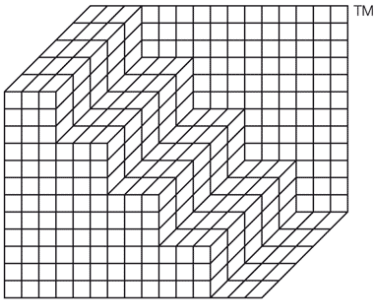

Buro Happold

Combined Park & Ride Site and A35 Trunk Road Service Area, Dorchester

Preliminary Assessment

031633

5 April 2013

Revision 02 Final

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00	Draft	OR	28/03/2013	NJH
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1 Introduction

1.1 Background

The purpose of this report is to identify whether combining a Park & Ride site to serve Dorchester with an A35 Trunk Road Service Area (TRSA) on the same site, could be delivered without compromising either of these uses or creating additional negative effects, when compared with developing two separate facilities. It is important to confirm if the combined site approach is suitable, before a preferred site is chosen to serve as a Park and Ride facility for Dorchester.

Buro Happold was originally commissioned in 2010 by West Dorset District Council (WDDC) and Dorset County Council (DCC) to consider Park & Ride (P&R) options for Dorchester. This report was commissioned by the Duchy of Cornwall (as landowner) and WDDC as a preliminary study to identify the effects of combining P&R with a TRSA. A full Transport Assessment will be required to support any future planning application. This will need to be considered by the Highways Agency, as highway authority for the A35 and DCC, as highway authority for the local road network.

DfT circular 1/2008: *Policy on Service Areas and Other Roadside Facilities on Motorways and All-Purpose Trunk Roads in England*, 2008 (para. 128-129 and 132-134) recognises that service areas may, in certain circumstances, be appropriate locations from which to promote P&R. The benefits are highlighted as a reduction in overall vehicle mileage, leading potentially to reduced congestion and improved road safety.

A major advantage of combining the two facilities is the potential cost saving to public funds. Negotiations will be required to determine the extent of these savings.

It is currently envisaged that a combined facility would provide parking spaces as set out in Table 1-1.

Facility	No. of spaces
Park & Ride	500 car spaces
Trunk Road Service Area	90 car spaces (5 disabled) 5 HGV parking spaces 1 coach parking space 3 caravan/car with trailer space (2 disabled) 10 motorcycle spaces

Table 1—1 Anticipated P&R and TRSA parking spaces

1.2 Methodology Synopsis

Figure 1.1 sets out a simplified flow chart of the methodology adopted for this study.

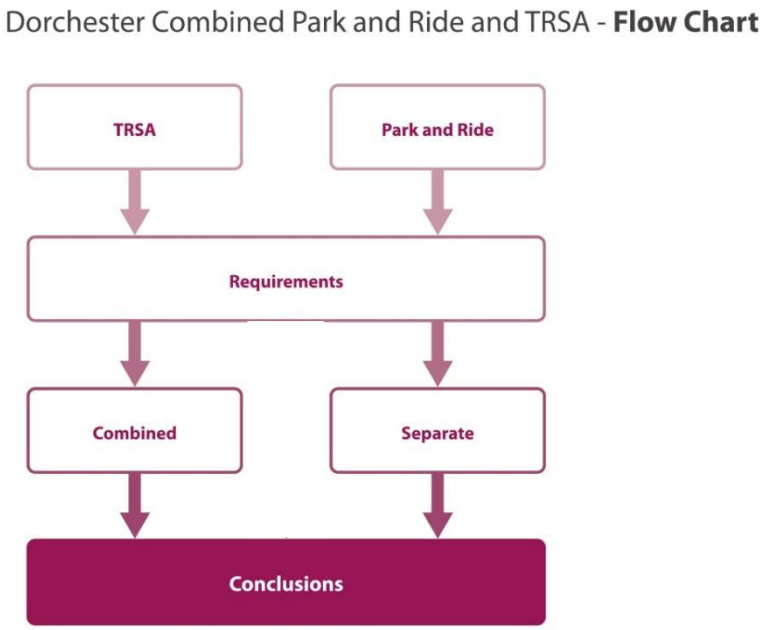

Figure 1—1 Dorchester combined P&R and TRSA flow chart

Firstly, the separate requirements of a Park and Ride and TRSA were identified. This highlighted common features and potential synergies. Secondly, the effects of combining both facilities has been appraised and structured using the Department for Transport's five objectives for transport:

- Environment;
- Economy;
- Safety;
- Accessibility; and
- Integration.

The final stage was to conclude the results of the analyses and make recommendations as to the suitability of combining the two facilities.

1.3 Structure of Report

The structure of this report is as follows:

- Chapter 2: P&R requirements;
- Chapter 3: TRSA requirement;
- Chapter 4: Combining P&R and TRSA;
- Chapter 5: Outlines environmental considerations;
- Chapter 6: Considers the potential for Weymouth P&R to serve Dorchester; and
- Chapter 7: Conclusion and recommendations.

2 Park and Ride Requirements

2.1 Historic Towns Forum Guidance

Bus based park and ride operates at approximately 80 permanent all-year sites in 35 cities across the UK. In 1993 The English Historic Towns Forum (EHTF, now the Historic Towns Forum) in association with the DfT, published *Bus Based Park & Ride: A Good Practice Guide* in response to interest from a number of historic towns and cities. This guidance was revised in 1999.

The EHTF guidance sets out the importance of complementary local and regional policies. Bus priority, traffic management, parking restraint and residents parking schemes are seen as crucial to maximise a scheme's success. Essential factors to consider are:

- Clear and conspicuous signposting;
- Ease of access to the site;
- Competitive bus-based park & ride charges, compared with central area parking tariffs;
- The quality, frequency and reliability of the transit service;
- Journey time advantages over the car; and
- Site facilities, such as shelter, passenger information and security measures.

2.2 DfT Guidance

In April 2001, the Department for Transport issued Traffic Advisory Leaflet 2/01, entitled *Bus-Based Park & Ride*. This leaflet provides a brief introduction and summary of the EHTF guidance.

2.3 Institution of Highways and Transportation Guidance

Also in 2001, the Institution of Highways and Transportation produced a Network Management Note on Park & Ride which provides a more detailed summary of issues to consider when planning a bus based P&R facility. Under 'selecting suitable locations' the following issues are highlighted:

- Edge of town: to capture car traffic directly from inter–urban and rural road networks before it enters the built–up area;
- Close to main access routes: avoid added mileage by users diverting to reach site;
- Away from residential areas: avoid disturbance to residents and abstraction of passengers from local buses. Many P&R sites are close to ring–road intersections (Oxford, York);
- Land available: car parks take up a lot of space (a typical P&R site can accommodate 50–100 cars per hectare);
- Good access to town centre: direct, un-congested, with bus priority as necessary (Bristol, A4 Bath Road route);
- Multi–purpose location for reverse P&R: attract users in both directions, enables multi–purpose trips (York Ascomb Bar: superstore, college), provides access without a car to out–of–town commercial centres;

Under the heading 'What makes a good P&R car park?' the following issued are listed:

- Easy to find and use: clearly signed in advance from access routes and on site (including price, payment system, local and service information);
- Uncongested access: intercepts inter–urban and rural traffic directly from peri–urban main roads, before it reaches congested urban streets;

- Attractively laid out: landscaping, planting; safe, no hidden corners, illuminated, direct walking routes from cars to bus stop, clear on–site signage;
- Multi–function site: adjoining shopping or entertainment facilities: e.g., superstore (York, Ascomb Bar), cinema (Reading, Loddon Bridge), stadium, hotel and conference centre (Reading, Madejski Stadium);
- Comprehensive facilities: toilets, telephones, tourist information, small convenience store, disabled parking, cycle parking/lockers; and
- Secure: well–lit, controlled entry; CCTV; friendly, competent, observant on–site personnel.

In addition, under 'pitfalls to avoid', shared sites are mentioned, with regards to potential conflict with site owner's primary business (e.g. evening peak parking demand at cinemas and entertainment complexes).

2.4 Guidance Summary

Table 2.1 summarises the requirements for a P&R site.

P&R Requirement	Details
Opening Times	The site will be open during the operation of the P&R bus service, plus additional time to vacate the site.
Parking	Users need to park for the whole day, but shoppers and tourists will park for shorter periods. Users could be charged for overnight parking to discourage very long stays.
Ticket Purchase	If free parking is provided, users can pay on the bus. However, on-site ticket machines will reduce boarding times. Some authorities charge a parking fee, but this is subject to 20% VAT.
Disabled Access	Facilities for disabled people must be provided, with convenient parking close to the bus stop.
Waiting Area	Users require shelter from the wind and rain.
Rest Facilities	Fee toilets with hand washing facilities, baby changing facilities and breast feeding areas are considered to be good practice.
Safety	High levels of on-site security help to encourage use, particularly since vehicles are left for long periods. Lighting is essential, but only needs to be on during the service operating times. Provision of CCTV and/or security personnel are considered to be good practice. There must be a secure fence around the site. Passengers should be provided with safe walkways between parking and waiting areas.
Information	Basic information about the service should be provided. Real time information will increase passenger confidence in the service and help to encourage use.
Pick-up and Drop-off	Some users will be dropped off and picked up from the site without parking their own car. This demand should be considered when designing the site layout.
Sustainability	Convenient and secure cycle parking, plus electric vehicle charging points will support these modes.

Table 2—1 Park & Ride Requirements

3 Trunk Road Service Area Requirements

3.1 DfT Guidance

The Department for Transport's (DfT's) Circular 1/2008, entitled: *Policy on Service Areas and Other Roadside Facilities on Motorways and All-Purpose Trunk Roads in England*, 2008, sets out specific requirements for service areas on trunk roads. The minimum requirements are:

- Fuel;
- Hot drinks and hot food;
- Indoor seating;
- Two hours free parking; and
- Free toilets and baby-changing facilities;

These must be provided every day from 8am to 8pm, except for Christmas Day, Boxing Day and New Year's Day.

In April 2010, the DfT launched a public consultation regarding a review of Circular 01/2008. The main changes are:

- Operators should ensure that drivers can pay parking charges retrospectively;
- Introduction of caravan area signing;
- The Highways Agency can step in where a service area is desperately needed;
- Operators are encouraged to add electric car charging points; and
- Operators are encouraged to secure HGV parking areas.

The requirements for a TRSA are summarised in Table 3.1

TRSA Requirement	Details
Spacing	Signed service areas should be sited at 30 minute or 14 mile intervals (whichever is the lesser).
Opening Times	Must be open at least between 08:00 and 20:00 every day, except Christmas Day, Boxing Day and New Year's Day.
Buildings	Must be limited to a single or two adjoining or interconnected premises.
Access	Must be accessed directly from the trunk road or easily accessible from a junction on the trunk road.
Goods	Must provide fuel, drinks and hot food.
Accommodation	Adequate indoor tables and chairs to cater for the expected demand.
Parking	Free short-term parking (2 hours minimum). Parking must include areas for cars, caravans, motor homes, vehicles towing trailers and HGVs.
Facilities	Must provide free toilets available to all road users, together with hand washing, baby changing and breast feeding areas in sufficient numbers to accommodate anticipated demand.
Utilities	Must provide access to a cash operated telephone.
Sustainability	Operators are encouraged to provide electric vehicle charging points.

Table 3—1 Trunk Road Service Area requirements

4 Combined Park and Ride and TRSA

4.1 Common Requirements

It is evident that both the P&R and TRSA uses have some common requirements including:

- Location adjacent to major roads;
- Significant levels of parking, plus landscaping;
- Shelter and information;
- Security measures and security personnel;
- Toilets, baby changing and breastfeeding areas;
- Facilities for disabled people;
- Electric vehicle charging; and
- Fuel, refreshment and newspaper purchase.

4.2 User Demand Profiles

One potential concern regarding a combined facility is how the demand profiles for each may interact. In order to assess this issue, the Trip Rate Information and Computer System (TRICS) was used to predict hourly trip profiles for each facility. Predicted P&R demand was based on office uses, as a proxy for work trips. Predicted TRSA demand was based on petrol filling stations with associated retail, as a proxy for a TRSA. Future P&R demand will also include shopping and tourism trips, but the likely level of this demand is currently unknown.

Figure 4.1 provides the daily trip rate for each facility between 0700-2200, divided across each hour as a percentage of the daily trip rate. This allows the two demand profiles to be compared on the same graph.

Figure 4—1 Daily Trip Rate: Office/P&R and TRSA

Figure 4.1 indicates that the peak movements at a TRSA occur at midday, whereas the peak movements at a Park and Ride (based on work trips to/from offices) occur in the morning and evening. Therefore, combining the two facilities will make best use of highway infrastructure provided and is unlikely to cause operational problems.

4.3 Parking Demand

A P&R site requires all day parking for commuters, whereas TRSA are only required to provide free parking for 2 hours. This means that parking areas will need to be segregated. This can be achieved by separating the two parking areas with a combined facilities building. However, during periods of very high TRSA demand, users may be able use the long stay P&R spaces as an overspill car park. This shouldn't compromise the operation of the P&R car park, since peak TRSA demand is at midday, well after the morning peak P&R demand.

The DfT's 2008 Policy on Service Areas and Other Roadside Facilities on Motorways and All-Purpose Trunk Roads in England states that the Park and Ride stop must be located outside of a TRSA. This can be achieved by segregating the two parking areas.

4.4 Advantages and Disadvantages

Key advantages and disadvantages from a combined TRSA and Park and Ride have been identified by assessing a combined scheme against the DfT's five objectives for transport. These are summarised in Table 4.1. Environmental considerations are discussed more fully in Chapter 5.

4.5 Summary

There are clear functional synergies in combining a P&R site with a TRSA, including the location, range of site facilities and security measures. In addition, there are considerable economic, safety, accessibility and integration benefits of a combined facility. Environmental issues are less clear-cut and are discussed more fully in Chapter 5. However, a combined site is likely to have a smaller footprint than two separate sites.

Advantages	Disadvantages
Environment	
A combined site could have a reduced footprint compared with two separate sites, given the ability to share an access junction, some internal access roads, driver/passenger facilities and landscaping. There may be potential to share parking spaces during times of peak demand (e.g. summer Saturday TRSA demand and Christmas P&R demand). Shared facilities offer the potential to increase the scope and attractiveness of sustainable modes and new technologies, such as electric vehicle charging for users of both facilities. A combined site is likely to be implemented far more quickly than a stand-alone P&R site, due to commercial interest in developing a TRSA. This means that the benefits of removing vehicles from Dorchester town centre will be begin much earlier. A combined facility will enable combined signage within the rural environment.	A larger site is required to accommodate both uses. A combined site is likely to require lighting for longer periods, when compared with a P&R site. Natural England has already expressed concerns that the street lighting would be visible from Maiden Castle at night. Opening hours could be restricted by a planning condition.
Economy	
A combined site offers the opportunity to provide a P&R site for Dorchester at a greatly reduced cost than could otherwise be achieved, due to the commercial value of a TRSA and shared facilities. A combined site will also reduce on-going operational and maintenance costs.	None
Safety	
TRSA facilities would significantly increase security for P&R users. Security staff will be permanently on site and TRSA users during the evening will help to improve natural surveillance. Studies in Bath have indicated that up to 70% of P&R users are female and they appreciate higher levels of safety and security.	None
Accessibility	
TRSA employees can make use of the P&R service for travelling to and from work, subject to shift patterns.	None
Integration	
A combined facility offers excellent integration opportunities for tourists travelling on the A35, who, after stopping at the TRSA, may decide to use the P&R to travel into Dorchester. P&R users will be able to benefit from the range of facilities provided at a TRSA. This will be particularly useful if the P&R bus suffers operational problems	None

Table 4—1 Advantages and disadvantages of a combined P&R and TRSA site

5 Environmental Considerations

5.1 Study approach

Previous studies to identify suitable sites for a Park & Ride facility for Dorchester identified Stadium Roundabout as the most appropriate. This study considers the implications of introducing a Trunk Road Service Area to the Park & Ride site, in terms of potential environmental impacts. The types of environmental impact associated with the two uses is considered, followed by an appraisal of the potential advantages and disadvantages of combining the two uses on one site. Finally, the implications of this for the development of Stadium Roundabout are considered.

5.2 Environmental impacts related to specific activities

The environmental impact of any development is related to the proposed activities, the nature of the site, and the design details. As such, most environmental impacts are very site and scheme specific. However, the activities related to a Park & Ride facility have different potential impacts to a TRSA, as summarised in Table 5.1.

Activity	Park & Ride	Trunk Road Service Area
Site clearance, excavation and earthworks	Loss of habitats, potential disturbance of contaminated soils and/or archaeological remains, pollution risk to groundwater, landscape disruption etc	
Construction activities	Nuisance to local residents and businesses e.g. noise, dust, construction traffic	
Vehicles accessing the site	Large number of cars and buses, during the day (am/pm peak): congestion, noise and air quality impacts	Smaller number of vehicles but all types including HGVs; at all times of the day
Vehicles parked at the site	500 cars: visual impact (could be screened to some degree) risks from hydrocarbon pollution	Fewer cars but larger vehicles
Buildings	Small number of buildings, small scale massing: some visual impact	Larger buildings, likely to have more signs and branding: greater visual impact
Lighting	During dark operational hours: visual impact and potential ecological impacts (bats)	Could be 24hr, so greater impacts
Toilet facilities	Water consumption and sewerage loading (small scale)	Water consumption and sewerage loading (greater scale). Could trigger the need to consider nutrient loading on Poole Harbour Special Area of Conservation.
Fuel station	Not applicable	Pollution risks to soil and groundwater
Building plant	Unlikely to be significant	Could include air conditioning plant etc: noise and air quality impacts
New landscaping and planting	Opportunity for biodiversity enhancement and landscape mitigation	

Table 5—1 Comparison of environmental impacts for different activities

5.2.1 Comparison of environmental effects for combined or separate sites

Table 5.2 considers general environmental principles for either a single combined site or two separate sites, with reference to the types of environmental issues relevant to the sites under consideration, but without reference to specific sites.

Topic	Advantages	Disadvantages
Landscape	Limits land take and visual impact to one area. Sharing of infrastructure reduces footprint. Limits urban sprawl to one area.	Greater massing and footprint means larger land take and greater visual impact. By using more of the space available, it may be less easy to mitigate visual effects through layout and landscaping.
Ecology	Limits ecological disturbance to one area.	Larger area of habitat lost.
Water & soil	None.	None.
Air & noise	None.	None.
Resource use	Shared infrastructure provides greater opportunity to reduce energy and water use and waste production.	None.

Table 5—2 Advantages and disadvantages of a combined site

5.3 Implications for sites adjacent to A35 Stadium Roundabout

The principle of a Park & Ride site adjacent to the Stadium Roundabout has been explored through previous study and consultation. It is likely that the most significant environmental impact to overcome for a Park & Ride scheme at the site would be the effects on landscape, in particular on views from Maiden Castle. These could be mitigated to an extent through on-site landscaping and planting, plus off-site planting on Duchy of Cornwall land, to the west of the A354, if required . A full Environmental Impact Assessment would be required to identify and quantify the significance of this and any other environmental effects.

Locating a Trunk Road Service Area adjacent to Stadium Roundabout has not been considered, since the site was originally identified for Park & Ride. However, in theory, if separate sites were explored, the Park & Ride could be located elsewhere. This would be less optimal in terms of the Park & Ride's operation. A Trunk Road Service Area also involves activities with greater environmental impact, for example more visually intrusive and of greater risk to groundwater, than a Park & Ride.

The main advantages of a combined site are economic benefits and the opportunity to share infrastructure and reduce the overall development footprint. A full Environmental Impact Assessment is yet to be carried out for the scheme proposals at Stadium Roundabout. However, providing that any significant environmental impacts can be mitigated to an acceptable degree through design, for example landscaping to screen visual impact and safeguards to protect groundwater, the advantages of a combined site could be realised.

6 Potential for Weymouth P&R site to serve trips to Dorchester

6.1 Former X11 Service

It has been suggested that the existing Weymouth P&R site could continue to serve trips to Dorchester by re-starting the discontinued X11 service.

6.2 Practical and Cost Considerations

In order to assess the potential for using the Weymouth site, it is necessary to understand the practical implications of successful P&R operation.

P&R sites normally operate high frequency services to the intended destination. A 15 minute frequency in each direction is generally considered to be a minimum, with many sites operating 10 minute frequencies. High frequencies are important since they avoid the need to arrive for a specific timetabled service and the necessary contingency time in the AM peak hour that would be required if the user had to arrive for a particular service. A minimum 15 minute frequency results in an average wait time of 7.5 minutes, which is considered to be acceptable for many people. However, a 20 minute frequency increases the average wait time to 10 minutes, which starts to have an effect on demand and reduces the number of potential P&R passengers.

The operational cost of providing a high frequency P&R service is directly related the number of vehicles required to maintain the desired frequency or headway. Table 6.1 sets out the characteristics of providing a 15 minute frequency service from both the Weymouth P&R site and a site close to the A35 Stadium roundabout.

Journey Criteria	Weymouth	Dorchester
Average one-way journey time (mins)	25	10
Proposed stopping time (mins)	5	5
Proposed two-way journey time (round trip, mins)	60	30
Distance (miles)	6.4	1.1
Proposed frequency (mins)	15	15
Proposed buses required	4	2

Table 6—1 Dorchester P&R served from Dorchester and Weymouth

6.3 Summary of Analysis

Table 5.1 indicates that in order to maintain a 15 minute frequency, the Dorchester site would require two P&R buses, whereas four would be required from Weymouth. Given that each vehicle costs in the region of £100,000 - £120,000 per annum to operate, the revenue costs of using the Weymouth site would be double i.e. £400,000 - £480,000 pa, compared with £200,000 - £240,000 p.a. for a site close to Dorchester. Although a higher fare could be charged from Weymouth, it is unlikely that this would cover the additional operational costs. To achieve the same financial position, the fare from Weymouth would have to be double, with the same number of passengers. However, a Weymouth service would have fewer potential passengers, since this site is unable to intercept the same range of journeys that a site closer to Dorchester is able to achieve. The result is that a service from Weymouth would require on-going public subsidy, with little prospect of reaching a break-even position. Many P&R sites across the UK face this problem, which is caused by locating P&R sites too distant from the destination and the subsequent need for an excessive number of vehicles to maintain an attractive service frequency. A future park & ride site close to Dorchester and adjacent to the A35, such as in the vicinity of the Stadium Roundabout, therefore offers the best opportunity to provide an attractive service frequency with the lowest operational cost.

7 Conclusions and Recommendations

This report has set out the requirements of a P&R site to serve Dorchester and TRSA to serve the A35. It is evident that whilst the two uses serve separate functions, there are a number of common requirements. This gives rise to functional synergies, including the location, range of site facilities and security measures. The junction access, internal access roads, passenger facilities and security features can be shared for the benefit of both sets of users. A combined facility would also help to promote P&R for tourists who stop at the TRSA. In addition, there are considerable economic, safety, accessibility and integration benefits of a combined facility, including the reduced demand on public expenditure for site construction, operation and maintenance.

The principle of combining a P&R site and TRSA is accepted in DfT circular 1/2008, provided that sufficient parking spaces are provided and the proposal is subject to a suitable transport assessment.

Analysis of user demand profiles has demonstrated that peak demand for both uses occurs at different times of the day, which alleviates concerns about peak traffic from a combined facility.

The facilities and security provision associated with a TRSA would have substantial benefits for P&R users. This will help to improve the attractiveness to users and realise the potential demand for P&R in Dorchester. In turn, TRSA staff would be able to use the P&R for journeys to/from work.

A combined facility would be larger and more intrusive than a stand-alone P&R site, including the need for longer periods of lighting. Provided that these and other environmental issues can be mitigated to an acceptable degree, the advantages of a combined site could be realised. The Duchy of Cornwall has considerable land holdings in the locality, so opportunities exist for off-site planting to mitigate visual impacts.

A brief assessment of using the existing Weymouth P&R to serve Dorchester has indicated that operating costs would be twice that of a site closer to Dorchester, with fewer passengers, resulting in the requirement for on-going public subsidy.

Overall, it is considered that there is a strong justification for combining a P&R for Dorchester and TRSA on the A35. There are clear synergies that will help to improve the service offered to both sets of customers. It is therefore recommend that further work is undertaken to develop the proposed facility and a transport assessment prepared to support a future planning application.

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