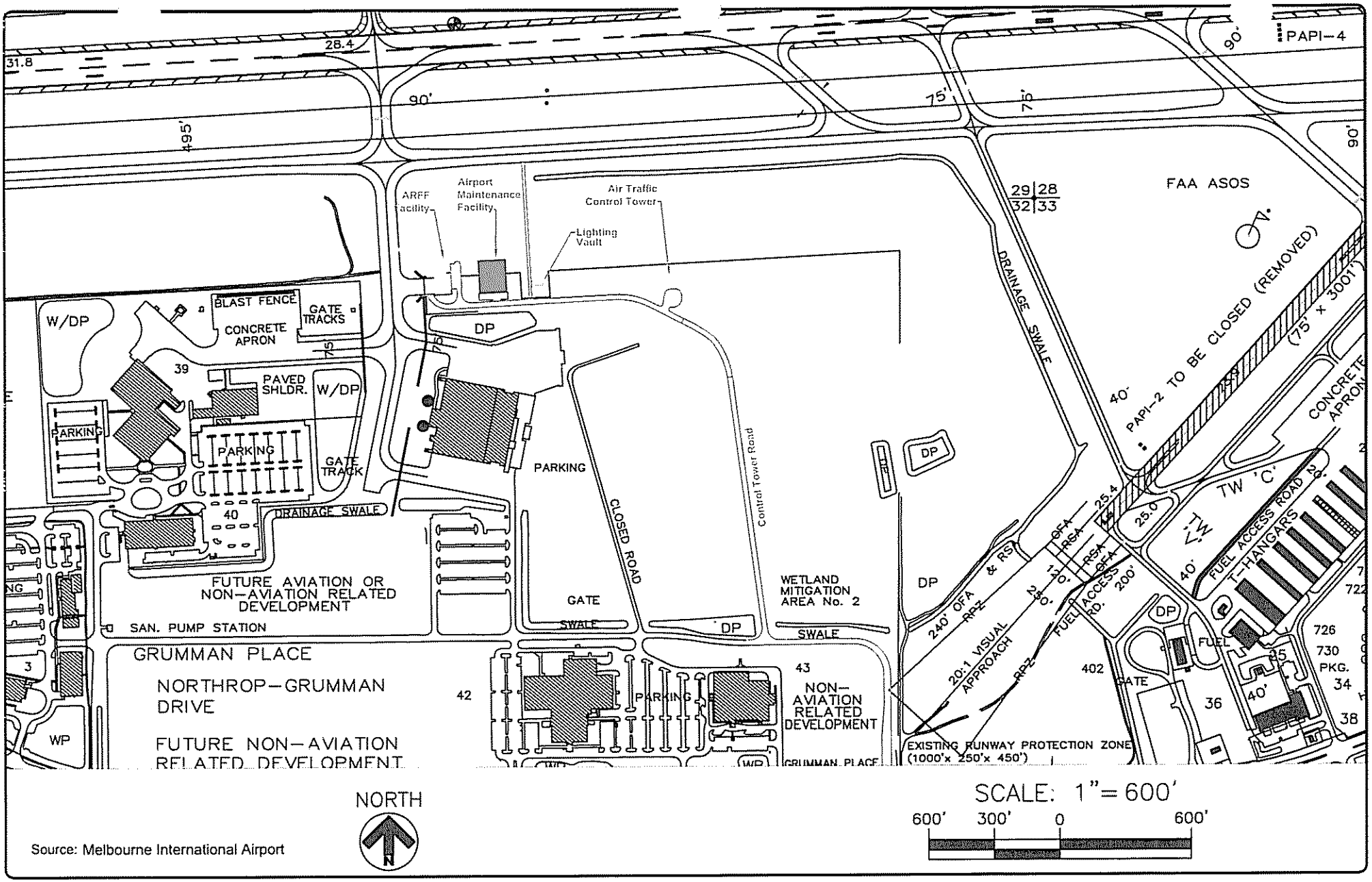
Figure 4-27
Air Traffic Control Alternative



Source: Melbourne International Airport

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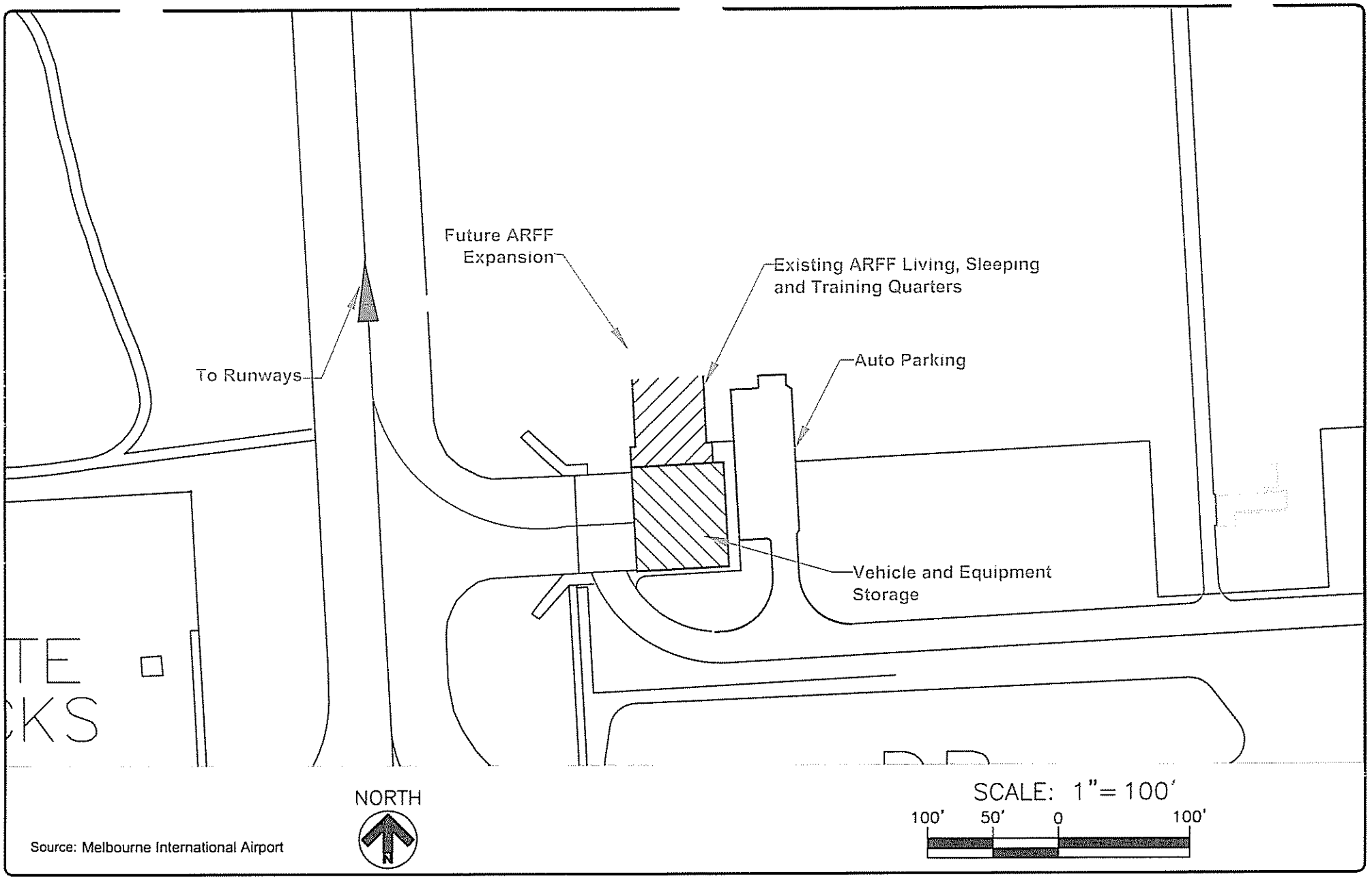
Figure 4-28
Airport Maintenance Facility Location



Source: Melbourne International Airport

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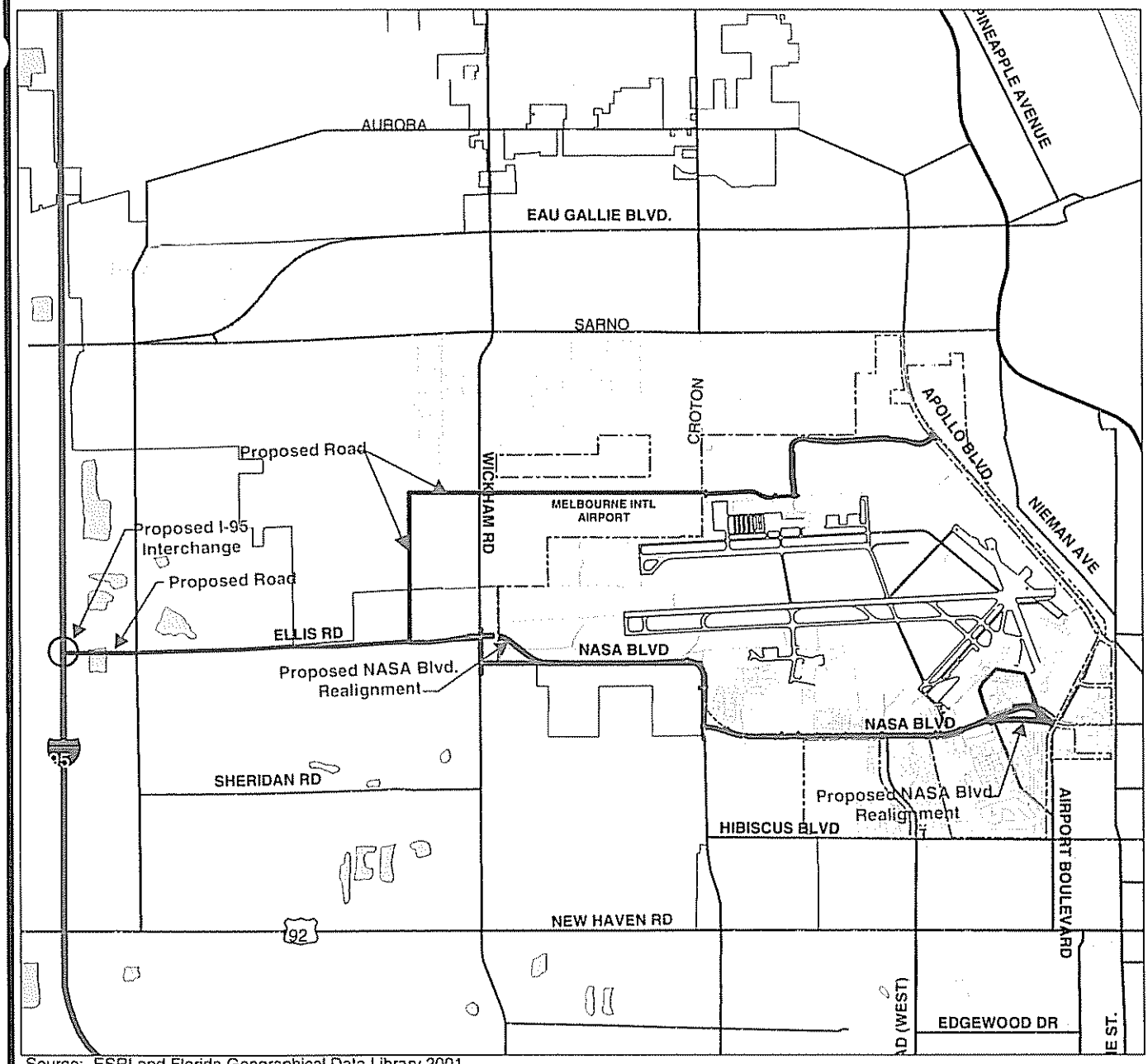
Figure 4-29
ARFF Facility Location



Source: ESRI and Florida Geographical Data Library 2001
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Legend

- Melbourne City Limits
- Interstate Highway
- U.S Route
- Primary Airport Access Routes
- Airport Property Line

0 0 375 0.75 1 5 Miles

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Figure 4-30

Surface Access Alternative

5 – Environmental Overview. The remainder of this section addresses the possible need to expand the aviation-related industrial and commercial development areas.

The extension of Runway 9L/27R to the west and implementation of a precision instrument approach to Runway 9L will require a Runway Protection Zone (RPZ) with dimensions of 1,000 feet by 1,750 feet, by 2,500 feet, and will encompass an area of approximately 79 acres. This RPZ cannot be entirely accommodated within the existing Airport property boundary. Approximately 10 acres of additional lands on the western boundary of the Airport will need to be acquired to permit the RPZ to be implemented, as depicted in Figure 4.31.

In order to accommodate long-term aviation related expansion needs of the Airport, the land area along the boundary of the northwest quadrant of the Airport is being identified as necessary to accommodate future aviation related growth, see Figure 4.32.

SCALE: 1"= 1,200'

1,200' 600' 0 1,200'

NORTH

Source: Melbourne International Airport

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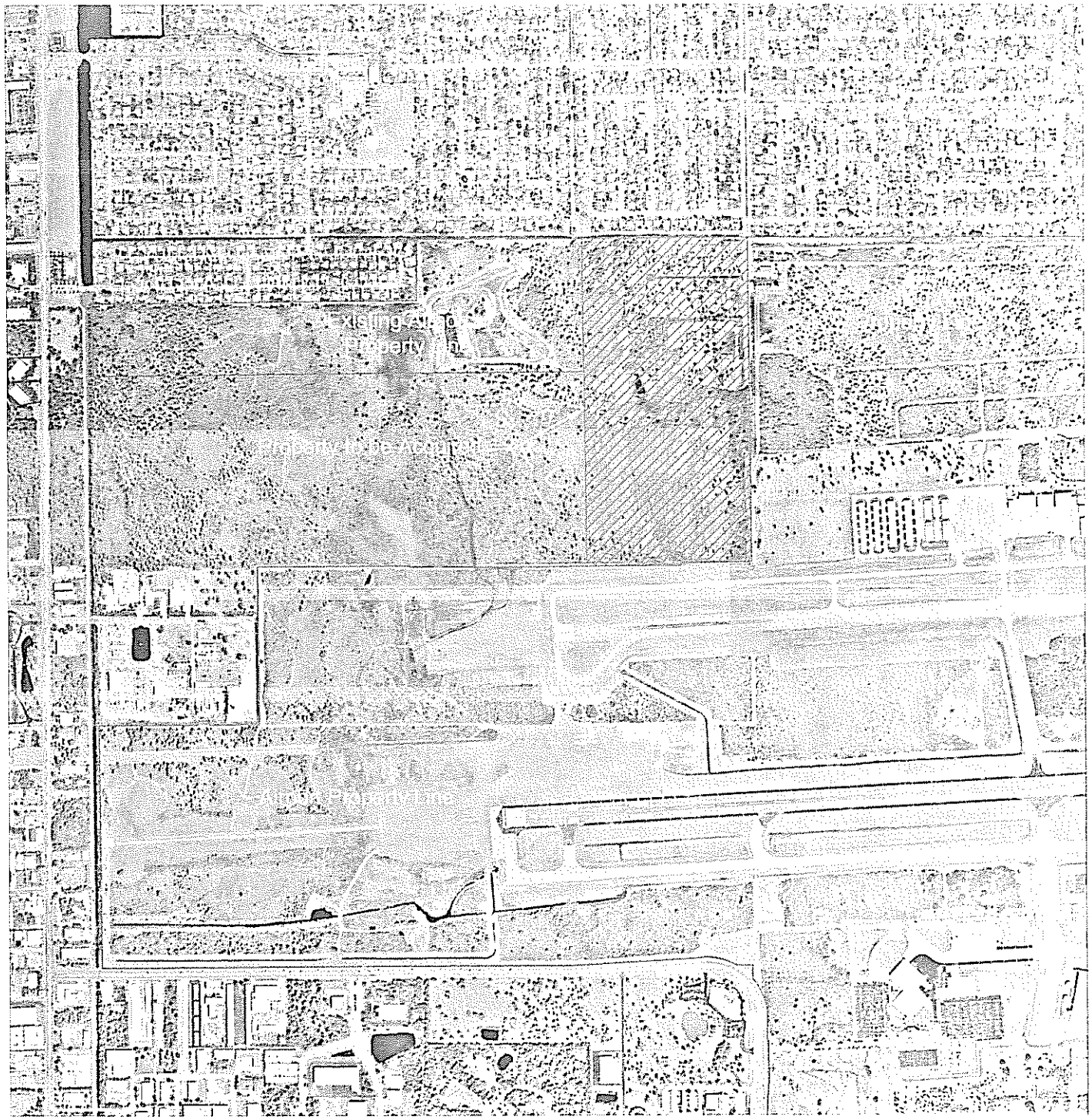
Figure 4-31
RPZ Land Acquisition Alternative



SCALE: 1"= 1,200'

1,200' 600' 0 1,200'

NORTH

Source: Melbourne International Airport

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Figure 4-32
Future Property Acquisition