

important part of the setting of the Conservation Area, and should be retained. New buildings along Victoria Road may obscure views of the cathedral and the landmark prominence of its steeple if adequate setbacks are not deployed.

f) Impacts on Heritage

Subdivision Patterns

The development of the school over many years has gradually eroded the historic subdivision pattern of this site, particularly along O’Connell Street, and Victoria Road. The subdivision pattern along Grose Street should be preserved.

Height and FSR

Incentive height and FSR provisions should not be applied to conservation areas.

Views

Existing views of the Cathedral Spire from all parts of the area at ground level should be maintained.

Overshadowing

Overshadowing of the Cathedral precinct on Victoria Road should not be permitted as a result of any development within the area.

Active Streetfront

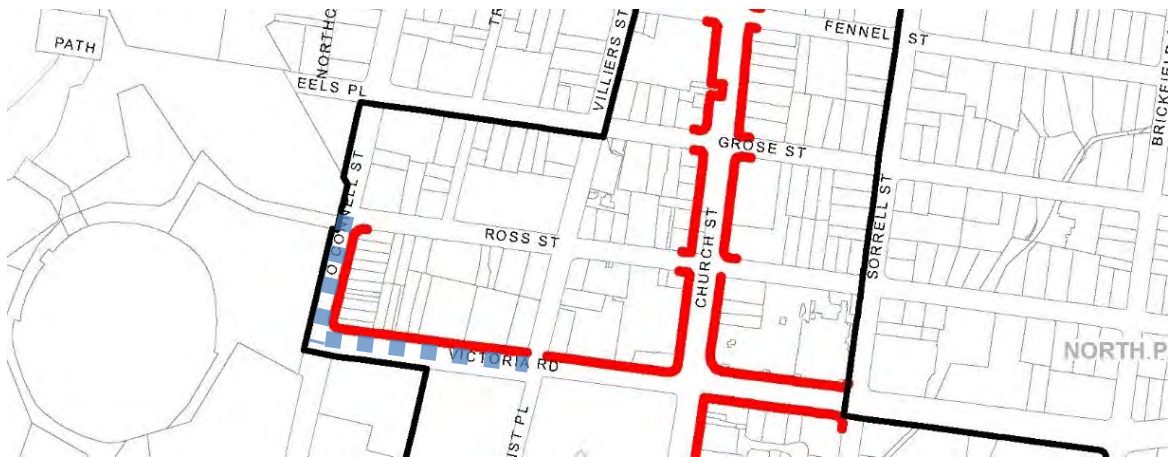


Figure 56: Proposed Active Street Frontages should be removed where dotted. (Source: CPC with HAA overlay)

The active street front provisions should be removed in light of the historic “compound” nature of this precinct. The above diagram shows the areas in purple that should be amended. School fencing will not permit the desired activity or permeability of this provision.

Special Interest Area 4: Riverbank



Figure 57: Special Interest Area 4, Riverbank
(Source: HAA)

The riverbank precinct extends along the southern boundary of the interface area and encompasses both sides of the river.

-  Heritage Conservation Area
-  Special Interest Area
-  Heritage Item
-  Parramatta Planning Proposal CBD Boundary



Figure 58: Parramatta River bank looking north
(Source: HAA)

a) Boundaries:

Parramatta River, between Brickfield Street and O’Connell Street

b) Description

An important open space within the Parramatta CBD, focussed on the river and the historic Lennox Bridge. The flat grassed area rises sharply to the north and is bordered by apartment buildings.

c) Typology Statement

A riparian corridor with high bank, set below the street level and providing the major pedestrian link east-west through the interface area. A flat area against the river, rises steeply to the north where it is terminated by high density residential areas.

d) Current Planning Controls

Current planning controls have seen a dramatic change in this precinct, with the construction of very tall towers on the southern bank having a dramatic impact on the setting of the historic Lennox Bridge and altering the scale of the waterway. The flats have no active address to the riverside public open space.

e) Heritage Priorities

Maintaining views to and from the historic Lennox Bridge, including the consideration of reflections in the water. Preserve the active nature of the public space.

f) Impacts on Heritage

Amalgamation of lots

Consideration must be given to the amalgamation of lots on the northern bank of the river, in order to prevent the creation of a “wall” of development. Building bulk should be reduced where possible to allow penetration of sunlight and movement of air.

Height and Overshadowing

Building height should be restricted so as to permit adequate sunlight to the river and its banks.

Views

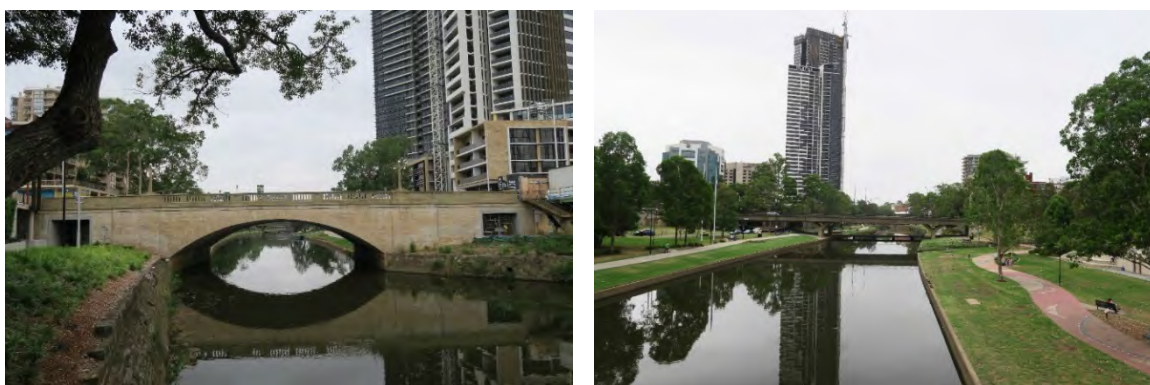


Figure 59: Views along the Parramatta River looking east and west.

(Source: HAA)

Parramatta River is a major historic focal point for the city, and is one of the major contributing elements to the identity of the place. The river is tidal and its waters are broad and flat, its surface acting as a mirror in a very different way to downstream sections of the river which are affected by waves, boats and wind.

The reflection is particularly striking at certain points given the meandering nature of the river. The photo at the above left shows Lennox Bridge reflected in the water, with tree-lined shores beyond. The photo at right shows the impact of reflection on the newly built tower on the southern bank adjacent to Lennox Bridge. The reflection of the river at this point effectively doubles the height of the tower, while the tower itself divides the river in two, reducing its apparent width and reducing the amount of reflected sky.

The view of Lennox Bridge from the Marsden Street Bridge and causeway with a clear river reflection and view of open sky above is to be maintained. This is the effect of the proposed changes to the FSR and Height provisions at the southern end of Sorrell Street.

Alienation and Active Street Frontages to Park

Many of the existing riverside developments provide no connection to the river at pedestrian level, and often carpark areas have fronted the riverside within this precinct. New developments must address the riverside setting and provide an active address to the river. This is particularly important on the southern elevation of the Riverside Theatre and the Southern Bank of the river generally.

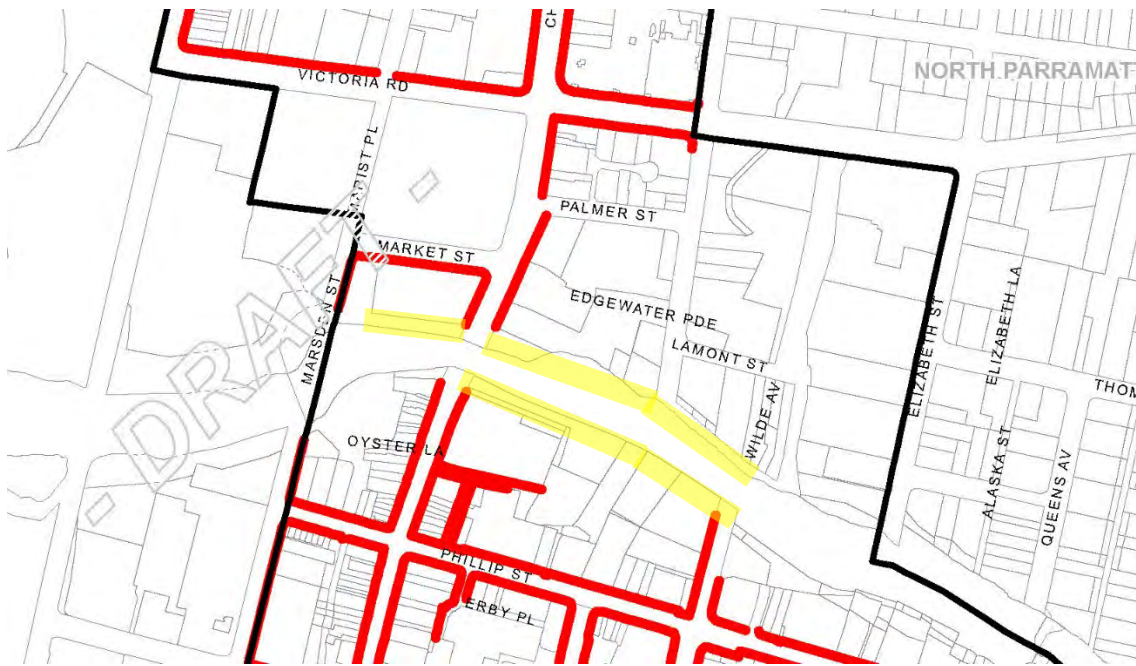


Figure 60: Parramatta CBD Planning Proposal Active Street Frontages Map with HAA overlay showing proposed additional active street frontages in yellow.
(Source: CPC with HAA overlay)

Special Interest Area 5: Sorrell Street

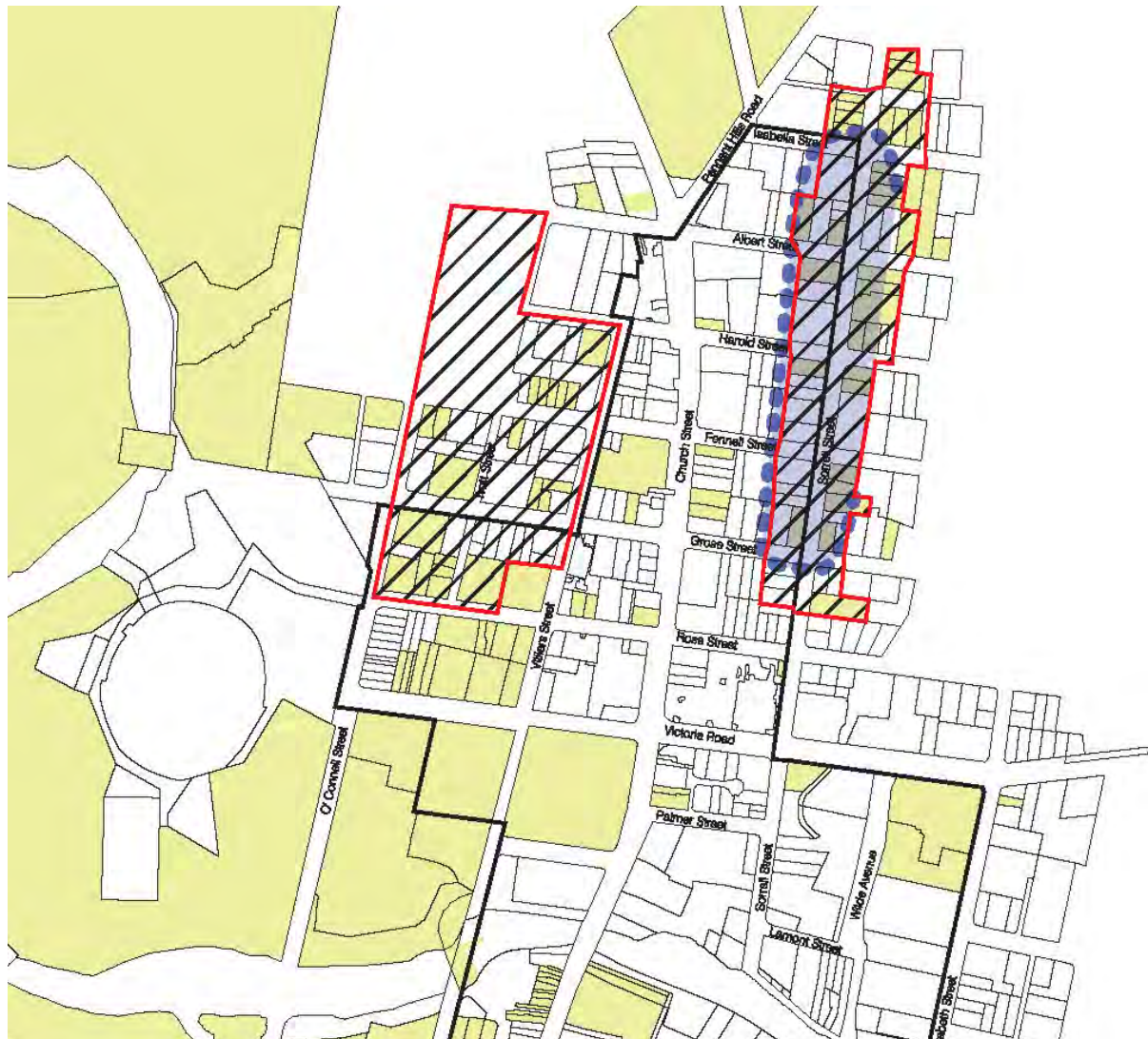


Figure 61: Special Interest Area 5, Sorrell Street
(Source: HAA)

Sorrell Street residential Special Interest Area closely follows the existing conservation area, which is concerned with preserving the unified streetscape character.

-  Heritage Conservation Area
-  Special Interest Area
-  Heritage Item
-  Parramatta Planning Proposal CBD Boundary



Figure 62: Sorrell Street looking south

(Source: HAA)

a) Boundaries

Sorrell Street, between Isabella and Grose Streets

b) Description

A residential precinct comprised mainly of 3-4 storey apartments and some nineteenth century houses, opposite a complete row of nineteenth century houses. The street is lined by an impressive row of trees on both sides.

c) Typology Statement

A residential street of the nineteenth century modified by walk-up apartment blocks from the 1990s, interspersed between a numbers of the houses, and set back from the street. Historic buildings exist on most corners, permitting views west up to Church Street ridge. Street is unified and shaded by an impressive row of trees.

d) Current Planning Controls

The area is currently part of a conservation area, covering both sides of the street and including a number of individual heritage items. The current FSR of 6.0:1 and existing height limit of 11m on the western side of Sorrell Street, when combined with deep setbacks, have created a unified streetscape and appropriate setting for heritage items.

e) Heritage Priorities

The street is at risk of losing its unified nature and becoming unbalanced, with the potential for large scale development on the western side. The impact of taller buildings within Special Interest Area 1 (Church Street) can only be ameliorated by having an adequate buffer zone between it and Sorrell Street.

The heritage priorities for Sorrell Street are:

- Only allowing rebuilding on the west side of the street in a way that preserves the balance of the street
- Preserving views to the ridge road (Church Street) at each cross street
- Ensuring any tall development is located towards Special Interest Area 1 (Church Street)
- Limiting overshadowing of the street

f) Impacts on Heritage

Subdivision Patterns

Redevelopment of the western side of Sorrell Street has been carried out in a way that has for the most part retained the historic subdivision of this street. This is an important element of the conservation area and has meant that the essential grain of the precinct has not been eroded.

Amalgamation of lots

The direction in which amalgamations occur will have a dramatic effect on the future urban form. Corner sites play an important role in this precinct, as they permit a view from a quiet residential precinct to a busy ridge road and taller structures. Amalgamation of lots should not “widow” or “sandwich” heritage items, and corner lots should not be “surrounded” as a result of amalgamation.

Setback patterns

More recent developments near Ross Street have breached the predominant setback, and this has affected the character of the street and limited the extent of the precinct. Any new development on the western side of Sorrell Street should retain the existing building setback.



Figure 63: Corner of Harold and Sorrell Streets, looking west
(Source: HAA)

Height

Excessive building height on the western side of this street (regardless of setback) would have a negative impact upon the heritage significance of the area. The existing height limits for this precinct should remain.

FSR

Incentive FSR is not to be applied in conservation areas.

Overshadowing

The impact of any future development to the west of the Precinct upon the street trees must be considered in any application. Overshadowing of existing properties (particularly the rear of the western side of Sorrell Street) must be considered in any application. A continuous wall of development is not desirable. Sorrell Street conservation area could be adversely overshadowed if the western portion of the conservation area is not protected from tall buildings.

Balanced Streets

A key feature of the Sorrell Street precinct is its balanced nature. Key contributions to this include the existing street trees, building setbacks, areas of deep soil landscape both in front of and behind existing buildings, and the height of buildings on both sides. Excessive building height on the western side of this street (regardless of setback) would have a negative impact upon the heritage significance of the area.

Setbacks

An important element of the conservation area is the setback of the buildings from the street. New developments within the precinct have maintained this. All future developments should include space for a front garden to match neighbouring properties. Buildings that are located on a corner site should maintain the existing setbacks to both street elevations.



Figure 64: Existing setbacks on a section of Sorrell Street. Unit developments on the western side do not protrude in front of the building line of historic buildings, and this does much to retain the character of the street (Source: HAA)

Special Interest Area 6: All Saint's Precinct



Figure 65: Special Interest Area 6, All Saint's Precinct
(Source: HAA)

The All Saints precinct includes the Church and Hall, with their substantial grounds.

-  Heritage Conservation Area
-  Special Interest Area
-  Heritage Item
-  Parramatta Planning Proposal CBD Boundary



Figure 66: All Saint's Church

(Source: HAA)

g) Boundaries

Elizabeth Street, Victoria Road and Wilde Avenue, and the southern side of the church hall in Elizabeth Street.

h) Description

A uniform grouping of buildings belonging to the Anglican Church. It contains imposing, historic buildings of civic character, set within landscaped, unfenced grounds.

i) Typology Statement

An identifiable religious precinct occupying a well-defined area, and a notable landmark upon entry to Parramatta from the east.

j) Current Planning Controls

Current FSR and height limits are low and have afforded an appropriate scale of development within the context of the Church and its grounds.

k) Heritage Priorities

The whole of this precinct is listed as heritage items. New buildings along Wilde Avenue may obscure views of the landmark prominence of the church steeple if adequate height controls are not deployed. Given the three storey unit development in this area, this is considered a low-risk outcome at present, and more likely impacts are to come from new tall buildings constructed in the ParramattaCBD (this is already occurring with the buildings near to the Lennox Bridge).

I) Impacts on Heritage

Height and FSR

Incentive height and FSR provisions should not be applied to conservation areas. Although All Saint's Church is not technically a conservation area, it should be treated as such.

Views

Existing views of the Church Spire from Victoria Road should be maintained. This spire has important landmark status when approaching Parramatta from the east along this road. This can be achieved through appropriate setback and building siting.



Figure 67: All Saint's Church Spire, as seen from Victoria Road.
(Source: HAA)

5.2 North Parramatta Interface Area Recommendations

North Parramatta Interface - Recommended FSR



North Parramatta Interface - Recommended Height



North Parramatta Interface - LEP Recommendations

Special Interest Area 1: The linear nature of a ridge road and commercial street

- The section of Church Street between Fennell and Grose Streets contains a cluster of heritage items. No new building work should be permitted in front of the west elevation of 446 Church Street (former Peacock Inn), and intrusive elements should be removed as part of any proposal.
- 452-456 Church Street should have a 10m height limit to Church Street and a setback that ensures the heritage items either side do not become isolated as a result of inappropriate development.
- Since development of the Fennell Street carpark is likely to impact the setting of heritage listed items to the south and west, taller buildings should be located to the east, along Church Street

Special Interest Area 2: Public Square at an important intersection and meeting place

- There must be no further increase in height or FSR to the site at the corner of Victoria Road and Villiers Street.
- Solar access to the park must be maximised.

Special Interest Area 3: An institutional precinct

- The proposal of a “blanket” FSR of 6.0:1 across the site with unlimited height controls is not acceptable in a precinct dominated by heritage listed items and bordering a conservation area. There should be no incentives within the controls for this place.
- Retain the FSR and HoB in the North Parramatta Conservation Area at the existing level.

Special Interest Area 4: The banks of a river

- Preserve the key historic view in this precinct which is the view east from Marsden Street, showing Lennox Bridge and its riverside setting.
- Reduce the incentive FSR where Wilde Avenue meets the river to preserve the open nature of the River Foreshore Reserve in this area and
- Maintain the sky view behind Lennox Bridge when viewed from the west.

Special Interest Area 5: A tree lined street of suburban character

- Remove the proposed “blanket” incentive FSR of 6.0:1 and unlimited incentive height from the Sorrell Street Conservation Area
- Maintain the current height limit of 11m and existing setbacks in order to preserve the Sorrell Street Conservation Area.

Special Interest Area 6: The grounds of a church and an historic marker

- The proposal of a “blanket” FSR of 6.0:1 across the site with unlimited height controls is not acceptable in a precinct dominated by heritage listed items. There should be no incentives within the controls for this place.
- Retain the FSR and HoB at the existing level, to maintain consistency in approach with other Conservation Areas.

North Parramatta Interface - DCP Recommendations

Special Interest Area 1: The linear nature of a ridge road and commercial street

- Amalgamation of lots must not result in isolation of heritage sites
- Preserve the prominence of views to the termination points of the parks at each end.
- Step up the form of buildings and podiums with the topography of the street.
- Give expression to historic subdivision pattern in all development.
- Adhere to a common design of footpath surfaces, planting, lighting to unify the main street as a defined precinct.
- Maintain the varying width of the road.
- Preserve views to east and west along side streets by limiting the height of buildings on corner sites, particularly at Grose and Fennell Streets, to ensure an appropriate relationship to buildings on each street. A tower setback should be implemented at the corner.

Special Interest Area 2: Public Square at an important intersection and meeting place

- Increase the level of sun to the park in winter.
- Developments adjacent to the park are to address the park.
- Preserve views into and out of the park, including those to the Cathedral and the former Congregational Church.
- Retain existing views from the park of the steeples of St Patricks Cathedral and former Congregational Church against the sky in all directions.
- Preserve views to the park from Victoria Road where they already exist. To meet this requirement, future buildings on Victoria Street will require extra but not large setbacks.
- The taller part of any development on the Villiers Street and Victoria Road corner site, is to be placed to the east, towards the tall buildings of Church Street.

A Special Interest Area 3: An institutional precinct

- Retain the visual prominence of the steeple of St Patricks Cathedral against the sky when seen from Prince Alfred Square and Victoria Road.

Special Interest Area 4: The banks of a river

- New tower podiums along the upper northern bank to be separated to prevent development from forming a wall and limit overshadowing along the river.
- Preserve all existing openings of streets to the river.
- Plan for pedestrian routes down to the river.
- Re-establish all north-south street connections to the river.
- Consider key views at river bend in the siting of new towers to avoid impact on the visual amenity of the river
- All development is to have an active address to the river.

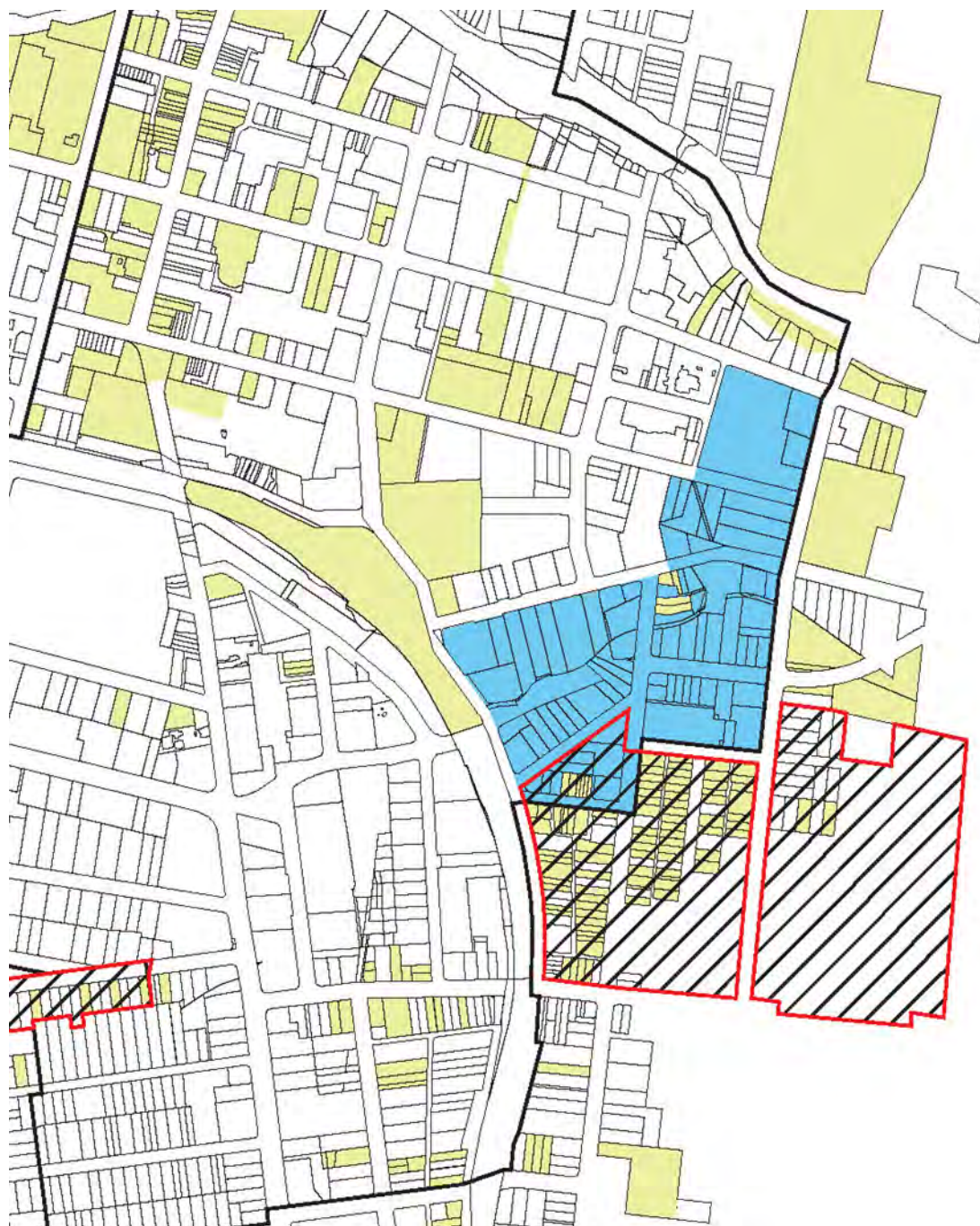
Special Interest Area 5: A tree lined street of suburban character

- Give expression to historic subdivision patterns in any new development.
- Preserve all street trees and existing historic setbacks.
- Restrict setback of development at corners so as to permit visual connections to the Church Street ridge.

Special Interest Area 6: The grounds of a church and an historic marker

- Retain the visual prominence of the steeple of All Saint's Church against the sky when seen from Victoria Road.

5.3 South-East Parramatta Interface Area



-  Heritage Conservation Area
-  Interface Area
-  Heritage Item
-  Parramatta Planning Proposal CBD Boundary



South-East Parramatta Interface - Existing FSR



South-East Parramatta Interface - Existing Height



South-East Parramatta Interface - Base FSR



South-East Parramatta Interface - Base Height



South-East Parramatta Interface - Incentive FSR



South-East Parramatta Interface - Incentive Height

South-East Parramatta Interface Special Interest Areas



Figure 68: South-East Parramatta Special Interest Areas
(Source: HAA)

Special Interest Area 7: The eastern end of George Street and an important entry point to the city

Special Interest Area 8: The edge of the CBD

Special Interest Area 9: Buffer to Harris Park Conservation Area

Special Interest Area 10: The area of Clay Cliff Creek

Special Interest Area 7: Early George Street

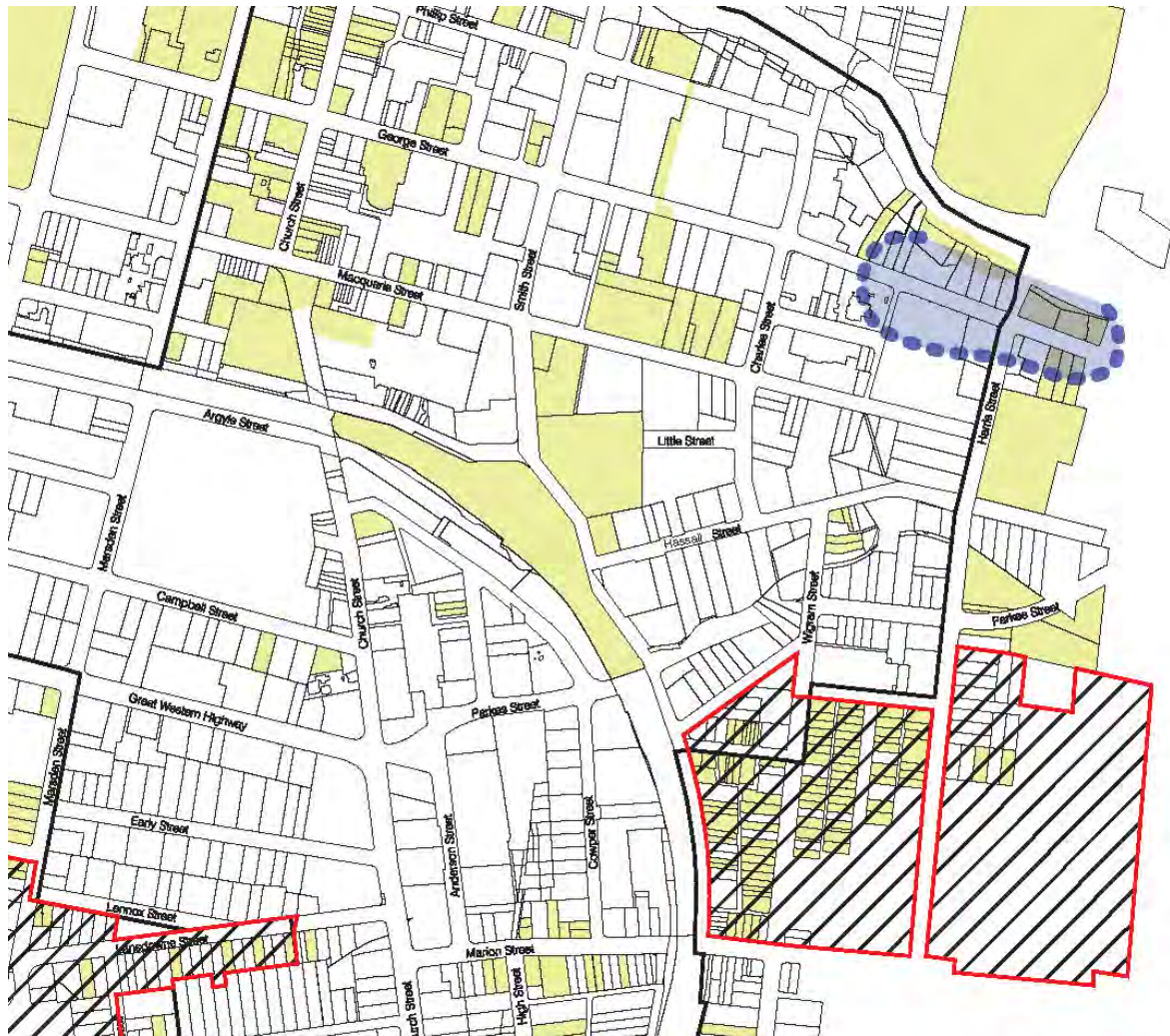


Figure 69: Special Interest Area 7, Early George Street
(Source: HAA)

The small area of river flat at the east end of George Street.

-  Heritage Conservation Area
-  Special Interest Area
-  Heritage Item
-  Parramatta Planning Proposal CBD Boundary



Figure 70: Eastern end of George Street with low rise development

(Source: HAA)

a) Boundaries

East end of George Street at the intersection with Harris Street, near to the early Georgian house Harrisford and the Ancient Aboriginal and Early Colonial Landscape at the corner of Harris and George Streets.

b) Description

The area comprises the level land at the east end of George Street, at the intersection with Harris Street. George Street was laid out as the central street of Parramatta in 1790, and forms an important axis with Old Government House.

c) Typology Statement

The historic primary entrance street to Parramatta from the east, with significant archaeological significance.

d) Current Planning Controls

Current planning controls have permitted large development to the west and south of Harrisford. At present the house maintains an easterly aspect and its original relationship to the river is readily interpreted. The easternmost end of George Street maintains a view to the sky. Controls for building setbacks along George Street aim to preserve the special character of this street.

e) Heritage Priorities

The slight bend at the easternmost end of George Street must be treated with great care. The open end of the street is at risk if tall development were to fall directly on the axis with Old Government House. A meaningful connection between the historic house Harrisford and the river should be preserved. Tall buildings would have a very great impact on this historic precinct.

The heritage priorities for this area are:

- The effect of tall towers upon existing street alignment views and heritage items
- Amalgamation of sites eroding the subdivision grain of the street

f) Impacts on Heritage

Subdivision Patterns

Recent developments have done much to erode the legibility of historic subdivision patterns in this precinct.

Amalgamation of lots

Amalgamation of lots for tower construction is an inevitable outcome of the Planning Proposal. These developments threaten to monumentalise the Parramatta CBD. The essential small grain of the CBD is a result of the subdivision patterns in the Parramatta CBD area.



Figure 71: Podium showing amalgamation of lots in George Street, Parramatta and the early house Harrisford

(Source: Google Maps)

The above image of the eastern end of George Street shows the historic property Harrisford to the right, with a new development across the road. While the podium and tower concept arguably reduce the impact on Harrisford and help to maintain a certain level to George Street, the effect of the long, linear podium is jarring on the perceived rhythm in the street.

New developments must recognise existing and historic subdivision patterns, particularly at street level.

Height and FSR

Development of a substantial height should not be permitted at the point where George Street bends. A tower development at this point could have a negative impact upon the other planning policies for George Street that are intended to preserve a wide, regular avenue along this important street that reinforces its historic importance and relationship to Old Government House. Note: the area north of George Street is outside the study area.

Views

The view of Harrisford when approached from the east along George Street must be maintained. A visual connection between Harrisford, the east end of George Street and the River is to be maintained as part of any development.

Special Interest Area 8: Town Edge to Queen's Wharf Reserve

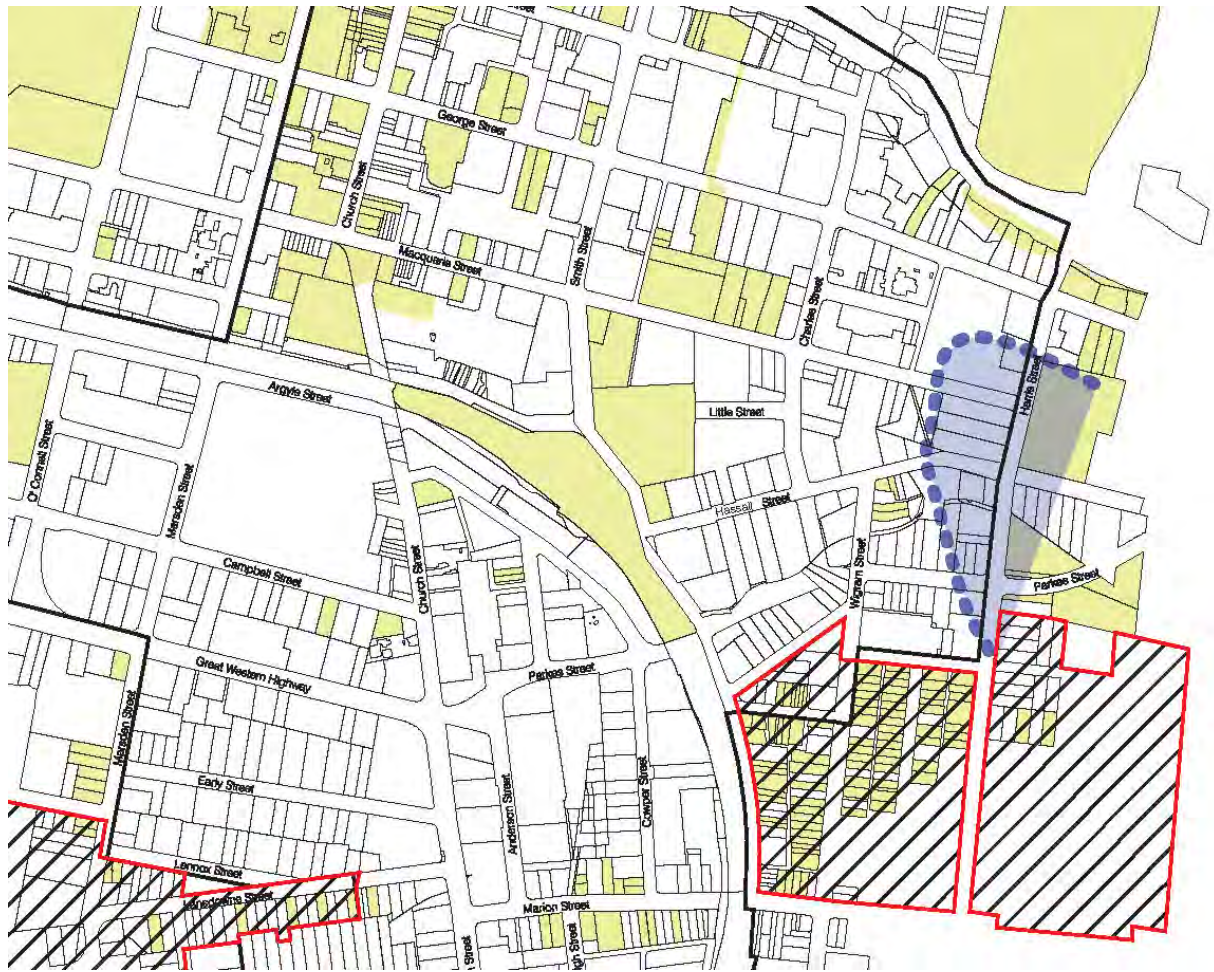


Figure 72: Special Interest Area 8, Town Edge to Queen's Wharf Reserve (Source: HAA)

The area of Harris Street as it traverses the flat alluvium of the Clay Cliff Creek

-  Heritage Conservation Area
-  Special Interest Area
-  Heritage Item
-  Parramatta Planning Proposal CBD Boundary



Figure 73: Harris Street looking south
(Source: HAA)

a) Boundaries

The western side of Harris Street between Parkes Streets and the boundary of Early George Street Special Interest Area to the north.

b) Description

Two blocks of the early town of Parramatta, the eastern edge of which is set by this straight section of Harris Street. The Precinct forms the town side of the street to the reserve. It is traversed by the Clay Cliff Creek. It forms the east edge of the major colonial landscape on the eastern side off Parramatta, comprising Elizabeth Farm, Hambledon, Experiment Farm Cottage, the archaeological site of the Military Barracks and the river.

c) Typology Statement

A creek alluvium defined by Park Address, town edge, and edge of major colonial precinct.

d) Current Planning Controls

An existing FSR of 4.0:1 and height of 54m forms a balanced edge condition to the park. The row of fig trees in the Park along Harris Street form an important boundary not only to the park, but also as a visible boundary to the Parramatta CBD.

e) Heritage Priorities

Major tall buildings are planned for in this precinct. Harris Street forms an important definition to the edge of the city, therefore future proposals should address the park not put the horticulture of the park at risk by overshadowing, nor introduce an effect of alienation by having passive street fronts. The Clay Cliff Creek should not be covered, or ignored.

f) Impacts on Heritage

Subdivision Patterns

Amalgamation of lots is an inevitable outcome of the Planning Proposal. These developments threaten the essential grain of the Precinct by eroding the subdivision patterns in the Parramatta CBD area.

While the podium and tower concept arguably reduce the impact on the street and may negate the impact of a new development on an adjacent heritage building, the building of a long, linear podium can have a jarring effect on the sense of rhythm in the street.

Amalgamation of lots

The direction in which amalgamations occur will have a dramatic effect on the future urban form. Amalgamation of lots should not “widow” or “sandwich” heritage items, and corner lots should not be “surrounded” as a result of amalgamation.

Height and Overshadowing

The impact of any overshadowing on the row of Fig trees along the eastern side of Harris Street must be considered as part of any proposal. Additional overshadowing of buildings or grounds of Experiment Farm or Elizabeth Farm should not occur as part of any proposal.

Active Streetfront

Any development along the western side of Harris Street must present an active address to the park.

Clay Cliff Creek

A specific study of the Clay Cliff Creek should be made in order to save and fully interpret this creek basin within the newly-developed CBD. The basin of the Clay Cliff Creek is the basis of the alignment of streets historically along its entire length. It is a conduit of water under, on and above ground, as well as a conduit of ventilation through the CBD. One of the only natural landscape features of the core of southern CBD, it is the obvious pedestrian cross route through from Parramatta west to the Parramatta River.

Clay Cliff Creek should not be built upon. Its alignment should be expressed in new adjacent development, regardless of height or scale. It should be made a publically accessible corridor of land adjacent to the creek, with a view towards using the creek as a connecting element between existing green spaces in the city.

Special Interest Area 9: Buffer to Harris Park Conservation Area

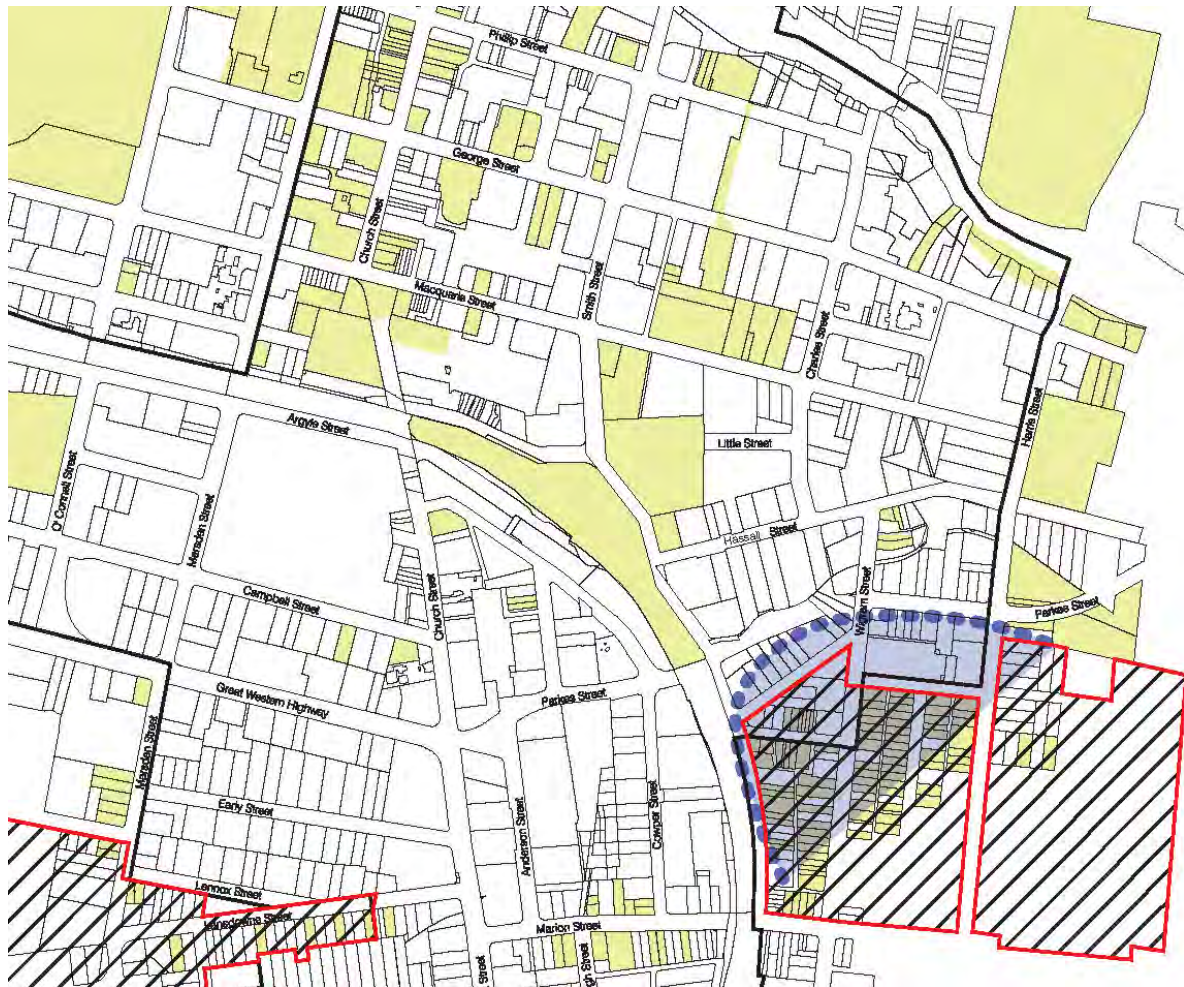


Figure 74: Special Interest Area 9: Buffer to Harris Park Conservation Area
(Source: HAA)

A small area between the Harris Park West Conservation Area and the built up part of the Parramatta CBD.

-  Heritage Conservation Area
-  Special Interest Area
-  Heritage Item
-  Parramatta Planning Proposal CBD Boundary



Figure 75: View west down Una Street with development in the background
(Source: HAA)

a) Boundaries

Parkes Street, Station Street East, Ada Street, Wigram Street, Una Street and Harris Street.

b) Description

Three blocks in the gully between the town of Parramatta and its suburb of Harris Park. The streets connect the differently aligned street grids of the two places. The buildings in this precinct are from two to nine stories and stage a transition between the two. They are built to the alignment of the streets, and have active frontages to the street. The precinct has an important visual link to Harris Park down Wigram Street, afforded by a small park on the corner of Wigram and Parkes Streets.

c) Typology Statement

A successful urban buffer between a conservation area and major large scale CBD. The buffer is effected in scale (two storey to above ten) and street activity (active to non-active).

d) Current Planning Controls

Current planning controls provide an effective buffer, and allow for an appropriate relationship to the conservation areas to the south.

e) Heritage Priorities

No major uplift in FSR is proposed here, and the buffer will be retained. However there is the possibility that the buildings on the buffer will be rebuilt, and if so, controls should be made to preserve the expression of the original subdivision of allotments as a method of controlling scale. There is a potential for overshadowing of the Harris Park West CA from new development further north into the Parramatta CBD. The existing conservation area should be modified in the area surrounded by Ada, Wigram and Kendal Streets to include only the properties that front Ada Street.

The heritage priorities for Special Interest Area 9 are:

- Preserve the effective buffer with a height limit
- Define the limits for the former part of a conservation area

f) Impacts on Heritage

Subdivision Patterns and Amalgamation of lots

Amalgamation of lots is an inevitable outcome of the Planning Proposal. These developments threaten the essential grain of the Precinct by eroding the subdivision patterns in the Parramatta CBD area.

The direction in which amalgamations occur will have a dramatic effect on the future urban form. Corner sites play an important role in this precinct, and the principle address of a property should be maintained (this is particularly the case in Una Street). Amalgamation of lots should not “widow” or “sandwich” heritage items, and corner lots should not be “surrounded” as a result of amalgamation. This is a particular concern within the area surrounded by Ada, Wigram and Kendal Streets, and the way in which any future development will relate to listed heritage items.

Height and FSR

Incentive height and FSR provisions should be removed from Conservation areas. The precinct is to have incentive heights between 20 and 26m, and FSR values between 3.0: 1 and 4.0:1 as indicated. These values are to provide an appropriate buffer between the Harris Park Conservation Area and the Parramatta CBD to the north.

Overshadowing

Overshadowing of Experiment Farm, Elizabeth Farm and Hambledon Cottage is not permitted as a result of any development.

Special Interest Area 10: Parramatta CBD Apartment Zone

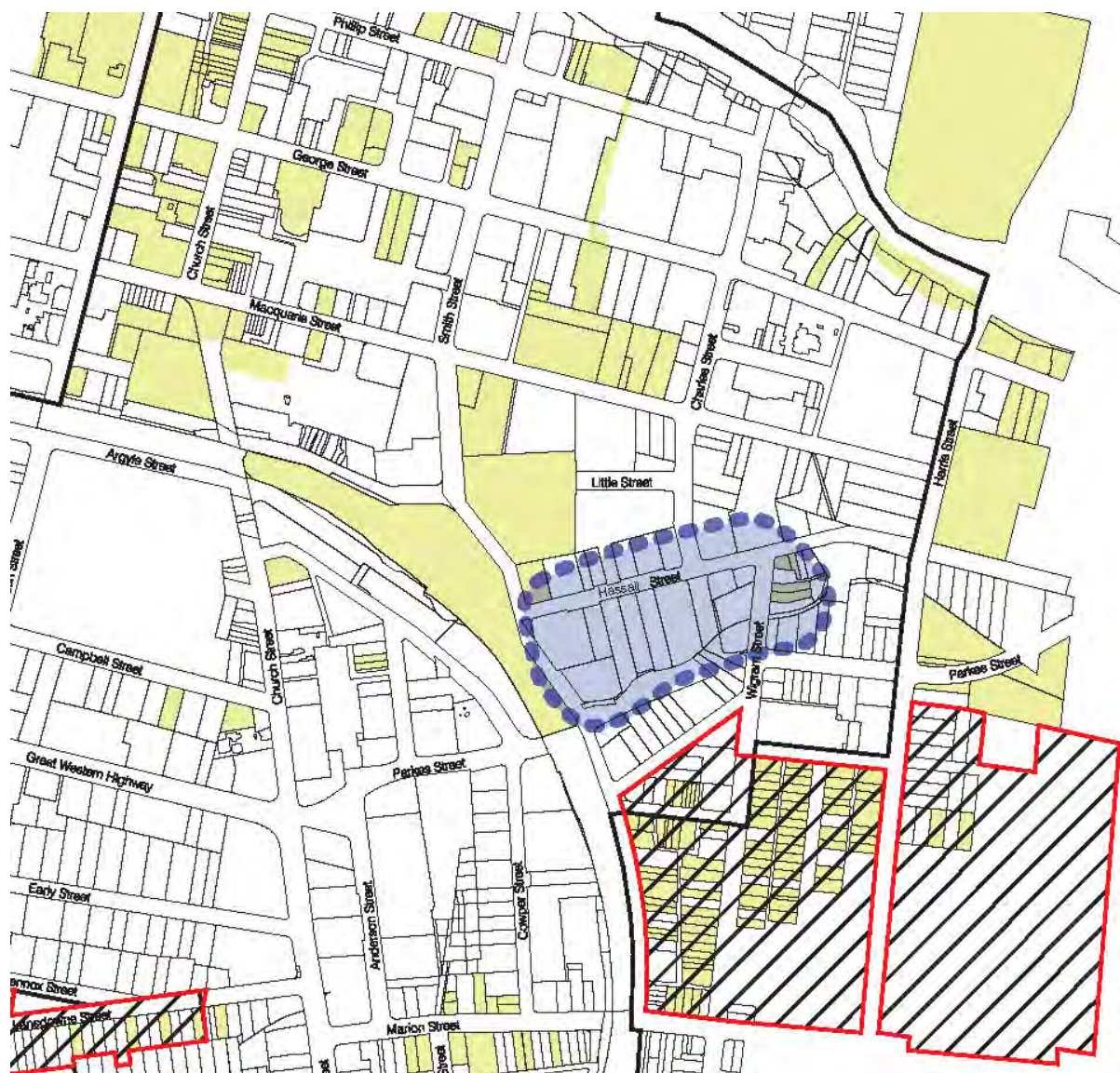


Figure 76: Special Interest Area 10, Parramatta CBD Apartment Zone (Source: HAA)

A major street between the two street grids

-  Heritage Conservation Area
-  Special Interest Area
-  Heritage Item
-  Parramatta Planning Proposal CBD Boundary



Figure 77: Recent development near Hassell Street
(Source: HAA)

a) Boundaries

Parkes Street between Station Street East and the western boundary of Special Interest Area 8 Station Street East, northern allotments of Hassall Street, Charles Street to Little Street, then to Macquarie Street, east to Rowland Hassall School, to Parkes Street.

b) Description

Special Interest Area 10 is an area where two distinct town grids meet, leading to a series of irregular subdivisions and street patterns. It is dominated by tall Apartment buildings, which do not align with streets, the alignment of which follow the Clay Cliff Creek. This area has a loose urban form, and always has, originating as the rear allotments of streets set out on the line of the creek. A central identity node is found at the intersection of Hassall and Charles Streets, where there is a large Port Jackson Fig, a small cluster of shops, and a street view to the wooded horizon at the rise above the Harris Park Suburb. In and around the precinct there are to isolated heritage places, including Lancer Barracks and Commercial Hotel, and two houses in Wigram Street.

c) Typology Statement

A meeting point of distinct town grids. High rise buildings set off bent streets comprising the landscape of a natural creek. Network of isolated heritage items. Central intersection with important views, intimacy and big tree.

d) Current Planning Controls

This area is considered by its bulk and height to be part of the CBD, be it as a residential apartment zone. The retention of certain heritage listed houses in a new development at the

corner of Wigram and Hassell Streets is questionable – the properties have all lost their sense of space to the rear, while the new building has a diminished street address as a result.

e) Heritage Priorities

Development could further obscure the topography and watercourse of the Clay Cliff Creek. It could fail to address it.

The key view to Harris Park from the intersection of Hassall and Charles Streets should be preserved.

Heritage items threaten to be isolated by large scale development. Attempts should be made to connect these items to each other in a meaningful way, and to prevent their isolation.

f) Impacts on Heritage

Subdivision Patterns and Amalgamation of lots

Amalgamation of lots is an inevitable outcome of the Planning Proposal. Recent developments have affected the legibility of original subdivision patterns, particularly at the corner of Wigram and Hassall Streets. These developments threaten the essential grain of the Precinct by eroding the subdivision patterns in the Parramatta CBD area.

Amalgamation of lots should not “widow” or “sandwich” heritage items, and corner lots should not be “surrounded” as a result of amalgamation.

Views

The key view to Harris Park from the intersection of Hassall and Charles Streets should be preserved.

Clay Cliff Creek

A specific study of the Clay Cliff Creek should be made in order to save and fully interpret this creek basin within the newly-developed Parramatta CBD. The basin of the Clay Cliff Creek is the basis of the alignment of streets historically along its entire length. It is a conduit of water under, on and above ground, as well as a conduit of ventilation through the Parramatta CBD. One of the only natural landscape features of the core of southern Parramatta CBD, it is the obvious pedestrian cross route through from Parramatta west to the Parramatta River.

Clay Cliff Creek should not be built upon. Its alignment should be expressed in new adjacent development, regardless of height or scale. It should be made a publically accessible corridor of land adjacent to the creek, with a view towards using the creek as a connecting element between existing green spaces in the city.

5.4 South-East Parramatta Interface Area Recommendations

South-East Parramatta Interface - Recommended FSR



South-East Parramatta Interface - Recommended Height



South-East Parramatta Interface - LEP Recommendations

Special Interest Area 7: The eastern end of George Street and an important entry point to the city

- Control development to not fall directly on the visual axis with Old Government House.
- Preserve the historic spatial connection between the historic house Harrisford and the river, views of the riverbank, river and Gasworks Bridge from western part of George Street.
- Consider the listing of land on the southeast corner of Harris and George Streets as a heritage item on the LEP, considering its historic significance and archaeological potential. The land forms part of the State Heritage Register listing 01863 (Ancient Aboriginal and Early Colonial Landscape). Although outside of the scope of this study, this omission should be addressed as the land forms part of the curtilage to this Special Interest Area.

Special Interest Area 8: The edge of the CBD

- New tall buildings must not create any additional overshadowing of the buildings and grounds of Experiment Farm, Elizabeth Farm, or Hambledon Cottage. The Parramatta CBD Planning Proposal Incentive FSR and Heights will be impacted by the above recommendation. Further testing is required by Council to ascertain the extent of solar access plane which would apply to the Parramatta CBD Planning Proposal to ensure protection of solar access to these areas.
- The Clay Cliff Creek should not be built over
- Extend the defined area of Active Street front to include the western side of Harris Street
- All new buildings to address the east.

Special Interest Area 9: Buffer to Harris Park Conservation Area

- New tall buildings must not create any additional overshadowing of the buildings and grounds of Experiment Farm, Elizabeth Farm, or Hambledon Cottage. The Parramatta CBD Planning Proposal Incentive FSR and Heights will be impacted by the above recommendation. Further testing is required by Council to ascertain the extent of solar access plane which would apply to the Parramatta CBD Planning Proposal to ensure protection of solar access to these areas.
- Remove the incentive FSR from the conservation area.
- Amend Incentive heights to be 26m / 8 storey and 20m / 6 storey in order to preserve an effective buffer zone to the conservation area.
- The boundary of the Harris Park West conservation area should be redefined so as not to include the demolished zone along Kendall Street

Special Interest Area 10: The area of Clay Cliff Creek

- The Clay Cliff Creek should not be built upon.

South-East Parramatta Interface - DCP Recommendations

Special Interest Area 7: The eastern end of George Street and an important entry point to the city

- Maintain the podium controls and tower setbacks for George Street that are in place in the DCP.
- Reduce the FSR area at the eastern end of George Street in order to maintain both a view east from George Street, and a view west from George Street to Harrisford. Such a change would appear to be the only effective way remove incentives and preserve what are essentially vital setbacks to ensure the retention of historic views and relationships at the entry point to the Parramatta CBD from the east.
- Give expression to historic subdivision patterns in all new development.

Special Interest Area 8: The edge of the CBD

- Control the bulk and nature of the architecture that fronts the street and the park to overcome isolation and alienation
- Make clear the shape and form of Clay Cliff Creek in all adjacent proposals on the part of the creek that falls into this precinct, regardless of height or scale.
- Do not erect buildings over the Clay Cliff Creek.

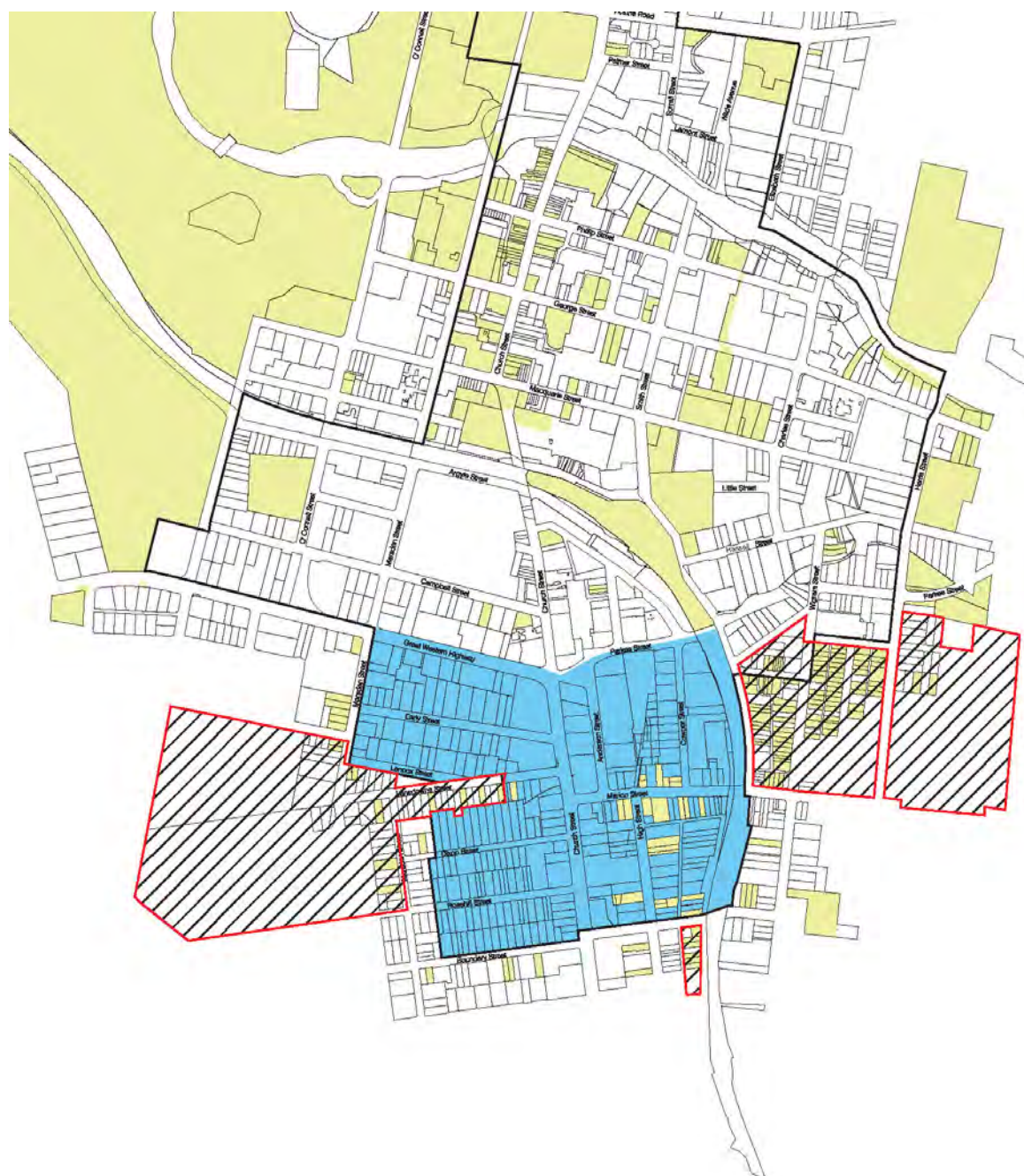
A Special Interest Area 9: Buffer to Harris Park Conservation Area

- In all new development give expression to the historic subdivision pattern in the buildings
- Make clear the shape and form of Clay Cliff Creek in all adjacent proposals on the part of the creek that falls into this precinct, regardless of height or scale.
- Do not erect buildings over the Clay Cliff Creek.

Special Interest Area 10: The area of Clay Cliff Creek

- Preserve view of Harris Park
- Development to address the landscape basis of the precinct
- The planning and form of development is to interpret the creek and its importance. This should include opening it up and bridging it, allowing pedestrians to walk and cross it.

5.5 South-West Parramatta Interface Area



-  Heritage Conservation Area
-  Interface Area
-  Heritage Item
-  Parramatta Planning Proposal CBD Boundary



South-West Parramatta Interface - Existing FSR



South-West Parramatta Interface - Existing Height



South-West Parramatta Interface - Base FSR



South-West Parramatta Interface - Base Height



South-West Parramatta Interface - Incentive FSR



South-West Parramatta Interface - Incentive Height

South-West Parramatta Interface Special Interest Areas

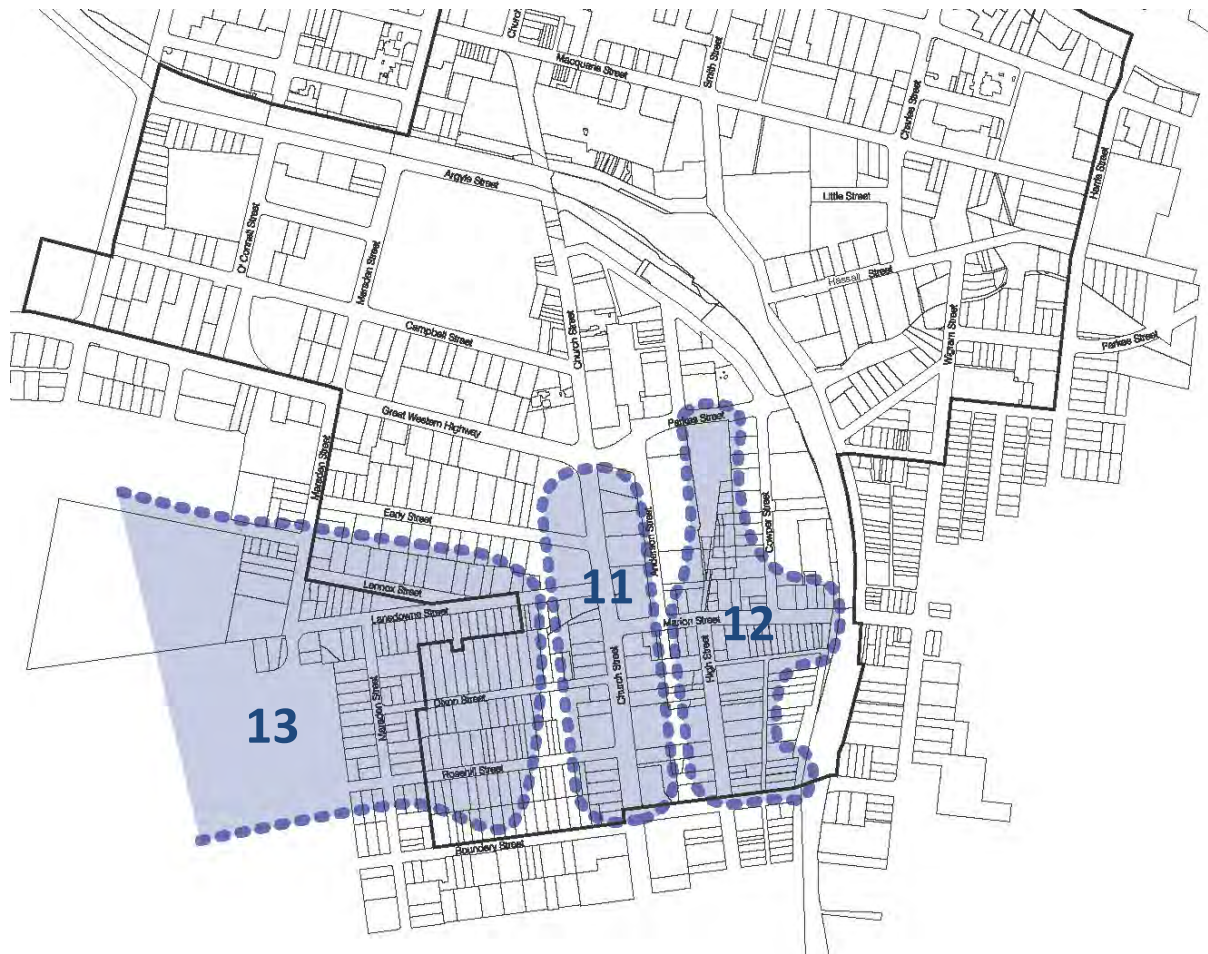


Figure 78: South-West Special Interest Areas
(Source: HAA)

Special Interest Area 11:	Auto Alley
Special Interest Area 12:	Marion and High Street Village
Special Interest Area 13:	Dixon and Rosehill Street Suburban Precinct

Special Interest Area 11: Auto Alley

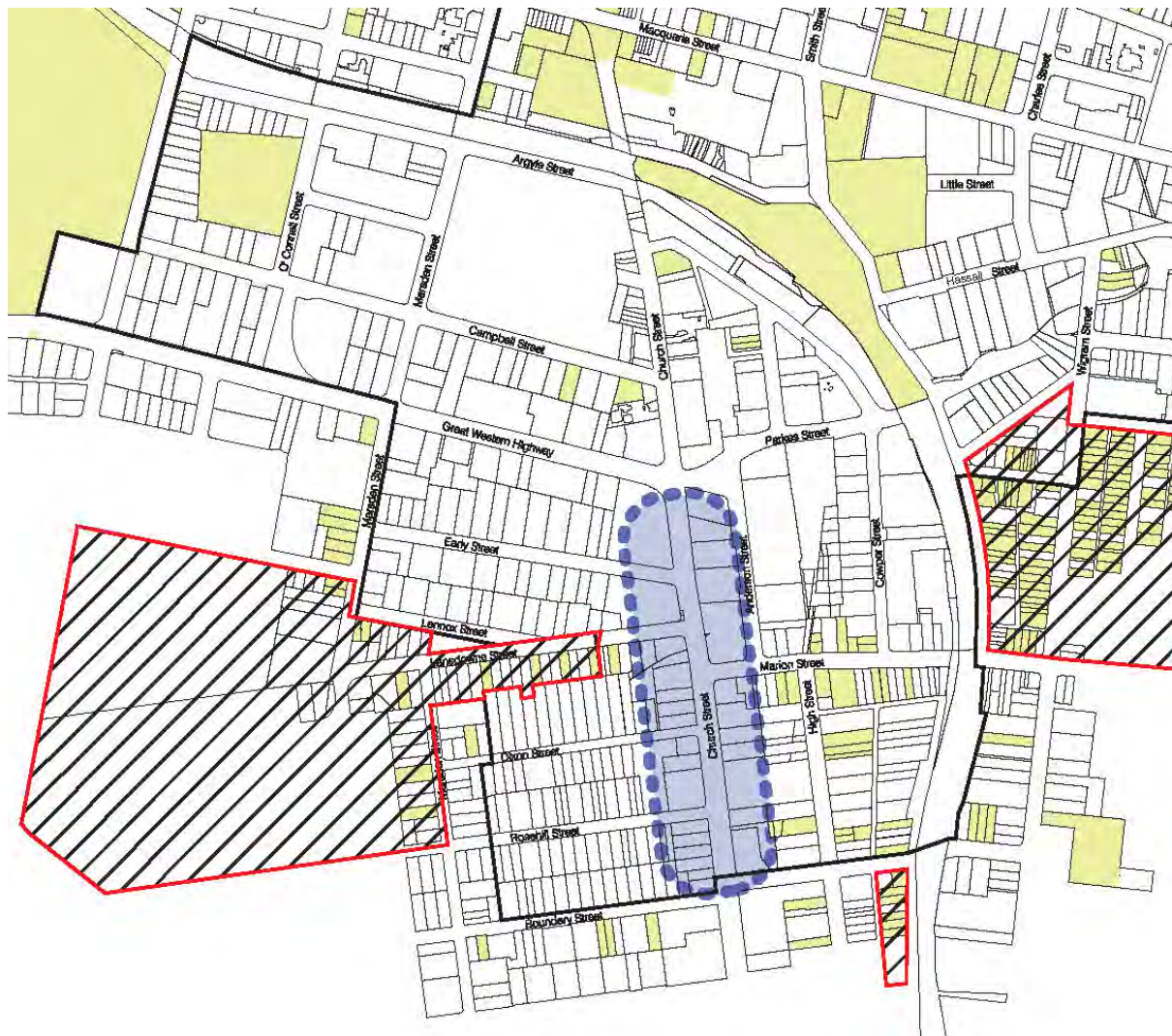


Figure 79: Special Interest Area 11, Auto Alley
(Source: HAA)

Auto Alley is the major historical entry point to Parramatta from Sydney.

-  Heritage Conservation Area
-  Special Interest Area
-  Heritage Item
-  Parramatta Planning Proposal CBD Boundary



Figure 80: Auto Alley looking north with the city beyond
(Source: HAA)

a) Boundaries

Intersections at Great Western Highway & Western Motorway overpass (where Church Street turns into Woodville Road).

b) Description

A car-dominated strip bordered by large lots with low scale car yards/dealerships, forming the southern gateway to Parramatta. Existing development is generously setback in parts from Church Street resulting in expansive views north towards the Parramatta CBD skyline. When the future high rise city is built, this will be one of the key views of it.

c) Typology Statement

Distinctive uniform car strip both the road (up to six lanes of traffic) and businesses comprised of car yards and dealerships. The precinct is typified by large lot sizes with low scale development (2-3 storeys).

d) Proposed Planning Controls (2016)

The existing FSR and height levels clearly relate to the automotive trade that is synonymous with this stretch of road. Proposed controls allow the building of tall towers. A new “broadway” entry to Parramatta CBD will be a result.

e) Heritage Priorities

The area has been synonymous with car sales and servicing since the early part of the 20th century, but its major historical importance is its role as the “Sydney Road” or southern entrance to Parramatta. Views towards Parramatta from the road have long been a feature of the arrival sequence to the town/city, and glimpses should be maintained, particularly on the eastern side

The heritage priorities for this precinct are:

- Avoid towers on Church Street at the termination points of Marion and Lansdowne Streets, thus preserving view of sky along those streets
- Avoid a 100m tall continuous “wall” of development by curating views along Church Street to the Parramatta CBD proper

f) Impacts on Heritage

Subdivision Patterns and Amalgamation of lots

Amalgamation of lots is an inevitable outcome of the Planning Proposal, although the existing large lots make this less likely within this precinct.

While the podium and tower concept arguably reduce the impact on the street and may negate the impact of a new development on an adjacent heritage building, the building of a long, linear podium can have a jarring effect on the sense of rhythm in the street. Linear podiums also reduce the sense of a gradual incline that is an important element of this street.

The direction in which amalgamations occur will have a dramatic effect on the future urban form. Corner sites play an important role in this precinct, as they connect a busy road with more suburban side streets. Amalgamation of lots should not “widow” or “sandwich” heritage items to the rear of the allotments, and corner lots should not be “surrounded” as a result of amalgamation.

Height, FSR and Views

Height and FSR values for this area should be altered as directed at the points where Church Street intersects with Marion and Lansdowne Streets. Development is to be limited to heights of 12m and 26m in order to preserve the important views of open sky at the end of these streets within conservation areas or with a high concentration of individually listed heritage items



Figure 81: View west along Marion Street towards Church Street, with open sky view (Source: HAA)

Alienation

The scale and bulk of development along Church Street must be carefully managed so as to avoid the creation of a continuous wall of development at the main gateway to Parramatta. The proposed development will not only be seen from Church Street, but will also be viewed from the surrounding suburban precincts which include Heritage Conservation Areas. This is particularly the case where the increased height and FSR of Church Street abuts the smaller scale High Street development.

Special Interest Area 12: Marion and High Street Village

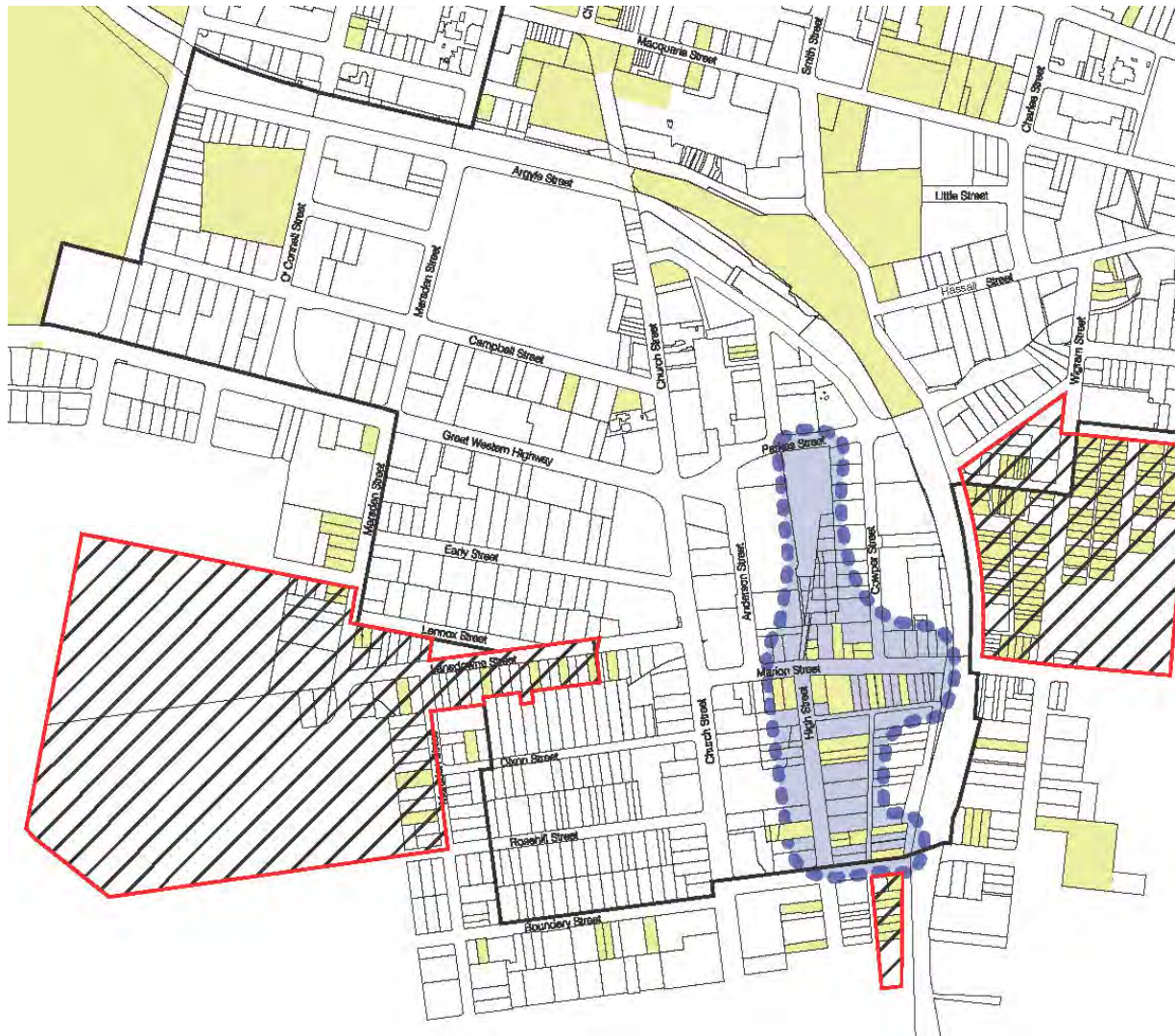


Figure 82: Special Interest Area 12, Marion and High Street Village
(Source: HAA)

An atypical Special Interest Area shape that is based on the intersection of two roads lending a village character to a small pocket of land between a major road and a railway line. It extends out of the Parramatta CBD zone to include the Tottenham Street Heritage Conservation Area.

-  Heritage Conservation Area
-  Special Interest Area
-  Heritage Item
-  Parramatta Planning Proposal CBD Boundary



Figure 83: Marion Street with recent development in Cowper Street behind
(Source: HAA)

a) Boundaries

Centred on High Street and Marion Street, between Parkes Street and an area south of Raymond Street. Runs parallel between Auto Alley and the railway line, including Jubilee Park.

b) Description

A village precinct running parallel and backing onto Auto Alley, comprised of single storey heritage listed houses in the immediate vicinity of multi storey modern development, and 2-3 storey commercial buildings near the railway. An isolated park with adjoining single storey community buildings permits the precinct to extend to Parkes Street.

c) Typology Statement

Village with high street, park, cross street and small allotments. It is comprised of predominately single storey heritage listed houses along Marion Street. The precinct connects Jubilee Park and High Street in a pedestrian corridor that still retains a discernible number of original properties.

d) Current Planning Controls

Current controls have allowed the preservation of this heritage precinct to be compromised. Although not a listed conservation area, Marion Street and a large number of items are individually listed making effectively a conservation area. Existing FSR and heights extend all the way from Church Street to the west, and these should be amended to give this precinct its own character.

e) Heritage Priorities

A number of more recent developments and combining of lots have made major negative impacts on the character of this precinct, particularly around Marion Street, principally through the removal of a credible spatial setting to items. The jump in height and bulk, particularly around Cowper Street, has sometimes been of a different scale, while developments along High Street retain the character of the subdivision.

The Planning Proposal increases the HoB around this area, further exacerbating the potential for clashes in scale. The precinct is under serious threat.

The Heritage priorities for Special Interest Area 12 are:

- Control height and bulk on the western side of High Street
- Preserve an open sky view at the western end of Marion Street
- Preserve the grain of the existing subdivision pattern
- Isolated heritage items at risk of bully arguments to de-list as a result of proposed amalgamations

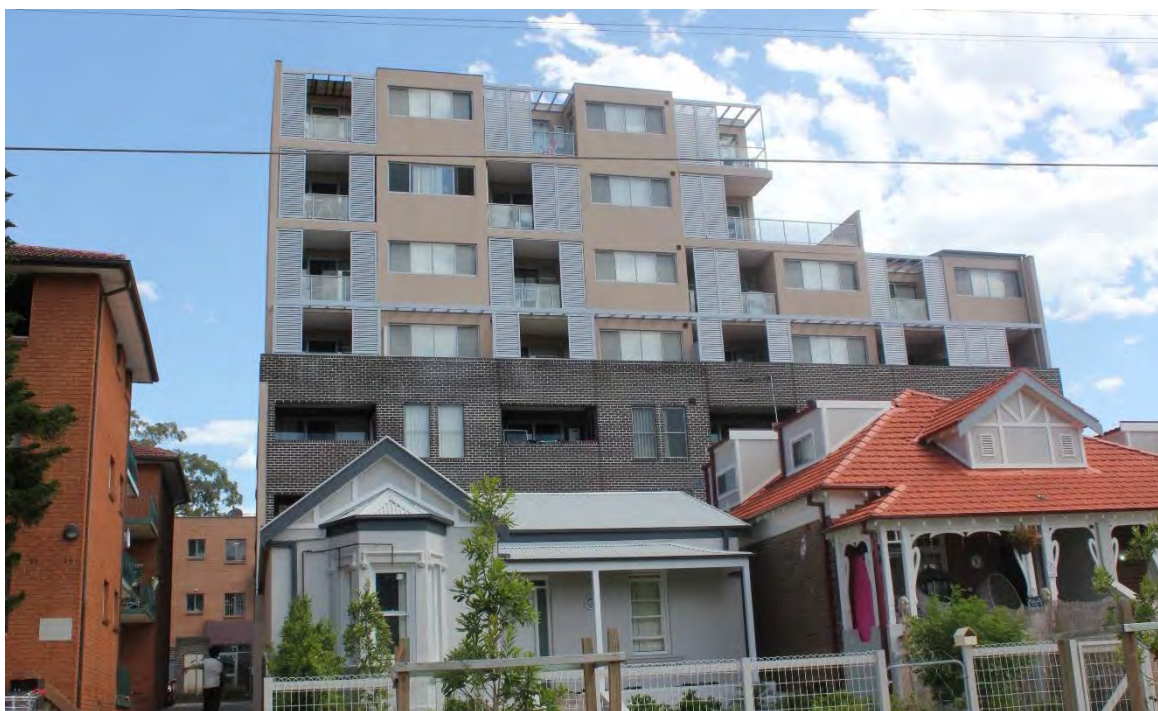


Figure 84: The retention of heritage buildings in Marion Street, but with their original sense of space and order compromised by an overbearing development to the rear (Source: HAA)

f) Impacts on Heritage

Subdivision Patterns and Amalgamation of lots

Amalgamation of lots is an inevitable outcome of the Planning Proposal. These developments threaten the essential grain of the Precinct by eroding the subdivision patterns in the Parramatta CBD area.

While the podium and tower concept arguably reduce the impact on the street and may negate the impact of a new development on an adjacent heritage building, the building of a long, linear podium can have a jarring effect on the sense of rhythm in the street. Proposals along Station Street show podiums that diminish the historic subdivision pattern of the street, and such proposals should be avoided.

The direction in which amalgamations occur will have a dramatic effect on the future urban form. Corner sites play an important role in this precinct, as they connect a busy, ridge road with more suburban side streets. Amalgamation of lots should not “widow” or “sandwich” heritage items, and corner lots should not be “surrounded” as a result of amalgamation.

Amalgamations for a development that result in the isolation of a heritage item should not be permitted. The resultant isolation of a heritage item is not a reason for its de-listing and demolition, but rather the result of a poor proposal that does not properly consider its relationship to its surrounding context and the ability of an amalgamated lot to accommodate development.

Height and Overshadowing

Solar access planes are in place to preserve adequate sunlight to Jubilee Park, however any attempts to increase this should be encouraged as part of any development proposal. The effects of overshadowing of the historic trees in High Street as the result of any development should be investigated.

Development at the intersection of Station and Raymond Streets, as well as the western side of High Street that is of excessive height may have an alienating effect on the adjacent Tottenham Street Conservation Area and surrounding individual heritage items as a result of increased bulk and also overshadowing.

Balanced Streets

A particular concern for a balanced street is High Street. The existing street trees help define the scale and character of this highly unique street in the Parramatta LGA. Any future development should actively seek to relate to the scale of these trees and the existing heritage listed properties. This is achieved by a combination of setbacks and podium levels.

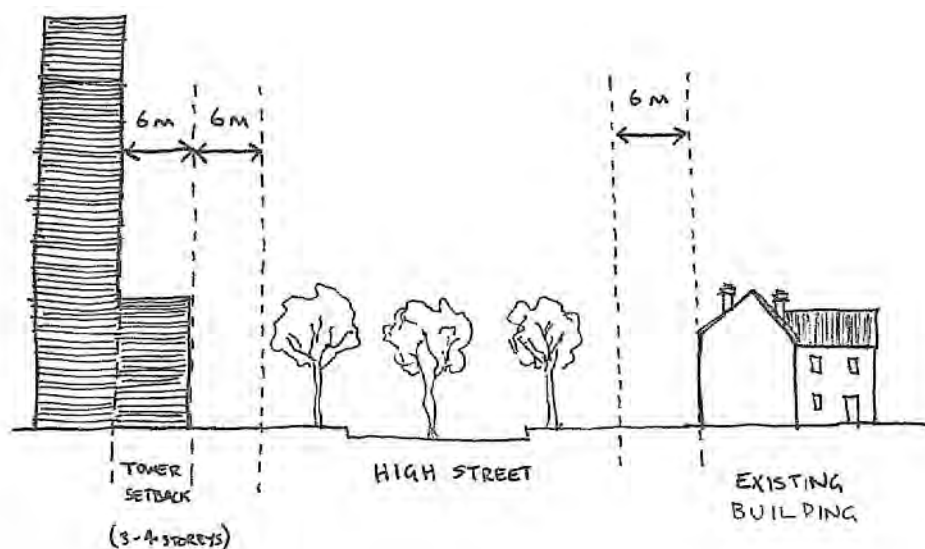


Figure 85: The unique character of High Street with its central avenue of trees must be retained by providing appropriate setbacks, podiums and planting.

(Source: HAA)

Isolation

Heritage items must not become isolated as a result of development in this precinct. A number of heritage items are dispersed along High Street in particular, and new developments must be designed sensitively in a way that links, rather than isolates, these items. Appropriate setbacks and streetfront heights will be critical in this regard.

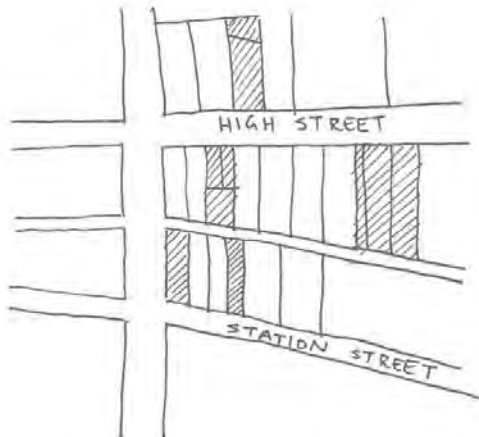


Figure 86: A collection of individual heritage items is at risk of isolation in this precinct.
(Source: HAA)

Alienation

A number of locations for developments that either currently or could have an alienating effect on neighbouring properties or public places exist in this precinct. Jubilee Park, High Street, and Marion Street are all at risk.

Detrimental outcomes could include:

- Overshadowing
- Overlooking
- A sense of “looming” for exceptionally tall properties
- De-activation of streets with the loss of smaller shopfronts
- Abrupt transitions of scale



Figure 87: Apartments overlooking Jubilee Park, but with no connection to the place. (Source: HAA)

Clay Cliff Creek and Jubilee Park

Jubilee Park provides one of the longer remaining stretches of Clay Cliff Creek within the Interface Areas that is publically accessible. This connection to the Creek, and its ability to connect other heritage items make it an important public space with further urban potential.



Figure 88: A 1943 aerial photograph showing Jubilee Park and its bordering of Clay Cliff Creek (Source: SIX View Maps with HAA overlay)

Street Trees in High Street

High Street is unique in the Interface Areas (indeed it appears unique in the Parramatta LGA) as one of very few streets with centrally planted street trees. Buildings should be set back adequately to preserve these trees, which appear as mature specimens in 1943 aerial imagery.



Figure 89: The unique character of High Street with its central avenue of trees

(Source: HAA)



Figure 90: A 1943 aerial photograph showing street trees to High Street, creating an identifiable precinct
(Source: 1943 Aerial Photograph, accessed via SIXMaps)

Special Interest Area 13: Dixon and Rosehill Street Suburban Precinct

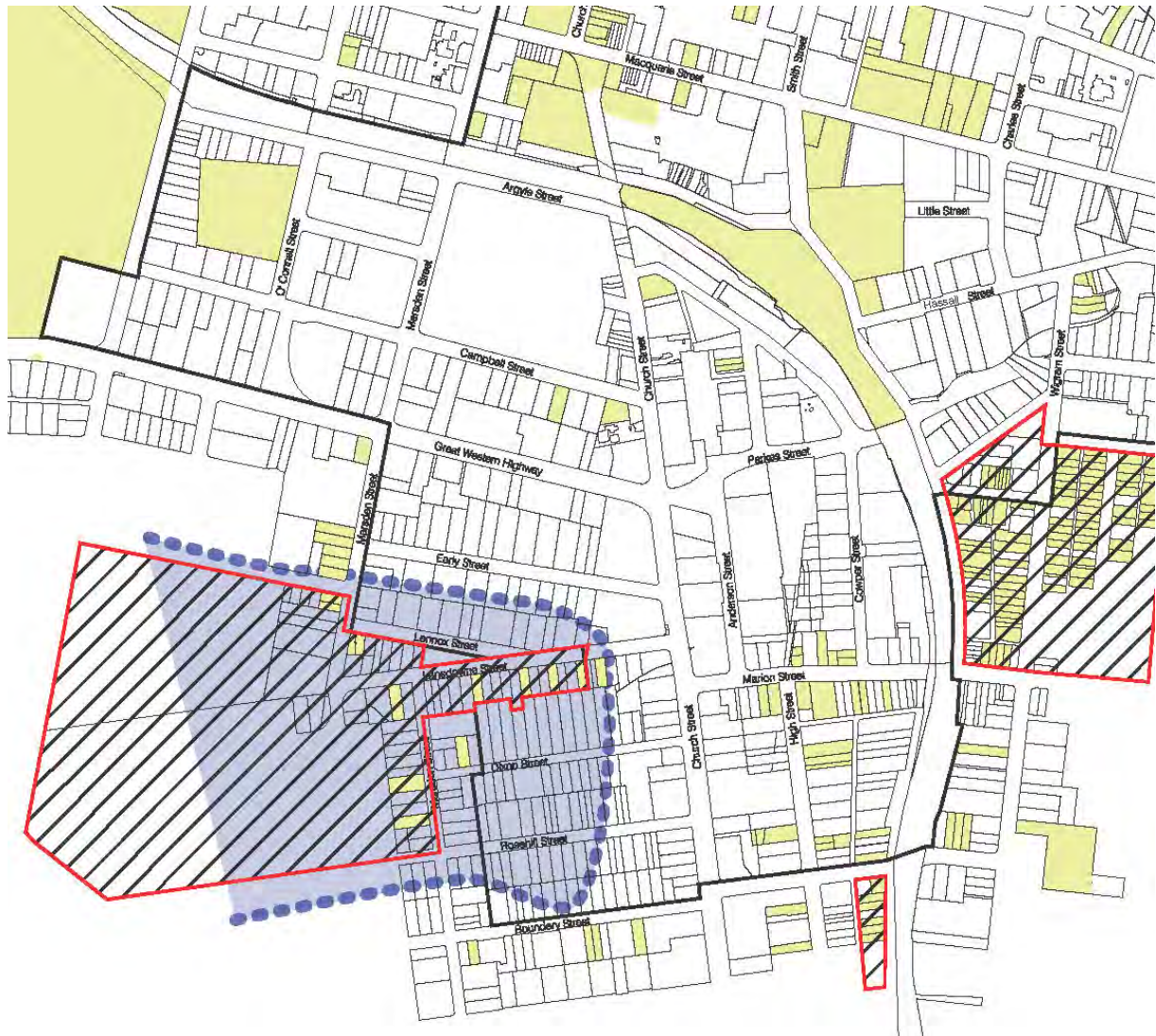


Figure 91: Special Interest Area 13, Dixon and Rosehill Street Suburban Area
(Source: HAA)

A small residential subdivision located between a conservation area and Auto Alley, with visible and important connections to Clay Cliff Creek.

-  Heritage Conservation Area
-  Special Interest Area
-  Heritage Item
-  Parramatta Planning Proposal CBD Boundary



Figure 92: Dixon Street looking east
(Source: HAA)

a) Boundaries

Lansdowne, Dixon, Rosehill and Boundary Streets, including the line of Clay Cliff Creek up to Marsden Street. To the east, the precinct abuts the Auto Alley precinct.

b) Description:

A mixture of cottages, bungalows and more recent construction are broken up by some new 3-4 storey unit blocks. Streets are pedestrian friendly with grass verges, street trees and some distant views towards the Parramatta CBD. This area was the outer suburb of Parramatta, laid out in the 1850s, with access to the new rail link to Sydney. It is a hill side looking north east to the Town of Parramatta. This precinct, particularly the north-western corner, provides an important connection corridor to Ollie Webb Reserve and the line of Clay Cliff Creek and the adjacent conservation area.

c) Typology Statement

The early suburb of Parramatta Town made up of primarily single storey detached residences on small, regular individual lots.

d) Current Planning Controls

A current FSR of 8.0:1 and height limit of 11m have allowed this precinct to be an effective neighbour to the adjacent conservation area. Small three storey developments that maintain the subdivision pattern have been inserted without a drastic impact on neighbouring properties which, although not heritage listed, nonetheless have a dominant single storey typology.

e) Heritage Priorities

In the existing planning scheme, the height of development in this area is 11m that of Auto Alley is 12m. This is to be greatly increased in the proposed scheme, to 40m and 100m respectively. However the relatively low FSR controls proposed suggest that these heights will only be achieved with very significant amalgamation of allotments. The maximum case scenario would yield a large amount of open space.

The reliance on a dominant development control, HoB and FSR in this case makes the assessment of possible heritage impact speculative.

The increased scale of the adjacent Auto Alley is more predictable, it is very likely to yield an avenue of tall buildings uniform in floor plate to suit commercial zoning.

Therefore this precinct becomes more important as a buffer from the Alley to the South Parramatta Conservation Area. The planning controls should be developed to not only create a FSR, but a desired location for the open space.

It may be more predictable to model controls for this area that will yield a buffer successful in the manner of Special Interest Area 12, the buffer to Harris Park West HCA.

f) Impacts on Heritage

Subdivision Patterns and Amalgamation of lots

Historic subdivision patterns are readily discernible within this precinct and are a key feature of its streetscapes. Amalgamation of lots is an inevitable outcome of the Planning Proposal. These developments threaten the essential grain of the Precinct by eroding the subdivision patterns in the Parramatta CBD area.

While the podium and tower concept arguably reduce the impact on the street and may negate the impact of a new development on an adjacent heritage building, the building of a long, linear podium can have a jarring effect on the sense of rhythm in the street. Developments that do not reinforce the existing street pattern in terms of subdivision and setback can have a negative effect on existing heritage properties.

The direction in which amalgamations occur will have a dramatic effect on the future urban form. Corner sites play an important role in this precinct, as they connect a busy road with more suburban side streets. Amalgamation of lots should not “widow” or “sandwich” heritage items, and corner lots should not be “surrounded” as a result of amalgamation.

Height and FSR

Appropriate controls on height and FSR will be of critical importance in this precinct. They are the only means by which an appropriate change of scale can occur between an intact conservation area and a new avenue of high-rise buildings on Church Street. Unlike other Interface Areas of the Parramatta CBD which have evolved over time and seen a gradual process of amalgamation and development, this precinct is at present one homogenous scale and relates directly to the adjacent conservation area in that it primarily still retains its original subdivision patterns and first generation of buildings (single storey houses related to the development of the railway and subsequent private residential estates). Major development along Auto Alley will see tall towers built west of Church Street and south of the Great Western Highway for the first time, effectively extending the Parramatta CBD across what has until this time been its natural boundary. These controls are critical to the prevention of clashes of scale that would result in an “overbearing” presence above existing single storey properties. Incentive heights are to be limited as per the control plan.

Balanced Streets

A key feature of this precinct is the balanced nature of its streets. Key contributions to this include the existing street trees, building setbacks, areas of deep soil landscape both in front of and behind existing buildings, and the height of buildings on both sides. Changes to FSR and HoB plans threaten to disrupt this pattern.

Setbacks

An important element of the precinct is the setback of the buildings from the street. New developments within the precinct have maintained this, although some recent taller developments have actually *increased* the setback from the street and this has a jarring effect upon the place. All future developments should include a deep soil setback to match neighbouring properties. Buildings that are located on a corner site should maintain the existing setbacks to both street elevations.

Alienation

A number of locations for developments that either currently or could have an alienating effect on neighbouring properties or public places exist in this precinct. Detrimental outcomes could include:

- Overshadowing
- Overlooking
- A sense of “looming” for exceptionally tall properties
- De-activation of streets with the loss of smaller shopfronts
- Abrupt transitions of scale

South-West Parramatta Interface - Recommended FSR



South-West Parramatta Interface - Recommended Height



South-West Parramatta Interface - LEP Recommendations

Special Interest Area 11: Auto Alley

- The view west of open sky from Marion Street should be preserved. This would result in amended maximum heights to blocks on Church Street.
- Preserve the similar view (although with a higher possible limit) East from Lansdowne Street. Without a sky view at their respective ends, the heritage character of these streets will be compromised.

Special Interest Area 12: Marion and High Street Village

- Marion Street should be scheduled as a Heritage Conservation Area, and thus incentives should not apply in this zone.
- Preserve the open view of sky at the western end of Marion Street
- Preserve High Street as a residential street. It is unique in the Interface Areas as one of very few streets with centrally planted street trees.

Special Interest Area 13: Dixon and Rosehill Street Suburban Precinct

- Remove the 40m- 80m height limit backing on to a street of houses (in particular the Lansdowne Street conservation area)

South-West Parramatta Interface - DCP Recommendations

Special Interest Area 11: Auto Alley

- Retain the boulevard width in any future development by implementing defined setbacks and to avoid the creation of a “corridor” prior to arrival at the city.
- Modulate building form to prevent creation of a continuous wall of development
- Set back higher levels of buildings adjacent to public space to reduce bulk
- Define active frontages to developments on multiple sides of development

Special Interest Area 12: Marion and High Street Village

- Setbacks of all existing buildings and historic subdivision allotments to be retained and expressed in any development.
- Consider High Street and Jubilee Park as future pedestrian alternative to Auto Alley and scale accordingly.
- Set back buildings adequately to preserve High Street trees, which appear as mature specimens in 1943 aerial imagery. Allow no further intrusions on the dominant setback of the street.
- Allow no overshadowing of house allotments in the precinct.
- Separate adjacent development higher than six storeys so as to not form a wall.
- Preserve a view of the sky, ventilation and sun penetration between buildings as experienced from the precinct.
- Consider the impact of any development in terms of overshadowing and isolation of the Tottenham Street Conservation Area.

Special Interest Area 13: Dixon and Rosehill Street Suburban Precinct

- Prepare specific controls for this area that will yield a buffer successful in the manner of Precinct 8, the buffer to Harris Park West HCA. Retain smaller subdivision lot sizes and avoid combining of lots.
- Give expression to historic subdivision patterns in new development

6.0 Summary Recommendations regarding FSR and Height

The majority of the recommendations relate to FSR and Height. These have been summarised below and in the following two plans:

North Parramatta Interface Area

- Remove FSR and height incentives in Sorrell Street Conservation Area, Catholic Institutional Area (Precinct 3), and All Saints Church heritage items.
- Remove incentives and retain existing FSR and Height at corner of Villiers Street and Victoria Road, in order to prevent overshadowing of Prince Alfred Square and St Patrick's Cathedral, and to retain prominence of Church Street precinct.
- Remove incentives to retain meaningful "open sky" river corridor from Lennox Bridge.

South East Parramatta Interface Area

- Reconfigure boundary of conservation area at intersection of Kendall and Ada Streets to remove listing from demolished area.
- Remove FSR and Height incentives from Ada Street conservation area.
- Change incentive height for important buffer zone between Una, Harris, Parkes and Wigram Streets.
-

South West Parramatta Interface Area

- Remove incentive FSR and Height from Marion Street heritage item cluster.
- Maintain "open sky" at western end of Marion Street and eastern end of Lansdowne Street.
- Reduce incentive height to northern side of Lennox Street, and to other areas as shown to provide adequate transition to Marsden Street.
- Consider impact of tall buildings on High Street, in particular on the centrally planted street trees.

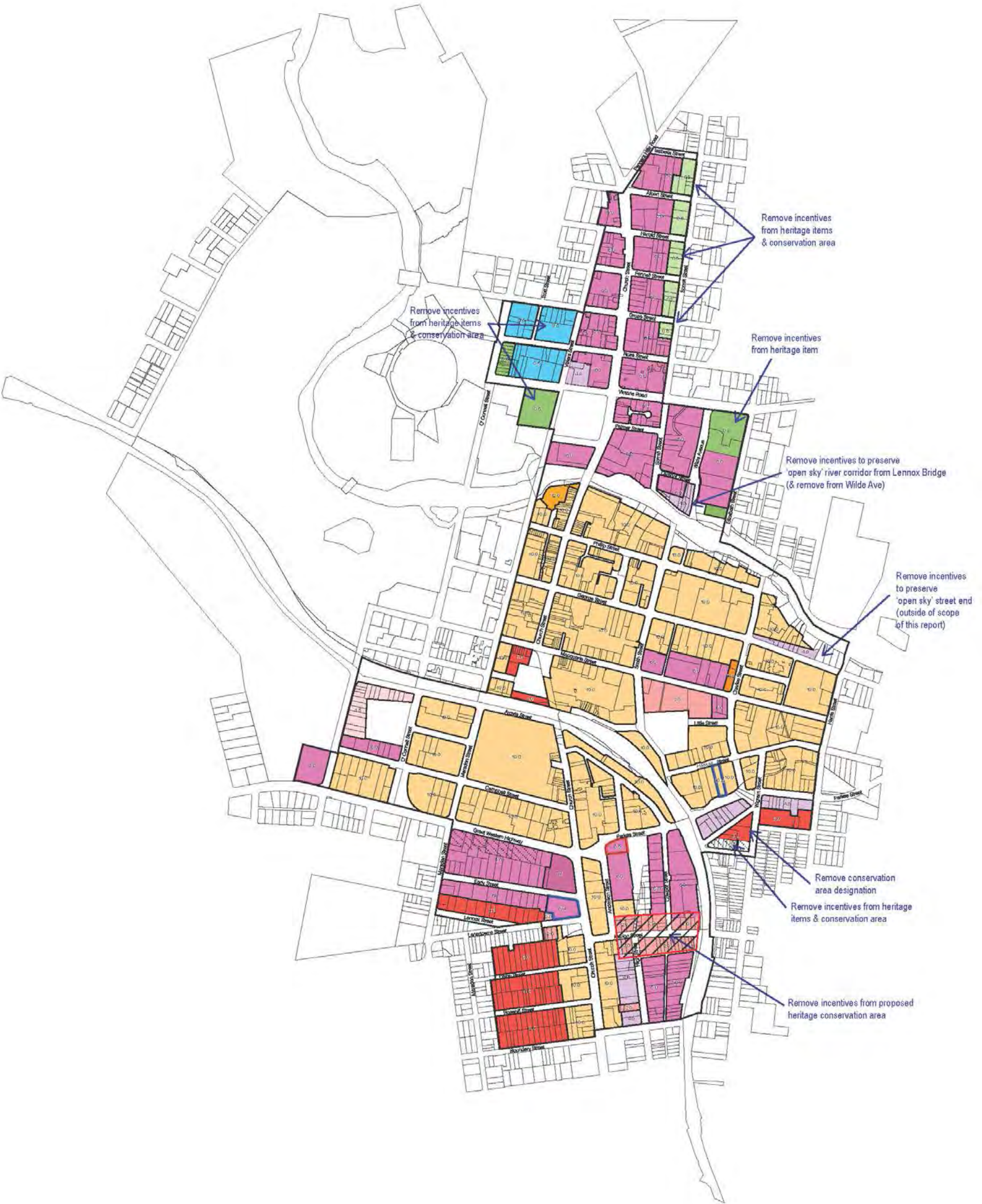


Figure 93: Summary of FSR recommendations
(Source: HAA)

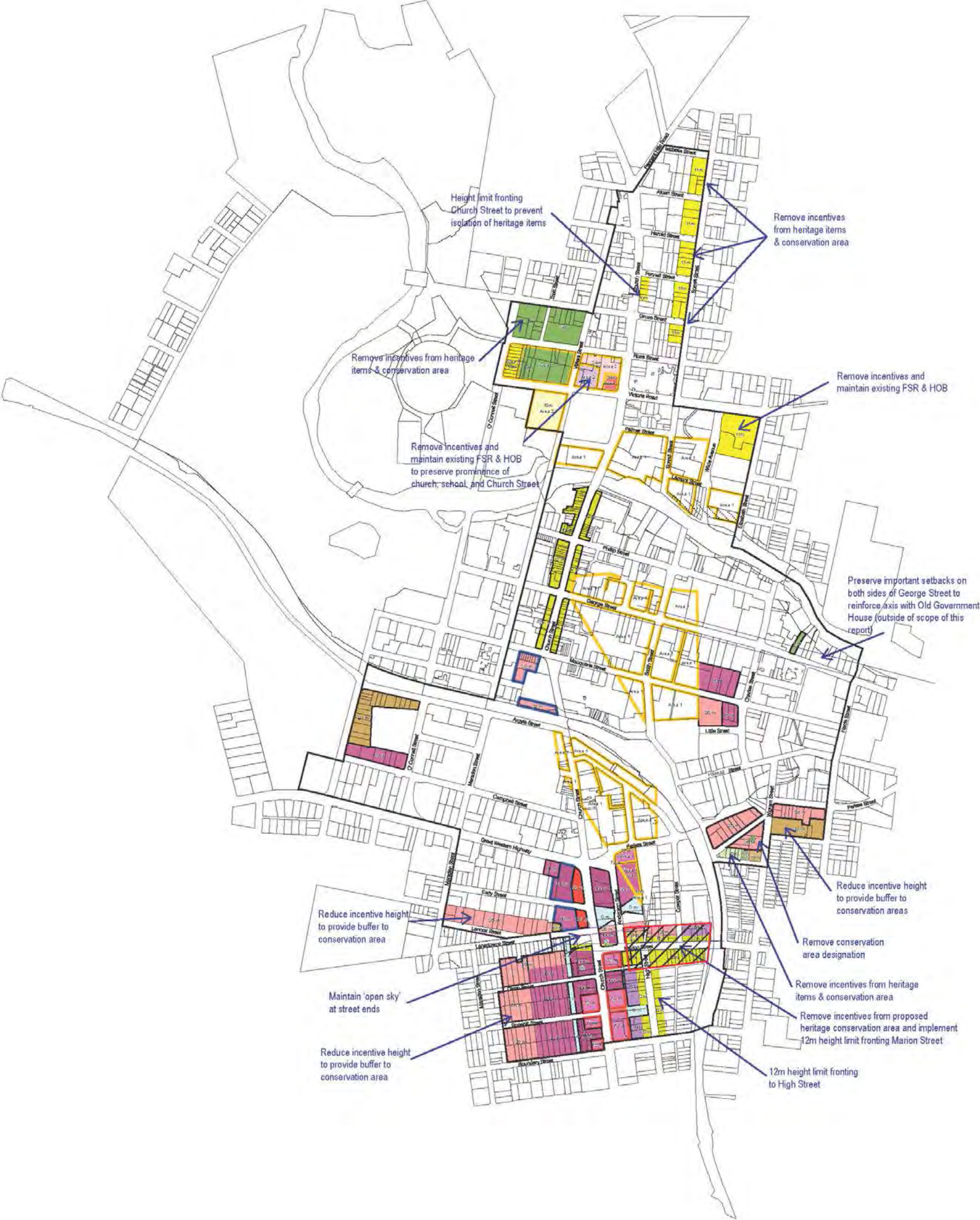


Figure 94: Summary of Height recommendations
(Source: HAA)