PART 2

Applying the concept

Applying the concepts

2.1 Purpose

2.1.1 Purpose of Part 2

The purpose of this Part of the Guide is to assist practitioners in determining how to proceed in different situations.
Information will be provided on:

- the importance of the local context;
- general strategies for sharing the Main Street;
- the key factors which influence how the strategies are carried through in planning and design;
- how to use the Guide depending on these factors; and
- what kind of information may be needed and why.

2.1.2 Constraints and opportunities

Once objectives have been determined, strategies can be developed for achieving them. However, there usually are constraints and opportunities which influence the approach, process and time frame for environmental adaptation.

Each centre has constraints and opportunities arising from its unique location, development history and character. The built environment is the outcome of cumulative public and private investment, generally expended over a long period of time. Much of this investment is above ground and visible, but there is often also a considerable investment below ground.

Adaptation of the built environment requires resources and time, and involves both the public and private sector. A Sharing the Main Street project has a primary focus on actions in the public realm, but can be a stimulus for the private sector. Reconstruction of the Main Street itself can be undertaken within a few years, but adaptation of development and activities along the frontage has generally a much longer time frame. Yet it is important to consider adaptation of the Main Street and the frontage as an integrated project. Hence there is a need to include a framework for the type and form of future development along the frontage as part of the project.

2.1.3 Local factors

It is within this unique local context of constraints and opportunities, that there are local factors that influence how environmental adaptation should be approached in a specific situation. They are examined in this Part and determine:

- whether there is a need for area-wide or strategic planning first (Part 3: Planning);
- whether there are limits in the application of design and control measures (Part 4: Design); and
- how the project is to be assessed and evaluated (Part 5: Assessment and Evaluation).

Fig. 2.1 Where there is a significant traffic function, there is a prime facie case for a strategic approach before proceeding with design

2.2 Strategies

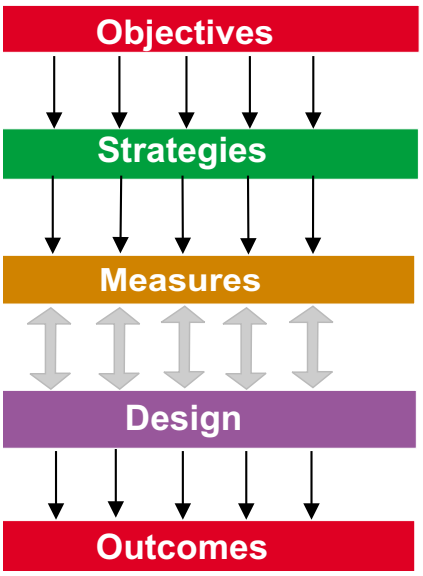


Fig. 2.2 Objectives and outcomes

2.2.1 Strategies derived from objectives

The objectives can be achieved through the selective application of measures (see Appendix A). However, there is a need to first define a set of strategies so that there is a clear link between the use of incidental measures and the expected outcome.

The following strategies are presented as illustrations.

2.2.2 Strategies for reducing the conflict between pedestrians and vehicles

- identification of a core zone where pedestrian activities are not exposed to high vehicle speeds;
- identification of a transition zone where vehicle speeds are reduced;
- introduction of a speed profile related to the type of zone; and
- introduction of an activity profile with a concentration of pedestrian-oriented frontage activities in the core zone and vehicle-oriented frontage activities in the transition zone.

The kinds of measure which may be considered include: those which, through managed friction, influence driver behaviour; measures which, over time, limit the extent of pedestrian concentration to the core zone; on-street parking; and other traffic management tools.

2.2.3 Strategies for reducing the impact of traffic on frontage activities

- facilitating pedestrian crossing;
- facilitating parking within close proximity of retail outlets and personal service establishments;
- providing access for service vehicles;
- reducing traffic noise on the footpath;
- reducing fumes on the footpath; and
- providing for special needs (e.g. taxis, cyclists, aged and people with impairment).

Appropriate measures include: measures to control vehicle speed, traffic volume and composition; separation of the traffic stream from footpaths; the location and design of crossing facilities; narrowing of carriageway; provision of median; provision, type and duration of parking; facilities for taxis, safe shared conditions for cyclists, bicycle parking and access for the physically impaired; and frontage development control.

There will different views on where parking is to be located. By locating parking at the rear of buildings, the streetscape is enhanced, but many retailers claim that their viability depends on parking in front.

2.2.4 Strategies for improving the quality of the environment

- streetscape design to reflect different friction/impact conditions of sections of the Main Street or sub-arterial road;
- enhance business opportunities;
- providing continuity in pedestrian circulation;
- providing continuity in weather protection;
- bus stops provided with shelters

- footpaths designed for a range of uses;
- creating spaces and places for social interaction and events; and
- preserving heritage and enhancing townscape qualities.

The kind of measures which may be considered include: selective side street closure; widening the footpath in the core; provision of arcades, awnings and verandahs in the core; street trees, landscaping street furniture and building lines to reinforce the desired character of the Main Street or sub-arterial road; physical and visual measures to separate pedestrians on footpath from vehicles; street lighting for pedestrian security and safety and for perception of amenity in the core; and implementation of the NSW Department of State and Regional Development Main Street Program.

2.2.5 Strategy for facilitating circulation consistent with previous objectives

- ensure that there is adequate provision for different circulation needs, irrespective of the changes introduced to satisfy the previous objectives.

This can be addressed during the planning stage (Part 3), the assessment stage (Part 5) or both.

2.2.6 Strategies for implementing an acceptable and affordable scheme:

- a process designed to ensure that there is proper understanding of the options and implications; and
- an acceptance of the preferred scheme, including the costs of implementation.

Implementation of these strategies requires adequate investigation of alternatives including staging and low-cost approaches.

2.3 Key factors

2.3.1 Factors to be considered

Type II road/environments come in a variety of forms. There are road/environments where the respective functions vary during the day or week, such as heavy through traffic during peak hour and mainly local traffic during the rest of the day. There are some with major shopping strings along the frontage, and others which are small and mainly provide a local function. There are many combinations of traffic and frontage activity functions along roads with different widths (Figure. 2.3).

The constraints and opportunities for environmental adaptation in a specific context depend, to a large extent, on the nature of the local traffic and activity functions, the characteristics of the road space and the development along its frontage. The key factors which influence the planning and design for environmental adaptation are:

- Changes in function
- Vehicle speed
- Vehicle flow
- Through traffic
- Heavy vehicles
- Bus stops
- Frontage activity
- Pedestrian behaviour
- Cyclist needs
- Needs of people with impairment

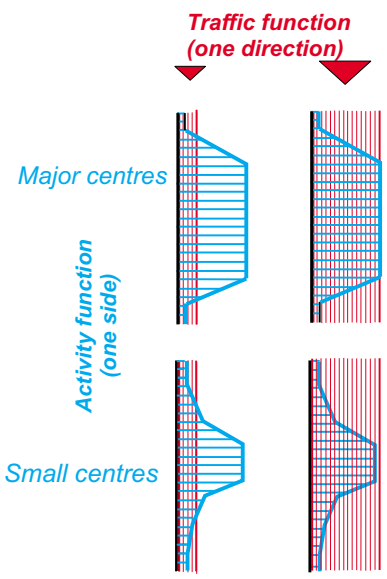


Fig. 2.3 There are many combinations of traffic and frontage functions .

- Road reservation width
- Physical characteristics
- Business activity
- Parking provision
- Streetscape character and visual heritage
- Type of project

Local conditions in relation to these factors determine whether there is a need for an area-wide planning study first in order to discover which planning parameters are relevant. They also provide an indication of the constraints in the design for environmental adaptation.

While some factors can be considered in isolation, there are others which are closely linked and must be considered together (e.g. traffic flow and road reservation width). Some of these relationships are further considered in Parts 3 and 4.

2.3.2 Changes in function

The Main Street is usually the dominant centre, serving local as well as regional needs. Centres along sub-arterial roads can vary widely in function and are susceptible to shifts in the economics of shopping centre development in urban areas (Figure 2.4).

- Area-wide planning studies for all but local centres along sub-arterial roads may be required to ascertain whether any likely changes in the hierarchy of centres in future could affect the planning for environmental adaptation (Part 3).

For example, in Taree, the development of major shopping mall away from the Main Street led to a major shift in shopping patterns, parking and pedestrian movements and this influenced the approach to adaptation (Part 3, Figure 3.4).

There may also be proposals to change the function of the road (such as a by-pass). Area-wide planning studies are then needed before design options are considered.

At The Entrance, the establishment of a by-pass route created the opportunity for a pedestrian mall and a shared zone on the previous through route.. In Taree, the construction of the Pacific Highway bypass made it possible to reduce the carriageway from 4 to 2 lanes, increase the pedestrian space by 70 per cent and marginally increase the number of on-street parking spaces.

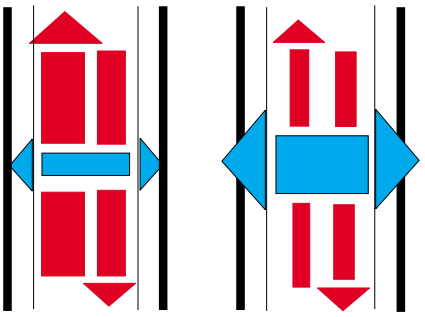


Fig. 2.3 Changes in function during the day, week, or year.

2.3.3 Vehicle speed

Vehicle speed is a critical factor in environmental adaptation and it is important to define it. A distinction can be made between target speed, operating speed, and design speed.

The ***target speed*** prescribes the degree of physical restraint on vehicle operation which is imposed in the design. It is the speed aimed at in (or adopted as the upper limit for) the design, and is usually expressed in terms of the 85th percentile, i.e. the speed which no more than 15 per cent of the vehicles are expected to exceed.

The ***operating speed*** (sometimes called the 'street speed') describes the actual speeds observed in the street. The 85th percentile operating speed is that speed exceeded at any point in the street by no more than 15 per cent of vehicles. The maximum operating speed should not be greater than the design speed for safe operation.

The ***design speed*** is the speed adopted for the fixing of geometric features or characteristics of a street or carriageway element for safety purposes, and thus reflects the sight distances and alignment characteristics which are built into the design. It must be greater than the

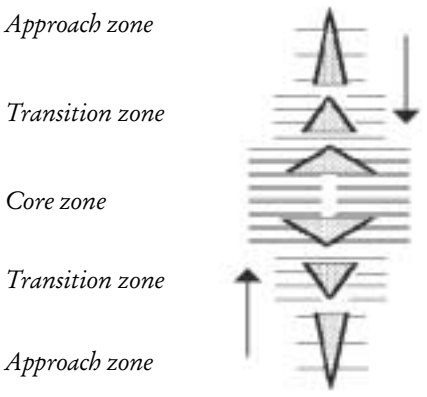


Fig. 2.5 Angle field of vision and vehicle speed. Target speed must be linked with the need to get driver attention and response to changed conditions in the road space.

maximum operating speed for safe operation.

In this Guide *the target speed* is the speed used for environmental adaptation.

- The target speed should be compatible with the frontage function of the zone, rather than the legal speed limit which may be excessive for the circumstances.

The target speed in the core zone may range between 25 and 35 km/h. Where there is no median, a target speed at the lower end of the range should be used; where there is a median and the carriageway to be crossed by pedestrians does not exceed two lanes, a target speed towards the higher end of the range may be used.

2.3.4 Vehicle flow

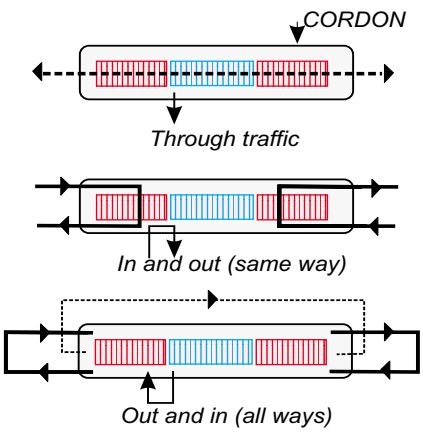


Fig 2.6 The cordon should be established outside the transition zone. Traffic volumes should be measured at points where the road crosses the cordon.

Vehicle movements in the centre may be through traffic (Section 2.3.5), traffic entering and leaving through the same route, and traffic leaving the centre and returning along the same or another route.

Measuring vehicle flow in the core may not provide an accurate picture. Hence vehicle flow should be measured at cordon points close to the centre but outside the transition zones (Fig. 2.6). Information should be obtained for daily and peak hour vehicle flow and at different times of the year.

- If significant variations occur during the year (e.g. tourist season), planning studies may be necessary (see Part 3).
- If there are significant peak hour flows during the day there may be design constraints (see Part 4).
- If total traffic volumes exceed 12000 vehicles per day, the road performs a major traffic function and there is a need for an area-wide investigation about its future role (Part 3).

With traffic volumes of this magnitude, there is a need for a clear picture of the nature of the traffic. The pedestrian environment may be impaired by traffic noise on the footpath and difficulties in crossing the road.

The scope for adaptation is greatly influenced by the number of lanes required for moving vehicles. Volumes of 12000 vpd can usually be accommodated in two lanes (one in each direction). In some highly urbanised areas, volumes as high as 16000 vpd have been managed with two lanes (eg Beamish Street, Campsie and Marrickville Road, Marrickville).

- If peak traffic volumes exceed 1000 vehicles per hour (two directions), the range of design and control measures to be used may be constrained (Part 4)

With a road reservation of about 20 metres, an active frontage with many crossing pedestrians, and high peak traffic volumes, a set of conditions exist which limit the range of measures that can be used. If peak hour traffic volumes exceed 1000 vehicles per hour, there is a significant transport function competing with other road users for the available road space. In confined road reservations, the scope for improving the pedestrian environment is limited and efforts should be made to develop arcades off the Main Street or sub-arterial.

- Alternatively, consideration may be given to placing a cap on traffic volumes - that is, defining the environmental capacity of a route.

This may occur where there is a high level of conflict and priority must be given to pedestrian safety and the quality of the environment. In the event of such a trade-off, alternative transport routes must be provided as part of the project.

Fig. 2.7 Sub-arterial with 2 lanes, carrying 16,000 vpd (Campsie).

- With traffic volumes less than 3000 vehicles per day, there is no need to consider Part 3 of the Guidelines.

With traffic volumes of that order, area-wide planning studies should generally not be necessary and low-cost solutions may be practicable.

2.3.5 Through traffic

Through traffic is defined in the Guide as 'non-stopping through traffic other than at intersections or pedestrian crossings' . Where there is a high amount of through traffic, delay becomes an issue. The amount or proportion of through traffic and how they vary during the day are, therefore, significant factors in environmental adaptation.

- Where there is a high proportion of through traffic, there may be a need for an area-wide planning study of alternative through traffic routes (see Part 3).

Case studies suggest that there is a need for further study when the proportion of through traffic exceeds 25 per cent on the Main Street and 50 per cent on a sub-arterial road. However, there is insufficient research to support generally applicable guidelines on the relationship between the amount or proportion of through traffic and the scope for environmental adaptation.

Variations in the proportion of through traffic may influence the type of measures selected. In many large rural towns, the proportion of through traffic during business hours is likely to be small (ranging between 10-20 per cent), but on many sub-arterial roads the variations during the day are much greater as they often carry heavy through traffic during peak hours.

- On roads where there are major changes in the traffic function during the day, peak hour flows constrain the range of measures and design to be used (see Part 4).

One way to manage variations in function and flows is to vary the settings of traffic signals at intersections and pedestrian crossings. During the peak periods priority is given to vehicles; during off-peak periods priority is given to pedestrians. Another way is to vary on-street parking conditions.

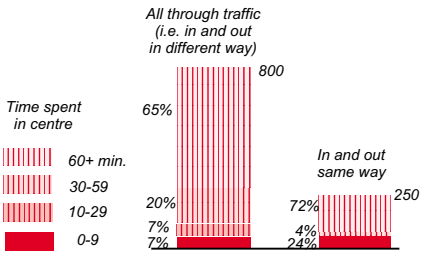


Fig 2.8 An example of the results of a number plate survey. A number plate survey at the cordon points enables non-stopping through traffic to be determined. It also provides information on non-stopping heavy vehicles.

Vehicles taking less than 10 minutes to travel through the centre are assumed to represent non-stopping through traffic.

2.3.6 Heavy vehicles

Heavy vehicles (including buses) in the traffic stream can have a major impact on the pedestrian environment, but measures to reduce this impact may affect the performance of such vehicles.

- There is a need for an area-wide planning study of alternative truck routes if the number of heavy vehicles exceeds 60 during the pedestrian peak hour (see Part 3).

The incidence of heavy vehicles can be expressed in the percentage of total traffic or in the number per hour. Case studies of sub-arterials and Main Streets showed significant variations in the proportion of heavy vehicles during the day, ranging from 1.5 per cent for local deliveries to 15 per cent for through routes (Westerman et al., 1989). The total number observed during peak pedestrian periods was 60 per hour which, under controlled conditions, did not appear to affect pedestrians crossing adversely.

However, this finding is based on limited evidence and should not be regarded as conclusive. There may be a similar need for an area-wide study if the number is less than 60. Heavy vehicles always are part of the traffic stream on traffic routes, but it is difficult to determine what is an acceptable level of heavy vehicle movements in centres with many crossing pedestrians. In situations where

Fig. 2.9 A high proportion of heavy vehicles limits the options.

there are significant numbers of heavy vehicles, a study of alternatives should be made.

- In some rural towns, there may be a greater proportion or a larger number of heavy vehicles at night than during business hours. This may influence the type of measures to be used and the design of a project (Part 4).

Visibility at night, when there are no pedestrians and parked vehicles to influence driver behaviour, is of critical importance.

- Towns with tourist functions may have special needs arising from the towing of caravans and the presence of large numbers of tourist coaches. These needs should be recognised and accommodated.

2.3.7 Bus stops

The location of bus stops constrains the options available in the design of adaptation. A kerbside location limits parking in the vicinity to parallel parking. This can influence the entire layout of the scheme.

In Main Streets or other Type II corridors, where bus stops are located and the constraint of parallel parking is too limiting, alternative locations of bus stops should be explored only after examining the implications for the routing of bus services on both operators and passengers. Bus stops need to be convenient to activities in the Main Street and clearly signposted

2.3.8 Frontage activity

A distinction can be made between active frontage and secondary frontage. ***Active frontage*** is defined as frontage with a preponderance of pedestrian-oriented and concentrated activities; ***secondary frontage*** is described as low-order retailing with incidental or dispersed pedestrian-oriented activities.

Roads and streets with secondary or dispersed pedestrian activity are more hazardous for pedestrians. Concentration of pedestrian activity combined with speed reduction measures provides a safer environment than the dispersal of pedestrian activity.

The frontage activity in the Main Street or sub-arterial centre is measured by the number of pedestrians on the footpath. The pedestrian activity varies during the day and the week and is observed during the pedestrian peak hour at a normal weekday. Information on pedestrian activity is presented as the number of pedestrians on both sides of the road/street per 100 metres of length.

Research shows that streets with a total of at least 380 pedestrians per hour (on both sides of the street) during peak periods of pedestrian activity have a healthy pedestrian environment irrespective of the width of the street.

Fig 2.10 Active pedestrian frontage, combined with heavy traffic, brings the issue of priorities into sharp focus.

Fig 2.11 Frontage activity is measured by the number of pedestrians on the footpath.

The length of active frontage is important in environmental adaptation as, together with other factors, it influences the selection of measures to be used. The active frontage in many rural centres is small (e.g. less than 400 metres) and there may be simple solutions for problems that have been identified.

- Where a centre has an activity frontage exceeding 800 metres and/or active side streets, there is a *prima facie* case for an area-wide planning study before design options can be developed (see Part 3).

This should not interpreted as meaning that there is no need to consider a wider area in other situations. Even with smaller centres, it is advisable to consider the area adjoining the Main Street or sub-arterial.

Pedestrian activity can vary during the year, especially if the town or the region are tourist destinations. In that case it is desirable to also ascertain the pedestrian activity at peak tourist periods.

- Where there are proposals for major pedestrian generating activities nearby, a planning study should be undertaken first (see Part 3).

2.3.9 Pedestrian behaviour

Pedestrians have limited tolerance to delay and when there is a gap in the traffic stream will tend to jaywalk. There is little risk if traffic volumes and vehicle speeds are low, the crossing distance of traffic lanes is small and there is good visibility. This situation can occur when speeds are less than 35 km/h, there are gaps in the traffic stream and total traffic volumes (both directions) are less than about 550 per hour.

However when traffic volumes are greater and the gaps are small, some jaywalkers become jay-runners. This also occurs with increased crossing distance and vehicle speeds exceeding 40 km/h. Jayrunning is a useful indicator of potential risk. From observation, it appears that a situation of potential risk exists if the proportion of jay-running out of all jaywalkers exceeds about 5 per cent.

- In situations where the proportion of jay-running exceeds about 5 per cent, or there is a history of pedestrian/ vehicle accidents, there is a need for detailed information on the causes before developing design proposals.

2.3.10 Cyclist needs

Cyclists need separate space when vehicle volumes and speeds are high. The latter condition does not apply in the core zone and the road space can generally be shared. However, this may not be the case in the transition zone and a separate cycleway may be needed.

There are other cyclist needs related to vehicle parking, turning movements, surface treatment, intersection design and bicycle storage. These needs will be reviewed in Part 4.

2.3.11 Needs of people with impairment

There are several types of impairment: people with disabilities of hearing, vision, ambulatory and intellectual impairment. Their needs are not identical.

Access routes, crossings, footpath widths and gradients, ramps, lighting, tactile and audible features should all be considered as an integrated system.

Clear zones of 1800mm width are needed adjacent to buildings on footpaths and street furniture and pavement activities should not encroach into this zone.

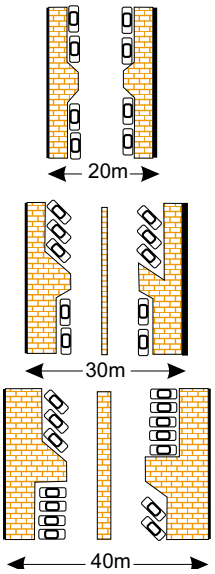


Fig 2.12 The width of the road/street reservation has a major influence on the scope for, and form of, environmental adaptation.

Crossings are of special importance (see Section 1.2.5). Vision impaired pedestrians do not tend to jaywalk and require marked crossings.

2.3.12 Road reservation width

Typical widths are 20, 30 and 40 metres (1, 1.5 and 2 chains). The majority of country towns have Main Streets between 20 and 40 metres width, whereas most sub-arterial roads range between 20 and 30 metres in width. With a narrow road reservation width and a heavy traffic function, fewer options for environmental adaptation are available, but with a wide road reservation and a light traffic function, there are numerous possibilities (for details, see FORS, 1992).

- The road reservation width greatly influences the scope for modification Figure 2.13.

2.3.13 Physical characteristics

Apart from the reservation width, factors which will influence the scope for environmental adaptation include: existing carriageway width, location and construction (because major reconstruction is costly); footpath width, design and construction; median; gradient and crossfall; location and design of public utilities and drainage; street lighting; parking location, type and management; and designated pedestrian crossings.

- For projects involving reconstruction of the road space, there are more exacting information requirements than for projects relying on the application of control measures. A major cost factor is the location of underground services and drainage.

2.3.14 Business activity

In 1989, the NSW Department of Planning (Department of Urban Affairs and Planning, NSW) launched the Main Street Program. The program is now managed by the NSW Department of State and Regional Development and has been renamed the Main Street/Small Towns Program (see Introduction).

The purpose of the program is to encourage local communities to improve the overall quality of the Main Street and sub-arterial centres and revitalise the business activities in them.

It is driven by the local community and the program's success depends upon active partnership between local businesses, the Council and the community. The program proposes a comprehensive approach to community consultation and participation. The Department acts as a catalyst and provides advice.

Fig. 2.13 Many factors determine the end result. In Tamworth , rerouting of traffic and a 30m road reservation created opportunities for adaptation.

- The Main Street/Small Towns Program should be an integral part of any comprehensive approach to the problems in the Main Street and to centres along sub-arterial roads.

2.3.15 Parking provision

Adaptation inevitably involves changes in the redistribution of parking spaces. Parking is of critical importance for businesses operating in the Main Street or sub-arterial road.

- Where there is, or likely to be, an under-provision in parking, parallel actions to increase supply nearby may be necessary.

For example, in Wagga Wagga, the Main Street adaptation was not supported by the business community unless additional parking nearby was provided (Fig. 2.17). This has since been done.

2.3.16 Streetscape character

The Main Street in country towns is a major element in our heritage; it is a distinctly Australian vernacular space suited for different needs (Fig. 2.14).

With its linear character, unique proportions, and its verandahs (or awnings and trees), the Main Street is a successful model of a robust environment which serves as a common setting for both pedestrians and vehicles. The set of linked spaces, with active edges, strong light and shade effects and often varied roofline, provides a clear and meaningful expression of the climate, people and their lifestyle.

Sub-arterial centres generally do not display such character, although often there are buildings and spaces worth preserving.

- Environmental adaptation should enhance the character and heritage of the centre (Part 4).

2-14 The existing character should be enhanced.

2.3.17 Type of Project

If a project is a demonstration project, there is a need to ensure that the experience gained will be of benefit in other projects. This influences the approach towards data collection and interpretation both before and after completion of the project. For demonstration projects, there is a need obtain sufficient information before and after completion (see Part 5 and Appendix B).

2.4 How to use the Guide

2.4.1 How the key factors fit into the process

The key factors are summarised in Table 2-1. The Table shows at what point in the process they should be considered. The Table should be regarded as indicative; many factors can not be considered in isolation and judgements must be made in each individual case.

2.4.2 How the set up a process in a specific context

The generic process described in Part 1 should be adapted to the conditions which apply in a specific situation. In many cases, there is a need for a strategic planning stage during which planning options are explored. This is followed by a design concept stage where options are again developed and assessed. The final stage is the consideration of detailed design options (typically including matters such as street furniture, and paving materials).

As choices have to be made at each stage before proceeding to the next, the process should be designed around a stakeholder participation process with progressive collection and presentation of relevant information at each stage. The process in Taree (NSW) is illustrated in Figure 2.15.

2.5.1 Information needs depend on context and purpose

Certain information is essential in any project of environmental adaptation: accidents, vehicle speed, traffic volumes and composition, pedestrian and cyclist movements, frontage activity, parking and the characteristics of the road space.

Information needs vary greatly and it is not practicable to identify all the information that may be required. For small projects, the process can be relatively simple and results can be achieved quickly, but in large projects or those involving reconstruction of the road space, more detailed investigation will be required.

Information needs also vary with each stage of the process. The level of accuracy for a strategic component is lower than the level required for engineering design.

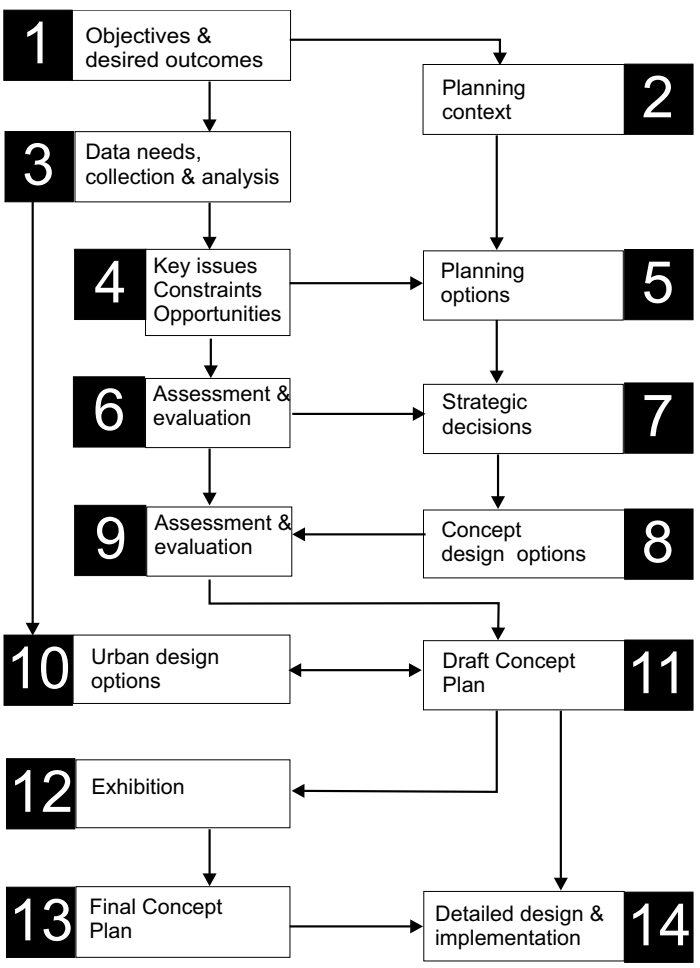


Fig 2.15 Typical planning and design process.

If the project is a demonstration project, the information is to serve three purposes:

- to provide a clear insight into the problem areas;
- to establish the database for generating and assessing options; and
- to enable comparison of the situation before and after a proposal has been implemented.

If the project is not a demonstration project the before and after comparison may not be critical, but it may still be useful to obtain information to ascertain whether the objectives of the project have been achieved.

The specific information to be obtained in a particular case depends on the problem to be addressed, the objectives to be achieved, the design approach and the criteria used for assessing alternative solutions. The use of performance criteria is relevant here.

2.5.2 Performance Indicators

Performance indicators can be used to discover how the current system performs (i.e. problem identification; see, for example, Table 2-1) and to assess whether a proposal or a completed project achieves the desired outcome. Performance indicators, in this context, are not specifications of required performance.

An example of a performance indicator is vehicle speed. It must be measured in the core and transition zones to determine driver behaviour at times when there may be a conflict with pedestrians crossing. The vehicle speed must be measured both before a project is commenced (i.e. the 'base case') and after measures have been introduced to achieve a particular speed profile.

Data collection can be costly and should be limited to essential information. It is

important, therefore, to be clear what performance indicators will be relevant before a feasibility study is undertaken or a project is conceived.

For example, data collection will depend on whether changes are to be assessed in:

- the speed profile and the activity profile
- through traffic volume and the proportion of heavy vehicles (if alternative routes are present)
- travel time for through vehicles
- delay to pedestrians
- impediments to cyclists
- parking provision and turn-over
- public transport operation
- risk of accidents and their severity
- traffic noise exposure
- quality of the pedestrian environment.

Part 5: Assessment and Evaluation provides details on a range of performance indicators and the information needed for comparing proposals and projects before and after completion.

Table 2-1 Example of the data which may be used as indicators for describing the existing system*

Physical characteristics		**Pedestrian activity**	
Reservation	30 metres	Peak hour pedestrians	12.30 - 13.30
Carriageway	24 metres	Pedestrians crossing in pedestrian peak hour	
Lanes	2x3.5 metres	in core	600
Footpaths	3 metres	jaywalkers	250
		jayrunners	10%
Frontage Activity	average length	Vehicle peak hour	17.00 - 18.00
Pedestrian-oriented		Pedestrians crossing in vehicle peak hour	
Intensive	500 m	in core	240
Low	150 m	jaywalkers	102
Vehicle-oriented	300 m	jayrunners	12.00%
Vehicle & ped. Oriented	100 m		
Vehicular access	from rear	**Traffic and parking**	
Post Office	in core	On-street parking spaces	62
		Off-street parking within 100m	320
Vehicle activity		Off-street parking within 200m	598
AADT	4000		
Traffic volumes at vehicle peak hour 16.45 - 17.45	620	**Vehicle Speed (km/h)**	core approach
Traffic volumes at pedestrian peak hour 12.30 - 13.30	400	V average	25 50
		V85	30 55
Heavy vehicles	5%	Vmax	60 80
Proportion of through traffic			
all day	25%	**Safety (accidents)**	3year av
vehicle peak hour	50%	Pedestrian/vehicle	8
pedestrian peak hour	15%	Vehicle/vehicle	12

* The data shown apply to existing conditions in a case study and will vary with each project

2.5.3 Information checklist

Information may be required on the following:

Physical characteristics

- Road/street pattern in the study areas
- Reservation width
- Cross-sections and longitudinal section
- Intersections and treatment
- Property boundaries
- Driveways and vehicular access
- Building line and setbacks
- Underground services

Frontage function

- Pedestrian, vehicle-oriented and mixed pedestrian/vehicle uses activities
- Major pedestrian traffic generators
- Active and secondary frontage
- Major vehicle traffic generators
- Vehicular site access and laneways
- Existing zoning and development conditions
- Identification of any development proposals within the study area

Pedestrian and cyclist activity

- Pedestrians on footpaths (midblock, crossing imaginary line)
- Activity profile
- Pedestrians crossing at designated facility, location, time
- Jaywalking numbers, location by street block, time
- Jay-runners numbers, location by street block and time
- Cyclist movements at intersections

Traffic function

- Traffic volumes (daily and peak hour at cordon points); additional information should be obtained if significant variations occur during the year (e.g. tourist season)
- Traffic composition (including the proportion of heavy vehicles)

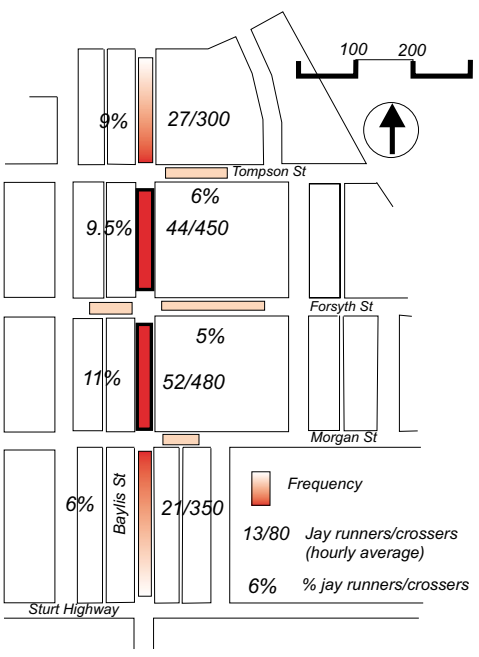


Figure 2-16 Jay running/crossing (midday). When the ratio exceeds 10%, alarm bells should start to ring (Wagga Wagga City Council, 1997).

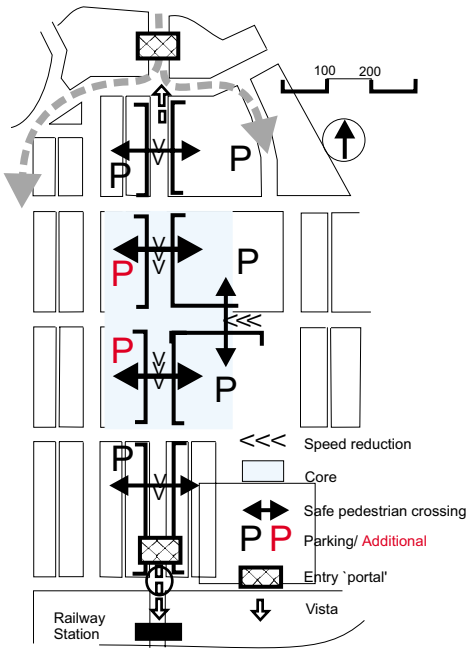


Fig. 2.17 Parking provision is of great importance for business activity.

- Proportion of traffic which is through traffic
- Public transport routes, frequency and patronage
- Cycling

Vehicle speed

- Speed profiles (both directions) for peak and off peak conditions, based on the 85th percentile speed (V_{85})

Safety

- Accidents (3 year average): fatalities, injuries, property damage, proportion involving pedestrians
- Accident pattern by age of driver/age of pedestrians, day of week, time of day, type of accident (road user movement)
- Perceived safety by drivers, cyclists and pedestrians
- Perceived unsafe locations

Traffic and parking management

- Intersection control
- Pedestrian crossings
- Speed control
- Provision for cyclists
- Taxi ranks
- Provision for disabled
- Bus stops and other transit stops nearby
- Loading and unloading zones
- On-street parking parallel/angle, numbers, duration, utilisation
- Off street parking spaces, numbers, location, duration, utilisation

Streetscape and street quality

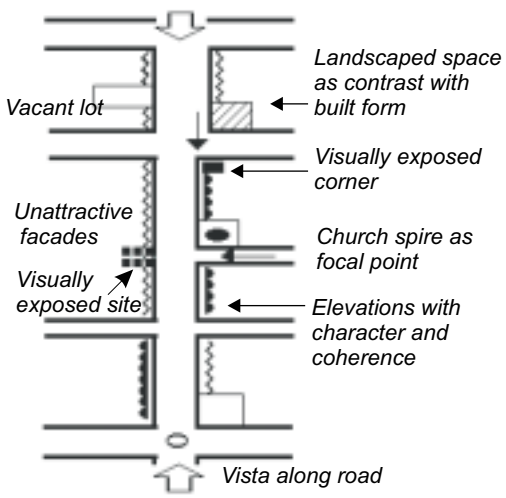
- Streetscape entity
- Views and vistas
- Weather protection
- Landscaping
- Street furniture
- Sites/areas with heritage significance
- Verandahs
- Street lighting and powerlines
- Stormwater drainage

Economic environment

- Catchment area, population and economic growth
- Reliance on passing trade
- Viability of Main Street/sub-arterial businesses
- Vacancy rates
- Potential for further development

Social environment

- Perceived problems
- Community concerns and issues
- Street activities
- Community characteristics



2.18 A streetscape analysis can identify opportunities for improvement.