

Unmade Carpark Construction Strategy



Ross Gregory
Team Leader – Infrastructure Planning and Policy

May 2015

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Executive Summary

The purpose of this Strategy is to establish a strategic framework to improve the 250 unmade carparks on the Mornington Peninsula. These carparks are in areas as diverse as commercial areas, active and passive reserves, foreshore, halls and other council properties.

Shire officers have gone through a thorough consultation process with internal staff, Councillors and external stakeholders during its development to ensure that the objectives of all stakeholders are considered in its development. Some key feedback items are:

- The maintainability of many carparks is poor due to a lack of crushed rock.
- Many Shire master plans are recommending construction of carparks as part of the overall scope of works.
- Users aren't necessarily interested in a high-standard carpark. Many would be happy with a higher-standard crushed road carpark.
- Community groups are willing to contribute to construction, where resources allow.
- Councillors are keen to continue the previous policy of engaging in Special Charge Schemes for car park construction in commercial areas.
- Disabled accessibility is an important issue and a key driver for construction.

It is not the intention of this Strategy to seal every carpark, rather to identify carparks where there is a tangible community benefit to seal the carpark. Each carpark is assigned a priority of A, B or C; with A priorities being the highest priorities to seal, B priorities being considered worthy of sealing but realistically these won't be sealed for at least 5-10 years, and C priorities which are not considered for sealing based upon present usage. B and C priority carparks will be subjected to a second-stage assessment for minor works to improve the standard of the carpark to improve drainage and maintainability. This work may also include provision of a small sealed area for disabled parking.

Each carpark will be assessed on various factors to determine which carparks should be constructed and their priority. These include:

- Location,
- Level of usage,
- Access/amenity requirements,
- Environmental factors, and
- Maintenance costs

However; final selection of candidate projects for construction will be influenced by more than just the outright ranking of a project. Principally – as the Shire moves toward a place-based approach to infrastructure delivery (as opposed to a program-based model), carparks that align to the delivery of other works in a particular location will be prioritised over those that do not.

The value of A and B priority projects are around \$10 million dollars. The Strategy outlines a funding model for carpark construction, with options depending on Council's desire to progress carpark construction.

1. Background

The establishment of many unmade carparks on the Mornington Peninsula has been an informal response to the need to access a nearby activity. This means that they have had little, if any, earthworks beyond occasional pot-hole filling and grading. The low standard of construction makes these carparks more susceptible to flooding, pot-holes and erosion as issues such as drainage and pavement design have not been (adequately) considered or provided for.

The Mornington Peninsula Shire has a significant elderly population. As at the 2011 census, 28% of our population is over the age of 60, with this expected to grow to nearly one third within 10 years (.id Population Forecast, 2014). The access requirements of older users are higher than those of younger users; and the Shire must provide a higher level of amenity to cater for its population.

The Shire has reached a critical point where its carparks need improvement to provide a suitable level of amenity for the users of the nearby activities.

1.1 Engagement

An extensive engagement process has been followed in the development of this Strategy to ensure the needs of all stakeholders have been considered in the development of the Strategy. The key engagement tasks taken are explored below:

1.1.1 Internal officer workshop

Feedback was sought from internal stakeholders in the following units:

- Infrastructure Strategy
- Infrastructure Project Management
- Infrastructure Maintenance
- Recreation and Leisure.

Feedback was sought on the ranking factors and relative weightings in the priority matrix to ensure it is both relevant and accurate.

Further information has been provided on construction methodology, maintenance benefits / impacts and associated costs, and construction cost estimates.

The minor works program has also been discussed with Infrastructure Maintenance. Advice was received on the types of situations where upgrading a crushed rock carpark could provide significant amenity improvement.

1.1.2 Councillor Briefing

A discussion paper was presented to a Councillor Briefing for their feedback on the strategic objectives, potential budget considerations and key questions raised in the plan.

The feedback received from Council was that they are broadly happy with the direction of the Strategy. The key advice was that officers should engage further with the community for their

input ahead of the development of the draft Strategy. There was also a preference for one Strategy being produced to deal with both Special Charge Schemes in commercial areas and fully funded carparks in commercial areas.

1.1.3 External Workshop

A community workshop was held on 4 September 2013. This workshop was facilitated by Keith Greaves of *Chit Chat!*. A detailed summary of the comments received is included in Appendix 1. The workshop included representatives from Sporting Clubs, Foreshore and Hall Committees of Management and Community Groups.

Some excellent feedback was received from this workshop. The main issues from the community were with the standard of unmade carparks, poor drainage, pot holes and other useability issues. Action to fix these issues was seen as more important than a long term plan to seal a number of carparks around the Shire. Accordingly; the message was that, aside from a few clear examples, there wasn't a high level of expectation that carparks will be sealed by the Shire. This advice has been carefully considered and has resulted in the development of a minor works program to address these issues in the shorter term whilst construction of carparks is progressed over the longer term.



2. Discussion

2.1 Useability / Amenity

Sealed carparks enhance useability by clearly defining traffic movements and parking spaces. Vehicles tend to park further apart in unsealed carparks, so sealed carparks are more efficient where carpark capacity is an issue.

Unmade carparks have the propensity to be less suitable for disabled users, as the generally uneven unmade surface does not meet Continuous Accessible Path of Travel (CAPT) requirements of the Disability Discrimination Act (1992). A sealed or concrete surface, with well delineated paths / pedestrian routes and crossings, is preferred to meet the access requirements and to provide clear delineation between vehicles and pedestrians. This also benefits users with prams and small children, those with lower mobility, and delivery drivers.

2.2 Environmental considerations

Unmade surfaces are highly susceptible to erosion in significant rain events. The run-off has a high proportion of fine-grained silts and clays that can be suspended in water for long period, significantly affecting water quality. The surface also requires additional material and grading to patch up the erosion caused, further increasing maintenance costs. Unmade carparks produce dust, which deters some users, as well as potentially aggravating respiratory conditions (such as asthma).

Water Sensitive Urban Design (WSUD) treatments will be used in both sealed and unsealed carpark works to reduce the level of sediment run-off. These also have the advantage of improving aesthetics by providing landscaping features to break up the visual bulk of the carpark area.

2.3 Maintainability

Many unmade carparks are poorly formed, and so do not drain properly. Of particular concern is where the middle of the carpark is lower than the edges, so water pools in the middle of the carpark. This leads to pothole formation as vehicles drive through the soft ground. Another issue is where the slope is too great, resulting in fast-flowing run-off scouring out the unsealed surface. This washes away crushed rock and contributes to sediment run-off.

In many cases, all that is required is to lay some additional crushed rock and shape it correctly so that water can drain from the surface effectively. The provision of a drainage pit to assist with the removal of storm water will also aid this. Appropriate Water Sensitive Urban Design (WSUD) treatments will also be provided to reduce sediment run-off.

The upgraded surface will have the advantage of being easier to keep to the maintenance standards specified in the Shire's Safer Local Roads contract. This will mean the surface can be kept in a better condition for users of the carpark and reduce the cost of maintaining the carpark.

2.4 Cost-effectiveness

An evaluation matrix has been developed as part of this Strategy to prioritise carparks in non-commercial areas for construction. It will also help to highlight carparks that are appropriate for an upgrade to improve maintenance, accessibility, and/or environmental outcomes. The criteria considered in the evaluation matrix are explained in the *Construction Priority* section of this Strategy.

The matrix assigns an A, B or C priority to each carpark.

- A priorities warrant sealing,
- B priorities are intended to be sealed, but realistically these won't be sealed for at least 5-10 years, and
- C priorities which are not considered for sealing based upon present usage.

B and C priority carparks will be subjected to a second-stage assessment for minor works to improve the standard of the carpark to improve drainage and maintainability. This work may also include provision of a small sealed area for disabled parking.

Where a community group (sports club, etc) is in a position to contribute to the construction of a carpark - or construct it as a community capital project – this should be looked upon favourably in the consideration of projects. In the case of community capital projects, these will need to meet the requirements of the Shire's *Community Capital Building (Infrastructure Projects) Policy*

2.5 Minor Works Program

Following the feedback from the workshop that users would like to see action to improve their carpark in the short term, as well as longer term action to seal carparks. Two key issues were raised in particular:

1. Car parks get boggy and pot-holed during winter
2. Provision of sealed disabled parking facilities as an alternative to sealing a whole carpark.

Firstly, it is acknowledged that sealed carparks are the ultimate way to address these issues. However; there is limited funding to provide sealed carparks, so a solution is required to respond to the community's short-term needs. This has led to the development of a minor works program. The minor works program will apply to carparks that are ranked as B or C priorities, which are unlikely to be sealed in the short- to medium-term.

The scope of these works may include:

Minor drainage and crushed rock works, as discussed in the *Section 2.3: Maintainability*

Disabled parking bays will also be provided through this program in carparks where there is a demonstrated need for access by disabled users. A concrete pad will be provided in the carpark, along with a connecting path to the facility.

A further issue with unmade carparks is a lack of definition for parking bays within the carpark. Provision will also be made for carparks to be delineated with Bollards to regulate parking and prohibit encroachment into sensitive areas.

2.6 New Carpark Construction

From time-to-time, a new activity might trigger the need to construct a new carpark to service that activity. For example, the Dunns Road Reserve has been developed over the past few years as a regional park with a playground, fitness equipment, BBQs and public toilet. These activities will generate parking demand where it was not there previously.

It is the Shire's position that any proposed new carpark that meets the requirements of a B Priority under the evaluation matrix must be constructed as a sealed carpark. If the proposed carpark is under this requirement, then it is appropriate to provide an unmade carpark; giving due consideration to providing an appropriate grade, pavement and drainage.

3. Construction Priority

3.1 Non-Commercial Area Carparks

The Shire has a total of 212 unmade carparks that are not in commercial areas. The aim of this strategy is not to construct every unmade carpark on the Peninsula. Rather, its aim is to firstly identify carparks for which there is a justification for sealing; and secondly determine a priority order to seal those carparks.

A priority matrix has been developed in order to accurately determine a carpark's priority relative to the other carparks on the Peninsula. The matrix has a number of categories against which the particular carpark will be ranked. These include:

- Carpark usage,
- Master Plan identification,
- Environmental impact,
- Social impact, and
- Maintenance impact.

The key areas that will determine the justification for sealing will be on the carpark's typical usage level and whether it has been identified for construction in an adopted Master Plan. In turn, these categories carry the highest weight in the matrix. The other categories will receive a lower weighting, but will still help to determine relative priorities of carparks for where there is a justification to seal. For each category the 'base case' will be awarded 0 points, with points awarded (or in some cases subtracted) depending on the factor.

The five categories have been broken down into specific objective measures that can be used to determine the score. They are explained in the following section.

3.1.1 Carpark Usage

This measure establishes the level of usage the carpark enjoys. Carparks that generate frequent intense demand throughout the year will be ranked highly; while conversely carparks that experience a lower level demand will be ranked lowly.

The first three criteria serve as a proxy for physically counting cars in each carpark to determine a quantitative demand figure for each carpark. To measure usage in this way would be a highly resource intensive way to achieve the purpose of this criteria – i.e. to determine which carparks serve the most users, and hence provide the greatest community benefit for construction. Even providing a 'hard' number itself may be open to interpretation due to the time of year that the survey would be conducted and the requirement to update a count when usage changes.

Where carparks have a consistent low-level demand, with occasional periods of high demand, it may be appropriate to seal part of the carpark to cater for the constant demand and leave the 'overflow' carpark unsealed. An example is Emil Madsen reserve where the skate park generates a constant lower-level demand, with periods of high demand for organised matches at the ovals. The section that enjoys the higher usage level will be entered and scored separately in the evaluation matrix.

Activities:

Nine categories have been identified that are serviced by Shire carparks. Each activity is given a rating based upon the intensity of parking demand generated by that activity. Some specific notes explaining the ranking is provided below:

- A community facility produces the most intense usage, as there is generally a high turnover of vehicle during the day. Active reserves and Council buildings also have a reasonably high turnover, but not quite as intense as community facilities.
- Unmade carparks in Commercial areas are most frequently used by staff and as such attract a lower turnover than the on-street or customer-focused carparks, which for the most part are already sealed. Those that don't have alternatives will be advantaged by the factor in the Amenity section that looks at alternative sealed and accessible parking opportunities.
- Foreshores are expected to generate intense usage on beach days; however it is relatively advantaged to other activities by *always* being within 250m of water, which attracts an additional 2 points.
- Through observation of parking behaviours the remaining categories have a relatively lower intensity of parking demand.

The scores are:

Vacant Land	0
Cemetery	1
Passive Reserve	1
Foreshore	2
School & Preschool Car Parking	3
Commercial	4
Council Building	4
Active Reserve	4
Community Facility (Hall, Hub, Centre)	5

Days of Use:

This measure gives greater priority to carparks that are used more frequently. This might cover examples where a carpark serves multiple uses. There are three categories:

Less than 50 days per year	0
51 to 150 days per year	2
More than 150 days per year	5

Size:

This measure gives some indication of the level of demand that the particular activity generates, as larger carparks will generally service more users. They are also comparatively more economical to construct. This means that larger carparks should be considered more favourably. There are 3 categories

Less than 20 spaces	0
21 to 50 spaces	2
50 spaces	3

Master Plan:

The Shire is moving toward taking a place-based approach, rather than a program/functional-based approach to capital works program delivery. Master Plans set out a range of place-making activities in one particular area. Therefore identification of a car park to be constructed through a master plan should be considered favourably compared to 'stand alone' projects. There are three categories:

Not identified	0
Identified in a Council adopted masterplan	3
High Priority in a Council adopted masterplan	5

3.1.2 Social impact

The social impact of sealing the carpark recognises the amenity needs of carpark users.

Surrounding Carparks:

If there are no other sealed carparks serving the activity then there is a greater amenity gain by sealing one carpark than if there is an existing sealed carpark. Consequently, if there are any sealed carparks within the vicinity of the unmade carpark, then there is a lower need to provide a sealed carpark. There are three categories:

Adjacent to sealed carpark	-3
Sealed carpark nearby	-2
No sealed carparks in area	0

Higher Access Requirement:

The unpredictable, changing nature of unsealed surfaces makes them hazardous for disabled users / parents with prams / deliveries / users with low mobility. A sealed carpark provides a Continuous Accessible Path of Travel, improving amenity for those users. A carpark will only receive a score if requirement for use by those with higher access requirements are reported as there is no other clear way to assess whether a particular carpark serves those users. There are three categories:

NIL. No reported use	0
Some use	2
Extensive use (i.e. most times that the carpark is used)	5



Number of Requests:

The number of requests for works to a carpark is recorded to establish the community interest in sealing a particular carpark. This factor is probably considered a ‘tie-breaker’ between two candidate carparks that have otherwise similar rankings. There are three categories:

Nil	0
1 to 3 requests	1
4 or more requests	2

Alternative use:

Where there is opportunity for an alternative use, such as a venue for a market, netball court, etc, that particular carpark should be considered favourably for construction as it will provide a broader community benefit. It will either be:

No	0
Yes	2

3.1.2 Environmental impact**Environmental impact:**

The impact of the unsealed carpark on the environment is an important consideration for the Shire. Carparks that are near waterways carry an increased risk of run-off, degrading water quality. There are three categories:

Greater than 500 metres from a waterway	0
Between 250 and 500 metres from a waterway	1
Within 250 metres of a waterway	2

Residential Impact:

Amenity loss, through the dust created by a carpark, is an important consideration for those that live near an unmade carpark. The dust can cause respiratory problems and well as coating surfaces around a property. Research has shown that dust from an unmade surface can travel up to 200 metres, with the greatest impact within 20 metres. Therefore there are 3 categories:

Greater than 200m	0
Between 20m and 200m	1
Less than 20 metres	2



3.1.4 Maintenance Impact

Unmade carparks require a greater level of maintenance than made carparks. The maintenance impact seeks to identify carparks that require a comparatively greater level of maintenance than others.

Grading frequency:

The frequency of grading for a carpark is an important measure of maintenance intervention. The SLR contract states that carparks should be inspected four times per year for grading, with the majority being graded on this basis. However; some carparks will not need grading this frequently and, likewise, some require grading more frequently. Therefore the three categories are:

Less than 4 times per year	-3
Four times per year	0
More than four times per year	3



Topography

A very flat carpark will not drain effectively, leading to pooling of water after rain events. This leads to pothole development as vehicle drive through the wet material. Also, a steeply sloped carpark will result in water running of quickly, leading to scouring. The three categories are:

Optimum (6-8% grade)	0
Steep (>8%)	2
Flat (<6%)	3

Note that a flat carpark can be reshaped to improve drainage, although this will require crushed rock to be added to improve the grade. If there is a history of additional grading and requests for maintenance these projects will be considered under the minor works program where the carpark is a low priority for construction.

3.2 Further notes on the selection of candidate projects

It is vital to note that the rank-order of a carpark is not the sole determinant of when a car park will be constructed. Of greater importance is the categorisation of carparks into A, B or C priority. A range of other macro issues will also come into play when determining the next project for construction. The actual rank order will only come into play where there is a 'forced-choice' between two projects.

The most important macro factor is the opportunity to coordinate car park construction with other works. In keeping with the Shire's Place-Based approach to infrastructure delivery (as opposed to a traditional program-based approach) priority will be given to carparks that are part of broader place-making works over 'stand-alone' projects.

Another key issue is project complexity. If there significant regulatory barriers to construction e.g. Planning Permit, Cultural Heritage Management Plans, Coastal Management Act Consent or other external Permits are required for construction, then priority may be given to another project where there are fewer regulatory requirements to construction.

Finally, the availability of funding in the annual Capital Works Program must be considered when selecting projects. This may mean that a smaller, less expensive carpark will be selected ahead of a larger carpark that is higher in rank-order.

3.2.1 External Funding Opportunities

The availability of External Funding is also an important factor. This is considered within the Prioritisation Matrix as a multiplier for the raw score to develop an "Adjusted Score". The multiplier works by dividing the raw score by the percentage of Council's contribution. For example: if a carpark had a raw score of 12 and an external contribution of 34% of the construction cost was provided, then the Adjusted Score would be 18 ($12 / 0.66 = 18$). The multiplier will only be applied once there is a commitment from external parties to construction.

This same factor applies for carparks in commercial areas; however the multiplier is only applied once a survey of traders shows support for a carpark construction scheme to commence.

3.2.2 Minor Works Program

The Minor Works Program will pay particular regard to projects ranked as B or C priorities that:

- Have a demonstrated need for disabled parking access,
- Are Flat or Steep and have a history of additional grading or maintenance requests,
- Where residential dust impact is an issue they will be considered for dust-suppression

Priority in all cases will be given to projects that have higher usage levels. Where drainage factors are important, the level of usage during the winter months will be considered when prioritising the work: e.g. if the carpark is on a foreshore, then it would be lower priority than if it were at a football oval.

3.3 Commercial Area Considerations

3.3.1 Council's Contribution

Council's previous policy (adopted in 1999) included a contribution of 50 per cent by Council for any schemes to construct carparks. Council retained the option to fully fund carpark construction where schemes were impractical and major benefits existed for the broader community.

A review of this strategy has found that a flat fee creates a large disparity in the cost per individual property depending on the size of the centre. Shop owners in smaller centres are charged higher amounts as there are fewer properties over which to spread the cost of construction. A matrix with varying contributions based upon the size of the shopping centre and priority has been developed, and is presented below:

Carpark Location	A Priority	B Priority	C Priority
Major Activity Centre / Large Township Centre	50	34	
Small Township Centre	50	50	Admin only
Local Centre / Convenience Centre	66	50	

The higher contribution for local centres / convenience centres for A Priority carparks is warranted, as these locations generally consist of small shops. Without larger shops to take a significant proportion of the construction cost, providing a 50% contribution to construction may be unaffordable for the small shops typically found in these locations. It is noted that in many cases there may be little incentive to seal the carparks, so they are unlikely to come up as an A Priority for construction. In the event that they are a C Priority, they will be treated the same way as the larger centres. A further explanation on the distinction between the different priorities is given in the following section.

3.3.2 Initiation of carpark construction in Commercial Areas

The Shire does not wish to initiate construction of carparks in commercial areas where there is little support for construction, even where a carpark is the next priority in the Priority Matrix. The exception to this is unless carpark construction is required as part of broader works in an area and not sealing the carpark would be detrimental to the rest of the project.

Where a carpark is identified as the next priority in the Matrix, the first action is to conduct a survey of owners within the township to gauge their support for the construction of the carpark(s) in the commercial centre. If support can be demonstrated, then the Shire will commence the Special Charge Scheme Process outlined in the following section of the document.

If there is strong support from owners within a commercial centre to construct the carpark but it is not a high priority for construction in the Matrix; then the carpark will be constructed at the full cost of the traders with no Council Contribution.

3.3.3 Commercial Area Carpark Special Charge Scheme Process

The progression of the Special Charge Scheme will generally follow the Process set out in the *Contributory Schemes Strategy for Roads Construction in Urban Areas*. Nevertheless, there are some differences between the expectations of Roads Construction and Carpark Construction. The extra considerations are listed below:

- Action 1* Carpark construction in townships that have several unmade carparks will be conducted concurrently, unless there are substantial extenuating circumstances as to why this is not practical. Consolidating the construction into one scheme has significant administrative advantages; as it removes the risk of the Shire being challenged on the equity of charging some properties but not others and some properties being charged multiple times for different schemes.

- Action 2* Council contributes where it owns (or controls) land which is included in a scheme and for any non-rateable land included in a scheme.

- Action 3* Community consultations will be undertaken in a thorough, open and transparent manner that gives all stakeholders an equal opportunity to express their views.

- Action 4* Design decisions with respect to pavement, drainage, footpaths, landscaping, traffic management treatments and existing vegetation will take into account the views of stakeholders wherever possible while adhering to appropriate standards for safety, function and durability.

- Action 5* Any previous contributions toward carpark construction in commercial areas will not be considered grounds for exemption when apportioning costs to benefiting parties. The only exception will be if there is a Section 173 agreement, or other legal agreement, specifically exempting a property from further contributions toward carpark construction.

- Action 6* Provision of total parking supply on-site will not exempt a property from contributions, as they are still considered to benefit from the additional shared parking resources in the broader centre.

3.3.2 Other Issues

For a scheme to precede the majority of the area should be in Council's ownership or control. Carparking on adjacent private land may be included in a scheme provided the parking will be available for general use and a legal agreement for Shire to manage the carpark entered into. Alternatively, this additional car parking could be constructed at the full cost of the property owner or trader.

4. Funding Options

The cost to seal all carparks is estimated at between \$25-35 million dollars; however, the large majority of these are C priorities that are unlikely to ever be constructed. The A Priority carparks are estimated to cost around \$10 Million to construct; although half of the value of these are commercial carparks which will attract a Special Charge Scheme.

It is acknowledged that the provision of funding will be subject to the competing demands of the Shire's overall Capital Works Program. However, given the number of unmade carparks it is recommended that at least one or two carparks be constructed each financial year.

At the time of Adoption, the Shire's Finance and Infrastructure Strategy Units are developing a 10 year Long Term Financial Plan. This process will provide a framework for an implementation plan for the Strategy and assist with the selection of candidate projects that will fit within the budget available.

4.1 Foreshores

Whilst it is recognised that there is a broader policy question with regard to capital investment on crown land, it is recommended that the design function of these carparks be undertaken as part of the strategy implementation. This will bring the projects to shovel ready status, which in turn, will place Council in the optimum position to secure State and/or Federal funding for the construction component.



4.2 Carparks identified in Council Strategies / Master Plans

Several carparks are identified for construction in other Council documents; such as Recreation and Foreshore Master Plans, Structure Plans or large building works. Carparks should only be considered for construction in these locations where that particular carpark is an A Priority in the Priority Matrix, or construction of a carpark is integral to the implementation of the rest of the works.

Where construction of a carpark is part of a 'Major Project' (i.e. a large package of works in a particular area), funding for construction should be allocated under that project. In all other cases, funding shall be allocated under the Unmade Carpark Construction Strategy.

5. Carpark Construction Design and Methodology

It is tempting with a large-scale construction program to develop a generic template for construction in an attempt to minimise design costs. However, recent examples with this approach have seen significant cost blowouts due to unforeseen issues with the existing conditions. A generic approach to carpark construction is inherently fraught due to unknowns with the quality of the existing material, the proposed usage of the carpark and drainage requirements.

Each carpark will be individually designed – including soil testing and engineering survey – to match the site conditions and minimise any unforeseen challenges. It will ensure that the carpark is properly drained and maximise the efficiency of the carpark layout. It also gives rise to the opportunity to create a multi-functional space incorporating other potential uses of the carpark at the site (e.g. Market spaces, recreational opportunities). By fully designing the carpark the total cost of construction can be estimated accurately, reducing the uncertainty with costs.

Finally, the use of individually designed projects provides the opportunity to consider the use of innovative construction techniques; for example:

- Water-Sensitive Urban Design treatments that take advantage of local conditions,
- “Low impact” designs that may not include kerb and channel or use alternative pavement treatments to blend in with the surrounding environment, and
- Porous pavements in coastal areas to assist with ground-water recharge.

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